FEDERAZIONE ITALIANA GIUOCO CALCIO
Settore Giovanile e Scolastico

Technical Guide for Football Schools

First English Language Edition

It is very gratifying for me to go ahead with the first of the English Language Edition and with the re-printing of the third edition of the Technical Guide for Football Schools.
I participated, as Vice President of the Juvenile and Scholastic Sector, to the drafting of the first edition, which had been strongly supported by the President at the time, Antonio Papponetti, who was the first to believe in this project.
Having reached the third edition of this book and the first edition in English is the confirmation of how much this tool has been appreciated and deemed useful by all the operators in this sector.
We hope that the technical Guide will continue to be a valid working tool, without pretending to have been exhaustive on all the knowledge and teaching methods of the Instructors of the Football School. It is intended as an opportunity to compare the different experiences of the operators in the sector, which, with passion and competence, are on the field everyday with the children who…" are taking their first kicks to a football".
The Guide should be consulted periodically for its pedagogical as well as its technical-didactical value. Let's not forget that, if it is important to improve the locomotor and technical qualities of the children, it is just as important to highlight the values that the game of football expresses.
It is training for freedom, autonomy, creativity and imagination; it induces the child to reflection, to socialisation and aggregation.
The simple, clear language makes it an adequate tool for the Instructors of the Juvenile Sector, for Manager as well as for parents.
I would like to mention President Agnolin with the utmost esteem, who oversaw the third edition, to which I am grateful for having always stressed the importance of cultur, values, and ethics in the field of juvenile sport.
For his priceless contribution, I thank Professor Stefano D'Ottavio, whom, with the experience and enthusiasm of Secretary Barbara Benedetti, who has always supported this project.
For the important contribution of the many operators in our field, I express my gratitude to Sergio Campana, President of the A.I.C., to Azeglio Vicini, President of the Technical Sector of the F.I.G.C., and to Renzo Ulivieri, President of the A.I.A.C.

President of the Juvenile and Scholastic Sector
Massimo Giacomini

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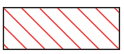
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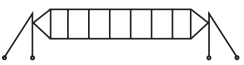
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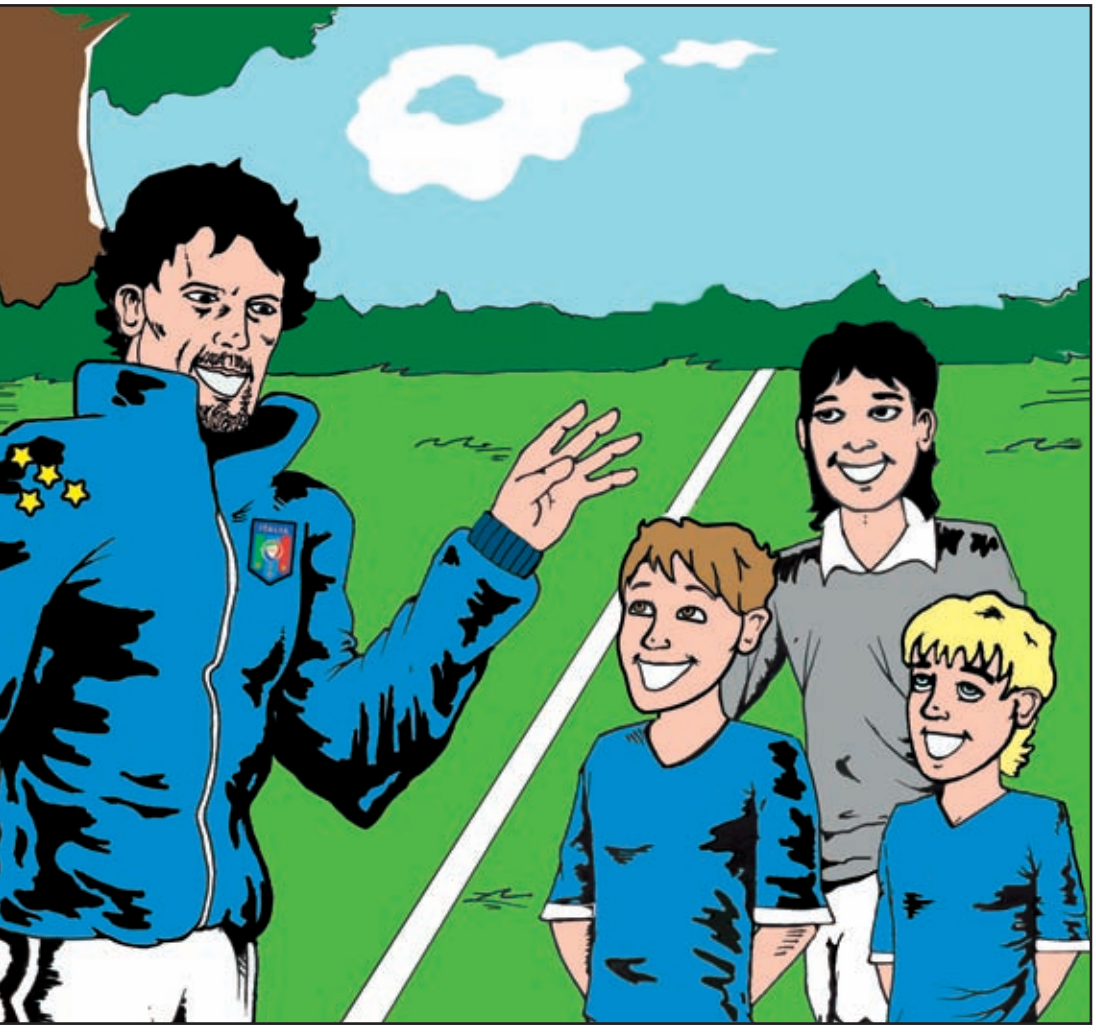
1. A Coach for the Young: Profile of a Juvenile Coach



To coach and educate the young in the game of football is not a simple task. The coach needs to be able to mix technical, tactical, educational, psychological and communicational qualities, whilst bearing the age of his audience in mind. His skills regard teaching at a scholastic level as well as sufficient knowledge of issues linked to physical learning dynamics. Furthermore, the coach must know and bear the processes that regulate physical maturity in mind, as well as the key phases that are at the basis of the biological development of the learning process, especially coordination skills, which are an essential support to the execution of technical moves. For any coach of young players, to possess these characteristic qualities is obviously necessary to obtain gratifying results, but above all, we believe, to reduce mistakes and to avoid compromising the growth of the child.

Therefore, in spite of the fact that the role coach is one that was conceived and consolidated in the realm of voluntary work, the professional qualities asked of him are many and just as significant on a cultural level.

The coach to juvenile teams must be aware that his work has a formative value and must be able to impart his knowledge whilst keeping the characteristics of the age group he is working with. Treating children and boys as little adults (proposing an educational programme as one would for adults and reducing only the quantity of content), harms not only the students' technical, but also psychological growth.

There are still all too many coaches that are obsessed with competitiveness and are unaware assertors of precocious specialisations! The reality of training programmes in juvenile teaching cannot, on the other hand, be considered independently from its educational origin, which dramatically distances it from methods traditionally used with adults.

It is therefore becoming clear that, in the continuous evolution of football and pedagogical knowledge relating to teaching programmes, the coach must keep up with the changes.

The coach must train young ones from an educational stand-point, developing and training the technical and tactical skills as well as the physical ones that the game demands.

A good coach for the young, and football school in particular, must teach the individual and team didactical objectives with ease and method. The sole ability to show technical moves is not

enough, he must know the best way to transmit his knowledge and provide a stable learning process.
He must also prove to be sensible in changing and re-adapting his programme to the new abilities and progress of his team.
During his training, the coach must take the following factors into account:

- maintain high motivation in pursuing the necessary improvements, by enriching his methodological, didactical and psycho-social (interpersonal) skills;
- be aware of his limits and try to remove relevant difficulties;
- accentuate his own personal qualities;
- develop his own personal philosophy of working, seeking, if possible, original and creative solutions;
- be sensitive and adapt himself to the context he is working in.

1.1.1 Why be a coach?

Whoever decides to dedicate one's time to training boys must have a **strong passion** for juvenile football, seeing as one may find oneself in discomforting conditions such as, for example: managing a group that is too large or diverse, missing facilities and equipment, etc. Motivation is a psychological dimension that allows one to overcome **obstacles and disappointments**, and may be reinforced and generate enthusiasm, by observing obtained improvements with the children.
A person who carries out a job regarding the physical education of young people is definitely involved in a delicate task, as with his "educational action", he acts directly upon the psycho-physical development of the subjects and on the development of their personality.
One who begins to carry out such a delicate role as training young football players, must possess some fundamental requisites of which some may only be improved, others, fortunately, can be learnt. (Table 1)
A fundamental step for the coach is to take a step back from fixed routines and stereotypes for training adults, elements that could obstruct the necessary creativity to grow as an individual as well as at group level. The operational proposals must be easily understood and easy to assimilate on the basis of the child's real needs and designed appropriately for the various needs.

The pupil must be considered the subject and not the object of the coach's attention and workflow.

Intrinsic qualities that can only be improved	Qualities that can be learned
• Passion for football and for young people in general	• Technical demonstration qualities
• Interpersonal skills	• Skills relating to didactical organisation: In training as well as during matches
• Balanced personality	• Communication skills
• Sufficient self-esteem	• Pedagogical knowledge
	• Knowledge of technical, tactical and motor skills.
	• Awareness of competitive characteristics of the Football School with particular reference to the FIGC programmes in the Juvenile and Scholastic sector.

TABLE 1 – Fundamental requisites and qualities of the coach

Every session, every exercise, every phase of the programme in general must have the ability to trigger a positive adaptation in the children's behaviour, as well as an active involvement that facilitates their global growth, their progress and their desire to continue to practice this wonderful game. They must feel increasing satisfaction from their growing ability to dominate the ball, to know how to use it during play, to comprehend the evolution of the game and to be able to cooperate with team mates more efficiently.

The Coach is the director of the primary needs of the young player, who must:

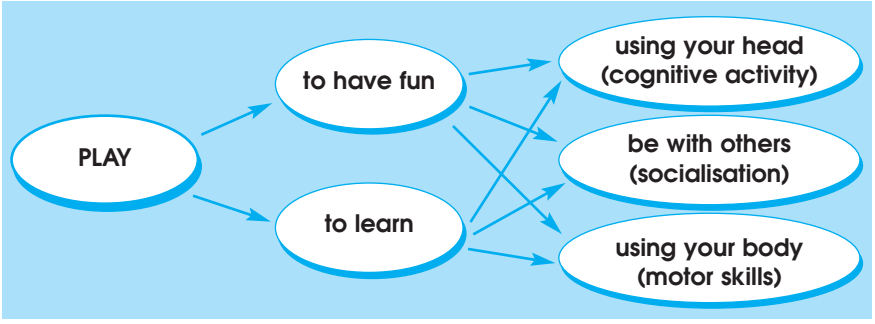


ILLUSTRATION 1 - The needs of the young football player

By respecting the natural needs of the young player, the coach allows him to feed his passion for the game of football in the most natural way. As a good player knows how to find a response to every situation of a game, so the good coach will be careful in reading the situation during a training session. In training as in a competition, to respond to the needs shown by his pupils with the appropriate choices. The pleasure of coaching is then to be found in the most appropriate organisation, timing and methods to effectively intervene in every situation.

1.1.2 Creating and Managing the Group

Every team is always linked to the concept of the game and to the philosophy of its coach.
All the more reason because, in juvenile football, the first goal, fundamental for all juvenile coaches, is to build a positive mentality and spirit towards the game, which, in turn, he will have to transmit to his players.

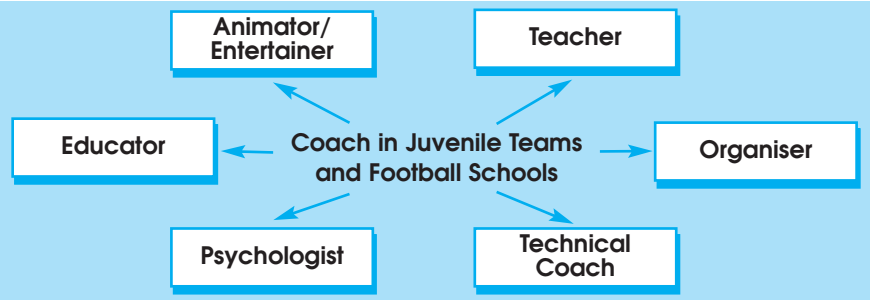


Illustration 2 - The role of the Coach in the Juvenile Sector

The coach must be able to: evaluate, choose, decide and act. It is in any case necessary for his authority to be based on his skills, which the children are in some way able to recognise. Its also true that the relationship between the coach and the children should not always be based on "authority" in the "strict" sense of the term. On the contrary, it is a guidance open to dialogue with the pupils, even if it is directed and conveyed via pre-established didactical plans and pathways, the allow him to obtain the best of the individual potential of each child.
His actions cannot go without conveying trust to his pupils. This represents the essential requisite for the children to properly express all of their will to learn.

Coaches in football and team sports in general, compared to tennis or swimming coaches (individual sports), must be able to deal with a complex series of issues, as they interact with a group of individuals, as opposed to one person, each with their own characteristics, such as:

- Technical characteristics, seeing as performance entails the integration of the technical behaviour of each member of the team: **it is therefore necessary to teach several individuals to execute various moves well, together and at the same time**;
- Psychological problems dictated by the different personalities of the children in the group and that need to interact positively. The coach must be able to provide games and technical objectives that are satisfactory for the whole group.

The role of the coach is to direct the activities of the group towards the fulfilment of a common goal, and to draw out the best of each boy's potential. At the basis of his actions the coach must be able to:

- Single out problems and find didactical solutions for them;
- Motivate all the components of the group in the many phases of activity;
- Provide psychological support in a crisis to individuals as well as the whole group.

It will therefore be essential from the very beginning to establish an excellent relationship with the team and the individuals, to create a relationship based on trust and mutual respect, which must then be maintained and reinforced throughout the entire season.
With the smaller ones one must immediately put the children at ease, by organising fun and interesting activities from the first session. With the older children, since as dialogue is easier, one must also obtain their full attention and conquer their will, by finding out appropriate motivations for goals and objectives to work on together.
The coach must make sure that his pupils understand and adopt the following types of behaviour:

- Talking about their activity expressing themselves in the plural form, as components of a team and a group;
- Showing enthusiasm (for belonging to the team), to friends, family and teachers;
- Talking about problems that may arise, of any nature, with the teacher and team-mates;
- Actively seeking, together if possible, the solution to a problem;

- Understanding and "treasuring" the philosophy that "you win and you loose together";
- Being aware that one learns from one's mistakes.

To reach these objectives the coach of the Football School must try, by setting a good example, to influence the attention of the children with the following communicational and behavioural strategies:

- **Always speak in the plural form:** "We lost", "We want to obtain..", "We need to improve..",
- Give the group milestones to reach, over a training session, over a competition or over a given period of time,
- **Establish the rules of working together:** such rules will have to be appropriately adapted according to the different age groups, the characteristics of the sports facility, and be integrated with the other educational components (school and family) that make up, with football, the educational and developmental process of the children's personalities.
- Instead of underlining mistakes, **praise positive behaviour** with approval: "Well done, good solution", "great header", "Very good, you did it exactly the way I wanted it". The use of **positive reinforcemen**t helps to maintain a high level of stimuli and produces the effect in the boys of setting higher and higher goals for themselves compared to their abilities. By underlining errors one creates a limited mentality whereby one plays to avoid mistakes.
- **Encourage altruistic behaviour:** the assist, a good pass, a defensive recovery, a move that creates space, covering etc… Whomever has sacrificed himself gets public reward, so the other members of the team get a significant message from the coach as it made clear.
- **Discourage selfish behaviour:** in a game like ours where there is one ball for 22 players it is important to guarantee that everyone gets the satisfaction of managing the ball.
- **Stimulate involvement:** in decisions regarding the whole team in general, make sure that everyone has their say.
- **Create opportunities to spend time together:** its extremely useful to give the children time-out to see each other in other contexts, especially with the smaller ones with the families. During the past few years we have heard more and more of juvenile teams that spend a few days in the mountains at the beginning of the season, before school. It may seem that these initiatives seem to imitate the professional team retreats, it is also true that during this period,

even if for only 2 or 3 days, the kids have the chance to integrate and get to know each other better to improve teamwork.

"The Coach explains the lesson to the young pupils..."

During lessons the coach must be careful to provide equal learning opportunities to all and to not act upon personal preferences. He must also allow the kids to express themselves freely during the game and avoid penalising possible personal interpretations.

- **Provide feedback** that reinforces the commitment of the child. This important pedagogical aspect is surely present in all age groups, but it becomes essential with beginners, who like to try and try technical moves even if they don't master them particularly well. If they are praised only when the technical moves are executed correctly, it is likely that they will only do what they are sure of doing right, thereby reducing their commitment and their attention level, but above all they will limit their possibility of obtaining goals that initially seemed more complex.
- **Aim** the kids towards the appreciation of moral values that are significant on the field of play as in life, this must be one of the general objectives of juvenile activities that the coach much take

into account. A boy that acts with fair play on the field, will probably act with the same ethical and social attitude more often and will bear it in mind in day to day behaviour outside the field.

On a purely didactical basis, the primary tasks of a coach of the Football School consist in the promotion of training young athletes with precise organisational choices, therefore:

- Activities must be carried out with educational continuity, so as to develop the training processes that influence the development of their personality.
- The coach must allow the young athletes to be active participants, providing them with a series of increasing positive experiences and stimulating their emotions and motivation.
- The coach's work must be agreed with the Head of the team and the club in general so as to share a common language.

The coach must, therefore:

- **Know** the techniques of the game and the educational phases through which to convey them.
- **Motivate and support** the interests of the individual and of the group, by creating situations that favour the fulfilment of the planned milestones by controlling time and spaces, and creating a cooperative environment.
- **Encourage** the mix between motor skills, personal cultural background , to develop forms of language that exalt expression and creativity.
- **Maximise** every experience by giving full attention to individual gratification as well as that of the group.
- **Let the children interact** throughout the game, praising the psychological characteristics of each individual and letting the uniqueness of the group.
- **Set out** a work plan that provides for goals to be reached, content and didactical methods to propose, variables that may be inserted, tests and evaluations to carry out at appropriate times.

Among the fundamental tasks of the coach of young people from a technical and organisational point of view, he must be aware:

- Of the rules that regulate participation in the official activities of FIGC-SGS, at Beginner and Cub tournaments, and Little Friend, as well as have control over the planning of matches, tournaments and events.

Furthermore, the coach must, with the Head of the Football School:

- Organise meetings with parents, where he can illustrate the organisation and the objectives of the group, the strategies to reach these objectives, the season plan.
- Establish a synergy regarding the educational objectives to pursue with the other members of the Football School, specifying the roles and functions of each of them and, if possible, in such a way as to make them clear to the children and their families.

The coach must also:

- Participate in technical and organisational meetings organised by the club
- Constantly inform and update the head of the team and the managing director of the FC of the situation of his group, facing problems with the other members of staff and making agreements on the relevant solution strategies.
- Produce elaborate documentation regarding the general and periodical didactical programme, as well as on specific issues regarding the group.

1. To educate the children to commitment, reciprocal respect and cooperation.
2. Not to favour any pupil in particular, be coherent with the rules provided and maintain promises he has made.
3. To encourage and motivate, not reprimand
4. Not to over-rejoice in victories, not to be discouraged by losses.
5. Transmit enthusiasm, joy, trust and optimism.
6. Respect the need of the kids to have fun.
7. Offer problems to solve not solutions to remember.
8. Pursue one objective at a time, remembering that too many stimuli create confusion.
9. Summarise what he wants to say in a few significant sentences.
10. Plan the activities coherently according to age groups.
11. Pay as much attention to individual growth as to that of the team.
12. Infuse the team spirit, stimulate generosity towards team mates.
13. Commit to limiting the number of kids who leave the school during the season.
14. Let all the pupils play during competitive activities.

Illustration 3 - The rules of the Football School coach

1.1.3 The Ideal Coach: Here is how the boys would like him to be

From a survey conducted in a few regions of Italy, on young people belonging to the National Amateur League, the following ideal profile of a coach emerged for each category:

Category	Know how to be	Know how to do
Little Friends	• Fun • Young	Love the children Make them have fun Let the children play Help with problems Encourage Believe in the children's abilities Give suggestions
Cubs	• Fun • Friendly • Young	Teach Help with problems Correct mistakes Make improvements Love the children Encourage Believe in the children's abilities Give suggestions Reprimand gently
Beginners	• Fun • Comprehensive • Sensitive	Well prepared Know when to reprimand and praise according to the situation Transmit bravery Not have preferences Teach techniques Transmit enthusiasm and trust

Table 2 - The ideal profile of a Football School coach

From the summarised data in the table above it clearly emerges how the needs and expectations of the subjects of a young age such as those who belong to the Football School, are many and varied. These indications are without a doubt purely indicative in value, but important in any case to make it possible for adults that interact with the children to keep them in mind to meet the expectations and needs of the young players.

1.1.4 The Football School Coach's Diary

We have already mentioned that the growth of young players is directly linked to the growth of their coach. It is important to be aware of this statement, so that the coach that is interested in the complete training of an individual, will always try to enrich his knowledge and his methods of communication, to always find new motivation and to aim for a greater professional profile. For this reason, keeping a diary in order to take note of his observations on the applied teaching method, on classes and matches, is a valid tool to retain the facts of the day, or possible mistakes, as well as the most significant positive experiences.

The questions below can be adapted to the various needs of the group and are guidelines that allow the coach to organise his diary more effectively.

After each training session:

1) How did I plan it? Have the objectives been fulfilled? Was the choice of method appropriate for the objectives?

2) What were my initial feelings before beginning the session (happiness, will to teach)?

3) What were the obstacles I found? How did I solve the problems I encountered?

4) What reasons were behind my operational choices?

5) How much time did I dedicate to the development:
- Of conditional skills?
- Of coordination skills?
- Of technical skills?
- Of the cooperation skills during the two phases of the game?

6) How positive were my comments during the session? Did I set a good example?

7) How much did I contribute to the improvement of the group and interpersonal relationships?

8) How much time did I dedicate to free play?
9) What was the psychological environment like?
10) Individual notes for next time and the future.

1.2 Other roles within the Football School

This part is dedicated to discovering the tasks and functions of the people who have roles in various aspects of the Football School, so that we can suggest how to maximise existing resources, and how to avoid the spill-over and mixing between the various roles within the club. The integration between the various components, as well as team work facilitates the right positive environment that is fundamental for the young people's learning process.

1.2.1 The young goalkeepers' coach

Among the people that make up the technical staff of a Football School, the goalkeeper coach has an extremely important and complex role. It requires very specific knowledge to be integrated with the club's general technical project, and is in constant contact with the coaches of each team. The group of goalkeepers may be divided into subgroups if necessary, of up to 6 students each, of the same age and technical abilities, for example by merging the goalkeepers from the Cubs and those from the Beginners. For the moment, the Little Friends category should be excluded from this specialisation process. So, referring to the 8-12 year olds in particular, this group must always be open to other children that express their will to play goalkeeper. The group should be just as flexible to allow children to go back to the playing field if

"The specific exercise carried out safely makes it easier to learn"

they wish. The instructor should try not to influence the child, and the child should be spontaneously drawn to the role. Only if there are obviously visible strong abilities in this specific role, the instructor may, with the necessary tact, offer the child this new technical opportunity (without forcing him). One must never forget, especially during the initial learning phases, to provide a correct didactical assistance to the student (choice of exercises and teaching methods), in order to avoid injury or traumas that could precociously avert him from the role of goalkeeper. This is why it is particularly appropriate to use rubber balls and mattresses to soften falls during practice (see paragraph "Teaching Material").
Once the group of goalkeepers has been formed, a programme can be developed, centred mainly on the consolidation of coordination skills, which are fundamental pre-requisites to learn the technical skills. The role of the goal-keeper's coach appears to be quite complex and requires various skills. The coach must try and stimulate the establishment of a critical yet open approach, to be able to decide the operational strategies and consider each student for his own specific qualities. Last but not least he will have to praise the efforts well before the results of the students, thereby stimulating creative involvement and personal initiatives.

It is very important for the instructor to have a very deep technical and tactical knowledge as well as of the relevant models of performance. The coach must also be able to observe the situation closely, placing himself appropriately to evaluate a particular technical move.
Furthermore, once a move has been corrected, it is best to carry out the previous incorrect move, so as to compare the different

"Gradually the conditions of the exercise get closer to real conditions"

physical sensations of the two movements. A part from the coach's evaluation, a useful correction tool is auto-evaluation that is carried out with the continuous stimuli the student receives during the move (positive feed-back).

Briefly, the tasks of the coach of young goalkeepers in the Football School:

Didactical Tasks	Carries out the technical programme of the Football School on the field with his group of goalkeepers.
Organizational Tasks	With the Head Coach, to coordinate and control the organisational and educational aspects that support his activity.
Relationship with coaches	To constantly liaise with coaches of the team groups to reach technical objectives.
Relationship with Club management	Liaises with head coach regarding fulfilled goals and improvement areas and strategies for future didactic activities.
Relationship with parents	Is involved in dialogue with parents on educational issues of the activities and contributes to problem solving.

Table 3

In the worksheets, you will find specific teaching units for the role of goal keeper.

1.2.2 Physical and Locomotor Instructor

As the **athletic coach** and the **goalkeeper coach** have enabled a qualitative improvement in specific football training, more so in professional clubs, we think it is appropriate to provide a specifically specialised resource that can "help" to plan a teaching programme referred to auxological development (auxology is a science that studies human growth).

To act in accordance with phases of growth in the various age groups, the **Physical and Locomotor Instructor** of the Football School, who works transversally with all the teams (or groups), should provide the coach with a working plan and the specific knowledge that is needed to create coordinative and locomotor requisites that are necessary to plan the annual cycles of the teaching plan and to design the sequence and methods of each teaching unit.

It is clear how the role of this professional resource is to convey his skills and knowledge regarding the phases of juvenile growth into practical teaching plans, that translate into training exercises, aimed at improving motory skills. The physical instructor's role (PI) or

athletic instructor (AI), depending on whether we are talking about basic categories of activity or competitive categories such as the very young and pupils, is to support the work of the coaches with specific or general advice, at an individual or team level. This provides the coaches with specialised support to provide the kids with units that are more appropriate from a physical and motory, or from a technical and coordinative point of view. Briefly, the purpose of the Physical and Locomotor Instructor is to:

1. Reinforce health
2. Prevent and correct imbalances on a morphological and structural level
3. Maximise physiological functions
4. Develop basic motor skills: coordination and condition
5. Encourage a vast selection of non-specific and specific football movements, beginning from basic motor patterns.

The main-stay of preparing young athletes is to adapt the methods and means of athletic training in general to the needs of the young children or boys. Carrying out these intents can only be possible if we are aware of the issues and general aspects that characterise the athletic training of young people.

Athletic preparation for young people, these days, is a very popular issue, as the awareness of the role it plays in maintaining the athletes' health and in promoting their development. It is thus necessary to have a global view of athletic preparation, and to distinguish it from the simple sub-product of training of an elite of athletes by simply reducing in terms of quantity. On the other hand, one must use it as an awareness tool, and as the answer to the needs of the child, referring it to a long-term perspective of the goals the young person will have to achieve. Starting from the consolidation of the basic motor skills, the dilution of the milestones over a long-term period will allow the child to reach ever-improving levels of technical and motor ability. A correctly planned long-term preparation will begin by setting the foundations, on which the young athlete, will build his specific athletic performance as an adults, by gradually specialising and progressively changing his work load in terms of volume and intensity. To defend the correct physical and emotional balance, one pinpoints purposes and milestones for each phase of the player's development, and acts in complete abidance of the principle of multilateral preparation (see paragraph "Practical guidelines and operational strategies"). In practical terms, this is possible by using a vast selection of exercises that will develop the coordination of movement and the execution speed, according to the natural workload of the player.

Phases and stages of juvenile development

The path to juvenile football training can be temporally defined in the bracket of a decade between 6-7 years old to 16-17 years old. It is fairly simple and intuitive to understand how, during this long period, the children undergo various changes from a whole range of aspects. These include an anthropometric point of view (weight, height etc.), physiological aspects (cardio-respiratory system, neuromuscular, endocrine etc.) as well as psychological ones. The growth of these various characteristics also occurs in phases, so that there are moments in which growth in terms of height prevails (proceritas), and moments in which growth in terms of breadth is more important (turgor). According to this progression the PI and the AI will have the opportunity to act by choosing the appropriate exercises and assessing the adaptive potential according to the level of maturity.

In general, more simple terms we can state that these ten years of activity can be divided into two fundamental stages: pre-pubescence and post-pubescence. In the former one must favour technical and coordinative preparation (development of the specific skills of football) and physical growth is achieved **by practicing football**, whilst in the latter technical and tactical training must go hand in hand with training criteria that specifically favour the **development of the various physical qualities that are mostly used during the game of football.** (ILLUSTRATION 4)

Another aspect that we must always bear in mind is the imperfect synchrony between chronological and biological age. In other words, we must often deal with children and boys that may achieve maturity later than their peers, as well as children that are precocious compared to most of the group. Therefore, before dispensing exercises for the whole group, it is necessary for the PI and the AI to check if all the players are able to assimilate the same workload as the others and to reach the desired targets. (TABLE 4)

During the past few years, in the Juvenile and Scholastic sector of the CONI-FIGC and Basic Coaching courses, the coaches that participate in these courses have expressed a real need for support in facing issues that are particularly trying regarding the development of motor skills of children between 6 and 12 years old (football school age).

Most of the coaches and course participants who work in the world of juvenile football face these problems with a constant fear of making mistakes, i.e. choosing the wrong exercises that could damage the boys' health; an altogether understandable fear,

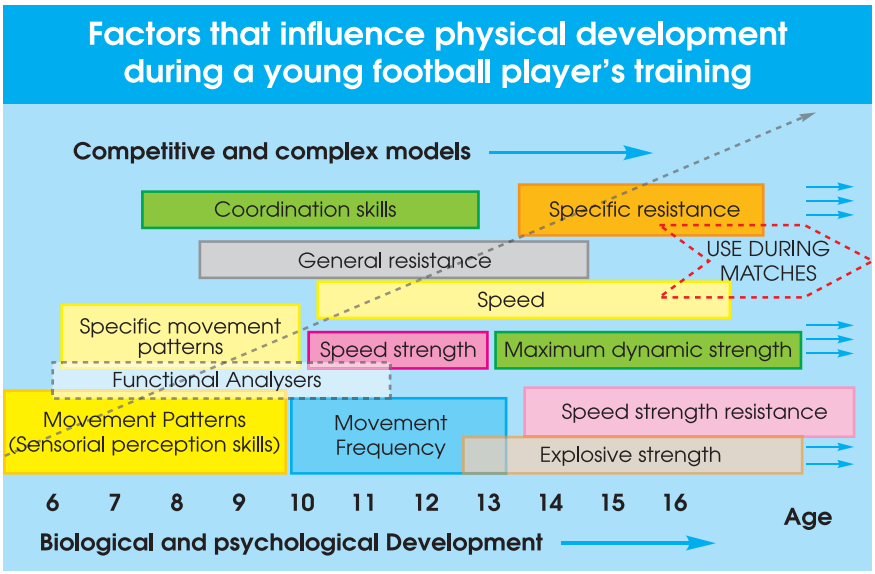


Illustration 4 - Evolution of physical qualities and other factors in relation to morphological and functional growth - D'Ottavio, 2000 - Intercampus Conference, Milan

considering the "more technical" characteristics of juvenile coaches, of which the majority cannot refer to a certain educational background (i.e. Diploma in Physical Science or ISEF Diploma) acquired from a university education. This is why the PI is responsible for the coordination of juvenile training methods within football schools. For this reason it would be preferable to have a Physical Instructor (commonly and mistakenly known as an Athletic Instructor), at least as a coordinator for several groups, if it is not possible to have one per group.

Role and tasks of the PI in the Football School:

- Continuous contact with the technical coaches regarding the didactical plan
- Planning and organising physical activities for each category of the Football School
- Selecting, administering and analysing physical and coordination evaluation tests

Desirable qualities that a PI should possess:

- Degree in Physical Science
- Specific training acquired during progression to official role in the technical staff of FIGC
- University specialisation regarding Athletic Games and football in particular (Masters, etc.)

Little Friends (6-8 yrs old)	Cubs (8-10 yrs old)	Beginners (10-12 years old)	Very Young (12-14 yrs)	Pupils (14-16 yrs)
Phase of maximum growth in height	Good for strength-leverage	Phase of maximum growth in breadth (less in height)	Phase of maximum growth in height	Phase of maximum growth in breadth (return to proportion)
Irrational and disorganised movement	Better concentration	Functional maturity of sensorial analysers (almost at adult level)	Negative leverage-muscular system ratio (difficulty in coordination control)	Maximum trainability development
Limited Attention (comprehension of simple rules)	Better coordination	Acquisition of complex movements	Difficulty in athletic performance	Phase of hormonal stability (greater psychological control)
Prevalence of sensorial and motor control (internal attention) - transition from preparatory phase to concrete operation phase (representation of body)	Positive age for learning	Accentuated development of coordination skills - very sensitive period to learning (can rarely be caught up later on)	Phase of strong excretion of testosterone and GH: possible to increase trainability and strength (especially in arms or legs)	Further phase of testosterone increase
		Phase of great stabilisation and increase of technical skills	Muscular development (in length)	The "quantity of workload" factor gives way to the "intensity of workload" factor
Spatial and temporal organisation	Low gycolysis level	The volume of strength, in terms of number of sessions, affects performance		Performance and work loads are comparable to adult levels
Phase of comprehension of gross (synthetic solutions to locomotor tasks)	Greater oxidisation of fatty acids (glycolic economy)	The multilateral development of strength increases gradually by inserting gradually more specific exercises. The more efficient coordinative conditions allow an increase in work load (medicine balls, rings and heavy weights etc.)		Muscle development (in terms of breadth)
Ego centric and syncretic mind frame	Very modest level of lactic acid disposal (aerobic exercises are preferable)	It is possible to propose: jumping exercises; exercises for arm support; exercises for the trunk strength and abdomen)		A good pre-disposition for anaerobic exercise involves knowledge of various phases of exhaustion.
Pre-disposition to high frequency training and speed of movement			Period of marked development of conditional qualities (but check actual level of maturity)	
Training of resistance in infancy age must not be unilateral. This would mean to slow down the possibility of learning the various forms of basic motor skills (multi-laterality)				Running and exercises with rhythmic variation (intensive)
From six to eleven years old, the systolic volume increases drastically. The cardiac frequency falls brusquely. This is due to the greater density of the peripheral blood vessels (less resistance), as well as to the morphological and functional growth of the heart				Intensive repetition method and intervals
Use of athletic games (traditional or adapted). Alternated runs and games: phases 1-3 mins alternated by 1-2 mins rec.; up to 25 mins run for a total of 40-45 mins - Fartlek adapted and simple: at intervals (slight slopes)			Long runs (medium to long resistance)	Similar training to adults: special strength training; functional strength training
The principle of variation of stimuli, due also to scarce concentration span in children of this age, suggests the use of circuit training (strength speed and resistance to strength speed) i.e. length of exercise 20 secs, pause 40 secs (1:2 ratio) x 5-6 stops				

TABLE 4 - Biophysical Characteristics and examples of training session at a young age (Weineck, 2001 adapted by d'Ottavio, 2003)

- Participation in refresher courses in the Juvenile and Scholastic sector and the technical sector of the FIGC; Juvenile Centres Division of CONI; AIAC.

Interaction and specific skills among the instructor and the coach

It seems logical to suppose that if one speaks of **interaction**, one takes for granted that in the team or football school a specific resource will deal with physical preparation in particular. This is because, so far, in most cases it is the coach that is responsible for both aspects: physical and technical. However, we think that the contribution of specific experiences, that obviously come from different educational backgrounds, are able to effectively interact during the didactical planning process and during the various training units. What must be immediately established is a form of hierarchy of roles, and the efficiency of such a structure, which must be clear in a juvenile context to avoid conflict that could potentially be harmful, above all to the young athletes. Even if in people in a developmental phase, physical preparation is the key to harmonically following the processes of biological growth, and to guarantee the optimal use of the organic and muscular potential, the exercises must nevertheless go hand in hand with other planned activities by acting as tools for the fulfilment of the technical goals established by the coach. In other words, the management of the team must first of all depend on the coach, who will then cooperate with the PI and the AI to prepare the work plan. The constant exchange of ideas and opinions among these elements will be just as important as the organisation of differentiated work plans for individuals who need more care.

In brief the tasks of the Physical and Locomotor Instructor in the Football School:

Didactical tasks	Carries out programmes on motor skill development on the field: coordinative and conditional
Organizational tasks	In cooperation with the technical coach, he coordinates and checks organisational and educational aspects of activities
Relationship with coaches Club management	Liaises constantly with the coaches of the team groups in order to find areas of improvement with them
Relationship with	Liaises with management with the coach regarding fulfilled objectives and possible strategies to improve didactical activities
Relationship with parents	Is involved in dialogue with parents on educational aspects regarding his activities

Table 5

1.2.3 The Club Doctor

The interdisciplinary role taken on nowadays by sports medicine, is a reality destined to increase in the future in terms of commitment as well as organised services.

This means that every athletic organisation, even at juvenile level, must possess an adequate health service that is able to follow the young athletes during their athletic training on the field, in the gym, during training session as well as in competitions.

In this health service, the club doctor is a key figure that coordinates all the issues that we could classify as the protection of health during athletic activities. A form of control and maintenance that must be carried out in close contact with general management and above all with the coaches via:

a) Coordination of the medical exams to assess general fitness (good health) of little friends, cubs and beginners;
b) Organisation of health services during training sessions, competitions and tournaments
c) Medical and traumatic assistance in case of sickness or injury
d) Statements of claim to insurance companies for injuries during activities
e) Organisation of training and refresher meetings, to inform management, coaches, athletes and families on issues such as personal hygiene, nutrition etc.
f) Preparing medical files for each player

The Football School doctor must act as a point of reference for the young athletes, in order to protect their health acting as a confidant, who is there to listen to their problems and worries, and to give advise regarding healthy lifestyles, i.e. potential risks of smoking, alcohol and pharmaceuticals (DOPING) and acting as a link between management, the coach and the families.

A proper medical structure is an index of high quality of the club, and we think it is useful to remind people of the recommendations of the European Council and Unesco: development through sport, if it is meant to be an effective way to increase the preventive actions for the health of all citizens.

In brief the tasks of the Doctor in the Football School:

Didactical tasks	Participates in company meetings to improve the medical knowledge of management and coaches
Organisational tasks	In cooperation with the technical coach, he coordinates the medical check-ups to establish good health
Relationship with coaches	Liaises constantly with the coaches in order to monitor the health of the young players
Relationship with Club management	Liaises with management with the coach regarding medical and sanitary objectives and possible strategies of improvement
Relationship with parents	Is involved in dialogue with parents on educational aspects regarding health, particularly regarding prevention, hygiene, nutrition and pharmaceutical use and abuse

TABLE 6

1.2.4 THE PSYCHOLOGIST OF THE FOOTBALL CLUB

For parents and children alike, the creation of an information and training network means to make the choice of pathways for the psychophysical development of the individual easier. The people involved (teachers, instructors, paediatricians, psychologists) have the delicate task of taking conscious action in the development process, acknowledging the complete responsibility of their role.

It is therefore important for the people who work with the children, young people and their families in various contexts, to constantly improve their technical, didactical, psychological and social skills. Therefore every action needs to tend to facilitate and promote a condition of wellbeing of the young person, and at the same time support the educational functions of their families.

A psychologist who is called to a football school or club on sporadic occasions or for a more structured consultation, must have the primary objective of correctly understanding the context in which he is operating, so as to promote the full development of the human resources that are put to the service of the young athletes by the football club. This is possible if the psychologist is fully takes a few aspects of the context into account when providing his services to the football club or schools.

The first question that must be asked is, therefore: "What educational background must the psychologist have?" One answer is that he must be able to facilitate human relationships among the people

who work in the football club (for example, managers, chaperons, instructors, doctor) and the users of the football club (parents, children, young boys) and promote the exchange between external bodies of the relevant territories (A.S.L. - local health organisations, parishes, cultural associations) , and schools in particular. Bateson's studies provide us with an approach to social psychology according to which it is "the study of individual reactions of individuals to the reactions of other individuals" and also adding that "one must not only consider the reactions of A to B's behaviour, but also how these reactions influence the B's behaviour in the future and the effect that this behaviour will have on A" (Bateson G., "Steps toward an ecology of mind", Adelphi Milano, 1986).

The psychologist, therefore, must:

- Support management in the management and organisation of the activities of the club
- Help to improve the relationship and cooperation among the technical members of staff, between the coaches and pupils/athletes, between the coach and the parents;
- Improve communication processes in order to correctly receive the children and their parents as well as to improve cooperation with the technical staff
- Help the coaches to choose and target the situations on which to focus their work;
- Increase the ability to act upon specific interactions, by reading the situation through the analysis of context and the cycle of information, to capture the meaning of everyday experiences.

Strictly from the point of view of content, we can summarise the role of the psychologist in the following three points:

- Provide information regarding the phases of growth and group dynamics
- Emphasize the importance of the educational and recreational value of the game;
- Emphasize the importance of keeping an open dialogue with the families and to provide them with complete information

He must inform the children's entourage of the general growth patterns of a child, which generally evolves from total dependence to interaction with the family to a growing need to interact with other social contexts.

This provides the instructor with the keys of interpretation of some of his pupils' behaviours. From the child's point of view, meeting other

people that are not his parents is an important part of his growth. It allows him to get to know other emotional, social and cultural models that allow him to acquire other elements of knowledge on which to build his growth, that will enable him to gradually elaborate and reflect upon increasingly responsible and significant choices he will have to make in the future. This is why it is extremely important to be aware of the importance of group dynamics and the cognitive development of children.

The instructor that adopts a cyclical interpretation of group dynamics, which highlights how the members of a group end up by reciprocally influencing each other, is able to understand the importance of this way of thinking while working towards didactical objectives. The role of the psychologist, in this context is:

- To support the instructor;
- Create a cooperative context among the members of the group;
- Stimulate cohesion;
- Develop the autonomy and differences among the components of the group.

Emphasize the importance of the educational and recreational value of the game

The word "game" implies curiosity, experimentation, will to risk, discovery games. "Game" does not only mean what amuses us and enables us to pass the time, but all the experiences a group can have in various ways such as: structured exercises, experiments of self-comparison, simulation games, role play etc. During play it is possible to isolate some elements that occur in more complex real life situations, and place them into an "artificial" context in a well defined behaviour model, limited by clear rules.

Games allow pupils to improve their socialisation and the development of their personalities, allowing them to examine, develop further and integrate their comprehension skills and other qualities they already posses.

One of the reasons of the game's success is its ability to motivate participants and to make them curious by reducing the major handicap that threatens every type of group: boredom and apathy. The advantage that games have is that they are adaptable to many group situations and can also be adapted to several issues and problems. Practically, almost every possible situation can be tried and tested or developed and refined in play (Susanna Cielo: Luiano Viana; Urbino, September 1994).

Basically the psychologist has to support the instructor in the preparatory phases to activate group-play:

- Analysis of the group situation;
- Introduction to the game;
- Experimentation;
- Evaluation and in-depth examination

This all allows to:

- Build and/or re-build motivation
- Stimulate cognitive skills
- Acquire a better self awareness and awareness of others;
- Reach a better understanding of information that group dynamics provide
- Acquire a better sensitivity to the feelings of the young athlete;
- Establish one's behaviour not on a preconceived ideas, but on observed reality:
- Acquire the ability to activate the individual resources of each member of the group.

Emphasize the importance of keeping an open dialogue with the families and to provide them with complete information

An educational community that is able to create dialogue is a fundamental starting point to facilitate the growth of the young, whereas conflict between systems (football school-family, coach-family, coach-pupil etc.) would generate confusion and problems.
In order to obtain the above, it is important to make the relationship between the who transmits information and who receives it as easy as possible, i.e. between the coach and the families or between the coach and the pupils, so it is important to realise that communication has a strong influence on the communicator's behaviour, and make it easier to organise the actions that will follow, from which the kids are supposed to benefit. An information and communication network, that tends to facilitate and promote the conditions for a person's well being makes it so that each part of the system that is involved has to share the same goals and objectives with the others, even if they are independent in their own specific realm. Their purpose is to support the educational function of the family and the psycho-physical development of the kids, by knowing how to adopt an open and cooperative attitude. This implies their ability to communicate and observe with empathy, their social skills. This is why the coaches and managers that have to interact with the children and their families need a permanent form

of support, a role in which the psychologist can be seen as a useful resource. The psychologist can help to highlight the functionality and productivity in his ability to observe the rules of communication between two or more people, and the quality of the relationship that is formed between people in a learning context.
A correct form of information is and the basis of an increasing efficiency of the proposed action. Letting the families know what a football school has to offer means to create a good starting point for proper teamwork among the adults in the best interest of the minors and, in perspective, of the entire community. The task of promoting as many occasions as possible for parents, football club or school to meet demands a figure that possesses a certain tact and attitude that the psychologist can work with as a tool to aid communication by shadowing management and or the coaches in these tasks.
The psychologist must above all stimulate the discussion regarding the philosophy that guides all the main actors of the school or club's main activity, to produce a shared language and theory among the actors to correctly apply the programmes of the club. As a result, the educational goals and the main part of the football school or club's programme should emerge more clearly.
Therefore athletic activities become a tool thanks to which the young athletes are provided with the opportunity to learn in a recreational context, in the absence of an exalted competitive by virtue of a presumed and mistaken precocious search for the champion.

In brief the tasks of the Psychologist in the Football School:

Regarding all components of the Football School	To activate the resources in every component and improve interpersonal relations
Regarding the Young Players	Create a cooperative environment among the components of the group to favour their development as people as well as football players
Regarding coaches	Helps to improve the relationship and cooperation among coaches of the same staff, among coaches/athletes, coaches/parents
Regarding management	Planning occasions that tend to improve psycho-social environment
Regarding parents	Improving communication by shadowing management and coaches during meetings

Table 7

1.2.5 The Referee

A definition of refereeing of many years ago highlighted this role as the guarantor of the spirit of the game. In turn the spirit of the game means: **safety of the players, equal opportunities of play, continuity of play and the pleasure of the game.** The rules are therefore the tools of the referee and support him in this delicate task.

This definition is still completely true in modern-day football, and above all in a modern interpretation of the rules of the game. Despite the fact that we are talking about matches with children, these concepts can only remind us that in order to have fun:

1° No one must get hurt

2° The game has to be balanced

3° the game must go on with the least possible interruptions

However, before beginning to referee, it is best to ask oneself a few questions.

What and how does one referee?

"What is the context in which one referees? Am I with children, with young people, with adults, in a gym, on the field? Who must I take into consideration? Just the players or am I also dealing with the coaches or the spectators?

Are the rules that I'm enforcing appropriate in this moment? Am I able to enforce them? Are the children able to respect them? Is the environment in front of me asking me to help to learn and respect the rules (main objective of the activities of the football school) or are they asking me to lower the tension and stress of the competition? Must I increase the tension and be strict with the rules or must I let go and let the game continue?

How am I evaluating the situations of this game? By helping the weaker side or the defending side?

When I arrived did I find a hostile or a welcoming situation? What was my reaction and what did I do to change it? What happened when I interrupted the game? What reactions did I produce?

These questions and the possible answers underline the fact that a referee must know how to describe, analyse and be aware of his experiences. It is important to understand that one must apply the rules according to the context, which defines the meanings and practical applications of the principles of refereeing.

For example a game between children from 6 to 12 years old has to be interpreted differently compared to a match between young people or adults.

One must always remember that a game played by little friends, cubs, beginners, is intended to reinforce their knowledge of football and the regulations of the game; so it is part of a learning context.

The purpose is to create a context, a football game, in which the rules and everyone's role - referee, instructor, young players, managers - are clear, and to try and share common behaviours, each within the realm of their specific role. It is obviously important to properly train referees nominated by the FIGC, as this gives them the opportunity to not only learn and discuss the content of the subject - the referee's role and the rules of football - but also to compare their knowledge with others from the football school "planet".

In brief the tasks of the Referee in the Football School:

Didactical tasks	Must know the rules of the game and gather information regarding relevant differences and on ways to apply rules
Organisational tasks	In cooperation with management, he coordinates the organisation of competitions and gathers information on requirements pre, during and post match
Relationship with coaches	Liaises constantly with the Head coach and coaches regarding educational enforcement and behaviour during matches in particular
Relationship with players	Helps them to learn the rules of the game, encouraging the respect of the regulations, with an impartial attitude that represents a positive example

TABLE 8

1.2.6 THE SECRETARY

The secretary is a logistical coordinator of the Football School that must above all be aware of the Federal regulations that discipline its order. This implies an attentive and thorough study of the N.1 Official Report of the Juvenile and Scholastic Sector that is published in July and available through the Regional Committees or on the web on the Federation's websites. This report contains information on everything that regards the Juvenile and Scholastic Sector, including the requirements for Football Clubs. Once the secretary has acquired an overview of the activities of the season, he should collect and read the Official Report that are released every week from the various regional, provincial and local

committees, where all the necessary information is contained regarding the activities proposed by the committee (match programmes, variations, integrations, technical meetings, informative meetings, courses and so on). This baggage of information must be summarised and commented with the technical staff of the FC, in order to translate the information into a weekly plan. Another important task is to maintain relationships with other clubs; last but not least is the daily contact with the parents.

In brief, the tasks of the Secretary in the Football School:

Organisational tasks	Coordination of activities during the season
Relationship with Federation and Club	Constant monitoring to have continuous control on situations
Relationship with coaches	Liaises constantly with coaches to get precise reports on the running of the Football School
Relationship with management of the Club	Periodical reports to have news on the progress of the whole club and to provide updates on the problems of the FC
Relationship with parents	Fundamentally important, allows them to always have a realistic idea of the situation and facilitates the resolution of possible conflicts

TABLE 9

2. This is what they are like: the phases of development and learning motor skills

2.1 Biological and Chronological Age

In order to organise activities for growing individuals, one must bear the physiological and psychological characteristics of the little pupils in mind. This is essential, not only to establish the technical activity programme, which must be in efficient and delivered in correct doses to determine psychological and physical improvement, but also to establish rational evaluation criteria and to recognise particular talents. Knowledge of the various phases of development and their order, even if they are subject to significant individual differences, during the growing process, avoids the possibility of making frequent mistakes such as penalising the physically smaller children. The human being, like any other biological unit, from birth to until reaching its definite structure, undergoes a mutation process characterised by variations of quantity and form. The necessary space and time for the expression of these mutations goes by the name of development period. It has been classified in various ways over the years, among which we prefer to refer to a model that divides the period into two fundamental stages: infancy (from birth to 9-10 years) and adolescence (from 10 to 19 years). Infancy, in turn, can be divided into: first infancy (from birth to 4 years) and second infancy (from 4 to 10 years), whilst adolescence is divided into: pre-pubescence (from 10 to 13 years) and puberty (from 14 to 15 years) and post-pubescence (from 16 to 19 years). Each of these simplified periods correspond to a series of natural phenomena (auxological development) which, normally, follow the abovementioned chronological order however they sometimes may be late or premature. Therefore, the biological age of an individual does not always correspond to the chronological one. The question of when to propose certain didactical stimuli needs to follow the principle of matching the proposal of certain exercises and techniques to a precise period of development and to the affective potential of the child. Any parent knows perfectly well that it would be useless and harmful to try and make a two or three month old baby to walk, or a seven or eight month old baby to talk! The paediatrician knows that to walk and talk are behaviours that are "biologically" second in line to cranial and caudal development and to weaning. In fact, each process is biologically determined. There is a "biological clock" that determines our evolution and our involution.

A major task of each instructor is to follow the development of his pupils closely and to offer what "they are able" to receive and have to learn at the "appropriate" time. Skills and abilities develop

according to an order that depends on when they are solicited. Physical capacities which, like the abilities, have their own biological trend that has to be respected, they must therefore be solicited at the appropriate time: not before because it isn't possible, and not before because it isn't useful.
"By freeing them from their shell": that is how Michelangelo replied to whoever asked him how he managed to create such sublime forms from irregular blocks of marble.
As a matter of fact, the term to educate - from Latin "ex ducere" - meaning to pull out, that is to allow the pupil to express his potential, according to his genetic heritage; and this can be best achieved with educational programmes that above all respect the auxological rhythms of each pupil. Only by knowing the phases of their continuous evolution, we can facilitate and increase - in the young - the development of their motor skills, by soliciting the processes that are more sensitive to at that time. Also, to maintain a certain level of physical training potential, the ideal would be to stimulate various motor skills (that interact among each other) for the athletic life of the athlete. It is also scientifically proven that there are more favourable periods and more receptive phases to solicit the developments of certain skills.

2.2 The Key Phases

It is important to remember that the human organism, subject to physical stimuli from the outside, tends to absorb the stimulus, and create specific premises for adaptability. This means that the psychological and motory learning process, even if it is based on the individual's biological potential to acquire skills, also depend on the individual's will, on the quality of the educational input and on the support the social environment of the child has to offer. The child, from the first months of his life, possesses a its own biological itinerary, substantially characterised by factors determined by belonging to the human species as well as by hereditary factors from their parents. The support and guidance provided by their social environment allows the child to face reality and to acquire a gradually increasing psychological and physical autonomy. Therefore, the more is the breadth of physical experiences the child experiences in this environment, the more he will be able to adapt and grow. The didactical teaching/learning process depends on the relationship between the coach and pupil and will grow from the correspondence between stimulus and response.

It is clear though that the more a child is prone to a certain class of sport or one specific sport (genetic factor), he will be more prone to make the necessary adaptations. It is also true that certain premises (potential) would remain hidden should the child not have the opportunity to experience them.

During the past few years, the interest surrounding the study of physical and juvenile athletic education have ever more been focused on the specific knowledge of the various phases of physical learning, and some studies on the subject have suggested the existence of more favourable biological periods for the development of specific abilities. In the relevant literature, various authors agree on the definition of these periods as *key phases or magic moments.* (See ILLUSTRATION 5).

The most favourable period, where one can observe a major "growth spurt" of coordination skills, is from the ages of 7 to 12 years old. The increase slows down after this phase, so the stimuli of adaptation do not instigate the appropriate response. This assumption, supported by experimental theses, must bring us to reflect attentively upon the didactical plan to be applied during this evolutionary period. We must therefore use working methods that favour the general development of motor skills, broadening the basis of opportunity, by proposing experiences in various sports with multi functional value. The quantity and the quality of these activities are decisive. "Many children that are considered clumsy and not sufficiently coordinated are not born, but become that way because their motor skills have been repressed by their environment". It also seems that speed develops quickly during the same period of time, and reactivity and movement frequency in particular, whereas a-cyclical speed and action speed achieve their maximum development a few years later. At this point of our scientific knowledge, one may speak of a key phase for speed and strength resistance to strength around 9 years of age. For their development, it is important that external resistance is so low that it is possible to gain high contraction speed (it is advisable to use natural weights). The trainability of maximum force begins with the first pubescent phase. Aerobic resistance is a relatively neutral skill, in terms of development. It can begin developing at a pre-scholar age and continue for all the following phases. The main spurt is however noticeable in the pubescent phase. On the other hand, it is relatively more difficult in the pre-pubescent phase, to train specific anaerobic resistance, because of biological limitations (insufficient production of testosterone that is correlated with certain

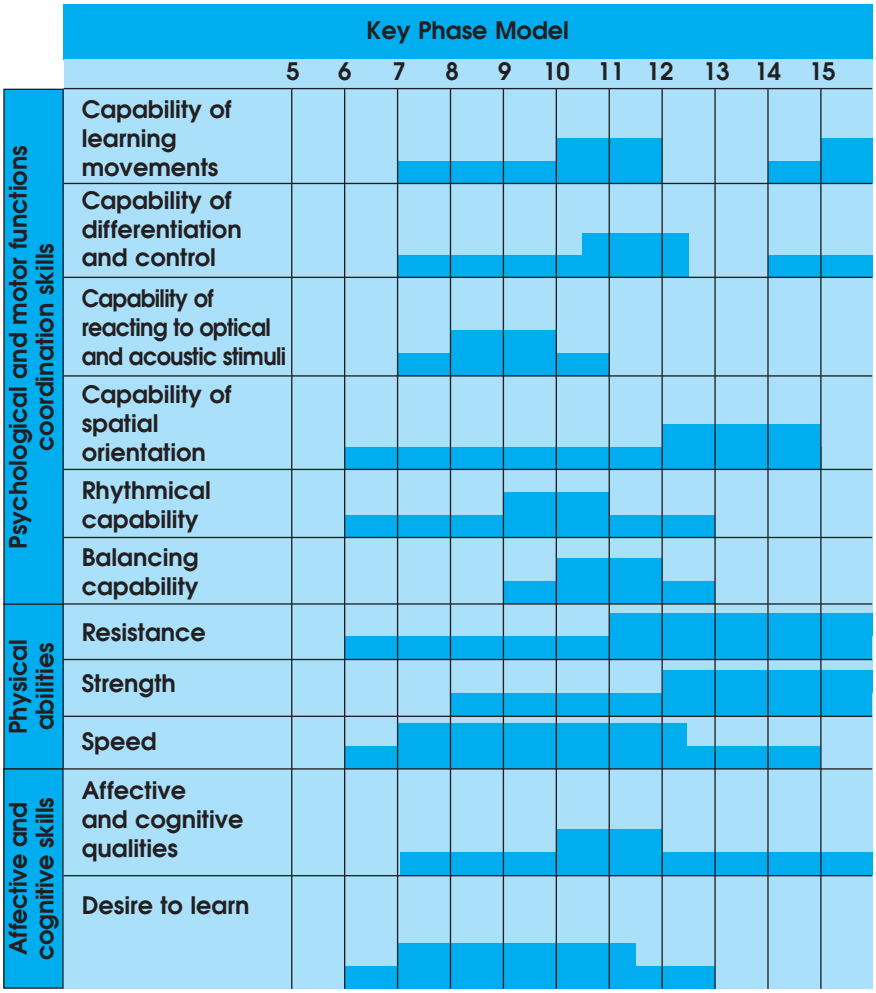


ILLUSTRATION 5 - Martin (in Hahn, 1986) in D'Ottavio, 1994

enzymes of anaerobic glycolysis), as well as the psychological resistance required in certain forms of work. As far as articular mobility is concerned, one must distinguish passive mobility from active mobility. Passive mobility can be placed among the precocious abilities: it begins to develop from the first years of life, continues for the entire scholar age period and continues until the pubescent phase. The most efficient development period for active mobility, on the other hand, begins afterwards and is based on a previously obtained degree of strength.

A greater "fertility" in learning athletic techniques can be observed in correspondence with the development of coordination skills, but it begins slightly later in comparison. This phase can be placed between 8-10 years of age for girls and 11-12 years for boys. A

secondary development spurt, that we can consider as a period of technical consolidation, can be noticed at around 14-15 years once the critical period of puberty, which produces differences in height, mass and corporal proportions, is finished, with al the consequent changes of strength-weight and strength-leverage ratios. Further reading regarding the conditional abilities can be consulted under paragraph "The genetic, morphological and functional components".

2.3 Lateralisation and Ambidexterity

For whoever deals with sports it is easy to see, by observing the athletes, that each of them according to the type of sport they practice, prefers to react with one limb as opposed to another. Or in specific sports such as running and jumps, better results can be obtained by choosing the right or left foot, to jump from or to push on to sprint. Other expressions of lateralisation in sports happen when the athlete choose the direction of a rotation, which inevitably involves choosing which foot to start from. This characteristic, that is not limited to the world of sports, but can also be found in other contexts such as the workplace etc., is a part of the genetic characteristics of the individual, that is that they are part of the chromosomal heredity of the parents (heredity). However, some studies have proven that this theory does not account for the entire population, and this is why some authors refuse to accept this assumption without reservations, affirming that it's the social environment (pre-established) that plays a predominant role in the evolution of behaviour
and therefore also in the functional specialisation of a lateral or counter-lateral dominance. This regards superior limbs as well as inferior limbs. Normally, for about 90% and 75% for hands and feet respectively, the dominant side is the right side. In certain athletic disciplines, those who distinguish themselves from this trend of

majority, meaning those who prefer to use the left sided limbs, often achieve better results. This occurs, for example, in boxing, fencing, tennis, where the left-handed person is considered as deviant from technical normality, therefore less controllable, against whom the opponent takes longer to adapt. In team sports in general ambidexterity seems to be the most favourable condition. In football, it is a lot more difficult to predict what a player is about to do if he is endowed with the ability to execute the same move, with the same quality with right side of his body as with the left side. But how do we deal with children?

One of the most interesting aspects of these issues regards neuro-physiological process called *"counter-lateral transfer"*. Briefly, this means that by exercising one limb on one side (i.e. right foot), one can observe significant changes also on the other side (left foot).

This phenomenon occurs thanks to neural links that connect the two hemispheres of the brain therefore the two halves of the body as well. From a few scientific studies on the subject, it seems that transfer is more "potent" from the weaker side to the stronger side, compared to vice versa. Therefore, training with the right foot means to exercise the left foot as well (at a neural level), even if to a lesser degree. From a coordinative perspective, appropriate movement patterns can be structured to be able to execute the same move with the other foot. This aspect is not only valid as far as coordination or technical skills are concerned. As a matter of fact, the transferability of neuromuscular adaptations due to exercise can also be observed in the production of muscular strength.

However, direct exercise will obviously produce the greater increase in physical performance. In children, first of all one tries to build on the execution of a movement pattern by maturing the experience in the dominant limb. This practice is also to project a correct image of the movement at cortical level. Afterwards, the use of methods that develop ambidexterity seem to be more efficient.

2.4 From basic movement patterns to technical abilities

A long-term athletic training process for young people cannot forgo the effects of basic multilateral preparation. What we intend for multilateral preparation is the structuring in a wider sense of all the basic movements that are within the range of the child. For the lower limbs the gross movement patterns are: walking, running, jumping. For the upper limbs they are: grasping, throwing, catching.

For the trunk or the body itself they are: rolling, crawling and climbing. The evolution of gross motor skills will allow for the introduction of new activities and more specifically oriented elements of movement in the programme. For example we can make the lower limbs able to walk on a balance beam, to run whilst kicking a ball, to jump whilst clearing an obstacle. We can make the upper limbs carry out more complex moves such as bouncing a ball on the ground or throwing it with one hand. The body as a whole will be able to move within space and time, according to rhythm etc. The concept of multi-laterality will therefore have to gradually be oriented towards the characteristics of the specific sport, activating the specific movements, and begin to structure the technical abilities of the game. The complete affirmation of athletic skills develops according to a pattern designed by Meinel (1984), the stages of the coordinative development are represented by a constructive phase of the rough gesture, a more evolved or refined coordination, and a phase of variable availability of movement where control and management of the movement will begin to take on an automated appearance and consequently more responsive to the specific needs. Years ago to dispute a match or in any case to dedicate more time to collective activities of a situational type, one would expect the fulfilment of a refined and variable availability of techniques. Today, even if we recognise that there is a certain theoretic logic in this itinerary, supported by decades of practical experience, the global and situational activities of the game have to begin precociously without having to wait for technical consolidation, which will also be increased by preferential mediation from the demands of the game. In the structural model, in parallel, the phases between simple to complex activities of the game underline a global and overlapping interpretation of the elements that make up the overall performance. (See ILLUSTRATION 6).
The learning process is a complex activity that requires the analysis and processing of a series of sensorial and perceptive information. Further to information obtained from visual observation of certain

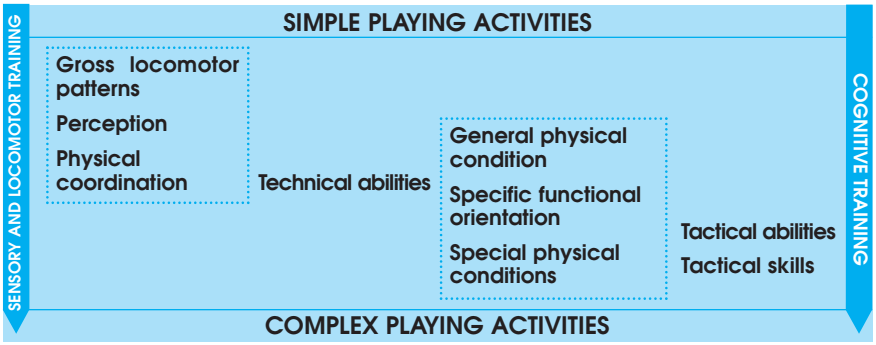


Illustration 6 - Parallel structural Model, (D'Ottavio, 1994)

motor behaviour and from what the coach verbally expresses, all the motion patterns acquired beforehand are of maximum importance. A movement programme is not easy to stabilise, the learning an ability requires a series of subsequent phases. The pupil that is trying to build a new locomotor ability needs to consider the new patterns, as well as the ones he already masters.

For example, running and walking are locomotor patterns children effectively acquire during the first years of their life, but they are also

"Proprioceptivity and Technical Move = Specific Balance"

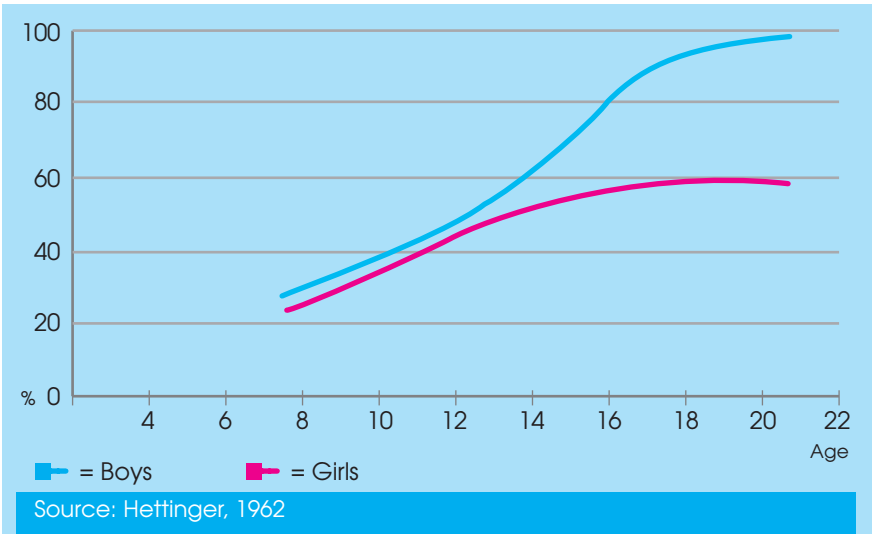
"Little Girls at Coverciano during the 'sei bravo a..' tournament"

sub-elements of a great number of sports. During the phase in which the child will begin to play football, he surely won't begin by learning the gross motor skills all over again. On the contrary, he will use these "locomotor sub-routines" (sub-programmes) to integrate them with the other patterns he is trying to learn, such as managing the ball or shooting. The new locomotor programme will be a result of the integration of all those locomotor sub-routines. Many locomotor programmes that we normally adapt are nothing more than transformations of the most elementary locomotor patterns. It is hardly random that, during locomotor development in the first years of life: "A new action is mastered only to be replaced by an action of a higher level that normally includes the previous one as a sub-routine" Bruner, 1973. Locomotor practice will allow the various sub-programmes to integrate with a gradually improving performance of athletic techniques, securing the fluidity and agility of movement.

2.5 Football and Little Girls

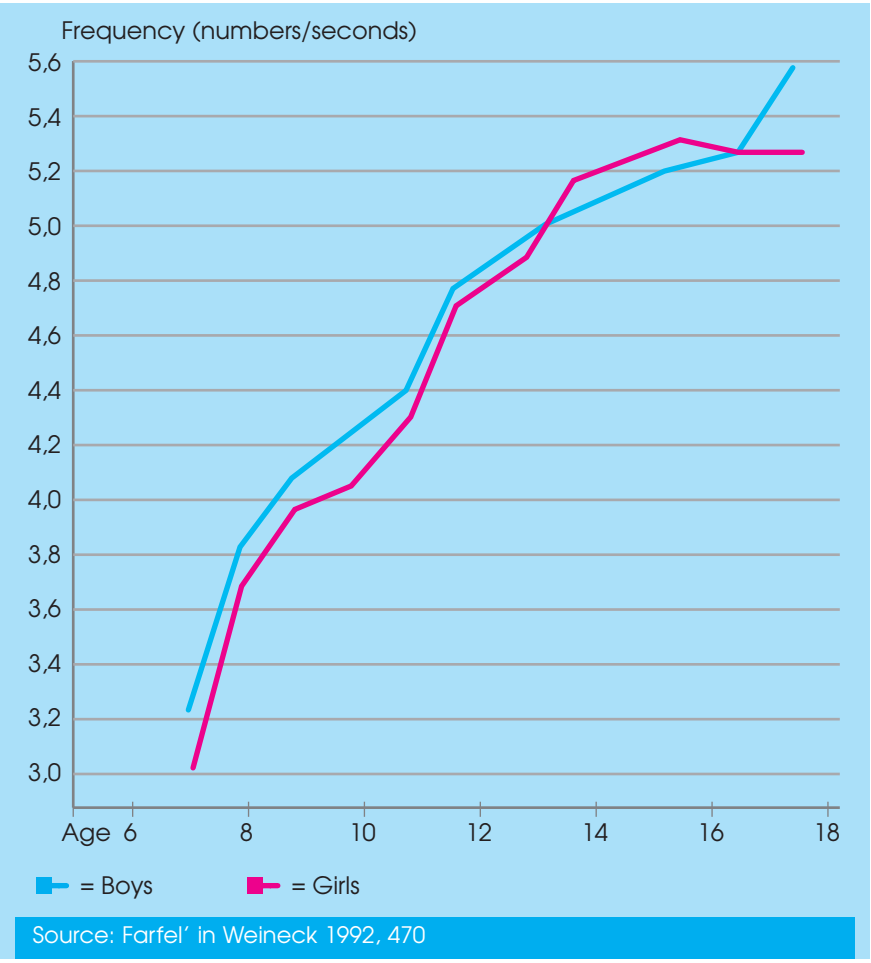
Among the purposes of the Juvenile and Scholastic sector, the technical and didactical and cultural development and promotion of feminine junior football activities, is particularly important. An adequate and modern locomotor programme for infantile and juvenile ages cannot go without the appropriate awareness of the physiological characteristics and biological laws

of growth that express themselves differently in the two sexes.
This obviously offers scientific support to psycho-pedagogical principles and methods, in the choice of objectives, content, means and methods, as well as when it is necessary to fix some limits to best define the most appropriate teaching methods. Overall, physical growth and development are continuous processes, that progress from birth to adulthood, but they are by no means regular and certain differences among the sexes exist (GRAPHS 1, 2, 3 and 4).



GRAPH 1 - Progress of maximum isometric strength shown in function of age

From the graphs above, one can deduct that boys and girls can carry out the same physical activities, but from the tenth year, changes in stature and weight must be taken into consideration in one sex and the other. One need to reflect on these changes, as well as consider above all the physical qualities in the developmental phase, such as strength, speed and resistance.
From the conclusions drawn by the graphs that refer to coordination skills, (ILLUSTRATION 7 AND GRAPHS 5 TO 12) the general evolution process seems to be different for the two sexes. In particular, whilst the curves show a similar pattern for skills like spatial orientation, reaction, differentiation, and timed coordination, they differ in skills like rhythm, balance and dexterity.
The latter skills in fact are accomplished first by the girls compared to their male peers. This meets that, as far as the didactical plan is concerned for girls, it will have a completely different layout regarding coordination and situational skills, given their greater pre-disposition to learn motor skills.

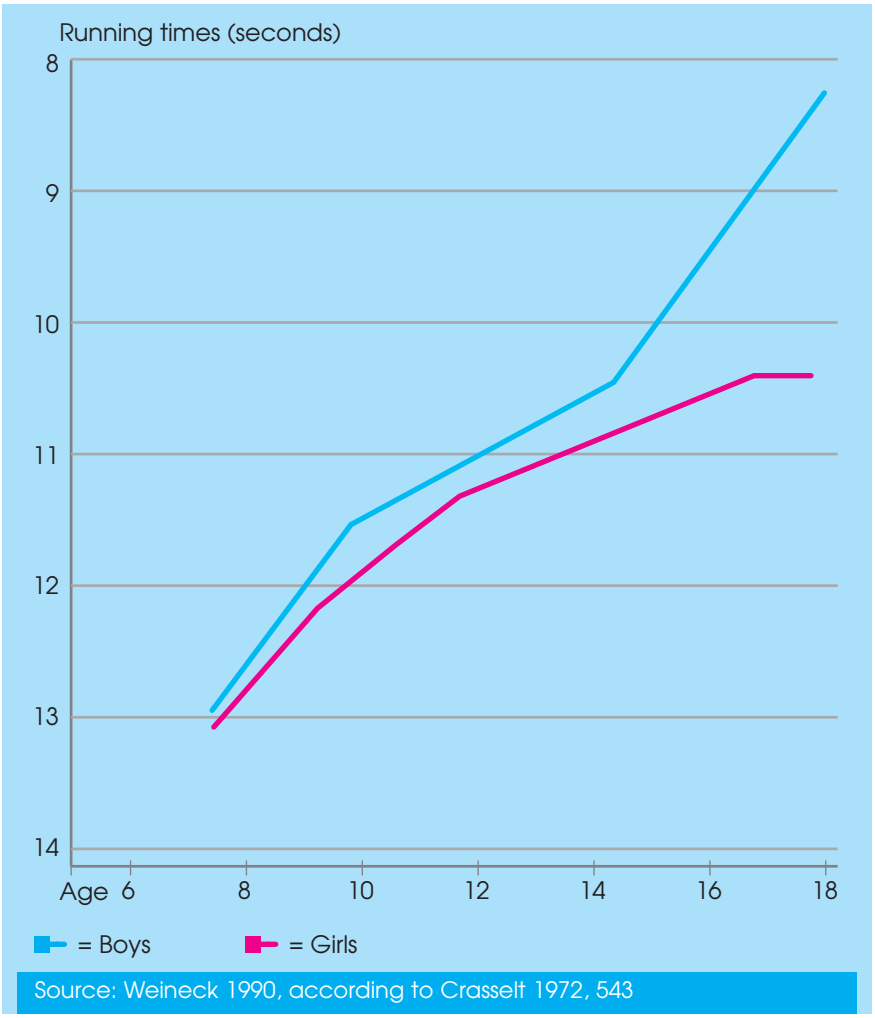


GRAPH 2 - Maximum frequency of different low-breadth movements

As far as the conditional aspects are concerned, among the various age groups and the sexes, the differences can be justified by:

- different pubescent development phases (girls 10-11 yrs, boys 11-12 yrs);
- production of sexual hormones (mainly testosterone, which is much greater in boys than in girls);
- the volitional, motivational and personal characteristics (that also derive from the production of androgens; i.e. aggressiveness);
- social stimuli that compel boys to do more sports.

This entails that initially, for the little girls, one can observe an accentuated level of activities of precision, whereas in little boys, who are more stimulated in physical activities and who are continuously searching for competition, activities that regard speed, situations and competition will prevail.



GRAPH 3 - Running times of 60m, in various age groups

In the following years these activities will continuously become more prevalent, but they will in any case have to be integrated with executive precision, ensuring that the pupils of both sexes receive adequate stimulation with maximum psycho-motor potential.

The didactical programmes will then tend to become more similar according to natural psychological development and with the gradual physical and technical growth of the girls. The didactical programme (see TABLE 10) indicates the main objectives that the instructors will have to fulfil by providing the best possible conditions to enrich the locomotor repertoire.

The illustrated didactical proposal is only an example of how activities should be structured. It would be appropriate to change,

GRAPH 4 - Running distance result for school-aged boys and girls measured from a timed period of 15 minutes

enlarge and adapt the content of the didactical units in order to make the proposed exercises appropriate to the degree of locomotor and cognitive maturity of the girls.

"In order to fulfil general objectives one must use minimal and specific didactical units that will allow the gradual fulfilment of higher locomotor skills without skipping the intermediate stages.

Therefore one should use working methods that favour the general development of motor skills, by enlarging the base of possibilities, i.e. by proposing experiences from multiple sports that have multifunctional values. The kind, quantity and quality of the activities is therefore decisive.

There will also be appropriate moments to test and evaluate progress, through systematic observation of the locomotor

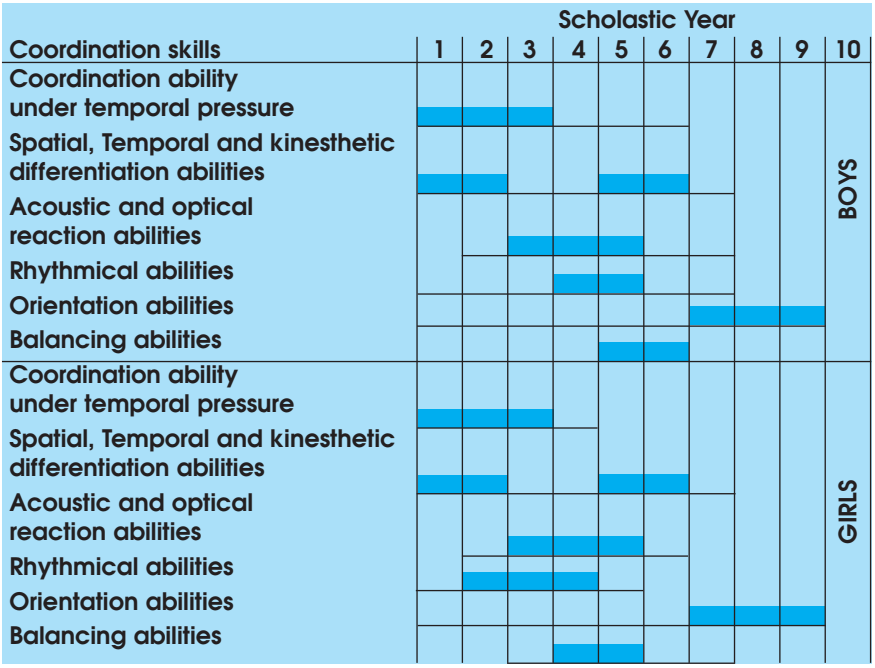
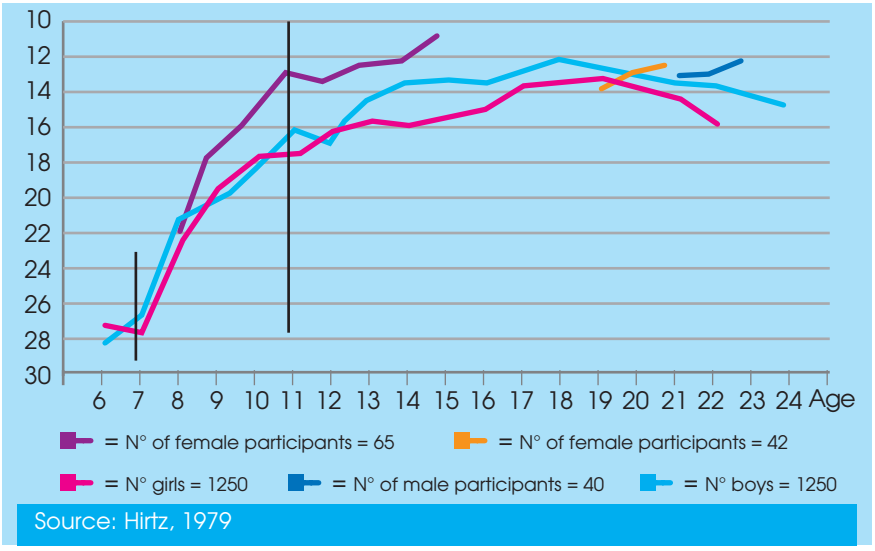
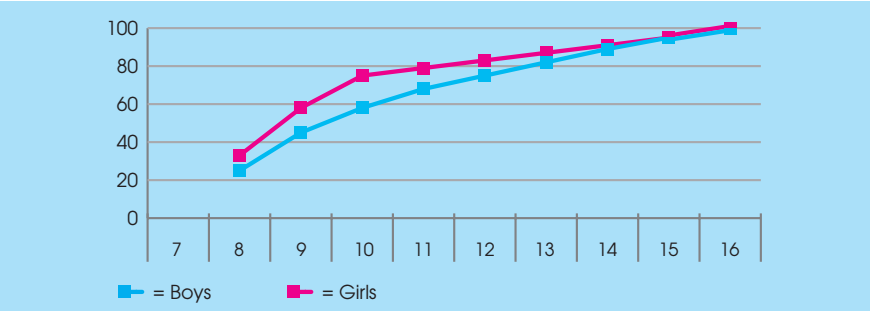


ILLUSTRATION 7 - Main periods of development of coordination skills, during Physical Education from the 1st year (six yrs old) to the 10th year (16 yrs old)

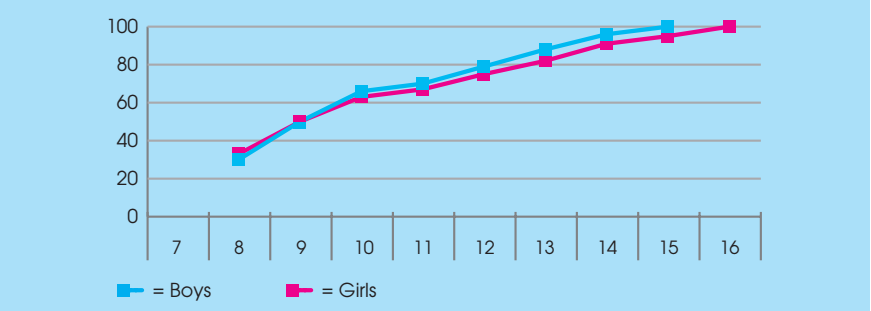
behaviour of the female pupils, bearing in mind that there will be differences in starting points, learning rhythms as well as in terms of previous experiences and situations they are familiar with." D'Ottavio 1994).



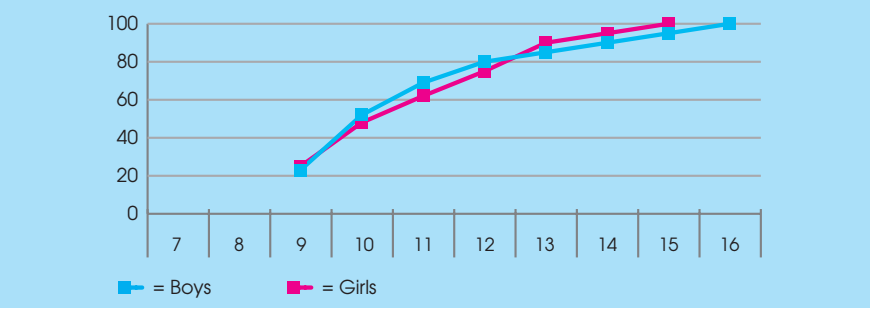
GRAPH 5 - Development of dynamic Balancing skills from pre-scholar age to first years of adulthood



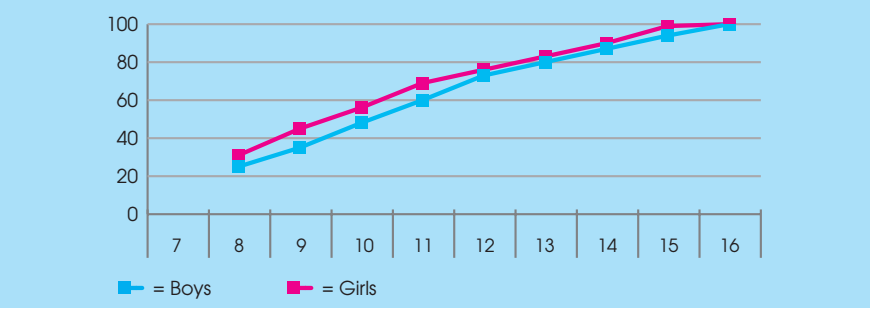
Graph 6 – Dexterity (Stemmier)



Graph 7 – Coordination under time limit

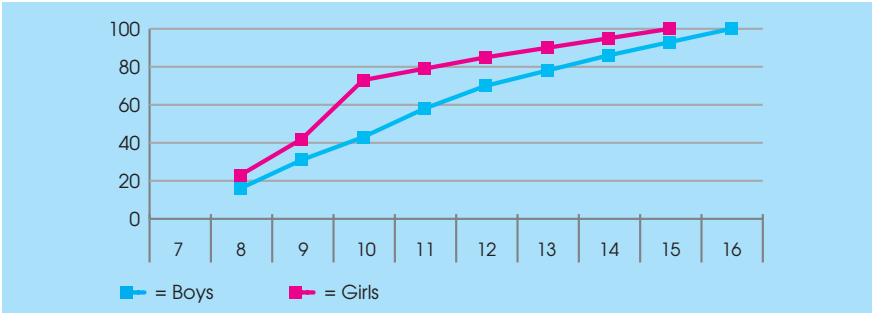


Graph 8 – Reaction skills

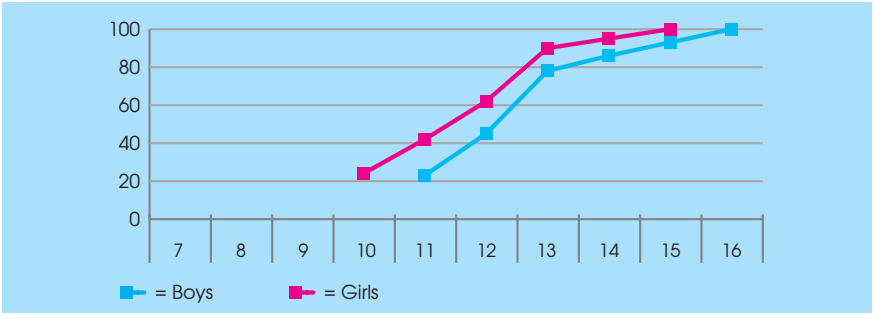


Graph 9 – Differentiation skills

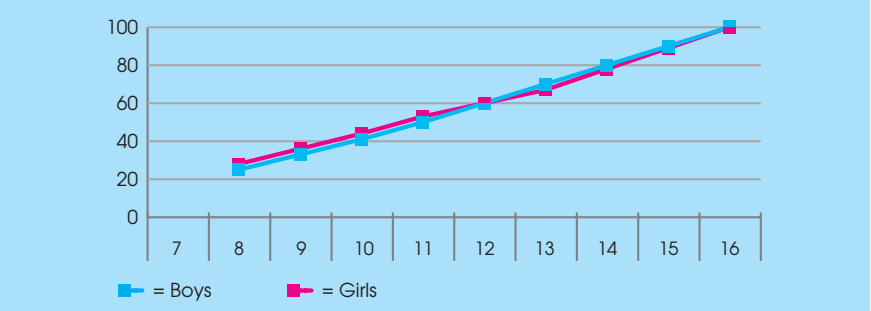
"Double-layered rubber balls to facilitate the learning process"



Graph 10 – Rhythmical skills



Graph 11 – Balancing skills



GRAPH 12 – Spatial orientation skills

2.5.1 METHODOLOGICAL SUGGESTIONS

Normally little girls begin football later on in life, at an age in which there is a lot of competition with other sports that traditionally represent the parents' choice of sport (gymnastics, dance, swimming, volleyball etc.). This means that the first experiences should be able to generate enthusiasm so that they don't give up at the first sign of technical difficulty. So our suggestions, if slightly obvious but not to be neglected, are:

- Individual technique in simplified contexts
- Exercises and games with more complex rules, going from the use of hands to feet
- Smaller areas and lower number of girls at a time during exercises
- Smaller matches (n° players and dimension of pitch)
- Rubber balls (double and triple layer - see paragraph " Teaching Equipment") that facilitate certain technical moves (header, etc.)
- Mixed activities that don't change the technical balance between boys and girls too much
- Continuous solicitation of reflection, memorisation, intuitive skills, constant praise of successful attempts
- Constant verification of learning levels to avoid technical requests that don't match the actual abilities

IN OTHER WORDS, MOTIVATION MUST ALWAYS BE HIGH AND NEEDS TO BE SUPPORTED IN ORDER TO ENSURE CONSTANT PARTICIPATION IN ACTIVITIES

TO SUMARISE THE ABOVEMENTIONED CHARACTERISTICS, LITTLE GIRLS ARE:

- Precocious in coordination skills
- Less prone on a purely physical basis
- Tendency to be more precise in movement patterns
- Tendency to have higher levels of attention in general
- Strong motivation to learn due to spirit of emulation regarding their male peers

- Socially less used to experiment the typical moves of football in everyday life
- Less likely to find female role-models to refer to such as female instructors or female football players.

WOMEN'S FOOTBALL: an international experience

With the UEFA Conference on basic football, where fifty-two European Football Federations were present, one of the presentations was on women's football, and described the situations in which this activity is introduced in Northern Europe in particular. Northern Europe, thanks to its tradition and history, and to its higher demographic distribution compared to the territory, organises many opportunities for children's football. From the so-called "Festivals" to "Fun football", to week-ends with families to get parents, siblings involved as well as grandparents, considering the higher "resistance" of old-age people, to full immersion tournaments that go from 2 vs 2 to 4 vs 4 (very popular) and to 7 vs 7. During the various presentations, we heard about incredible experiences, especially from Scandinavia and Anglo-Saxon countries. Game-matches where parents played with their children for example, which is definitely far from our national standards and our habits above all. However, we must say that in our country over the past few years many things have changed, due to a greater awareness of the fact that younger children that play sports need different role-models on which to base their experiences. The overall philosophy that came out from the conference was that football has to respect the fundamental pedagogical principle of "inclusion" and hold the needs and motivations of children in higher consideration by preparing environments that are design to welcome rather that exclude. So the overall proposal was for a game for everyone, without sexual, racial, handicap discrimination. Women's football was treated, and justly so, with equal opportunity, but above all with equal dignity, so much so that an entire session was dedicated to this subject. The most important presentation was given by the Secretary of the Norwegian Federation, the ex national football player Karen Espelund, who opened the talk with this original statement "A minute without football is a lost minute", which conveyed the level of enthusiasm and strong emotional involvement of the experience of playing football. The programme of the Norwegian Federation was summarised in the presentation of some initiatives designed to maximise participation, such as those mentioned above, but what gave us food for thought where the impressive numbers: an 18.4% increase of teams over 3 years. About 6000 female football teams with over 10,000 members. Their strategy is clear. More participation equals more female supporters in the medium-long term, more participation of families in football (stadiums, TV), more induced consumption of merchandising, more political weight in general. Perhaps one should think about it a bit more, naturally thinking of an educational form of football, designed on the needs of the girls, which, until the ages of 11-12, are not so different from their male peers after all.

The following didactical plan is only intended as an example of how activities should be structured. It would be appropriate to change, enlarge and adapt the content of the didactical units in order to make the proposed exercises appropriate to the degree of locomotor and cognitive maturity of the girls.

1st-2nd-3rd week	General Objectives: enrich and consolidate the locomotor experiences acquired so far; to build on the technical abilities; to control and organise one's body in space; development of senso-perceptive skills. **Specific Objectives: development of differentiation skills, balance, orientation and rhythm in reference to the ball.**				
Dominant Factor in the Development of the various didactical units	**Search of precision**	**Search for Speed**	**Presence of the opponent**	**Match**	**Test**
	Movement circuits, Contact games, La margherita, Bowling, Vince chi rischia, Circuits with stops, Alfabeto, Labirinto o Labirinto a colori (guiding the ball)	Rubapalla, Rubapalla & shooting, Porta la palla a casa	La frontiera La frontiera & shooting	2vs2	Entry test: Organise an entry test on Techniques before beginning the programme (choose the ones you deem most appropriate)
4th-5th-6th week	General Objectives: enrich and consolidate the locomotor experiences acquired so far; greater control of movement and coordination skills; development of technical abilities; favour teamwork **Specific objectives: increase differentiation skills, balance, orientation and rhythm in reference to the ball and team mates; development of technical abilities in terms of speed.**				

Dominant Factor in the Development of the various didactical units	Search of precision	Search for Speed	Presence of the opponent	Match	Test
	Penalty competition Play and score Passing and reception in a square	Porta la palla a casa with variations Labirinto di colori (guide) **Go for goal**	The frontier nella zona 2:1 + goalkeeper (defender on the line/then moving within the area) Il gioco della tana (rest)	3vs3 4vs4 - 4goals **Everyone in**	At the end of the 4th week: precision and speed test
7th-8th-9th week	General objectives: more control over movement and coordination skills in relation to the available space and the opponent; more emphasis at a functional level and creative training of technical skills; development of visual perception skills in relation to space, team mates and opponent. **Specific Objectives: adaptation of differentiation skills, balance, orientation and rhythm in relation to team mates and opponents; increase of quick technical abilities, with active opposition of the opponent.**				
Dominant Factor in the Development of the various didactical units	**Search of precision**	**Search for Speed**	**Presence of the opponent**	**Match**	**Test**
	Passing and receiving in the zone Passing and receiving - 4 goal game	Coloured Labyrinth (passing) **Go for goal (with goalkeeper)**	Il gioco della tana (passing) Quadrato di smarcamento Sei bravo a giocare in superiorità numerica	4vs4 - 4 goal 5vs5 Palla al capitano	At the end of the ninth week carry out speed tests and with opponents

TABLE 10 – Example of didactical programme for football activities for Female Football Schools

3. Between Fact and Theory: Techniques and Other Factors of Juvenile Football

All athletic games, including football, are a part of the so-called "situational" sports. "The execution of techniques depends on the competitive conditions, especially the technical and tactical ones, and the conditions of the opponent and the opponent team" (Manno, Beccarini, D'Ottavio, 1992).
Football at every level of qualification, from children to adults, besides being defined as a situational game environment, is also characterised by its invasive model of technical and tactical actions, meaning that both teams are completely free to move within any part of the field and may also evidently come into physical contact. Football is also considered a sport with a high level of technical and coordination skills, in which the foot is reserved a lot more activities than usual Feet are generally used for support and movement, having a different biological sensorial evolution compared to hands, which normally have primary interactive functions with the environment. In general terms, the football player's performance is made up of the following components:

- Genetic and morphological/functional;
- Perceptive and sensorial;
- Technical and coordinative;
- Conditional;
- Tactical (cognitive processes);
- Psychological and social.

Therefore, the content and methods used in training and development programmes for players will have to be selected considering:

- primary requisites (hereditary factors, biological structures),
- perceptive requests, derived from the information available in an extremely variable game environment,
- construction of technical moves that are directly linked to the development of coordination skills,
- construction of an adequate organic and muscular metabolic support,
- development of "tactical thought", creating the necessary decisional pre-requisites for the player,
- an appropriate psychological climate that stimulates motivation and commitment to performance, during training as well as during competitions, which favours a wider opportunity for social interaction.

The expressions "*functionality" and "situation*" (see ILLUSTRATION 8 and 9, D'Ottavio 1996) mean that the simple technical execution itself makes no sense, if it is not linked (functional) to the context (situation) that

justifies its use. It is therefore very important for the coach to teach the techniques by putting the young player in the necessary conditions to consciously perceive and evaluate the effects of their behaviour (feed-back), thereby creating a higher motivation to learn.

Illustration 8 - Relationship between technique, functionality and situation (D'Ottavio 1998

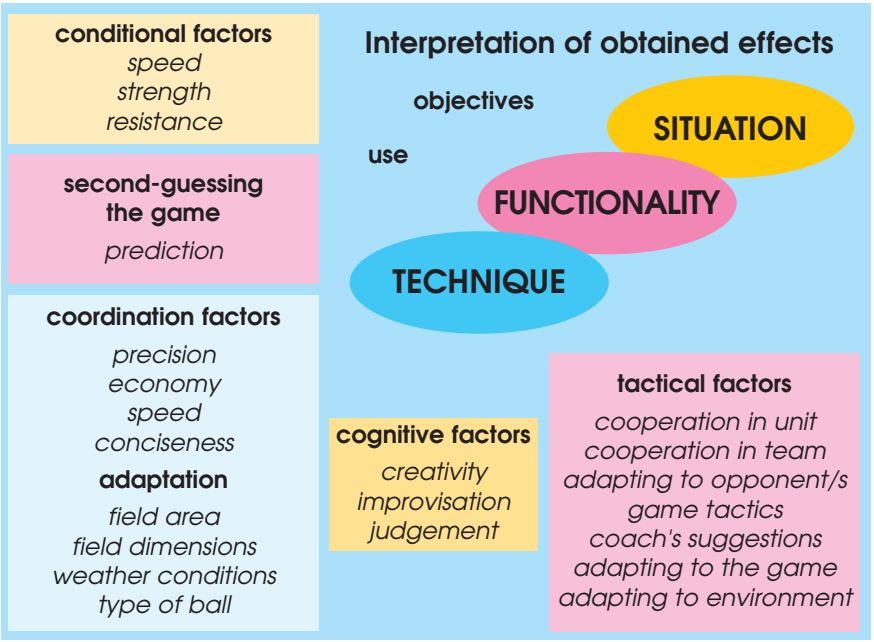


Illustration 9 - Relationship between technique, functionality and situation (D'Ottavio 1998)

One must also notice that the concepts of functionality, situation and evaluation come from system theory, elaborated by the Russian neuro-physiological P.K. Anochin (1957), who claims:
"Every functional, mechanical, or biological system that has been created or that has evolved, in order to maintain a certain degree of usefulness, must in any case have a cyclical aspect. It cannot exist if no return is made on the degree of use of the produced effect".

As in other contexts in life, learning technical skills is a gradual process, characterised by phases of training and based on the principle of repetition. The learning-teaching process in football, intended as a "situation" sport, cannot be exclusively characterised as a didactical process that is strictly based on standard repetition (even if this is inevitable in some cases), but it must necessarily offer other factors that influence performance during training and during competitions. The technical move needs to be functional and adapt itself to changing situations and actions and is therefore defined as an "open" skill, meaning that the technical skill is built in a constantly changing environment. The various fundamental techniques, such as controlling the ball, dribbling, reception and passing, shooting, headers, throw-ins and the respective evolutions of these moves, would become actual functional units in this case (see Ottavio 1996) and not, as it sometimes occurs, pre-programmed structures that are excluded from the context and deprived of meaning. Further more, a technique that refers excessively strictly to a theoretical technical model (even if correct), runs the risk of not being adaptable to the pupil's evolutionary dynamics, under a morphological and anthropometric perspective, as well as a biological and locomotor one. This is why, for this very reason, they should respond to a "flexible skill" principle during the period of basic activity. On this subject, Schmidt R., 2002, underlines in his statements the importance of recognising the invariable characteristics at the core of each movement, as well as the variable characteristics, which are on the superficial structure of the movements. The former are not usually subject to change, whereas the latter may be influenced by environmental factors.

"Mattresses to help acrobatic practice"

3.1 Technical skills in football

Technical skills in football represent all forms of specific motory communication provided for in the rules of the game. They are the foundation of the game plan and the ability to obtain tactical intentions, with a high possibility of success. Technique in football must be considered as an element of transmission of the players decisions into movement, therefore it represents the means and not the end of the game. For the learning process to be successful it must consider the element of economy, which is an essential component of any game plan, as the reserve of physical and mental energy equals better efficiency of decision making and execution. The technical move, therefore, will be expressed through variations of its execution according to variable parameters, such as:

- Strength
- Direction of arrival of the ball
- Direction of exit of the ball
- Variation of speed, frequency and rhythm
- Balance conditions
- Presence of opponent/s
- Presence of team mate/s
- Available space for action
- Visual orientation (perceptive difficulties)
- Combination of contemporary or sequential movements
- Mental energy
- Physical tiredness
- Second-guessing before and after execution
- Regulative feed-back (control information during the execution)

The technical move, therefore, in football, is always expressed under more or less complex conditions, most of the time caused by the presence of one or more opponents, available space, speed required by the situation and also by the technical precision needed for success in a certain game-plan. This general condition, that occurs constantly throughout the game, has a strong influence on the plan of technical programmes and teaching methods. Therefore, during exercises it is necessary to use opponents (active or with partially reduced activity) frequently, or didactical rules that entail limitations of the exercise (reducing time, space, etc.).

Controlling the Ball

It is the technical element that allows the player that holds the ball to move in any area or direction of the field whilst maintaining control. The player uses this skill to gain space with reference to the opponent's goal (advancement) or to gain a more favourable position to carry out a pass or to attempt a shot to goal (game direction).

Technical tips:

- Always keep the ball under control without moving too far away from it
- Use the part of the foot that is best for the intended move
- Keep the distance between the player and the ball proportional to the speed of the game and according to the presence of opponents
- Keep peripheral vision open, by gradually teaching to not always watch the ball (heads up).
- Kick when the opposite foot is placed normally
- Keep the foot slightly relaxed during impact.

Figure 1

Dribbling

Dribbling is the individual action where control of the ball is maintained even when avoiding the opponent. Dribbling and controlling the ball alike are based on a basic movement programme that begins with running and, combined with the presence of the ball, becomes a specific technique. The ways of

"Slalom with the ball within an mobile precision kit."

execution generally provide for contact between the ball and:
- Whole instep of the foot;
- External instep of the foot;
- Internal instep of the foot.

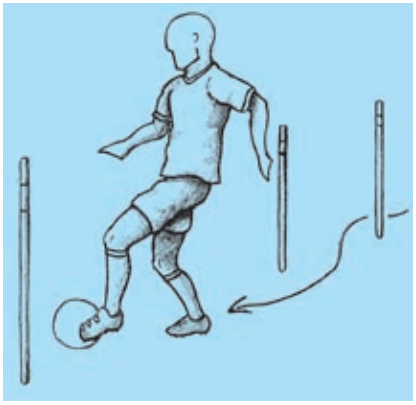


FIGURE 2

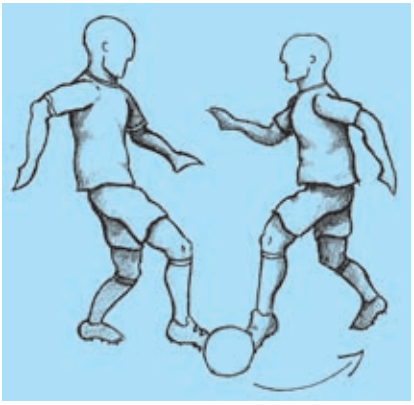


FIGURE 3

Technical tips:
- Dribble the opponent on his weak side
- Defend the ball with the body
- Keep the direction towards the goal or towards free space
- Pay attention to the opponents countermoves
- Choose the moment to second-guess the opponent by observing his movements
- Once you have cleared the opponent bring the ball forward with the foot that is further from the opponent
- Practice a feint before beginning to dribble
- Combine dribbling and shooting actions
- Combine dribbling with variations of speed and direction.

Passing the ball

It is the specific move that represents the means of communication between two team mates. For a pass to be successful, it is fundamental for the player on the receiving end of the ball to find a favourable position for reception through intentional movements; the player that passes the ball, in turn will have to be able and quick in deciding the best moment to pass (by eluding the opponent). According to the situation of the game, and the possible geometric solutions, a pass can be:
- Horizontal;
- Diagonal;

- Vertical;
- Backwards.

The technical execution can mainly be carried out by using the foot or the head and, if less frequently, by using the chest and the thigh. When using the foot, according to the situation, a player can use:

- The inner part;
- The instep;
- The internal instep;
- The external part;
- The point;
- The heel;
- The sole.

The basic movement patterns from which this technical gesture evolves consist in striking and jumping.

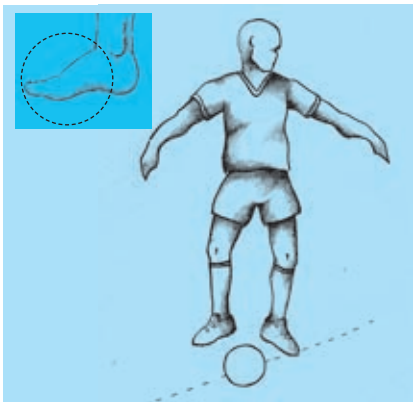


FIGURE 4

FIGURE 5

Technical tips:

- To give the right strength to the kick.
- To kick when the ball is close to the body.

FOR PASSES USING THE INNER PART OF THE FOOT (THE MOST POPULAR CHOICE WITH CHILDREN IN FOOTBALL SCHOOLS) BEAR IN MIND TO:

- Base yourself on the supporting foot at the same time as you swing the striking foot back;
- Base the supporting foot laterally and in line with the ball;
- Rotate the kicking foot externally with the point slightly pointing upwards;
- Once the kick is finished let the kicking leg continue its upward movement and carry out a small jump on the supporting foot to provide continuity to the following movement.
- Rotate the supporting foot and the chest in the direction of the pass.

Receiving the ball: the stop

This move is the confirmation of a correct communication between the two players. It is also true, however that the move can be carried out to intercept the move of the opponent team. After all, this mental and locomotor expression in particular, which is based on the ability to predict, can also on occasions - with less probability - be a prelude to a shoot to goal, a pass, and sometimes to a situation of dribbling-control of the ball. One can technically execute a stop, depending on the trajectory of the approaching ball (parabolical, medium height, grazing height), with:

- The foot (internal, external, point, sole);
- Chest;
- Thigh;
- Head;
- Abdomen.

The ball may be controlled in space in the immediate surrounding of the individual for "takeover", or "in sequence", if there is the anticipation of an immediately successive action plan (shoot, pass, etc.). The basic movement patterns on which this skill is based and refined are: receiving and jumping.

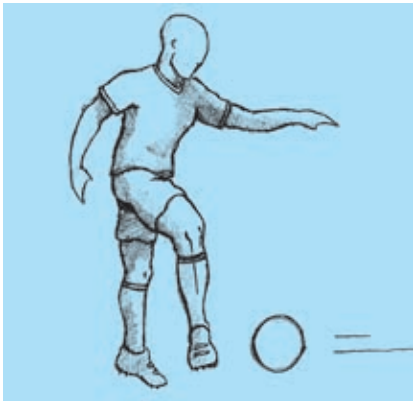


FIGURE 6

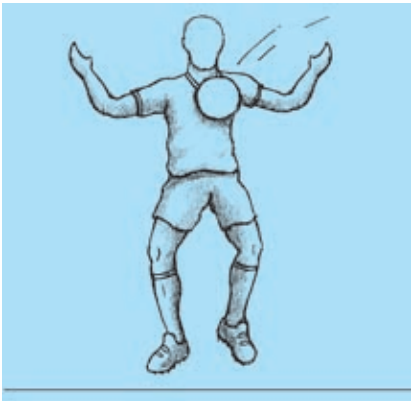


FIGURE 7

Technical tips:

- The arms must be held outwards to maintain balance;
- The jump must be carried out so that all articulations are relaxed;
- When approaching the ball lean the foot or the other parts of the body backwards to break speed;
- When the ball is under control let the other players observe and evaluate the situation,
- Protect the ball with the body and keep the opponents away.

FOR A STOP DURING A SEQUENCE (ORIENTED CONTROL):

- Turn the upper body in the direction you intend to proceed towards after the stop.
- Pay attention to the trajectory of the incoming ball,
- Make sure you re-establish the correct balance to carry out the following move.

Covering the ball

The technical conduct, which is an expression of individual control over the ball, is only carried out in the direct presence of the opponent. This form of behaviour, inevitably born out of a specific situation, is integrated with the various expressions of reception, control, and also the passing of the ball as a result.

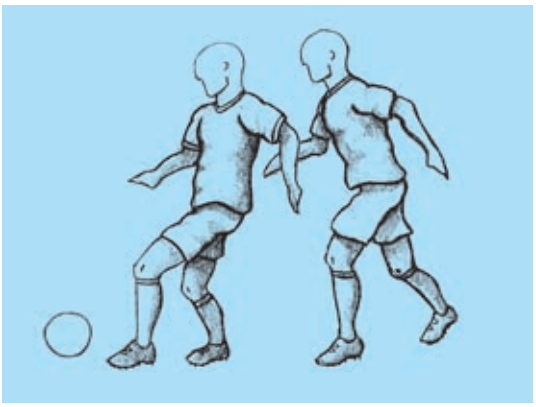


FIGURE 8

Goal Shooting

It is the conclusive action of the various game strategies. The phases that precede this move are considered exclusively as build-up and preparation for this opportunity. Goal shooting gives the meaning to the game and it should therefore be given the adequate consideration in a didactical plan. During a game of football, "to play well" without goal shooting only satisfies the purpose of the game partially, whereas "not to play so well" and to repeatedly conclude is more satisfactory for the purpose of the game. The opportunity of shooting can occur after an action of control or dribbling, after a pass, after a situation of reception and control, after an interception. The ways the move is carried out, depending on the situation and the specific movement required, will be by using:

- The foot (internal; internal or external instep, full-on instep, point, heal);
- The head (frontal or parietal);

And so on with:

- The chest;
- The thigh;
- Any other part of the body allowed by the rules of the game.

The latter condition applies to all the other technical movements listed beforehand. The movement patterns on which this skill is structured are the abilities to strike and jump.

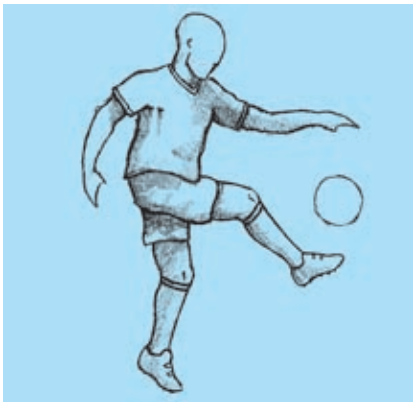


FIGURE 9

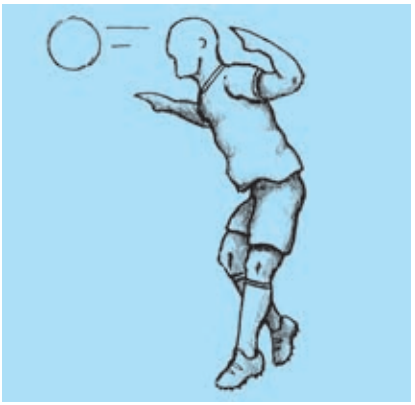


FIGURE 10

Technical tips:

- During the run up, steps must be short to provide the right coordinates and the last step must be wider to prepare the kicking leg.
- During the shoot the body should be above the ball,
- When the ball is moving the supporting leg must be slightly in front of the line of the ball.
- During the moment of contact with the ball, the ankle must be "rigid" and the foot pointed downwards.
- When the shot is carried out with the inner part of the instep, the upper body should be inclined towards the supporting leg.
- At the moment of impact the arm that corresponds to the supporting legs should be extended forwards.
- After impact the kicking leg should continue its upward-forward movement to direct the ball.
- Teach the pupils to observe the goalkeeper's position.

Head play

This technical skill that has already been mentioned during the presentation of the other techniques, is characterised by the use of a specific region of the body that essentially has the only option of hitting the ball. Contrarily to the feet, the head, because of its

morphological characteristics, offers less opportunities of control. This should be considered when we talk about the development of the dynamics of the game, which do not allow, except in rare cases, for a succession of repeated contact between the head and the ball, and even less for balancing situations. Therefore the head may be used to pass, to stop, to shoot, to intercept, to defend, and exclusively when the ball is in the air. The header can be carried:

- With both feet placed on the ground;
- When both feet are in the air;
- After a more or less long run up with only one foot on the ground;
- During a dive.

Impact with the ball is mainly on the following surfaces:

- Forehead;
- Side.

According to the needs of the game, it can happen by giving a direct trajectory to the ball or only deviate it. The basic movement patterns that follow the evolution of this move are hitting and jumping.

Figure 11

Technical tips:

- Keep eyes open when heading the ball;
- Move towards the ball (not be hit by the ball).
- Bring the upper body backwards before hitting the ball.
- Bring the arms back to keep balance.
- At the moment of impact bring the head forward and keep the neck muscles tight.
- Let the movement begin from the lower limbs.
- When hitting with the side of the head slightly twist the upper body beforehand.
- During headers in the air, hit the ball before it begins its descent.

Tackle

It is the technical element that stems from the contemporary action of two players that try to maintain or regain ball possession. So the person with the ball will tend to avoid a tackle whilst the person without the ball will tend to apply it. This opposing action has to abide by the rules that provide for, in this specific situation, intervention of the players exclusively directed towards the ball. In some cases, tackling can assume the form of a combination of two technical elements. This happens when the player, having successfully solved the tackle, continues his action without interruptions. For example in situations of control of the ball, tackle and shooting; or during a run without the ball, tackle and passing. This technical move, more than others, requires an adequate level of general muscular strength, especially concerning the lower limbs, and a well balanced body arrangement (baricentre within and closer to the ground). Tackling can be carried out in various ways:

- Frontal;
- Lateral
- From behind
- Sliding tackle
- Arial tackle

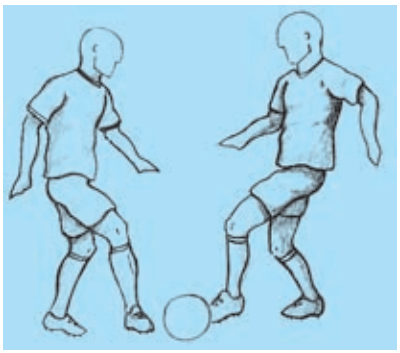


FIGURE 12

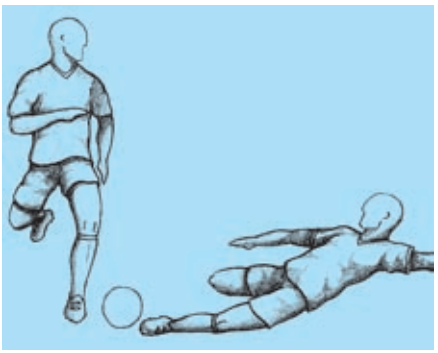


FIGURE 13

Technical tips:

- The move requires, at the moment of contact, an adequate general muscular tension, especially in the lower limbs.
- Keep a balanced body position with a low barycentre.
- The best moment is when the ball is further away from the opponent's foot.
- Try to find the right coordination, choose the "right time" and measure the "empty space" available.
- Think ahead, in case of successful conquest or maintenance of the ball, for your next move.

Throw-in

This technical move is the only opportunity in which the players (excluding the goal keeper) can use their hands to play the game. There really aren't any techniques in particular if not to take full advantage of the ability of the body to flex and extend itself to throw the ball at the desired distance and in the right direction. The move can be carried out with or without a run-up, and the feet mustn't leave the ground when the ball is thrown.

A sufficiently acceptable throw-in requires:

- Sensible handling of the ball;
- Fluid and rapid movements;
- Mobility and extendibility of the upper body and the legs;
- Adequate level of strength.

The basic movement pattern will be, in this case, to throw.

FIGURE 14

FIGURE 15

Goal keeper technique

The goal keeper needs to be considered and subsequently trained on the basis of a completely different required performance from his other team mates, even if, for some time now, he is often being required to, on the basis of the new game regulations, to perform unusual technical movements compared to the traditional ones (seeing as the game and the regulations bring him to use his hands more frequently than his feet). However, even if the goal keeper uses a different variety of techniques, his game must be strongly integrated with the technical organisation of the defence and the team in general. If we refer to the various situations, all that is requested of the goal keeper is to keep the ball from entering the goal, using all the technical methods he has, or to interrupt the opponent's offensive action, to recover the ball within his range, to

re-launch with precision and efficiency. The ways he carries out his role can be structured by:

- Position between the goal posts (goal coverage);
- Seizing of the ball;
- Diving, seizing and deviating;
- Exit;
- Re-launching the ball using hands and feet;
- Kicking the ball away.

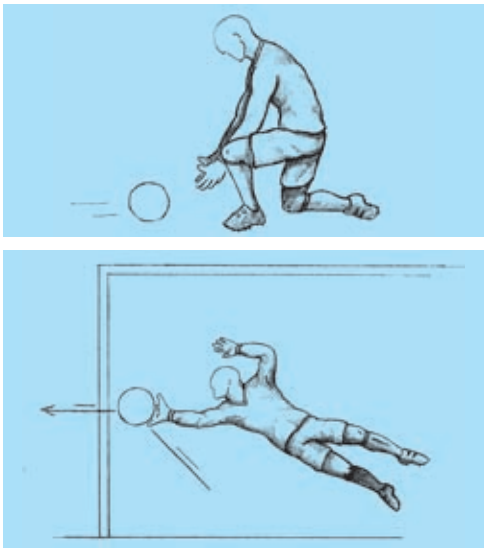
In more specific situations:

- Direct and indirect free kick;
- During wall set-up;
- Penalty kick;
- Corner;

and, considering the new rules of the game:

- More speed in defending with his feet;
- Ability to kick the ball away from a back pass;
- Better selection of information regarding back passing (is it possible to touch the ball with my hands or not?);
- more regularity in defending with his feet (last opponent facing the goal).

The basic movements on which the specific skills of the goal keeper are based and structured are the patterns of "receiving", "hitting", "throwing", "jumping", "running", "diving".



FIGURES 16, 17 AND 18

The development of the techniques in young people is based on the following guidelines:

1. automatization via conscious control;
2. cognitive participation;
3. higher degree of freedom
4. motivation to learn
5. Problem Solving method
6. game-situation drills
7. dynamic teaching: phases with high or low intensity
8. simplified rules
9. appropriate spaces and equipment
10. adapting the above to the children's age

TABLE 11- D'Ottavio, document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome - 2003

3.1.2 THOUGHTS ON THE TECHNICAL MOVE OF DRIBBLING: TEACHING SUGGESTIONS

During the 2005-2006 season, the Juvenile and Scholastic Section, at Coverciano, in the Technical Sector branch, organised a Conference entitled *"From the grown ups… to grow up: Dribbling"*, in order to ponder the fact that it is too bad that this "fascinating" technical move is disappearing because there are fewer and fewer players on the field that are able to express certain technical qualities compared to the past. Many thoughts were expressed on the subject, one of which for example came from Sergio Roticiani (didactical coordinator of the Federal Football School of Acquacetosa in Rome):

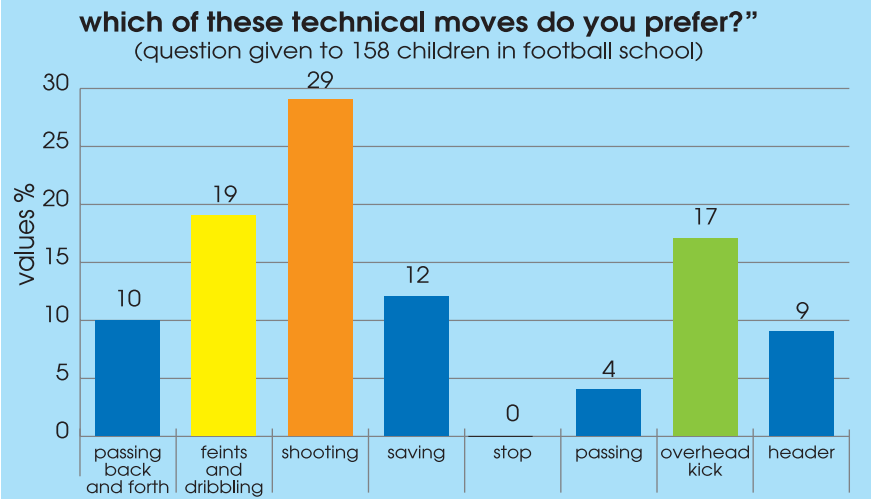
"The game of football finds its ultimate sublimation in two technical moves that makes the football lover's heart beat and get excited: the shoot and dribbling evoke epical images of an infinite number of duels and challenges and it is on this emotional rapture that the coach of young players should base his didactical itinerary.

In the basic categories, dribbling has a fascinating effect that makes the young player interested in trying and taking the risk of loosing the ball, the coach must favour this attitude and stimulate this impulse. In this sense it seems appropriate to quote the statement of Eduardo Galeano, who said, regarding football: "no matter how the technocrats programme it, even in the minimal details, no matter how the powerful manipulate it, football keeps wanting to be the art of the unpredictable".

The players the children love most are the ones that arouse enthusiasm with their style: Ronaldinho, Totti, Zidane, pure talents that have found adequate didactical spaces and environments that allowed their potential to explode. If it is true that champions are

born not made, the road is long with many a winding turn to become one. The didactical pathway must mostly encourage learning by trial and error, and through continuous repetition the young player will experiment behaviours that will become more and more perfected. The presence of the opponent will favour their cognitive, sensory and locomotor adaptation, through which managing the ball will become more and more effective. Precision and speed on one side, ability to vary their behaviour according to the opponent's actions are paradigms that are the pillars of the action of dribbling.
Surely the use of playing in reduced spaces can favour this conduct, but vice versa, inadequate game environments diminish the possibility of experimenting it, the same way as for goal shooting. The return to street football, the use of competitive models that are better suited to the psycho-physical needs of the young such as 7 a side football, will surely bring a higher solicitation of dribbling… and will give us many more emotions."

It must be said that dribbling at the dawn of football was considered a fundamental weapon to approach the opponent's goal and there were more 1 on 1 situations. The art of dribbling was born in some English colleges and on the streets where the spaces to play were more restricted. However, tactics, but above all the search for a higher speed of the game, have brought even young players to abandon dribbling all too soon. In a survey conducted on a population of children from football schools, most subjects replied "goal shooting" and "dribbling" to the question: "which technical

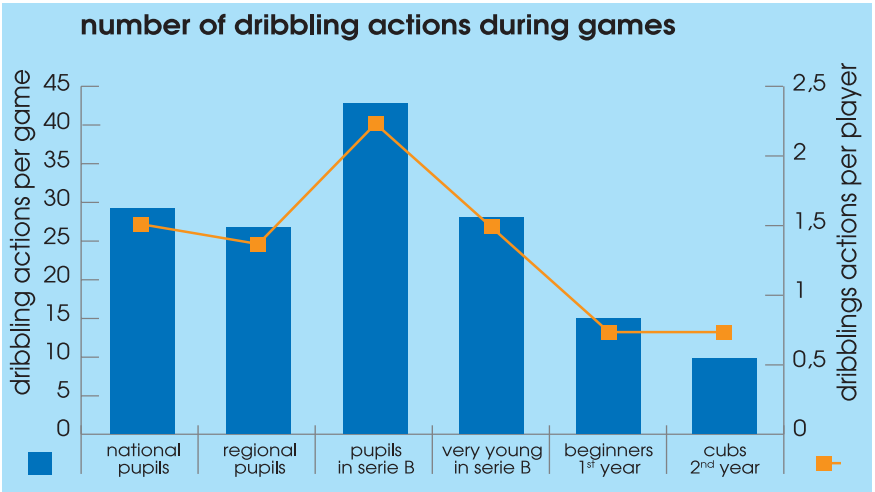


GRAPH 13 - survey on the technical preferences of children in football school

move do you prefer?" (GRAPH 13), interesting when you compare this result to the finding that young players carry out an average of one or two dribbling actions per game (GRAPH 14), therefore proving to have quite a modest technical track record, especially in this technique. However, considering that games, at any level, offer less and less space for technical play seeing as man marking is becoming more and more aggressive (as a consequence of better physical conditions), mastering this technique really could become that extra weapon to dominate the opponent. Roberto Donadoni, the current Italian Squad manager, recently said: "Dribbling is the ability to overtake the opponent with the ball and is a solution, which, when it is successful, provides an immediate advantage: a free ball and numerical advantage. Therefore it is an individual technical and tactical skill that has a major effect on the incisiveness of the tactics of the whole team".

Technique and Learning how to Dribble

In order to dribble and "scrap" the opponent, as the children put it, you need to have mastered the techniques of controlling the ball. This is partly due to certain natural pre-dispositions, even though, as in for all expressions of movement, the coordinative component is essential. A good level of dynamic balancing, spatial and temporal differentiation, rhythm, adaptation and transformation skills, can only increase the potential of whoever intends to practice the dribbling technique. Even the speed of cyclical or a-cyclical movement, combined with feints, heighten the quality of the



GRAPH 14 - Data collected during matches in the Juvenile and Scholastic Sector of FIGC, 2006

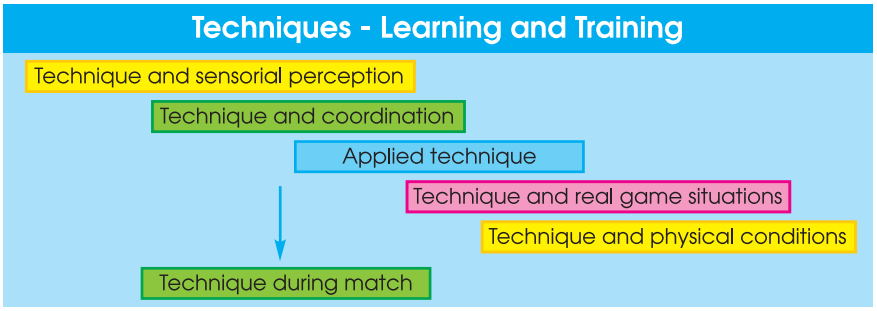


ILLUSTRATION 10 - Technique Formation in situational sports. D'Ottavio, 2006 - Documents of the Conference "From grown-ups...to grow up: dribbling"

From 2 vs 1 to 1 on 1

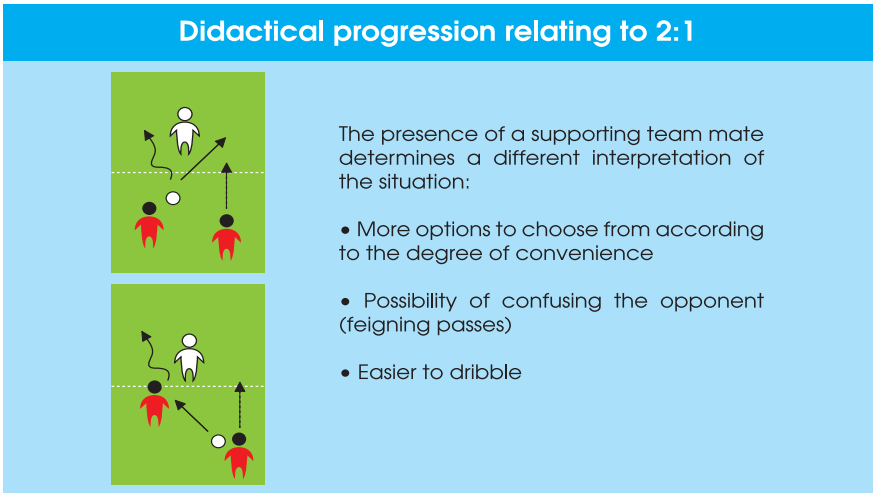


FIGURE 19 - D'Ottavio, 2006 - Documents of the Conference "From grown-ups... to grow up: dribbling"

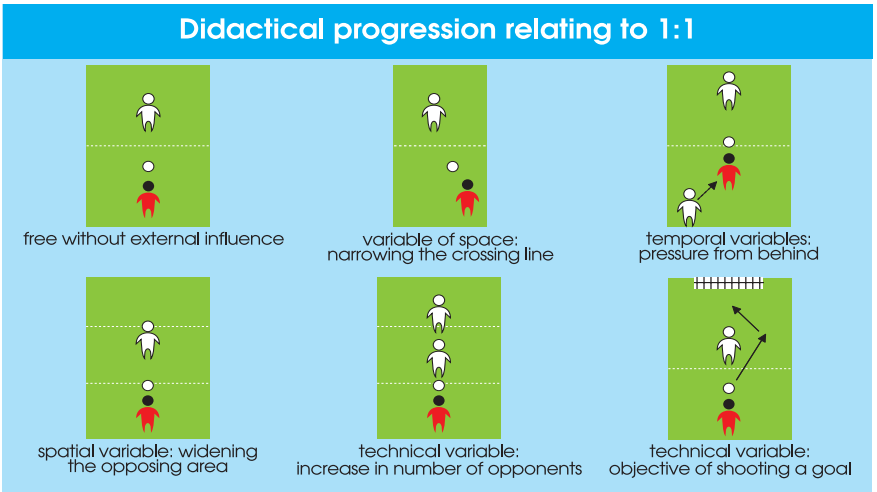


FIGURE 20 - D'Ottavio, 2006 - Documents of the Conference "From grown-ups... to grow up: dribbling"

execution and increase the possibility of success during the game. From a didactical point of view, once the pupil has acquired the ability to control the ball in situations of changes of front and direction with curved trajectories such as slaloms with cones, he will be able to start exercising in conditions that reproduce the context of a real match, from a geometrical point of view and in terms of timing (applied technique) (ILLUSTRATION 10). Real match situations and games will finally complete the picture of programmable didactical experiences.

3.1.3 THOUGHTS ON TRAINING YOUNG GOAL KEEPERS: TEACHING SUGGESTIONS

The characteristics of the role of goal keeper

"…When carrying out his job, he often remains isolated from the other players on the field, and who knows where his thought go in those moments. In certain phases of the game his level of "participation" is more similar to a supporter rather than a player. But it often happens that he has to quickly change his attitude and be fully attentive, effective and ready straight away, whatever the game situation.."

From this sentence, taken from a British text written in 1971 by unknown authors, one can understand how different the goalkeeper's role is compared to the other players.

The role of goal keeper is obviously the most different in the team, from the point of view of technical and tactical, physical and locomotor, as well as psychological skills required, as well as the responsibilities and tasks he has to undertake. It seems clear and obvious that we should consider the possible effects of this pressure from a psychological point of view. As we know, he is the only player who is allowed to touch the ball with his hands in the penalty area, so his role is to defend the goal, to interrupt the actions of the opposing team, to retrieve the ball in his area, but also to re-launch the ball with precision and effectiveness, using either hands or feet, therefore contributing to the following offensive action (see ILLUSTRATIONS 11-12 - overview of technical moves and movement patterns in football).

Among other things, seeing how various changes have been made to the rules of the game in the past years, that have "forced" the goalkeeper to get more involved using his feet, and seeing the evolution of the game strategies and tactical team modules, it seems fair to consider this role as an evolving one.

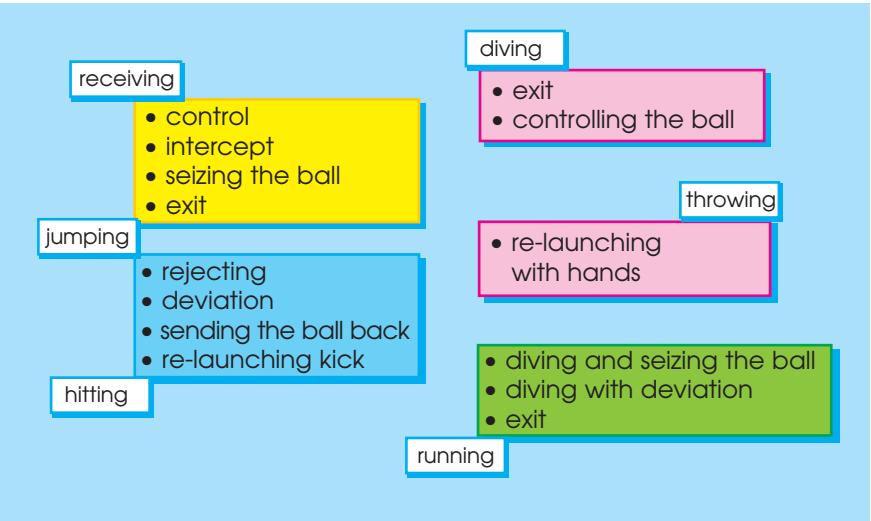


ILLUSTRATION 11 - The relationship between movement patterns and specific technical abilities of the goal keeper in football (D'Ottavio, 1994)

All you have to do is think about "how" the goal keeper has to play today and "how many times" his actions are decisive in the teameconomy when he is "far from the goal". However we mustn't forget that his game must be strongly integrated with the tactical organisation of the defensive section of the team as well as the team in general. We could use the following simile: *the goal keeper doesn't only have a "house" - if we can call the goal with the goal area a house - but he is now in charge of a house with a large garden to look after.*

An overview of the technical moves of the goal keeper

"If we refer to the various situations, all that is requested of the goal keeper is to keep the ball from entering the goal, using all the technical methods he has, or to interrupt the opponent's offensive action, to recover the ball within his range, to re-launch with precision and efficiency."

The ways he carries out his role can be structured by:	In more specific situations
• Position between the goal posts (goal coverage); • Seizing of the ball; • Diving and seizing and deviating; • Exit; • Re-launching the ball using hands and feet; • Kicking the ball away.	• Direct and indirect free kick; • During wall set-up; • Penalty kick; • Corner.

And considering the new rules of the game

- More speed in defending with his feet;
- Ability to kick the ball away from a back pass;
- Better selection of information regarding back passing (is it possible to touch the ball with my hands or not?)

ILLUSTRATION 12 - Overview of technical moves relating to game situations (D'Ottavio, Tell, Del Ciello, 2005)

Second-guessing skills

Now let us try and think about the mental work carried out by the goal keeper during an action of the game. He will have to observe and discern the information coming from the player that is holding the ball, the position of his team mates in defence, the position and movements of the other opponent players. Through all this information he will have to make one decision after another, regarding his position and the possible ways he can intervene to block the attack of the opponents (i.e. exiting the goal), or interfering with shoots, taking the fact that his actions can vary horizontally and vertically, in terms of force and precision, into account. Therefore the attention skills, reaction skills and other coordination skills that come into "play" (spatial and temporal orientation, differentiation, movement control etc.) must be continuously stimulated.

The goal keeper is therefore he who, more than others, will always have to understand and try to second-guess the possible actions of attack of the opponents. In the game of football, the ability of second-guessing is put to the test in an extremely uncertain context, if we consider the number or perceived information, prior experience plays a large role in deciding the application of this skill. The more experience a player has had, he will have access to more and precise information, in order to "read" the situation and provide anticipated solutions. It is clear that in these cases each player will have to "clash" with the opponent's intentions, who will tend to use certain ways of thinking and expressions of technical skill to their best advantage (variations, fakes, etc.). To know the techniques of various moves (e.g. type of run-up, posture or position of the foot during strike, or during dribbling, etc.) will make the process of perceiving the information easier; to know the individual characteristics of the opponent players (if they are right or left-footed) will provide more information to select and find certain clues to recognise that they will need to prepare themselves for a predicted action (shoot, cross, etc.).

The choice of role

There are specifications to be made, particularly on a didactical basis, regarding the training of a young goalkeeper, especially in the grass root categories.

Why does a child choose to play goalkeeper? How is the choice made? How must the instructor behave with the smaller children?

Considering that competitive matches begin from grass-root level, it is obvious that it is necessary, even in these age groups (8-10 yrs

old), to find the players that will play as goal keeper. You could spontaneously guess, when thinking about this necessity, that one should find the player that is less technically skilled and "force" him to play as goalkeeper. On the contrary, the didactical tip we feel we can suggest is to allow the children who want to try to play in this role, during training sessions or during matches. The approach to the role should therefore be spontaneous, without forcing them, and the coach should allow the children to go back to playing field if they express the desire to do so. Furthermore, during the learning process, the goalkeepers should also be allowed to try playing in another role. This will allow them to be aware of the characteristics of each role, so as to be able to understand the various situations of a game, so they have access to more information that they can use for their second guessing. In the following phases, such as role specialization, the coach can pay more attention to the selection process. The preference of a goalkeeper can be determined by, other than specific technical abilities, other elements that can also be found in the anthropometric (height, size of hands, etc.), as well as other aspects such as personality, attention span, acrobatic skills, other than the psychological balance that we mentioned before. The integration of such factors with physical qualities, that can be evaluated with specific tests, such as the long jump, triple jump, CMJ, etc., will complete the picture.

Didactics

In general, each coach (and therefore even the goal keeper coach) will have to deal with some structural variables of each club or in each category. In particular, when organising the didactical plan, he will have to take the following into consideration:

- Number of goalkeepers to train
- Number of weekly training sessions
- Training timetable
- The infrastructure available (field, spaces etc.)

The awareness of the possibilities that the club has to offer, regarding the spaces that are available, timetable and playing fields, will help to optimise the actions of the coach.

In the didactical proposals it is also fundamental to be aware of teaching methods: **deductive** and **inductive** methods. Both of these methods will have to be used in the right mix during the learning process and used, by rule of thumb, according to the age group and category of the pupil: the younger the pupil, the more the coach will have to use an inductive approach (where experience, discovery

and the fulfilment of didactical objectives almost happen by chance, at the end of a process that has actually been suggested by the coach); the more a pupil grows, the more the training sessions will be based on deductive methods (where the coach pre-determines the actions to be carried out and the pupil essentially executes his orders). Both methods must always be sustained by a very solid "playful" basis, that gives the pupils a motivational environment that encourages better involvement and learning of the prepared programme.
The main characteristics on which the teaching methodology, which we can define as "playfully inductive" can be based, are:

1) Use of games as dominating element for the development of healthy competition (individual games, in couples, in teams)
2) Global and contemporary involvement of all the pupils that play goalkeeper
3) Progressive increase of work intensity (technical and coordinative, physical and locomotor, as well as psychological)
4) Continuous variation of exercises (a single objective can be fulfilled with different exercises)
5) Dynamic approach to performance models (the goalkeeper, at the end of the methodological pathway will find himself facing real match situations).

In this regard, it seems appropriate to underline that a correct didactical assistance, especially during the first phases of the learning process, should never be denied to the pupil (choice of exercise, material and teaching method), in order to avoid injury or traumas that could cause the pupil to withdraw precociously from the role.
Therefore, regarding the didactical experiences and the laws that regulate the learning process, we can divide the training of the goalkeeper into the following phases:

Practicing for the role from 8 to 10 years old	During this phase, further to the playful approach provided for in any football school, the coach will try to spot possible pre-dispositions among the children that have asked "to try" and play goalkeeper. The coach will try to find the right pre-requisites via a series of games (in teams, in couples, and individual) that "hide" the technical and coordinative objectives of this role.
Training for the role from 11 to 13 years old	This second training period of the athlete/goalkeeper involves training sessions that are more role-specific, with a predominance of overall technical and coordinative exercises in a collective form such as a "simple circuit" , in which technical and coordinative stops are more frequent, or small team or individual competitions with technical objectives that are specific for the role.
Specialisation of the role from 14 to 16 years old	The moment of specialisation for the role coincides with the most competitive aspects of the whole period of the juvenile sector and therefore the objective that needs to be worked on is the reinforcement of competitive spirit and to pair it with an increase in athletic and physical commitment, possibly by using more complex circuits that are oriented towards conditional skills and the repetition of specific technical moves to improve memorisation. Furthermore the exercises will be more individual to reinforce tactical and cognitive skills.

TABLE 12 - Didactical programme and learning phases of the young goalkeeper's training (D'Ottavio, Tell, Ciello, 2005)

Learning material

As mentioned previously, the use of materials that guarantee a correct learning process and preserve the well-being of the young goal keepers (security factor) is to be strongly recommended to all people that deal with juvenile training. Rubber balls are particularly indicated (double layered) to practice goalkeeping, as well as specific rubber mattresses to soften the impact of falling over (special mattresses that also optimise acrobatic and pre-acrobatic movements) or special goals that have rubber covering the most dangerous parts. This equipment also facilitates, considering the assortment of types and colours, the children's motivation and stimulating the learning process. All of this helps to intensify their experiences and improve their learning process and a increase their sense of gratification.

Other material, such as for example the "frequency coordinator" has a choice of many applications, or the so-called jelly-fish, which are more useful in proprioceptive stimuli, can be used for specific exercises aimed at the fulfilment of technical and coordinative objectives (proprioceptivity, development of balancing skills, explosive force, etc.), but for further information it is possible to refer to the paragraph entitled "Teaching material".

3.2 Second-guessing skills and Faking

Second guessing

Second guessing is a psychic process at the base of any human activity and is founded on the ability to predict events that have not yet occurred or that aren't finished yet; "Second guessing means that before an action has started and before the subsequent conditions that accompany it occur, one already, on the basis of his perceptions, can construe that action, and forsee its outcome" (Meinel, 1984). Even regarding the ability to forsee movement, there are substantial differences between "closed" and "open" athletic disciplines. In the former, where the objective is pre-determined, the anticipation essentially consists in forseeing the action plan by following the sequences of the movement (mental reconstruction of the action). In the "open" disciplines, including football, the ability to forsee actions is expressed in a much more complex form because it is determined in an extremely uncertain environment, and will have to take in more information.

Complex second-guessing

- *anticipation of the event (development of the situation)*
- *anticipation of the objective (purpose of the action)*
- *anticipation of the action plan (executive procedure)*

Cei (1989) sums up his thoughts by defining the second guessing processes in athletic games by "formulating response patterns by creating a hierarchy of the probability of events". This expression highlights the fact that, even in the phase concerned with intake of information (perception), the expert athlete uses his ability to predict. As Weimer (1997) sustains, even perceptive processes are a part of a constructive and active cycle, without making distinctions between the "perceived" and the consequent "behaviour". In fact, cognitive activity cannot only be conceived as the ability to structure and restructure the sensorial information that comes from the outside and to find the best motor responses. Perceptive choices become "sensorial behaviour" on the basis of cognitive patterns that point towards a certain behaviour patter. According to Neisser (1981) prediction patterns are the ones that help us look for certain types of information, thereby determining the object of perception.
Let us imagine for example that we are taking a stroll in the centre of Rome to do some shopping. The information strategies (observation of the shop windows etc.) that everyone would use can basically be divided into two categories:

1. not having a clear idea about what to buy, the direction of the shopper's attention will be generalised and will casually pause on the elements that capture his/her attention (originality of a display, colours, etc.);
2. on the contrary, having a clear idea of the object to buy, the shopper's perception will be organised according to selective patterns, and will therefore look for the object that represents the priority of this stroll.

The first scenario depicts quite a slow manner of reaching the purpose of the outing, as the shopper will tend to analyse too much information and runs the risk of being distracted. The second strategy seems a faster way of reaching the goal, as it most certainly is, but this way reflects an excessively rigid state of mind in searching for information because, should the shopper fail to find the object in question, the outing would have to be considered a failure.
We believe that the best solution, especially in contexts linked to football, is to have a clear idea of what to look for, but at the same time to be mentally open to the possibility of variables, which, in any

case, even if with less immediate gratification, will facilitate our objectives. This means, in other words, that on the basis of past experiences and anticipations, the athlete will hypothesise a list of the main possible solutions to the context and other alternatives according to a preferential or probabilistic hierarchy.
Let's try and think about the goalkeeper's mental behaviour while the opponent is running up to a penalty kick. He will be concerned with organising his actions according to his construed action plan of the opponent based on certain characteristics (signs) he can pick up from the player during the run-up.
The anticipation processes will allow the goalkeeper to find what he needs to satisfy his expectations and to neuro-muscularly prepare himself before the opponent strikes the ball.

Perceptive anticipation: knowledge of the characteristics of the player (right or left-footed, usually points on strength or precision, estimate of his potential, environmental conditions, state of equipment, etc.).
Information: length and inclination of the run-up, speed, width of steps, direction of gaze, coordinative adjustments before the kick, etc.
Main response pattern: Precise Shot to his left
Alternative response: Central shot with possible footwork.
From this example one can see how anticipation is correlated to an intentional action plan of a higher order and therefore how this relationship inevitably influences the information strategies. We can define the conception of intention as a property of every mental phenomenon (Gould and Shotter, 1983). Through intention, the mind is directed towards objects and situations of the world (Searle, 1983). In this sense the concept of intention also includes the concept of anticipation.
The cognitive conception therefore highlights the interdependence between perception and action by integrating them with processes such as expectation, perceptive selection, anticipations. "you

develop a personal awareness of the world, that is not passively determined, based on a stimulus-response behavioural paradigm, but which is rather construed with active selection and interpretation of the individual regarding the stimuli derived from his environment." (Reda, 1985). However, we must consider that the intentions of a player during a game action must in be confronted with and, in a certain sense, "clash" with the opponents intentions, which, in turn, will try and use certain ways of thinking to their advantage.
The action plan of a player is therefore "disturbed" by the opponents' plans that will try to interfere with his project, the ability of the player will have to be that of simultaneously dealing with events by integrating his programme with that of the opponents'. K. Meinel (1984) defines this phenomenon as a process of "mental co-execution of the respective actions". Furthermore, others have expressed themselves regarding performance as "integration and not a simple sum of events" (Moreno, 1983). The ability therefore to co-execute with the other components of the game becomes very important as it allows the player to constantly reorganise his action plan, adapting it if necessary or completely changing it. This is emphasized mainly by the fact that each player will normally try and delay the revelation of his intentions, to avoid giving his opponents the possibility of anticipating and formulating responses that could compromise the outcome of his actions.

Faking

The use of faking is very relevant in football before the player executes a technical move. It is obviously a mental process as well as a movement process, which is activated to intentionally create reactions in the opponent that aren't relevant to the real situation. In feinting actions the purpose of the player is to increase the degree of uncertainty of the game environment, by carrying out movements or actions that have nothing to do with his real intentions. Let us examine the preparation for a shot to goal that instead is followed by a dribbling action.
The opponent will see his expectations vanish as his analysis of the goal-shooting behaviour will have triggered a response that will be inefficient for the real situation. He will probably be overtaken, seeing as the variation of his action plan would be too late.
Feinting actions will have the following effects on the opponent:

- imprecise perception and interference with attentive orientation: as he is willingly attracted to a stimulus that is not relevant to the action plan

- tendency to trigger automatic responses: the opponent tends to execute motor reactions that are less controlled at a conscious level. This is a particular indication of mental and physical tiredness:
- increase in decision making times: especially when the fake is carried out by more than one player. The resulting uncertainty will increase the time that is necessary to process all the information.
- Compromise of the technical and coordinative organisation of the opponent: the technical response is completely wrong or imprecise and inefficient as it is not adequately supported by a coordinative component (loss of balance, long reaction times, late transformation of movements).

The possible situations are included in these five categories:

1. player with ball possession
2. player with team mate possessing the ball
3. player with opponent possessing the ball
4. situations where ball is inactive
5. players in situations where ball possession is disputed (when the ball is not yet under any player's control)

Structurally, the variations of feinting actions can be expressed as:

- prepared movement that is not correlated to the intentional movement;
- interruption of movement to continue with another movement or another direction (body feints);
- simultaneous presentation or rapid sequence of two or more pertinent signals;
- changes in rhythm or speed.

"To control the ball is a fundamental requisite of playing football"

3.3 Coordination Skills

Representation of coordinated movement is based on the following assumption: the organism is a system with a very high degree of auto-regulation that conserves itself, can correct itself and even perfect itself. Coordination, involves the neuromuscular system, especially in the extrapyramidal areas and in peripheral proprioceptive regulation. It can be defined as the ability to regulate, organise, and control movement.

Coordination, as Illustration 13 suggests (Berstain, 1957 in Meinel, 1984), is a complex process that is ascribed to the efficiency of the central as well as peripheral Nervous System. Essentially,

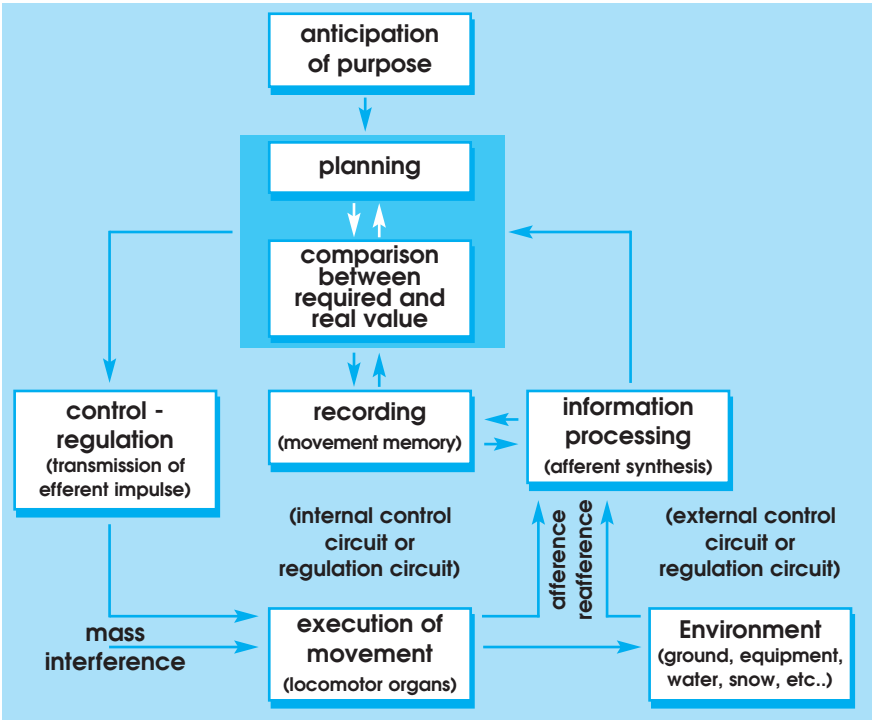


Illustration 13 - Simplified model of movement coordination (Bernstein, 1957)

coordination refers to the quality of three functional systems (P.K. Anochin, 1973) that entail the integration of as many regulatory and movement control systems and processes. These are:

1) control over the central programme and the variables that are consequently triggered by the partial execution of the movement, including anticipation (comparison between nominal and real value)

2) final and partial feedback on the execution of the movement (afferent synthesis)

3) control and regulation of the muscles involved in the movement (control over mass)

Coordination skills, according to many taxonomies in literature of the 70s, can be divided into: General and Special. The various authors agree on this classification that implies a more general coordination that includes the various coordinative peculiarities that also depend on the type of sport and the specific technical picture. The General Coordination Skills are: ability to control movement, the ability to adapt and transform movements and the ability to learn movement (together they form locomotor dexterity). Special Coordination Skills are: refined dexterity, balance, elasticity of movement, movement combination, movement imagination, orientation, spatial and temporal differentiation, reactivity, movement anticipation, movement memorisation, rhythm of movement. Some of the latter can however be considered as direct effects of other processes that are involved in the organisation of movement: imagination, memorisation, anticipation. This effectively seem to mainly belong to mental processes that govern athletic locomotor activities.

3.3.1 Reciprocity: sensory - perceptive and coordination skills

"The senso- perceptive skills represent certain potentials of the individual to sense and react to internal (from the body) and external (from the environment) stimuli. This property of the human organism is due to specific neuro-receptors that are part of our sensory organs, which allow us to receive the signal (stimulus) to transmit it to the central nervous system that will, in turn, have the task of recognising it and to send back a reaction to the muscles. This reception process, transmission and decodification of the signal is attributed to neural structures called analysers.

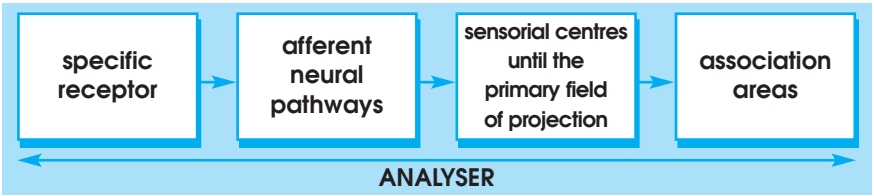


ILLUSTRATION 14 - The analyser (Sotgiu and Pellegrini in Ottavio, 1994)

The analyser (see ILLUSTRATION 14 - Sotgiu - Pellegrini in D'Ottavio, 1994) represents a specialised system with the role of triggering response processes of the organism, by activating the organisational functions of movement. We therefore have the following kinds of analysers: tactile; visual; static-dynamic; kinaesthetic. At the same time, or in any case in terms of an immediate sequence, the locomotor response will be structured according to the possible potential of organisation and control over the movement (coordination skills) in relation to a general primary project (locomotor area of the brain). Coordination skills are therefore also considered as components of movement, which assist it during execution, by adjusting it in the various sequences and adapting according to environmental variables:

- senso-perceptive skills: are responsible for reception, decodification and triggering of response
- coordination skills: are responsible for the organisation, control and direction of movement (ILLUSTRATION 15)

3.3.2 GENERAL COORDINATION SKILLS

Ability to adapt and transform movements

This is an ability to change, transform and adapt the movement programme to the sudden changes in the situation or the external conditions of the movement (different from the usual conditions in which the movement was learned), therefore not changing or partially changing the result of the movement.

Ability to control movements

This is the ability to control the movement according to the required purpose, that is to fulfil the exact planned result of the movement/exercise.

Ability to learn movements

This ability consists in the assimilation and acquisition of movements, or, mainly, of portions of movements that we did not possess beforehand, which need to be stabilised immediately.

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SPECIAL COORDINATION SKILLS

refined dexterity • balance • elasticity of movement • movement combination • movement imagination • other coordination skills

Other special skills:

- Orientation
- Spatial and temporal differentiation,
- Dynamic differentiation (regarding muscular tension)
- Movement anticipation (the ability to second-guess your own movements or those of others, which is expressed by movement preparation or your body position);
- Movement reactivity;
- Movement memorisation (memory of movement);
- Rhythm of movement (not only the ability to feel rhythm but also a musicality).

The alternation between tension and distension of the large muscular groups in every exercise produces a certain rhythm in the movement that the pupil will end up "feeling" after constant repetition. It is a great advantage for the establishment of newly acquired movements.

ILLUSTRATION 15 - from K .Meinel (modified, 1984)

In order to better understand the definitions and meanings of the various coordination skills, with the specific references to football, refer to the publication "A scuola di calcio" "Football School" by S. D'Ottavio and S.Roticiani (see bibliography).

3.3.3 Special coordination skills

- Balance
- Movement combination
- Orientation
- Differentiation
- Ability of reactive movements, simple and complex
- Rhythm: meaning not only rhythm in the musical sense, but also the alternation between tension and distension of large muscular groups.

In every exercise, a certain rhythm is produced with the movement, which the pupil will end up perceiving after constant repetition. It is a great advantage for the establishment of newly acquired movements (the constant factor in movement, see Schmidt 2002, and paragraph "Technical Skills").

Below is a list of a few definitions of coordination skills that have been formulated by two experts: MEINEL, K., SCHNABEL, 1987.

Orientation
Orientation is intended as a skill to determine and change, in space and time, the position and movement of the body, referring to a defined field of action (e.g. field, ring, gymnastic equipment) and/or to a moving object (e.g. ball, opponent, team mate, etc.).

Transformation
Transformation is the ability that allows one, on the basis of situational changes that have been perceived or forseen, when one is carrying out an action, to adapt his programme to new circumstances, or to proceed in a completely different manner.

Rhythm
Rhythm is intended as the ability to perceive rhythm coming from the environment, to be able to reproduce it with one's movements, as well as to realise, in one's activity, an "interiorised" rhythm, that exists in one's imagination.

Reactivity
Reactivity means to have the ability to rapidly begin and execute movements in the most appropriate manner and in the least possible time, upon a signal. Therefore it is to react in the least possible time and with the adequate speed for the tasks, in all those situations in which the optimum is to react with maximum speed.

Balance
Balance is the ability to keep the whole body balanced, to maintain it that way or to re-gain balance during or after large movements of the body.

Segmented coordination
Segmented coordination (or movement combination) is the ability to adequately combine the movements of the body parts, referring to the movement of the whole body intended to fulfil a certain objective or action (e.g. the extremities of the torso and the head).

Differentiation
This ability is the ability to reach a fine tuning between the various phases of movement and movements of segments of the body, which are expressed with great precision and economy (correct dosage of strength in space and time).

Once this function of movement support is clarified, it will be easy to understand how to integrate it with the various technical expressions that can be realised in relation to the speed of action, or to the required precision. This form of reciprocal relationship will have to be taken into consideration during the learning stages that are most intent in creating automatic expression of skill (structure, consolidation and development), and less so during the stages where situational stimuli is provided such as in actual play.
The growth of these skills largely depends on the improvement of the sensorial perceptive and coordination skills; and vice versa an improvement of technical skills will facilitate the evolution of these skills. It is easy to understand that this interactive process is possible when the phenomenon is looked at as a whole, as a network of connections, whereas it would be wrong to consider locomotor elements as separate pieces without an appropriate synergic action. Even conditional skills take part in this dynamic interactive process.

Let's imagine for example:
A player is about to receive the ball coming from a slightly parabolic trajectory at medium height. In the preparatory phases and on the moment of impact between the foot and the ball, the subject will be in a precarious physical position, as only one foot is set on the ground and the other has been pulled upwards in advance in the direction of the ball, which is getting closer in its trajectory, and the player will have to stabilise the arrangement of his body (balanced and imbalanced arrangement) to receive the ball in the best possible conditions.

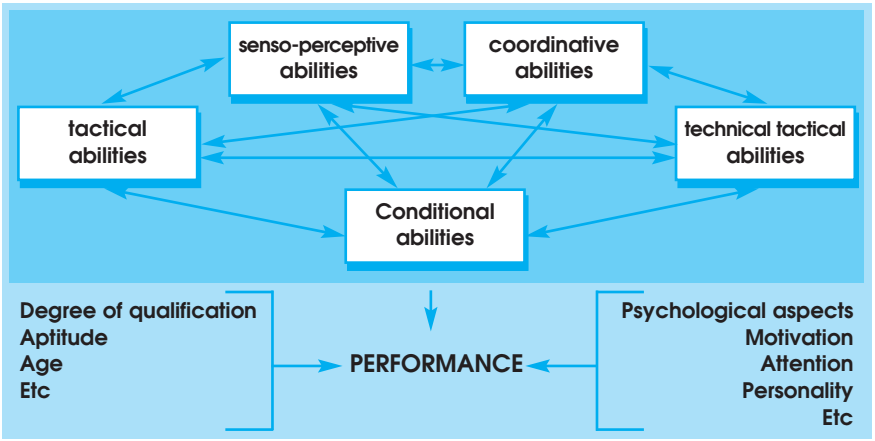


ILLUSTRATION 16 - Overview of performance in football and interactive processes, D'Ottavio S., document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome - 2003

These adjustments will provide the supporting foot with proprioceptive solicitations (cinesthetic analyser), so that the success of the "stop" will depend entirely on the efficiency of these structures and on the specific quality of the ability to keep balanced.
Therefore, if it is true that, in order to develop this coordinative aspect, as well as the forms of general development, one must use the various forms of exercises that contemplate the reception of the ball, it is also true that a better technical control of the ball will correspond to a better ability to maintain balance on one foot, therefore guaranteeing the success of the movement. We can therefore summarise the abovementioned concepts by saying that the evolution of coordination and sensorial perception skills have a positive influence on the technical abilities and also this progress, in turn, has a positive effect on the parallel growth of these skills. In

Auditive analyser	Visual analyser	Tactile analyser	Static-dynamic analyser	Kinaesthetic analyser
Spatial temporal perception				
Spatial temporal orientation				
Anticipation				
Reaction				
Differentiation				
Rhythm				
Balance				
Adaptation and transformation				
Combination				

ILLUSTRATION 17 - Relationship between senso-perceptive and coordination skills (D'Ottavio 1994)

ILLUSTRATION 17 (D'Ottavio 1994), a further reciprocal relationship is highlighted by integrally relating the analysers with coordination skills. The more or less harmonisation there is between some analysers and the various skills, will have two different results that correspond to the learning process: a first result, where the pupil mainly uses external sensory information (anticipation, reaction, perception and spatial-temporal orientation); and a second result, where the pupil uses internal sensory information (balance, rhythm, differentiation, adaptation and transformation, combination).
These functions do not, however, need to be seen according to a hierarchical scale, but in terms of a unitary functional system in which the various components are integrated among themselves.

3.3.4 THE TECHNICAL AND COORDINATIVE FACTOR

One of the main aspects of technical training is the relationship between technique and coordination, expressed by the *technical-coordinative* factor.
As mentioned in the previous paragraph, and worth mentioning again due to its importance, performance in juvenile football is strongly influenced by the degree of learning of specific technical qualities, which are structured by integrating themselves with the development of the coordinative component. This relationship: between technique and coordination means that the

Methodological measurements	Example of Exercise
Variation of execution of movement	• Jumping and touching chest with legs, spreading them on a sagittal and frontal basis. • Executing same movement in inverse order • Exercises with changed speed and rhythm
Variation of external conditions	• Exercises with equipment or partner on different kinds of grounds • Decrease or increase of supporting area
Combination of locomotor abilities	• Combination of various gymnastic elements • Combination of games
Exercises under time pressure	• Exercises that train reaction abilities • Timed obstacle courses
Variation of available information	• Walking and balancing with gaze focussed above, with head to one side or blindfolded
Exercises after preliminary workload	• Execution of complex exercises after training unit • Balancing exercises after many summersaults or rapid body rotations

TABLE 13 - Methodological measurements and exercises to develop coordination skills (Harre 1979)

Coordination skill training
• Variation of execution of movement • Change of external conditions • Combination of already acquired movements • Exercises under time pressure • Changes to acquisition of information • Exercises after workload • Execution of pre-established sequences • Symmetric execution

Table 14 - Training methods for coordination skills (D.Blume and D.Harre in Manno, 1984)

development of the one or other factor contributes directly to performance. In other words, by improving technique, you improve coordination, and by improving the latter you increase the mastering of technical moves. A learning process that is structured according to "integrated" exercise favours the overall growth of the technical-coordinative factor.

Therefore, the objective of knowing how to manage the ball or to make your actions effective through multiple abilities, to get closer to the real needs of the game or the situation by considering the relative complexity of movement is the reason why we deem it fundamental to reach a certain degree of dexterity. Dexterity is intended as the ability to master the specific coordination of football and perfecting the ability to move (for more clarity, see chapter "Coordination Skills").

3.4 Assumptions of Collective Play: Tactical Components

The cognitive aspect implied in the development process of performance has an important position in construing tactical awareness. General athletic performance has been defined as a

Guidelines for coordination skill training
1. the main method is exercise, the main way is physical exercise **2.** the locomotor skills involved in training methods need to be learned precisely in technical terms and carried out with constant and aware control **3.** ways to improve analyser function, with relative passivity of the athlete **4.** training methods should be chosen on the basis of the skill to be developed **5.** the training is effective if level is raised with certain methodological methods

Table 15 – Principals for training coordination skills (D. Blume in R.Manno, 1984)

product of cognitive knowledge relating to actual situations and to past events, associated with the ability of the player to produce the specific locomotor response (Thomas, French and Humphres 1986). Recently, the so-called integrated approach to training has become more popular, which consists in educating the cognitive and physical structures of the young person, in a global situation, in which the tactical element is provided as a solution to real problems.
In this educational environment, particular importance is given to the realisation of correct responses following the tactical awareness of the player. In this sense cognitive skills offer the possibility of influencing obstacles to the learning process, as well as performance problems. The dynamics of the game don't allow pre-established actions that the player can reproduce to the letter, seeing as all the actions of the game are discretional actions to be solved according to the situation. The various sequences of play express the ability of the player to perceive, decide and carry out actions by memorised operations.
Tactical behaviour is a consequence of tactical thought, and consists in an activity being oriented towards optimal success. It must be enacted with full awareness of one's tactical skills, technical abilities and conditional possibilities. Tactical behaviour, from a cybernetic point of view, is an objective research system that doesn't only choose the most favourable of the possible objectives, but even perfects it during the resolution of the task. All this however, is subordinate to the degree of competitive qualification. In Football Schools these learning and perfecting processes must be learned gradually. Tactical behaviour, from a psychological point of view, is the complex product of psycho-motor processes that is realised in 3 main phases:

- Perception and analysis of the situation of the game
- Conceptual solution of the specific tactical task
- Practical solution of the tactical task

Illustration 17a - Structure of the phases of psycho-motor processes relating to tactical behaviour

1. *Perception and analysis of the situation of the game:*
The quality of perception depends on the extent of the player's gaze, the visual field and the quality of the analysers. Perception of an entire situation of the game is one aspect of recognising the tasks he must carry out.
2. *Conceptual solution of the specific tactical task:*
The tactical task is firstly solved mentally and then practically. The

objective of the mental solution is to find the optimal solution of the tactical task in the least possible time, on the basis of the perception and the analysis of the game; the player must only consider the options that he is able to carry out. The limits in the mental resolution of the problem are a possible scarce perception and analysis of the situation. This is why the development of tactical thought is so important, and why it needs to develop in practical exercises and in a global context.

3. *Practical solution of the tactical task*

It is the expression of tactical behaviour (development of tactical thought) and is the product of the perceptions of the two preceding elements, but also of the available technical potential (degree of quality of technical skills). Mahlo's model, of a cybernetic structure, (see ILLUSTRATION 18, modified by D'Ottavio S. 2002 - document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome) shows the central importance of the cognitive component in processing an action plan. The player, during the game, needs to solve tactical problems on the basis of mental processing. Through experiences, knowledge and pre-existing models, he will try an adequate solution for the purpose. Every process of this kind represents a very important experience from which it is possible to draw various meanings that the player can use in similar conditions. Memory has a fundamental role in this process. In order to memorise and therefore know (cognitive aspect), it is fundamental to perceive and logically the validity of our sensorial system is essential. The tactical component in juvenile football performance is extremely important, and can be considered as a link

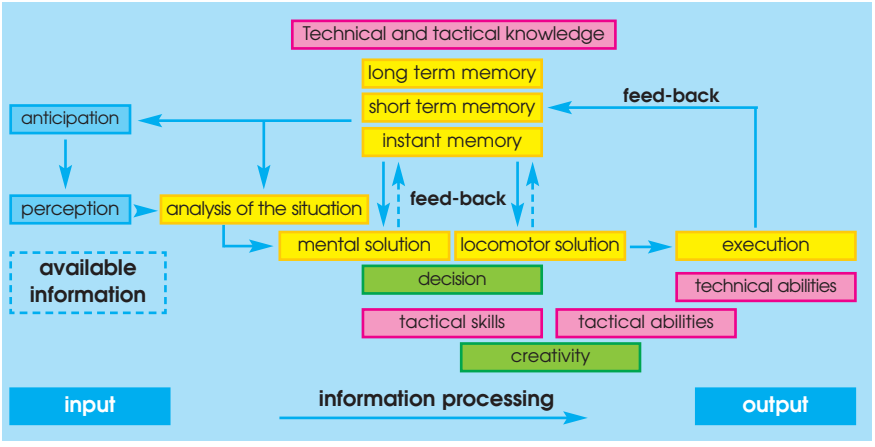


ILLUSTRATION 18 - Mental processes involved in play (Mahlo F. 1963), modified by D'Ottavio S. 2002, document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome

between the various units of individual performance, finalised to collective action to fulfil common game objectives. Therefore the objective of tactical training must tend to make the young player able to organise and conduct game actions. At 10-11 years old, the cognitive processes are extremely sensitive to learning. With continuous stimulation it is possible to know and experiment most situational variables used, during games or in didactical situations. Essentially, we must make it possible to provide experimentation opportunities to explore quite a vast range of experiences at this age and stage of the development process. In this way, the tactical training of a young player can begin precociously (see paragraph "Juvenile tactical training" in this chapter).

3.4.1 Tactics in Football

In football, tactics can be considered as a link between the various units of individual performance, finalised to collective action to fulfil common game objectives. This meaning includes the essence of performance in football, by highlighting how technical abilities, energetic and coordinative availability, psychological commitment, the role in the team and other factors that influence performance must be integrated subordinately to the tactical objectives of the game.

"Tattica" means to restore order, or to use certain individual potentials rationally and economically, by combining them with those of their team mates and the opponents. Ripoli (1989) gives his own, personal interpretation of the concept of tactics by using two verbal expressions: " comprehension and action", focusing our attention on these two fundamental moments of performance.

These performance phases that occur in rapid sequence in football, are actually a part of a much more structured process, according to which comprehension is influenced by the ability to:

- Anticipate in terms of perception of an event in a game
- Sensorial perception (information from the game)
- Information management (processing)
- Decision (pertinence with and effect on the action)
- Use of cognitive feedback and adjustment of the parameters of the action

In turn, *action* is influenced by:

- Correct execution of the move in terms of spatial-temporal timing (functional coincidence) of the movement and/or technical move

- Use of technical and coordinative feedback and adjustments to the parameters of the movement and/or technical move during its enactment

In turn, these two phases of performance during a game are directly linked to the individual's ability to solve the speed-accuracy problem (precision), which is triggered during both the cognitive and action phase (see ILLUSTRATION 19).

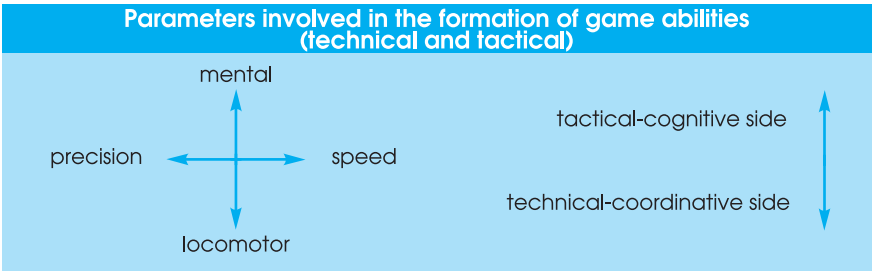


ILLUSTRATION 19 - D'Ottavio, 2004

The level of aptitude and experience that may be collected through exercises can move the performance of a young player towards mental speed (thought), as well as action speed (technique). Speed therefore, in the larger sense of the term, may be considered as a selective quality and a point of reference to evaluate the level of the learning process and for a subsequent technical selection.

3.4.2 CULTURAL CONSIDERATIONS AND REFERENCES

The tactical fields of performance can be defined as:

- Tactical knowledge
- Tactical ability
- Tactical skills

Tactical knowledge

According to various authors (Harre 1985) tactical knowledge involves the mental processes of production and reproduction of information and significantly depends on the variety of knowledge available, or on the quality of the athlete's preparation. Tactical knowledge regards:

1. Knowledge of the rules of the game and their optimal use to solve tactical problems
2. Knowledge of the game systems and their variations, mastery of one's own system and the most efficient methods to counteract the game system of the opponent.
3. Knowledge of tactical rules, for example: the fastest player is the

ball; keep the opponent in the visual field; when being inflicted a feint, concentrate on the ball, not leg movement; in numerical disadvantage it is better to play the waiting game.

4. Knowledge about the reciprocal relation between: condition, technique, tactics and volitional qualities, for example: when risks are acceptable; that it is better not to hold the ball when physically tired; if the team adopts a particular strategy; if one player normally carries out certain feints.
5. Knowledge of economic rules, of opportunity, for example: when close to the goal-line it is better to pass the ball backwards rather than to shoot; in counterattacking situations, avoid guiding the ball yourself if possible; in 2:1 situations, concentrate on the defender.
6. Theoretical knowledge of perceptive processes, of game analysis and mental solutions.

Basically, all the main pre-requisites that determine the success of intentions, or at least to increase the probability of success.

Tactical abilities

Basically, tactical abilities need to be considered as an expression of a specific technique (technical ability) referring to its energetic and biomechanical parameters (i.e. use of strength, speed, breadth and direction of movement, precision). This assumption is within the realm of tactical availability if it corresponds to conscious or partially conscious action plan based on the level of required skills. An expert adult compared to the beginner will solve problems more quickly using automatic patterns, filtering the most relevant information. A child on the other hand, will process information relatively slowly because he also processes the least relevant information, according to sequential instead of parallel information processing.

Tactical ability is therefore an expression of a mental process and can be found in, for example: when a player shoots a goal with precision instead of strength; when he passes to a free area instead of directly to another player; when he is controlling and guiding the ball and he willingly slows down to carry out a pass to avoid marking; or during the execution of a stop when he directs the ball immediately on the right instead of the left. Basically, in all the various situations of a game given that during a game, a player will have to respond to possible problems with consequent technical adjustments. These requirements of the individual technical heritage of each player needs to become, relatively precociously, available and therefore usable for the pupil; this will be possible if technical learning is essentially based on a didactical plan that ensures the variable characteristics of a real playing environment,

creating the premise for a flexible technical adaptation to the needs that Meinel has defined in terms of "variable availability of techniques". Basically we will have: "variability of execution of an ability in function of the variability of the characteristics of the situation" (Roth in Schock, 1985). Therefore, a programme aimed at building technical abilities, will have to provide for training stages that create the following premises:

- Variation of abilities
- Adaptation of abilities (responding to known situations)
- Transfer of abilities (responding to unknown situations)
- Creative training of abilities (responding with new solutions

Tactical skills

Tactical skills reflect the ability of a player to using his psychic and physical skills, his technical and tactical abilities etc. in various game situations to solve individual and collective tactical tasks (Harre, 1985). This also includes the range of choice of one behaviour rather than another that the player has. For example: to shoot to goal rather than passing the ball to a team mate; stopping the ball instead of volleying; dribbling instead of crossing; passing to one team mate rather than another; waiting instead of trying to recover the ball straight away; faking and going for the player with the ball instead of faking and sprinting to the opponent's goal.

Therefore from a decision-making point of view, on the basis of a selective analysis of the game, the player will chose a technical solution that will express itself in turn with precise executive characteristics (see tactical abilities). The development of tactical skills is influenced by natural qualities, as well as the quality of the locomotor experiences a player has experimented, and will therefore be related to a better functionality of:

- Perceptive skills, in terms of sensorial acuity, breadth and direction of gaze, identification of cues;
- Intellectual associative, reproductive and productive processes (integration with prior experience, imitation and creation of new solutions);
- Personal probabilistic models (anticipation);
- Flexible attention strategic (wide, narrow, etc.).

To summarise

- Tactical knowledge: theoretic pre-requisites, patterns, tactical rules
- Tactical ability: variable expression of a technique according to the variables of the game
- Tactical skill: choice among many possible technical solutions.

Let us imagine them in the context of a game.
A player, regarding his role, operational possibilities required by the coach, the score and the timing of the match (tactical knowledge), is in a situation of lateral attack with a numerical advantage (situation: 2 on 1); seeing as there are only a few minutes to go until the end of the match and his team is loosing, he makes the most risky decision: dribbling with anticipation of the following shot (tactical skill). He plans the shot upon the exit of the goalkeeper and will fake a strong shot, to then go on to a soft touch to attempt jumping over the goalkeeper (tactical ability).

3.4.3 Tactics and the Team - Organising Cooperation

In the progression that gradually leads to building up cooperative and team play, there are various factors that come into "play". In this sub-paragraph we will try to suggest the factors that determine tactical performance during the game.
Team tactics include an array of individual and collective behaviours that allow the optimisation of behaviour in relation to the characteristics of the opponents with the purpose of obtaining the best result. A team therefore expresses its tactics through a game expressed on the field.
The game that a team is able to express is essentially a result of:
a. Technical skills of the single players
b. Intellectual data
c. Organisation of cooperation
The organisation of cooperation determines:
- Efficiency in the offensive phase
- Efficiency in the defensive phase
- Team balance

The developments of the game mainly depend on the characteristics of the single players and the younger the players,

the more freedom of action they will need to have. It is also true that the game plan of a team can be conceived as a sentence, in which the initiative of each player are the words that do not make any sense on their own, but take on meaning when read with the initiatives of the other players.

If interaction with team mates is the basic condition to organise an individual game plan, it is vital to establish rules of cooperation that provide enough indications but at the same time leave enough room for free expression of the individual, a prerogative, in our opinion of juvenile football. These rules of behaviour, being part of the common heritage of all members of the team, allow each player to understand the development of the game and the intentions of their team mates, laying the foundations for a functional team.

Every player must have had experience playing in other roles in order to do this and to be able to express his maximum potential. If it is true that the **technical skills of each player** are essential in offensive play, it is also true that the **game** (movement) **without the ball** of the other players will be decisive when one of the team mates has the ball.. The quality of movement without the ball will determine the efficiency of the game plan of the player with the ball, and therefore also the continuity of the game plan.

Educating players to play without the ball is a compulsory step in the development of cooperative skills, and will allow the players to understand how to make themselves useful when they are close to or far away from the player with the ball or when they are behind the line of the ball. It is therefore necessary that the young players learn to consider that the part of the game without the ball is strongly linked to the ability of passing and receiving the ball (ILLUSTRATION 20).

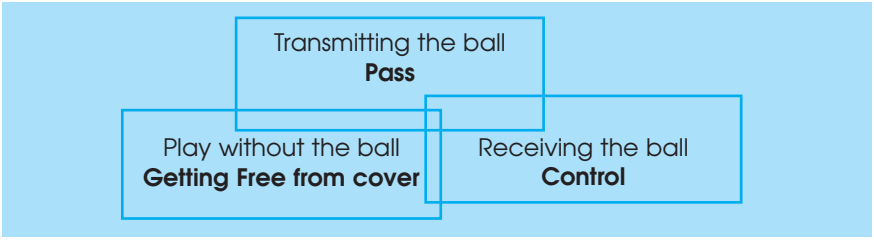


ILLUSTRATION 20 - Correlation between passing, getting free from cover, and control

3.4.4 THE TACTICAL OBJECTIVES OF THE GAME

A football match is a sporting event in which two teams try to prevail on each other in terms of points. One can therefore deduct that the success of a match is determined by the value of the

technical and tactical premises of the individual and the team, therefore by the potential tactical action, but also by the set up of the formation of players on the field and the further changes that can be made to the formation according to the situation of the game. The balance of a match can be subject to the decisions and behaviours of the team and of its singular components: players + coach. It is therefore necessary to specify two meanings of collective play:

- The formation or systems of play
- The game strategy

The formations that mainly regard the dynamic (active) distribution of players on the field are related to three quantifiable variables:

1. the number of players on the team

2. the game area

3. the density of the game (a result of points 1 and 2)

The game strategies regard the practical application of the game formation according to the specific situations of the game or certain phases of the latter. In ILLUSTRATION 21 below we provide a list of techniques and their possible applications during the various developments of the match.

One can notice how some technical and tactical behaviours are exclusively influenced by ball possession.

Game situations		
Team with ball possession To advance towards opponent's goal maintaining ball possession	**Behaviour with and without the ball**	**Team without ball possession** To slow down advancement of opponents and try re-gaining ball possession
• Guiding the ball • Passing • Dribbling • Shooting • Unmarking • Receiving	• Orientation • Anticipation • Faking • Covering • Tackling • Deviating	• Marking • Intercepting • Defending

ILLUSTRATION 21 - Game situation and technical behaviour (D'Ottavio 1994)

3.4.5 JUVENILE TACTICAL TRAINING

During the basic activities of the "Cubs", tactics are introduced by small-sided matches (5-a side or 7- a side) . For the Beginners, in abidance with a careful didactical progression and progression of teaching methods, the games are initially small-sided matches (7-a side or 9-a side), until full-sided matches.

For the "Little Friend" activities, even if mainly sustained by games and free play, it is advisable to start off with 3 to 5 players per team. During the educational process of learning football, the competitive event is represented by the match, it takes on significant importance not only as a chance to verify progress, but also as an extremely valuable didactical moment, a piece of the mosaic that will be the future player. The confrontation with others, measuring ones possibilities, accepting and sharing problems and success with team mates, are all aspects that obviously go beyond technique. Therefore, when planning a specific programme, in order to find an effective competitive proposal it is appropriate to start by making the following points:

1. The result must not prevail over the didactical objective;
2. Privilege behaviours that are aimed at building the game rather than destroying the game of others;
3. Avoid tactical "deformities" that are not functional to the children's game (i.e. off-side tactics)
4. Try to encourage offensive play, and value initiative, creativity and imagination;
5. The formation on the field must provide for phases of the game that are easy to understand at the beginning, then it can begin to give the players more complex tasks;
6. The realisation of a game formation must favour a better tactical communication among players and encourage individual characteristics.

By examining the various competitions that characterise the Cub and Beginner categories and willingly omitting 5vs5 game structures, typical of 1st year cubs, and 6vs6, by using 7vs7 game structures we will propose a didactical procedure that starts from easily understandable phases to more complex psycho-physical and technical commitments:

- **Two line model 3:3** leaving the two central offensive and defensive players free to play in attack and defence, whereas the wingers play more defined roles by only being allowed to move within the defensive or offensive wings (Figure 21);
- **Three line model 3:2:1** three defenders with mainly defensive tasks, two intermediate midfielders that will have the possibility of supporting the only striker in the centre (Figure 22);
- **Four line model 1:2:1:2** with one central defender with mainly defensive tasks, two fast wingers as support to the only midfielder as well as support to the central defender, playmaker in midfield, who is ready to play central striker and two dynamic wingers who

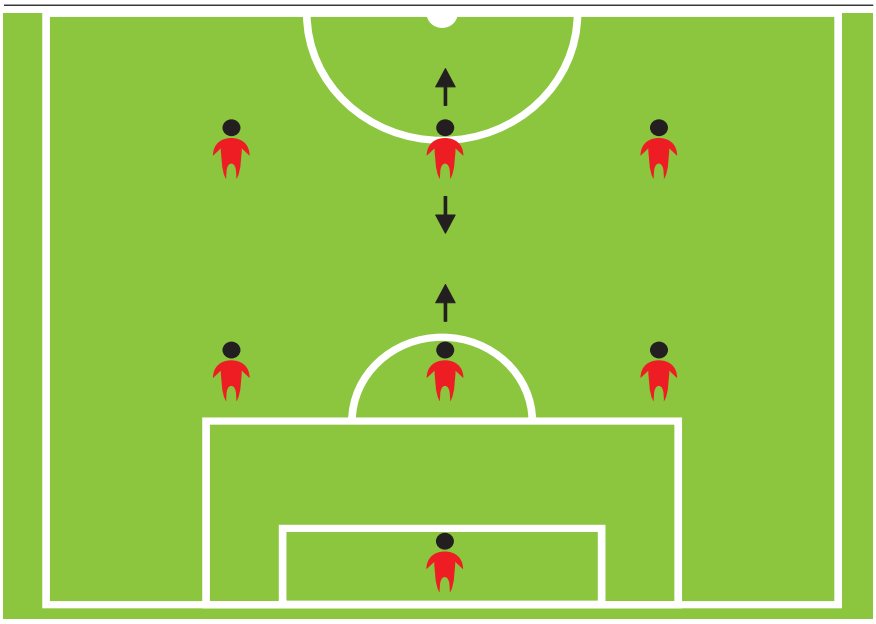


Figure 21

are able to form mobile triangulations and to converge to strike or to cross to the playmaker (Figure 23).

In any case, in official matches and during training, the possibility of playing in different roles must be defended by rotating the members. In 9vs9 games for the Beginner's category requires a more sophisticated specialisation, the larger area of play allows adaptations in terms of techniques and tactics as well as in terms of

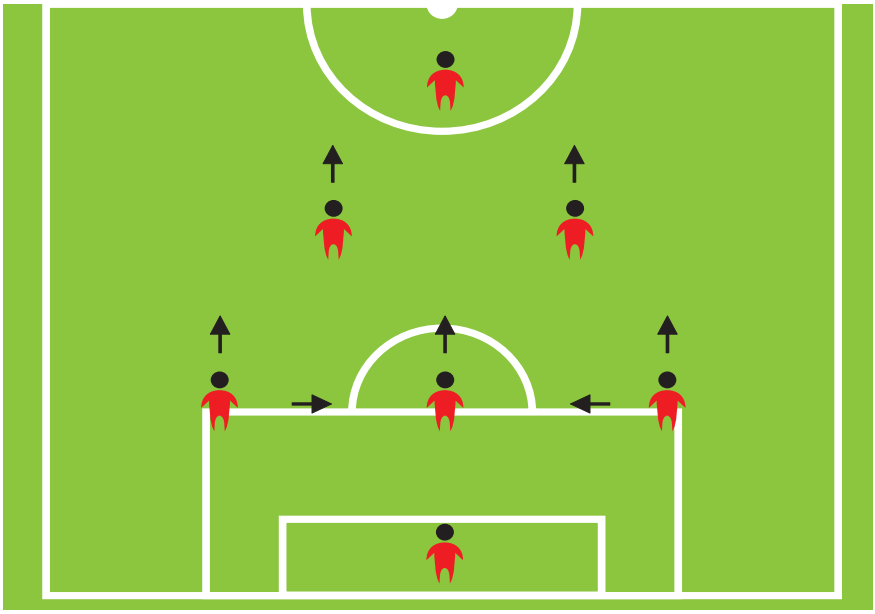


Figure 22

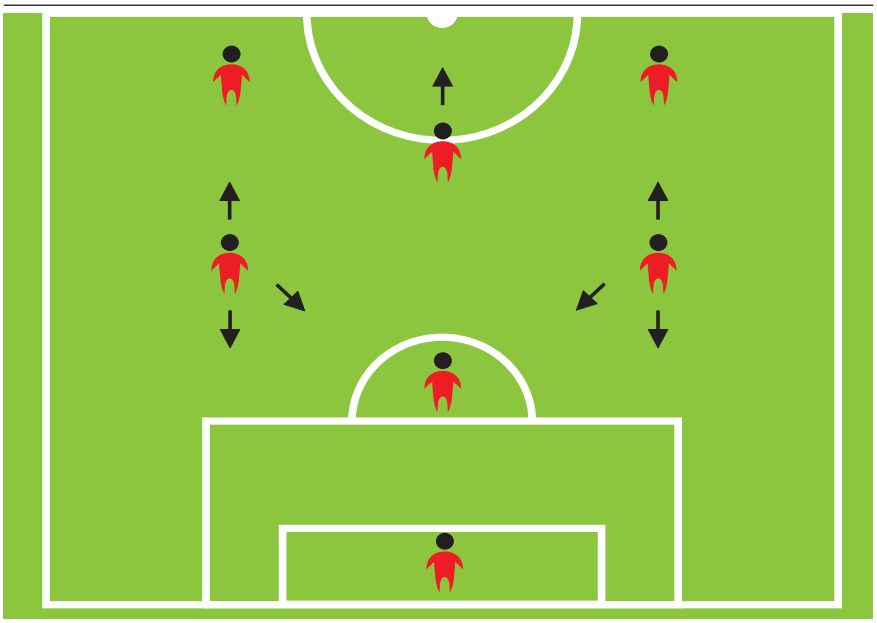


Figure 23

greater physical demands, which require more time to be assimilated. Starting from the lessons learned in the 1st year in Beginners, it seems appropriate to plan a programme that begins with a 3:2:3 configuration (Figure 24). The two defenders in the wings, thanks to previous experience, will know how to support the midfield as soon as it is necessary, with the central defender dedicated exclusively to the defence. The two midfielders will manage the centre and

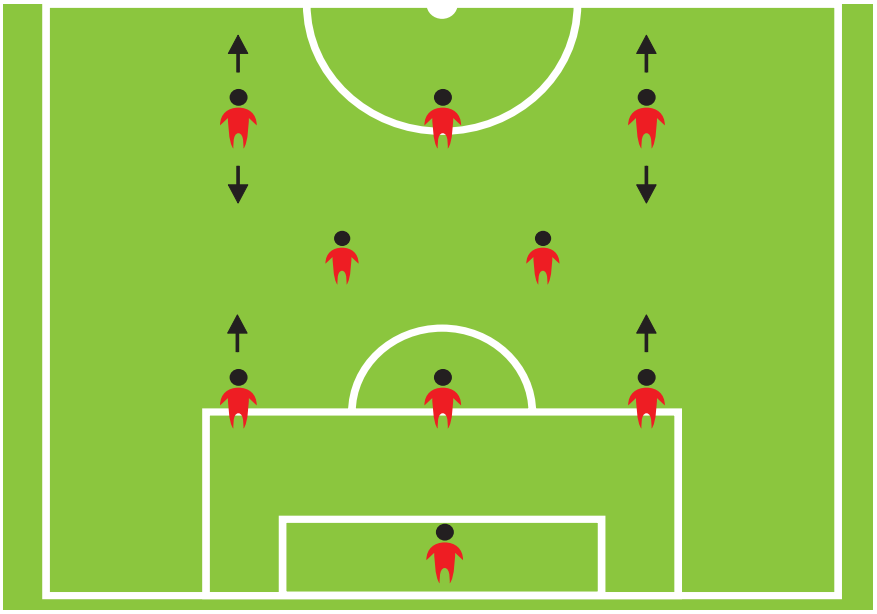


Figure 24

support the offensive actions with wall passes and quick play changes. The three strikers will cover the whole offensive front, and the two wingers will maintain the role that they have already assimilated the year before, and will accumulate tactical skills that may make it necessary for them to act as cover in their areas as support to the mid-field; the central striker will give depth to the offensive action and on the other hand will act as support to one of the two mid-fielders when they have the ball.

One evolution of the game formation that favours the development of defence is the 3:2:3 formation, two central defenders with mainly defensive roles, three midfield players with the two external ones ready to draw back to the defence line if necessary, and the central one with a playmaker role and as support to the strikers, three strikers with similar roles to the ones described in the previous model (FIGURE 25).

We are however convinced that the proposed formation would have a small probability of success, if the points expressed in the first part of this paragraph are not respected during the training process. We also believe that the assimilation of roles and functions according to position and the possibility of playing in more than one role, acquiring a wider variety of experiences, is a priority in juvenile football training. Such a structured approach will definitely bring the young player in the Beginners category to perceive and assimilate spaces and functions more easily, which will be useful to

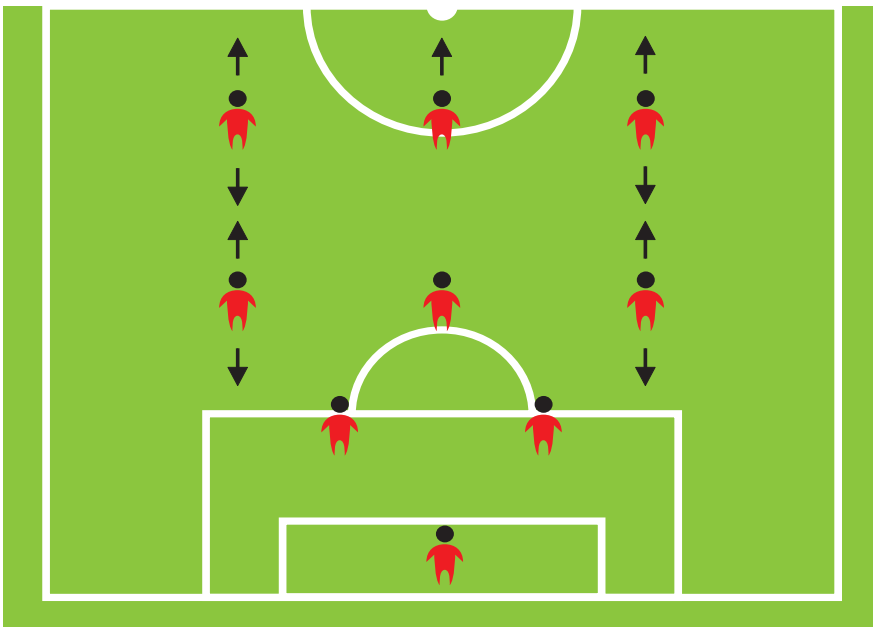


FIGURE 25

adapt to the more complex dynamics of a full-sided match.
As we have seen in the previous pages, we believe that a formation with three strikers is the one that is most compatible with offensive play that we have chosen to favour, and it is also more compatible with the pre-dispositions and motivations of the players. This is why a 4:3:3 module seems, at the beginning of a programme for Cubs, the most simple to apply (FIGURE 26).
In this phase of football training, further to complying with the need to play in more than one role, which has been considerably satisfied in the previous years, we suggest assimilating a formation with four midfielders and two strikers during the year, 4:4:2, to introduce new tasks and facilitate adaptation to multiple roles (FIGURE 27),
Even if it is absolutely true that game modules are built on the characteristics of the players, we must consider the child as a continuously evolving player. If he is able to experiment many situations during his learning process, which is far from being concluded, he will be able to express his natural techniques and abilities more easily.
The game module therefore, as well as the distribution of the players on the field and the variations that occur according to the development of play, will be effective instruments for a training process that sees the child as the main character, who, from an individual, is transformed into a functional unit of the team through a long-term process.

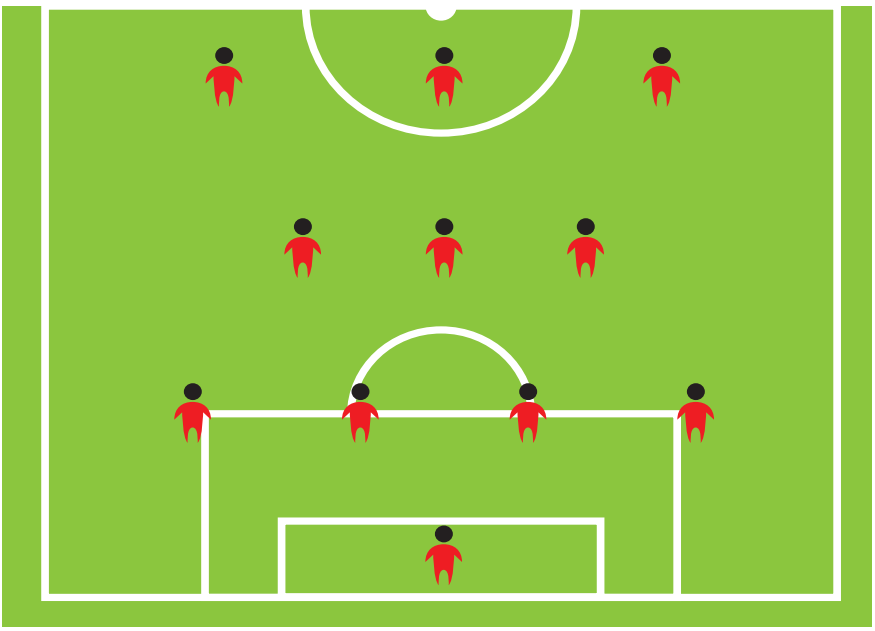


FIGURE 26

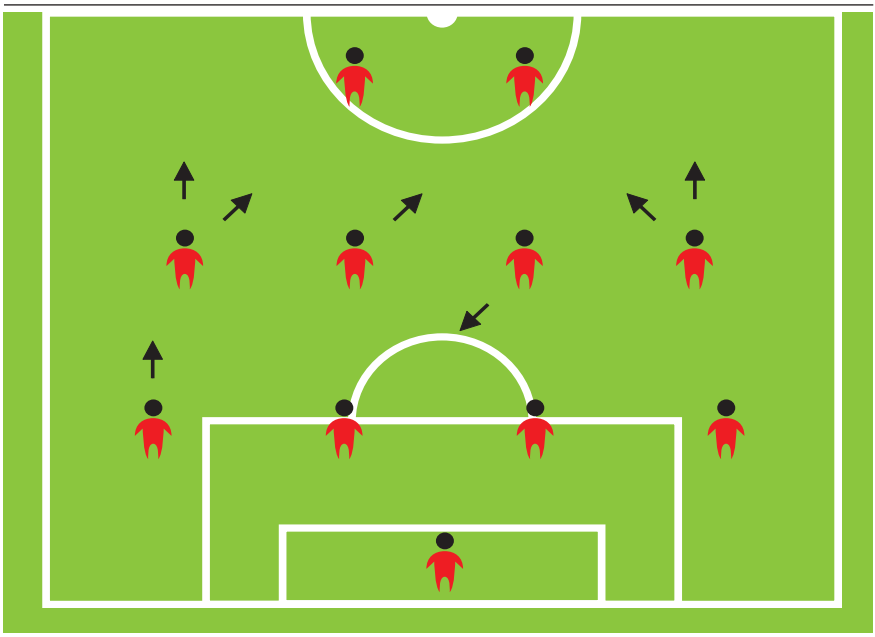


Figure 27

As far as the specific role is concerned, including the goalkeeper, we can speculate that until 11-12 years old it is important to know and experiment most of the situational variables that depend on positioning, with defensive and offensive specifications (longitudinal variable), as well as in right or left positioning (transversal variable).
Essentially one must make it so as in the first phase of the learning process, where great changes occur on in terms of biology and locomotor behaviour, the young player should acquire many experiences. Later, once the necessary indications have been noted to define the tactical specifications in the team, we will be able to recognise a pre-disposition for a more specific role with a higher margin of certainty and pertinence.
We believe that in any case the tactical training of a young player can be started quite early, if we intend the process to be a series of didactical procedures aimed at:

- Perception and evaluation of the game area at a static and dynamic level
- Tri-dimensional spatial orientation
- Appreciation of timing and sense of rhythm
- The development of an adequately dynamic mind-frame
- Formulating possibilities of play
- Using learned abilities for a purpose
- Favouring cooperative relationships for a common goal

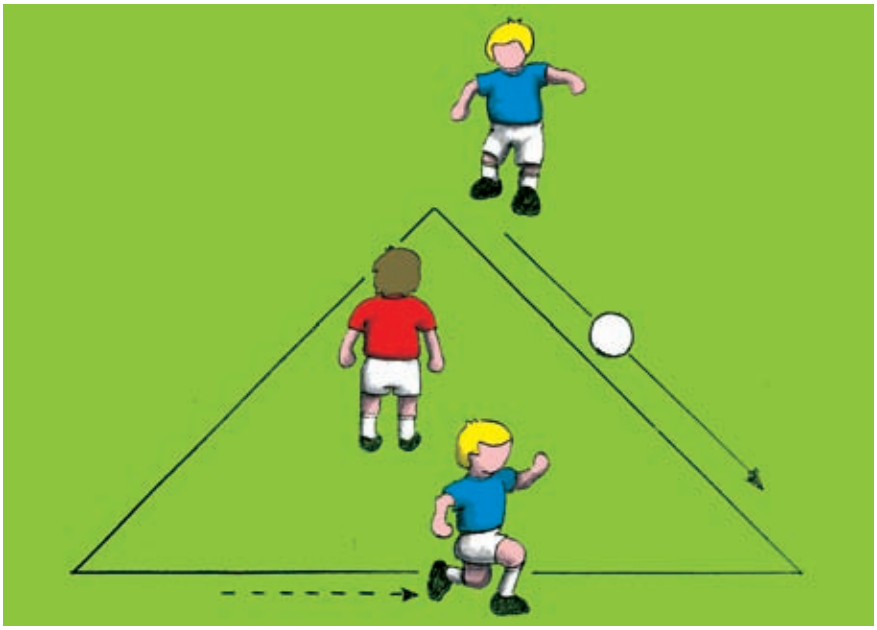


Figure 28

In some didactical experiences aimed at tactical initiation, some exercises using geometrical forms were use. For example, we provide various didactical combinations characterised by more and more complex transfers, from closed geometric shapes to open ones (D'Ottavio 1989). Basically the sequential criteria of this process was structured by exercises/situations in which the number of players

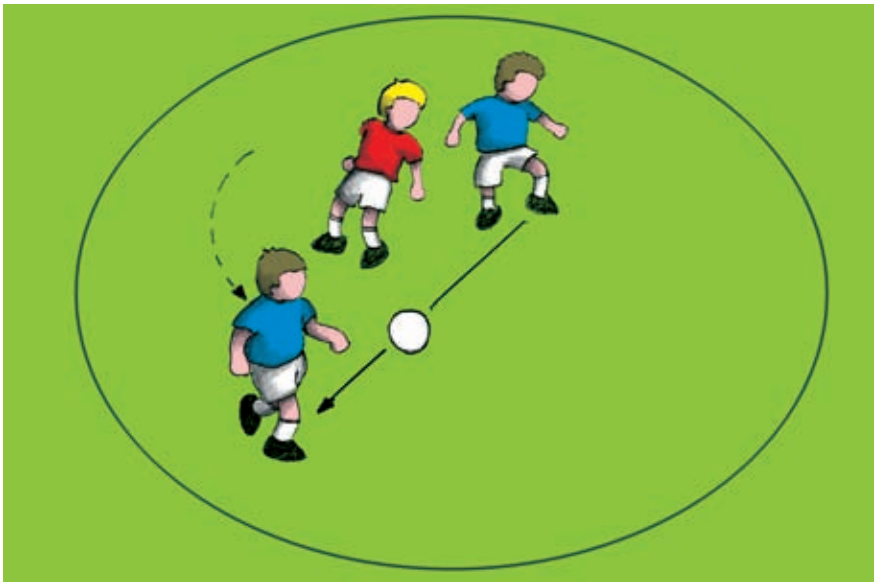


Figure 29

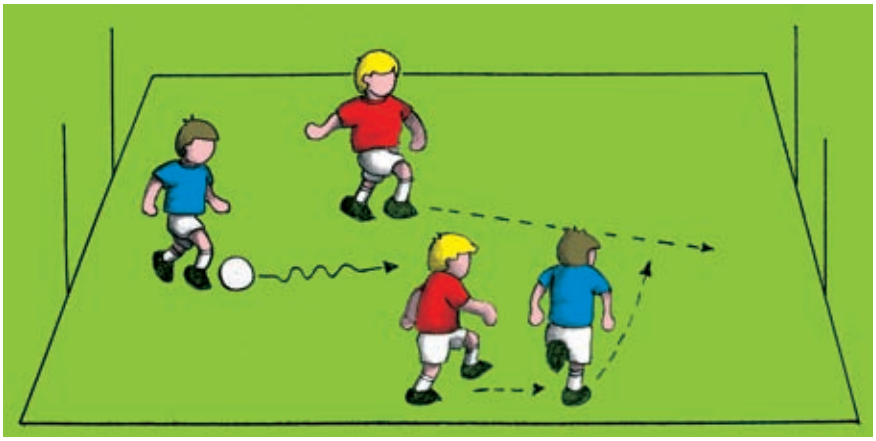


Figure 30

increased gradually one at a time, creating situations of even and uneven numbers. The activities were developed on perimetric lines of the various geometrical shapes (triangles, squares, diamonds, hexagons, circles, etc..); or inside the area of the shapes themselves, or even in overlapping or unlimited spaces. The purpose was to provide a precise perception of the surrounding area, which initially presented limits by game actions limited by lines, and ended up with the players still looking for geometrical lines, but freely choosing them according to the situation. See Figures 28-34 (D'Ottavio 1994):

1. 2 against 1 in a confined situation: two players pass the ball

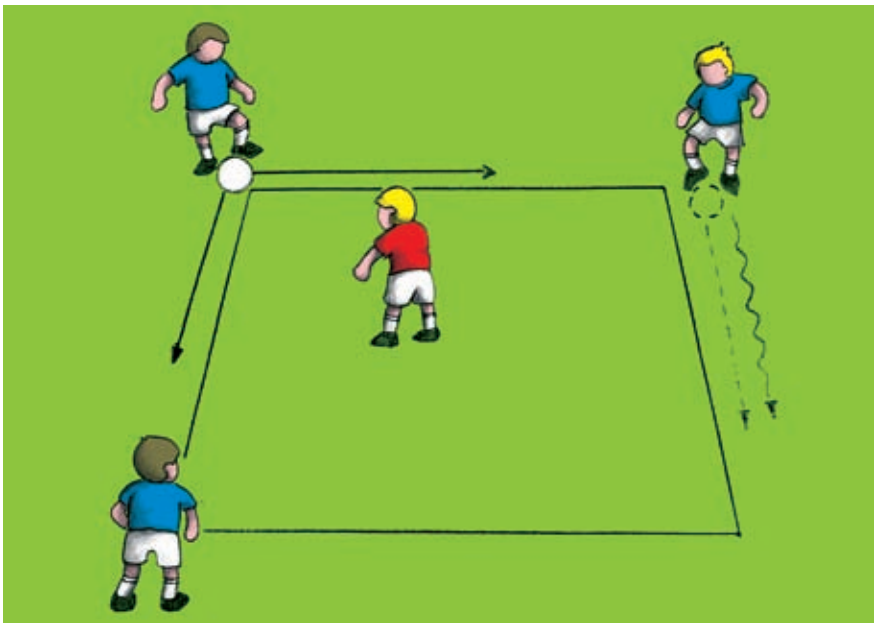


Figure 31

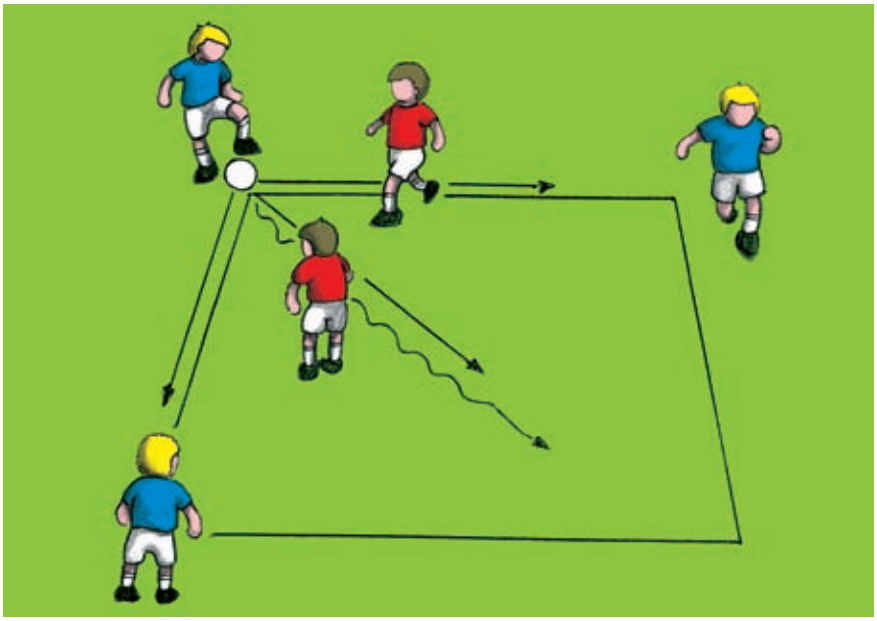


FIGURE 32

looking for the free corner. The player in the middle tries to obstruct the passes (FIGURE 28)

2. 2 against 1 in a free situation: same situation without any lines. The players can try and reproduce the geometry of the previous game. Variant: obligation to directly tackle the player with the ball or the person who is about to receive it (FIGURE 29).

3. 2 against 2 in a competition: they play in the offensive half of the

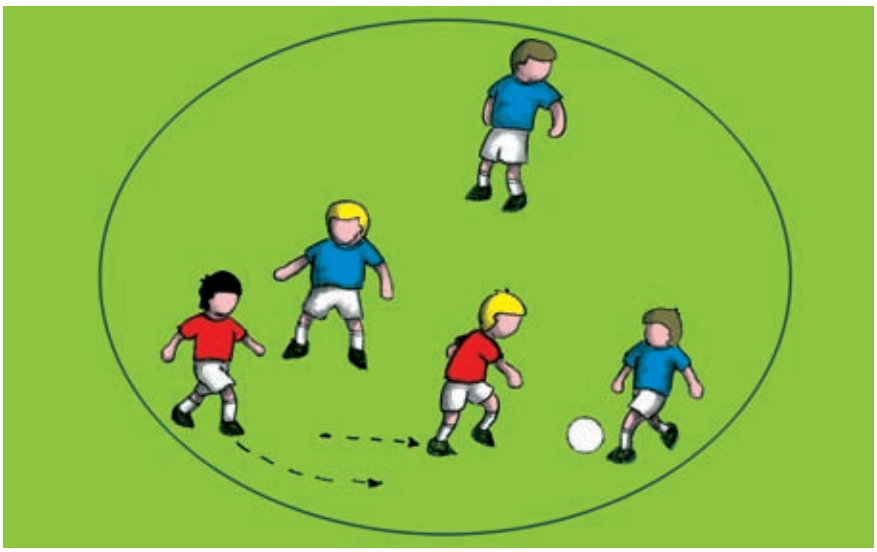


FIGURE 33

field; every time the action ends the players of the two teams switch roles. Variant: in order to stimulate a continuous and rapid search for free space (free from cover), oblige the player (rule) with the ball to stay still for (period of time) (FIGURE 30)

4. 3 against 1 in a confined situation: they play along the perimeter of a square. The player with the ball must always have the option of passing to the two closest corners. Variant: the player with the ball can move by guiding it to another corner (FIGURE 31).
5. 3 against 2 in a confined situation: they play in the previous situation but are also allowed to make diagonal passes or to guide the ball along the diagonal line of the square (FIGURE 32)
6. 3 against 2 in a free situation: they try and reproduce the geometry of the previous exercises by moving themselves or the balls along the same lines.
7. 3 against 3 in a competition (FIGURE 34).

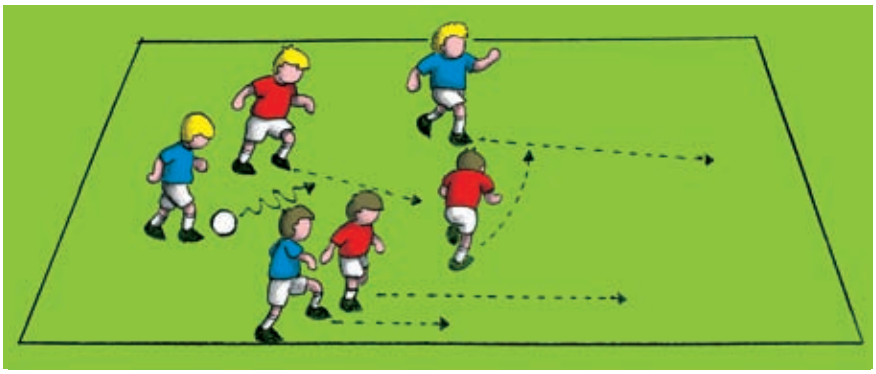


FIGURE 34

3.4.6 SPACE CONTROL IN DEFENSIVE TRAINING

If tactics are intended as "art of behaviour", it is natural to think that the learning processes that are correlated to these aspects can begin in the first stages of football school. This procedure cannot however run ahead of the cognitive processes that are necessary to assimilate behavioural patterns of the team that can be identified in traditional game systems.

Tactical training of the child should begin gradually and naturally, especially through "guided" play, which is oriented towards the acquisition of technical and tactical abilities during exercises, with executive timings that change according to the situations and the tasks. Technical and tactical training of the child should begin with building the elements that allow him to "deal" with the spatial and

Sensory-cognitive activities

- The "control" phase is always second to a sensorial perceptive phase (first of all visual, but also acoustic, kinaesthetic, and tactile)
- Perception is an active function (cognitive) and refers to "selective" attention processes
- The "control" phase is a condition in which the player is able to manage the technical and tactical task the situation demands in individual and in collective terms

Illustration 22 – (D'Ottavio, 2006)

temporal coordinates that the game presents at a cognitive level. Therefore the Space and the Time in which the child makes his various movements are the guidelines on which to build a didactical programme. We can identify three types of space: one that is more related to technical and coordinative aspects (technical and proximal space); and another that is the area in which the child dialogues and interacts with the other physical components of the situation (team mates and opponents); and a third that is the extent to which the child can perceive elements that are even very faraway from him (visual space). Coordination skills, we must remember, which represent a matrix of technical abilities in football and sports in general, largely depend on the way in which spatial and temporal patterns are managed (e.g. spatial-temporal orientation, differentiation, rhythm, reactivity etc.).

Definition of spatial and temporal patterns

A spatial pattern is the development of a system of tri-dimensional coordinates (spatial), which each individual builds during his experience, regarding proprioceptive, exteroceptive and visual stimuli.

A temporal pattern is the development of a system of dividable parameters, also as in rhythm, which each individual builds during his experience, regarding proprioceptive, exteroceptive and visual stimuli.

Illustration 23 – (D'Ottavio, 2006)

Often, in football lexicon we hear the term "control". This stage of training or performance represents the condition, in which the player is able to "manage" the technical and tactical task that the situation demands by himself and by prevailing over possible tackles, on an individual basis as well as in terms of the game. This condition, which can be reached in the development period of the young player after several years, can only begin by a more sensorial phase, that is related to the collection of and attribution of meaning to the information that can be perceived in the situation. It is fair to highlight

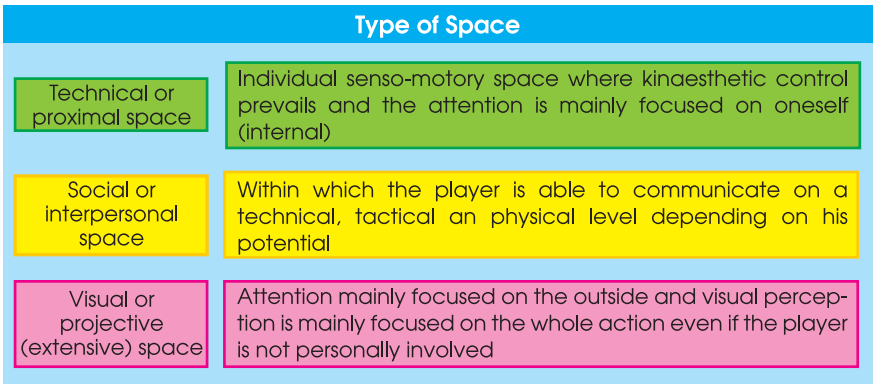


ILLUSTRATION 24 – (D'Ottavio, 2006)

the fact that the sensorial perception stage (especially visual but also acoustic, kinaesthetic and tactile) must gradually progress towards selective attention processes, that are more and more directed towards the most significant elements for a certain problem. In other words, as the player grows in terms of technique, his actions, which are expressed through mental as well as locomotor components, will become more and more economic.

In ILLUSTRATION 25 and 26, we provide a summarised prospectus of the guidelines to follow while planning a didactical programme that is oriented towards defensive play with possible hints to "zone defence" as opposed to "man marking" scenarios. Considering, as it has been said for years, that the football player's performance and his training should be characterised by a precocious integration of mental and locomotor processes, we have identified

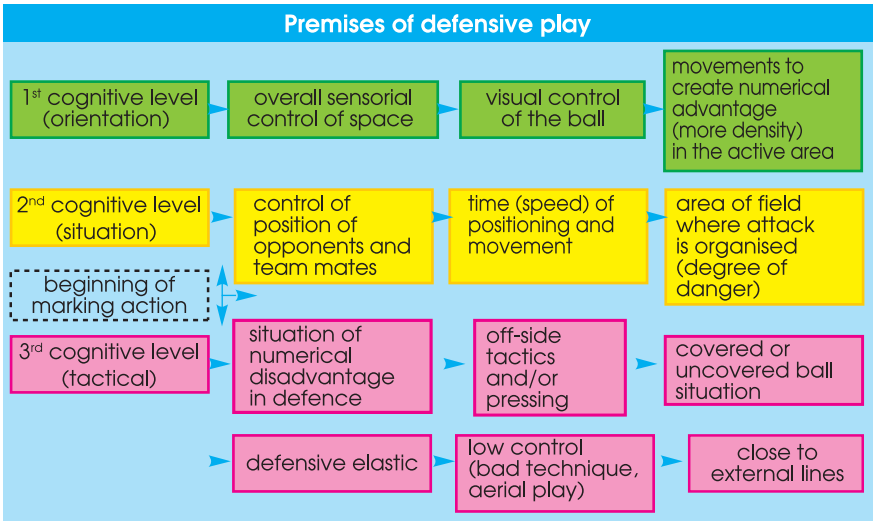


ILLUSTRATION 25 - Cognitive level and didactical procedures during the formation of control - marking abilities (D'Ottavio, 2006)

three cognitive (operational) levels that can suggest subsequent didactical sequences.

Didactical progression
• Phase of visual perception and control of spatial coordination • Phase of verbalisation and meaning (value assignment) to evaluation of spatial coordinates; narrow-large; long-short; diagonal-horizontal - vertical; front-back etc. • Phase of visual perception and control of team mate's position • Phase of control of collective movement (topological as well as temporal); shifting; slipping; slow-fast etc. • Phase of control over team mate's position compared to the opponent and potential support • Phase of control of collective movement in function of the position of the ball and the movement of the opponents • Phase of executive speed (active reproduction of the action) • Situational phase of the game

ILLUSTRATION 26 - Didactical guidelines of the formation of defensive play (D'Ottavio 2006)

Zone or man. Which is best to structure defensive play during the evolution of a young player?

Respecting the basic principles of learning locomotor skills in the young, we could easily state that: considering that one must provide the young player with many experiential opportunities, constantly changing the parameters of the game and the relationship between components, they should at least be aware of both defensive mechanisms. However, during the first phases of athletic training, to play by zone would be difficult for young children to grasp, as the central nervous system and therefore the integrated processes that derive from it do not allow them to formulate formal cognitive operations until age 9-10, and they still prefer tangible reference points. We therefore believe that, at least initially, to help the learning process, that the defence mechanism, as in positioning and covering roles, should be based on *1 on 1*. It is also true though, that if we are too rigid in teaching this type of mechanism, we run the risk of denaturalising the natural tendency that children have to participate in offensive play with their other team mates, refusing excessive isolation. When we think about this aspect our mind goes back to the images of children playing football freely (sadly a phenomenon that is getting more and more rare) in courtyards and in fields etc., and we cannot remember any of them unconditionally marking one child on the opponent's team and isolating himself from the rest of the game. On the contrary, it seemed as if they wanted to participate and contribute to the game and express relatively exhibitionist behaviours. Because they were so involved, some times excessively so, the attraction towards the ball brought them to run

after it all the time. In terms of suggestions, therefore, according to a more rational point of view, this type of conduct is nothing more than the child's expression of a preference to move within the areas of active play, keeping close contact with the other players , even if the tendency towards individualism often reduces the possibility of interaction. One could consequently imagine that the natural orientation of child's play is to keep short distances in a transversal as well as longitudinal sense and this, somehow, is included in the concepts of zonal defence. From these considerations we believe it is useful to remember that, in juvenile training:

- *man marking* is a result of establishing a relationship of physical as well as mental contrast with the opponent and of protection of one's goal; this situation must be used without compromising the possibility of the player to integrate himself in the group and to search for a comprehension and analysis of the game;
- *zone defence* allows a greater activation of cognitive processes, and predisposes the child to interpersonal cooperation, with all the social development that this entails. However it presents a more complex process of game analysis but it adapts itself better to an economy of variables of the opponent's game (numerical disadvantage, possible man jumping etc.)

Methodological Tips
• Change in dimensions of the exercise area (narrow, wide spaces) • Geometrical variation of space (squashed quadrilateral, deep etc.) • Variation of number of pupils and creating conditions of numerical unevenness in attack and defence • Stimulating active marking with physical contact with the striker • Stimulating anticipation and interception • Use of internal and external feed-back • Stimulating flexible attention processes (from wide to narrow attention and vice versa)

ILLUSTRATION 27 - Didactical - methodological tips of defensive play (D'Ottavio, 2006)

3.5 GENETIC AND MORPHOLOGICAL COMPONENTS

The motricity of a child is based on functional integrations among the various motor skills and abilities. The aspects that are more strictly linked to bio-energetic and mechanical - muscular resources, according to current sports literature in general, are called conditional skills.

Conditional skills, defined as "the group of motory abilities strictly linked to an organic substratum" are to be found within the "senso-

neuro-motor" system (neuromuscular), in the operative structure represented by the muscular tissue that allows the material execution of the movement. Traditionally considered as conditional skills are: strength, speed and resistance, whereas articular mobility is still not agreed by all authors.

3.5.1 Characteristics of the Training Stimulus

The human organism is very sensitive to all stimuli that alter the balance of various systems. For example this happens when one reacts to a sudden acute pain (burn, bite etc.), by quickly retracting the concerned part of the body, or when one knocks into an obstacle and reacts by contracting the muscles to avoid falling, and again when after an intense run of a few minutes, the heart beat and the metabolism in general increases to face the increase in consumption of energy. These phenomena are really nothing more than our body trying to re-establish the physical balance and homeostasis of the normal conditions of the human biological system. Even in athletic training, every specific action tends to create a condition of "imbalance" due to a higher expenditure of energy than normal (weight exercises, repeated sprinting, reduced matches with introduction of variants to the rules, jumps against gravity etc.) to which the organism of the subject responds with specific functional adaptations (super-compensation phenomenon). However, for the training stimulus to have a positive effect, it needs to be correlated to the capacity of the subject, meaning that the timing and method should be "dosed" appropriately according to the current evolutionary phase. The workload of training therefore, which is the group of stimuli, should not be excessive and at the same time it should efficiently produce certain changers (positive adaptations). For example, excessive workload concentrated on strength could be too much for little athletes at a pre-pubescent age and could cause structural alterations of the spine or other articulations, whereas a training programme focused on speed, which is well-dosed in quantitative terms and in the choice of exercises will surely contribute to improving the metabolism and the flexibility of the osteo-articular system and create optimal solicitations for the nervous system and the motor units that have been activated as a response to the stimulus (muscles implied in the movement). The same principle applies to excessively intense training units (for example exercises that mainly involve the glycolic metabolism) applied to immature children. These could cause a strong catabolic

reaction determined by stress (organic and psychological) to which children may be incautiously exposed.
Therefore physical workload will have to be organised according to the regulation of parameters such as:

- Quantity (number of exercises)
- Intensity (speed, degree of workload, obstacles etc.)
- Quality (type of exercises: with or without the ball, specificity relating to the objectives etc.)
- Density (relationship between active phase - work - and recovery phase between exercises, training sessions, etc.)

It is also advisable to in any case take other variables into account and existing interrelations during the construction of the exercises and the total didactical workload.

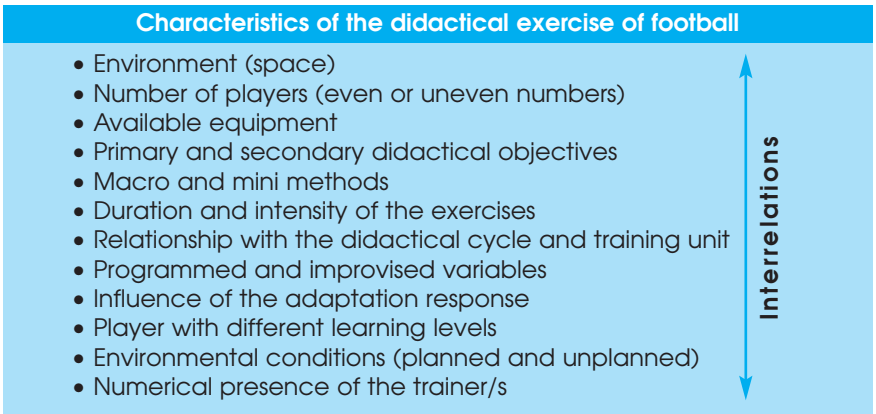


ILLUSTRATION 28 – (D'Ottavio, 2000)

3.5.2 CONDITIONAL SKILLS: MUSCULAR STRENGTH

With the term strength, one indicated the ability to actively overcome resistance, or to oppose it.
It is possible to distinguish various expressions of strength according to if the quantitative aspect prevails in relation to muscular mass (maximal strength and resistance strength), or the qualitative aspect in relation to neuro-muscular coordination (rapid strength).
It is widely known to those who are concerned with athletic training how important it is to possess a good degree of muscular strength. This characteristic of the human organism, but especially of the locomotor apparatus, which is not only formed by muscle (active component) but also by bones, articulations, tendons and ligaments (passive component), is indispensable to be able to overcome external forces. One of these, maybe the most

"Asymmetric jumps (proprioceptive) over an obstacle"

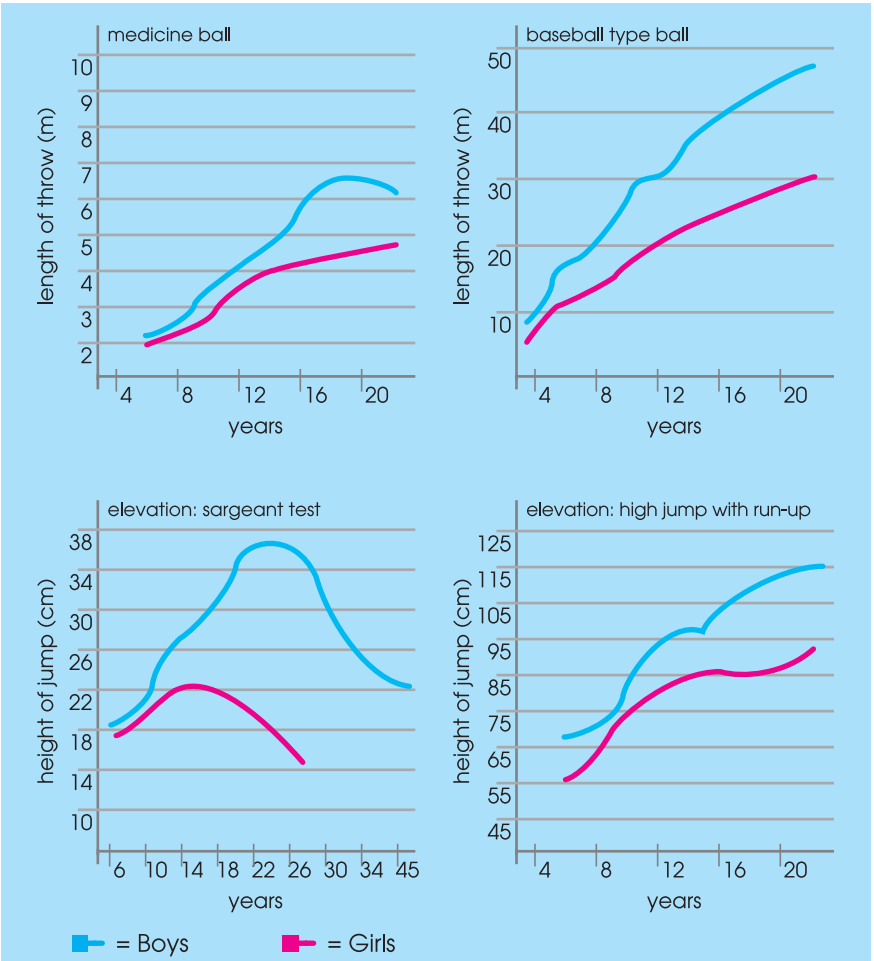
important, is the force of gravity. This physical force determines a reflexive action of our muscles, so as to allow us to maintain an erect position and conserve our state of permanent muscular tension (muscular tone). In different conditions compared to gravity, for example in water, this reflexive action doesn't exist. Therefore all dynamic activity such as walking, running, jumping etc., require the human organism to recruit muscular tension in the muscles involved, to carry out a certain type of physical performance. It is easy then to guess that, even in football, to possess a sufficient degree of muscular strength can generally mean: sprinting faster, stronger shooting etc. This happens in children in football school as well as in adults. However even if the premises that determine the expression of strength in children as well as in adults are the same, the training process as well as the consequent performances are drastically different. First of all, a distinction must be made regarding strength exercises as we can divide them into two groups:

- Preventative exercises;
- Training exercises.

The first kind are useful to contain possible imbalances that may occur during physical activity o during day-to-day life (e.g. school, sedentary lifestyle etc.) especially in subjects that are growing, and specifically address delicate muscular groups that concern the spine: lumbar, abdominal, dorsal, glutei, and that actually stabilise

the spinal cord. According to Weineck 2001, during the first two years of school postural problems increase by 70%. The second kind of exercises act upon propulsive muscles such as inferior limb muscles and arm muscles.

During the period from 6 to 12 years, a period that coincides with the beginning of football school, one can witness an accentuated phase of growth in terms of height, especially at the beginning of this long-term cycle. This means that the muscular structures have to be able to sustain morphological changes that create different muscular leverage ratios. During this evolutionary phase, as in the rest of the years until maturity, it is absolutely necessary to build a



There is an earlier difference in jumps compared to throws (during the jumps one must lift the weight of the body, for the girls the relative strength is lower because of the presence of more fatty mass)

Source: Wolanski, 1976

GRAPH 15 - Typical development of various kinds of speed strength by age and sex

good muscular structure in the body regions that tend to stabilise the normal physiological curves of the spine, but also the other muscular regions in general.

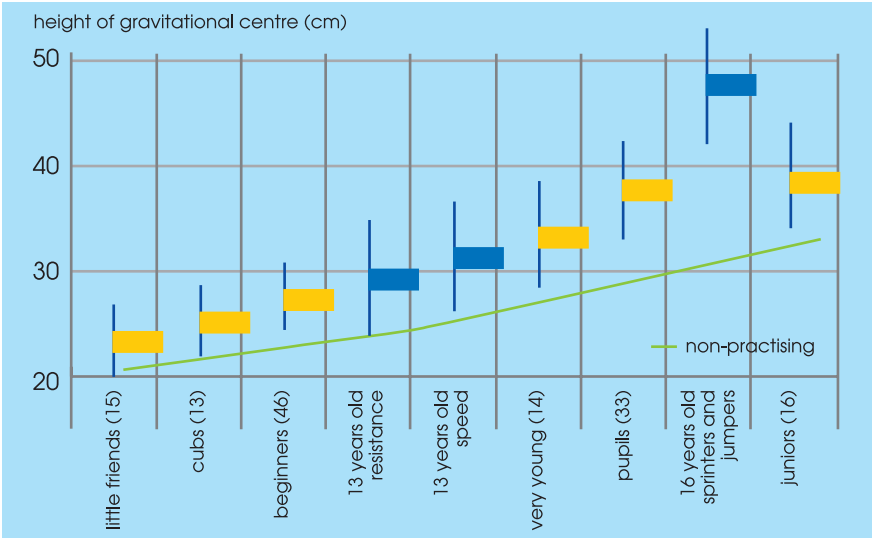
This objective regarding muscle tone can be obtained via group games or more specifically with free exercises or using small props (i.e. sticks, ball, etc.). However, in children of this age group, all that is needed is to try symmetrical exercises like throwing a ball with both hands in all directions, and small pre-acrobatic experiences, climbing etc. to obtain generalised muscular balance easily. Precocious specialisation is a risky situation, especially in sports such as football, where it should be completely avoided. (GRAPH 15).

As far as training exercises are concerned, we must remember that muscular strengthening essentially occurs through two processes:

1. improvement of neural activities (recruitment of motor units, inter and intramuscular, stimulus frequency etc.)
2. improvement of structural components (increase of transversal section: hypertrophia).

At a pre-pubescent age, which arrives at 12-13 years old in boys and slightly earlier in girls, because of a reduced production of an anabolic hormone compared to adults, testosterone, it is not possible to activate the relevant anabolic processes at muscular cell-level.

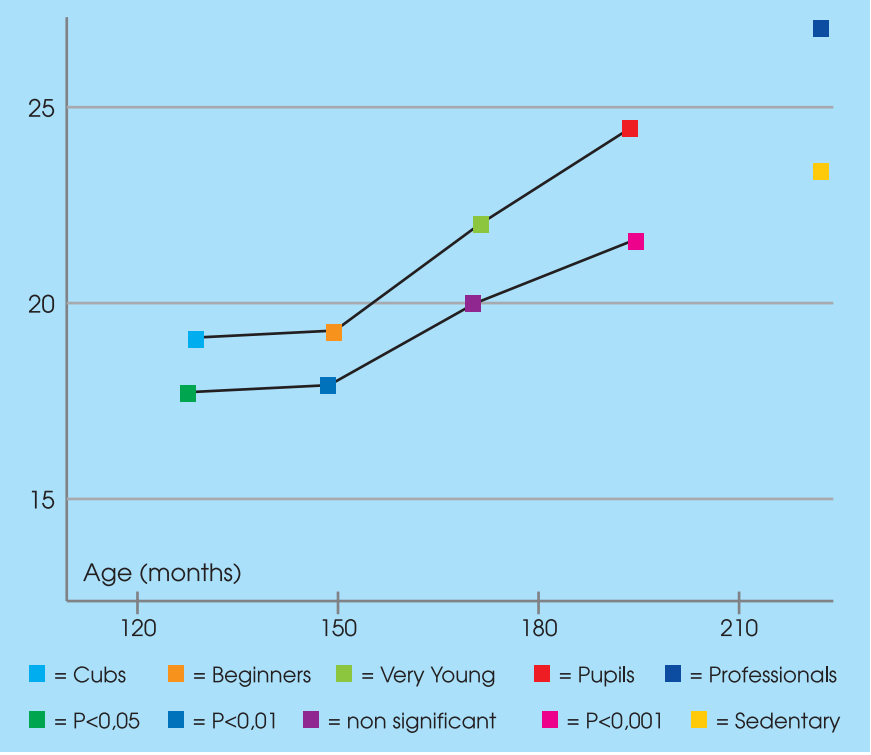
It is however possible, as some research results show, that exercises of speed, of rapid strength, can have a positive influence on the neural component of strength and therefore determine an



Source: Bosco et al. (199), D'Ottavio (1995), Egger (1991), Levola (1992), Mero et al. (1991)

GRAPH 16 - Bosco's test (cmj)

improvement of speed in a-cyclical performances (i.e. running) as well as cyclical ones (i.e.) goal shooting).
Furthermore this can also be justified by the obvious early increase in growth factors in the first and second stage of infancy of the nervous system compared to other organic functions. Probably for the same reason, the period that is most sensitive to coordinative improvements, which we know are correlated to neural processes, seems to be precisely between 6 to 12 years of age.
According to Verchosanskij, in children between 4 and 8 years old, a component of rapid strength is already present, and this physical quality is fundamental to build technical and athletic abilities, which mainly use fast twitch fibres (FTF). This quality is identified as a signal to select young talents. (GRAPH 16 and 17)
However, strength training due only to sport, in this case football, is normally not enough to obtain the general strength parameters that are necessary for a correct growth pattern.



GRAPH 17 - Bosco's Test - 15 seconds of continuous jumps (watt/kg). The mechanical force of the extension muscles of the legs measured during the execution of the vertical jumps for 15 seconds and expressed in kg of body weight is presented according to the age and category of the subjects. The parameters regarding professional categories and their sedentary peers are taken from Bosco, 1990. The statistical significance between players and sedentary subjects was calculated with a T test (T Students) for non-paired parameters.

Muscular strength potential has to be obtained in all regions of the body (especially the upper body) respecting the harmonic processes of growth. This is why dynamic exercises, with low external resistance, in order to guarantee a certain speed of movement, are preferable to static strength exercises. Dynamic exercises favour skeletal and cartilage metabolism. Finally we remind the reader that the values of strength in growing children are strongly correlated to body dimensions: weight and height.

3.5.3 Conditional skills: Speed and Movement Rapidity

These two expressions speed and rapidity are considered as integrated concepts with some distinctions that are linked, as we will see further on, to the type of movement to which they refer. Rapidity in general refers to a-cyclical movements (i.e. throws, shoots, overhead kicks etc.) and to cyclical movements where the implication of strength is relatively low (i.e. skipping). Speed entails significant involvement of muscular strength and is conceptually linked to the more physical sense of the term. In other words according to the well-known formula speed=space: time, so more linked to linear movements to be carried out as quickly as possible.
Even vertical movement such as a high jump or long jump really implies the effort to gain maximum speed of movement. But since these two movements are mostly anti-gravitational, the quality of

"Frequency coordinator with variable height"

strength is more implied, even if it is integrated with the physical quality of speed. Therefore rapidity is the ability to carry out a movement in a minimum amount of time, whereas speed is a particular expression of rapidity, in which the time factor is only limitedly linked to the space factor. The expressions of rapidity correlated to the functionality of the nervous system, have been identified by many authors.

These are:

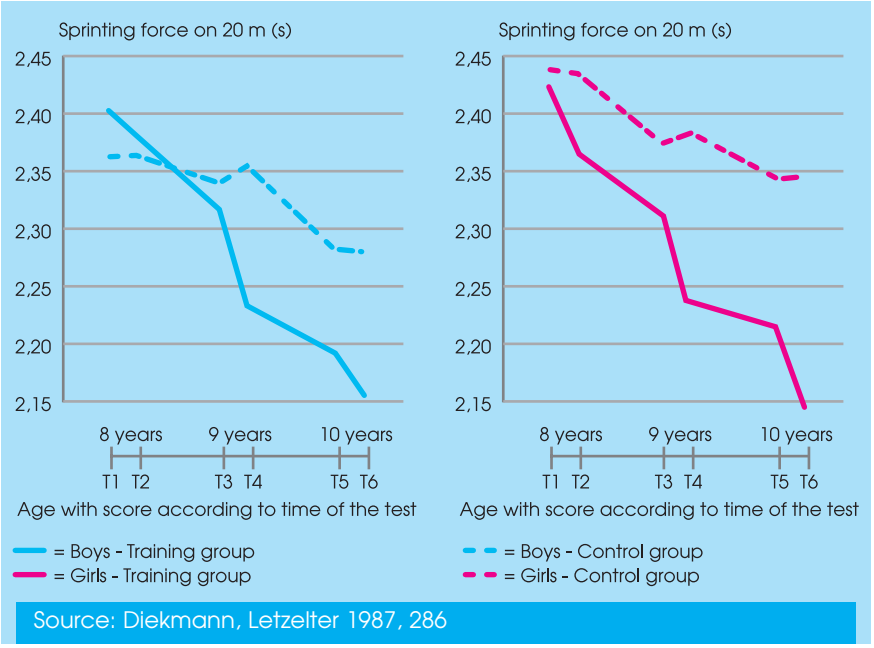
- latency of motor reaction time;
- speed of a single movement;
- frequency of movement.

This physical quality is really only one of the many expressions of rapid or speed strength that are present in a subject. Most of the experts agree that rapidity of movement is a physical quality that is biologically innate, with a small margin of improvement, which can be made during infancy. Therefore rapidity training in football school is absolutely advisable, also for the rich didactical content it provides to the instructor. Some authors provide two premises for rapidity:

1. simple premises for rapidity

2. complex premises for rapidity

The first kind are mainly referred to frequency of movement, they



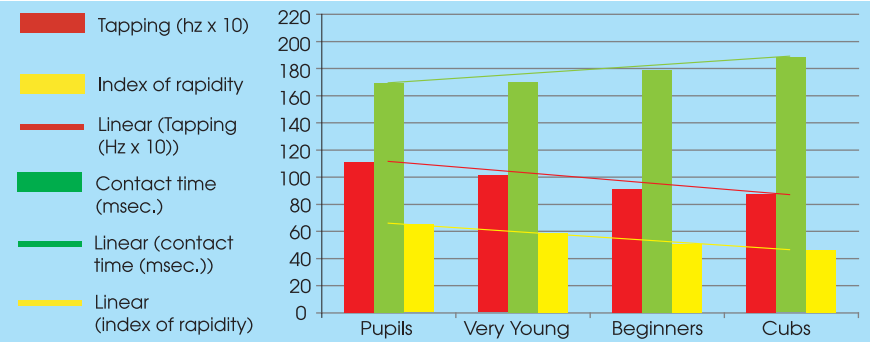
Source: Diekmann, Letzelter 1987, 286

GRAPH 18 - Development of sprint force, during a training experiment over a 2 year period (in a training programme twice a week for 12 weeks, 30 minute training of rapidity and rapid strength adapted according to age groups).

Age (years)	Conditions/morphological changes	Forms of expression according to rapidity
From 6 to 8	Definite anatomic and functional maturity of the cerebral cortex	Clear increase of ability to execute movements in high frequency - the frequency of steps while running correspond to those of high-level sprinters.
From 9/10 to 12/13	Prevalence of excitement compared to inhibition	It is the most favourable age for movement learning: new types of movement are learned relatively soon, but **are** unstable when faced with external factors; in neutral conditions, comparable in terms of rapidity, normally the most rapid subjects are those with the most talent
From about 12 to 14	The higher level of excitement is compensated by the reinforcement of inhibition processes	Favourable conditions for the development of rapidity, which can influence elementary movement programmes
	Intensive growth in length (the ratio of force and leverage doesn't change at the same rate)	During fast runs, there is a likely aggravation of complex premises of performance (i.e. supporting time, frequency of paces; the elementary movement programmes are influenced (meaning stabilised) negatively by stereotyped frequent repetitions
From 15/16	Nervous stability	In case of insufficient premises to performance, through training of sprint force or of resistance to rapidity can be late but not blocked by static sprint results

TABLE 16 - Specific aspects of rapidity that are typical of the various age groups during ontogenetic development (according to Lehmann 1993, 14)

depend on the ability of excitement of the central nervous system and, at this age (especially between 6 and 9), tend to reach parameters that are comparable to adult ones.



GRAPH 19 - Index (quotient) of rapidity (Lehmann, 1991) - (D'Ottavio, Tell, 2006)

Podalic tapping (number of alternating contacts with the feet in, for example, 10 seconds) as well as the measurement of time in which the foot touches the ground after jumping from a height with a bounce (e.g. from 20cm), are proved forms of evaluation of the simple premises of rapidity. The complex premises of rapidity are mainly linked to the increase of potential strength of the children. These characteristics are above all noticeable around 11-12 years of age at the beginning of puberty. One must also remember that the accentuated pre-disposition in the beginner category towards acquiring new forms of movement and perfecting already acquired abilities, give the child the opportunity to improve his running technique by making the movements more fluid and economic. Even reaction time improves considerably, and this characteristic, which represents the beginning of all forms of rapidity (see paragraph: coordination skills), offers a large number of didactical possibilities. Relays with or without the ball on distances from 5 to 15-20 metres, confrontation games, catch games (one runs, the other tries to catch him), popular games such as steal the bacon etc, and naturally all forms of games with specific variations are the most appropriate ways to train rapidity at this age.

3.5.4 CONDITIONAL SKILLS: RESISTANCE

Resistance may be defined as the ability to prolong muscular work over time, maintaining constant quality throughout. This very important physical quality in long sports can be divided into two functional directions:

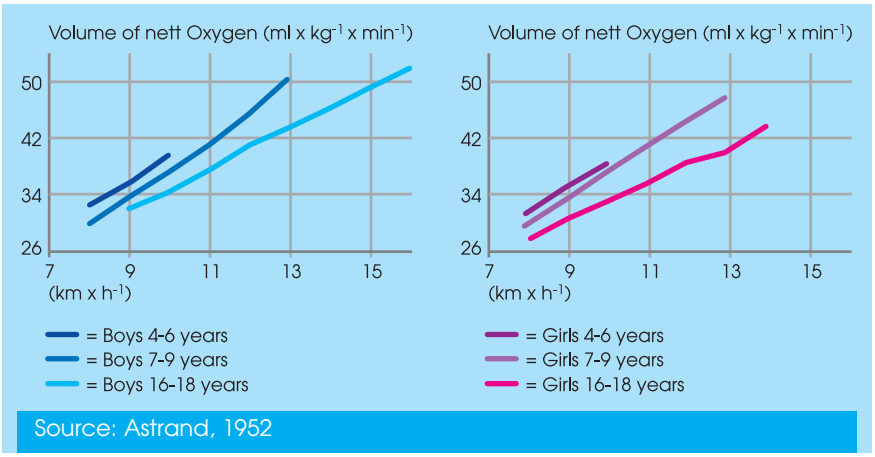
1. aerobic resistance

2. anaerobic resistance

Aerobic resistance is mainly sustained by the aerobic metabolism, which in turn is the most economic way to produce energy. Athletic

activities that generally show aerobic strength as a limiting factor to performance are long performances, such as the marathon, cross-country skiing, street cycling, resistance swimming etc. The muscular fibres that are mainly concerned in these activities are easy to be seen in the elite athletes of these disciplines, and are the slow ones (STF - Slow twitch fibres). These fibres have the characteristic of low weariness and an activation threshold that is just as low, in fact they are the first fibres to contract during movement and they get weary very slowly. The muscular cells of slow fibres are rich in mitochondria (cellular organisms that form ATP = energy in the form of oxygen) and enzymes of the aerobic metabolism. The latter characteristic of the cells, during infancy and throughout the development process, is represented in more or less the same amount as in adults, if not, as shown in some of the scientific literature, in a higher amount. These characteristics therefore do not limit, but favour precocious resistance training, seeing as there is a strong biological pre-disposition. The limits lie in other factors, the first of which is psychological: in fact children are not very apt to long, slow running activities. (GRAPH 20)

It has however been shown that in the past few years the application of intermittent methods for resistance training have widely developed, especially in team sports, so much so that the so-called "long" and "slow", in the picture of training methods for aerobic resistance in football, has been almost totally abandoned. Fortunately, children show a strong pre-disposition for intermittent physical workload, as a peculiar behaviour of that age, and especially thanks to psychological characteristics, which, during the

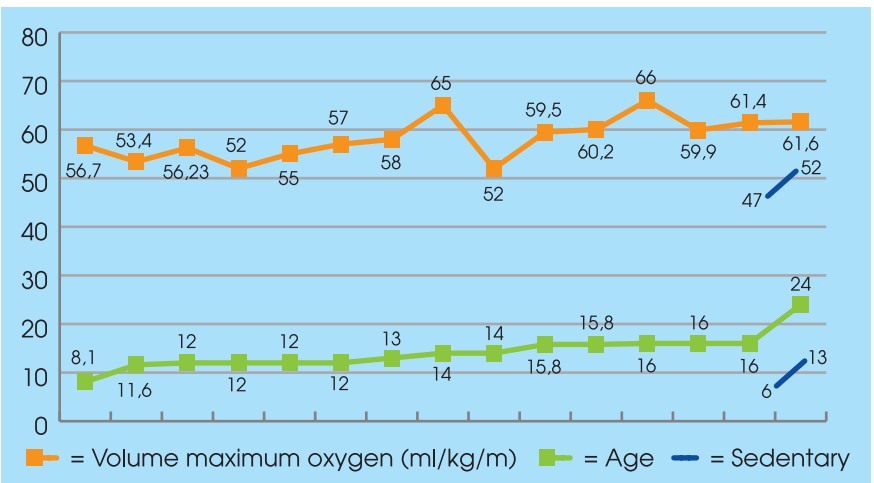


GRAPH 20 - Consumption of nett oxygen (ml x kg x min) according to speed (km x h) in both sexes

first scholastic years express a prevalence of mental processes and excitement instead of inhibition. The match, match games with rule variations, technical circuits, game situations or running without the ball where medium-high intensity running is followed by slower periods of running (repeated for several minutes), can be good opportunities of resistance training. One must remember that, in children the extensiveness (amount of work) of activities should always prevail on the intensity. This ratio can increase gradually over time in favour of intensity, in relation to the athletic qualification. (GRAPH 21)

As far as anaerobic resistance is concerned, a physical quality that characterises fast medium-short length activities (10 seconds - 2 minutes running), and in which a considerable amount of lactic acid is produced, it seems that children are little inclined to them in a pre-pubescent age. This different biological pre-disposition in children as opposed to adults is fundamentally due to the lack of enzyme and iso-enzymes that are specialised in the formation and disposal of lactic acid during anaerobic (without using oxygen) glycolysis (sugar metabolism).

In some scientific work however high lactic acid parameters were found in children aged 11 after maximum effort exercises. However the high psychic workload, which is also characterised by a strong production of catecolamine (stress hormone), cannot be applied to infantile training seeing as they have a different biological and



Players: Bunc et al. (2001), 1SS- FIGC (1991), Bell (1998), D'Ottavio (1994, Jones and Helman (1993), De Vito et al. (1994), Caru et al., Lindquist (1993), Jones (1993), Jankovic (1993), Tumilty (1997), Pimav (1992)
Sedentary: Davies (1972), Flandrais (1981, 1982), Massicotte (1985), Van Pragh (1989), Castagna (1999)

GRAPH 21 - Aerobic force and age of young players

psychological situation compared to adults. In children, resistance training must be carried out with specific exercises with the ball, with circuit exercises or mixed exercises (with and without the ball), using matches and in any case by keeping motivation high. Playing that is "oriented" towards physical objectives that need to be fulfilled, represents the didactical grounding on which most physical training programme of Football Schools should be based.

3.5.5 Articular mobility

Articular mobility can be defined as the ability to carry out body movements with the maximum articular range possible, using all of the various degrees of freedom that are biologically conceded to the human species. It essentially depends on:

- muscular extension potential
- inhibition of proprioceptors that are sensitive to stretching;
- repetitive exercises (for more information see paragraph "The Sensitive Phases")

3.6 "Selection, specification and promotion of football talent"

The qualification of a young football player is tested throughout activities. This position for individual diagnosis dates back to Engeis, who scientifically based his studies on individual development: "Only when the young player makes an effort can he show whether or not he is qualified or not to be trained in this athletic specialty". Therefore a methodological participation in training sessions is the most important external condition to diagnose athletic aptitude.

What is athletic aptitude? An athletic aptitude is based on formulating valid predictions, regarding the ability of the young player to successfully complete juvenile training in the specialty he has chosen, in such a way that he will be able to undergo training in order to reach high levels of performance with authorised hopes. The issues surrounding **athletic talent** are particularly interesting for all people concerned with juvenile sports in various ways. Everyone agrees that: it would surely be useful if one could tell very early on, over the normal time of technical maturity, if a certain subject, when showing his qualities, shows a promising athletic future. This is true, for a whole variety of reasons, for the coach, for the various technical promoters of the Club, as well as for those (other Clubs) who intend to invest on some young players more than others with

their infrastructures. The term "selection", has provoked quite a few arguments among those who, out of institutional duty, defend the cause of a sport, which is quite rightly very popular, and should contain or rather embrace all the infinite possible expressions and degree of aptitude present in the population of those who practice the game of football. It is also true that, amidst all this "grace", for the purpose of choosing the few who show something more compared to others, it is necessary to know how to find those who require a more specific approach or training process. All this to be able to enhance certain qualities that they already luckily and naturally possess. In general, with appropriate simplicity, we can define talent for football as that special psycho-physical condition and performance in general, that goes through a certain evolution, and places him above the average of the rest.

It is confirmed by many studies in the international literature that the fact that a child showing a particular aptitude towards one sport of class of sport at the beginning of his athletic training, can depend on his on his own genetic background (hereditary factors) as well as his experiences, even if minimal (environmental factors). It is clear that if nothing can be done about the first aspect, there is a lot that can be done in our power as far as the elements that can be learned are concerned (see ILLUSTRATION 29).

It is therefore probable for example that the son of a sprinter in athletics will have the same or most of the muscular qualities of the father (i.e. % of fast fibres), but it is also true that if certain characteristics are not precociously supported and solicited with training and development programmes that are specifically oriented, this potential may remain relatively and partially hidden (latent). (GRAPH 22) The model of football performance is however more complex. This statement is justified not only by the enormous

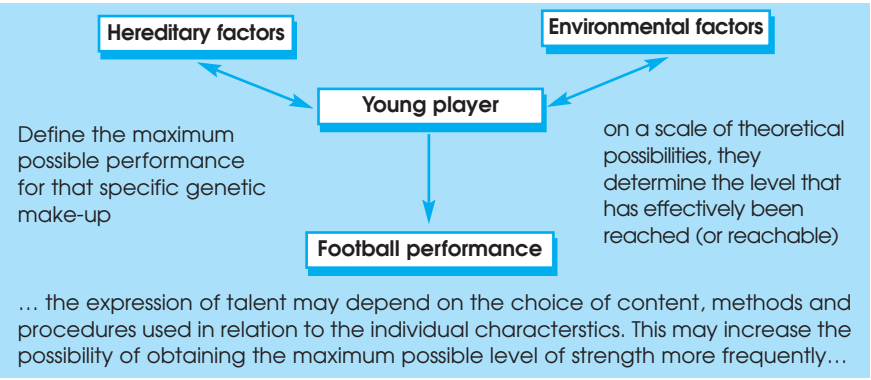
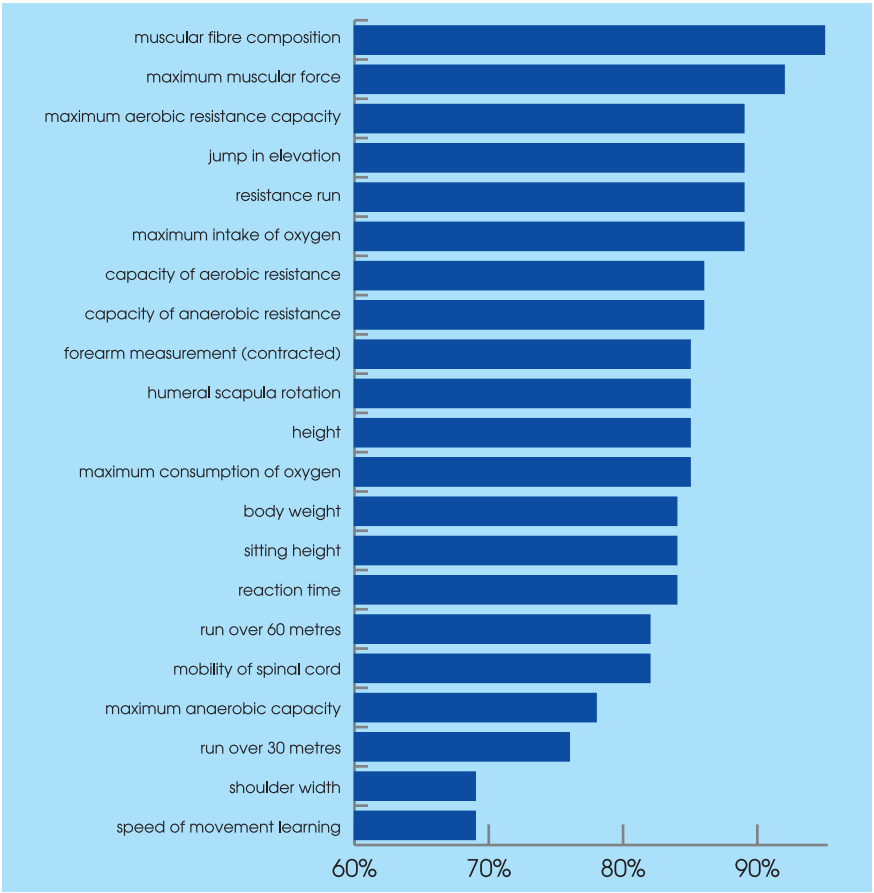


ILLUSTRATION 29 - Factors that influence football performance (D'Ottavio, 1994)



GRAPH 22 - Rate of heredity

mass of practice and consequently of the difficulty of analysis that may be encountered, but also due to the fact that it is not always possible to establish, in relation to age, the most significant indicators of evaluation at a specific time.

Control over time of the implied parameters is just as difficult and little correlation has been found (objective evaluation), to try and formulate a prediction in terms of evolution. These, not unconquerable problems, depend on the fact that football, compared to other individual athletic specialties, needs athletes that perform during play in terms of strictly technical and coordinative qualities, as well as organic-muscular qualities, and especially cognitive qualities (individual and group tactics). A frequent question is therefore: "What age group should I pay more attention to catalogue possible talents, and which factor, among those mentioned above, is the most indicative?". Fortunately the experience of many coaches, observers, and promoters in general,

has always allowed to predict, with a certain reliability, on the basis of empirical but no less significant evidence, a more or less fortunate future for a young player. For example, the parameters in ILLUSTRATION 30 could be taken into consideration to evaluate a football player.
It is also however true that when pursuing improvement tendencies, if we could find a more relevant predictor, which is still unknown in detail, we could provide a greater contribution to the cause. Another important consideration has been expressed in this sense, on the fact that in order to recognise a possible talent, one would need to examine not only the overall performance (effectiveness), but should also hold in identical consideration the intrinsic factors of performance.

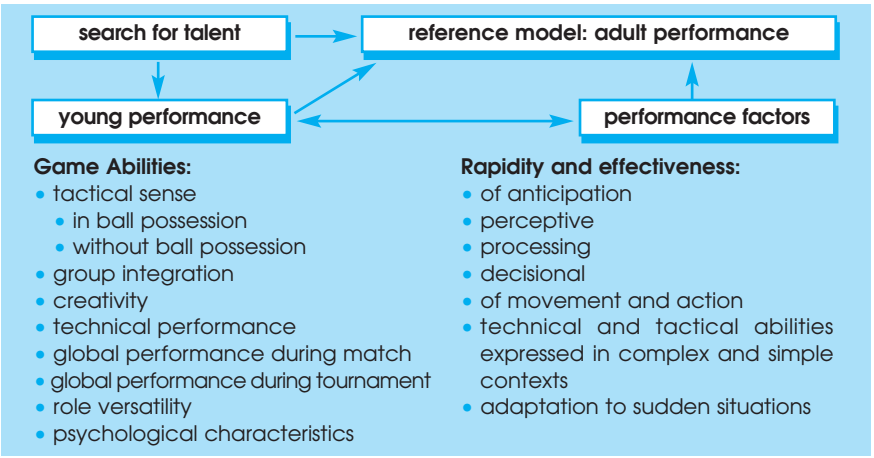
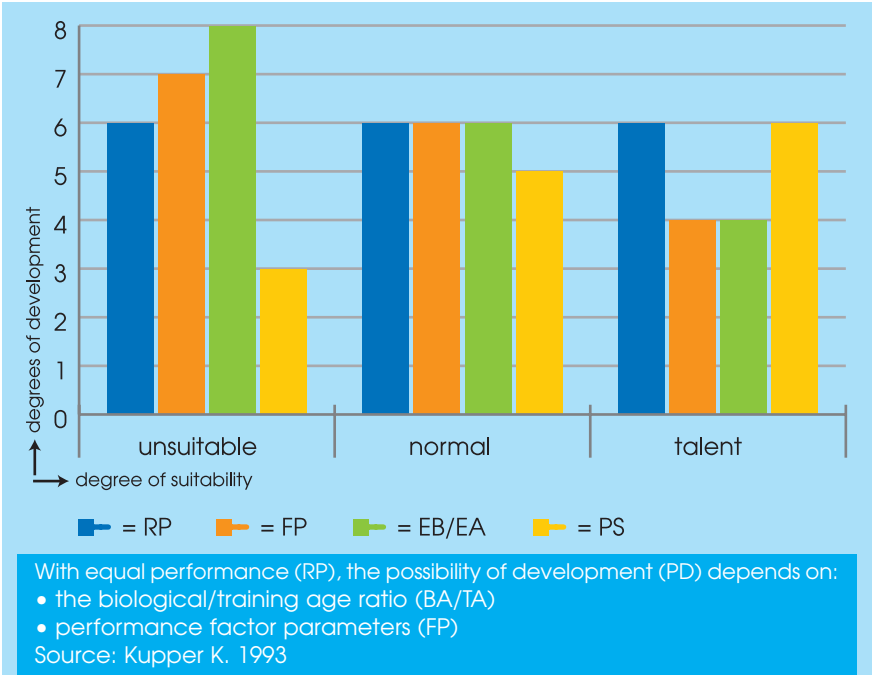


ILLUSTRATION 30 - (D'Ottavio, 1996)

This statement makes it clear that, given the same performance (indicatively measured with subjective factors) and same age, those that present a higher biological age, more years of training and factors of performance (anthropometric, physical, technical, tactical) that have already been consolidated, are those who have less potential development compared to those that are closer to the average of their age-group or even late on certain characteristics. This consideration, logical in its definitions, but many times forgotten, is based on the fact that those that precociously reach a higher biological age and a more advanced technique, necessarily have less margin for improvement. These cases could slow down over time and even compromise the growth of performance. Instead, those who manage to figure well in their relevant championships despite the fact that they are behind in morphological and functional development compared to the optimum threshold, with room for improvement through specific training, could have more chances of succeeding in the future. An

eventual development of these factors would consequently heighten the level of performance, which is already good compared to other potentially valid players. (GRAPH 23).



GRAPH 23 - Suitability according to age

History however teaches us that sometimes some young players, despite certain requisites have been found from the hereditary component as well as acquired component, and that further promotion (differentiated training in high-level teams) has been developed according to the optimal levels of modern training, some potential talents do not come through as initially predicted. This probably means that there have been some errors in estimating various indicators considered for talent prediction, or that these indicators have not expressed the same stability over the years. Or, another possibility, maybe psychological - motivational and social factors had a negative influence on the "technical itinerary" that the student had access to. However, the opposite has also happened, that others that had not been selected during their youth as talents, have reached professional categories, by enhancing their performance patterns. This could mean that certain x-factor has still not been found, or that spotting talent is not an absolute science. (ILLUSTRATION 31)

It is a common opinion that during the training of a football player, from the beginning to technical maturity, at least ten years should

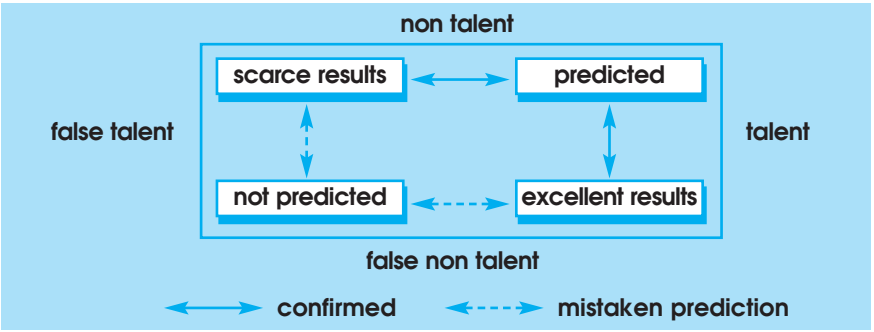


ILLUSTRATION 31

pass, in which the young player will receive stimuli and information that will initially have a more or less generalised form and will take on more and more specific characteristics. At about 7-8 years old one can notice certain attitudes that are more or less defined, which in the following years could reinforce themselves more incisively so as to imagine the possibility of a potential football talent.
Even if it is certainly too early to define him as such, his performances could appear as better than those expressed by his age-group.
On a diagnostic basis, the "promises" will be fulfilled more easily if the general overview of factors that make up the performance presents significant potential for improvement. At age twelve/thirteen it is therefore imaginable to gamble a first selection (prediction), but the following years however, and the promotion work, will be the ones to tell whether or not these pre-existing conditions maintain themselves over time (at least 3-4 years). In other words, promotion of talent means, that as well as a diagnosis, it is also appropriate to choose an adequate prognosis to follow. (ILLUSTRATION 32)

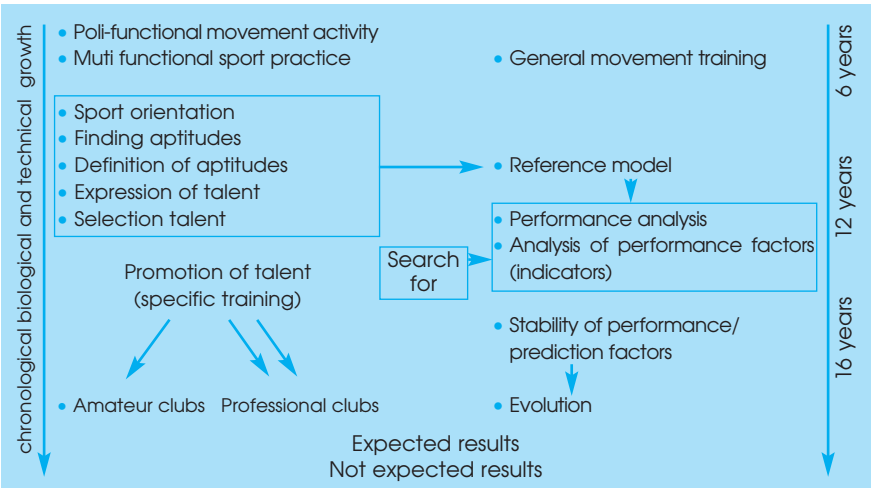


ILLUSTRATION 32 - (D'Ottavio, 1996)

3.7 The Psychological and Social Components

Every behaviour is always oriented towards the satisfaction of a personal need, and a personal objective. Development, adaptation and perfection of forms of behaviours have the main objective of reaching locomotor performance. External conditions may establish a psychological environment in the group that stimulates motivation during training as well as competitions, and are dictated by the social environment, which is at the base of every learned movement, that provides stimuli and support as well as the opportunity to learn in a group.

Social environment is especially effective through language, which is a cornerstone of learning motor skills but also represents another essential premise for its realisation.

One can in fact state that language is the means to acquire more and more new knowledge. Precise explanations, if used appropriately can accelerate the learning process. The learning process of technique and tactics is the first step to forming a football player. At a young age, learning processes are strongly linked to motivation, there is no locomotor behaviour without motivation. The role of the coach, who will have to stimulate the motivation, is therefore essential, because this psychological dimension is the premise around which the athletic experience of the child rotates. If the game is well-experienced by the child, it allows him to express creativity, which is necessary to make football fascinating.

Training sessions often seem monotonous and repetitive and often the ball is not used very much, and this is a type of attitude that penalises creativity. There are too many young players that do not try a deep pass to free themselves from cover, or a long shot, or a dribbling or a fake for fear of making a mistake and being reprimanded by their coach, risk loosing their place in the team.

This attitude will result in a habit of play simple and avoiding the creativity and imagination that could be potential in that boy and that will remain latent. Flaubert once said that mistakes are born from the bad use of language: "what do we adults do with our boys?".

In fact a young boy during training must always have the possibility of discovery, of having fun and to not consider the opponent as the enemy but as a mirror to understand his own values and his own limits. Motivation must be cultivated and therefore the instructor should not make the mistakes that could inhibit it: therefore boredom, monotony, anxiousness, lack of hope (brought on by repeated failures), are enemies that must be kept away.

"Execution speed is a sign of talent"

In juvenile activity the coach must not provide exercises that are too difficult compared to the level of the group, as it generates a slump in motivation on strong and weak points and could mean that they leave the sport altogether all too soon. It is important to know how to use various types of exercises to obtain the same effect, to control boredom. The coach should also keep in mind that feeling important increases motivation of the young athlete and that it is his role to know, understand and offer solutions to motivate each child. Furthermore, practicing the game of football gives the children the opportunity to participate in a social sporting context that is highly educational. This practice of common activities is a real training camp for cooperation, by integrating the boy into a group without letting go of his own personality, allowing him to take stock of his strengths and weaknesses and of the necessity of working together towards a common goal.

The game, intended in this way, becomes a preparation for social life in which men must work together, maintaining their personal independence.

4. Let's Organise a Work Plan: the Various Phases of Forming a Didactical Programme

4.1 Planning

In order to obtain a better technical and didactical organisation, the Sport Clubs, within the limits of their possibilities, must:

1. Analyse the initial situation, evaluating:
- Social and cultural factors regarding: the boys, instructors, club, environment
- Initial levels of technique and locomotor skills (degree of experience and aptitude)

2. Define the objectives regarding:
- Educational purposes
- Initial levels of technique and locomotor skills (degree of experience and aptitude)
- Available resources

3. Organise training
- Find training and technical areas
- Establish means, methods, environments, timing, evaluation criteria
- Divide the training course into didactical units, lessons, training sessions

4. Organise evaluation systems along the way:
- They must regard all moments of the training process and allow the coach to collect data for a possible group and/or individual reinforcement, above all evaluating the relationship between instructor and pupil (analysis of proposed method)

5. Organise a final evaluation:
- It must regard the whole process, and allow to compare ideal objectives and results with the obtained ones (the instructor's work)

This accent on the word "result" may be intimidating, but each of us in our day-to-day activities, every action is not determined by chance, but is carried out after having established an organisational plan.
Therefore, why is it a good thing to plan?
How many times have we panicked to reach a location because we didn't know how to get there?
Or how many times have we left without a specific destination and search for an inviting place to stay?
In a plan the objective/s to fulfil must be defined before beginning our "journey", as well as the way we will get there, the stops to make, the speed of travel, supplies. The mastery of an instructor isn't only measured in the qualities that a shoot to goal or a Brazilian play expresses, it is also, but above all, in planning his actions in an organised context aimed at the training of a young football player. We are responsible for his growth of his football, his physical and

locomotor growth and above all his psychological integrity: a child that abandons football practice, who falls out of love and refuses confrontation, who is afraid of making mistakes is to be considered as a failure of the training process. Planning is the central moment of a didactical project. It allows the instructor to outline the educational milestones, the objectives to fulfil and the activities to be carried out to reach those milestones, as well as the ways in which he will test the capacities that have been taught and the parameters for the evaluation of the didactical processes and the progress of the pupils involved.

4.1.1 Initial Situation and Situation Analysis

From the beginning of the year, for each level of Football School, we will have to find the general levels of:

- interest (for the type of locomotor and sporting activities of the discipline),
- commitment and motivation (in understanding and carrying out the actions and checking results),
- locomotor skills (functional and structural),
- abilities (fundamental corporal and movement patterns),
- cognitions and emotions (relating to sports and physical education),
- interpersonal relations (friendship, cooperation).

To do this we must avail ourselves of useful observations and detections to produce individual and collective evaluations, which, even in their approximations, allow the coach to acquire information on the outcome of the preceding training sessions and the personal conditions of the pupils. We may express ourselves in qualitative and quantitative terms (type and mastery of the ability). Furthermore, we must evaluate the global behaviour of the subjects in terms of their will to learn the ability of self regulating themselves during the didactical activities and in the situations immediately before and after (during movement, in the changing room). Possible specific cases must be pin pointed (in a positive/negative form) by indicating, for each one, the particular aspects.

4.1.2 General Didactical Objectives

They are the purposes that one aims to fulfil, once the starting point of the pupil has been taken into consideration, indications of a programme, available means, techniques and methods one intends to apply.

The content must be found not in the specificities of the discipline, but in the overall frame of thought, behavioural expressions, social relations, affective life of the subjects of the educational activity.
It may be the fulfilment of:

- A better behaviour among students or between student and teacher;
- More interest and will towards the activity;
- More ability to express themselves without being shy or afraid;
- More self-control, autonomy, self-management in any activity;
- More respect, loyalty, cooperation… in the group;
- Better management of contrasts, intolerances, frustration, interpersonal and intrapersonal tension;
- Acquisition of a useful work method to face other learning situations;
- Stimulus of a hypothetical-deductive way of thinking and acquisition of the ability to form an anticipated image.

4.1.3 Didactical Objectives

Didactical Objectives are "finish lines" in the learning process which, even if they are born from the same point of view as the educational ones, are strictly linked to the dimension of the general qualities of the subject, which must be reached in terms of acquiring and developing the specific content of a discipline.
They may be defined as the acquisition of cognitions, abilities and attitudes to be learned to become competent in a discipline. To obtain the various didactical objectives an organised operational procedure must be planned, which establishes the objectives to fulfil.
In technical terms, one can talk about a hierarchy and a taxonomy, or a classification (from bottom to top, from easy to difficult, from simple to complex) of didactical objectives and a way of relating them to the type of group (their knowledge, ability, attitudes, skills).
For example, structuring of a proper locomotor training programme referred to a group of 6 year old children, cannot exclude considerations on the development of movement patterns (running, jumping, rolling, grasping etc.), which are a priority compared to fundamental techniques.
Drafting a plan that contemplates the objectives to be fulfilled, must begin from a profound knowledge of the student and the group, the abilities and qualities they have achieved, parameters which, when compared to the chronological age, will provide useful information to find operational objectives.

In other words, the educator, by applying a choice of training method, will privilege the development of certain abilities in an organised chronological context (objectives of the programme).
The objectives, once they have been defined, will be subject to verification; this means that during the year the degree of development of certain abilities/skills will be evaluated and the plan will be defined accordingly, "the speed, supplies and stops" in order to reach them.

4.1.4 Method and Didactical Content

A principle that must regulate the training/instruction activities is that the ball must always be included in the various exercises and that the game represents the best from and method of learning.
The choice of exercises, other than being oriented towards the acquisition of a certain kind of conduct and behaviour, must give priority to activities with a high level of emotional involvement, must arouse interest and enthusiasm and create a magical environment where the will to be together and "train" is a strong motivation.

The content and method of training must vary continuously and be a part of a mosaic intended to reach the objectives of the programme. For example the ability to move in free space to receive the ball (knowing how to free yourself from cover) is a big objective that develops itself in intermediate stages, such as the recognition of free spaces in which the players move, from knowing how to receive the ball, to the ability of adapting and transforming your locomotor behaviour and many others.
In the Football School, the Clubs are structured in categories that are referred to the various ages of the children, we have Little Friends that include the youngest from age 6 to age 8, the Cubs that go from 8 to 10 years old and the Beginners that go from 10 to 12 years old.

Therefore the characteristics of the activities that are carried out within the Football School must respect the requirements and needs of each age or phase of development.
By analysing the above in an extremely succinct and schematic way, we can say:

Little Friends 6-8 years	• The child shows a certain egoism (egocentricity). He therefore has a need to have the ball at all times, and he doesn't want to share it with the others. • He wants to explore and play all the time to learn how to play and to improve his basic movements (running, striking/kicking, jumping, rolling, throwing, grasping etc.) • The instructor must propose and stimulate behaviour, he must not be prescriptive nor directive. He must be accepted for his spontaneity and his tranquil and polite manner. • Technical teaching by emulating adult behaviour, must be non-existent. Instead it must include little games that are oriented towards the awareness of various fundamental techniques. Activities in smaller areas, with smaller and lighter balls. Small-sided games, 3:3, 4:4, 5:5.
Cubs 8-10 years	• If he has lived and spontaneously passed the egocentric phase of the preceding age group, he shows that he is able to relate to his team mates better, in a structured activity or a game. • Basic motor skills start defining themselves within the technical abilities. Through the game he learns to adopt adequate behaviour according to various situations. • The instructor must emphasise the children's initiative, by encouraging and not inhibiting their imagination and creativity. He must create problems and stimulate solutions. • Dribbling and shooting goals, situational games and small-sided matches are the fundamental elements on which to base teaching. From 5:5 to 7:7 with smaller balls and areas.
Beginners 10-12 years	• Integration in the group improves, the interpersonal relationships are transferred outside of the club environment. • Precision of technical abilities and attention spans improve. More analytical exercises can be proposed. Desire for self-improvement. • Technical learning can require corrections. The role of instructor sometimes takes on directive characteristics. However, we must not forget that the playful aspect must always prevail. • More time dedicated to training. Acquisition of technical behaviour that is adequate to a game situation (applicative technique). From 7:7 in a smaller area to 11:11 in regular fields. Smaller balls.

TABLE 17

General considerations

As it has been stated many times in this technical guide, the choice of objectives, content, teaching method need to be planned on the basis of various considerations that regard the development and growth characteristics of the children, and of the fact that the formation of abilities must follow the stages and sequence of the various levels of motricity. Morphological and functional growth follow an itinerary that must therefore be parallel to the development of motricity and more specifically to that of technical abilities. This correspondence of the different perspectives such as the biological and curricular ones, sustained by the applied didactical plan, may be in other words expressed as "planning by age groups". We believe that no one can deny the assumption that smaller children, in general, have more difficulties than the older ones regarding control and organisation of movement patterns and fundamental moves of athletic motricity. For this reason, the validity and the quality of the didactical programme therefore, are finally influenced by the possibilities:

1. of making the learning process easier and more productive;
2. of creating phases in which the little pupil experiments and retains certain learning experiences;
3. of graduating the difficulties according to the technical tasks to be solved;
4. of changing (along the way) aspects and specificities of the programme according to the level of adaptation of the group and the single pupils;
5. of verifying the aspects of the children's locomotor behaviour, as an objective purpose of the programme and as a result of the learning process.

As can be observed whilst reading through these five items, which effectively represent the factors in which the learning process is articulated, that the undertaking of the teacher, or for whoever needs to plan the work, presents more than one problem to solve. This is also because it sometimes happens that the progression of exercises elaborated during the lesson or didactical unit, may not change certain expected locomotor responses from the pupils or part thereof. The didactical exercises, which represent the final interpretation of the method and expected objectives, even though everything has been done to respect the principle of *variety of learning stimuli*, sometimes, if they have not been

enriched by other variables, can in the worst case scenario create boredom and consequently lower the motivation to learn. In other parts of the guide this psychological concept is repeated with many examples (see paragraph "The Psychologist").
The didactical variety is therefore considerable as a sort of "easy way out" to escape the limits and difficulties that may occur on some occasions. Didactical variety may be without a doubt helped if the coach can use specific training material in terms of numbers (quantity) and in terms of didactical correspondence and coherence (quality). When, for example, the coaches are advised to carry out exercises with one ball per pupil, we often hear the reply "And when will we find a club that will provide all these balls?". It is true that theoretically perfect situations don't exist, and it is also true that difficulties sharpen the intellect, but it is also true that without the fundamental instruments it becomes difficult to carry out any kind of work. This is true for sports, or if these problems occur in other kinds of activities (work, school, home, hobbies etc.). We think that equipment therefore must be taken into serious consideration by instructors of Football School, because, if it is well selected, it can turn out to be seriously helpful to didactics and learning.

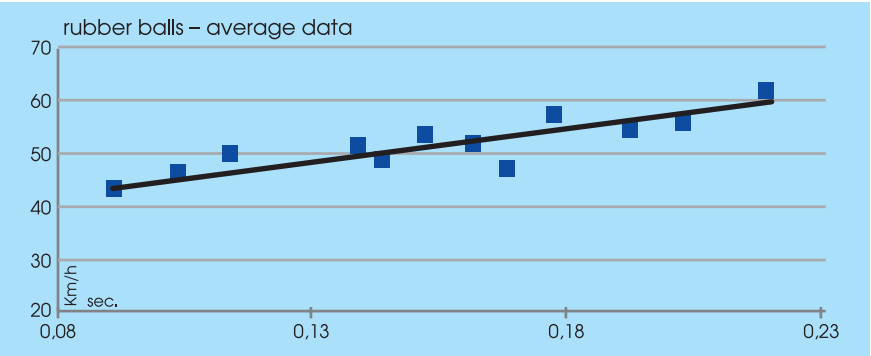
Football School Equipment
Teaching football must be planned, especially in the early years (beginning and first learning phases), by structuring working units based on the use of means that facilitate the learning process and on the principle of graduation of didactical proposals. We believe this is appropriate to encourage the necessary and functional adaptations in the child that are asked of the child on a sensorial and motor, technical, coordinative and cognitive level.
Even the equipment that we use, considered as a specific didactical tool, which is an expression of the choice of teaching method, must be used in close connection with the psycho-motor and structural needs of the child, which are related to this delicate starting period, by also taking into account of the relation between stimulus and response, to which one must refer every time an external solicitation is induced. The ball, or the football, is the fundamental piece of equipment in order to play. This tool possesses all the psycho-motivational, affective and relational requirements, and the constant contact with it is considered as fundamentally important by everyone during the evolution process of the young football player. But which characteristics must this specific working tool have? What should be the most appropriate

weight, the dimensions, and type of material to favour the most functional adaptations? And which are the best solutions, no- less important to those who institutionally represent football, to guarantee the physical safety of the young players? Experience often leads towards the most efficient strategies, but sometimes, almost involuntarily, it is natural to ask ourselves questions to which we must reserve, if only to satisfy a personal curiosity, the necessary time to reflect. The ball or the football, traditionally, is produced with leather or various natural or synthetic hides, with the measurements and characteristics that are adapted to every kind of technical requirement. But it is also true, sometimes, especially for some didactical requirements, that the leather ball used by adults is not very adaptable to the requirements and the graduation that is needed for smaller children. According to our considerations dictated by experience in the field, the rubber ball on the other hand, particularly the double layered kind, presents these interesting characteristics:

- Better weight/compression ratio
- Less traumatic foot/ball impact, due to a greater deformation and wider distribution of the used force to move the ball (wider area of impact). This possibility determines a greater amortisation of the blow during impact.
- The greater deformation (amortisation) determines a wider stimulus area at a proprioceptive and tactile level and a longer time of impact (more sensorial learning in quantitative terms).
- Allows to impress more strength (force) on the ball; better weight/elastic response ratio with a consequential increase of performance of the kick and pass (stronger and further away),
- Increase of performance determines, during the competition, a wider variety of mental operations (normally impossible to carry out with a leather football) and, therefore, offers opportunities to attempt "distance" or "air" solutions in kicks as well as passes.
- Allows to lift the ball from the ground more (cross, throw, passing etc.)
- Allows earlier learning of head play (less traumatic impact).

In order for these conditions to be really favourable, the rubber ball must however guarantee:

- Standard weights, similar to those of a leather football;
- Standard circumference, similar to that of a leather football;
- Maintenance of roundness;
- Maintenance of compression
- Contained (controlled) bounce, especially when used on imperfectly regular surfaces;



GRAPH 24 - Correlation of ball speed - time of contact against wall (D'Ottavio, 2000)

- Maintenance of trajectory in the air or on the ground (outgoing and incoming), in conditions of maximum force as well as control-guiding situations, kicks and passes executed with less transmission speed (precision).

Other didactical opportunities that are possible by using the rubber ball are:

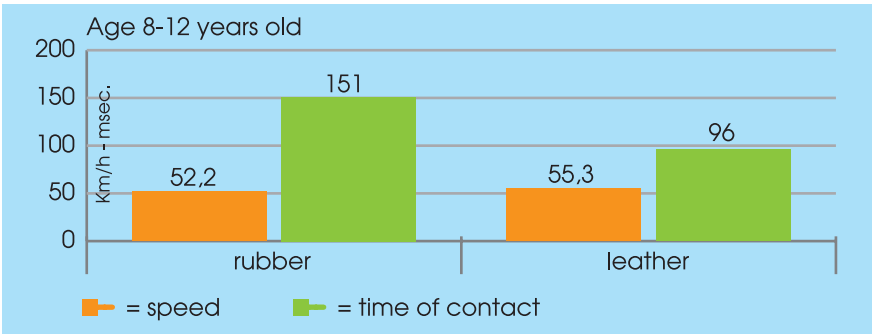
- More possibility of varying colours, with a wider range of didactical opportunities and sensorial stimulations of a visual nature;
- More possibilities of varying the dimensions of the circumference (e.g. n°6-7-8 or n°2);
- More possibilities of "lightening" the ball by creating, at equal given force, a slower trajectory in the air. This, evidently, favours the anticipation of the trajectory in the air for the receiver;
- More possibilities of limiting rebound (i.e. "slow rebound"), making it easier to learn the stop, guiding the ball, etc.

An experimental study conducted a few years ago at the Federal Football School of Acquacetosa in Rome (D'Ottavio, Technical Sector Bulletin (Notiziario Settore Tecnico) n.1, 2000) validated some of these hypotheses. In fact, by indirectly measuring the time of contact between the foot and the ball during a strong shot, proved the fact that there is a greater amortisation with rubber footballs, with a double-layered structure, compared to leather ones, therefore the impact is less traumatic (GRAPHS 24 and 25).

All this doesn't influence the speed of the shot. This fact allows us to organise exercises better, especially if they require:

- Maximum strength of the shoot to goal or in long passes
- Solutions aimed at a cross, corner, etc.
- A precocious approach to learning headers
- Fist blocking for goal keepers

Even concerning the dimensions of the ball, it is no novelty that balls with reduced dimensions have always been proposed, normally.



GRAPH 25 - Differences between rubber and leather balls - average of average parameters on about 120 tests (D'Ottavio, 2000)

This is true in a certain sense because the measurements of the circumference is closer to the measurements of the segments of the body that make up the lower limb. But above all in some learning phases, where a more complex form of control is needed: for example during stops with a high ball or where it is necessary to find the maximum speed of guiding the ball or shooting, and in the search for better technical precision, to have a relatively larger ball can have a positive influence on the development of the exercise and consequently facilitate the execution. This is because the potential area of impact represented by the circumference of the ball seems wider.

"DOUBLE LAYERED RUBBER BALLS OF VARIOUS WEIGHTS AND SIZES"

ILLUSTRATION 33 shows how, according to these considerations, one could operate in finding this fundamental piece of equipment. An experimental study designed on the subject, using tailored technical evaluation tests, confirms the description, in sufficiently significant terms (see GRAPH 26). Even intermediate positions that regard the material used to build the balls: for example the "rubber-

"…there is a precise and predictable relationship between speed and precision of a movement on the one hand, and the dimension of the target (objective) and how distant it is…"

"…when the objectives are larger and closer to us, and we try to move quickly (fast) and well (with precision) towards one of them, we see less damaging effects."

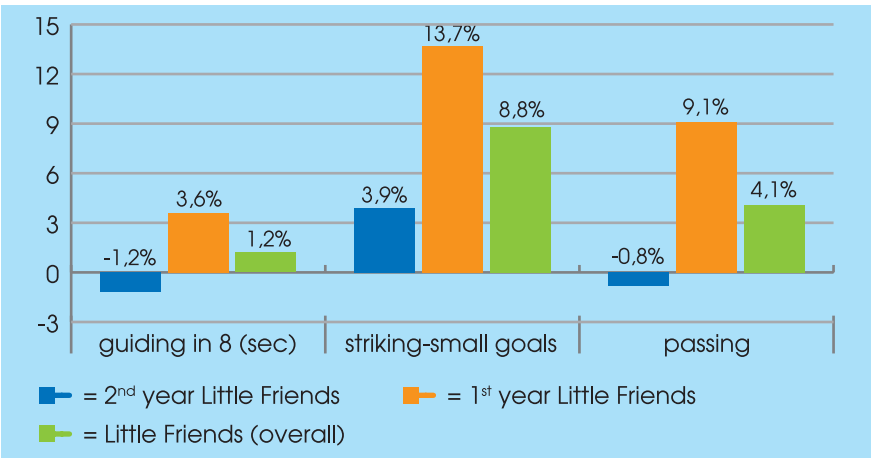
(Paul Fitts 1952)

ILLUSTRATION 33 - Fitts' Law (S. D'Ottavio, document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome, 2002

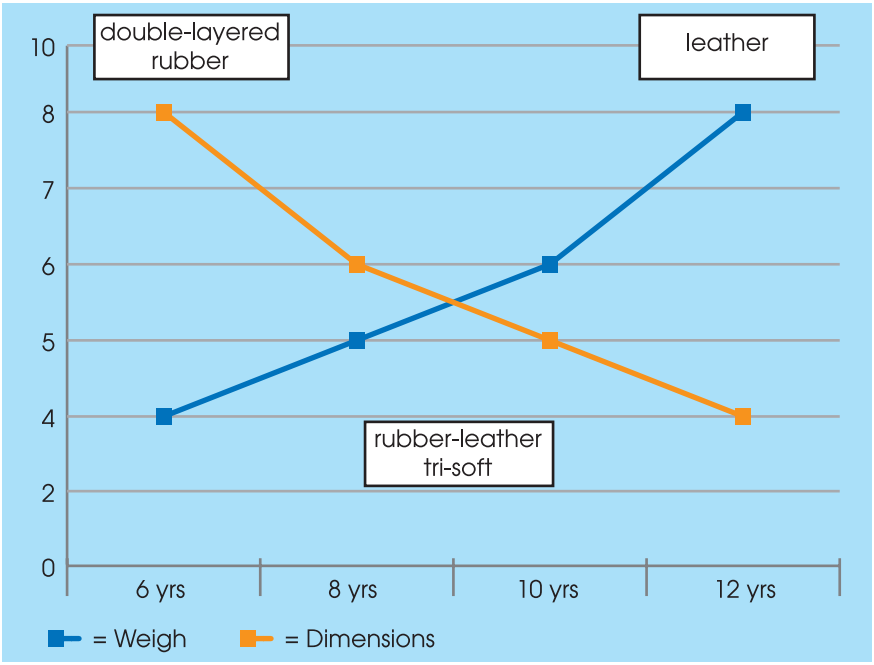
leather", express a certain attention on the part of companies in promoting material that guarantee effective didactics, ease of learning, and safety. (GRAPH 27)

The Juvenile and Scholastic Sector of the F.I.G.C., through its own technical structure, has shown in the past few years a significant amount of interest in research on technical and didactical solutions that are most appropriate and safest for children. It is the athletic institutions' job to therefore know how to liaise with construction Companies and to provide their contribution of experiences and knowledge.

Regarding the dimensions of the football goals, as it occurs in a similar way for the dimensions of the field, which vary on the basis of age groups in the Football School, and of the number of players, there are different considerations to be made. First of all the area of the goal (height x length) should be able to ensure, in relation to the morphological and muscular potential of the goal keeper to technically operate over the whole area (close to the posts, corner of the goal etc.). On the other hand the young attacker should



GRAPH 26 - Percentage differences between the use of jumbo balls and traditional balls (D'Ottavio, Tell 2002)



GRAPH 27 - Balls and didactics (arbitrary parameters) - D'Ottavio, 2000

have the possibility of directing the ball into the angles of the goal, naturally if he is able to do so, without the dimensions of the goal (e.g. too narrow) stopping him from trying. This is why a study conducted by the Juvenile and Scholastic Sector (D'Ottavio, Technical Sector Bulletin (Notiziario Settore Tecnico) n° 5-6, 1996) using mathematical calculations that took anthropometric and neuromuscular parameters and differences between children in various age groups of Football School and adults into account, "designed" "ad hoc" three different dimensions of goals.

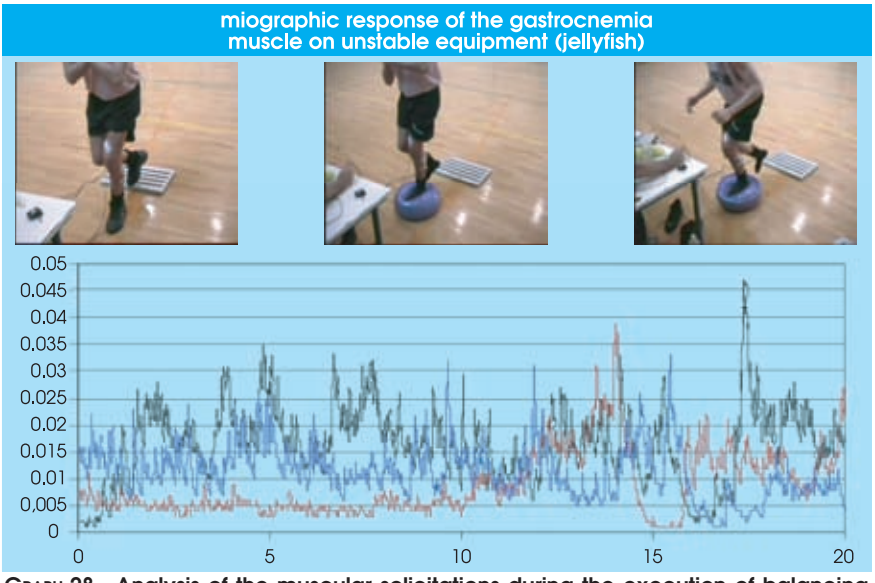
However further specifications, other than the strictly technical ones, should be observed. Among all the most important is regarding the safety of the children through the research on safe equipment. In the past few years, in Europe as in the other continents, social development, mediated also via sports, has promoted a continuous increase in athletes. This phenomenon has however also brought on the proliferation of a series of non-institutional organisations of sporting activities that have not always protected the child from physical danger caused by malfunctioning didactical organisation. Official data of Sportass of a few years ago reported that 27% of sport injuries are derived from the use of non-appropriate material. Most of these children have then consequently left the discipline they were practicing for good.

It is also true, however, that social and economic development has brought on an improvement of the technology applied to sports equipment. For example referring to the football goals for children, some specialised companies have perfected their commercial proposals by completely eliminating the protruding or particularly dangerous elements from physical contact, by covering the mountings as well as the anchoring points between the posts and the crossbar with rubbery material, creating other innovative solutions such as a capsizable goal that can be used in two vertical dimensions (e.g. 4.80 m x 1.90m - 1.60m respectively used for "cub" and "little friend" categories), furthermore the lightness of materials allows the children to have direct contact with the material even in case of transport on the training field. These experiences tend to favour the learning opportunities that use methods that are characterised by a certain degree of freedom of exploration, through which the children manage their own activities. Regarding the small goal posts that are normally used during training sessions for footballers at any age, an optimal solution is also provided in this case by the capsizable goals (e.g. 1.50mx1m and 1.50m x 0.60 m), because of the easiness of building and dismantling and the lightweight material. This means that they can be used in the gym as well as outdoors, and especially in programmes that contemplate cooperation and integrated activities between School and Football Clubs. Naturally further to more traditional equipment like mobile boundaries, cones and posts or small obstacles, in football schools what should never be missing is a series of steps or little rubber raisers that are 20-25 cm high. This equipment, more appropriate in gyms where people practice fitness and aerobics, may be used in football to start, in the form of a game and also with the ball, a certain degree of reflex neuromuscular stimuli (stiffness; elasticity).

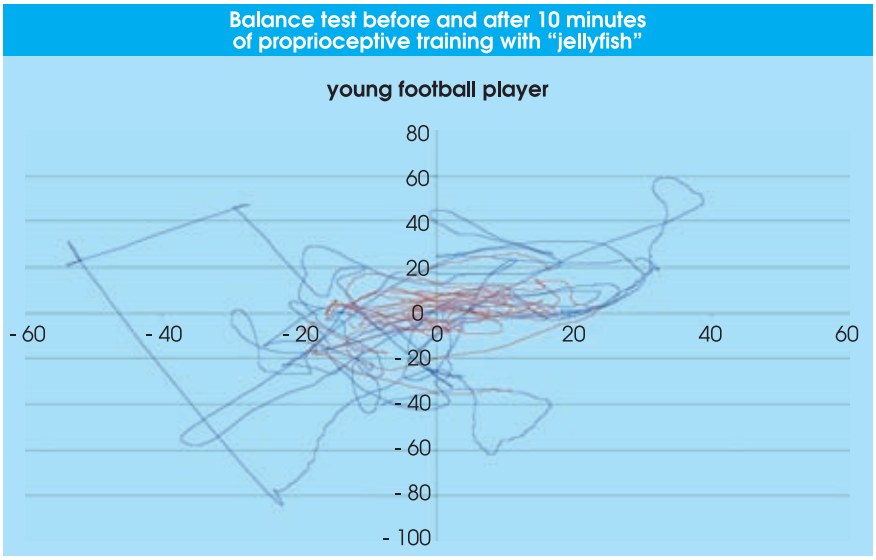
This activity and the stimuli connected to it, as well as being particularly suitable, especially for children at Beginner level, tends to stimulate proprioceptive adaptations at an articular and muscular level, due to the variation of length and speed to which the muscular system is subject during the jumping exercises (downwards and upwards, on one or two feet, etc.). Seeing as we are in any case talking about solicitations on the longitudinal axis of the body, the volume of the exercises should be in any case limited. The "proprioceptive" raisers should never be missing among the football school equipment in this sense. Lately a particular rubber "doughnut" is being studied (without a hole in the centre) that is resistant to body

weight, which allows to better graduate the imbalance provoked by maintaining an erect position (on one or two feet) on the tool, and thereby causes the consequent proprioceptive adaptations. This happens at the level of articular and muscular/tendon structures, especially those of the lower limbs, but also on the vestibular system, where the sense of balance resides. In is appropriate to remember that a good proprioceptive sensitivity allows to build technical abilities with more precision regarding the muscular dosage to apply to various didactical situations (i.e. ability of kinaesthetic differentiation, rhythmical abilities etc.), and to help prevent injuries and pathologies that can affect the osteo/articular and muscular/tendon system. In the same way (see photo) these inflatable "half moons" that are named after their shape as "jellyfish", subject the peripheral sensorial structures to graduating degrees of "imbalance" by varying the position and degree of inflation of the tool. They are therefore extremely useful for specific balance when combined with certain technical movements.

In juvenile football activities, and especially in Football Schools, it would be a serious mistake to use footwear that do not allow a normal flex-extension of the foot. This would be caused by a relative rigidity of the base of the shoe that supports the foot due to a choice of material (too rigid), to the height of the sole (space between the foot and the ground), and to a not always adequate choice of technology (type of stratification, air, gel, etc.), with which this



Graph 28 - Analysis of the muscular solicitations during the execution of balancing exercises on unstable equipment (D'Ottavio, 2005)



GRAPH 29 - Differences in balancing abilities before and after proprioceptive activities with unstable equipment (D'Ottavio, 2005)

essential part of the shoe is built. For a young athlete in general, it is obvious that to possess well functioning foot articulations (tibio-tarsic), means to be able to have optimal performances in multiple movements of support that occur in most athletic activities. During running and jumping a rapid "rolling" of the front part of the foot with an appreciable degree of width, and the relative amortisation in the landing phase, can obviously have a positive influence on the quality of the technical moves and the movements correlated to them.

The systematic use of the "jellyfish" can become on occasions a concrete opportunity for specific training for this type of problem. The induced solicitations in the subject, when he tries to keep upright on the tool looking for his balance, determines a constant involvement of the extensor muscles (gastrocnemia) with concentric as well as eccentric contractions, and the flexor muscles (tibialis anterior, peroneal) that, with the extensor muscles, help to slow the body down during the descending phase. Further to the muscles, also the ankle and foot articulations are activated to carry out movements with the widest possible excursion. Finally, the "jellyfish" gives you the possibility to carry out a vast and wide variety of positions, taking advantage of an infinite number of angles that can be created (points turned inward or outward, work on one foot, use of internal pressure of the "jellyfish" to vary the vertical angle of work and to more generally stimulate more proprioceptive variables.

These motory experiences are, as well as the "control" due to the vestibular and optical analysers, the basis on which the ability to

balance is built. Football, the performance of which is expressed by running with variation of direction and speed and pace, as for example in backward movement, jumps etc., demands that the necessary structural and functional adaptations be made, already at an early age, to improve the coordination abilities of balance, especially in dynamic situations.

"Balancing test carried out by force measurement platform connected to Service Lab Bosco System"

The training wall and the so-called "pitchfork" represent the history of football training. About 45 years ago in the NAGCs (Centres for young football player training - *Nuclei Addestramento Giovani Calciatori*), and now with the Football Schools that are recognised by the FIGC. Even though sometimes there are certain difficulties in structuring training areas with these kinds of equipment, one must not think that these methods have fallen into disuse and that they are not useful anymore. We believe that on the contrary, rhythm, repetition, and the variety that can be produced with these

"One-footed balance by jumping on a series of jellyfish"

"AMORTISING MATTRESSES WITH MOBILE REFERENCE POST"

tools cannot be easily reached with other kinds of equipment. Some companies have built smaller, transportable training walls that can also be used as obstacles. The pitchforks on the other hand have found applicative ideas and technology based on supporting systems connected to the crossbars of the goals.

Of a certain novelty, are some specific rubber surfaces (special mattresses) that have been designed for goalkeeper training, especially to practice dives and low blocking, but also to start the little footballer off with the acrobatic movements of football. These particular mattresses that can also be produced in various sizes (i.e. like the size of the goal or the goal area) reproduce the characteristics of rebound of the ball and contact with the ground for the players, similar to those produced in a grass field. These solutions can only be observed with professional attention, as they effectively limit the psychological slow down due to fear of getting hurt during

The choice of didactical equipment determines:
+ Learning stimuli
+ Graduation of learning stimuli
+ Creativity in elaborating programmes
+ Motivation on the part of the pupil
Briefly:
+ A greater didactical offer

ILLUSTRATION 34 - Effects of the choice of didactical equipment in the learning phase

"Exercise at the frequency coordinator during "You're good at... Football School at the CTF of Coverciano (Florence)"

some technical exercises. It therefore turns out that the beginning and practical experimentation of technical moves that have a certain degree of difficulty (i.e. acrobatic moves) may be anticipated in the learning cycle. The didactical variants could also be characterised by an enrichment of content and finally the fun, not to be underestimated in juvenile training, would be inevitably ensured. In conclusion, considering that one of the most important requirements in the football player's performance is the a-cyclical and cyclical rapidity of movement (and/or displacement), it is obviously necessary to stimulate certain physiological stimuli, especially those of a neural kind, so that it is possible to reach a state of optimal condition. Furthermore, as already mentioned, (see paragraph "the genetic and morphological-functional components"), this physical quality is established fairly early on in the biological process of training. In other words, rapidity is one of the skills we can begin teaching with a certain margin of "safety" and results already from the ages 7-8. Therefore referring to these premises, in the planning phase of activity and consequently in the choice of didactical material, the opportunities to potentially increase the frequency of movements must not be ignored. These specific activities are normally structured with routes and exercises with rhythmical characteristics (cyclical), as for example when low obstacles are used (over) to go over in succession or the same exercises using rings and posts in the ground. A tool that may be missing from the habits of football operators and in football

schools in particular is the one that in athletics is called "frequency coordinator".
The frequency coordinator is made up of a series of tubular reference lines with different colours, extremely light, that can be easily organised, even with possible changes of direction and a variable didactical graduation and correlated with the technical needs of the children. This particular tool can be used differently if we raise the latching point with the string (a different height) to stimulate jumping functions (reactive elastic strength); finally by increasing the extension of the tool (see picture and video attached to the guide), the frequency coordinator, demonstrating the didactical flexibility of the tool, can easily become an opportunity to practice precision shots, as well as a particular structure to practice dribbling and feints with and without the ball. If needed, even ropes that are laid on the ground or slightly suspended can be used instead, without making substantial changes to the didactical objective.

"Precision Kit for shots and slaloms"

4.2 How do we learn? The methods to qualify teaching

Juvenile football coaches need to know the pedagogical bases of teaching to ensure that the didactical project is delivered to his audience and has produced positive adaptations. Whoever is preparing to carry out such a delicate function will really have to know how to integrate his knowledge (skills) with the ability to adapt it to the needs of the pupils. In order to obtain an effective growth of the abilities of the young pupils. The organisation of the activities will always have to be based on precise criteria, therefore applicative methods. But let us try and understand what we mean by method. "It is a logical and mental or cultural or technical or practical procedure that follows a plan. It thereby excludes any empirical and generic improvisation and implies a search for optimal conditions, of any form of teaching, which is begun on the basis of pedagogical didactics, and subsequently translated in terms of specific method".

In this context we don't wish to cover the various classifications of didactical methods, which are largely treated in the specialised literature, but we will try to refer to our effective experience that covers decades of activities in grass-roots training.
Our approach (Singer, 1984 in D'Ottavio 1994) is essentially based to the awareness of a few fundamental elements that guide our day to day work on the field:

- *the complexity of the task*, intending it in terms of the number of sensorial information, the variability of the game environment, and the connections with memory;
- *the organisation of the task*, referred to the technical and coordinative difficulties and there for to the synchronism or to the heterochronism of the various elements that make up the movement or action, regarding motory responses in general.

For example, to face a problem that presents:

- Low complexity of the task
- Easy organisation of the task

one may use methods that take the totality of the move and not its specificities (global method) into consideration; on the contrary, if one is faced with a situation that presents characteristics of:

- High complexity of the task
- Medium-high difficulty of the organisation of the task

The approach will have to be organised in sequences (analytical method), constantly verifying the specificities and the connections, without loosing sight of the overall move or in any case the action in its global expression. One must take into consideration that the analytical and global approaches may be proposed by the teacher by proceeding with substantially different methods and forms of relating to the pupils:

1. the pupil is totally or partially relieved of giving a personal interpretation of the problem. It is the teacher that decides for him (deductive procedure).
2. the pupil is involved in elaborating his own idea about the problem to be solved, and proceeds by trial and error (inductive procedure).

The first creates more correct and rapid adaptations and seems more favourably correlated to "closed" athletic abilities (*closed skills*). The second, based on a creative dimension of the pupil, may be considered as a form of medium-term investment, seeing as initially its seems to slow down the automation processes, but subsequently (see GRAPH 30) in allows a better transformation and a proficient connection with following learning processes. This procedure is definitely better suited to "open" athletic abilities

(*open skills*) and therefore decidedly advisable in football practice. (ILLUSTRATIONS 35 and 36 and GRAPH 30)

Direct experiences, on which the abovementioned methods that were used on two sample groups of 11 year old children that practice football in the Federal Football School of Acquacetosa in Rome, after one year of activity (s.s.1992), gave the following indications:

- the practice of the *guided method* (regarding the individual execution of technical moves) produced considerable improvements on subjects that initially showed that they possessed a good technical level, as well as on subjects that were initially less competent;
- the practice of the *problem solving* method brought to a substantial improvement of the subjects with a greater technical insufficiency and less but in any case noticeable increase on already technically able children.

This experience of ours partly confirms the affirmations of Singer in his study, that is that the use of more directive methods definitely produces greater technical profit in the short term, but could lead to a stasis or in any case to some impediments when the student is faced with unusual and unpredictable problems to solve.

A practice that involves the pupil in terms of personal creativity and active participation provides more opportunities of expression and therefore better adaptation potential. This is also confirmed by another of our experiences: didactical units were administered to a

According to E.C. Poulton 1957, sports can be classified according to the following parameters:

- temporal pressure
- the quantity and quality of uncertainty
- the number of possible responses
- the type of attention

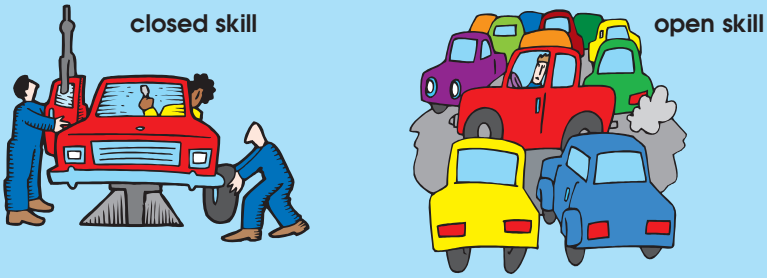


ILLUSTRATION 35 - Classification of sports according to E.C. Poulton, 1957 - S. D'Ottavio, document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome, 2002

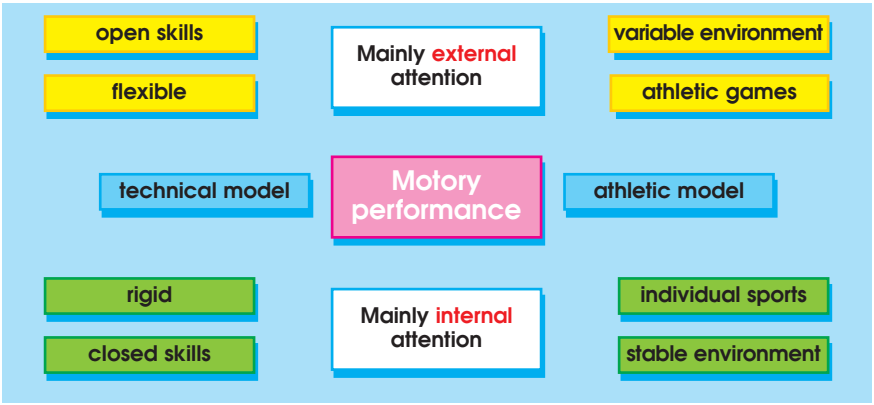
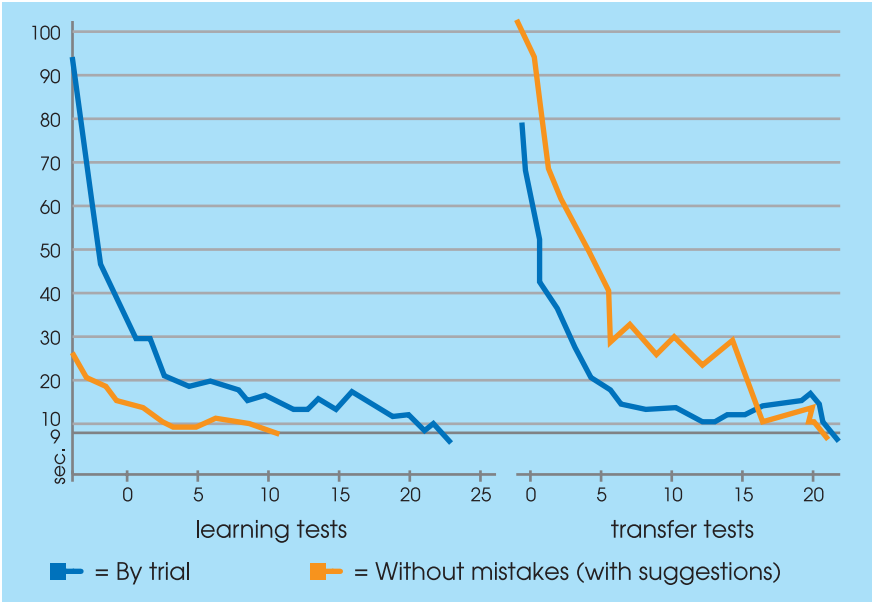


ILLUSTRATION 36 - Performance models S. D'Ottavio, document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome, 2003

group of children of 9/10 years for about 4 months of work twice a week, exclusively using methods that contemplated problem solving. The didactical plan predicted that at the end of this first cycle they would have to exclusively dispute matches played with *7 against 7* as well as the other exercises and game situations of a training kind. Therefore we invited a few other clubs to play some friendly games with our teams but playing *11 against 11*. Once the new numerical situation of the game and the various tactical possibilities were explained to the children, after the first five



GRAPH 30 - Comparison between the effect of guided learning and that of learning by trial and error regarding the acquisition and transfer of learning (Singer an Gaines, 1975 in D'Ottavio 1994)

minutes of obvious adaptation had passed, they looked as if they had always played 11 a side football, confirming what had been our experimental hypothesis.
To control the progress of the didactical programme following a temporal logic, we divided the whole period (sport season) into three *didactical phases or periods*, proposing ourselves to reach certain intermediate objectives.
The method we used to reach these objectives, and the so-called "*mixed method*", realised through the used of the inductive method (problem solving) and the deductive method (guided learning).

4.2.1 Practical guidelines and operational strategies

It is also the task of each instructor to pinpoint (correct and enhance) the result of each action or move of the pupil, as the improvement happens through the awareness of the successes and failures.
The first question that every trainer needs to face is when he needs to intervene. In fact, lets say that a young football player, in an exercise, makes a mistake; to eliminate it, we indicate a reasoned sequence:

1. observation and identification of the mistake
2. decision of whether or not to intervene (quality of the error, its importance for the purposes of the learning of the move) in consideration of the level of the young player and the personal characteristics of the boy (slow to learn, shy etc.).

If the decision is to intervene:

a) reinforce the commitment and the correct aspects of the execution of the movement;
b) provide specific corrective technical instructions;
c) in the presence of a "repetition" observe the execution;
d) in the presence of a specific piece of information, observe the boy: observe if it is an instinctive response, or if the movement has been learned;
e) observe in both cases how the boy has used the intervention.

We want to emphasise again that for each learning process it is important to understand what has happened that is to use the feed back (the sensory response, the motory perception of the executed action). Performance cannot improve without feed back.
The second way of intervening is the one that advises the instructor to begin from concrete situations to use to begin the didactical sequence.

There are three steps to this:

1. Illustration, explanation, showing or, whilst explaining, to show the situation; make sure that the objective has been well understood;
2. "observation of execution" trying to check: the problems that it presents and if these are connected to individual or collective deficiencies or both; the causes and if these depend on technical, relational or affective problems;
3. "intervention" clarifying what the problems are via auto-evaluation carried out by the young players, introducing different models, analysing strategies and finally changing the situation, to start again from a changed situation.

One last principle to add, and to which every instructor needs to attain, is: give a title to every operational proposal, by affirming at the beginning of each session: "to day we will do"; we have observed that by simply giving a title to the issue the comprehension is more than doubled.

The didactical task of the instructor begins from the explanation of the concrete situation that will have to be faced during the exercise. The most used means are: the verbal explanation, or the integration between the two methods. We believe it is appropriate to highlight that:

To look is not to observe: every instructor should indicate "what to observe" to the young player and show, according to the level, only the important things. The execution must first of all be executed at the right rhythm, then more slowly,

To talk is not to explain: if the instructor uses language as a didactical method he needs to focus the objective in a simple but precise way.

If he demonstrates and explains at the same time: he must particularly pay attention to the verbal part by building short sentences with simple objectives. It has in fact been observed that, in these situations, the verbal explanation is "always incomplete and imprecise".

In front of an "incorrect execution" of some young football player, the instructor must think that there can be a mistake in communication, and think about immediately changing approach. Example: a young boy is unable to carry out a correct arm movement when doing a stop with his chest. After the instructor has shown the movement and has explained it, the remaining possibility to help the pupil be successful is to change his strategic approach; he can therefore make him "feel" the exact movement by making him passively carry out (kinaesthetic approach). To increase the sensitivity the principle is to intervene by "touching" the articulations

involved (tactile intervention). It is good practice that in the initial phases of learning to make them feel the relevant area using contact with the ball: for example the exact point on the inside of the foot in the case of a specific kick; the hands to teach the grasp of the goal keeper (they are examples of use of tactile measures to reach the learning of a move). Others touch on the hip and move, like a pendulum, the free leg and ask the pupil to feel the movement.
Just as important for the learning process is the environment in the group: if it is positive it becomes an important ally to transmit information between the instructor and the pupils and among pupils, if it is negative it becomes an obstacle.
Caruso, in a study conducted in 1980 catalogued two kinds of training, describing the factors of the "emotional environment".

- The first example may be defined: an actively participated lesson with a warm emotional environment.
- The second example is a lesson in which boredom and disinterest dominates (cold emotional environment).

The response of the boys is participation in the first example, and isolation in the second. By analysing the content and the differences we can state that neither the innovations nor the demonstrations (they are slightly noticed) that determine the variations of environment, but the participation, the motivation to learn, encouragement. A type of training that has as a characteristic the one described in the first example is an experience for which the athletic activity becomes an important and interesting occasion to experience. In the second case, the experience will loose meaning and will sooner or later be abandoned.
The words as well as silence have the value of a message: they influence others and these, in turn, may not reply to these communications. Only one unit of information is called a message. Every message contains a piece of news and a command. An example of a message: "it is important for you to push on the leg"; or "push on the leg". They are two sentences that give the same information but with two different commands.
Every relationship between the instructor and young player varies according to the percentage between information and command; every variation of message entails a variation of the relationship. For example in the first case I'm informing you how to carry out the shot, whereas in the second I am telling you that you need to do it this way. In the strategies of the relationship between instructor-group and coach-team the set up is also given by how the coach relates to the boys.

Let us define, for example, two profiles of coaches.

Authoritarian coach: the organisation that he offers with language (and with the body) demands a certain type of relationship in which commands abound compared to the information. In the group the relationships are based on a formal respect.

The relationship does not provide for the possibility of making mistakes, if something does not work (the team loses), it is always someone else's fault (referee, player X or Y, bad luck); but also during the training session if the boy does not improve, it is no doubt the boy's fault. The limit of this type of relationship is in the fact that if success is missing fairly constantly, the external enemy is not enough, so the relationship ends and the authority becomes questionable. We must say however that when everything goes well, the proposed objectives are easily reached.

Authoritative coach: in the verbal relationship the information exceeds the commands. He needs to know how to make them accept his skills, and more apparent than substantial conflicts or disorders may occur in the group because the relationship is less formal. Seeing as it is important to "learn by reasoning", a relationship in which the individualities are not squashed by the "Coach-Master", will determine better long-term results.

The facilitating strategies of the instructor-young player relationship are:

- Putting oneself in the condition of having more possibilities of intervention (never be in a situation with only one solution);
- Not always being judgemental;
- Not classifying.

That is, not saying: "you need to do it this way and that's it" but "I think that you should do it this way"; not saying "you don't understand anything" but "you should do…"; not saying "look at the others, don't you see how good they are" but "good, but try to avoid this…".

Once the instructors have dealt with delivering the information in

the best possible way, their task is not finished. In fact, it isn't sure that it is enough to provide a correct stimulus in order for it to produce a change and even less that it produces a change in the right direction.
The proposal must be adequate and the instructor will notice through the responses of the young football players. In a "training" plan the proposals to learn a move need to be dosed according to the responses of the pupils.
But the proposals are important and their adequacy are determining: The didactical intervention (**the correction**) is ineffective if the requests don't respect the learning level.
For example, if a young boy is learning how to master an external kick of the foot, we cannot ask for the precision of the shot. Every phase of learning has its own characteristics. These two concepts represent just as important pedagogical principles that must continuously characterise the didactical plan of the children of the Football School, especially from 6 to 9-10 years old.
They stand for pointing out that the pupil will have to widen his basic supply of knowledge of movements as much as possible, trying to enrich, quantitatively and qualitatively, the low potential of experiences a child of 6-7 years may have. The didactical principles of *polyvalence and multilateralism* must obviously be intended in reference to the load of activities the children are subject to. Therefore, also by practicing a motory activity that uses moves and actions of the game of football, the teacher must not in any case ignore these two aspects.
Polyvalence means that the activities must be adapted in such a way that they involve the various areas of development of the personality of the individual:
- Intellective-social area
- Morphological-functional area
- Motory area

From this it arises that the basic premise so that the involvement of the pupil presents a multi-directional value, it will be that the content of the lessons will have to be chosen according to the development of the three abovementioned areas and therefore using, upon the discretion of the teacher, the most appropriate methodologies.
Multilateralism, contrarily to unilateralism, is the principle according to which physical activities must not be limited to the characters that are present in only one specific sport, but for the purpose of improving the general motricity, they must use moves and action of other athletic disciplines.

Only by proceeding this way the pupils will be able to: further develop their motor skills; structure a vast choice of basic movement patterns, static as well as dynamic; continuously refine and adapt the corporal pattern (in relation to the morphological development); consolidate the laterality, also and especially to build the ability of ambidexterity.
It therefor seems appropriate to highlight the fact that football, in the first phases of athletic training, is only one of the many methods to reach these objectives, whereas the formation of specific abilities is built in a second phase (11-12 years)and only on the base of motory experiences that have been as rich as possible.

4.2.2 The Cognitive Method (Problem Solving)

In consideration of the specific aspects of game actions, the training process of the young players must without a doubt be based on them: meaning on the continuous variability of the situations, the interdependence between individual actions and actions of the other components of the team and the instability of the overall context.
The significant aspects to be used in tactical education are:

- The ability to perceive and collect the information (selective attention)
- The ability to understand the game (and elaboration of a programme)
- The ability to choose (decision) and the execution

It will be the game that is the best way to favour the comprehension of the game, the development of tactical thought and the education to the game of cooperation (see Illustration 37).

The illustration shows strongly that in tactical learning the cognitive involvement of the pupils is decisive in order to make them the main characters of their learning process. Here is an example:
The action of the coach will be articulated in the following way:

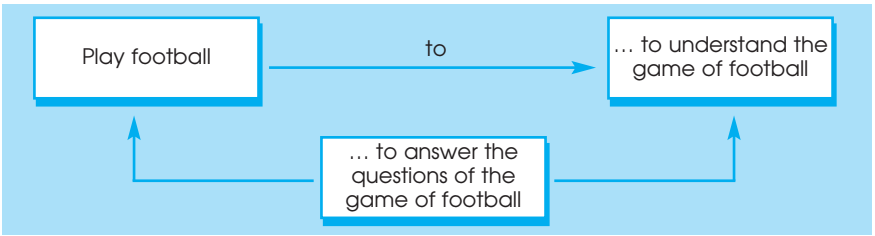


Illustration 37 - The game is useful to favour the comprehension and the development of tactical thought

- He proposes a game situation or a game with a certain objective, the students are engaged in finding the most appropriate solutions;
- He stimulates the search of a solution to which they are closest;
- He poses questions to polarise the research in a certain direction: "what did you see?" "what will be a good thing to do?"
- He observes the behaviours of the boys and intervenes with new targeted questions: "why?" "how?" "when?" "did you realise that….?)
- He provokes the research of other solutions: "what else could have been done?" "what could have given more problems to the opponent?"
- He underlines partial successes of individual players.

It therefore seems clear that the coach carries out a facilitating action in the search for a solution, without giving it directly.

So that the player may go from an instinctive play to an intentional and organised play, we must therefore ask him to analyse, elaborate and understand with continuity the various meanings of various elements in the game. In fact, the memorisation of the final phase of the motory action separated from the analysis of the difficulties that face the player, will not be really effective because the subject in question will not be able to recognise the significant aspects of the game.

If our pupils aren't used to knowing how to read the game during training their effort to memorise will be concentrated on the technical move. If the coach wants his players to accelerate their game, during the training sessions he will have to accentuate the aspects of rapidity of perception, comprehension and decision.

We once again reiterate that it is the freedom of choice that favours the growth of the young football player and that determines his progress. A boy that doesn't think or that limits himself to executing the indications of his coach without adding his own considerations, will not be able to completely express his tactical potential that on the contrary, in the worst case scenario, will seem strongly inhibited.

The use of this method will induce the young player to substantially: be calm and serene in facing new situations and difficulties, to have faith in his tools, and have a good spirit of initiative, to be fully involved in the dynamics of the game, and to not be afraid of making mistakes.

4.3 Were We Good or Were They Good? Let's Check Through Observation and Evaluation

First of all we must clarify what we mean with evaluation in general and what are the synonyms that inappropriately are used to describe it. For evaluation we intend "an organised process that, on the basis of factors that make up the performance, tends to find the individual starting levels, the progress of the learning process via the control of the programme, the final results". From this definition one deducts that the evaluation in its general meaning becomes a fundamental tool to investigate the initial conditions of each student, in order to establish the margins for development of the performance; it allows to establish the short, medium and long-term didactical objectives and to verify the desired psycho-physical adaptations; therefore to control "in itinere" the validity of the didactical organisation and to provide considerations and judgements on the basis of obtained results. The evaluation process is an essential aid for the teacher/coach as it allows to find out if the training of the various abilities and skills is obtaining the planned results and if certain aptitudes are subject to concrete evolutionary possibilities. Practically, evaluation has two fundamental functions: diagnostic and prognostic.

The diagnosis is carried out in reference to the environmental conditions from which the work plans are born and at the end of the programmed cycle. The prognosis defines future potential; it tends therefore to predict the performance possibilities in the long term, operating on the basis of indications and data, as an instrument of selection of talent. In this regard one must remember that a subject possesses genetic characteristics (that express themselves with activity) transmitted by the heredity from the parents and represent a personal pattern, an intrinsic structure affected by the environment. In the concept of environment in this case, further to the experiential possibilities and the occasions to which each individual is naturally exposed, one must include the specific actions of the teacher which can exalt certain premises, or

not have any influence and even damage the status to point of creating involution risks. Some authors (Filippovic, Turevskj) through an accurate analysis of the motory structure, lay down limits because "until 10-11 years in a child it is only possible to guess his real inclinations towards a certain kind of sport, but it is not possible to predict them with a sufficient degree of reliability, based on scientific calculations".

According to other authors (Nadori, Wendland) the resolution of the problem resides "in the analysis of the rate of growth in the course of 3-4 years of activity". According to these statements the methods that are therefore aimed at selecting talent until the pre-pubescent evolution phase, simply transform into "athletic orientation", which basically confirms the attitude towards a sport or class of sport instead of others. Going back to problems related to the evaluation of motory activites, we can identify three steps in the process, integrated among themselves, that ensure the control of the relationship between teaching/learning. (See ILLUSTRATION 38, A. Dispenza 1992 in D'Ottavio 1994) Furthermore it is appropriate to remember that at least two methods of evaluation exist, before facing the specific demands of football, subjective and objective. The first is a process that can be reached via procedures that cannot be encoded, they depend on the teacher, on his experience and on his analytical skills,: it is a type of evaluation founded on criteria that aren't standardised that determine a certain variability of results, determined by various kinds of factors. The second is based on methods that allow to obtain identical results, independently from the person that carries out the tests, and is repeatable at any time and in the same conditions. It is essentially

Evaluation	Measurement	Test
• Expression of judgement on results of a learning process • Difficult to be completely objective • Is expressed via grades-judgements	• Quantitative appreciation of the degree of learning, level of skill, ability • Measurements, scores • Maximum objectivity is necessary as it is the basis used to express grades and judgements of evaluation	• Collection of informative data on the level obtained by the students compared to the established objectives • Function of control on the levels progressively obtained in relation to the work carried out (highlighting the obtained to determine the type of continuation of the training plan)

ILLUSTRATION 38 - A. Dispenza 1992 in D'Ottavio 1994

based on measurements and specific tests designed to investigate parameters of performance that have already been singled out. (ILLUSTRATION 39)

General Purposes of the Evaluation
• To highlight the shortcomings and the predispositions of each one
• Consequently direct the didactical intervention
• Form, if necessary, groups of the same level
• Verify the effectiveness of a programme
• Estimate the rhythm of growth of particular quantities
• Motivate
• Predict immediate and future performances

ILLUSTRATION 39 - General purposes of evaluation, Carbonaro, Madella, Manno, Memi, Mussino in D'Ottavio 1994

4.3.1 CONTROL AND EVALUATION OF THE DIDACTICAL PROGRAMME

Any activity, be it athletic or of another kind organised around a planned programme and that tends to the fulfilment of certain objectives, needs to verify, as we have said before, if the results, theoretically hypothesised, have actually been reached.
These procedures of control demand the use of specific instruments (means) of measurement that can be used in itinere, during the progress of the programme, as well as at the end of the teaching/training process. On the basis of this introductory consideration, it is easy to guess that, before taking the issue of evaluation into consideration, it is necessary to focus on defining the work programme and the temporal cycles that divide the objectives and the relative content that we intend to use in practice. This organisation of the annual programme, which defines the load of activities and relative phases of realisation, needs a monitoring system that is specifically correlated to this progress. In other words to the use of tests that allow the study of the training or development period before the execution of the test. (TABLE 18)
It is however clear that, if it is inadequate to verify the quality of the cognitive processes in facing a more or less complex game situation at the beginning of the year (for example November), it would not be so unspecific to test certain technical coordinative or physical qualities towards the end of the season, as the didactical stimuli, if correctly transmitted, should allow not only a qualitative increase, but also a certain stability (duration) for the whole period of activities.

As a general rule, one must also remember that for a certain evolutionary period, the applicable tests, selected on the basis of the technical-functional level at that time, will have to remain the same. This is to highlight - through the comparison between the various sessions, the progress obtained as well as the changes linked to biological growth. But the dynamic way that, at a young age, certain maturity indicators move, requires in some phases of training a different choice of the evaluation tests.
This aspect, obviously, mainly concerns the conditional abilities (for example from the pre-pubescent period to puberty). It is also true, in any case, that the maturity of the nervous system and mental and sensorial processes that it entails demands a different type of evaluation intervention that also regards the evolution of the technical and tactical abilities.
The football player's performance, whether he is a young player or an adult, is made through the optimal integration of three fundamental factors: tactical, technical and physical.
The football player's actions, whether he is the ball possessor, or if he is participating in the game and trying to gain contact are always the expression of the product of these three factors which, in a different way, according to the situation, intervene to determine the success or the failure of the play.

During the course of a test and in its application, to be considered useful for the purposes of the evaluation, it needs to respond to principles of validity, reliability, objectivity, standardisation.

- The validity of a test regards what the test measures and how precisely. It provides a direct and objective verification of the extent to which the test fulfils its functions. In other words a test can be considered valid if it measures what it is designed to measure as accurately as possible.
- The reliability of a test is intended as the possibility of obtaining, with the same subjects and the same conditions the same result. If, for example the boy obtains similar results in following trials, the test offers the appropriate guarantees of reliability
- The objectivity of a test tells us to what extent the instructor-measurer can influence the result of the test itself.
- These characteristics are often given beforehand on the basis of particular analysis and are a part of the process of standardisation of the tests. The standardisation, further to the abovementioned premises, necessarily implies a uniformity of procedures in the administration of the tests and in the determination of the relevant scores.

TABLE 18 - Principles for the administration of tests - D'Ottavio S., document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome, 2002

Each of these three performance aspects can be evaluated separately, or combined with the other two factors. The latter possibility represents the will to measure the overall characteristics that distinguish the overall performance of the player. The tactical factor can be evaluated during the match or during training that reproduce game actions and can use quantitative as well as qualitative procedures.

The technical expression of a football player is usually more prone to evaluation during training, but it is also possible to form judgements in this regard also during the course of the competition. Also for this aspect it is possible to use quantitative as well as qualitative procedures. The physical qualities, on the other hand, during competitions and training, are more easily tested with more objective measurements (quantitative).

Reserving the evaluation of the tactical aspects, intended as the most rigorous sense of the term, to considerations that regard the practice of adults, the technique of a player depends on various conditions and refers to pre-established models, sustained by principles of economy, by biomechanical laws and on the effectiveness with which the gesture is carried out.

The coordinative and conditional abilities and the relative subjective availability, concur in deciding the outcome of an execution, of a more or less complex move or play.

While evaluating this kind of activities the coach may follow two kinds of pathways:

1. control of the execution of the technical move, trying to find elements of nonconformity from the theoretical reference technical model (for example the position of the feet, of the trunk of the body, rotation of the pelvis) applying corrections expressing judgements and proposing an adequate didactical response.
2. control of the functionality with which the technical move is carried out (principle of effectiveness), that is if the pursued objective in the test or in the game action is realised.

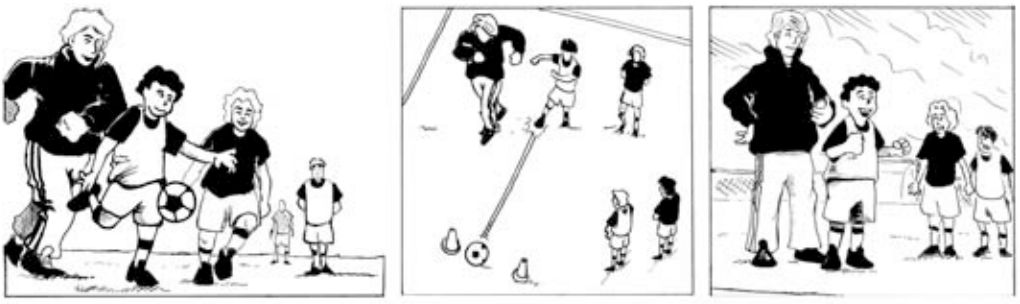
In football, without obviously ignoring the specific aspects described in point 1), we believe that to evaluate in terms of result obtained is more correlated to the needs that the specific performance demands. Any technical execution must take into account the requirements of precision and rapidity. The opposition of the opponent, which, in a contented sport, such as football, influences the way in which it is executed, influences the way in which the move is carried out, it induces the player to a constant temporal pressure that negatively influences the intended precision. As a definitive consideration, a player is better than another if he is able to take advantage of his execution and, in general, this kind of occurrence happens when:

- the solution that is elaborated in a game context is pertinent to the situation (effective technical project);
- the movements, the displacements and the technical moves are carried out rapidly;
- the move that is used seems precise and obtains the desired result.

At the Federal Football School of Acquacetosa of Rome, in the 1992-93 sport season we conducted an experiment regarding the evaluation of football movements in children from 6 to 12 years. The hypothesis was made that, by taking into consideration some relationships among the various parameters of the action or the specific moves, including the mental ones, we could tend, by containing an inevitable approximation of the datum, towards a verification that is generally objective. Three fundamental relationships were found and were therefore reproduced in practice with exercises - tests.

4.3.2 The Technical-Evaluation Protocol

The evaluation structure examined the four general motor behaviours: running, hitting, receiving, moving, and relating each of them with two fundamental factors of motricity, precision and rapidity. As it is easy to think, these two expressions of movement present themselves during practical activity in terms of disturbance. Evidently, if the pupil is called upon to solve a task of precision, he has to forcibly control his impulsivity (executive speed) in reference to the requested problem. In turn the exercises that require a contained executive timing (i.e. relays with coordinative routes), may bring the child to make more mistakes in terms of precision and of motory control. Our experimental protocol highlighted three relations and consequently as many groups of exercises-tests containing these objectives.



1. precision
2. rapidity and precision
3. rapidity and precision in the presence of the opponent
Which problems is a child called upon to solve during the execution of the exercises-tests? For example:
• How many times are you able to…?
• How much time do you need to…?
• In a pre-established time, how many times are you able to…?
In the third kind of relation, the one in the presence of the opponent, we can also evaluate the when, where and the what, meaning respectively the time, the direction and the technical choice adopted by the pupil during the execution of the exercise. It is important to underline that the following evaluation proposals never consider the how a given problem can be solved. Evidently this aspect that refers to technically correct execution of the move from the aesthetic point of view as well as the ergonomic one, can be evaluated in football only with subjective procedures and with qualitative parameters.

The experimental protocol divided by age groups, found 48 exercises-tests that after a first analysis of results, seemed not to contrast with the subjective procedures (qualitative) of evaluation that in any case are still used, but allowed us to analyse in more specific terms some specific aspects of football locomotion that would not have been easy to verify in other ways. In this way, also in technically very endowed players, we were able to find possibilities of improvement, regarding a certain kind of technical behaviour (conduct), structured on one of the three relations, thereby providing us with a real opportunity of analysis and of intervention oriented through indicators that can be expressed in objective terms. As a description we reproduce some examples of exercise-tests in the following pages (see FIGURE 35 to 57, S.D'Ottavio, Federal Football School 1994).

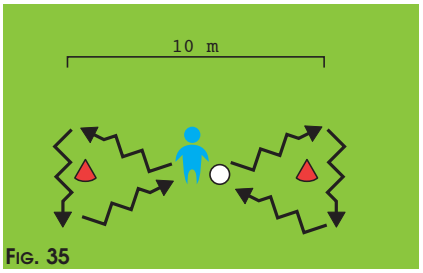


FIG. 35

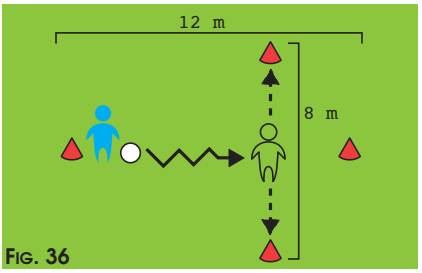


FIG. 36

FIGURE 35 - Little Friends - TIMED FIGURE 8 GUIDE (Relation 2). We count the number of routes the subject is able to complete for example in one minute.

FIGURE 36 - Little Friends - CONTROLLING THE BALL IN A STRAIGHT LINE WITH OPPONENT (Relation 3). We count how many times the subject (for example in 5 trials) can overtake the opponent, who only has to touch the ball (by moving on the line) to interrupt the execution.

As far as the bio-energetic and mechanical muscular support to the performance is concerned, there is not much of a habit, among coaches of the juvenile basic categories, to organise sessions or part thereof dedicated specifically to the observation of the essential physical qualities. This behaviour is often justified by the little time available and by the fact that, at this age, there are other objectives to pursue or, at least, to give priority to.

It is also true, in any case, that an adequate development of these abilities allows a more global evolution of the overall performance that is needed or will be needed to play football.

Furthermore, some of these specific qualities, like for example the rapidity of movement or rapid force, need to be stimulated at a young age (6-12 years) to be able to obtain levels of maturity (development-adaptation) such as to have a positive influence on the performance in future age, and also because they seem strongly correlated to technical abilities.

Even the aerobic force in any case, connected to the volume and

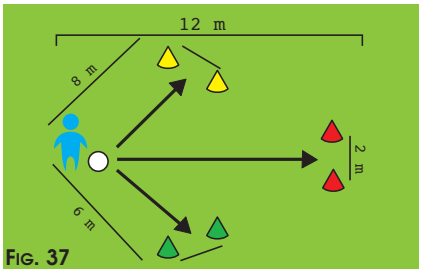


FIG. 37

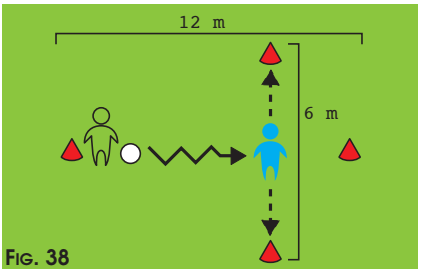


FIG. 38

FIGURE 37 - Little Friends - THREE LITTLE GOALS AT DIFFERENT DISTANCES AND WITH DIFFERENT SCORES (Relation 1). We count the score obtained, in for example 9 trials (3 per goal)

FIGURE 38 - Little Friends - INTERCEPTING THE BALL (Relation 3) We count how many times the subject (for example in 5 trials) is able to touch the ball of the opponent, who tries to overtake him by dribbling.

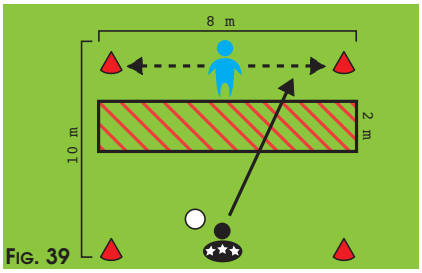


Fig. 39

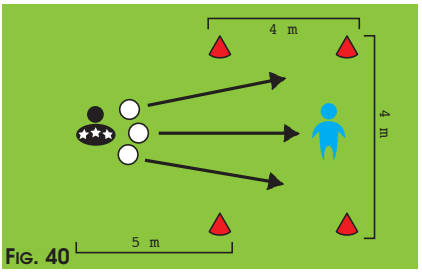


Fig. 40

Figure 39 - Little Friends - RECEIVING THE BALL DEFENDING A BIG GOAL (Relation 1). We count the number of stopped balls after 5 trials. The teacher throws and kicks the ball on the ground.

Figure 40 - Little Friends - RECEIVING THREE BALLS THROWN AT THE SAME TIME (or in rapid succession) BY THE INSTRUCTOR (Relation 2). We count the number of stopped balls for example in three trials. The instructor throws the ball in with his hands.

quality of the lessons or of the training sessions, turn out to be qualities that do not disturb, but on the contrary have a positive influence on organic growth.

Independently from the fact that we are talking about juvenile or adult competition, at any level, in terms of its general characteristics, we can summarise how rapidity/speed of movements and in technical executions and in the willingness of the subject to repeat it for the number of times required by the game, and for the whole duration of the game, actions and movements executed with a high intensity.

Therefore a formation-development or training programme oriented towards stimulating the organic functionality, the neuromuscular qualities, and the growing processes, needs to provide for exercises and content with which the pupil experiments his strength, his resistance and speed. These physical qualities, fundamental to build any athletic performance, will have to be

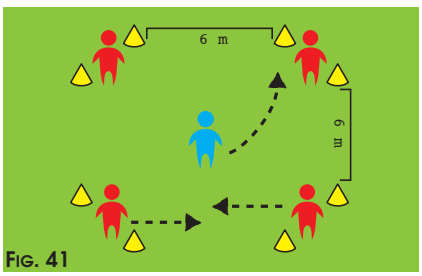


Fig. 41

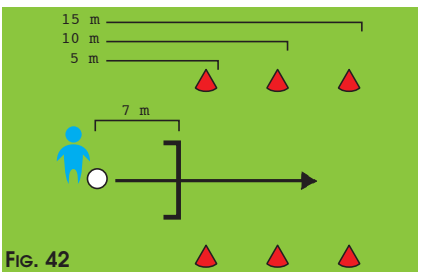


Fig. 42

Figure 41 - Little Friends - FOUR CORNERS (Relation 3). We count the number of times, for example over 5 trials, that the subject can fill the space left free during the movement of the other four.

Figure 42 - Little Friends - SHOOT TO GOAL TRYING TO SEND THE BALL AS FAR AWAY AS POSSIBLE (Relation 1). We count the number of goals carried out as well as the distance obtained with the ball. The exercise-test may be carried out, for example, over 3 trials.

directed and mediated on the basis of specific requirements of football and of the evolutionary phase. Therefore, we must reserve a specific position in the general picture of the factors of physical conditions to these energetic aspects.

In ILLUSTRATION 40 we represent the tests used during many athletic seasons at the Federal Football School of Rome. Each of the tests

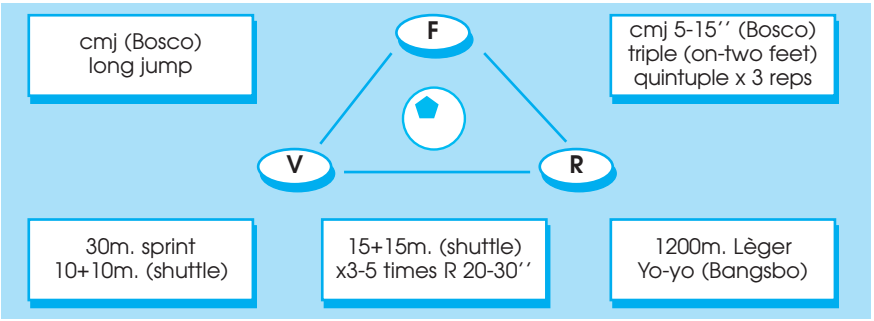


ILLUSTRATION 40 - Physical tests used at Federal Football School of Rome (D'Ottavio, 1997)

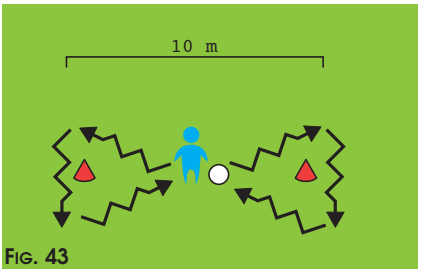


FIG. 43

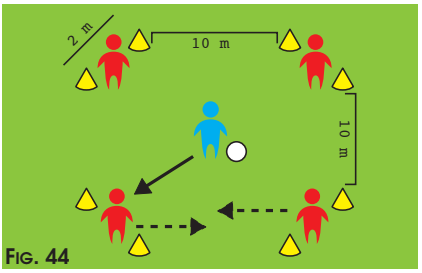


FIG. 44

FIGURE 43 - Cubs - A B GUIDE (Relation 1). We count the number of touches carried out by the pupil. For example, over 3 completed routes the pupil who manages to touch the ball the least will obtain a better result.

FIGURE 44 - Cubs - FOUR CORNERS FOUR GOALS (WITH THE BALL) (Relation 3). Kicking the ball to direct it in the small goals left free by those (opponents) who move around in the various positions. We count how many times the subject scores goals, over 5 trials.

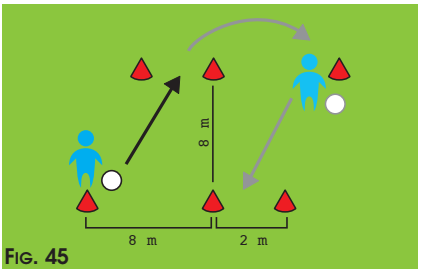


FIG. 45

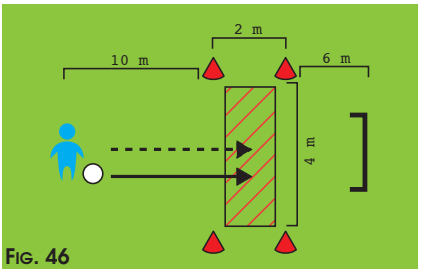


FIG. 46

FIGURE 45 - Cubs - TIMED SHOOTING (Relation 2) - Kicking the ball between two diametrically opposite small goals, bringing the ball back to starting point every time (opposite). In one minute's time, we count the number of valid trials.

FIGURE 46 - Cubs- SHOOT WITH AUTO-PASS (Relation 2). Straight after having kicked, the pupil runs trying to shoot to goal within the pre-established action zone. We count the number of goals scored over 5 trials.

are especially calculated in the figures in the point where we think it could be more sensitively influenced by one or more integrated physical qualities. For example, the vertical jumping performance (CMJ), which represents the expression of the overall strength-speed in its explosive form, in the illustration it is inserted in an intermediate position between zone F (strength) and the V zone (speed). The same goes for the three or five repetitions of the shuttle circuit (15x2 m) with 20 or 30 seconds of recovery time between one repetition and another, are placed between the V zone (speed) and the R zone (resistance).

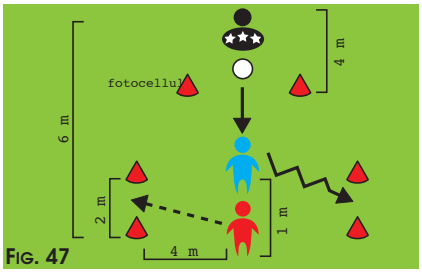


FIG. 47

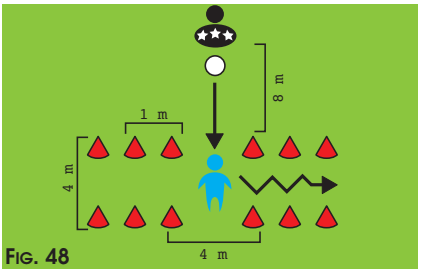


FIG. 48

FIGURE 47 - Cubs - RECEIVING WITH CONTROL IN THE OPPOSITE DIRECTION (Relation 3). Receiving a ball to control, towards the goal left free by the defender, (the defender has a head start, exactly when the ball kicked by the teacher crosses the line that connects the first two "photocell" cones). Basically if the defender moves to the right, the control of the ball must be carried out towards the left. We count, over 5 trials, the valid trials (the ball is conducted through the small goals).

FIGURE 48 - Cubs - RECEIVING IN A SEQUENCE (THREE LEVELS) (Relation 1). We count after 6 trials (3 right - 3 left) the score obtained overall given that every line corresponds to a different score. The teacher throws the ball on the ground or with a slight parabolic trajectory. The pupil has to stop as closely as possible to the point where he begins the stop. The closer the ball is stopped, the more points he obtains.

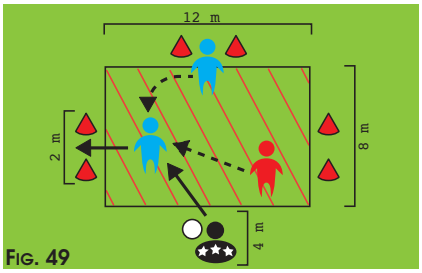


FIG. 49

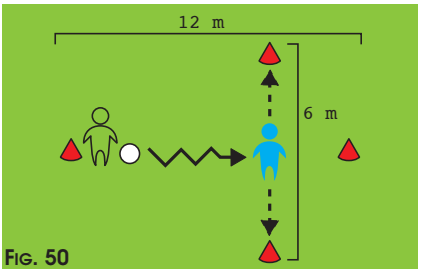


FIG. 50

FIGURE 49 - Cubs - FREEING FROM COVER AND SCORING A GOAL (Relation 3). Freeing himself from cover, therefore receiving the ball kicked by the foot of the teacher from outside of the rectangle, and try to score a goal by kicking the ball in one of the three goals (or by guiding the ball into the goal posts). The opponent will have to try and stop him. For example we count how many goals are scored over 5 trials.

FIGURE 50 - Cubs - INTERCEPTING THE BALL (Relation 3). A pupil guides the ball trying to overtake the opponent's line. We count how many times the defender is able to intercept (touch) the ball over 5 trials.

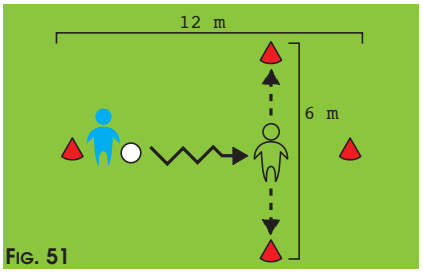


FIG. 51

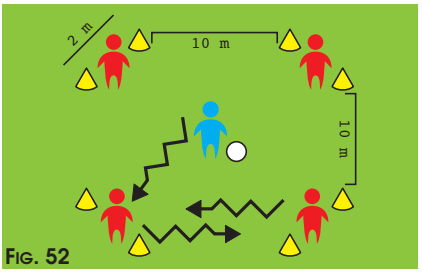


FIG. 52

FIGURE 51 - Cubs - OVERTAKING THE OPPONENT (Relation 3). This time, differently from the last test, we evaluate the child that is guiding the ball (attacker). Over 5 trials we count the number of times that the subject can overtake the defender. Compared to smaller children the available space to overtake is more limited (6metres against the 8 initial meters).

FIGURE 52 - Cubs - FOUR CORNERS (Relation 3). All pupils with the ball: we count the number of times the pupil can guide the ball into the small goal that is left free from the movement of the other four pupils. We count the number of goals (guiding the ball into the small goals) over 5 trials.

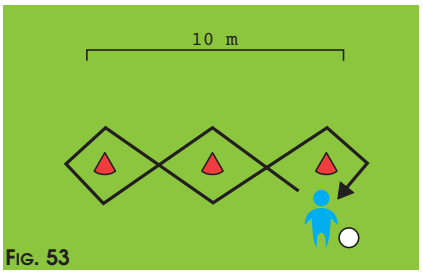


FIG. 53

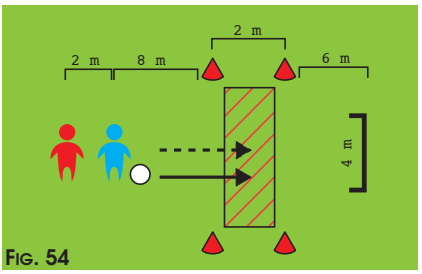


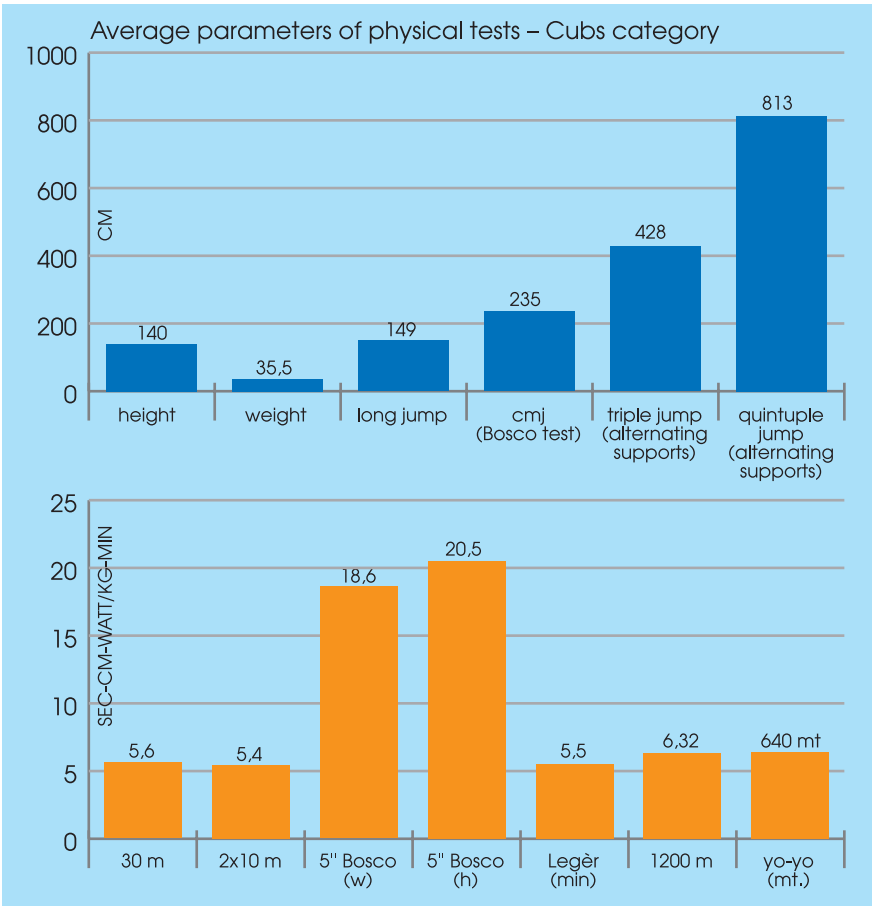
FIG. 54

FIGURE 53 - Beginners - TIMED DOUBLE 8 GUIDE (Relation 3). In an established amount of time (e.g. 2 minutes) we count the number of routes (completed) that the subject can total.

FIGURE 54 - Beginners - SHOOT WITH AUTO-PASS (Relation 3). Differently from the first exercise for smaller pupils, the auto-pass is carried out with one defender that chases the striker. We count the number of goals over 5 trials.

In GRAPHS 31 and 32 we represent, in a sort of general picture, the test we used that present average results, referred to a certain period of the sport season.

From the data it appears that there is significant statistical correlation between the variables in consideration. In other words the children that are better in the continuous vertical jumps (cmj), are the ones that, normally, obtain the best performances in the quintuple jump repeated three times, afterwards. The investigated quality in both cases is the resistance to fast force. The same tendency can be identified between the vertical jump (cmj) and the long jump from a standing position. An identical relation can be observed by comparing the results obtained with the 1200 metre tests and the Legèr test. Both, in fact, seem to allow an objective diagnosis of the organic-metabolic ability.



Graph 31 - Some examples of tests used with non-selected children in football school (n°62) (D'Ottavio, 1997)

Legend Evaluation TESTs

cmj (Bosco, 1982): vertical jump in countermovement (90° bend) with arms to the side according to the protocol of Bosco C.(1982), on a conductibility platform. Investigated quality: explosive force with elastic reuse. Similar tests (correlated): long jump from standing position.

5" cmj (Bosco, 1982): continuous vertical jumps as in the cmj according to Bosco's protocol with measurement of the expressive force (alacticid) and the average height measured during the test. Investigated quality: resistance to fast force. Similar tests (correlated): quintuple jump repeated for a number of times.

Legèr test (1987): "shuttle" circuit (back and forth) over a distance of 20 metres with increase of speed beginning from 8,5 km/h with a 0,5 km/h increase per minute via sound dictation. Test until exhaustion, according to Legèr's protocol (1983). Investigated quality: aerobic

strength. Similar tests (correlated): 1200 metres of continuous running. **Yo-yo test (Bangsbo 1994):** shuttle circuit as for preceding test, but with 5 or 10 seconds of recovery for each segment of 20+20 metres. Test increased until exhaustion according to the 2 protocols of J. Bangsbo (1994): one with initial low speed (8,5 km/h) and one at a higher speed (10,5 km/h).

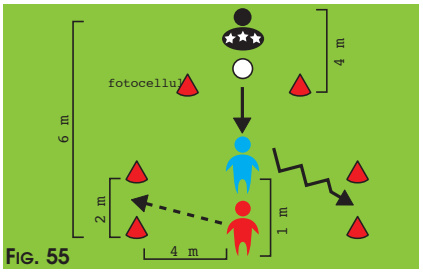


FIG. 55

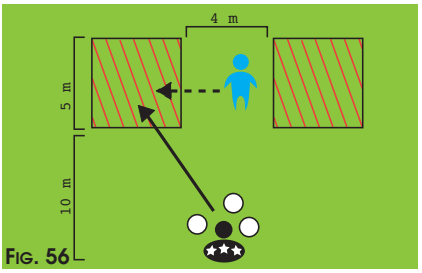


FIG. 56

FIGURE 55 - Beginners - RECEIVING WITH CONTROL IN THE OPPOSITE DIRECTION (Relation 3). Receive a ball in a sequence with control, going to occupy the goal that is left free by the defender (the defender has a head start, when the defender has a head start, exactly when the ball kicked by the teacher crosses the line that connects the first two "photocell" cones). We count, over 5 trials, the valid trials (the ball is conducted through the small goals). Compared to the exercise used for smaller children, we can increase the difficulty by making the goals narrower.

FIGURE 56 - Beginners - RUN AND STOP THE BALL (Relation 2). Receiving the ball within the two squares (see figure) alternating left and right, and the returning the ball to the instructor. Timed test: we count the number of valid stops for example in 1 minute.

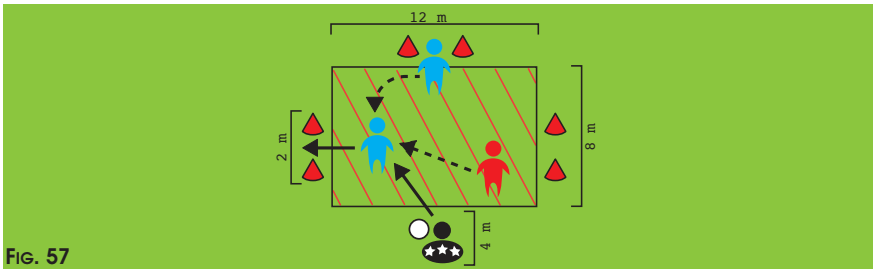
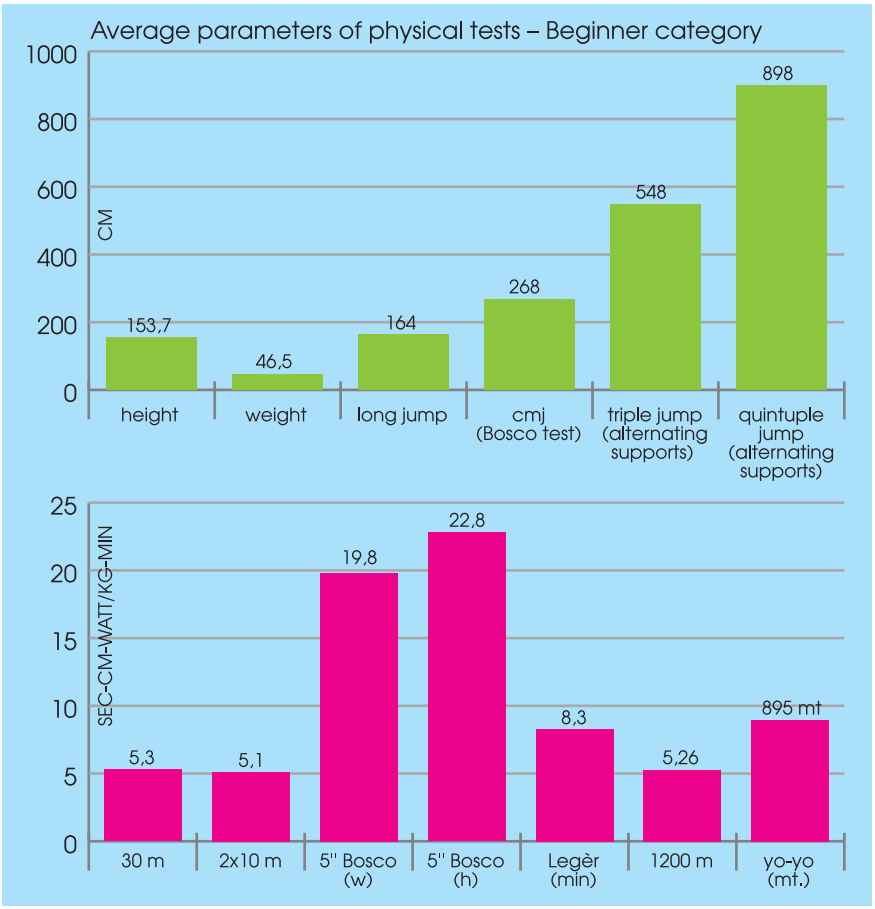


FIG. 57

FIGURE 57 - Beginners - FREEING FROM COVER AND SCORING A GOL (Relation 3). Freeing himself from cover, therefore receiving the ball kicked by the foot of the teacher from outside of the rectangle, and try to score a goal by kicking the ball in one of the two goals (or by guiding the ball into the goals) avoiding the opponent's intervention. Differently from the first exercise with smaller children, the goals go from being 3 to 2. We count the goals over 5 trials.



GRAPH 32 - Some examples of tests used with non-selected children in football school (n°84) (D'Ottavio, 1997)

5. Finally we move on to the field: to the football lesson

5.1 Didactical Unit and Training Session

The practical realisation of the didactical programme needs to be carried out through well defined and planned sequences of exercises that are called "didactical units".
They are made up of "the group of planned and ordered didactical actions and realised in a limited amount of time in the view of reaching a particular specific objective" (Tartarotti in Sotgiu-Pellegrini, 1989). The didactical unit is a more elementary structure of the programme. It represents the constituent element on which the general and specific objectives of the work plan are based and are realised, according to a definite temporal organisation.
The motory responses must be intended as a dynamic process of assimilation of the determined proposed content, that are part of a wider whole of which the unit is only a micro-part that is integrated and combined with other units, as the links of a single necklace.
On the basis of the adaptations that occur, the objectives of a higher order are built and defined that are connected with the first objectives, allowing in such a way to obtain the premises and the potential of didactical growth.
Normally, to simplify organisation, the didactical unit may coincide with the single lesson or the training session, but if the desired objectives are complex, the didactical unit will have to be divided into more units.
However the day-to-day work, the one that in football terminology is called a training session, is made up of various phases:

- *Start-up phase* (functional warm-up, physiological preparation and specific didactic)
- *Central phase* (didactic direction, determination of objectives, main workload)
- *Final phase* (recuperation, checking the adaptations, verbalisation feedback on results, individual psychological re-balancing)

5.1.1 From Theory to Practice

The didactical units and the exercises that compose it therefore represent the "didactical terminal" at the teacher's disposal to be able to induce changes in terms of learning of the various qualities and abilities.
In this last chapter of the guide we considered it necessary to provide some practical suggestions that were coherent with the various cultural preambles that have filled most of the pages so far. We must

remember that practice is founded on theoretical principles and bases, and that theory needs to be practically applied to be able to reinforce and sustain the formulated hypotheses.
From now on, therefore, the relationship that has been established between us through the study of this guide will be different. Therefore, in order to facilitate communication and to face the suggestions that we will give in a friendly way, especially in the worksheets, it will be appropriate for us to be on first-name terms, seeing as we will have to prepare ourselves for a long journey that will last one year, or, more specifically, one athletic season…

5.2 The Worksheets: how to "read" them

The lessons, divided by each category are illustrated with a material example of didactical programming. The worksheets are a practical instrument and concrete operative guide that is useful for the coach to propose, without falling into approximations, appropriate activities for a correct technical and athletic training e to be able to teach with a satisfactory quality for the whole year of Football School. As you will notice, the sheets are structured by periods, which we have conveniently called "MODULES".
The worksheets within the "Module", are the functional unit of the programme. They are identified in "Lessons" and allow us to have a slender reference model. All this will help you to identify more precisely the content of the activities to propose with the possibility of using the suggested variants and to propose new exercises without loosing sight of the objective. You will be the one in fact to indicate on each sheet the amount of time that you have dedicated to the fulfilment of those objectives and you can write the period of time you took to fulfil them, specifying the beginning "From…" and the end "To…". In the same way you can indicate the variables used in each exercise and the observations that you think are appropriate to take note of.
The sheets are therefore divided into two types: the sheet of the period (MODULE) and the sheet of the LESSON.
While the MODULE describes the most important didactical objectives to pursue in a very simple way, the sheet of the LESSON highlights which are the didactical activities (means and content) proposed to reach them.
Therefore in the following volumes you will find one part dedicated to the presentation of the category we are referring to (Little Friends, Cubs, Beginners), to which the operational sheets are attached,

which, divided into 8 MODULES (months) for each category, include the "Lessons". Furthermore there will be some worksheets that refer to the young goalkeeper, in which you will find the activities for the Cubs category as well as the Beginner category.
Overall, we therefore have prepared for you 8 "Module" Sheets and 24 "Lesson" sheets for each category, for a total of 24 "Module" Sheets and 72 "Lesson" Sheets. Furthermore there are 16 "Module" Sheets and 32 "Lesson" Sheets in the guide regarding the goalkeepers, of which 16 are referred to the Cubs category and 16 to the Beginner category.
Each "Lesson" is complete with drawings that illustrate the various activities and graphs that give you a sense of how the work load is distributed, all laid out in an easily understandable way and which, in time, will favour an evermore didactical autonomy to be able to plan the activities that you deem more appropriate for your group by yourself. This in any case, after having carefully evaluated the abilities of your young football players and all the variables that determine and can influence the success of the plan.

5.2.1 The Module

Let us start reading this sheet from left to right. The "Remember" box will help you remind yourself of the characteristics of the children in the group.
You will also be able to insert methodological aspects, suggestions and other things to facilitate the organisation of the lesson.
The graph refers to a period that, for the sake of convenience, we have identified as a month of activity, but our hypothetical time could be different from yours. The graph illustrates how our didactical proposals, of a Technical, Tactical and Physical-Motor, may vary according to the period we propose them. Therefore you will be able to observe in the graph the curves that describe how much in that period, some objectives compared to others, and the relative didactical content, are more or less represented and therefore pursuable on a didactical level. In this regard it is appropriate to inform you that, in the curves we are referring to, the two sub-groups of the factor "tactical-cognitive", indicate the two didactical variants that can be carried out. As far as the Little Friends category is concerned this "exercise container" is divided in "collective games" and "game and match situations", as far as the Cubs are concerned, in "*collective games* and *game situations*" and in "*match games*" and, finally, as far as the Beginners are

concerned in "*game situations*" and in "*match games*".
Furthermore, you will have a space in which you can write down your observations, which may be previous (inserting for example aspect relating to the previous period) or successive.
Other data, like for example the number of lessons or weeks used to fulfil the objectives, the relevant month, the planned meetings (parties and events for the smaller ones and competitions for the "bigger boys"), you will have to enter for yourself according to your teaching experience.

5.2.2 The Lesson

This sheet is the element that summarises and sums up on a practical level many of the aspects we dealt with in the Technical Guide. The theoretical principles, the suggestions and the other promises expressed in the various chapters, are now transferred in to practical application.
We have highlighted the proposed exercises divided in the didactical containers we have used: *Technical-coordinative, Tactical-cognitive*, and *Physical-motory*. The containers have information regarding the main didactical objective, the proposed exercises and their duration. The illustrated graphs in the bottom half of the sheet (of the trimester, the month and the lesson), strongly correlated to the exercises and the proposed objectives, are for reference purposes for the general activity plan and to control the tendencies of the curves (curves of the factors: *Technical-coordinative*, *Tactical-cognitive* - and the relevant sub-divisions - and *Physical-motory*) during the same period. On the side, you will have information regarding the succession of the exercises, the necessary equipment and the duration of the lesson. In each container you will have the possibility of inserting observations and variants, which you will obviously be able to take note of during or after the lesson.

On the back of the operational sheet you will find the explanations of the games and the proposed exercises, providing the instructor with the considerations that brought us to use that kind of exercise. Furthermore, we describe the development of the exercise itself, the possible variants that can be used to make it easier or more complex. Clearly the sheet is complete with an illustration of the exercise and the advisable duration.
Here as well you will find, at the end, other parameters relating to the material that is needed, the overall duration, etc.

In general the lesson was divided in the following way:

INITIAL (or START-UP) PHASE

In this phase it is important for the children to be put at ease, immediately creating a joyous and motivating environment.

The initial games, other than contemplating free-play activities in small spaces, may also include activities taken from popular children's games, that we all know and that unfortunately tend to be an excluded part of a child's natural locomotor repertoire anymore. In most cases these proposals are well linked to the objectives of the lesson and become therefore preparatory to the following exercises.

For example:

1. the Handkerchief game: very involving for children: it develops coordination skills such as spatial orientation, adaptation and transformation of moving according to the behaviour of other players;
2. 3 vs 3 matches: which makes a pleasant beginning for the lesson, by disclaiming the traditionalist concept that contemplates the match only at the end of the lesson.

In the initial phase we have contemplated an activity for articular mobility in general or movement control, to be matched, most of the time, with the use of the ball.

For example:

1. ball control exercises - with the ball in the hand, kick the ball once with various parts of the foot and catch the ball after one bounce only (hip, ankle mobility etc.). Further to developing the articular mobility of the relevant parts of the body it also favours their sensitivity.
2. pre-acrobatic activities: in order to make the child aware of various aspects linked to body movement in various situations, in the air or on the ground, by changing the relationship among segments of the body. Important perceptions that determine a constant increase in movement control, in particular in the various "key phases" in his lifetime.

CENTRAL PHASE

This period is organised according to the objectives to be fulfilled. It may be organised according to a logical sequence that expresses the didactical meaning that you wish to obtain and therefore the specific characteristics and the particular aspects of the curricular phase. The sequence of the considered activities will have to

initially favour the acquisition of technical notions, whereas in a second phase more room will be provided to activities that require more physical commitment.

The circuit structure is often used as it involves the pupils more and is advisable especially in the first age groups when you need to work with small groups in smaller spaces.

The activities that characterise this phase are mainly oriented towards the satisfaction of the following kind of objectives:

- TECHNICAL-COORDINATIVE - FROM THE ACQUISITION OF THE TECHNICAL MOVE TO ITS USE: it is the didactical container in which you insert all the games, exercises and activities that determine mainly technical learning. Essentially we consider the activities that solicit in the child the acquisition of sensorial and perceptive information, a base for an adequate structuring of the child's coordinative baggage (see paragraph "Coordination Skills"), a fundamental premise for the formation of technical abilities;
- TACTICAL - COGNITIVE - FROM THE SOLUTION OF INDIVIDUAL PROBLEMS TO SOLUTIONS OF COLLECTIVE PROBLEMS: it is the didactical container in which you insert all the activities that solicit in the child the acquisition of cognitive notions and that will allow him to be aware of various game situations. This way the child will be continuously solicited to solve problems linked to the nature of the game, individual ones before and collective ones afterwards.

Tactical training will have the chance to realise itself through the structuring of games of a situational kind and themed matches, favouring an efficient choice of behaviour on a technical level. Therefore the proposed activities in this container will determine an improvement of the decision making abilities, of processing personalised (individual) "strategies", like the ability to play in a group, thereby learning the bases of "operating" in a team. In terms of the three categories, as mentioned before, the "tactical-cognitive" definition will have to be more specifically referred to the various ages.

For the Little Friends category the didactical container has been divided into "*collective games*" and in "*game and match situations*". As far as the Cubs are concerned it has been divided into "*collective games and game situations*" and in "*match games*" and finally, concerning Beginners in "*game situations*" and "*match games*".
The effect of this division is represented in the illustrations of the relative graphs, as well as the practical exercises.

- PHYSICAL-MOTORY - FROM THE BASIC MOTOR SKILLS TO THE USE OF CONDITIONAL SKILLS: it is the didactical container which, through specific exercises, determines learning and improvements of the physical profile and movement control. The young boy, according to the age group, and on the basis therefore of the bio-physiological characteristics of the age, needs to be stimulated on the basis of the various opportunities that the infantile organism presents as a response of functional adaptation. (see paragraph "Key Phases"). Therefore in the smaller children there are more senso-motory activities, instead of purely physical. In any case the proposed practical activities will always have, as much as is possible, a playful component and, possibly, the ball will always be present.

We have furthermore considered in the various activities the movement behaviours that are specific to football, which we can summarise in the following pattern (see TABLE 18, D'Ottavio 1994)
VARIANTS: they represent a didactical possibility referred to the three didactical containers: TECHNICAL-COORDINATIVE, TACTICAL-COGNITIVE and PHYSICAL-MOTORY, which allow, through a partial change of the basic exercise, to propose activities that have an adequate degree of difficulty compared to the potential of the pupils. In every activity we therefore have the possibility of changing: the space, the distances and the routes, the rapidity and ways of execution, the number, roles and tasks of the players, the type of teaching material (balls, pins, smaller goals, etc., the ways of

Primary		Secondary
• Running and walking with the ball	→	Control, dribbling
• Jumping and/or hitting the ball	→	Passing, shooting, deviating Throwing, tackling, kicking
• Jumping and/or receiving the ball	→	Stopping, intercepting Catching, controlling, hitting
• Moving without the ball	→	Freeing from cover, marking, directing, anticipating

TABLE 18 - Specific Movement conducts in football (D'Ottavio, 1994)

providing information with visual signals (colour, movement of the ball, of team mates and/or opponents, etc.) either with acoustic signals (whistles, hand clapping, sound of the ball, etc.) or with other perceptive-sensorial opportunities. All this in relation to the needs of the children and the pre-established or verified technical objectives during the lessons, in order to make the structure of the exercise more adequate (see ILLUSTRATION 35).

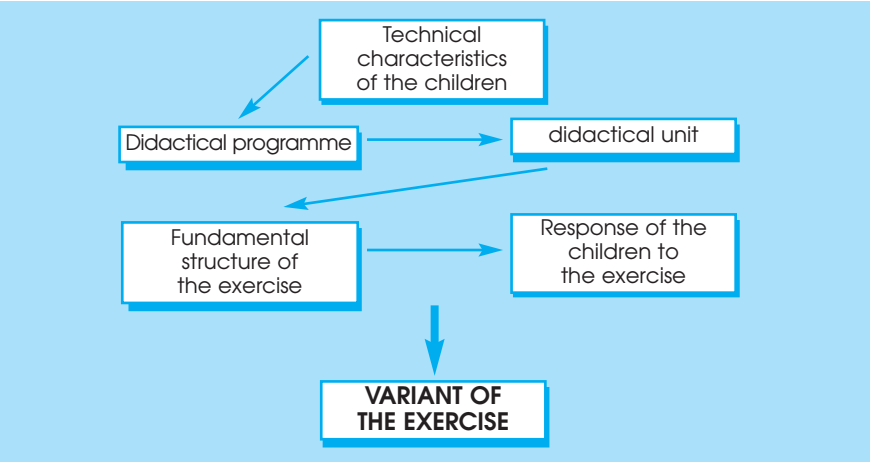


ILLUSTRATION 35 - Use of variants to the exercise in the Didactical Programme - D'Ottavio document from the Specialisation Degree course in Sport Science and Techniques, University of Tor Vergata, Rome, 2003

FINAL PHASE

At the end of the lesson it is appropriate to leave some free time to the young players who, until that moment, even if they have had fun, have had to submit to your indications. In this phase, letting the children play freely, you will have the opportunity to verify whether or not the moves you have proposed during the lesson have been acquired by the children, or in any case accepted, observing if they use them spontaneously.

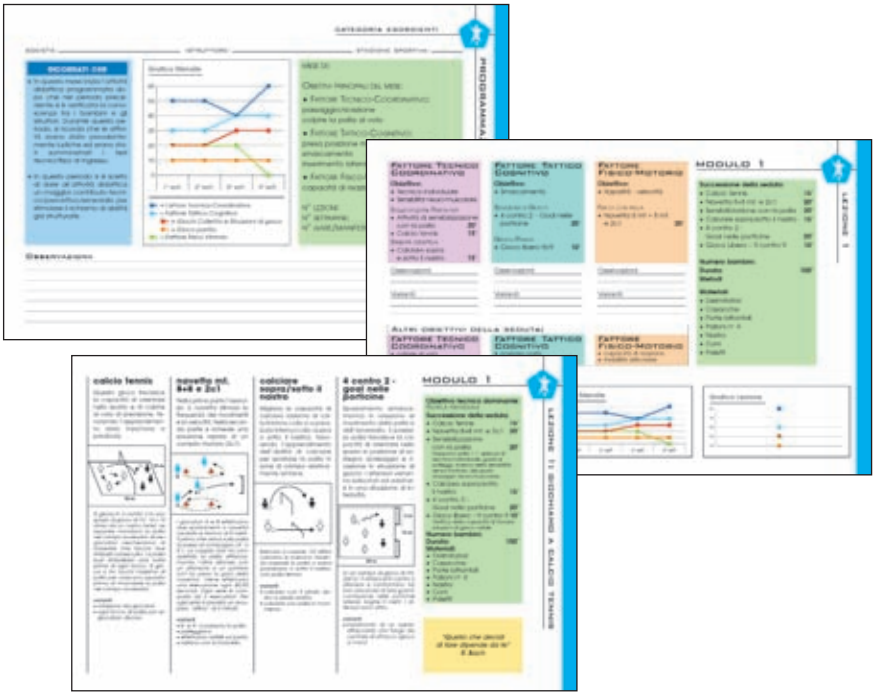
Therefore normally the final phase coincides with an activity, or a game, in a free form. This phase also represents an important time to communicate with the pupils, regarding the issues of the lesson, in order to verify (feed-back) possible changes at a conceptual as well as behavioural level.

FREE PLAY: *In every lesson it is necessary to have time for free play, very important for the instructor who "observes and evaluates", and very important for the young player who "expresses" his creativity, his imagination, his knowledge of how to "live" with others and the obtained level of learning. We also stress the fact*

that it is not always necessary to insert this training method at the end of the lesson. Many times, in particular with smaller children, it is necessary to have more free time in the lesson, some times at the beginning, some times as a part of a training circuit, letting the children and young ones to choose the games (not necessarily matches), the rules, the dimensions of the field and the goals. Basically an activity, at that time, that is completely on their terms.

Summarising: in the lesson sheet you will find indications of:

1. the dominating technical objective
2. the exercises and the times that are necessary to complete them
3. the didactical material
4. the duration of the lesson; from 80 to 100 minutes based on the age of the children.

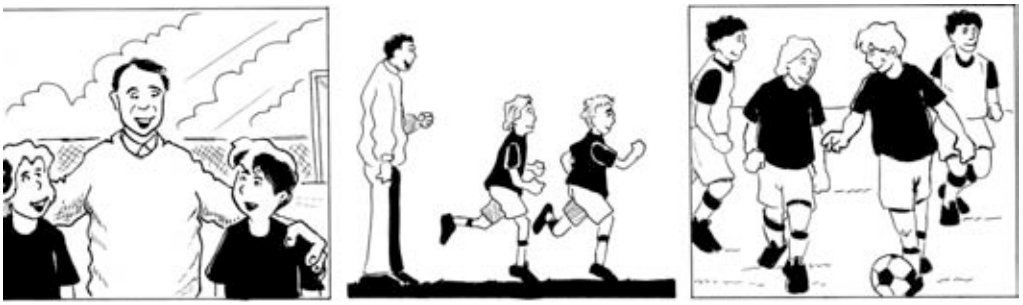


A. appendix: The Application of Psychology in Football Schools

A key element in the teacher's activity regards the comprehension of the sources from which the young boy obtains information regarding his competence level. The psychologists agree in sustaining that the individuals that possess a high perception of their athletic competencies are very motivated to continue committing to that activity, they are oriented towards improving their abilities further and obtain pleasure from practicing their sport. On the contrary, the young individuals who think they are less competent are also unmotivated, less persistent in reaching improvement objectives and they perceive the athletic experience as less attractive. It is, therefore, possible to affirm that the perception of competence is an element of mediation between obtained results and the demonstrated mastery and the enacted behaviours during the athletic action. On these terms, the instructor's behaviour, in his role as a teacher, is extremely important because, thanks to his training proposal, the children of the Football School will carry out activities that will allow them to acquire those athletic and psychosocial abilities that have been described in the technical guide. To learn is however not sufficiently motivating to continue in that specific activity, it needs to be associated to the awareness of having learned. As we have repeated several times in this Technical Guide, a task of the instructor is to solicit the children to become aware of what they have learned and of what they need to do to improve.

Furthermore, it is from the conjoint action of these two components, having learned and being aware of having learned, that intrinsic motivation is triggered, which implies the will to persist in playing football. Intrinsic motivation is the internal impulse that sustains the commitment to an activity in which one obtains satisfaction from what one does, on the contrary of extrinsic motivation, which is based on external reinforcements (e.g. prizes, money, particular recognition). Intrinsic motivation is based on the need and the desire of the child to feel competent and determined in relation to his surrounding environment. In an athletic environment, these children show pleasure and interest towards the activities they carry out, by committing to the exercises and the games that are proposed by the instructor, independently from prizes and rewards. They are children that are interested in new exercises, stimulated by the difficulties they find and that they commit to overcome.

On the contrary, the less intrinsically motivated children commit themselves if they see the possibility of prizes and rewards from the teacher or from the parents. They prefer easy exercises in which they know they will be successful. They need the teacher to motivate them and control their commitment.
Furthermore, the children that are aware of their motory and athletic abilities face the proposed activities with security, they volunteer themselves when there is a new exercise to carry out even if it is difficult, they are able to measure themselves against their team mates without any fears. On the contrary, children with a reduced perception of motory competence move in a more clumsy way and tend to avoid comparing themselves to their peers.



Finally, the young individuals that perceive themselves as competent and intrinsically motivated develop positive expectations regarding the possibility of continuing to acquire and improve their skills. In this way a virtuous cycle closes, for which the perception of athletic competence is based on the learned elements from the Football School, and in turn the motivation to persist in this activity and the child expects to continue having positive experiences, developing an attitude of trust regarding the instructor (ILLUSTRATION 1a).

To return to motivation is in any case important because intrinsic motivation is present in every learning process, as in any situation in which an individual (trainer, parent or manager) is in the condition of influencing the behaviour of another person. The basic elements of this type of approach to the study of motivation are:

1. The fundamental element of this theory consists, as we have said, in the idea that each individual wants to know that the result of his actions depend on him. Therefore every external intervention aimed at reducing this type of perception will provoke a reduction of intrinsic motivation. It happens in all those situations in which the young person commits to the maximum only to receive prizes or for fear of possible punishments. In this case the

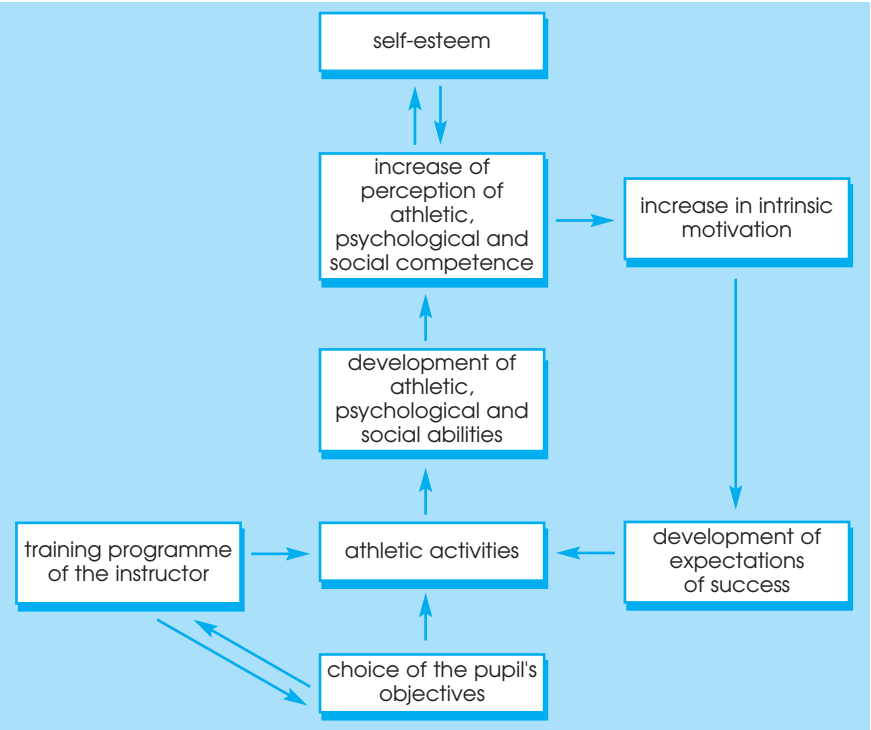


Illustration 1a - Pyschological model for the participation in athletic activity. The choice of the shared objectives among pupils and teachers stimulates the subject to commit to athletic activities. This in turn determines the affirmation of a positive cycle in which the acquisition of athletic abilities and the increased awareness of his own motory and athletic abilities sustain the interest toward that activity as well as the expectation of continuing to improve himself and to obtain satisfaction. Furthermore, the awareness of having learned new abilities determines, in time, an increase of self-esteem. It is necessary for the instructor and the pupil to cooperate in establishing common objectives, that are adequate to the level of physical abilities, motory and athletic competencies of the young boy.

child does not express himself with movement for the pleasure he obtains, for example from the match or from learning something new, but because he is moved by the desire of receiving some form of external appreciation. Furthermore, the young person acting in this way places himself in the hands of a person that will give him prizes according to his personal parameters, which may completely differ from his own.

2. The perception of competence and the enthusiasm derived from challenging situations sustain intrinsic motivation. The interventions of the trainer should increase the perception of personal effectiveness, that way the child will know that his commitment and the strategies he has used are appropriate for him to reach the objectives he has set himself. In fact, it is

necessary to stimulate in the boys the growth of an attitude of complete responsibility regarding their motory and athletic actions, teaching them to completely take advantage of the instructions provided by the coaches.

3. It is not decisive if the reinforcements are material (trophies, athletic equipment, gadgets) or symbolic (based on personal appreciations). It is the informative content of these communications. Every young person, after the coach's intervention, may feel himself controlled or demotivated or understood at a rational level or even absolutely enthusiastic; which is best? To have a coach that mainly establishes a relationship based on logical aspects of the performance (explaining the technical components of the athletic move to the young boy and therefore providing specific technical instructions), as well as on the positive emotional transmission (psychological support aimed at sustaining the young person's conviction in his ability to face any athletic situation).
4. Furthermore, the orientation towards the task favours the increase of intrinsic motivation. Differently from result orientation, especially in children, it may have a negative influence. For task orientation we intend the conviction of the boy of the fact that "it is thanks to my commitment that I am becoming better and better at playing football". On the contrary an excessive emphasis on the result to obtain may entail a reduction of commitment, which will probably be maximum in the activities he is already good at. Therefore, coaches that are task oriented are those that reinforce in the child first of all their commitment to the exercises and games and only secondarily their focus on technical results of their actions, providing them with instructions on how to improve.

To be more specific, it is possible to identify which sources of information that the young people use to evaluate their degree of competence. In fact, if for the children in a pre-scholastic age the judgement of competence is essentially based on the mastery of simple movement tasks and on the feed-back received from adults that they interact with most frequently, from the ages of 5-7 the children show a tendency to evaluate their competence by comparing them to those of their peers. This activity of social confrontation becomes more and more evident during the years of elementary school and reaches its maximum point at the end of infancy/beginning of adolescence. During adolescence, on the other hand, young people learn to integrate the information provided by a greater number of information sources.

Furthermore, as an effect of cognitive maturity at the end of infancy one can notice, also, a significant interiorisation of standards of success. In this way the child develops internal parameters of success, which will allow him to express relatively autonomous evaluations regarding his performances.
Most research results, some of which have also been conducted in football (for an overview see Cei, 1998), have shown:

- 8-9 years - The children of this age indicate as main sources of information on their competence the results of the game and the feedback from adults, and show that the pleasure of feeling like a part of the group, with entails being with friends and making new ones is the dominating motivation and has the role of stimulus of other motivations regarding having fun and acquiring competencies.
- 10-11 years - The children of this age that perceive themselves as competent indicate that their main sources of information regarding their competencies is confrontation with their peers, personal performance parameters corresponding to those they have interiorised during their athletic experience and the emotional components linked to the sport. On the contrary, those who are less convinced of their competencies normally use more external information sources such as, for example, the objective results of the performances.
- 12-14 years - The children of this age indicate as a main sources of information on their competencies the evaluations of their coach, the confrontations with their team mates and internal criteria. Whereas, like in the preceding age group, the less confident ones use more external criteria such as the objective results of their performances and feed-back from their parents and spectators.

Other variables also intervene on the evaluation process of their own competencies and above all those regarding the chronological age and cognitive development. In fact, studies that have made comparisons between the evaluations of the teachers and those of the young boys have highlighted the perception of competence becoming more accurate between the ages of 10-13 compared to the preceding ages.
To summarise, it emerges that the evaluations of the instructors should be used to establish the basis for the establishment of the young boys' own internal criteria to examine the results of their performances. They are solid foundations that favour a psychosocial training characterised by an autonomy of judgement and psychological independence in considering his own strong and weak points.
The parents should not carry out a teaching role or technical

reinforcement, but a role of psychological support of their son's commitment. This function should not be considered as a reduction of role on the part of the family but, on the contrary, essential in proving to the child that they are happy with his actions and that they encourage him to persist in playing football independently from the results he obtains, with out therefore conditionally granting their support according to athletic success.

B. appendix: To Let Them Grow Healthily in a Football School

For children, playing football must not only be a time of fun and games, but also an important factor of psychophysical growth. Children from 6 to 12 years old that go to a Football School show an unexpected resistance in long duration activities, made up of the sum of many different brief exercises, in which moments of various intensity are alternated. The activity therefore does not seem repetitive and monotonous, but fun, rich in variations and new things. Locomotor activity that is carried out with due care (see Illustration 4b), during the football lessons allows the children of this age to learn to take on a correct posture, a corporal setting that is not seen to be a static concept, but as an expression of the child's personality and therefore linked to his psycho-physical development; movement and games are therefore an important expression of it.

Movement and play proposed without athletic overload, which would otherwise bring on problems, especially in the articular cartilage of the locomotor system (see Illustration 5b).

For children who have problems of muscular development (under developed or lacking in tone), or skeletal development (tendency to scoliosis, cyphosis, winged scapulae, flat feet…), participating in Football School is particularly useful facilitating elasticity and articulation, therefore having a positive influence on changing posture. Even children that suffer from asthma, especially allergic

asthma, find benefits in the positive effects of this kind of activity.
Finally, also for children that have different problems, such as difficulty of coordinating movements, slow reflexes and reactions and socialisation problems, Football School seems to be very helpful (see ILLUSTRATION 1b).
Football School, which should be carried out in an appropriate area (see ILLUSTRATION 7b), is also the environment in which bad nutrition habits, which are the cause, among others, of diseases such as obesity, diabetes, arterial hypotension, can be corrected, pathologies that are all the more frequent in sedentary children. In such a case a constant control of body weight is important, as the development of adipose tissue (fat) occurs especially in this phase of life. It is therefore imperative to prefer foods that are rich in iron, calcium, vitamins of group B, D, PP, to those that are high in biological values such as protein in meat and eggs, as well as fish. Finally, milk must always be also present in children's nutrition.
It is also important to divide the daily nutrition rations into 5 portions, according to the child's school and Football School commitments (see ILLUSTRATIONS 2b and 3b).
The popular habit of taking liquid saline integrators must be beaten, as they are useless at this age, but children should be advised to drink water, which is essential during matches and training sessions.
What we have said so far for boys is naturally also valid for girls, who have begun going to football schools in the past few years.
To go to Football School, respecting also a few rules related to hygiene (see ILLUSTRATION 6b), for children, means to help them grow in good health and in harmony with their bodies and others, which are the basics to become strong and healthy adults, self-confident, happy and -if they are lucky - talented "good and successful players".

The 10 "reasons" to motivate children to go to Football School

- It helps to prevent paramorphisms in the muscular - skeletal system
- It increases and perfects respiratory condition
- It eliminates negative ponderal-statural ratios
- It improves cardio-circulatory parameters
- It has a positive influence on psychological disturbances
- It improves the ability to coordinate movements
- It improves resistance to infective diseases (he gets sick less)
- It makes the child stronger and more resistant
- It regularises organic functions (sleeping, appetite, intestinal function…)
- It improves impact of articular solicitations

ILLUSTRATION 1b

NUTRITION GUIDELINES
The guidelines are for reference purposes for nutrition and health and are aimed at providing practical advice.

1) Weight control
Excessive body weight increases the incidence of disease such as cardiovascular, diabetes and hypertension.

2) More cereal, legumes, vegetables and fruit
They contain complex carbohydrates, vitamins, mineral salts and, like legumes also protein.

3) Better not exaggerate with salt
Its excessive consumption, more than 6 grams a day, may bring on various risks such as favouring the onset of cardiovascular diseases.

4) As much variation in nutritional choice as possible
To guarantee a sufficient intake of all nutritional substances, try and vary nutritional choices as much as possible and the combination between various foods, thereby eliminating the necessity to use specific integrators. To help you in your daily choice, eat one kind of food in each of the following categories: a) cereal and tubers, b) fruit, vegetables and fresh legumes, c) milk and derivations, d) meat, fish, eggs and legumes, e) condiment fats, preferably of a vegetable origin.

5) How much fat and which fat
As far as quantity is concerned, be aware of invisible fats contained in food, and as far as quality is concerned, prefer vegetable fat to animal fat.

6) Sugar and sweets: how and how many
Keep count of the amount and frequency of intake of sweet foods and drinks during the day, and prefer sweets with a low fat content and more complex carbohydrates (baked products), check sweet spreadable products

7) Alcoholic beverages: if so, in moderation

ILLUSTRATION **2b**

Typical daily food ration for children of 6-12 years old that go to Football School

- Breakfast: plenty: milk or tea, bread or toast, with jam or honey, dry biscuits (avoid snacks), cereal, yoghurt and squeezed juice.
- Mid-morning snack: one piece of fruit or a few dry biscuits.
- Lunch: plate of pasta or rice; seasonal fruit if the training session is planned for the first hours of the afternoon. If more than 3 hours will pass between lunch and the training session, add a portion of meat, preferably white or fish or ham or cured beef in minimal quantities.
- During training: sip water from time to time, it is the only integration that the child really needs.
- Snack after training: Juice or shake with a few biscuits.
- Dinner: a plate of soup or even better "minestrone", meat, fish, eggs, cheese with a portion of vegetables or fruit.

ILLUSTRATION **3b**

The 10 "hows" of protecting children that go to Football School

- Medical check-up to certify good health (compulsory)
- Check-up once a year to evaluate their growth and health
- Do not use medicine without medical authorisation (never nutritional integrators)
- Do not hurry them to go back to Football School after infective illnesses or injuries even if they are not serious.
- Get them into the habit of showering after training sessions
- Get them to dry themselves well after showering
- Remind them not to walk barefoot in the locker rooms
- Get them into the habit of using 13 studded boots, never 6
- Get them into the habit of eating well
- Teach them to drink water during exercises and matches, always in moderation

ILLUSTRATION 4b

The 10 precautions to avoid lesions to the osteo-articular and muscular system in children

- Avoid making them carry out brusque and violent movements, of which the direction, breadth, speed and intensity are not well controlled.
- Avoid constantly and continuously keeping the articulations heavily loaded. Even the load of the sole body weight, if maintained for too long in immobility can be negative.
- Avoid letting them sustain heavy loads to rigid articulations, e.g. jumping to the ground with rigid lower limbs, falling down on the "bottom".
- Avoid them forcing the articulations over their natural limit of excursion, when it causes pain.
- Avoid execution of movement without warming up.
- Avoid violent vibrating solicitations: they are decidedly damaging to the articulations, when they are directly forced on the latter.
- Avoid exercise when an articulation is in pain.
- Avoid execution of movements when tired, as it is easier to incur in articular trauma.
- Avoid intense workload after a long period of immobility, for example if limb has been in a cast.
- Avoid incorrect running (knocking the heel to the floor) on hard surfaces or with inappropriate footwear (rigid soles, hard heel, etc.) because this causes the inflammation of the Achilles tendon and the whole region of the heel

ILLUSTRATION 5b

14 rules of hygiene for children to observe in football school

- Nails are to be kept at a proper length (cut and filed); toenails, if too short at the corners and compressed in shoe, could become in-growing and the fingernails, if too long could cause injury in case of contact with the opponent.
- Nails are to be kept clean to avoid the accumulation of dirt and the probable formation of infective clusters.
- Underwear (socks, knickers, undershirts etc.), when in contact with changing room benches, floors and other external wear, could cause skin infections.
- Bathrobes and towels, should not be left on the floor or on dirty objects. It is better never to share towels.
- In a bag it is better to keep various kinds of objects in separate compartments or wrappings.
- The child should feel "good" and "healthy" and physically and psychologically ready to commit to training.
- There shouldn't be any sickness, disturbances, fever, etc, during and after training.
- The bladder, like the intestine, should be evacuated before the beginning of a training session; the child will feel freer and better disposed to move and performance will improve.
- During training: if it is cold the child should be well covered, but not too much in order to limit sweating; if it is hot, he must be lightly dressed, but not too much to avoid catching a cold if he is sweaty.
- If there are long pauses, it is better to have something ready to cover up with during this time.
- At the end of training, change clothes, after a shower. Sweaty clothing, even if they are dry, are full of organic substances of sweat that have a tendency to retain humidity as well as to emit disagreeable smells.
- The clothing used for training is best if made out of material that allows transpiration without belts or laces that could stop circulation
- Be careful of exposing the children to the sun especially if the radiations are intense, it irritates the skin and the network of capillaries on it, which could cause simple redness to circulatory disturbances an even burns and ulcerations.
- Be careful of ice and wind, they alter the balance of the skin that may and has to be protected with the application of appropriate products.

Illustration 6b

5 precautions of sport facilities of the Football School

- Do not walk barefoot especially in the shower and in every other part of the changing rooms: the risk of skin diseases, is the same as in a swimming pool (use flip-flops or slippers).
- Public hygiene facilities are a point of possible infection for various kinds of illnesses. One must avoid, as much as possible, contact with these facilities and wash hands as soon as possible.
- In changing areas, especially when hot and sweaty, and in washing areas, it is best to have an adequate temperature (about 18°), without air currents that could dangerously chill the body.
- Use appropriate equipment in good conditions;
- Check for the absence of rough or cutting edges and objects that could break and become dangerous

ILLUSTRATION 7b

7 general suggestions to always be applied in a Football School

- Every training session should come after an adequate warm-up and concluded with breathing and relaxing exercises.
- When tiredness becomes high it is best to interrupt activities because when one is tired one is more subject to: pulled and contracted muscles; twists and articular traumas in general, circulatory disturbances; gastrointestinal disturbances.
- If there is a disturbance of any kind, it is best to interrupt work.
- If suddenly the child feels weak and loss of balance, it could be a sign of imminent fainting.
- Even when the child is already able to carry out an athletic move, it mustn't be initially carried out at the maximum possible performance.
- Any activity must be carried out in fully controlled and aware conditions with very clear objectives.
- Advise children in Football School to sleep at least 8/9 hours. If they sleep less than this they will be tired and sleepy for the whole day.

ILLUSTRATION 8b

C. appendix: For an Adequate Medical Assistance During Training Sessions and Matches

Whoever provides first aid to an injured athlete is only rarely, in amateur contexts, a doctor or trained personnel. Logically, it is necessary for every athletic operator to know what to do in case of necessity. But it is also necessary for them to know what they must absolutely avoid so that their intervention does not result in prejudicing the evolution of an injury or, in very serious cases, the life of the injured person, even if they have the best intentions of giving first aid. The mind should focus on the possibility that the conservation of the well-being of the organism of an athlete could only depend on the timeliness and above all the correct conduct of the intervention, and confer the responsibility to any operator. Whoever notices, reading the first aid instructions, that their preparation is not sufficient, should not hesitate to seek information or go to a first aid training course.

Athletic first-aid rules

Urgency: the key word of first aid.

Competence: the fundamental component for a perfect first aid situation.

Facilities: the completion of a capillary organisation.

These are the key points on which the entire sector of medical assistance should be based, even in sporting contexts in case of athletes and/or spectators in serious difficulty.

Today we cannot count on improvised assistance, on the good will of whom, by chance, witnesses the situation.

To face the necessity of an ever increasing qualitative level of the aid provided, organisations and facilities have been built to competently intervene in a few minutes. But the problem of first aid assistance, or "saving" in cases of emergency, remains open.

Here, therefore, lies the necessity of always providing an adequate medical organisation independently from the athletic level and the age group of the participants, which takes the local medical facilities into account. An organisation that therefore knows how to face all the possible scenarios on the field, beginning from the availability of an adequate medical room with medical material that is appropriate for various first aid treatments and organised by personnel that, even though they are not professionals, at least are aware of the first aid objectives.

It is always desirable to have the presence of personnel that is aware of the first aid procedures and knows how to put them into practice.

PROGRAMME OF AN ADEQUATE "MEDICAL ASSISTANCE" DURING ATHLETIC ACTIVITIES

To plan an adequate medical assistance we must take the following aspects into consideration:

- Number of participants
- Number of expected spectators
- Age of the athletes
- Availability of a first aid kit
- Availability of certain means of communication
- Location of the sports facility or location of the event
- Location (distance) from other close hospitals
- Location of ambulances on the territory and their availability

APPARENT SCENARIOS ON PLAYING FIELDS AND RELEVANT INTERVENTION PROTOCOL

There are two scenarios that can be found on the field and the relevant intervention protocols to be applied:

A. Witness of inanimate injured person

- Evaluation of the mechanism of the trauma (dynamic)
- Execution B.L.S. with ABC of first aid if traumatised in cardiacand/or respiratory arrest (execution of cardio-pulmonary reanimation)
- Restore security position
- Call for help, information, directions

B. Witness of cooperative injured person

- The account of the injured person
- General evaluation of the injured person
- Segment evaluation (wound, contusion, capsule-ligament lesion, fracture, haemorrhage, spinal-cord lesions, cranial trauma, thorax, abdominal…)
- Immobilisation
- Restore security position
- Call for help, information, directions

FIRST AID MATERIAL THAT IS APPROPRIATE FOR VARIOUS TREATMENTS

Every athletic facility should be equipped with the following first aid material:

"MEDICATION" Kit

- material to clean wounds of the injured and hands of the rescuer
- mono-use latex gloves - medicated bandages - band-aid roll - hydrogen peroxide- gauzes for medications

"IMMOBILISATION" Kit

- collar - Immobilisers of upper and lower limbs

"RIANIMATION" Kit

- reanimation mask

Miscellaneous

- thermal blanket - cooling spray - ready ice-pack - elastic bandages of various measurements

The Juvenile and Scholastic Sector hopes that every facility for athletic activity, and in particular juvenile activities, the Clubs should have a Semi-automatic Defibrillator which may be used "exclusively" by personnel that has been trained through proper 5-hour courses managed by specialised personnel (for example the Italian Emergency Service "118").

PRACTICAL FIRST AID PROCEDURE OF MEDICAL "ATHLETIC" AID

(witness of a traumatic event)

Every first aid person should be able to:

- **evaluate the injured person in the emergency situation:** (cardio-circulatory and/or respiratory arrest, cranial trauma, spinal trauma, state of shock)
- **enact B.L.S. procedures with A.B.C. sequence**
- **safety position:** a) slightly lift the hip of the traumatised person in a lying down position and place the closest forearm under it, 2) place the corresponding foot close to the buttock, 3) grasp the opposite shoulder and hip and pull the victim towards you, 4) flex the arm outwards by grasping the elbow, 5) flex the head backwards and turn the head towards the ground, 6) place the fingers of the hand under the cheek.
- **anti-shock position:** a) the victim is lying down, b) lift the lower limbs by 90°degrees, c) keep the lower limbs in this position for a little while, d) later, position the victim obliquely resting on a support (e.g. tipped chair)
- **place immobilisers on lower/upper limbs and put on collar**
- **carry out techniques of external haemorrhage arrest**
- **medicate**

ASSISTANCE OF NON-QUALIFIED RESCUER

In case of absence of qualified personnel on the field, who is able to carry out first aid procedures:

- Do not carry out risky manoeuvres

(do not cause harm before salvaging)

- Calm the victim

- Take on the role of leader of first aid

(command the manoeuvres and impart orders with decision, call for first aid, turn away spectator and carry out necessary manoeuvres)

B.L.S. PROCEDURE

It is a sequence that allows a rapid evaluation of the vital parameters and at the same time to solve potentially dangerous conditions by enacting cardio-pulmonary resuscitation:

A) Evaluation of the state of consciousness and open airways (Airway)

- Call the victim by name and delicately shake him/her
- Make someone call the emergency number (in Italy 118)
- Place the victim on a rigid surface aligning the body and uncovering the thorax.
- Hyperextend the head (lift the chin with two fingers, and push the forehead with the palm of the hand)
- Check that the airways are open.

B) Evaluation of respiratory activity

- Execute L.L.F. x 10 seconds (Look, Listen and Feel)
- Check that the emergency number has been called
- Carry out two ventilations using aero-facial mask (2 seconds)
- Check the expansion of the thorax

C) Evaluation of cardiac activity

- Check for presence of cardiac activity for 10 seconds
- Find the point of reference (one finger above the top of the sternum)
- Compress the thorax rapidly for 30 repetitions
- Alternate the compressions with 2 insufflations
- At the end of the fifth cycle revaluate the patient by checking circulation first, then breathing then consciousness
- In the absence of signs of recovery continue to resuscitate
- If a pulse reappears and breathing is absent, carry out ventilation every 5 seconds and check the carotid pulse after 12 ventilations

Remember: continue to resuscitate until a doctor arrives or until you are exhausted and no longer able to continue.

MEDICAL AND TRAUMATIC URGENCIES AND EMERGENCIES

Below we schematically present the emergencies and the urgencies that may occur on a field

LIPOTIMIC CRISIS (fainting)

Sudden weakness with tendency to temporary loss of conscience, absence of reactions with insufficient blood circulation of the brain.
Symptoms: sudden fainting, pallor, vertigo, cold sweat, absence of reactions
Causes: low pressure, fatigue, heat
Dangers: wounds from falling, fainting again because of getting up too quickly.
Action: lift the lower limbs, loosen tight clothing, check cardiac pulse and respiration, after regaining consciousness wait ten minutes before getting up, if unconscious assume safety position.

HEAT STROKE

Abnormal rise in body temperature with arrest of sweating for lack of transpiration.
Symptoms: hot skin, head ache, vertigo, reddened face, short breath, arrest of perspiration, muscle cramps, thirst, diarrhoea (sometimes), high heart rate.
Causes: sultry climate, fatigue in overcrowded environment
Dangers: loss of consciousness, coma.
Action: transport the victim to a cool location, semi-sitting position, ice pack on head, aspersion of fresh water on body, loosen tight clothing, check heartbeat and breathing, if unconscious safety position.

SUN STROKE

Excessive heat of skin surface with irritation of the meninges.
Symptoms: Profuse sweating, increasing pallor, head ache, vertigo, slight neck stiffness, mental confusion
Causes: direct action of sun rays
Dangers: progressive loss of consciousness, state of shock
Action: distend victim in the shade, loosen tight clothing, ice-pack, if unconscious safety position.

ABDOMINAL COLIC

Painful sudden, violent crisis in abdomen
Symptoms: Pain on the side spreading to the pubic bone and back (kidney colic), pain on right side spreading to the abdomen and

right shoulder (biliary colic), pain in lower right-hand quadrant that becomes acute when patient is walking (appendicitis).
Causes: kidney stones, biliary stones, acute inflammation
Dangers: aggravation, shock
Action: serene environment around patient, no medicine, no food, liquid or smoke, hospitalisation.

CONVULSIONS

Inflation of cerebral cortex
Symptoms: it begins with a shout or with a brief stop in breathing, sudden fall, jumps and violent contractions, tight jaw, foaming of the mouth, cyanotic face caused by difficulty breathing.
Causes: general epileptic state, non convulsive state
Dangers: injury against angles, furniture…
Action: do not attempt to stop limbs during convulsions, be careful the patient doesn't hurt himself, place in safety position if possible, stay close to the patient, hospitalise.

HYPOGLYCEMIC CRISIS

Reduction of normal blood concentration of glucose
Symptoms: sensation of increasing malaise, sudden hunger that comes with nausea, prostration, profuse sweating, feeling cold, shrunken pupils, muscular contractions (sometimes).
Cause: diabetes, excessive physical exercise.
Dangers: convulsions, loss of consciousness, shock.
Action: make the patient take sugared water every ten minutes, hospitalise if patient does not recover.

CEREBRAL CONCUSSION

Loss of consciousness for more or less time caused by shake of the encephalus.
Symptoms: brief loss of consciousness, headache, mental confusion, amnesia, sleepiness, torpor, vomit, visual disturbance, low heart rate.
Causes: cranial trauma
Dangers: intra-cranial compression due to endema or haemorrhage, respiratory arrest
Action: distend the patient in a lying down position and not in an anti-shock position, in case of vomit safety position, ice pack on head, do not provide drink (if patient is conscious), safety position, icepack on head, check heartbeat and breathing, hospitalise.

ABDOMINAL TRAUMA

Closed damage to the abdomen

Symptoms: painfulness and ecchymosis (confusion); painful contraction of abdominal wall, impediment of force inspiration (case of perforation of an organ); painfulness and alterations of pulse and pressure (case of internal haemorrhage).

Causes: direct hit to the abdominal wall or counter-shock from a fall.

Dangers: tension of the spleen, kidney, liver even without particular external signs.

Action: maintain the abdominal wall relaxed by placing a cushion under knees, check the pulse, do not provide drink, keep body warm, make patient urinate, hospitalise.

CHEST TRAUMA

Closed damage to the thorax or rib fracture

Symptoms: pain in a precise area that is accentuated with breathing and coughing.

Cause: direct hit to the area

Dangers: pneumothorax (penetration of air to pleural cavity); unstable thorax with possible compromise to the pulmonary parenchyma; haemo-pericardio, arythmia until fibrillation.

Action: hospitalise

WOUND

Lesion in any part of the skin so as to determine laceration

Symptoms: pain, linear cut or contuse laceration.

Cause: contusive trauma, cut lesions

Dangers: haemorrhage, infection (check if patient is covered for tetanus)

Action: clean the wound, cover and bandage, evaluate if sutures are necessary on the basis of depth, extension and region.

HAEMORRHAGE

More or less copious loss of blood from blood vessels following rupture of vascular walls

Symptoms: loss of vibrant red blood and with pulsating force (arterial haemorrhage) or loss of red blood with a slow flow (venal haemorrhage).

Causes: trauma with wound, trauma with fracture

Dangers: Haemorrhagic shock

Action: direct compression on the bleeding wound, in case of arterial haemorrhage compress the artery that fills the region of the

trauma in a point between the heart and the wound, the compression must be made on a bone surface.

TRAUMA OF THE SCROTUM

Traumatic lesion of the scrotal region
Symptoms: bruised testicles from hydrocele or amatocele.
Causes: direct hits
Dangers: laceration to the testicles
Action: ice pack, hospitalisation for tests.

EYE LESION

Trauma that involves ocular globes and connected areas
Symptoms: bruising of the eyelid, haematoma (black eye), sub-conjunctive stagnation of blood.
Causes: direct hits
Dangers: endo-ocular haemorrhages, damage to the lens, detachment of the retina.
Action: local application of ice pack, cover the eye, hospitalisation for tests

LESIONS FOR INSECT BITES (Bees, bumble bees, wasps)

Lesions provoked by insect bites in oral cavity
Symptoms: rapid appearance of endema in the oral mucosa and on the tongue
Cause: bite with inoculation of irritating substance
Dangers: suffocation
Action: make the patient suck ice continuously, hospitalisation. Bee poison (acid) is neutralised with touches of diluted ammonia solution. Wasp poison (basic) is neutralised with vinegar and lemon juice.

NOSE BLEED

Loss of blood from nasal cavity
Symptoms: loss of blood from nostrils, which can also leak into the pharynx and be swallowed
Causes: nasal trauma, with no apparent causes in infancy.
Danger: shock
Action: head must be more elevated than the body, head bent forwards (for abundant nose bleeds), head bent backwards (for other cases, and keep mouth open to breathe, compress nostrils, nasal tampons, cold packs on the neck.

EAR BLEED

Loss of blood from the external hearing passage
Symptoms: slight loss of blood from hearing passage
Causes: head trauma
Dangers: fracture of skull base
Action: do not arrest blood loss with tampons, safety position on the side of ear bleed, ice pack on the head, urgent hospitalisation.

ACUTE MYOCARDIAL INFARCTION

Necrosis of myocardial tissue from imbalance between demand and income of oxygen.
Symptoms: constricting thoracic pain in retro-sternal region with possible spreading to the shoulder and most frequently on the left, epigastric pain, anxiousness, perpiration.
Causes: alteration of coronary circulation
Dangers: pulmonary endema, cardiogenic shock
Action: calm the patient, immediate hospitalisation.

VERTEBRAL TRAUMA

Lesion to the spinal cord
Symptoms: intense pain, rigidity of injured region, loss of sensitivity
Cause: falls that provoke distortions, luxations and fractures to the vertebrae
Dangers: marrow lesions, marrow shock
Action: do not move patient, stop any movement and hold up the head, immediate call for help.

MUSCULAR LESIONS

Lesions from direct and indirect trauma on the muscular system
Symptoms: localised pain, local bruising, functional impotence, muscular spasm
Causes: hyper stretching, impact
Dangers: calcifications
Action: ice pack, compression with bandaging, immobilisation.

ARTICULAR LESION

Lesion due to trauma that determines hyper-distension or laceration of the capsular-ligament system, it is different from distortion and luxation (where there is also a permanent loss of articular cap ratios)
Symptoms: periarticular bruising, bleeding in articulation, painful articular movements and pain when articulations are loaded, instability.

Causes: solicitations beyond the limit of normal flexibility.
Dangers: permanent ligament laxism
Action: unload articulation, ice pack, elastic bandaging, raise the affected limb, in case of luxation hospitalise immediately.

TENDON LESION

Partial or total traumatic lesion to the tendon fibres
Symptoms: sudden "click" followed by acute pain, bruising and successive ecchimosis, inability to carry out movements that require the integrity of injured tendon and its muscle.
Causes: violent distension due to energetic muscular contraction.
Dangers: aggravation
Action: ice pack, keep weight off the limb, immediate immobilisation, hospitalisation for tests.

FRACTURE

Traumatic lesion to the bone
Symptoms: violent and localised pain that increases close to the fracture, functional impotence, sound of rubbing bones in movement.
Causes: violent indirect and direct traumas, or brusque and violent torsions, or squashing.
Dangers: shock
Action: immobilisation of the injured region as it is found, ice-pack, hospitalisation.