MARCO BRUNO

THE SOCCER COACH

FROM THE PLAYER'S TRAINING TO GAME PLANS AND THEORIES

TEKTIME

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The Soccer Coach

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The sense of pleasure in wearing the cleats, the smell of freshly cut grass early in the season; the plastic bags at feet to not get in the water during workouts in the pouring rain. Friends not only for one season, but lasting forever. Growing up with a dream and not being able to accomplish it completely and then realizing that the reason was because your vocation was to train. Little ones and big ones. With an unexpected naturalness. Probably the talent I lacked as a player I had as a coach. Or maybe not even here I can say I have it... the way to get what you want is often incredibly winding and you might even get lost in it. Cleats or whistle... the passion is the same. And if passion drives you, you can never get lost.

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What is soccer?

Soccer is a simple and easily understandable game in its rules and in its course. Anyone can practice it because it does not require a particular physical structure or certain athletic skills; the athlete has a wide freedom of movement and therefore the possibility to express the best of him.

For this, the game of soccer is called free activity that, starting from a common basic technique, allows everyone to express their own personality and their own style; however, it is an uncertain activity, linked to the law of the case, and which is impossible to foresee.

Philosophically soccer is an ever-new and full-fledged adventure that can become spectacular; it is an activity of the present because the player builds his future during each game, the past does not matter.

People like soccer
Because it's a simple game
Everyone can play it
It's a free activity
It's an uncertain activity
It's an adventure
It's an activity of the present

I think there are key factors to work on in order to train one player in all his characteristics: technical, tactical, physical, mental and social. Obviously, we must make it clear straight away that training a young soccer player is completely different from training an adult one. For this reason I prefer to talk about the young soccer player's formation before, and about the adult player's training then.

In recent years, I've seen (and I still do) youth training coaches often making the same mistake: to train youths and kids as if they were adults.

TRAINING STANDARDS

When assuming responsibility for team leadership, each coach must have a clear understanding of the meaning of the word "training". In an extremely general way, training is a process that produces a physical, motor, cognitive and affective change.

The athlete's sport training is:

- physical training,
- technical-tactical training,
- intellectual, psychic and moral training.

All this is accomplished through physical exercises. We can therefore define the training as "the combination of all the actions aimed at improving the modifiable factors that affect the performance to get the best efficiency."

The factors on which action can be taken are many, we can mention:

- training of physical abilities;
- training of technical abilities;
- training of tactical abilities;
- training of psychic abilities.

It is not possible to intervene on one of them without affecting positively or negatively the others.

If training stimuli are varied and directed at all abilities, the body is confused and does not know what response to such stresses. In training, combining multiple capacities does not cause a sum of adaptations, but instead it causes a subtraction of adaptations. Therefore, the coach does not have to train all the time, because otherwise he will be training bad, little or nothing. Physical exercise physiologists have always been interested in the adaptations of our body to the chronic exposure to physical exercise (training) and in particular:

to the principle of subjectivity, under which the training program should be established taking into account possible variations from subject to subject. Different people respond differently to the same training program.

to the principle of specificity, under which the training should reflect perfectly the type of motor activity that is taking place, in order to optimize its benefits. A weightlifter cannot train with the prolonged run.

to the principle of reversibility, under which the benefits of training are lost when the workout is stopped or decreased. For long breaks it is advisable to always suggest maintenance activities.

to the principle of the sequential overload, under which you need to stimulate the body (muscles, cardiovascular system) with ever increasing loads as the body fits.

to the principle of "hard / easy", under which intense "hard" training sessions (load or augmentation) should be followed by an "easy" (unload or assimilation) exercise period to allow the body to recover and adapt before tackling the next increase.

to the principle of rescheduling, seen as megacycle, macrocycle, mesocycle and microcicle programming, within which intensity and volume of loads and training types will be varied for continuous search of better physical fitness conditions.

Many athletes are over trained, and when their performance worsens because of overtraining, coaches train them more because it is believed that the more you train the more it improves. (J.H Wilmore–D. L. Costill, 2005).

The more complete and finalized are the interventions on the parts composing the training, the more effective and precise will it be. In soccer game, unfortunately, there are still cases where the training is limited to "a few laps around the field, scrimmages and some goal shootings". There is

nothing that can replace the practice. All theories are abstract if they fail to illuminate the concepts formed in practical experience. The complexity of soccer requires precise, qualified and studied interventions.

The most difficult problem to face is to determine the type, quality and intensity of the work to be offered to the players and to check their degree of fit for training loads (TRAINABILITY).

Coachability is a dynamic parameter depending on internal and external personal factors. It can manifest itself in different ways in the various functional and organic systems of the same subject. In the infancy and adolescence age, the so-called "sensitive phases" (Martin, 1982) play a key role, namely they are those periods of growth that are particularly conducive to the development and formation of decisive skills and abilities for the motor-sport performance. By applying all the principles of training, you must prepare a work program that fits the players who have to perform it and the type of game the coach intends to set. The coach must always keep in mind the question "what should I do and at when".

So let us clarify what they are:

- the principles of learning (how the player learns);
- the principles of teaching (how the coach should teach).

The main aim must be to induce positive changes in behavior and lifestyle habits. Human behavior differs in:

innate actions, which we must not learn and do not require any prior experience;

discovered actions, which we discover by ourselves through a personal process as try-error-try again;

assimilated actions, which we acquire from other individuals with an unconscious emulation process;

actions learned, which must be taught and require a voluntary effort, based on a precise analytical observation.

The principles of learning

The statement that "if a soccer player trains, he improves and perfects his skills" is not true at all, because training determines behaviors and adaptations whether it is conducted in an appropriate way or an inadequate one. Not all adaptations and behaviors are useful for the realization of the different sports activities.

Effective training and equally effective learning in soccer are much related to the formation of proper attitudes, habits and movements.

First, in order of importance, it is the attitude towards learning, both by the coach and by the player. This attitude should be characterized by two qualities:

- open mind;
- very eager mind.

Essential mental attitudes to receive and evaluate new ideas and to apply them, to constantly question yourself; more simply to update continuously.

Not all ideas are good, so it is a mistake to immediately accept a new idea based on the only novelty criterion, as it is a mistake not to give it credit without evaluating it.

Some sports require predominantly the care of the technical aspects, others of the athletic ones: soccer is a sport where judgment predominates.

This conclusion is reached with a simple analysis:

- a soccer match lasts 90 minutes;
- the ball is in play for about 60 minutes;
- within 60 minutes each team is assumed to have possession of the ball for at least 30 minutes;
- during these 30 minutes the ball is often in the air and out of reach of players;
- on average every single player can not have the ball possession for more than 2 or 3 minutes.

After this analysis a question is spontaneous:

What does the player do in the other 57- 58 minutes when the ball is in play?

The answer is:

He applies his judgment skills, makes decisions and makes choices.

We also note that soccer is one of the most varied sports, both because players and the ball can move across the field, and because the rules to be respected are few; we understand that situations change rapidly and require speed of execution and concentration by the players. All this brings us back to the fundamental problem that is not how to train, but rather how a soccer player learns.

To stimulate players successfully, the coach should consider the following factors:

1) the interest: the player who is not interested and motivated dedicates little effort to the proposed activities.

2) enthusiasm: the player who lacks enthusiasm is not useful to himself and to the group.

3) collaboration: working together with the group to achieve common purpose.

4) example: watching playing champions or better watching the right gaming actions; by using video footage you can improve learning, attitudes and habits.

5) training frequency: training quality is more important than frequency. If there is quality, the more time it will be devoted to training the better the improvements will be.

6) awareness of improvements: those who get good improvements are more willing to train. In a well-trained workout, players are aware of the progress they have reached.

7) competitiveness: to develop your skills you need a continuous search for overcoming your skills and limitations. Players will improve if more and more challenging tasks are assigned them, provided that they are not too difficult.

8) trust: coaches should teach the players to have confidence, but above all should encourage them in cultivating achievable hopes and ambitions.

Having determined how the player learns, we need to determine what he needs to learn in soccer training.

The soccer training areas are four:

- technique and tactics (coordination skills);
- physical condition (conditional skills);
- understanding (what to do and what not to do);
- psycho-social condition (behaviors).

1) Technique and tactics: they are the tools of the craft; the better they are the more effective, useful and surprising the achieved results will be.

2) Physical Condition: skills are not achievable unless they are accompanied by a good physical condition. This will be the predominant topic of our lessons.

3) Understanding: it consists in understanding what can be done and what needs to be done and distinguishes the good player from the others under the same physical and tactical condition. Doing something you know you cannot do is as serious as doing something right at the wrong time.

Understanding requires:

- Knowledge of game principles and rules;
- Intuition of what's going to happen;
- Decision of choice on what is best to do;
- Perception of space and time;
- Action, ready and immediate execution of what you chose.

4) The psycho-social condition: Knowing how to stay within a group (team), accepting diversity (skills, behaviors, physical abilities, experiences ...) working together to achieve common purpose is an indispensable condition for completing the others.

Before beginning the treatment of the basic elements for achieving a good physical condition it is necessary to briefly outline how the coach should teach and the principles on which an effective training action is based.

The principles of learning

The principles or rules of sports teaching are used to make optimal the methodical ability of action of coaches and athletes. These principles refer to all aspects and tasks of teaching, which determine contents, methods and organization.

1) Knowing the subject: you need to know soccer from a technical and tactical point of view, the principles of physical preparation, not being influenced by external and environmental factors, generally emotional and prevent the players from being affected.

2) Knowing how to learn: without knowing the principles of learning that we have listed before you cannot make a profitable workout.

3) Knowing the key factors of teaching: the key factors of teaching are:

a) purpose: it concerns objectives that are usually in the medium and long term, for example the improvement of the team's offense game or the improvement of force. Short-term goals emerge from the purpose.

b) objectives: they concern:

- the game with the ball (passages, controls, triangulations, etc.);
- the game without the ball (combined movement, support actions, crossed actions, etc.).

You cannot teach everything at once, but determine an order of priority and a logical sequence of training.

c) order of priority and the logical sequence - you cannot effectively teach different aspects of the game at once;

- between two factors, one will always have a logical precedence over the other. If you do not respect a logical sequence, it becomes all the more difficult. The same happens if you insist on teaching the right things, but at the wrong time. Close attention must be paid to the planning and organization.

d) planning and organization.

the planning involves the best use of the equipment and must be done in advance to give rise to the best possible organization.

The organization of an effective training session includes:

the choice of the area of the field to be used for training;

the right number of players participating;

a realistic training (players must be used in their real positions and during the exercises they should play in a realistic way, the goalies must always be regular because the two essential aspects of soccer are the shoots and the scoring);

an adequate start of the exercise and quality of the steps (many workouts are dragged wearily because little attention is given to the way to start the exercise and the steps are sloppy);

simplicity and clarity (all players must understand what you want to do and get with that kind of training).

e) ability to observe: the observation of a training session must lead the technician to understand if:

- the training takes place in accordance to the organization;
- the attitude of the players is stimulated and interested;
- the action of collective play reaches its goal;
- the specific action of the individual is beneficial to the group work.

If all this is not achieved, ask yourself some questions:

- physically, is the player able to perform that task?

if the answer is "no", there is no reason to continue the exercise.

- does the exercise scare the player?

if the answer is "yes", it is better to start with the simplest exercises and further encouraging the player.

- is it a technical problem?
- what technique is it?

make sure the player understands where he is wrong and explain how to do it correctly and train him in this way.

- is it a tactical problem?

1 lack of understanding (isolate and explain the individual parts);

2 lack of intuition (the player does not see the action that takes place for three reasons:

- too crowded action;
- too fast action;
- plays with his head down.

1 lack of application (the player understands what it's required from him, but he misses the execution because he tries to make things too difficult).

f) communication: all that has been said so far does not matter if the coach is not able to communicate. A coach can communicate in two ways:

1 by demonstration, highlighting the following qualities:

- correct game actions;
- actions carried out in a simple way;
- clear demonstration, highlighting the main factor;
- set a minimum target;

1 by the word: communication through speech is very important, but it depends on the conviction with which he speaks the coach. Before speaking, the coach must think for a moment about what he has to say to be sure of the meaning of the words; must avoid words or complicated speeches and watch the audience while talking. Finally, he must always speak positively because it is more effective to say “do this” instead of saying “you were wrong doing this”.

Communication in figures
We spend 70% of our lives communicating verbally. This time is as follows:
hearing 45%
talking 30%
reading 15%
writing 10%
Of all this we can remember:
of what we read 10%
of what we hear 20%
of what we observe 30%
of what we hear and observe 50%
of what we say 80%
of what we explain 90%
In a conversation we can:
listen 50% of what is said;
hear and listen 50% of what we listen (only 25%);
understand 50% of what we hear (only 12.5%);
believe 50% of what we understand (only 6.25%);

remember 50% of what we believe (only 3.125%).

How many times have we talked for a long time with our athletes?

What is left of our words?

3.125%!!!!!!!!!!

Everything else is forgotten.

To train means to communicate. Some speak but communicate little and struggle to enter into a relationship, while others speak too much and leave little time to listen.

Every teacher must always keep in mind the importance of the sequence:

I LISTEN = I FORGET

I SEE = I REMEMBER

I EXECUTE = I LEARN

Teaching during the game

The coach must be very skillful and careful in training matches. The training match is the culmination of the session, the final development of a good team action. The techniques and exercises in small groups are like pieces of a mosaic and teaching to put them into practice during the game is like trying to complete the mosaic. It is too optimistic to expect that those pieces go alone in their place. To obtain satisfactory and useful results, it is appropriate to establish:

- what to teach;
- where to teach;
- how to teach.

1) What to teach:

we must focus primarily on objectives aimed at improving teamwork.

Defense: reduce time and space; tackle and cover; mass defense.

Offense: creation and exploitation of spaces; passages and movements; mass offense.

All of this goes independently of a game strategy. Every player must learn to behave effectively in every situation.

Accustom the players to make the right calculation:

- between security and risk;
- the possibilities; know how to choose and perform what is best in a particular situation.(best choice)

2) Where to teach:

players must practice playing game actions in every part of the field. Improvements in offensive team play should come from the defensive three quarters of the field, in the same way the improvement of the defensive system should be achieved starting from three-quarters of offense. I think it is appropriate to carry out situational exercises in the different areas of the field or in the areas where we want these behaviors to be actually performed in the game.

3) How to teach: the methods that underlie the teaching are:

- control of the game (e.g. if a team has to train to create spaces on the central band of the field then the training must be limited to that area);
- game conditions (e.g. if you have to concentrate on the quick passage you have to impose the direct game, where possible, and in any case a continuous movement without a ball in advance on the decision of the partner to be able to give him the passage solution even before he receives the ball. If a shot is requested on the support, it is necessary to impose that the player must overtake the teammate to whom the ball has passed);
- stop the game. It is a method to show the players the advantages and disadvantages of their positions.

In this regard it is necessary that:

a) a signal known to all is fixed to stop the game (e.g. two whistle blows, but on this point I am convinced that the signal must necessarily be visual as the coach cannot use the whistle and therefore

the players must visually recognize a situation common to all so that in recognizing it, everyone behaves as established in training);

b) the players stop so as not to alter the game situation you want to correct (it is advisable to stop the game to emphasize the theme, but not to deal with different themes).

- correct and try again: after having stopped the game it is important to try again in the correct way what has been done in the wrong way.

- thinking aloud: it is a method by which the coach thinks out loud in place of the player, anticipating his actions. This method is often used to make corrective repetition more effective.

TRAINING AND GROWTH

Through training, improvement of motor skills is pursued. Some skills can be trained and improved; others can be educated and transformed. We have already said that it is not possible to intervene on one of them without affecting positively or negatively the others. In sports games, the influence of the various abilities on the effectiveness of the sporting gesture is significant; this fact produced the notion of “regime of manifestation”. The regime of manifestation represents the way of manifesting of a motor capacity (e.g. resistance in speed regime, speed in strength regime); it also represents the way to manifest itself in the mixture of training factors (e.g. physical preparation in the technical regime, technical preparation in the tactical regime).

The components of the physical-motor preparation are:

- general and multilateral physical preparation, which is carried out in a particular and comprehensive way; it is particularly aimed at the great functions of the organism and is very suitable for young people;

- the specific physical preparation, which is based on the functions and motility of each sporting game corresponding to the demands of the competition; to be achieved after the youth preparatory cycle.

The figure shows that the player's performance or rather his efficiency in a competition depends on multiple skills, abilities and qualities that influence each other.

Components of the player's performance capabilities (Weineck-Erlangen, 1994)

The figure shows that the player's performance or rather his efficiency in a competition depends on multiple skills, abilities and qualities that influence each other.

In the performance structure represented in the previous figure, conditional abilities are fundamental because they provide the basis for a technical, tactical and psychic performance that is stable during the competition (Stiehler-Kinzag-Döbler, 1988).

To seriously address the problems of training you have to set three tasks: The first is to define the dominant physical qualities in soccer:

- the resistance in force regime;
- the speed (acceleration);
- the dexterity (ability to learn and execute complex movements quickly).

With the second, define the characteristics of the specific effort required in the game of soccer. Physical effort is generally characterized by the following parameters:

intensity;
duration;
complexity;
metabolic processes for energy production.

From the intensity point of view, the effort can be:
Intensity Heart rate (Beats/min) Respiratory rate Acts per minute
Maximum Exceed 210 Exceed 40–50
Maximal Between 200 – 210 Between 35– 40
Sub-maximal Between 180 - 200 Between 30 – 40
Great Between 120 - 180 Between 25 – 35
Moderate Below 120 Below 25
The intensity of the physical exercise must be related to the age of the subject; for adults it is advisable to consider the maximum pulsation frequency to be achieved respecting:
Cooper's formulas:
max HR = 220 - age for women
max HR = 205-(age divided by 2) for men
or Karvonen's formula: max HR = 220 – resting frequency
or better yet, Tanaka's formula: max HR = 208 - (0,7 times age)
We must remember that:
- between 50-60% of max HR, a moderate work is carried out;
- between 60-70% of max HR, a great work is carried out (also called cardio-training);
- between 70-80% of max HR, an aerobic sub-maximal work is carried out close to the limit;
- between 80-90% of max HR, a maximal anaerobic work is carried out;
- over 90% is achieved a maximum work (not recommended).
From the duration point of view, the effort can be:

short or long;
continuous or variable;
with or without interruption.

From the complexity point of view, the effort can be:

simple (e.g. marathon);
complex (e.g. soccer).

From the point of view of metabolic processes of energy production, the effort can be:

aerobic;
anaerobic;
mixed.

For soccer, the specific effort is considered:
For intensity:
- sub-maximal (heart rate180/200 - resp. rate30/40)
For duration:
- variable with numerous interruptions
For complexity:
- complex since it uses different physical qualities (speed, force, etc.), technical actions, tactics, with situations of physical confrontation.
For metabolic processes:

- mixed, with considerable anaerobic alactacid commitment

The third operation is to establish the growth and the decrease of the efforts during the training Basically, to establish the training plan and the physical training program.

The central objective of all soccer training must be to improve the operational capabilities of the player. (Bisanz-Gerisch, 1990). This statement serves to reduce the importance of condition factors to avoid overestimation and excessive undervaluation in training. In targeted soccer training we will try to encourage an exercise of speed of action that is oriented to the practice of the game always taking into account all the mental, physical, technical, tactical and social performance factors. The following quotes show that a specific theory of soccer training must be based on the demands of the competition and that the training of the condition must be assimilated to the practice of the game or possibly be integrated with it.

“The best teacher for training is the competition” (Cramer, 1987).

“From the competition we understand what we have to train” (Krauspe-Rauhut-Teschner, 1990).

“If the competition is the best training, it is also true that a good workout must necessarily have the nature of a competition” (Northpoth, 1988).

“The secret of soccer is always in the training session” (Beenhakker, 1990).

“The central objective of every soccer training must be to improve the player’s ability to act” (Bisanz-Gerisch, 1990).

From these quotes it appears that the soccer training of the condition must be assimilated to the practice of the game or possibly be integrated with it. Therefore training is not an end in itself but it follows the objective of “improving the ability to play and to optimize the ability to act”.

If on the one hand we want to reduce the importance of the factors of physical condition, on the other hand it will be appropriate to encourage in soccer training an exercise of speed of action that orients the practice of the game keeping in mind all the factors of performance at a technical-tactical and psycho-social level. This means that it is necessary to give more importance to training close to the practice of the game with more and more specialized methods and means. (Lottermann, 1990).

COACH MUST 1) Know athletes well and work to constantly improve their learning and training. 2) Analyze with the athletes and the managers the reasons for the success and the causes of the poor results. 3) Contribute to the formation of the group, sense of responsibility and respect. 4) Encourage athletes to follow a regular workout. 5) Worry about the health of athletes. 6) Inculcate in athletes a sense of attachment to the team colors and the respect of social ownership. 7) Encourage athletes to participate with commitment to each training. 8) Take care of their own professional update. 9) Keep a daily training record. 10) Prepare the training in order to arouse the interest of the players for physical, technical and tactical exercises.

TRAINING OF YOUNG PLAYERS

It is opportune to dwell first on the most serious errors that are committed with regard to the goals of youth training.

The first mistake is to relate the young to a reduced image of the adult without considering that he has a personality still in training, ways of thinking still evolving and above all completely different physique and abilities. Adult training cannot be transferred to the youth sphere, perhaps only by paying attention to reducing the quantity and intensity.

The increase in physical capacity cannot be proposed in the same way for young people and adults, indeed there must be further differentiation even in the same youth field, according to age groups.

Lead, for example, a cycle of training for 12-13 year olds (very young) with the aim of achieving maximum performance to achieve immediate successes; it means distorting the spirit of training itself; in fact, the boy must be led gradually and in small steps and over the years towards the desired return.

A preparation too fast and early, which is usually always linked to achieving ambitious goals for adults, will give significant results in the short run, but it certainly causes damage that almost always are irreversible.

When young people and adolescents in particular are subjected to an excessive physical and psychological burden, their motivation for what they are doing decreases; their desire diminishes until they reach a real refusal in the face of the first failures. So you can understand how many times the young players after training with their team, find themselves (in the oratory, in the yard or in open spaces) to finally play soccer.

A graded and targeted workout leads to a higher degree of physical and athletic preparation in adulthood and keeps it stable longer over time.

At the end of the youth cycle the player must:

have reached a correct physical maturation;

have acquired a complete technical background;

have acquired a correct tactical sense;

have developed the so-called “qualities of will” indispensable to obtain lasting results, that is:

availability for group work;
collaboration spirit;
willingness to learn and work;
awareness of improvements through commitment;
desire to emerge.

These qualities act positively not only in sports, but they are a great help to face life and the difficulties of every day.

Alongside these primary objectives, we must consider other aspects that are of great importance for the training of young people:

- maintenance and care of health and personal hygiene;
- the organization and employment of free time;
- the game of soccer and its training must remain in second place with respect to school or work;
- training must not involve risks to the health and future growth of the young person;
- joy and serenity must always be placed in the foreground: therefore avoid tiring, monotonous and repetitive workouts (this does not mean that you cannot repeat exercises already carried out);
- young people must always be able to draw constructive and socializing experiences from training;

- along with soccer young people must be able to pursue other interests especially at a cultural level.

The coach of the youth sector must know how to recognize a potential soccer player by evaluating his skills and competences related to:

TECHNIQUE:

- global attitude to movement;
- sensitivity to ball contact and skill in its control;
- good attitude to defend the ball in certain game situations.

TACTICS

- sense of orientation;
- promptness in the ability to judge on the advance planning of offense and defending play moves.

PERSONALITY QUALITIES:

- ability to impose himself;
- resoluteness of purpose;
- constancy of will;
- good social behavior;
- modesty in knowing how to put oneself at the service of others.

PHYSICAL CHARACTERISTICS:

- physical constitution which reveals an adequate and regular development;
- potential athletic skills.

Training young people means above all being able to correctly implement all the phases of the general education strategy:

- knowledge of the student in reference to his motor development;
- knowledge of educational problems in different age groups;
- continuous evaluation of the variations induced in the personality and maturation of the young, from the environmental influence and from the physical-motor educational action.

Especially for young people up to 14/15 years, the coach must follow as closely as possible the principle of versatility.

The versatility is the main way to make the students undertake a serious, correct and valid start up to the sport; It requires:

- analytical interventions (development of auditory and visual perception, sensory-motor coordination, of fine movements);
- global interventions (multivariate sequences, mixed paths, multipurpose games, team games);
- timely interventions (the right thing at the right time).

Effects of some sports on young people

SPORT	EFFECT
swimming	Increase of laxity
running	Limitation of mobility in some joints
Tennis-fencing	Asymmetrical training
soccer	Lower limb imbalances

(G. Frohner, 2002)

This would lead us to think that all these activities can guarantee a complete development of the individual.

This is not true if we do not organize the activities so that they are integrated with each other without one being predominant over the other. Reason for which it is always advised, with regard to the formation of a soccer player, to implement multi-purpose activities especially in prepubescent

and puberty age regardless of the sport that the individual is practicing. It is therefore important that the training proposals are inclusive of all factors (without forgetting which the main activity is)

COACH RESPONSIBILITIES

Many coaches, because they offer their time for free, think they're not responsible for the growth and health of the guys who train, but only for the sporting result of their action. The coach of youth teams is instead considered responsible for the psychological damage that can cause to young people and especially the physical damage caused by negligence or non-knowledge: managers (co-responsible) should remember to always inform the coach of his responsibilities before start his work.

It would be important at least to know that there are phases of growth in which different characteristics and coordination skills are developed; they're called SENSITIVE PHASES

Sensitive phases

Stages of greater sensitivity of different motor skills and psychophysical qualities in the ages of six to fifteen.

Between 5 and 9/10 years the basic motor schemes are achieved; precision in movements has increased

Between 6 and 8 years improves balance quickly

Between 7 and 10 years improves speed of movement

Between 8 and 10 years the attitude to predict the speed and direction of moving objects grows

Between 9 and 10 years the maximum step frequency is reached

Between 9 and 11 years advances in sensory-motor coordination (eye-hand and eye-foot general dynamics) are obtained

Between 11 and 12 years the development of lateralization is completed

Between 12 and 18 years the muscle force doubles; for girls after 13 it does not substantially increase

Up to 14 years avoid passive mobility exercises, practically those performed with the help of others

After 10 years training for muscle stretching and mobility begins

Phases of sports training

Before listing the various phases of sports preparation it is necessary to remember that the chronological ages indicated are purely schematic; in the juvenile preparation it is much more serious and correct to consider the biological ages of the various subjects.

Stages or levels	All sports activities	Soccer in particular
6-10 years	Preliminary general preparation	Me and the ball
10-13 years	Beginning for starting-up sport	Me, the ball, the partner
13-15 years	Training specialized in a sport	Me, the ball, the partners, the opponents
15-18 years	Sport improvement:1. Area of the first great successes;2. Zone of optimal possibilities;3. Zone	The team

	of stabilization of maximum performance.	

These indications are important in order to establish what the training proposals are and to be able to plan the activities

Principle of the finalized load

Training phases	General motor training	Specific conditional training	Special training	competitions
Basic training8-10 years	30%	20%	40%	10%
Construction training 10-13 years	10%	25%	45%	20%
High level training 13-15	10%	20%	35%	35%
Very high level training 15-18	0%	25%	35%	40%

(Schonborn, 1984)

The road to be followed in youth training is to gradually increase the load. The training stimuli must be applied progressively and appropriately to development.

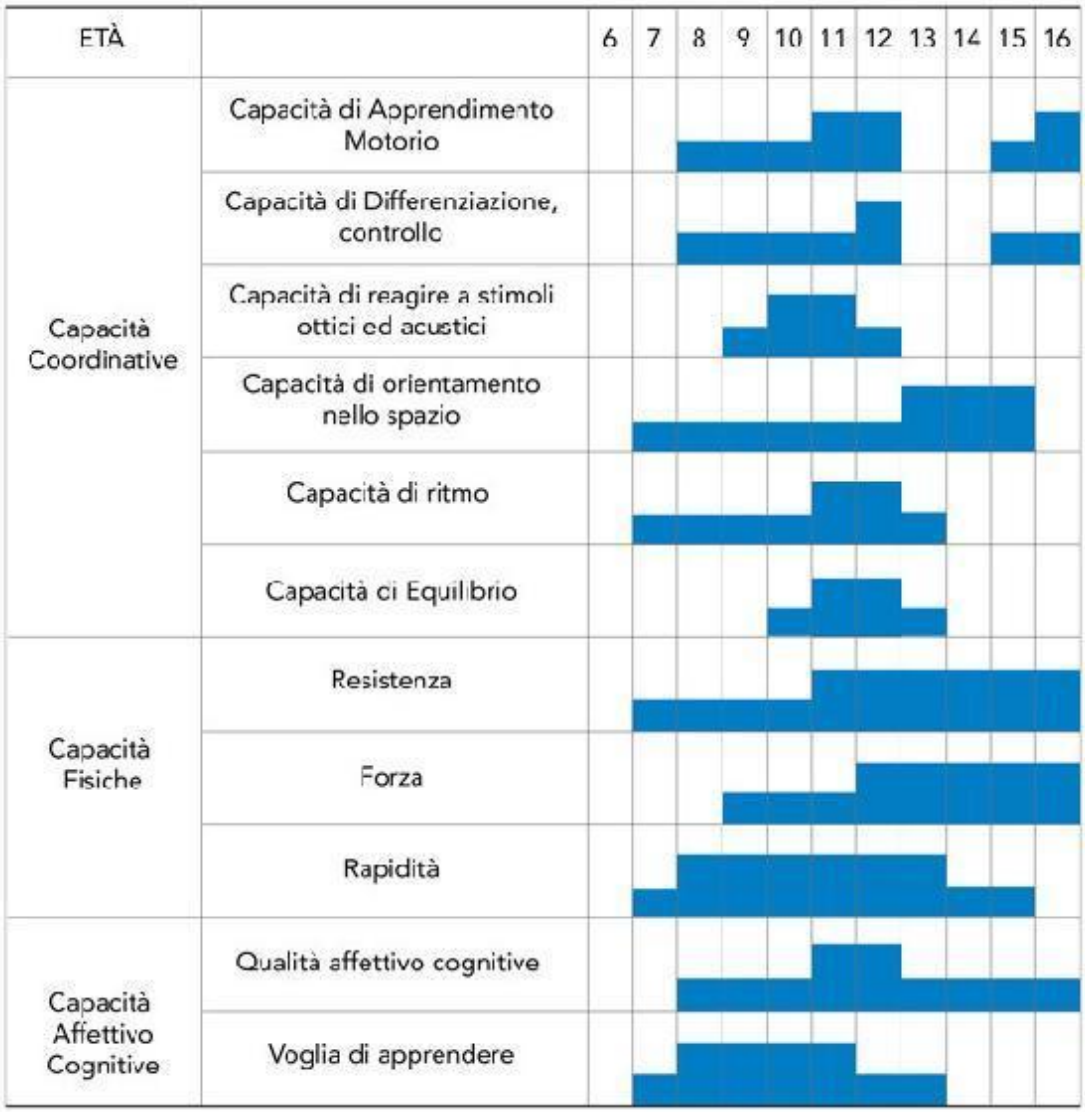
The recommended methodological sequence is to increase:

- first the frequency of training (defined as number of sessions);
- then the volume (defined as quantity of work);
- finally the intensity (defined as execution and loading speed).

(Ehlenz, Grosser, Zimmermann, 1983)

EXPLORATIONexperimentation	SETTINGassimilation	STABILIZATIONautomation
8-12 years	13-15 years	16-20 years
Tactical feeling and technical ability	Tactical and technical behavior	Tactics (sense of position) and technique

According to Martin (1982) sensitive phases find their moments of greater improvement in the ages indicated by the following diagrams.



It is not possible to train the coordinative and conditional abilities that have the same effectiveness at any age: no capacity can be exercised in the same measure at any age (Israel 1976).

With entry into puberty, there are decreases in performance or stagnation in the coordinating field (Sharma, 1993).

In boys with delayed development, are found coordination results better than those with early or normal development.

The periods of development in which trainability is very favorable for a certain motor capacity or class of sporting tasks (for example development of joint mobility, improvement of sporting technique), should be considered as sensitive phases for that class of tasks. We must pay close attention to the fact that there is an equal sensitivity between adequate and inadequate training methods. If you do not use the most favorable childhood years for the formation of coordination and sports technique, or you allow them to form wrong athletic behavior, the negative consequences will certainly be more conspicuous and therefore more lasting than in other periods.

Let's analyze what are the skills to be developed in the young athlete

Neutral capacity

Aerobic resistance

It is possible to develop it from pre-school age to be continued in the subsequent evolutionary stages, until reaching the period of "thrust" puberty that according to current knowledge seems to be the most favorable.

Early capacities

Coordinative
Rapid reaction and motor frequency
Articular mobility
Motor learning (with learning tasks that do not require high assumptions of maximum force or relative force),

Intermediate capacities

Toward the end of the primary school period and throughout the first pubertal phase, they should be considered with increasing attention:

Articular mobility
Quick force
Force resistance (in natural load)
Speed of movement, of locomotion and acceleration,

Late capacity

Maximum force
Anaerobic resistance
Quick force against oppositions
Resistance to force against oppositions.

Growth, development and maturation are terms that describe the changes that occur in the body until reaching adulthood:

Growth refers to an increase in the overall size of the organism or any part of the body.

Development refers to the differentiation of cells following functional specialization lines and the skills achieved in dealing with situations (skills, abilities, personality).

Maturation refers to the process of achieving the biological condition of adulthood and complete functionality; takes place in a long time, refers to:

- chronological age;
- skeletal age;
- state of sexual maturation. Physiological maturity in girls occurs 2-3 years earlier than boys.

Synthetically the indicators useful for determining the growth of the young are:

Growth Body size
Development Acquired skills
Maturation Biological conditions

Specialists in the growth and development sector have spent a lot of time studying the changes in stature and weight that accompany growth. Growth in height is very rapid in the first two years of life,

At 2 years the child reaches 50% of his height as an adult. The rate of growth is then much slower in childhood, but just before puberty the stature increases dramatically,

the peak of the growth rate occurs:

- about 11,4 years for girls;
- about 13,4 years for boys;

the achievement of the final height occurs:
- about 16-17 years for girls;
- about 18-20 years for boys;

The peak of body weight increase occurs:
- about 12.5 years for girls;
- about 14,5 years for boys;

Bones, joints, cartilages and ligaments form the support of the body structure; bones provide muscle insertion points, protect delicate tissues and represent calcium and phosphorus deposits. Between 14 and 22 years membranes and cartilages are transformed into bone. In an equally long time, between 13 and 20 years, the complete ossification of the different bones takes place. The prepubescent age is the most suitable for strengthening the bones in response to the stimulus of physical activity.

Muscle mass increases regularly from birth to adolescence following weight gain. The girls reach the maximum of muscle development between 16 and 20 years, boys between 18 and 25.

But we will talk about all these topics in a more specific way when we deal with the various motor skills.

For information, I report two graphs on the frequency of injuries to the back and knees in the young age caused by inadequate training. Age between 10 and 18 years


Hombres
100
80
60
40
20
0
10
11
12
13
14
15
16
17
18
Espalda
Rodillas

PHYSIOLOGICAL EFFECTS OF TRAINING

The physical condition

The human organism can increase its functional capacities to a considerable extent through the physiological process of training.

When our body is subjected to a physical exercise of certain intensity, reactions immediately occur:

- increase in heart beats;
- increase in respiratory rhythm;
- increase in depth of breaths;
- increase of secretion of sweat.

These reactions occur regardless of the physical condition of the subject even if the latter can determine the behavior and the entity. These are temporary changes because as soon as physical exercise ceases, these changes also regress and in a short time the body returns to its normal state. The time frame for returning to normal is usually shorter, the higher the condition of the individual.

The term “physical condition” indicates the particular state for which the athlete is in the best disposition, from a physical point of view, to perform a specific performance.

One of the typical manifestations of physical condition is the removal of the “fatigue threshold”.

What is fatigue? What is the fatigue threshold?

By fatigue we mean the diminution of the functional power of an organ, or of the whole organism, due to an excess of work.

The fatigue threshold represents the demarcation limit between complete efficiency and the beginning of the decline in functional power.

The training through multiple activities aims to achieve an improvement in performance and to remove the moment of the onset of fatigue.

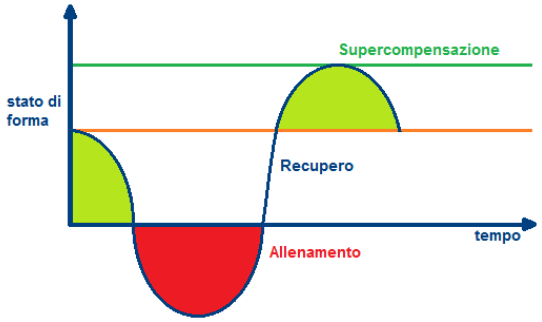
In practice, training manifests itself as a systematic and rational repetition of certain movements and behaviors with the aim of obtaining a performance improvement.

The structural and functional changes that occur in our body because of training, have a close relationship with the type of motor performance that has caused them: every form of movement corresponds to a type of adaptation.

In practice it happens that in the phases immediately following the physical effort, the organic and muscular structures urged to produce and support it, are not limited to overcoming the fatigue situation with a return to normal conditions, but have a reconstructive reaction that leads them to overcome the situation before stimulation.

These moments of supercompensation have a limited duration and progressively returns to the normal situation.

It is necessary to provoke other situations of supercompensation before the previous ones are completely exhausted, that is to say a “summation of the training action”(Matwejew, 1972).



The repetition of these stressful situations will cause the gradual adjustment of athletic abilities, putting the body in a position to overcome workloads with less accumulation of fatigue, or to express higher and higher performances. Supercompensation should not be understood from a physiological point of view but only as an improvement in the accumulation of glycogen.

The larger the glucose stores (glycogen stores) in the soccer's muscle, later he will feel tired and the longer he will maintain the ability to do a very high intensity job

(Cogan Coyle, 1989).

The basic element of soccer performance in terms of energy use and consumption is the running action.

The specialists were concerned to detect “what” runs the amateur soccer player during a match; in general it has been verified that this run amounts to about 8,000 meters. This would not even represent a mid-level athletic performance, if referring exclusively to the total competition time (90’).

A careful analysis of the workload, shows that within this distance are carried out:

- sprints;
- arrests and braking;
- changes of direction;
- ball controls;
- contrasts with opponents.

In other words, the soccer game is a succession of different performance for intensity type according to the game’s development and occurs within a specified period of time. Any combination of soccer performance with those of other disciplines (e.g. athletics) is really arbitrary and wrong. The soccer player from an athletic point of view is to be considered just a player and that's it. The 8,000 meters of the player's run are divided as follows:

- walk about 20% (~1.600 meters);
- slow running about 35% (~2.800 meters);
- reaches 25% (~2.000 meters);
- sprint 15% (~1.200 meters);
- backwards running about 5% (~400 meters);

Midfielders usually run higher distances than defenders and forwards. The amounts of running and the type of gait vary a lot from role to role and in the role itself in relation to the physical-athletic characteristics and above all the player's characteristics.

The distances run at maximum speed vary from 3/4 meters up to 25/30 meters, the most frequent are 10/15 meters and are repeated 50/60 times.

I also find it interesting to present the results of a study on heart rates expressed by players during a competition. The recorded values show that the player is not subject to very high tensions.

For each half of a game the following pulsating frequencies were detected:

Pulsations per minute	offensives	Midfielders and lateral defenders	Central defender
126/131	11’45”	2’45”	29’00”
132/155	9’45”	5’15”	29’00”
156/173	12’00”	27’30”	16’00”
174/185	9’00”	8’45”	0’00”
186/204	2’30”	0’45”	0’00”

These figures lead to some general considerations:

1 there are significant differences between the average performance of the various players;

2 with the exception of the central defender all the other players are subjected to a wide range of stimuli;

3 in the defenders and midfielders the period of average intensity prevails while for the forwards we have the longest period of minimum intensity, but also the longest of maximum intensity.

Let us now try to analyze how movement and training can produce changes in our body. For convenience I will describe separately the effects of the movement produced on the muscles, on the joints, on the bones, on the internal organs, on the mind and also on the relationships with others, but it is necessary to keep in mind that often these effects occur simultaneously.

EFFECTS ON MUSCLES

Muscles are the active organs of movement, in fact they are made up of fibers that contract in the presence of impulses (nervous commands).The movement produces the following transformations on the muscle:

1 increase in volume: the muscle, if made to work intensely to lift weights or to overcome a resistance, becomes bigger and at the same time increases its force.

2 increase in length: the muscle maintains or increases its length by means of continuous work to which it is subjected, the muscle lengthening allows to fully exploit the joint width.

3 increased capillaries: the muscle, engaged in a work of mild intensity, but of long duration, increases its capillarization that is the number of channels that bring the oxygen (brought from the blood) to the muscle fibers. This results in an improved ability to supply the oxygen muscle: a condition that allows the muscle to resist fatigue for longer.

4 increase of energy substances: the movement allows the increase of energy substances (glycogen) necessary for muscle contraction.

5 improving the transmission of nerve stimuli: training makes the transmission of nerve stimuli from the brain to the muscles faster and more precise, thus improving the speed and coordination of movements.

EFFECTS ON JOINTS

The joints constitute the "junction" system of our body. They allow the movement of the various body segments. The articulation consists of the union of two bones whose ends are called articular heads. The movement produces the following transformations on the joints:

1 maintenance of physiological mobility: the articulation to maintain its normal mobility must be used to the maximum of its possibilities of movement.

2 increase and recovery of mobility: to recover lost mobility and increase that possessed, it is necessary to use particular forms of training and movement.

3 strengthening of the articular capsules: the joint capsule, made up of ligaments and muscles, has the task of keeping the articular heads firmly tied and to prevent the joints from getting out of place and that sprains or dislocations occur.

EFFECTS ON BONES

The bones constitute the scaffolding of our body, they fulfill the task of protection (the skull protects the brain, the spine protects the marrow) and contribute, as passive organs to the movement, to the displacement of the body and its limbs. The movement produces the following transformations on the bones:

1 better nutrition: the increased circulation of blood, caused by physical exercise, nourishes the bone tissue and supplies it with calcium.

2 development in length: the movement favors the production of new bone cells, which determines the growth in length of the bone itself.

3 development in width and thickness: the tractions on the bones, exercised by the muscles during movement, favor the development of the same in thickness and width. It follows an increase in resistance.

RESPIRATORY EFFECTS

The task of the respiratory system is to supply the body with oxygen and to eliminate carbon dioxide. The movement produces the following transformations on breathing:

1 reduction of recovery time: the trained subject takes less time to return to normal breathing after the effort.

2 minor increase in respiration rate: the trained subject, with the same work, has a lower basal respiratory rate than the sedentary (12-16 acts per minute).

3 increase in vital capacity: the vital capacity is the amount of air, measured in liters with the spirometer, which is able to emit with a forced exhalation, after having done a maximum inhalation.

4 increase of the apnoea time: the apnoea, or voluntary suspension of the breath, increases in duration in the trained subject.

5 strengthening of the respiratory mechanics: the respiratory muscles, and in particular the diaphragm, with the exercise increase their power and the efficiency of their contractions.

EFFECTS ON THE HEART AND CIRCULATION

The circulatory system consists of the heart (pump), the great circulation (arteries and veins that carry blood to the various tissues, the organs of the body and bring it back to the heart), the small circulation (which brings blood to the lungs to oxygenate them and brings it back to the heart).Physical activity produces evident effects on the cardio-circulatory system, among these the most expressive are:

1 the shape of the heart changes: the heart of an athlete becomes almost spherical.

2 the heart becomes thicker: the internal cavities (atriums and ventricles) increase in volume and the muscular walls thicken.

3 the systolic range increases: the amount of blood expelled at each contraction (systole) of the heart is greater because the internal volumes and muscle strength have increased.

4 cardiac output increases: the amount of blood put into circulation in one minute.

5 heart rate increases: the number of pulses per minute increases during work. Remembering that with the same work, the trained subject will have a lower number of pulsations thanks to the capacity of his heart to pump a greater quantity of blood.

6 reduction of the pulsations at rest: this is one of the most easily controllable effects, but it is achieved only thanks to constant and prolonged training.

7 reduction of recovery time after exertion: the trained subject returns more quickly to the cardiac rhythm of rest than the sedentary subject.

8 increase in the capillaries of the heart: the heart is better sprayed and better nourished.

9 increase of the capillaries in the muscles: the opening of new channels of blood circulation is important to improve the nutrition of the muscles and to eliminate more quickly the slags produced by the muscular contraction.

10 blood rerouting: when engaged in intense physical work the blood is channeled to the muscles engaged and is subtracted from other sectors. They are mainly the intestine, the stomach, the liver and the spleen to give blood for muscle work. For this reason, those who are poorly trained, accuse pain in the right or left side.

11 facilitating the return of blood to the heart: during movement, the muscles, with their contraction, "massage" and "squeeze" the veins that, thanks to the dovetail valves, convey blood towards the heart.

EFFECTS ON DIGESTIVE FUNCTION

Physical exercise accelerates all digestion, from mechanical to chemical and secretive. Exercise strengthens and speeds up stomach and bowel movements.

EFFECTS ON THE NERVOUS SYSTEM

The Central Nervous System (CNS) consists of:

- brain;
- cerebellum (balance);
- brain stem;
- spinal cord.

The Peripheral Nervous System (PNS) consists of:

- 12 pairs of cranial nerves;
- 31 pairs of spinal nerves;
- sympathetic system (regulates heart beats, respiratory acts, blood pressure);
- parasympathetic system (regulates the digestive system and balances the reactions caused by the sympathetic system).

Movement is the most visible act produced by the nervous system: it is the motor response to nervous excitement.

In order for the movement to take place, three phases are necessary:

1) information;
2) processing;
3) knowledge.

After receiving the information (kicking the ball) an ideomotor scheme is created using the memory of similar movements already performed previously. Once the schema has been prepared, the brain produces the nerve stimuli suitable for making the right muscles contract with the right force and in the correct sequence. In the voluntary movement, especially if never done before, the times related to the three phases will be long. When the movement has already been repeated several times, it becomes automatic because the motor scheme is already known and ready; the execution of the gesture becomes faster and more precise; motion control has been automated. Therefore the motor exercise trains and educates the sensory organs, improves and sharpens the visual, auditory, tactile, proprioceptive (ability to analyze the position of our body with eyes closed) and balance.

PSYCHIC AND SOCIAL EFFECTS

Motor activity develops:

a) cognitive ability;
b) the imaginative capacity;
c) practical capacity.

The motor activity improves:

a) attention;
b) the memory.

When you are preparing to do a sports exercise, you behave like when you are preparing to understand a concept, to grasp a truth, to solve a math problem. First the data are brought into focus, that is to say, what is available and the objectives to be achieved; then the difficulties to be overcome

are analyzed; then it is reflected and moves on to action; and finally, the results are checked and their accuracy checked. It is easy to understand how sport stimulates our emotional states and our passions (joy, enthusiasm, satisfaction, pride, etc.).Sports activity helps those who have problems of shyness and insecurity because they are used to courage and trust in themselves.

SOURCES FOR ENERGY PRODUCTION

Muscle fibers

It is known that the quality of the contraction of a muscle depends, essentially, on the percentage of the type of fibers that compose it. The endowment or the percentage distribution of the different muscle fibers is genetically determined

(Weineck 2001).

There are two main types of muscle fibers:

Red type I fibers, thin and slow called ST (slow twitch = slow-twitch fibers).These fibers intervene in low-intensity muscular work (high oxidative capacity, low glycolytic capacity).Their capillarization is 4.8 capillaries, on average, per fiber.

White type II fibers, clear, thick and rapid called FT (fart twitch = fast-twitch fibers).These fibers come into action in intense muscular stress and rapid force. Their capillarization is 2.9 capillaries, on average, per fiber.

There are three sub-categories of FT fibers, namely:

1 Type IIa fibers (oxidative-glycolytic capacity);
2 Type IIb fibers (high glycolytic capacity);
3 Type IIc fibers (high oxidative capacity and good glycolytic capacity, also called intermediate fibers).

According to some research, champion athletes enjoy a genetic privilege. The research has discovered a DNA gene called "alpha-actinin-3" that controls the production of actinin in muscle, a key constituent of fast-twitch fibers. The alpha-actin-3 gene exists in two main alternative forms, called “alleles”, given as a gift by each of the parents, which can be the same or different, can be presented with a double pair

# of RR alleles, determine the presence of the sprint protein in the muscle;

# of XX alleles, do not command the production of actinin;

# of RX alleles, partial actinin production, majority of the population

Конец ознакомительного фрагмента.