

SOME STRUCTURAL PROBLEMS OF FOOTBALL PLAYERS MOTRIC ACTIVITY IN TRAINING AND COMPETITIONAL PROCESS

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Key-words: types of muscle contractions; the energy of motric activity; the development methodology of motrical abilities forms.

Abstract: During the formative period, there are acquired specific elements of theoretical knowledge in constant link of interdependence with motric skills used in the specific motric activity specialized for the teaching-learning process, from the physical education and the performance activity.

In time, from the the beginning of the professional activity, by joining of theory and practice in physical education and sport performance,

- we found out some disunities between the real sense of some terminology components used in the theory of motric qualities development and the real sense of practice activity.

So, the longest phrase from the motric activities theory, is „to develop force” in the conditional motric skills, when actually is't only about „strenght”.

In this communication, we argue for understanding, discriminating and respecting the real sense of concepts “force” and “strenght” given that it supports the claim to which:

- in performance sport, for the most sport branches, the important role it has the strenght, not the force.

Introduction: besides the semantic aspects, there are presented also the methodological aspects which associate the motric qualities development with tehcnical training and the prevention of the players accidents during the football training and the competitional activity.

the movement, as one that ensures the existence of living beings, is synonym with the motricity or the motric activity in the human daily life.

Physiologically, ordering the informations scattered in different specialty works, the motric activity is determined by the two states of skeletal muscle:

- the state of rest or relaxation;
- the state of tension or excitement.

In the state of tension or excitation, the forms of its manifestation were ordered by Ruch and Fulton presenting the table made by Fenn in 1945, that includes:

<i>Type of contraction</i>	<i>Function</i>	<i>External strenght opposing muscle</i>	<i>External mechanical work</i>	Supply rate
- shortening (isotonic)	- acceleration	- smaller	- positive	- increases
- constant length (isometrical)	- fixing	-equal	- no	-
- protraction	- slow down	- larger	- negative	- decreases

The energy foundation of motric activity.

Structurally, the skeletal muscle is composed by rational distribution of fibers:

- white, long, thin and fast;
- red, long, thick and slow;
- red, short, thick and fast.

The differences between colours, dimensions and functional states of muscle fibers are determined by specific metabolic production, use and concentration of the energy consumption during the different motric actions execution.

The energy used during any motric activity is produced by:

- anaerobic processes, carried out in the absence of oxygen, by which it releases a larger amount of energy over 15-45 seconds;
- aerobic processes, carried out in the presence of oxygen, which releases smaller amounts of energy over time between 1-2 minutes and over 5 minutes.

The links between the structure muscle groups involved in execution, the intensity and time of execution can be ordered in a teaching mode such as:

Parameters	For work intensity			
	<i>low</i>	<i>medium</i>	<i>submaximal</i>	<i>maximal</i>
Time of effort	3 – 90'	more than 3'	15 – 45''	10 – 15''
Source of energy	aerobic processes	aerobic stable processes	anaerobic alactacide processes	anaerobic lactacide processes
Type of activity	uninterrupted work	work with reps	work in series	work in series
% of maximum	30 – 40%	40 – 60%	60 – 80%	80 – 100%
Pulse values	120 - 140	140 - 160	160 - 180	180 - 200
Time of breaks	totally, after labor	equal to the time of labor; return pulse to 120 – 130	1 - 2'	2 - 5'
Type of fibers	red, slow	red, fast	red and white fast	white fast
Resistance to fatigue	high	medium	low	low
Motric qualities required	endurance, skill	skill, endurance	strenght, speed	speed, strenght
Time	for training	for training and competitiona l time	for training and competitiona l time	for training and competitiona l time

The event forms of motric capacity.

The motric capacity is an each individual state`s own potential in the sports performance. the forms of motric capacity manifestation have a structure differentiated by genetic potential and the training level, a structure whose values establish the individual performances level achieved in the competition activity.

The value level of motric capacity is determined by the objectified value of its manifestation forms.

Bringing together different ways of presenting contents of the motric capacity forms, belonging to several authors from the field of theory of sport training, completed with their own opinions, is emphasized by the following setting:

- conditional capacities:
 - speed,
 - strenght,
 - force,
 - endurance;
- coordinative capacities:
 - skill,
 - coordination,
 - balance,
 - accuracy.
- intermediate capacities:
 - muscle elasticity,
 - joint mobility.

This setting of different motric capacity forms is formal and aims the knowledge and understanding of its involvement, constant in association and differential in contribution, in the execution of any motric actions represented by technical procedures and individual tactical attack and defense actions.

Justification of the methodology of forms event of motric capacity

In 1953, adamson and *morgan* (nett t, ullrich j.) set up „this circuit” for developing the motric qualities, by using some exercises with alternate muscle groups and request intensities.

In 1961, Raoul Mollet elaborates the method „power-training” based on the succesion and the distribution of the exercises used for:

- the strenght development with hampered objects;
- the speed development: with and without hampered objects;
- the joint mobility development.

Between 1965 – 1975:

- Ozolin discovers and explains „the speed barrier”, represented by installing a dynamic stereotype unmodified by any method used for this aim, „a barrier” which „break” was realized by using speed running downhill, confirmed by Costello in 1976;

- Verhoşanschi experimentally demonstrates the effect of jumps in depth from 0,70 m and 1,10 m, based on „the strenght failure work”, as name, and on „contraction by stretch” described by Fenn and presented by Ruch and Fulton;

- Gideon and Pipes experimentally confirm the results getted by Verhoşanschi, by maintaining the principle „strenght failure work”, but replacing „the jumps in depth” with the isokinetic equipment;

The results obtained in the growth rates of movement and speed by using „the downhill spint training” and „the pliometric training” are demonstrated by the following reasonings:

- by Fenn`s principle, of elongation contraction, the amount of energy consumed is minimal;
- the pliometric training is based on the optimization of the link between the weight value or segmental value involved in movement, between the start and the stop point of the movement, the gravitational acceleration value and the strenght manifested by elongation of extensor muscles involved in movements performed in deceleration speed.

Structural boundaries of muscle strenght

The content of some works that adresses issues of theory and practice of training performance, reveals the following findings:

- in most sports, including football, the strenght is a motric quality involved in the performance achieved;
- mistakely, in all the works translated or belonged to some romanians authors, is used the concept of „force”, when in fact, by presenting this quality and these methods for its development, explicitly that references are for „the strenght”.
- the error sample in forms and in translation, results from the differences between the title and the content of two fondamental works from the specialite literature; „the strenght in performance training” and „the science and the practice of strenght trening”, where is presented the strenght, not the skeletal muscle force.

To achieve a structural separation of muscle strenght, having as a theoretical justification, the biographical and practical infirmations, based on the collabotation experience with the Football Department and the

Methodical Commission of School Sport Club n.2, Bucharest, during 2008 – 2011, we made the following systematic order:

a) Definition:

- in physics, the power is expressed by the proportion between the mechanical work (L_m) and the time (T), namely $P=L_m/T$, whose values are expressed by units of power measured by kg/m/s, differently from the strenght muscle measured by kg'm.

b) Factors that influence the expression of muscle strenght:

- the ability to concentrate the nerve processes;
- number of muscle fibers involved in contraction;
- the share of fast white and red muscle fibers distributed in muscles structure involved in movement execution;
- the speed of muscle fibers contraction;
- rotation speed of the processes of excitability and inhibiting influence, of contraction and relaxation;
- intramuscular energy resources;
- age and sex;
- the training level.

c) The forms of strenght event:

- local, specific and general, each formed as:

- maximum strenght
- resistance in the strenght system

d) The morpho-functional substrate of strenght event:

- the natural proportion between the fast white fibers, the fast red fibers and the slow red ones in muscle structure involved in the movement execution;
- speed transmission of nerve impulses;
- speed of production, consumption and energy conversion necessary for the movement.

e) Methods used for the development of the muscle strenght:

- work with weight objects;
- power training;
- pliometrical work;
- inclined plane work: - upstream
 - downstream
 - circuit work.

The completeness of understanding the structural order is realized by the following sequential descriptive statements:

- any motric action is accomplished by sequence and alternation specific functional states of extensors and flexors muscle chains;
- in most sports branches, the performances level is primarily determined by extensive muscle strenght chains;
- when the extensor muscles are in contraction by shortening, the flexor muscles, by synergy, are in contraction phase by elongation;
- when the flexor muscles are in contraction by shortening, the extensors, by the same synergy, are in contraction by shortening.

The muscle strenght in the structure of training classes and of official games

The diversity of motric activity is generally emphasized by motric actions included in the following groups:

1. walking, running, jumping.
2. hitting, throwing.
3. falling, rolling, lifting.
4. shooting, lifting, pushing.
5. climbing, crawling.

Between the components of these groups and the motric components of football game, it is obvious the bond between the 1st, the 2nd and the 3rd groups` components.

In the structure of any training lesson and of any official game, there are included and executed all the motric actions, parts of the groups below, in separated weights of the themes that make its particular structure, of the technical procedures and of the individual tactical actions in the official game play.

Involving the motric capacity „strenght” in the use of motric actions during the training lessons and the official games, is directly proportional to:

- speed before making: - stops
 - change of direction
 - jumps
 - off the ball
 - with the ball
- execution speed in:
 - running and lateral movement
 - linear
 - with stops
 - with changing directions

- off the ball
- with the ball
- jumping
 - in place
 - on both legs
 - on one leg
 - on both legs.
 - from moving
- the distance, the direction, the height and the speed ball flight:
 - between the kicking place, the condition of kicking execution, on the spot, moving or with jumping.
 - the teammate who receives the pass or the goal where is sent the ball.

In accordance with those presented, it is necessary to know the bond between the strenght implicated in the execution of technical procedures and the individual and collective tactical actions of attack and defense during the training lessons and the efficiency of players evolution in the official games.

The explanation is that any football player, from an early age, understands the requirements, the conditions and the factors involved and establish the subjective assesment of an effective progression in the official games, but in the training lessons, it imposes the awareness of the identity need between the stereotypes from the game and those realized in the training lessons.

The need identity between the stereotype from the official games and those from the training lessons, is desired by the following reasonings:

- during the execution of technical procedures of stopping, changing direction and jumping, off and with the ball, for passes and shots, it achieves sequentially and successively:
 - the training phase, when the extensor muscles are in contraction by stretch, and the flexor muscles are in contraction by shortening.
 - the execution phase, when the extensor muscles pass in contraction by shortening and the flexors pass in contraction by stretch.

- between the involvement of the strenght, the speed that precedes, accompanys and succeeds the execution of technical attack and defense procedures and the efficiency accomplished, there are established constantly linear bonds;
- the bigger are the values of the speed, height or length involved in the exersises, the muscle strenght is much more involved, thing that causes to the event level.

Links between the muscle strenght, accuracy of executions and injuries in the football players activity

In the football players activity, of training and competitive, one of the limit factors of individual and team performances is represented by the injuries because any of its gravity:

- an injury during a training class, can cancel the participation of any player to one or more official games and to a lot of training lessons.
- an injury during an official game, can make impossible for the rugged player to participate as to many training lessons but one or more official games.

Approximatively, by their frequency, the injuries are:

- muscle injuries
- ligament injuries
- joint injuries
- bone injuries

The main causes of these injuries in thevtraining lessons and in the official games are:

- the overuse of the thigh flexor muscles in the process of passing at long distance and of shoting at goal, on maximum speed or on the spot.
- mistakes in running, stopping, changing direction, jumping or tackling.
- landings on the ground in imbalanced positions because of the executions which exceed the calculated or provocated risk degrees by involuntary or voluntaru actions of teammates or opponents.
- accidental or intended kicks.

To reduce the number of injuries and their severity, it is necessary to present and acquire knowledge by the players causing the way of producing and prevention:

- to know and anticipate the risk degree and the potential injury during the execution of technical processes and less common situations.

- to respect the measures to protect against injuries.
- to develop the muscle, ligament and joint strenght by respecting the principle „in training lessons, the executions must be made, at least, at the official game request”.
- knowing and respecting the requirements that make sure the speed, the fairness, the balance and the accuracy of any execution;
- education to achieve permanent control of balance and coordonation in executions made in different situations, in the air, landing on the ground or in contact with the opponent.

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Titlu: Unele probleme structurale ale activității motrice a jucătorilor de fotbal în procesul de pregătire și în activitatea competițională

Cuvinte cheie: tipurile contracției musculare; energetica activității motrice; metodologia dezvoltării formelor de manifestare a capacității motrice.

Rezumat: În perioada formativă sunt însușite elementele specifice ale cunoștințelor teoretice în relația constantă de interdependență cu deprinderile motrice utilizate în activitatea motrică specifică și specializată pentru procesul de predare-învățare din educația fizică și din activitatea de performanță.

În succesiunea anilor, de la începerea activității profesionale, din asocierea teoriei cu practica în educație fizică și în sportul de performanță,

- am constatat unele discordanțe între sensul real al unor componente ale terminologiei utilizate în teoria dezvoltării calităților motrice și sensul real al activității practice.

În acest sens, cea mai longevivă în teoria activității motrice, este sintagma ”dezvoltarea forței” în cadrul capacităților motrice condiționale, când în fapt este vorba numai de ”putere”.

În cadrul acestei comunicări, aducem argumente pentru a înțelege, a discrimina și a respecta sensurile exacte ale conceptelor de ”forță” și ”putere”, în condițiile în care se poate susține cu argumente afirmația conform căreia :

- în sportul de performanță, pentru cele mai multe ramuri sportive, rolul determinant îl are puterea și nu forța.

Pe lângă aspectele semantice sunt prezentate și aspectele metodologice care asociază dezvoltarea calităților motrice cu pregătirea tehnică și cu prevenirea accidentelor jucătorilor în procesul de pregătire și în activitatea competițională.

Titre: Sur certaines problemes structurales de l`activite motrice des joueurs de football dans l`activite de la formation et de la concurrence

Mots – clés: les types de contraction musculaire; l`energie de l`activite motrice; la methodologie de developpement des formes de manifestation de la capacite motrice.

Résumé: Dans la période formative sont acquises les éléments spécifiques de connaissance théorique en relation constante de l`interdépendance avec les habiletés motrices utilisées dans l`activité motrice spécifique et spécialisée pour l`enseignement et l`apprentissage en éducation physique et performance.

Dès le début de l`activité professionnelle, années de suite, par la combinaison de la théorie et la pratique en éducation physique et sport de performance,

- on a trouvé quelques discordantes entre la signification réelle de certaines parties de la terminologie utilisée dans la théorie de développement des qualités motrices et la signification réelle de l`activité pratique.

À cet égard, le plus long dans la théorie de l`activité motrice est le terme „développement de la force” dans les capacités motrices conditionnelles, alors qu`en fait c`est une question de „puissance”.

Dans la présente communication, on apporte des arguments pour comprendre, discriminer et respecter les significations exactes des concepts de „force” et „puissance”, dans les conditions qui peuvent argumenter l`affirmation selon laquelle :

- pour la plupart des sports, dans le sport de performance, le rôle crucial qu`elle a la puissance et sans force.

Outre la sémantique, ils sont présentés les aspects méthodologiques qui associent le développement des qualités motrices avec la formation technique et la prévention des accidents des joueurs dans l`activité de la formation et de la concurrence.