METHODS AND TECHNIQUES USED FOR ENDURANCE
DEVELOPING FOR THE BASKETBALL BEGINNER TEAMS

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Abstract
In the latest years modern sport raised many controversies, especially regarding kids and
juniors training. Related to this aspect there appeared some wrong ideas; ignoring the age
particularities, especially in educating the motor capabilities, the monotony of the
exercises, the lack of motivation adapted to the age of development. Then arguments for
approaching this subject were the neglect of the optimal period for learning and the motor
training, the problems of motor abilities for taller subjects.
After the research, the following conclusions were reached: educating the ways of
expression of the resilience at early ages must be realized without overburden or
overprotecting the trained subjects; it is recommended that the training methodology
should start with developing the general resilience and afterwards training the specific
motor abilities; the training of the kids teams follow too much the same pattern with the
training of the senior teams.

Keywords: methods, resilience, training, beginners

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Introduction
The physical condition is an expression that characterizes human biological
availability to meet the requirements of everyday applications due to the external
environment. In normal conditions, the human body is exposed to cold, heat,
physical exertion and not least professional applications.
In other words, the physical condition implies the ability of the whole of the human
body to obtain better results in certain physical activity.
The concerns of the specialists for early preparation of athletes are not exactly new.
In time there appeared a lot of scientific papers which attempted to answer a number
of specific issues for early preparation, as were: talent, the initial selection, formative
stages, training ability, performance ability, competence coaches system,
competition, motivation, motor capacity, etc. However, no area of modern sport has
in recent years been the subject of so much controversy as that of training in children
and youth. On this latter point, there were a number of wrong mentalities as the

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manner in which you have selected and trained children as they were or are:

- too early practice of sports;
- the imposition of work programs similar to those of adults;
- "forcing" to obtain maximum performance capacity;
- ignoring the age peculiarities, especially in teaching;
- the motor ability;
- "the mechanization" of preparation or transformation into forced labor – overprotecting attitude towards certain age groups, making the mistake of not valuating the optimal period to enrich motor ability;
- the monotony of the exercises;
- lack of challenge appropriate to their age motivations optimal growth and development activities.

Some of these errors (currently made) reported during the early stages of preparation, we encounter also in the training of young basketball players. A number of the requirements of training and some current findings in the literature come to argue the topicality and importance our work.

These arguments are:

- Basketball sport is predominantly the tall people's game. Tall individuals, especially at an early age have serious problems with the overall motor skills; there are tendencies for early specialization in developing general physical training (multilateral).
- Coaches trying to optimize "together" all the motor skills together without taking into account the favorable times for their development
- Neglect the golden period of "motor skills" (10-15 years) considered by most of the specialists as the optimal period for learning and training the motor skills.

1. Methods

The subjects of the research are small junior (10-12 years old girls) in the last pre-pubertal period of growth and physical development.

Thus, in this period in the female body following important phenomena occur:

- cortical training area is approaching maturation;
- great plasticity of the CNS - provides great responsiveness;
- the peripheral kinesthetic analyzer together with the vestibular and the visual analyzers, is improving - the movements become more precise, better coordination, contractions - unnecessary are gradually excluded;
- between 9-11 years old - there is an period of active proliferation of bones, which leads to the emergence of apophyses sesamoid bones and marrow cavities completion;
- in this stage ontogeny starts the process of differentiation between boys and girls. Central phenomenon of sexual maturation of puberty is caused
by the increased flow of sex hormones, which causes secondary sex characteristics along with profound somatic - vegetarian and psychological changes.

A final problem with the particular female body grow at this age, concerns the two trends outlined in the differential treatment of the female body, namely:

- a tendency of exaggerated female body protection
- a tendency of masculinization of the training process.

1.1 Purpose of the paper

This paper aims three fundamental aspects:

- collecting authentic information on the theoretical and methodological development of physical endurance in general and in basketball in particular, referring to the children's teams training
- experimenting of some training methods and means tailored for the biological particularities of juniors (10-12ani) able to lead to the improvement of the forms of expression of their physical endurance.
- identification of available test methods to be applied in the training process able to provide monitoring and evaluation of their physical endurance.

2. The accessibility of physical endurance development at an early stage

Regarding the relation between age and physical endurance development particularities, out of the vast information material available, there are noticed the following aspects:

- In the early years, the children do not show physical endurance ability for cyclical and extended efforts. Children move more, are able to play from morning till night, and their effort is interrupted by large and small breaks that are taken at their own will.
- Children don’t make efforts in an economical manner, this is due to their lack of motor coordination which involves a considerable energy consumption, generating fatigue even in cyclic effort. Between the age of 4-7, the coordination development makes the movements to become more balanced and less tiring, leading to increased effort capacity.
- A systematic training at the age of 3-5 leads to progress which reaches 80% for boys and 50% for girls of the maximum adulthood possibilities. It is obvious that the psychological particularities at this age exclude the physical endurance capacity, but, this increase represent proof in favor of organism’s adaptation capability even at an early age.
- Up to 12 years of age their physical endurance development is carried out parallel about the same values, both boys and girls. Later, after this age, the boys remain at the same level for about 1.5 years, and the girls, after 2 years of stability, enters a pronounced regression that seems connected to
the appearance of secondary sexual characteristics: the menstrual cycle, weight gain, muscle tissue, fat variety ratio etc.

For evaluating the dimension of the physical endurance capabilities or the parameters of the physical and mental demands specific to basketball it would be necessary to start from the structure of the game itself. In the actual stage, the basketball player should be endowed with skills and availability essential for achieving performance. Thus, [he] player needs to easily run on different distances with continuous change of direction and pace, to perform jumps on one leg or both, to maintain the basic position of defense and attack, to be able to perform off-ball moves of arms and legs, to pass or to throw from different distances a game object with the weight between 567-650 grams, to move, to fight, to combat in physical contact conditions on short distances etc. The main characteristic of basketball is that the before mentioned motor structures repeat themselves over 4x10 minutes periods, being interrupted by the game rules only over short breaks.

3. Strategies for educating the physical resilience in basketball
[accessible also for training juniors]

To educate the general physical endurance specific to the basketball game T. Predescu (2006) recommends:

- The method of continuous effort to increase the aerobic capabilities with a duration of 10-15 minutes (for beginners)
- The method of variable effort: they have a duration of 20-50 minutes and on a pattern that the demands should alternate between 140-150 beats/minute and 170-180 beats/minute. The accelerations should be performed on short distances: 80-150 m
- The method of intervals training: in the options recommended by D. Harre (1973) with breaks of 30-90 seconds between executions, with short series (2-3) and small number of repetitions (3-4). The same author recommends the following programs for the development of the forms of expression of the physical endurance specific to the basketball game:

- For general physical endurance:
  - Running on distances of 800, 1500, 3000 m.
  - Running on moderate pace: 20-30 min.
  - Cycling: 5-10Km.
  - Light running 2/4: 10 min.
  - Running on sustained pace 2/4: 5 min.
  - Sprints (50m.): 5 min.
  - Sprints (100m.): 5 min.
  - Light running: 20 min.
  - Repeated running at moderate speed:
- 3 x 800m, 3 min. breaks
- 5 x 400m, 3 min. breaks

○ Training on intervals:
  - 10-15m – running at maximum speed – 30 sec. break
  - 5 x 150m – sprint – 30 sec. break
  - 4 x 200m – sprint – 30-40 sec. break
  - 6 x 25m – running slope – 60 sec. break
  - 6 x 25 jumping slope – 60 sec. break

○ Off ball arms and legs moving in basic position:
  - I – 2 x 20sec. – 60 sec. break
  - II – 6 x 20sec. – 60 sec. break
  - III – 4 x 20sec. – 40 sec. break
  - IV – 3 x 40sec. – 40 sec. break

○ Volleyball repetitions:
  - I – 4 x 20 repetitions – 60 sec. break
  - II – 6 x 20 repetitions – 60 sec. break
  - III – 4 x 20 repetitions – 40 sec. break
  - IV – 6 x 20 repetitions – 40 sec. break
  - V – 4 x 25 repetitions – 40 sec. break

○ Other means:
  - Running on thick snow, running on sand
  - Complementary sports: football, tennis, swimming, cycling.

Examples of training programs for developing the specific physical endurance:
  - Sprints finalized with shots 20-30 repetitions
  - Ball passing between 2-3 players changing positions and finalizing with shot – 20 repetitions
  - Games 1x1, 2x2, 3x3 on all the field in periods of 1 minute and breaks of one minute
  - Moving in basic position for periods of 1 minute with counter attack sprints and fall back in defense: 6-10 repetitions x 1 minute with breaks of 1 minute.

According to the Romanian Basketball Federation, C. Darjan & Chiraleu (1989), the physical endurance of the basketball players is educated through the following categories of exercises:
  - Running on slope, mud or sand
  ○ Execution time: 1,30+2,00+2,30+3,00+4,00min.
On the breaks the pulse should come back to 120-130 beats /min.
Number of repetitions: 1-2x13min.

- Running slope up and down
  - Execution time: 4+3+2,30+2+1,30 min.
  - On the breaks the pulse should return to 120-130 beats /min.
  - Number of repetitions: 1-2x13min.

- Running on sand and through water
  - Running distance: 50m. on sand + 50m. through water
  - Execution time:
    - 1,3+2,0+2,3+3+4min.
    - 4,0+3,0+2,3+2+1,3min.

- Running with lateral movement
  - On flat ground, up and down the slope, on sand, through water
  - Execution time:
    - 0,30+1,30+1,00+2,0min.
    - 2,0+1,0+1,30+3,0min.
  - On the breaks the pulse should be 120-130 beats /min.
  - Number of repetitions: 2-5 times.
  - Execution time: 15 min.

- Exercises structures with continuous action (attack and defense)
  - Execution time: 5-10 min.
  - Pulse: 140-160 beats/min.
  - Optimum number of repetitions: 25-50 times.

In basketball, physical endurance has the following ways of expression:
- General physical endurance
- Physical endurance while speeding
- Physical endurance while jumping
- Physical endurance while off-ball moving of arms and legs
- Physical endurance to play more than 40 minutes (1-5 extensions)

4. Conclusions and proposals

Educating the ways of expression of the physical endurance at early ages must be realized without overloading and in the mean while without overprotecting the subjects in the training process. Also, at the age of 10-12, girls are in the biological pre-pubertal maturation phase, period characterized by stormy manifestation of processes accompanied by significant glandular morpho-functional modifications.

- Out of all known forms of physical endurance manifestation, the training methodology recommends to start the training with the general physical
endurance, based on which can further be developed and educated in parallel all the other forms of physical endurance and even motor skills.

- Aerobic – anaerobic threshold is very important to be known in order to be applied with optimum intensity for educating physical endurance.
- The training of children and 3rd degree juniors are currently being held too much alike with the model used for seniors.
- The physical endurance capacity can be calculated and controlled using the cardiac function (Rufier test, Harvard, Karvonen, etc.) or established mathematically. The latter method was used, leading to well established programs in terms of duration and intensity of the effort. In conclusion we consider it to be a very efficient instrument and a necessary one for setting the right objectives in the training process.

REFERENCES

5. Teodorescu S., 2006, Teoria antrenamentului și competiției, București, Editura ANEFS.