

DIDACTIC PRINCIPLES IN SPORTS TRAINING APPLIED IN SPORTS GAMES

Duško Bjelica ¹ and Žarko Bilić ²

¹ Faculty of Sport and Physical Education, Podgorica, Montenegro

² Faculty of Sciences, Mostar, Bosnia & Herzegovina

Professional paper

Abstract

The didactic principles stem from the validity of the training processes as general reflection of centuries of school practice and proven specific peculiarities of training for the purpose of developing the sports practice, therefore they are formulated on a relatively high level of generalization. That prevents the general application to all the concrete problems in training. The principles cannot substitute the creative work and fulfill the role of a trainer. The number of possible concrete situation is so vast and so diverse that we cannot expect the didactic principle to answer all of them.

Key words: didactics, training, principles

Introduction

General didactic principles have a wide use in everyday life and tend to point out to the easiest ways of learning the elements of general education. The same principles have a very efficient use in sports training, but in a more complex form. The applied didactic principles found their place in sports training because sports insist on the maximum speed of movement, maximum muscle strain and maximum stamina. According to the difficulty of most of the sports disciplines, the following didactic principles can be highlighted:

1. From lesser to higher strain
2. From slower to faster movement
3. From lesser to higher stamina
4. From straightline to zigzag movement
5. From ergostatic to intermittent movement
6. To higher number of movem. per series
7. To higher number of series per training
8. From longer to shorter resting intervals

Principles

1. From lesser to higher strain

When the muscle strain manner is determined, which depends on the discipline, the beginner undergoes a process of musculature strengthening of the muscles used in that discipline the most. Every muscle strain can be dosed, so in this case every next strain can be determined according to the previous condition. Every exercise that cannot be repeated five to seven times, triggers the appearance of super-compensation in the organism, after which the exercise can be

repeated more than seven times. Then the next step is enforced, the strain is heightened to the level when the same exercise but with a higher strain cannot be repeated more than six times. After the super-compensation, this exercise too can be repeated for more than seven times, and we move on to the next level, heightening the strain until the muscle force reaches its ultimate level.

2. From slower to faster movement

Almost every sport insists on the speed of movement of some body parts, or the entire body. It is not recommended to move with the highest speeds at the beginning of the course, or even at the beginning of the training. The organism 'demands' gradual build-up, because if the body moves with the highest speed immediately, lighter or heavier injuries are inevitable, and that excludes the individual from the further training process. If the injuries do not occur, it is still not recommended, because motor learning would be slower.

Our mind learns easier if the complex movements are executed in a slower manner, because between the two connected movements must pass some time, so the previous movement is memorised, and our mind is ready for the learning of the next movement (refraction). Only when a whole series of movements are combined into one move, and 'lodged' into our memory, can we move to a faster execution of that movement.

3. *From lesser to higher stamina*

The musculature is only a part of the machinery which is responsible for motor movement. Each motor skill relies on the energy of movement. In the case of sports training, the biggest part of energy is transferred to muscles via blood. The stamina will be higher if the number of mitochondrion is elevated in the muscle fiber, if the blood vessels are stretched with the improvement of their elasticity, if the lung capacity is improved, if the heart muscle is strengthened, if the number of red blood cells count is heightened, if the appropriate food is consumed (proteins, vitamins, minerals) for the synthesis of the energy sources needed for a muscle contraction, with the synchronization of the endocrine glands. The improvement of stamina has its natural progression, where we begin with a lesser strain, with fewer tries, shorter distances and longer resting intervals, and end with gradual strain heightening, more tries, longer distances and shorter resting intervals. As with any dosed strain, this one too is followed with a super-compensation, which manifests itself in the improvement of stamina.

4. *From straightline movement to zigzag movement*

There are significant technique differences between the straightline and the zigzag movement. While running on the curved line the movement stereotype is changed, the muscles work asymmetrically and there are central forces involved. When the shift of direction occurs, we feel the centrifugal force, which is an inertial force with the tendency of stopping the shift of direction. In order to shift the direction of movement, there appears the tilting of the body towards the center of spinning, which helps us to neutralize the centrifugal force to some extent. Because human body is not a homogenous system, the centrifugal force affects the individual parts of the body, too. To retain the optimal body position, it is necessary to use some additional muscle groups. In order for centrifugal force not to move our head to the outer side of the curve, the rotating muscles set in the neck and in the head are involved. In order for this force not to move the outer hand to the outer side, shoulder-joint muscles are used. In order not to move the inner arm to the outer side of the curve, which would cause the contact between that arm and the chest cavity

shoulder-joint muscles from the inner hand are used. In order for the centrifugal force not to move the outer leg, when it is in a phase of swinging, the hip muscles of the outer leg are used. In order for centrifugal force not to move the inner leg, when it is in a phase of swinging, to the outer side of the curve, which would lead to the contact with the outer leg, the hip muscles of the inner leg are used. It is sufficient to mention only these basic differences in dynamic stereotype, in order to understand that zigzag running is a special movement, technically a lot different from the straight-line running. Same goes for the other types of movement on a curved line, such as skating, skiing, roller-skating, cycling, etc... If in a training program the change of movement direction is a significant part of the dynamic stereotype, then the change of movement direction is meticulously trained. First we start with the change of direction while moving slowly and in a big arch, and we finish with a change of direction while moving fast and in smaller arches.

5. *From ergostatic to intermitent movement regime*

Sports games have a significant place in the family of sports. Running has the most prominent role in the content of the sports games. Since the sports games are very dynamic, change of places on the court must be executed in shortest period possible, basically it must happen before the opponent gets there. The result of the sports game largely depends on the speed of movement on the court.

Each sports game lasts too long and human organism is not capable of running at full speed the entire time. For that reason, each game has an intermitent regime. Intermitent regime is changing of the speed of movement from fastest to slowest, depending on the conditions on the court and the current role of the player in question. Intermitent regime of movement is highly demanding and requires a high oxygen consumption, so this regime has its procedure on the path towards the improvement of the players abilities insports. Basic principle of training is to start with the ergostatic movement with long-distance runs and with a lesser number of slow running long-distance runs. In the next sequence of training the speed of movement is gradually increased, slow long-distance runs are shortened, and their number is increased.

6. *From lower to higher number of movements per series*

Anaerobic capacities in sports games are increased if the training is executed in parts which are organized in series. It is already mentioned, the result of the game largely depends on the speed of the movement. In most of the sports games, depending on the size of the playing ground, the average length of one sprint is 15 meters. In the initial phase of the preparations the length of the run is twice the size of the average length, and the speed of movement is twice as slower.

As the training progresses the length of the run is shortened, as well as the number of runs, but the speed is gradually increased until the maximum speed is reached.

7. *From lesser to higher number of series per training*

This training principle is directly connected to the previous. In the previous method we pointed out that the lengths of the runs are shortened as well as their number, and accordingly, the consumption of the oxygen is less in the latter stages.

Since in the training process progressive strain is insisted on, in the course of preparation for the competitive season, the number of series is gradually increased, so the maximum consumption of oxygen increases as the preparations are developing.

The choice of exercises and the programming of the strain should be in accordance to the results of testing, so at the end of the preparations each individual reaches its maximum anaerobic-lactate and anaerobic-alactate capacity.

8. *From longer to shorter resting intervals*

It is in human nature to adjust to the different regimes of life. Seen that in sports games the regime is highly demanding, it has to be prepared accordingly. One of the significant factors is recovery speed. In one game, one player covers long distances running in full speed, and the result is decreasing of his anaerobic capacities, and accordingly a longer recovery time is needed in order to be capable of new sprints. The result of the game basically depends on the speed of recovery. If the speed of recovery is prolonged, better trained opponent will get to the ball sooner, and that has a negative effect on the final score. The speed of recovery between the series is improved, if in the period of preparations, in the course of the entire medium cycle, in the intermittent regime resting periods are shortened gradually.

Conclusion

The principles of training as a system are not yet definitely affirmed. The individual principles reflect only the important conditions regarding the efficiency of the training regime, while the system of didactic principles ought to cover basic testimonies in training conduction which are necessary for its success. It is clear that the set of didactic principles cannot cover the entire theory of training, its typical characteristics, the trainer-player relations, as well as the each individual training procedure, with a large number of the unexpected situations, both objective and subjective in nature. The principles have a significant level of generalization and in that way they express the basic relations more thoroughly, so their correct use in training require a certain aptitude on the part of the trainer.

References

- Bakovljević, M. (1984). *Didaktika*. Beograd: Naučna knjiga.
- Bakovljević, M. (1989). *Osnovi pedagogije*. Beograd: Naučna knjiga.
- Bjelica, D. (2006). *Sportski trening*. Podgorica: CSA.
- Bjelica, D. (2005). Metodologija i tehnologija rada u sportu i društveno-ekonomski odnosi u sportu u XXI vijeku, "Sport Mont", Podgorica, 2005/6-7. (Uvodni referat na Prvom međunarodnom kongresu CSA, Kotor 2005.).
- Bjelica, D. (2005). Pedagoški postulati u procesu sportskog treninga. *Vaspitanje i obrazovanje - časopis za pedagošku praksu i teoriju*, 4: 23-30.
- Danilov-Josipov, A. (1961). *Didaktika*. Sarajevo: Veselin Masleša.
- Đorđević, J. (1982). *Pedagogija*. Beograd: Naučna knjiga.
- Đorđević, J. (1992). *Pedagogija*. Beograd: Naučna knjiga.

DIDAKTIČKI PRINCIPI U SPORTSKOM TRENINGU PRIMIJENJENI U SPORTSKIM IGRAMA

Sažetak

Didaktički principi proizlaze iz zakonitosti procesa treninga kao uopćeni odrazi višestoljetne školske prakse i provjerenih specifičnih sredstava treninga u uslovima razvoja sportske prakse, pa su formulisani na relativno visokom nivou poopćavanja. Zbog toga se oni ne mogu uvijek odnositi na sve konkretne probleme treninga niti ih mogu sve obuhvatiti. Principi ne mogu zamijeniti stvaralački rad i aktivnost trenera. Broj mogućih konkretnih situacija je toliko veliki i tako raznovrstan da od didaktičke teorije i njenih principa nije moguće tražiti i očekivati odgovore za svaki pojedinačni slučaj.

Ključne riječi: *didaktika, trening, principi*

Received: September, 22. 2008.

Accepted: December, 10. 2008.

Correspondence to:

Assist.Prof. Duško Bjelica, PhD.

University of Montenegro

Faculty of Sport and Physical Education

81000 Podgorica, Montenegro

Phone: +382(0)20 235 256

E-mail: sportmont@cg.yu