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Original article

INDICATIVE MODEL OF SYSTEM IMPLEMENTATION IN TECHNICAL PROCEDURES OF THE MAIN ALGORITHM IN SWIMMING 50M OBSTACLES IN CONSONANCE WITH THE THEME SYLLABUS - NATO

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Abstract*

Aim. The aim of this study was to examine technical and methodological issues in the 50m hurdles sample of military pentathlon.

Content. This paper contain a technical mechanism in phases start for the 50m hurdles sample of military pentathlon: a) Position block start; b) Approaches; c) Pushing; d) Air path; e) Entry into water; f) Work under water and out to the surface. After that, we present the mechanism technical / biomechanical issues, common mistakes and methodic indications for 5th moment of course: a. The obstacle I – Gate; b. The obstacle II – Cork; c. The obstacle III – Table; d. The obstacle IV - cross balance; e. Finish.

Conclusion. Develop the structure and content of the syllabus specific military institutions in accordance with NATO requirements, applied in our system of military education highlights the possibility of implementing the content of the educational process specific physical education and sport, track methodical learning - consolidation - perfecting skills driving sample specific swimming 50m hurdles.

Effectiveness approach in the syllabus themes lesson in swimming 50m hurdles sample makes it possible to reconsider the system of military physical education university. In this regard we propose to military higher education institutions planning a reorganization, reorientation default syllabuses discipline physical education and sport. In these circumstances the military physical education and sports will promote a new approach to teaching methodology applied in sporting military.

Key Words: hurdles, military pentathlon, gate, cork

Intoduction

Selection is seen as a continuous process that has encompassed all major training periods over several years. psychomotor parameters are metioned by speciliat literature however, the method and its usage in the selection are not specified (Ene-Voiculescu et al., 2012). Moreover, the influence of psychological preparation technology application in sports selection is treated as a whole, and not specifying concrete psychological methods and means for each age group, industry and sporting events (Orlick, 1986). It is necessary to develop a psychomotor testing and methodology for students psychological preparation technology within the selection process of

swimmers in 50 m obstacles race (Klissouras, 1983).

Technical and methodological issues in the 50m hurdles sample of military pentathlon

The swimming 50m hurdles, pentathlon military component is statistically performantial highest ranked, international equivalents scoring the tables are: 1second = 24 points (Appendix Military Pentathlon, 1985).

As can be seen in Figure 1 four obstacles: gate, cork, mass and length of the beam are arranged at equal distances around the pool, swimming technique between barriers, especially technical approach to the obstacle processes determinative in ergonomics final (Appendix Military Pentathlon, 1990).

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Figure 1. Presentation of the swimming 50m obstacles

The start of the samples shown in figure 2 is similar start crawl process.

Technical mechanism in phases start

- Position block start
- Approaches
- Pushing
- Air path
- Entry into water
- Work under water and out to the surface

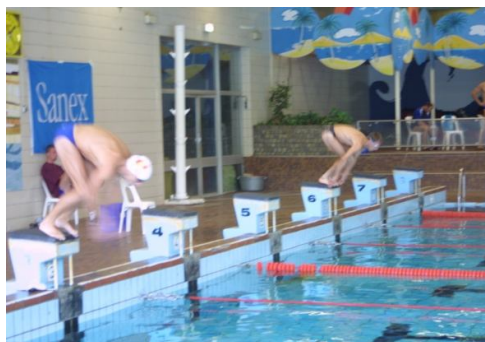


Figure2. Start in the swimming 50m hurdles

a) Position blockstart

This is a preparatory block start position so that the effort is minimal; Segment position to allow a mouse head in a short time and print trajectories optimal center of gravity. The main condition is that the flight through the air to be as long due to environmental considerations with low density and minimal braking. Entry will be made in water loss, minimum speed at a specific depth for each process separately. Working underwater requires an increase in the initial velocity input and motor output surface action when optimal swimming speed for continued growth.

The first signal of the referee starter - a long whistle or two to three flashes followed by a long signal. Swimmer climbed up the stern blockstartului (position is his choice, sitting or leaning); the second signal: the command "Take your seats," the swimmer take the starting position at the edge of the water from such blockstartului: leaning forward with feet shoulder width wide; heels outward facing to catch all the toes

blockstartului edge. The legs are slightly bent to form the biomechanically angles between segments involved in achieving an effective impetus. Hands grabbed the edge blockstartului, muscle is relaxed head (chin to chest). Before starting signal weight easily pass posterior plan (heels). The position is achieved by passing hands blockstartului edge. The third is the starting signal, a short signal, the sound signal (given whistle, siren or gun), while the swimmers sit motionless on blockstart.

b) Approaches

After the starting signal, via a short drive of flexion - extension carried arms, they rushes forward and overhead. The legs are flexed bicep curls triple. The trunk before plunging through a rolling motion of the plant foot, until it reaches a slanting position to blockstart.

c) Pushing

Approaches ends with a pushing motion in support blockstart's edge.

d) Skyway

When detaching the blockstart can not make changes to the trajectory of the center of gravity, but only of body segments in relation to it, that can influence negatively or positively, length and only start entering the water body. Air postures road is stretched, chin chest (they look tiptoes), arms above his head, shoulders, back and abs contracted.

e) Entry into water

Body stretched out into the water at an angle as acute (less than 45°) to horizontal water.

f) Working under water and out to the surface

To crawl process, working underwater is to begin immediately after complete immersion, beatings feet, lifting his head, thrust one arm to return to the surface. How to get back to the surface determines the training phase the attack phase of the first hurdle.

Common mistakes

1. The position blockstart

❖ Waiting rigid position - effect: speed at the starting signal low; start low efficiency; energetic effort useless.

❖ Not catch the edge of the pool with your toes - effect: after the start and disrupting forwards; pushing unable feet (start becomes a mere drop in water).

2. To approaches

❖ backward swing or rotate their arms. While not necessarily mistakes, these movements have the effect of delayed detachment from blockstart with negative consequences primarily in short samples of speed.

3. On the way into the water and air

❖ body positions in the square, with legs bent with bending movements - stretching legs - effect: these positions may adversely affect the initial speed because of large braking

❖ jump feet first jump motivated by fear - effect: long jump small, sharp dive, zero initial speed

❖ hoop head back - effect: changing head position, into the water on its belly

4. Work under water and out to the surface

❖ movements standing start late or not made until the exit to the surface - effect: loss of initial speed.

The obstacle ways to sample 50m

a. The obstacle I - Gate

Mechanism technical / biomechanical issues

The first hurdle in the swimming 50m hurdles military pentathlon consists of a gate length of 3m made of two planks transversely in the forward direction. The first is fixed and the second mobile. Gate shown in Figure 4 is disposed at a distance of 9m home.



Figure 3. Obstacle 1 - Gate

After a plunge in home runs athlete an average depth 0.80m - 1.20m, so out of the water to run around the first beams (Figure 4).



Figure 4. Exiting the water first one obstacle Barna

On leaving the water Male 1 student must attack the obstacle by preferential laterality (fig. 5). Executing traction by laterality . The movement is completed to obtain a cycle other arm . A circular movement feet treading water .

Simultaneously with the movement of arms and legs, the student will use the force of



inertia due Pulse concave after jumping from blackstart , so they can perform a squat support lifting the first hurdle . Continue to raise the trunk and jump execution under the second barrier with a small plunge ball as close to the second beam at a distance of 0.40 - 0.50m . In this way the water will be carried out at a distance of 2.80 - 3.20m .



Figure 5. Out in support of the cross- beam 1 (left); Flight and plunge beneath the beam transves 2 (right)

Common mistakes

- ❑ avoid the obstacle or slip on a fixed beam ;
- ❑ out of the water after obstacle ;
- ❑ failure passing under the second beam ;
- ❑ discordance arms to attack first beam ;
- ❑ attack delayed the fixed obstacle ;

- ❑ jump ball after the first hurdle ;
- ❑ the absence of optimal impulse force after the second beam ;
- ❑ frequency of sync arms and legs to attack fixed beam ;
- ❑ short jump after the first hurdle .

ergonomics involves penalizing the total time 1.8 – 2.5sec.

b. The obstacle II - Cork

Mechanism technical / biomechanical issues

The second obstacle is placed at a distance of 8m first hurdle and is represented by a mobile cork with a length of 3m (fig . 6). Cork Furniture presents the entry and exit a metal edge with a width of 10cm required for entry and exit barrier . When running a student attack Rotate around center median so dexterous arm (force) is on top . At the entrance under cork arm adroitly running a traction edge of cork .

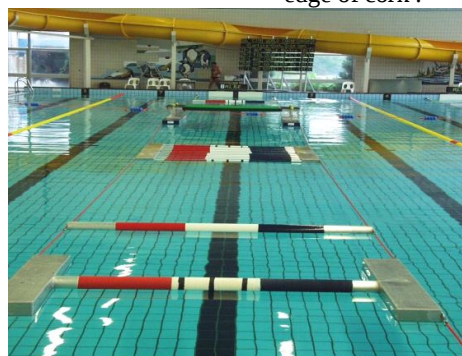


Figure 6. Cork movable barriers settlement system

Arms running under cork movement characteristic style bras , then adroitly executed arm

movement abduction and pipel the upper edge of the cork (Fig . 7).



Figure 7. The attack obstacle II

Feet movement characteristic style running attack to crawl before obstacle. When detachment of the lower arm adroitly cork leg flexion movement opposed running and secure on the raft in assistance for the second impulses. The same algorithm in this sequence is done and out from under the raft so that the student will perform at the third obstacle swimming at an initial rate $V_0 > 0$.

- specific psychological preparation will be mainly focused on mental training to eliminate the anxiety of the moment of passing beneath cork;
- learning the technique of crossing obstacle will be made after the student was able to coordinate movements of arms between the obstacle I and II, so the attack obstacle II always be performed with dexterous arm.

Common mistakes

- ❑ avoid the obstacle or failure to maintain apnea capacity under cork and out of the aisle;
- ❑ discordance upon entry under cork movements;
- ❑ lack arms and legs work under cork;
- ❑ failure to input and output edges of barrier arms;
- ❑ failure to input and output edges of the obstacle feet;
- ❑ out with the wrong arm of the obstacle;
- ❑ uncoordinated work under cork arms and legs;
- ❑ pulse time slipping out of the trap;
- ❑ failure to cut the cork out of the obstacle.

Methodic indications

- during learning will focus on the prolonged apnea;

c . The obstacle III - Table

Mechanism technical / biomechanical issues

The third obstacle is the mass of a fixed platform located at a height of 0,50m above the water with a width of 1.20 m. It is located at a distance of 8m obstacle II. At the time of the attack the student must consider the optimal use of arm adroitly that will execute a movement traction on the table. Based on longitudinal components of acceleration force and inertia force when traction on the table and force perpendicular to the axis Ox graphical representation resulting from the water with feet transgression occurs attack obstacle. The resultant force of the parallelogram of forces offers the student the possibility of lifting the torso on the table that can be executed depending on its morpho sportsman in two ways :

- Lifting force in support arms curled up on the table (fig. 8)



Figure 8. Lifting the support table

- Lifting the opposite knee arm skillful attack on mass application escalation method applied (Fig . 9) .



Figure 9. Escalation obstacle III

After climbing the table jump training runs on the top of it in two ways:

- By jumping " frog " on the lower edge on the top , followed by detachment, figure 10 (impulse on both legs) .



Figure 10. Jump " frog " on the lower edge on the top of the obstacle III

- In terms of non -specific strength in lifting arms on the table can be realized : the support hands, lifting the knee at the bottom edge of the table ; hooking it with a new foothold according to the preference podală ; pushing and lifting his arms on

the table. Movement is completed by a step forward towards the table aisle and followed by a detachment . Impulse in the moment of separation is accomplished by laterality podală (fig . 11) .



Figure 11. Phase impulse and preparation phase of entry into the water - obstacle III

Common mistakes

- ❑ avoid the obstacle or hurdle unable to attack ;
- ❑ stationary long the obstacle ;
- ❑ unbalanced jump on the table ;
- ❑ movement of sync with the obstacle arm attack;
- ❑ jump ball after a meal ;
- ❑ lack of coordination preparatory step for the jump ;

- ❑ slipping on the table when jumping ;
- ❑ insufficient momentum when stepping on the table ;
- ❑ failure to arms when the attack obstacle.

Methodic indications

- before switching to teaching methods to address this obstacle student will himself coordination of movements of arms between the

obstacle II and III , so as to carry out the attack preferențială always laterality ;

- learning process will be done gradually from 0.20 5cm increments of 5 in height to the water table .
- in the moment of separation will achieve a foothold on the table , which is considered to be the second blockstart .

d. The obstacle IV - cross balance

The fourth obstacle simple and difficult at the same time in ergonomics made time for this test consists of a mobile cross beam at a distance of 11.80m obstacle the third and 6m finish.

Switching is performed similar obstacle as the second obstacle - cork - from below (Figure 12).

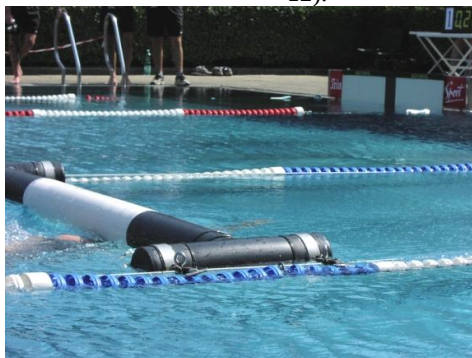


Figure 12. The attack obstacle IV - transverse beam (mobile)

Adroitly catching arm running underneath the beam , followed by a longitudinal traction . Opposite leg flexion and running an attack is out of place replacing obstacle dexterous arm . The final impulse is achieved with the middle part of the plant foot , the student movement continues with a force of acceleration to achieve high the achievement 's finish .

Common mistakes (Appendix Military Pentathlon, 1995)

- ☐ obstacle stopping or avoiding it;
- ☐ absence initial phase ;
- ☐ non-use of force impulse out of the trap;
- ☐ lack of coordination in the arms legs obstacle to entry ;
- ☐ failure to obstacle ;
- ☐ lack of coordination of breath with movement of arms ;
- ☐ lack of coordination of breath with movement of the feet ;
- ☐ inefficient movement of the body out of the trap;
- ☐ when Pulse foot sliding out of the trap;

Methodic indications

- learning process crossing the obstacle to be accomplished before the passage learning obstacle II - cork - because cross beam diameter is 20cm obstacle IV ;
- final push to achieve the middle part of the plant leg attack;

e. Finish

Mechanism technical / biomechanical issues

Arrival (finish) is carried on from 6m at the last hurdle - beam transverse web at the edge of the basin.

After the impulse moment in the beam transverse web , by bowing and flexing the foot with the middle part of the plant, there is a backspin than entering the last obstacle to the median axis of the trunk.

For speeding on the distance of the sample finish , very energetic impulse is achieved . 20cm diameter of the obstacle favors a large contact area between the barrier and attack the plant leg (Figure 13).



Figure 13. Exiting the fourth hurdle and achieving 's finish

Common mistakes (Appendix Military Pentathlon, 2001)

- ❑ stop the attack phase movements of arms ;
- ❑ stop the attack phase leg movements ;
- ❑ attack with the elbow flexed wall ;
- ❑ not keep slipping before the finish straight;
- ❑ not synchrony arm movements ,
- ❑ of sync leg movements ;
- ❑ head elevation before reaching the wall arm ;
- ❑ extension for completion of phase slip , touching the wall ;

Methodic indications

- in learning exercises will focus on specific attack on the pool wall foot in flexion to achieve a vigorous impulses ;
- in the consolidation and improvement will aim at removing breath sample finish the distance until reaching the edge of the pool , decreasing the time for this distance ;

Conclusions

Develop the structure and content of the syllabus specific military institutions in accordance with NATO requirements , applied in our system of military education highlights the possibility of implementing the content of the educational process specific physical education and sport, track methodical learning - consolidation - perfecting skills driving sample specific swimming 50m hurdles .

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