

DIAGNOSTIC PROCEDURES IN ROWING

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INTRODUCTION: Present-day sport at the high performance level and especially for the professional athlete, involves the expertise of many different kind people. Participation involves huge amount of money, and is time consuming. In order to select proper candidates as athletes, to carry out proper training procedures, or to select suitable competitors to take part in competition, the coach and his co-workers need to apply several diagnostic tools (Erdmann 1997). Selection of suitable competitors in rowing takes into account different approaches. These are as follows: morphological, physiological, biomechanical, psychological, mental, health, and others.

PRIMARY SELECTION: During the primary selection, using the biomechanical approach, the first assessment relates to the geometry of a sport candidate's body. The next test takes into account general muscle strength. This can be done for three specific muscle groups: for elbow flexion (representing the upper extremities), for knee extension (representing the lower extremities), and for back extension (representing the trunk). The next step consists of measuring the velocity of movement of upper and lower extremities within the isokinetic movement, for example by using a Cybex stand. The resistance should be adjusted to resemble that of an oar passing through the water.

DIAGNOSIS OF TRAINING RESULTS: The biomechanical diagnosis of training results consists of investigation of the muscular strength preparation and of the technique of rowing. The last approach could be done both indoors and on water.

Diagnosis of muscular strength preparation includes basic investigations of all those muscle groups, which are involved in rowing activity. The data obtained should be evaluated both in absolute and in relative (in %) values. The next step is the assessment of three of the most important muscle groups (elbow flexors, knee extensors, back extensors) in the function of time-explosive strength and endurance capabilities. Explosive strength test requires obtaining maximal strength value in the shortest possible time and maintaining it for about half of a second, while the endurance test requires activation of muscle groups with intervals, i.e., 0.5 s of acting and 1.0 s of interval through from 6 to 8 min.

Diagnosis of technique of rowing includes (Kabsch 1975, Komor and Leonardi 1985): strain gauge measurements of force at the oarlocks, on the track shoes, and of the whole stationary boat system. This includes angular displacement, velocity, and acceleration of the oar; linear displacement, velocity, and acceleration of the moving seat. In addition, the performance of the rowers will be recorded with a video camera.

CONCLUSION: The above described model of diagnostic procedures in rowing will be utilized for long-term project of assessment of Polish rowers during their preparations for the Olympic Games in 'Athens 2004'.

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