

INVESTIGATIONS ON TECHNIQUE AND TACTICS OF RACE WALKING DURING OLYMPIC GAMES ATHENS 2004 – FIRST ANNOUNCEMENT

Piotr Aschenbrenner, Włodzimierz S. Erdmann, Vasilios Giovanis^{*} and Patrycja Lipińska

Sniadecki University of Physical Education and Sport, Gdańsk, Poland

* University of Athens, Athens, Greece

The paper presents preliminary information devoted to the investigations on technique and tactics of race walkers participating at distances of 20 (males and females) and 50 (males) km during Olympic Games 'Athens 2004'.

KEY WORDS: race walking, males, females, Olympic Games, Athens 2004

INTRODUCTION: Bipedal walking, the common motor behavior of humans, is complicated in technique. Even more complicated is race walking. In order not to have any flying sequence of a gait cycle walkers use specific technique. Increasing velocity up to a certain level can be done by lengthening of stride, then increasing movement frequency is needed. The latter is difficult if a walker has big moment of inertia of his or her lower extremities. Greater moment of inertia decreases angular velocity. So there should be some compromise between length of lower extremities and their moment of inertia. Cracow researchers gave data on race walking technique based on investigations done on treadmill (Ruchlewicz et al. 2003). It is interesting what the technique looks like during the real competition.

Tactics of walking or running and also of any other type of long distance movement should take into account specific distribution of velocity. It is well known the first kilometers shouldn't be run or walked with high velocity. Often the best competitors run a second part of a distance faster than the first one (Gabrys and Celeban 1996, Aschenbrenner 2002, Erdmann 2005, Lipinska 2005).

The aim of the research work was to investigate specific technique of walkers and their tactics based on velocity distribution along the course during Olympic Games Athens 2004 competitions.

MATERIAL AND METHOD: There were 57 women and 47 men participating in 20 km race and 54 men participating in 50 km race.

Race walkers were recorded while they walked on 2 km loop outside the stadium. Two video cameras set perpendicular to each other were used for recording with frequency of 50 Hz.

REFERENCES:

- Aschenbrenner P. (2002) Kinematics of alpine skiing giant slalom running and its geometric parameters. *Doctoral dissertation, Sniadecki University of Physical Education and Sport, Gdańsk.*
- Erdmann W. S. (in press) Problems of biomechanics of sport tactics. (In Polish). *Symposium on Sport Biomechanics*. 2 December 2005, Pilsudski University of Physical Education, Warsaw.
- Erdmann W. S. (2005) Kinematic quantities and geometry of the course and tactics of marathon running. Doctoral dissertation under process of reviewing, Sniadecki University of Physical Education and Sport, Gdańsk.
- Gabrys T., Celeban A. (1996) Velocity and tactical solutions in long distance running of 5000 and 10000 m. (In Polish) *Athlete*, 7/8: 49-52.
- Ruchlewicz T., Staszkiewicz R., Chwala W., Laska J. (2003) Biomechanical quantities of race walking on an example of competitor of the international master class. (In Polish) [In:] Urbanik Cz. – ed. Problems of sport biomechanics – technique of movement. *Proceedings of the All-Polish Symposium*, 5 December 2003, Pilsudski University of Physical Education, Warsaw, 46-57.