PHYSIOLOGICAL RESPONSES OF ICE HOCKEY PLAYERS TO INCREMENTAL CYCLE ERGOMETER TESTS
Gabrys Tomas¹, Szmatlan-Gabrys Urszula¹, Fiolkowski Paul², Hodges Lynette²
(Academy of Physical Education, Warsaw¹, Poland, University of Bedfordshire², United Kingdom)

INTRODUCTION
To date there are a considerable amount of diagnostic tests that attempt to quantify the fitness levels of athletes. One of the most common tests is a graded cycle ergometer test. This test, however, is not sport specific. The purpose of this research is to identify the physiological responses of ice hockey players to an incremental cycle ergometer test at various time periods.

METHODS
Ten members of the Polish National Ice Hockey first team performed a progressive test using a Monark 824-E cycle ergometer. The test started with a weight of 1W/kg of body mass. The load was increased 0.5W/kg every 3 minutes while cadence was maintained at 60 rpm. V02 and Heart rate (HR) were measured during this incremental workload. Zones of intensity were set relative to VO2max: very high intensity (VHI = 86-100% VO2max); high intensity (HI = 76-85% VO2max); medium intensity (MI = 51-75% VO2max); low intensity (LI = 31-50% VO2max); active regeneration (AR = 15-30% VO2max); and rest zone (SR = d14 VO2max).

RESULTS
The analysis of the coefficients of correlation demonstrated a significant negative relationship between the intensity and the period of the testing (p < 0.05, r = 0.659), with the intensity being highest in the first period. There were no other statistically significant relationships noted.

CONCLUSION
The analyzed group of ice-hockey players, who represented very high levels of ice-hockey players in Poland, was characterized by low levels of oxygen efficiency. The measured values for V02max were in the range of 48-56 ml/kg/min, which are considerably different from reference values for high-level competitors in ice hockey. Because the testing method quantifies the VO2 max relative to the increasing bicycle ergometer resistance, it is likely that there is a greater divergence from true values due to the testing method. This is also probable with the HR, especially in the higher intensity zones. Further analysis should concentrate on the measurement techniques, as well as comparable groups of competitors varying levels of physiological efficiency. Further research is needed to quantify the oxygen uptake parameters of ice hockey players of varying levels of competition, as well as to develop a realistic lab based method of measuring the level of intensity of the exercise.

Keywords: Anaerobic Threshold, Hockey, Training

12th Annual Congress of the ECSS, 11–14 July 2007, Jyväskylä, Finland