VALIDITY OF 3 ICE SKATING AEROBIC FIELD TESTS FOR HOCKEY PLAYERS.

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INTRODUCTION. Three multistage aerobic ice skating field tests have recently been introduced: 1) maximal continuous multistage stop and go 20-m shuttle skating test (Modified Skating 20 MST, MS20MST, Kuisis 2003), 2) maximal intermittent multistage 45-m ice skating shuttle test with stop and go (SMAT, Leone 2006), both using full ice hockey equipment; and 3) maximal continuous multistage 160ft (48.8m) ice skating shuttle test with wide turns wearing only gloves, hockey stick and helmet (FAST, Petrella 2006).

OBJECTIVES and METHODS. The relative validity of these 3 tests was assessed comparing maximal speed of these tests to VO2max (Moxus) and maximal speed of a multistage treadmill test and the gym 20-m shuttle run test (Leger 1988) in 25 adult ice hockey players of various fitness levels but with good skating skills.

RESULTS. Expectedly, maximal speed increased from MS20MST to SMAT and to FAST protocols but the later shows lowest Borg RPE and max lactate and heart rate (p<0.05, Repeated ANOVA and Tukey test). Similitude with the intensity of hockey game and suitability as an aerobic test for ice-hockey was also judged lowest by the subjects for the FAST test on a 7 points subjective scale. Compared to treadmill VO2max, correlations were 0.74, 0.73, 0.41 and 0.84 for MS20MST, SMAT, FAST and the 20-m gym test, respectively. Correlations were slightly better with treadmill max speed (0.75, 0.78, 0.53 and 0.94, respectively) due to small but common accuracy problem of VO2measure. Thus using treadmill test as a standard, the FAST is less valid than the 2 others skating protocols admitting that the ice skating protocol that elicits the highest VO2max values would be a better standard. Nevertheless lower HR max and LA max values for the FAST do not support that test. Correlations between the MS20MST, SMAT and 20-m gym tests were around 0.84 but lower between these tests and FAST (around 0.63).

CONCLUSIONS. Based on these results, it is recommended to either use MS20MST or SMAT protocols in elite players if ice time is available or the 20-m gym test otherwise. Future study is needed to identify which test yields highest VO2max values on ice.

REFERENCES:


Petrella NJ Validation of an ice skating protocol to predict aerobic capacity in hockey players. Master thesis, Brock University, 2006

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