

**RESULTS:** The mean MLSS swimming force and blood lactate concentration were of  $3.76 \pm 0.61$  %BW and  $3.12 \pm 1.17$  mM respectively. The tethered swimming model can be used as tool for the precise determination of exercise intensity and the real time swimming force monitoring during all activity time in the swimming protocols for rats.

**CONCLUSION:** It was possible to use a tethered swimming device to perform the assessment of the aerobic capacity of swimming rats by the MLSS test.

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**3262 Board #225 June 4 9:30 AM - 11:00 AM**

**Use of Snorkel During Maximal Physical Activity does not Cause Hemoglobin Desaturation in Fighters**

Leandro Lorenzo-Lima, Thaís Simões Monteiro, Fernando Hiroshi Nakama, Tania Cristina Pithon-Curi, Elaine Hatanaka, Sandro Massao Hirabara. *Cruzeiro do Sul University, São Paulo, Brazil.*  
Email: leandrolorencolima@gmail.com

(No relationships reported)

Some combat sports athletes have been used a snorkel (SK) combined with a nose clip during exercise. This method has been proposed to restrict the oxygen uptake and thus trigger physiological processes associated to hypoxia. This condition increases the erythropoietin release, elevating the hemoglobin production and thus oxygen transport, leading to a higher aerobic capacity.

**PURPOSE:** To investigate if the SK usage during an acute exercise made with SK decreases hemoglobin desaturation in fighters.

**METHODS:** Six healthy fighters (2 karate, 3 jiu jitsu and 1 boxe) men (age:  $27.7 \pm 5.2$  yrs; mass:  $182 \pm 38.4$  lb; height:  $174 \pm 6.5$  cm; body fat:  $21.5 \pm 7.1$  %) participated on this study. The subjects went twice to the laboratory. At the first time the athletes performed an acute maximal treadmill exercise protocol without a SK (wtSK) and at the second time, the athletes performed the same protocol using a SK (uSK) with 1.7 cm of diameter and 46 cm of length. The hemoglobin saturation (SpO<sub>2</sub>) was assessed with a pulse oximeter (APK Tecnologi Co., Ltd, MD300), the heart rate (HR) with a frequencimeter (Polar RS800CX with software Polar ProTrainer 5) and the lactate (Lct) with a Bioclin commercial kit, before (B), immediately after (I) and one hour post exercise (O). One-way ANOVA was used for data statistical analysis through the software GraphPad Prism 5.

**RESULTS:** There was no difference in HR (B:  $88.8 \pm 8.4$  and  $92.0 \pm 11.6$ ; I:  $188.3 \pm 14.6$  and  $184.0 \pm 11.3$ ; O:  $89.5 \pm 5.2$  and  $79.8 \pm 9.7$  bpm, wtSK and uSK respectively,  $p > 0.05$ ) SpO<sub>2</sub> (B:  $98.2 \pm 1.0$  and  $97.8 \pm 1.3$ ; I:  $93.0 \pm 2.6$  and  $91.0 \pm 7.1$ ; O:  $97.5 \pm 0.8$  and  $96.0 \pm 1.2$  %, wtSK and uSK respectively,  $p > 0.05$ ) or Lct (B:  $0.99 \pm 0.07$  and  $0.98 \pm 0.05$ ; I:  $9.41 \pm 1.35$  and  $9.09 \pm 0.74$ ; O:  $1.00 \pm 0.05$  and  $1.00 \pm 0.04$  mmol/L, wtSK and uSK respectively,  $p > 0.05$ ) in athletes using or not a SK.

**CONCLUSIONS:** In conclusion, despite of a tendency to decrease more the SpO<sub>2</sub>, the implementation of a SK with the characteristics selected does not promote a hypoxia higher than the exercise made without SK. Therefore physiological processes induced by this condition are similar for both groups, including the Lct production, indicating that the anaerobic energetic system does not have any additional benefit. Further researches regarding other characteristics are needed in order to define the benefits or not with the SK use.

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**G-44 Free Communication/Poster - Winter Sports**

JUNE 4, 2011 7:30 AM - 11:00 AM

ROOM: Hall B

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**3263 Board #226 June 4 8:00 AM - 9:30 AM**

**Comparison Of Anaerobic Power Between Two Semi-professional Ice Hockey Teams.**

Todd M. Buckingham, Jeremy L. Knous, John E. Lowry, Jessica E. Mospan, Joshua J. Ode. *Saginaw Valley State University, Saginaw, MI.*  
Email: tmbuckin@svsu.edu

(No relationships reported)

There are multiple semi-professional leagues aimed at preparing hockey players with varying age and experience. Regardless of these variations, a common lab test used to evaluate on-ice performance is the Wingate anaerobic test (WAnT) as it mimics a hockey shift characterized by high anaerobic capability. It is possible that WAnT performance may vary depending on the league in which an athlete participates.

**PURPOSE:** To investigate differences in anaerobic power of professional ice hockey players representing two different leagues.

**METHODS:** Participants were 31 members of a team comprised of semi-professional athletes ( $25.1 \pm 3.9$  years) or 21 members of a team consisting of major junior athletes ( $18.3 \pm 1.2$  years). Anthropometric measures included height (cm) and weight (kg). Body composition (%fat) was estimated via hydrostatic weighing or air displacement plethysmography. Each athlete performed a 30-second WAnT on a Monark Ergometer, with resistance set at 7.5% of body weight. Peak power (PP) and average power (AP) were calculated as absolute power (watts) and relative power (watts/kg). Mean differences in height, weight, %fat, absolute and relative power between the two teams were assessed via an independent samples T-test ( $p < 0.05$ ).

**RESULTS:** There were no significant differences in anthropometric or percent fat values between teams. In addition, there were no significant differences in absolute PP and AP power between the junior team (absolute PP:  $1094 \pm 104$  watts; absolute AP:  $836 \pm 71$  watts) and the older semi-professional team (absolute PP:  $1057 \pm 158$  watts; absolute AP:  $785 \pm 98$  watts). However, the junior team had significantly higher relative PP (relative PP:  $12.9 \pm 0.7$  watts/kg; relative AP  $9.8 \pm 0.4$  watts/kg) compared to the older semi-professional team (relative PP:  $11.8 \pm 1.3$  watts/kg; relative AP:  $8.9 \pm 0.8$  watts/kg).

**CONCLUSIONS:** Despite age differences between the teams, there were no significant differences in absolute power production during the WAnT. However, relative power production was significantly greater in the junior team. These results illustrate that WAnT performance may vary between semi-professional and junior teams. These differences should be considered when evaluating the on-ice performance of these athletes via the Wingate test.

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**3264 Board #227 June 4 8:00 AM - 9:30 AM**

**Preparticipation Examination in Synchronized Figure Skaters**

Jane Gruber<sup>1</sup>, Lyle J. Micheli, FACSM<sup>2</sup>, Brian FitzGerald<sup>2</sup>, Ellen Geminiani<sup>2</sup>, Claire McCarthy<sup>2</sup>, Michelina Cassella<sup>2</sup>. <sup>1</sup>Newton Wellesley Hospital, Newton, MA. <sup>2</sup>Children's Hospital Boston, Boston, MA.

Email: jgruber@partners.org

(No relationships reported)

Synchronized Figure Skating has been an increasingly popular discipline within US Figure Skating over the last 25 years. Over 500 teams are registered in the United States, with approximately 5000 athletes participating at sectional Championships in order to advance to the National Championships. World