

DISCUSSION: Endurance exercise is cardioprotective, yet athletes are not void of future cardiovascular risk. There was a high prevalence of EBPR using either criteria in our male athlete sample, but only a moderate level of agreement between the criteria. Given the prognostic value of EBPR, additional research in athletic samples, including female athletes, is necessary to determine optimal EBPR criteria to identify athletes at future risk.

Table 1. Number of male athletes meeting each EBPR criterion

		dSBP/dMET >6.2 mmHg/MET		Total
		No	Yes	
Maximal SBP \geq 210 mmHg	No	17	7	24
Maximal SBP \geq 210 mmHg	Yes	3	21	24
	Total	20	28	48

Supported by CIHR Funding

33

Cardiorespiratory Fitness' Indirect Assessment With Running Metabolic Equations Among Healthy Active Men

Marc-Olivier Dugas, Laurie Simard, Tommy Chevette, Patricia Blackburn, Martin Lavallière. *Université du Québec à Chicoutimi, Chicoutimi, QC, Canada.*

VO₂max is defined as the highest amount of oxygen the cardiovascular and pulmonary systems can supply and the highest amount of oxygen the muscular system can use during intense physical exertion. It is widely accepted as the criterion measure of cardiorespiratory fitness. Unfortunately, accessibility to VO₂max's direct measurement is restricted. Therefore, several metabolic equations have been developed to estimate VO₂max using indirect calculation. The most commonly used equations are those developed by the American College of Sports Medicine (ACSM) and recently, the research group of Fitness Registry and the Importance of Exercise National Database developed a new metabolic equation (FRIEND).

PURPOSE: The aim of this study is to evaluate the accuracy of the ACSM and FRIEND equations to estimate VO₂max comparatively to direct O₂ consumption measurement in healthy active men.

METHODS: 54 healthy active men aged between 19-60y.o. (36.6±5.4)(BMI: 24.1±2.6kg/m²) performed a maximal treadmill test using a metabolic cart (Vyntus CPX) to measure direct VO₂max (mL O₂/kg*min⁻¹). VO₂max estimation was then calculated using ACSM and FRIEND running metabolic equations. For analysis, they were separated in two age groups (18-34 vs 35-60y.o.) to evaluate if it has an impact on the metabolic equations used. Results were compared using a two-way ANOVA.

RESULTS: When compared to the direct measurement (53.9±7.2 (18-34y.o.) and 49.8±4.4 (35-60y.o.)), both ACSM and FRIEND equations showed significantly higher results in both age group (mean overestimation: 12.7; p<0.001 and 3.7; p=0.005, respectively). However, the FRIEND equation was significantly lower than the ACSM equation (mean difference: 9.0; p<0.001). Moreover, ACSM showed a very large effect size (Hedge's g=1.84) while FRIEND showed a medium effect size (Hedge's g=0.58). As for the two age groups, results varied similarly using the two equations (p=0.781).

CONCLUSIONS: The VO₂max calculated with the metabolic equations for running showed overestimated values in our male sample. The average difference between direct and indirect measurement when using the FRIEND equation suggests a better accuracy. More research is needed to evaluate the accuracy in different populations and different fitness levels to optimize the VO₂ estimation formula.

34

Acute Negative Effect Of The Surgical Type Facemask In The Maximal Oxygen Consumption In Healthy Subjects

David Garza-Saucedo, Dulce Edith Morales-Elizondo, Pedro G. Morales-Corral, Victor M. Salinas-Torres. *Universidad Autonoma de Nuevo León, San Nicolas de los Garza, Mexico.*

BACKGROUND: The maximal oxygen consumption (VO₂Max) may be significantly reduced in presence of the use of surgical type facemask. A possible explanation for this outcome could be due to reduction found in the oxygen saturation (Sat%O₂) at rest.

PURPOSE: To determine if the surgical type mask has a negative effect in VO₂Max, as well as any variation in the levels of Sat%O₂.

METHODS: Fifteen healthy Mexican subjects were evaluated. The VO₂Max was indirectly measured by the Course Navette (Leger) Test and the Sat%O₂ was measured using an oximeter (XIGNAL, model: MD300C2, Beijing Choice Electronic Technology Co., Ltd, China). These variables were tested in different times as follows: at rest without facemask (RWOFM), after the course navette test without facemask (CNWOFM), at rest with facemask (RWFm), and after the course navette with facemask (CNWFM). Descriptive statistical analysis and a contingency table (chi square, Fisher exact test) were performed with SPSS version 22 (IBM, Armonk, NY, USA). A P value <0.05 was considered significant.

RESULTS: The mean age was 21.9 ± 2.2 years. The mean VO₂Max without facemask resulted in 34 ± 5.1 ml/Kg/min whereas those with facemask 33.2 ± 5.3 ml/Kg/min (P <0.05). The median Sat%O₂ in RWOFM was 96 ± 2.9%, meanwhile in RWFm was 94 ± 3.8% (P <0.05). The CNWOFM was 96 ± 5.9% and the CNWFM was 93 ± 7.0% (P >0.05).

CONCLUSION: Surgical facemask may have an acute negative effect in the VO₂Max and in Sat%O₂ at rest, which could impact in daily activities of healthy individuals, particularly, those with cardiorespiratory disorders. Further exploration of these outcomes is required.

35

Influence Of Exercise Experience On Perception Of Prescribed And Preferred Exercise Intensity

Nien Xiang Tou¹, Govindasamy Balasekaran, FACSM¹, Tiago M. Barbosa². ¹Nanyang Technological University, Singapore, Singapore. ²Polytechnic Institute of Bragança, Bragança, Portugal.

PURPOSE: Perception plays a key role in self-regulation of exercise intensity. This study compared the perception of prescribed and preferred exercise intensities between active (AA) and inactive young adults (IA).

METHODS: Fifty young active (n = 25) and inactive (n = 25) adults (age: 24.24 ± 3.19 years, height: 165.46 ± 8.13 cm, weight: 59.21 ± 9.65 kg, body mass index: 21.54 ± 2.41 kg/m²) performed treadmill exercises on two separate occasions. In the first session, maximal oxygen uptake (VO₂max) was determined using the Bruce protocol. In the second session, participants performed two self-paced treadmill exercises. They exercised at a preferred intensity level for 10 minutes, followed by a 15-min prescribed intensity exercise at three different perceived intensity levels (in the order of perceived light, moderate and vigorous intensities, 5-min each). Measurements of oxygen uptake, heart rate (HR), mental effort, physical exertion, and affect were recorded every minute during the self-paced treadmill exercises.