



# 14<sup>th</sup> SINGAPORE PUBLIC HEALTH & OCCUPATIONAL MEDICINE CONFERENCE

15-16 October 2019 · Equarius Hotel

## PREVENTIVE HEALTH IN A CHANGING WORLD

### ASSESSMENT OF ACTUAL VO<sub>2</sub> MAX SCORE WITH SUB-MAXIMAL PHYSICAL FITNESS TEST (SPFT)

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#### **Background**

Sub-Maximal Physical Fitness Test (SPFT) is an alternative annual fitness test requirement in the Home Team for older uniformed officers. It is an indirect way of estimating the maximum oxygen consumption capacity (VO<sub>2</sub> max). SPFT involves cycling on a stationary bicycle at a set resistance and measuring the final heart rate at the end of 6 minutes of exercise. The heart rate, age and weight of the participant is then charted on a nomogram to estimate the VO<sub>2</sub> max. This study investigates the accuracy of the existing SPFT VO<sub>2</sub> max scores against the results obtained in the Cardiopulmonary Exercise Test (CPET).

#### **Methods**

11 participants (9 males and 2 females) volunteered to do both SPFT and CPET. The VO<sub>2</sub> max score for SPFT and CPET were then calculated using existing protocols. Pearson coefficient was used to assess if there is any correlation. Using the SPFT scoring table, we assessed if the candidate passed (or failed). A McNemar test was then conducted on the pass/fail results between SPFT and CPET.

#### **Results**

The average age was 53.4 ± 3.1 year-old and body weight was 81.8 ± 13.4kg. The average VO<sub>2</sub> max score for SPFT and CPET were 37.7 ± 8.1 and 29.8 ± 5.9 respectively. The Pearson Coefficient was 0.428 (not sig.). There were 9 discordant pairs, and the results of the 2 tests are found to be significantly different (p-value = 0.046).

#### **Conclusion**

Current SPFT scores are deemed to be over-estimated VO<sub>2</sub> max scores, hence there is a need to revise the current SPFT scores.