

PLEASE NOTE! THIS IS SELF-ARCHIVED VERSION OF THE ORIGINAL ARTICLE

To cite this Article: Julin, M. ; Risto, T. ; Yletyinen, E. & Penttilä, H. (2016) Fit older adult's aerobic fitness levels and its relation to the physical activity guide. *Physiotherapy* 102, Supplement 1. The 4th European Congress of the European Region of the World Confederation of Physical Therapy (ER-WCPT) Abstracts, Liverpool, UK, 11-12 November 2016 Liverpool, e278-e279.

DOI: <http://dx.doi.org/10.1016/j.physio.2016.10.354>

URL: <http://www.sciencedirect.com/science/article/pii/S0031940616304278>

CC-BY-NC-ND

Fit older adult's aerobic fitness levels and its relation to the physical activity guidelines

- [M. Julin¹](#),
- [T. Risto²](#),
- [E. Yletyinen³](#),
- [H. Penttilä²](#)

1

Laurea University of Applied Sciences,
Research and development, Espoo, Finland

2

Laurea University of Applied Sciences,
Physiotherapy, Espoo, Finland

3

Espoo City, Department of Exercise,
Espoo, Finland

- **Relevance:** Physiotherapy plays an important role in health promotion. Aging population is a future challenge in western societies. Physical activity is recognized as one of the key concepts to promote wellbeing and healthy aging.
- **Purpose:** Physical activity guidelines state that elderly people (aged 65 years and above) should do moderate intensity of aerobic physical activity at least 150 minutes per week or vigorous aerobic activity at least 75 minutes per week (WHO 2010). The question remains of how to define moderate or vigorous activity with elderly persons? The purpose of this study was to evaluate the aerobic fitness of fit elderly people and translate the results into the dosage of physical activity guidelines.
- **Methods/analysis:** All the participants were volunteers who participated to a measurement event organized by the city of Espoo. Vast majority of the participants appeared to be in good physical shape. 275 (183 female and 92 male) cardiorespiratory fitness levels were measured. Each individual's cardiorespiratory fitness level was assessed with validated non-exercise method for older adults by the regression equation: Estimated MET Value = Sex (2.77) – Age (0.10) – Body Mass Index (0.17) – Resting Heart Rate (0.03) + Self-reported Physical Activity + 18.07 (Jucra *et al.*, 2005; Mailey *et al.*, 2010).
- Mean values, standard deviations and confidence intervals (95%) were calculated for both genders. The mean value was set as 100%. The vigorous activity was defined as 63 to 85% of the 100% and the moderate value was defined as 45 to 62% of the 100%. These percentile values are generally recognized values (Howley 2001). All the values were in METs.
- **Results:** The mean age for women was 70.6 (sd 4.6) years and for men 71.4 (sd 5.3) years. The mean BMI for women was 25.3 (sd 4.5) and for men 25.5 (sd 3.3). The mean cardiorespiratory fitness was 7.3 (95%CI 7.2 to 7.5) METs for women and 10.2 METs (95%CI 9.6 to 10.7) for men. These values were set as 100%.
- Calculated from 100% the vigorous activity levels were 4.6 to 6.2 METs for women and 6.4 to 8.7 METs for men. The moderate activity levels were 3.3 to 4.5 METs for women and 4.6 to 6.3 METs for men.

- **Discussion and conclusions:** It is important to understand that the level of vigorous or moderate activity levels are highly individual and one must know the maximum capacity in order to give the proper dosage for activity levels. On the other hand, there are very limited data of older adult's cardiorespiratory fitness levels. Non-exercise evaluation method is simple, safe and cost-effective field test for assessing cardiorespiratory fitness level. The results of this study reveal that even for the older adults the dosage must be sufficiently high to meet the current physical activity recommendation levels.
- **Impact and implications:** Physiotherapist should have the understanding and tools to set the correct dosage for aerobic physical activity levels. It is often thought that cardiorespiratory fitness testing is unsafe and unnecessary for older people. Modern older adult is more often in good shape. To get good response to physical activity, the activity level needs to be tailored individually. Non-exercise testing method is safe and suitable for older adults.
- **Funding acknowledgement:** No external funding.