

## How grit is related to objectively measured moderate to vigorous physical activity in school students

Vello Hein<sup>1</sup>, Hanna Kalajas-Tilga<sup>2</sup>, Andre Koka<sup>3</sup>, Lennart Raudsepp<sup>4</sup>, Henri Tilga<sup>5</sup>  
*University of Tartu, Institute of Sport Sciences and Physiotherapy, Tartu, Estonia<sup>1, 2, 3, 4, 5</sup>*

**Abstract:** Grit entails the capacity to sustain effort and interest in the activity over years. One of the goals of the contemporary physical education is also to educate students for long lasting physical activity. This study aimed to estimate parameters of the model in which perseverance of effort and consistency of interest of grit scale are related directly to objectively measured PA and indirectly via physical activity intention in school students (N = 209) aged 12 to 14 years.

The Grit Scale developed by Duckworth and Quinn (2009) was used to estimate learner' consistency of interests and perseverance of efforts. The measure intention consisted of two items from Theory of Planned Behaviour Questionnaire (Ajzen, I. (1985). Actigraph GT3X was used to measure moderate to vigorous physical activity (MVPA) during the seven consecutive days.

A well-fitting structural equation model ( $\chi^2 = 46.169$ ,  $df = 31$ ; CFI = .958; RMSEA = .053) demonstrated the significant direct effect ( $\beta = .286$ ,  $p < .001$ ) from perseverance of efforts on intention to be physical active. Intention to be physical active mediated the effect of perseverance of efforts on MPVA, but not the effect of consistency of interest. The total effect from consistency of interest on MVPA was significant but perseverance of efforts was not. The dimension of perseverance of efforts between groups with high and low MVPA activity was not statistically significant, whereas the intention was. The consistent of interest dimension in high MVPA group was significantly higher than in low group only at  $p < .1$  level.

The study found initial evidence about the relationships between the grit and MVPA, and may be used by physical education teachers for promotion physical activity highlighting the role of consistency of interest on MVPA.

**Keywords:** grit, intention, vigorous physical activity, school students.