

## **Sensitivity of Anthropometrics in the Longitudinal Assessment of Mountain Bike Cyclists [Abstract only]**

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## Sensitivity Of Anthropometrics In The Longitudinal Assessment Of Mountain Bike Cyclists

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### ABSTRACT

**Introduction:** Complex anthropometrics are suggested to be advantageous in the assessment and monitoring of athletes (Schranz et al 2010; Schranz, et al., 2012; Bullas et al., 2016). However, the sensitivity and stability of these anthropometrics over time remains unknown. The aim of this investigation was to determine the sensitivity and stability of the complex anthropometrics of volume and area in monitoring anthropometric changes and peak power output of cyclists over time, compared to simple anthropometrics of lengths and girths. **Method:** This study was a repeated measures, cross sectional investigation of 8 male semi elite mountain bike cyclists (age (years)  $34.1 \pm 4.1$ ; stature (cm)  $180.4 \pm 7.6$ ; body mass (kg)  $80.6 \pm 5.9$ ). A peak external power test and a 3D body scan using a 3dMDBody5 system, from which 48 lower body anthropometrics (21 simple and 27 complex) were extracted, was conducted before and after an eight-week power based training phase. **Results:** When analysed as a group no significant differences ( $p > 0.05$ ; effect sizes:  $\leq -0.8$  and  $\geq 0.8$ ) were demonstrated for any anthropometrics or peak power output between data collection sessions by either simple or complex anthropometrics, attributable to high levels of inter-participant variability. Correlation testing highlighted change in ~8% of anthropometrics (4/48, simple: 2/21, complex: 2/27) to demonstrate a statistically significant ( $p \leq 0.05$ ), medium to strong, positive correlation with the change in peak external power. When analysed as individuals complex anthropometrics identified changes that were not identified by simple anthropometrics. **Conclusions:** Complex anthropometrics provide the opportunity to explore change in more detail than simple anthropometrics. Consequently, Kinanthropometrists, practitioners and sport and exercise scientists should consider using complex anthropometrics acquired through 3D body scanning systems.

### CONFLICT OF INTEREST

The authors of this document can confirm there is no conflict of interests.

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