

## **Using Intraclass Correlations to Assess the Reliability of Kinesiology Measures: Why, When and How: 2747: Board #21 10:AM - 11:AM**

### **G-11 Free Communication/Poster - Biostatistics: SATURDAY, JUNE 3, 2006 8:00 AM - 11:00 AM ROOM: Hall B]**

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Intraclass correlation (ICC) is commonly used in kinesiology research in assessing the reliability of dependent measures. There are different forms of intraclass correlation coefficients available. However, in empirical research, the procedure of choosing an appropriate ICC was often ignored or wished away and inappropriate ICC was used with disastrous consequences.

**PURPOSE:** This study was to provide guidelines with SPSS for selecting, calculating and interpreting ICC based on (1) one-way and two-way effect models, (2) random and fixed effect, (3) single or average measures, and (4) consistency and agreement of the dependent measures. One practical example was presented with detailed procedures of using statistical package SPSS.

**METHODS:** The participants were 58 elementary school students. They were measured in steps/min using a pedometer (an indicator of the intensity of physical activity) over three school days. The data measured using the pedometer were obtained from both the left and right sides of the body. Ten different forms of ICC were calculated using SPSS based on the different hypothesized consistency or agreement of the research designs.

**RESULTS:** The ICCs ranged from 0.60 to 0.85 depending on either one-way or two-way models were chosen and whether consistency or agreement was the concern. The interpretations were also different depending on either random or fixed effect of the subject and dependent measures.

**CONCLUSION:** Choosing different forms of ICC would bring about different ICC values. It may substantially affect the results of assessing the reliability in empirical research. Therefore, choosing an appropriate ICC is very important in assessing the reliability of dependent measures. Following the four steps shown below in calculating ICC would help to avoid the miscalculation and interpretation of reliability of the kinesiology measures: (1) one-way or two-way effect model, (2) random or fixed effect of the dependent measures, (3) single or average measures, and (4) consistency or agreement. The details of running SPSS reliability function were provided.