

Validation of Physical Activity Recall Questionnaire and Physical Activity Log Using the Gold Standard Doubly-Labelled Water Technique in 11-13 Year-Old Sri Lankan Children

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As, commonly used physical activity questionnaires and activity logs validated against energy expenditure are not available for Sri Lankan children, this study aimed to validate physical activity recall questionnaire (PAR-Q) and activity log against the gold standard- doubly labelled water (DLW) technique in 11–13-year-old Sri Lankan children. A purposive sample of 96 children was recruited from Colombo. Total energy expenditure (TEEDLW) was assessed using DLW technique over 10 days. Physical activity energy expenditure (PAEE) from DLW (PAEEDLW) was calculated as 0.9 TEEDLW – basal metabolic rate. Physical activity was assessed using PAR-Q, adapted from the adolescent physical activity questionnaire, and activity log, adapted from Bouchard activity diary. PAR-Q was administered on day 7 and the activity logs on three days within the DLW assessment period. PAEE from PAR-Q (PAEEPARQ) and activity log (PAEEPALog) were calculated in metabolic equivalents. Pearson correlation coefficient was used to assess the association between the PAEE values. The level of agreement was assessed using Bland Altman analysis. PAEEPARQ showed a significantly higher correlation ($r=0.63$, $p<0.05$) with the PAEEDLW as compared to that of PAEEPALog ($r=0.49$, $p<0.05$). There was no statistically significant difference between the PAEEDLW and PAEEPARQ and PAEEPALog. The majority of data points were within the limits of agreement for both PAR-Q and activity log by Bland Altman analysis. A trend of overestimation was observed with the activity log, at lower PAEE levels. PAR-Q is a valid tool for assessing PAEE while activity log is less valid in predicting energy expenditure in Sri Lankan children.

Keywords: children, physical activity questionnaire, physical activity log, stable isotopes, physical activity energy expenditure