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Contribution ID: 188

Type: 1 - Scientific Poster

Criterion validity of commonly used physical activity questionnaires in men with advanced prostate cancer

Thursday 23 July 2026 14:25 (20 minutes)

Purpose: To investigate the validity of the modified Paffenbarger physical activity questionnaire (PAQ) and the Godin-Shephard leisure-time physical activity (GSLTPAQ) against accelerometry for assessing moderate-to-vigorous physical activity (MVPA) and adherence to MVPA guidelines in men with advanced prostate cancer (PCa).

Methods: Men with advanced PCa were asked to complete the questionnaires and wear a hip-worn Actigraph GT3X+ accelerometer during waking hours for seven consecutive days. The questionnaires were scored according to standard procedures. Accelerometer-derived MVPA was estimated in GGIR using a 69.1 milligravity cut-point, and adherence to aerobic MVPA guidelines was classified according to international recommendations. Validity was evaluated using Spearman correlations, Wilcoxon Tests, Bland–Altman plots for weekly MVPA levels and sensitivity/specificity calculations for guideline adherence.

Results: Among 32 participants with valid data, PAQ and GSLTPAQ showed correlation coefficients of 0.40 and 0.51 with accelerometry, respectively. While the median MVPA for PAQ did not differ significantly from accelerometry (+29 minutes/week, $p = 0.11$), it was significantly lower for GSLTPAQ (-131 minutes/week, $p < 0.01$). Bland–Altman analysis indicated a mean bias of +123 minutes/week for PAQ and -153 minutes/week for GSLTPAQ, with wide limits of agreement and larger differences with increasing MVPA levels. The PAQ had high sensitivity (1.00) and moderate specificity (0.52), while the GSLTPAQ had moderate sensitivity (0.58) and high specificity (0.91).

Conclusion: Both questionnaires demonstrated acceptable validity for group-level comparisons. However, neither provided accurate individual-level MVPA estimates. Compared to accelerometry, the PAQ overestimated, while the GSLTPAQ underestimated MVPA, which may lead to misclassification of guideline adherence. Interpretation should consider the small, homogeneous sample size.

Implications for exercise oncology: Questionnaire-based MVPA may bias effect sizes and exercise oncology trial outcomes. While accelerometry is preferred, the PAQ may be suitable for identifying patients meeting MVPA guidelines, whereas the GSLTPAQ may be preferable when higher specificity is required.

Keywords

physical activity questionnaire, accelerometry, validity, advanced prostate cancer.

Conflict of Interest & Ethical Approval

yes

Abstract submitters declaration

yes

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Session Classification: Poster Session