REMOTE ASSESSMENT OF PHYSICAL FITNESS MEASURES IN CANCER SURVIVORS: A RELIABILITY AND VALIDITY STUDY

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Background

- The expansion of remote (i.e., online or virtual) exercise programs during the COVID-19 pandemic opened new possibilities for innovative models of supportive care for cancer survivors outside urban centers
- We evaluated the reliability and concurrent validity of a remote adaptation of a validated in-person physical fitness protocol

Methods

- Post-treatment cancer survivors (n=29) completed two consecutive remote assessments followed by one in-person assessment within a two-week period. Remote assessments were conducted via Zoom in participant's homes
- Assessments consisted of 4 physical fitness measures: right and left one-leg stance test (OLST), sit-to-stand test (STS), chair sit-and-reach (CSAR) and 2-minute step test (2MST)
- Intra-rater reliability and concurrent validity were assessed using intraclass correlation coefficients (ICC) with 95% confidence intervals. Agreement of remote and in-person measures was assessed using the Bland-Altman 95% limits of agreement

Results

- Reliability ICCs ranged from good for OLST-R, OLST-L, STS, and 2MST; to excellent for CSAR
- ICCs for concurrent validity ranged from moderate for OLST-R, STS; good for OLST-L; to excellent for 2MST and CSAR

Physical Fitness Measures	Reliability		Validity	
	ICC	95% CI	ICC	95% CI
OLST-R	0.787	0.598-0.894	0.668	0.406-0.829
OLST-L	0.819	0.651-0.911	0.803	0.623-0.902
STS	0.834	0.528-0.932	0.731	0.035-0.910
CSAR	0.931	0.859-0.967	0.940	0.871-0.972
2MST	0.803	0.622-0.903	0.910	0.786-0.960

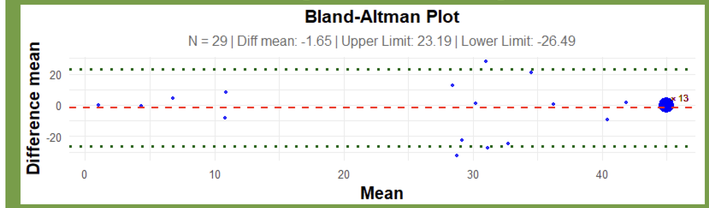
*P-Value <0.0001 for all ICCs

- Bland-Altman tests demonstrated underestimation between the averaged means of remote assessments and the in-person assessment, with slight variability between 95% limits of agreement
  - This indicates remote assessments may result in under-scoring

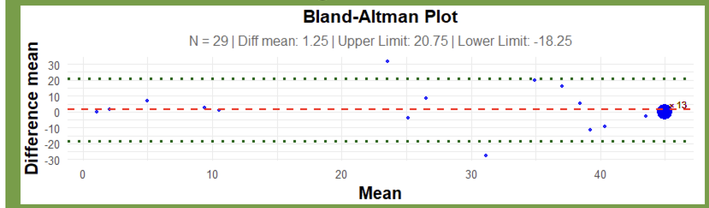
Conclusions

- Remote assessment is a reliable and valid alternative to in-person observations of physical fitness measures for cancer survivors and can be used as a proxy for assessing physical fitness

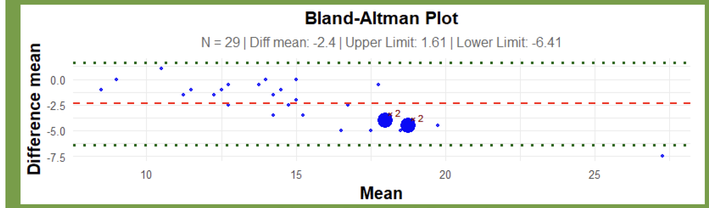
One Leg Stance Test - Right



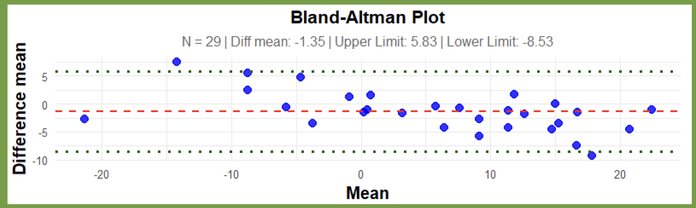
One Leg Stance Test - Left



Sit to Stand



Chair Sit and Reach



2 Minute Step Test