

# The automatic assessment of strength and mobility in older adults: A test-retest reliability study

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**Background:** Simple field tests such as the Timed Up and Go test (TUG) and 30 s Chair Stand test are commonly used to evaluate physical function in the elderly, providing crude outcome measures. Using an automatic chronometer, it is possible to obtain additional kinematic parameters that may lead to obtaining extra information and drawing further conclusions. However, there is a lack of studies that evaluate the test-retest reliability of these parameters, which may help to judge and interpret changes caused by an intervention or differences between populations. Thus, the aim of this study was to evaluate the test-retest reliability of the Timed Up and Go test (TUG) and 30 s Chair Stand test in healthy older adults. **Methods:** A total of 99 healthy older adults participated in this cross-sectional study. The TUG and the 30 s Chair Stand test were performed five times and twice, respectively, using an automatic chronometer. The sit-to-stand-to-sit cycle from the 30 s Chair Stand test was divided into two phases. **Results:** Overall, reliability for the 30 s Chair Stand test was good for almost each variable (intraclass correlation coefficient (ICC) >0.70). Furthermore, the use of an automatic chronometer improved the reliability for the TUG (ICC >0.86 for a manual chronometer and ICC >0.88 for an automatic chronometer). **Conclusions:** The TUG and the 30 s Chair Stand test are reliable in older adults. The use of an automatic chronometer in the TUG is strongly recommended as it increased the reliability of the test. This device enables researchers to obtain relevant and reliable data from the 30 s Chair Stand test, such as the duration of the sit-to-stand-to-sit cycles and phases. © 2019 by the authors. Licensee MDPI, Basel, Switzerland.

Intraclass correlation coefficient

Older adults

Physical fitness tests

Reliability analysis

Standard error of measurement

aged

cross-sectional study

devices

exercise test

female

geriatrics

human

male

methodology

muscle strength

nonparametric test

physiology

procedures

reproducibility

time factor

very elderly

walking difficulty

Aged

Aged, 80 and over

Cross-Sectional Studies

Exercise Test

Female

Geriatrics

Humans

Male

Mobility Limitation

Muscle Strength

Reproducibility of Results

Research Design

Statistics, Nonparametric

Time Factors