Self-Reported Muscle Strength As A Strategy For The Prevention Of Non-Communicable Diseases

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Background:
Muscle strength is considered as a health indicator and an independent predictor of future disease. For this reason, the evaluation of this component in the young population is recognised as a fundamental strategy for the prevention of non-communicable diseases. Field tests are the techniques most commonly used to evaluate muscle strength. However, an alternative method that could be applied in epidemiological studies is self-report questionnaires. The aim of this research was to evaluate the ability of a self-report questionnaire to correctly rank the levels of muscle strength in college students.

Methods:
A cross-sectional study was developed in 135 students from the Areandina University in Bogota, Colombia. For the evaluation of muscle strength, two tests were applied. The first was the application of the handgrip protocol using an adjustable handle Digital Grip Strength Dynamometer. The second was the application of protocols to a maximum repetition in 6 different exercises. For the assessment of self-perceived strength, the third question of the International Scale Fitness Questionnaire (IFIS) was applied. The IFIS response options are presented on a Likert scale with five possible answers: ''very poor'', ''poor'', ''average'', ''good'' or ''very good''. An analysis of variance (ANOVA) was applied to evaluate the ability of the IFIS questionnaire to rank muscle strength levels correctly.

Results:
Overall, 70.3% of the participants were men, and 29.7% were women. The results of the field tests and the self-perception of muscle strength were significantly higher in the male group than in the female group ($P < 0.001$). Students who reported having good or very good muscle strength in the questionnaire had a better result in the field tests compared to those who reported average, poor or very poor muscle strength levels ($P < 0.005$).

Conclusions:
The IFIS questionnaire was able to rank real muscle strength in university students correctly.

Key messages:
- The IFIS questionnaire is a valid alternative to detect students with a potential risk of chronic non-communicable diseases.
- The epidemiology surveillance systems in Colombia should include the application of self-report questionnaires that evaluate potential risk factors.