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TEST-RETEST STRENGTH RELIABILITY OF THE ELECTRONIC PUSH/PULL DYNAMOMETER (EPPD) IN THE MEASUREMENT OF THE QUADRICEPS AND HAMSTRING MUSCLES ON A NEW CHAIR

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Background: Test-retest strength, reliability of the Electronic Push/Pull Dynamometer (EPPD) in the measurement of the extensor and flexor muscles on a new constructed chair.

Objective: The objective of the study was to assess the reliability of Electronic Push/Pull Dyna- mometer in the measurement of the knee flexion and extension at 90˚ and 60˚ on a new constructed chair.

Aim: To assess reliability of Elec- tronic Push/Pull Dynamometer in the measurement of the knee flexion and extension at 90˚ and 60˚ on a new constructed chair.

Design: A test-retest reliability study.

Subjects: One hundred healthy students, male and female (mean age, 21 y).

Methods: Maximum isometric strength of the quadriceps and hamstring muscle groups was measured using the EPPD were recorded at 60˚ and 90˚ for 3 trials on 2 occasions. Reliability was assessed with the Intraclass correla- tion coefficient (ICC), mean and standard deviation (SD) of measurements, and smallest real differences were calculated for the maximum and for the mean and work of the 3 repetitions.

Results: Mean strength ranged from 50.44 kg for knee flexion to 55.76 kg for knee extension 50.44 kg to 61.98 kg at 90˚ hip flexion. Test-retest reliability Intraclass correlation coeffi- cients (ICCs) ranged from 0.85 to 0.99. ICCs for test-retest reliability ranged from 0.780 to 0.998.

Conclusions: The results of the reliability study indicate that the EPPD in reliable dynamometer to use in de- termining lower limb muscle force production. It can be used to measure disease progression and to evaluate changes in knee extension and flexion strength at the individual patient level.

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NANOTECHNOLOGY FOR THE BEST SOLAR CELLS EFFICIENCY

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The full potential-linearized augmented plane wave (FP-LAPW) method is implemented in WIEN2K code to calculate the indirect energy gap (Γ-X) using density functional theory (DFT). The Engel-Vosko generalized gradient approximation (EV-GGA) and modified Becke Johnson (mBJ) formalisms are used to optimize the corresponding potential for energetic transition and optical properties calculations of elements, compounds and alloys semiconductors as a function of quantum dot diameter and are used to test the validity of our model of quantum dot potential. The refractive index and optical dielectric constant are investigated to explore best applications for solar cells. The calculated results are in agreement with other experimental and theoretical data.

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