

CONCORDANCIA ENTRE LOS VALORES DE FUERZA PRENSIL MEDIDOS POR PABLO Y POR DINAMOMETRIA MANUAL

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Código estudiantil:
2020122727035

Trabajo de Investigación presentado como requisito para optar el título de:
MAGISTER EN ACTIVIDAD FÍSICA Y SALUD

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RESUMEN

Introducción: La fuerza prensil (FP) ha sido reconocida como un biomarcador esencial en la evaluación de la salud muscular, asociado con desenlaces clínicos como la longevidad, calidad de vida y funcionalidad general. Tradicionalmente, la FP ha sido medida mediante dinamometría manual, con el dinamómetro Jamar ampliamente utilizado en investigaciones y prácticas clínicas. Sin embargo, los avances tecnológicos han permitido el desarrollo de dispositivos automatizados como el sistema robótico PABLO, que promete ofrecer mediciones más precisas y estandarizadas. **Objetivo:** Determinar la concordancia entre los valores de FP obtenidos mediante el dinamómetro Jamar y el sistema PABLO en una muestra de estudiantes universitarios. **Materiales y Métodos:** Se llevó a cabo un estudio observacional transversal en una muestra de 100 estudiantes universitarios seleccionados de manera aleatoria. Se midió la fuerza de prensión manual en ambas manos utilizando los dos dispositivos bajo protocolos estandarizados. Para el análisis de concordancia entre las mediciones, se emplearon pruebas estadísticas como el coeficiente de correlación de Pearson y el análisis de Bland-Altman. **Resultados:** Las mediciones obtenidas mediante ambos dispositivos mostraron una alta concordancia, con una correlación significativa entre los valores de FP registrados por el dinamómetro Jamar y el sistema PABLO, indicando que ambos instrumentos pueden ser utilizados de manera intercambiable para medir la FP. **Conclusión:** El dinamómetro Jamar y el sistema PABLO se presentan como herramientas fiables y precisas para la medición de la FP en contextos de investigación y aplicaciones clínicas. Dicho sistema, gracias a su capacidad para automatizar las mediciones, podría ofrecer una alternativa eficiente y estandarizada que minimiza la variabilidad introducida por el evaluador, lo que lo convierte en una opción valiosa para su implementación en diversos entornos, como clínicas, laboratorios y programas de salud comunitaria. Además, la validación de este sistema en estudios futuros podría ampliar su aplicabilidad en diferentes poblaciones y mejorar la precisión en la evaluación de la funcionalidad muscular. **Palabras clave:** Fuerza de agarre, fuerza prensil, fuerza de prensión manual, fuerza de prensión palmar, fuerza máxima de agarre, PABLO, sensor de mano.

ABSTRACT

Introduction: Grip strength (GS) has been recognized as an essential biomarker in the assessment of muscle health, associated with clinical outcomes such as longevity, quality of life, and general functionality. Traditionally, GS has been measured using manual dynamometry, with the Jamar dynamometer widely used in research and clinical practice. However, technological advances have led to the development of automated devices such as the PABLO robotic system, which promises more accurate and standardized measurements. **Objective:** To determine the concordance between GS values obtained with the Jamar dynamometer and the PABLO system in a sample of university students. **Materials and Methods:** A cross-sectional observational study was conducted with a randomly selected sample of 100 university students. Grip strength was measured in both hands using the two devices under standardized protocols. Statistical tests such as Pearson's correlation coefficient and the Bland-Altman analysis were employed to assess the concordance between the measurements. **Results:** The measurements obtained with both devices showed a high concordance, with a significant correlation between the GS values recorded by the Jamar dynamometer and the PABLO system, indicating that both instruments can be used interchangeably for GS measurement. **Conclusion:** The Jamar dynamometer and the PABLO system are reliable and accurate tools for measuring GS in research and clinical contexts. The PABLO system, thanks to its ability to automate measurements, could offer an efficient and standardized alternative that minimizes evaluator variability, making it a valuable option for implementation in various settings, such as clinics, laboratories, and community health programs. Furthermore, the validation of this system in future studies could expand its applicability in different populations and improve the accuracy of muscle functionality assessments.

Keywords: Grip strength, handgrip strength, manual grip strength, palmar grip strength, maximum grip strength, PABLO, hand sensor.

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