Assessment of handgrip strength in preschool children aged 3 to 5 years

G. Sánchez-Delgado a, b, C. Cadenas-Sánchez a, J. Mora-González a, B. Martínez-Téllez a, P. Chillón a, M. Löf c, F.B. Ortega a, b, J.R. Ruiz a, b

a PROFITH “PROmoting FITness and Health through physical activity” research group. Department of Physical Education and Sport, Faculty of Sport Sciences, University of Granada, Spain
b Department of Biosciences and Nutrition at NOVUM, Karolinska Institutet, Sweden
Correo electrónico: gsanchezdelgado@ugr.es (G. Sánchez-Delgado).

Keywords: Child; Dynamometry; Physical fitness; Muscle Strength; Reliability

Aim. To investigate whether there is an optimal grip span for determining the maximum handgrip strength in preschool children and if that grip span is influenced by gender, age, or children’s hand size.

Methods. A total of 292 preschool children aged 3-5 years (59.2% boys) performed the handgrip strength test using an analog dynamometer (TKK model 5001, Grip-A, Takei, Tokyo, Japan) with different grip spans (4.0, 4.5, 5.0, 5.5 and 6.0 cm) in a randomized order with both hands. The hand size was measured from the tip of the thumb to the tip of the little finger with the hand opened widely. Thereafter, we also determined the reliability of the optimal grip span in another comparable group of children (n = 56, 32 boys) aged 3-5 years who performed the handgrip strength at the obtained optimal grip span on two occasions with a 3 hours difference.

Results. The repeated measures analyses showed that there is an optimal grip span to determine the maximum handgrip strength in preschool children. The grip span at which children obtained the maximum handgrip strength was 4.0 cm. This result applied to boys and girls, all age groups (3, 4 and 5 years) and hand sizes (12, 13, 14, 15, and 16 cm). Paired t-test showed no significant differences between test and retest (mean difference: 0.20 kg, 95% confidence interval: -0.10 to 0.51, P = 0.193). Intra class coefficient was 0.919.

Conclusions. This study shows that there is an optimal grip span (i.e. 4.0 cm) in preschool children aged 3-5 years, and that it is not influenced by gender, age, or children’s hand size. We also observed that the optimal grip span was reliable in preschool children. The present study findings add valuable information to better standardize the procedure and increase the reliability.

http://dx.doi.org/10.1016/j.ramd.2014.10.060

Consideraciones de los maestros de Educación Física de Soria sobre la influencia de la práctica de ejercicio físico en el desarrollo de los niños y prácticas escolares para su mejora

D. Sanz
Estudiante de Doctorado. Universidad Complutense de Madrid.
Madrid. España
Correo electrónico: dansanz@ucm.es.

Palabras clave: Maestros de Educación Física; Actividad físico-deportiva; Hábitos físico-deportivos; Desarrollo madurativo

Objetivos. Conocer la valoración de los maestros de Educación Física acerca de la influencia de la práctica de actividad físico-deportiva de los niños en su desarrollo madurativo. Indagar en las propuestas que los maestros de EF llevan a cabo para que los niños adquieran hábitos saludables de práctica físico-deportiva. Valorar

http://dx.doi.org/10.1016/j.ramd.2014.10.061