

## Underhand ball-throwing test assessing eye-hand coordination in 6-11yr children

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Ball-throwing is a basic open skill common to several physical activities and sports. It is strictly related to eye-hand coordination, a neuromuscular ability affecting many expressions of human movement, including daily living activities (Houwen et al., 2008). The accuracy of underhand ball-throwing task was studied in 538 girls and 583 boys aged 6-11yr, with normal or corrected-to-normal vision. Within range of age, the ages of boys and girls did not differ (ANOVA,  $p>0.05$ ). Using the dominant hand, each participant performed 2 consecutive sequences of 5 repetitions of a standardized underhand ball-throwing test (UBT). It consisted in underhand throwing a tennis ball into the floor area delimited by a 80cm diameter wooden hoop, lying on the floor 9m apart the standing child (Grassi et al., 2006). Within subject, the centered targets of each sequence were scored. Descriptive statistics of UBT were computed within sequence, age, and sex group. The effects of age and sex, and sex  $\times$  age interaction on UBT scores were compared by ANOVA (statistical significance 5%). UBT scores significantly increased with age ( $p=0.003$ ). Boys obtained larger UBT scores than those obtained by the girls of the same age ( $p=0.002$ ). The age-related differences of UBT scores were similar in boys and girls ( $p>0.05$ ). On average, UBT scores recorded in the second sequence were larger than those of the first sequence. Differences were significant in boys, and increased with age ( $p<0.01$  for all comparisons). The effects of age was similar in boys and girls ( $p>0.05$ ). UBT could be used in both sport activities and rehabilitation to quantify either the level of motor learning and training or the effects of physiotherapy treatments.

### References

- [1] Grassi et al. (2006) Transfer of training of two ball-throwing tasks. *Percept Mot Skills* 102: 19-28.
- [2] Houwen et al. (2008) Motor skill performance of school-age children with visual impairments. *Dev Med Child Neurol* 50: 139-145.

### Key words

Childhood, eye-hand coordination, motor learning.