BACKGROUND: It is well known that eccentric training increases muscle strength and promotes greater neural activation, and therefore has been used in the recovery of knee extensors. The hypothesis of this study was that there would be a strong correlation between knee extensor torque and functional tests. OBJECTIVES: To investigate the relationship between knee extensor peak torque and functional tests of agility (runs) and propulsion (hop for distance) after short-term isokinetic eccentric training. METHODS: Twenty healthy and active male undergraduate students (age 22.5±2.1 years; height 1.72±0.10 m; weight 67.8±9.5 kg; body mass index: 22.5±2.0 kg/m²), with no abnormalities or history of injury of the limbs, performed an isokinetic assessment of the knee extensors and flexors and also functional tests before and after isokinetic training, which consisted of 3 sets of 10 MVECs at 30º/s, with 3 minutes of rest between sets, twice a week for 6 weeks. RESULTS: The eccentric training increased the extensor peak torque (16, 27 and 17%; P<0.01) and decreased the H/Q ratio (10, 20 and 13%; P<0.01) for the isometric and eccentric modes at 30°/s and 120°/s, respectively. It also decreased the time in two of the five agility tests (carioc and pivot diagonal; P<0.01), and increased the distance in the hop tests, for both dominant and non-dominant limbs (P<0.01). CONCLUSIONS: Although the eccentric training led to an increase in extensor peak torques as well as an improvement in most of the functional tests, the hypothesis that a strong correlation would be observed between peak torques and functional tests was not confirmed. Article registered in the Australian New Zealand Clinical Trials Registry (ANZCTR) under the number 12607000590460.

Keywords
Hop tests, agility tests, torque, knee, eccentric training, H/Q ratio.