ORIGINAL ARTICLE

Effects of menstrual cycle phase on muscle function

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Abstract

Controversy exists concerning the effects of menstrual cycle on muscle function. This study investigated changes in muscle function of young sedentary women on two different days during the early follicular (EF), late follicular (LF), or midluteal (ML) phases for two cycles to determine if the magnitude of changes in muscle function measures across different menstrual phases exceeds the fluctuation between days in the same menstrual phase. Eight sedentary women (age: 23.9±1.2 yrs), who had a regular menstrual cycle (30.2±0.3 days), participated in the present study. Changes in maximum voluntary isometric and isokinetic (60, 120, 180, 240°·s^{-1}) torque of the knee flexors and extensors, muscle endurance and recovery of the knee extensors from a muscle endurance test, vertical jump height, and handgrip strength across 12 testing days (2 days × 3 phases × 2 cycles) were analysed by a one-way repeated-measures ANOVA. The fluctuations of the measures between the two days in the same phase were compared with those between the phases. No significant ($P>0.05$) changes in any of the measures were evident over the 12 testing days, and the differences in the fluctuations between phases (4.1−19.1%) were within the differences between days in the same phase (5.2−21.5%). These results suggest that the fluctuations of muscle function measures across menstrual phases are not as great as those between days in the same menstrual phase. It is concluded that menstrual cycle does not affect leg muscle function and handgrip strength in sedentary women.

Key words: knee extensors, knee flexors, isometric strength, isokinetic strength, vertical jump