Effects of oral contraceptive use on muscle strength, muscle thickness, and fiber size and composition in young women undergoing 12ăweeks of strength training: a cohort study.

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It is suspected that hormonal fluctuations during menstruation may cause different responses to strength training in women who use oral contraceptives (OC) versus those who do not. However, previous studies that investigated the existence of such differences produced conflicting results. In this study, we hypothesized that OC use has no effect on muscle strength and hypertrophy among women undergoing strength training. Thus, we compared the differences in muscle strength and thickness among women who used OCs and those who did not.; We investigated the influence of OC use on muscle strength (F; max;), muscle thickness (Mtk), type 1-to-type 2 muscle fiber (NO) ratio, muscle fiber thickness (MFT), and nuclear-to-fiber (N/F) ratio. Seventy-four healthy young women (including 34 who used OCs and 40 who did not) underwent 12ăweeks of submaximal strength training, after which F; max; was evaluated using a leg-press machine with a combined force and load cell, while Mtk was measured using real-time ultrasonography. Moreover, the NO ratio, MFT, and N/F ratio were evaluated using muscle needle biopsies.; Participants in the non-OC and OC groups experienced increases in F; max; (+ 23.30 ś 10.82ăkg and + 28.02 ś 11.50ăkg respectively, p = 0.073), Mtk (+ 0.48 ś 0.47 cm; 2; and + 0.50 ś 0.44 cm; 2; respectively, p = 0.888), F; max; /Mtk (+ 2.78 ś 1.93ăkg/cm; 2; and + 3.32 ś 2.37ăkg/cm; 2; respectively, p = 0.285), NO ratio (type 2 fibers: + 1.86 ś 6.49% and -ă4.17 ś 9.48% respectively, p = 0.169), MFT (type 2 fibers: + 7.15 ś 7.50ăţm and + 4.07 ś 9.30ăţm respectively, p = 0.435), and N/F ratio (+ 0.61 ś 1.02 and + 0.15 ś 0.97 respectively, p = 0.866) after training. There were no significant differences between the non-OC and OC groups in any of these parameters (p > 0.05).; The effects of 12ăweeks of strength training on F; max; , muscle thickness, muscle fiber size, and composition were similar in young women irrespective of their OC use.

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