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Marked effects of Pilates on the abdominal muscles: a longitudinal magnetic resonance imaging study.

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Abstract

PURPOSE: The study's purpose was to analyze the effects of Pilates on the volume of the rectus abdominis (RA), obliques, and transversus abdominis, with the last two considered conjointly (OT).

METHODS: The volume of OT and RA were determined using magnetic resonance imaging in nine nonactive healthy women, before and after 36 wk of a standardized Pilates training program (Modern Pilates).

RESULTS: The volume of the dominant OT was increased by 8% ($P < 0.05$) with training, whereas the nondominant OT volume remained unchanged (+2%, $P = 0.58$). The total volume of RA increased by 21% after Pilates ($P < 0.05$) because of a similar increase of dominant and nondominant RA volume (21% and 20%, respectively, $P < 0.05$). Before Pilates, the volume of the OT was 8% greater in the nondominant compared with the dominant side ($P < 0.01$). This asymmetry was compensated by Pilates training (2%, $P = 0.43$). No side-to-side asymmetries in RA muscle volumes were observed either before (2%, $P = 0.51$) or after (1%, $P = 0.81$) Pilates.

CONCLUSIONS: The present study reveals the existence of asymmetries in the muscles of the abdominal wall in nonactive healthy women. Pilates practice twice a week for 9 months elicits hypertrophy of the abdominal wall muscles, particularly of the RA, and eliminates preexisting asymmetries of the OT. Modern Pilates can be recommended as an effective method to reinforce the muscles of the abdominal wall and to compensate preexisting asymmetric developments.

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