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Effects of strength and endurance training on muscle fibre characteristics in elderly women.

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Abstract

The effects of 18 weeks' intensive strength and endurance training on fibre characteristics of the vastus lateralis muscle were studied in 76- to 78-year-old women. Type I and type IIa fibres constituted over 90% of the cell population and were almost equally represented. No changes were observed in the proportions of the different fibre types. When comparing the baseline and the 18-week measurements within the groups, the strength group showed a mean increase of 34% ($P = 0.028$) in mean type I fibre area. The frequency histograms showed an increased proportion of larger type I fibres after strength training and a decreased proportion of smaller type IIa fibres after endurance training. In the control subjects, the proportion of smaller type I and type IIa fibres increased during the experimental period. The results indicate that intensive strength training induces type I fibre hypertrophy, whereas the effects of endurance training are less evident. The considerable variation found in the change in muscle fibre cross-sectional areas is also noteworthy.

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