

Effects of rowing training on abdominal muscle and fat in elderly men

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The purpose of this study was to examine the effects of rowing training on abdominal muscle and fat size in elderly men. In cross-sectional study, we compared the cross-sectional areas (CSAs) of abdominal muscle and fat measured by MRI in 16 elderly male rowers (ROW: age, 67.8 ± 2.3 yr) and in 18 untrained men (CON: 66.2 ± 3.0 yr). ROW had a 20% larger total abdominal muscle CSA than CON ($P < 0.01$); rectus abdominis, psoas major and erector spinae were 27%, 64% and 14% larger in ROW than in CON ($P < 0.05$ – 0.001), respectively. On the other hand, there were no differences in visceral and subcutaneous fat CSAs between the two groups. In intervention study, nine sedentary elderly men (71.8 ± 4.4 yr) trained on rowing ergometer for 24 weeks at three times/wk. In response to 24 week-rowing training, total abdominal muscle, rectus abdominis, psoas major and quadratus lumborum CSAs increased by 6%, 11%, 23% and 10%, respectively ($P < 0.05$ – 0.001). Subcutaneous fat CSA decreased by 17% ($P < 0.01$), but no change was observed for visceral fat CSA. These findings suggested that rowing training is a valuable tool for increasing abdominal muscle size, especially rectus abdominis and psoas major, for elderly men.