

研究業績 英文表記

和文	
表題	振動付きフォームローラー介入が筋腱複合体の他動的・能動的性質の比較
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英文	
Title	Comparison between foam rolling with and without vibration on passive and active plantar flexor muscle properties
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Abstract	<p>Although foam rolling interventions with and without vibration have been used to increase flexibility in the field of sports, their effects on passive and active properties remain unclear. Hence, this study aimed to investigate the effects of foam rolling interventions on range of motion (ROM), shear elastic modulus, plantar flexor muscle strength, and jump performance. This randomized, controlled, crossover study included 16 healthy male subjects who visited the laboratory 3 times (control condition, foam rolling condition, and vibration foam rolling condition), each with an interval of >72 hours. In both foam rolling and vibration foam rolling conditions, subjects were instructed to perform 60-second bouts of intervention for 3 sets, with 30-second rest between each set. In the vibration foam rolling condition, the intensity of vibration was set at a frequency of 48 Hz. Dorsiflexion (DF) ROM, shear elastic modulus, plantar flexor muscle strength, and drop jump height were determined before and after the rolling intervention. Our results showed a similar increase in dorsiflexion range of motion ($p < 0.01$, $d = 0.51$; $p < 0.01$, $d = 0.65$, respectively) and passive torque at dorsiflexion range of motion ($p = 0.02$, $d = 0.51$ and $p < 0.01$, $d = 0.65$, respectively) after foam rolling and vibration foam rolling. Medial gastrocnemius shear elastic modulus decreased only after vibration foam rolling ($p < 0.01$, $d = 0.44$). No significant main effects of time were observed in maximal voluntary isometric contraction torque ($F = 2.0$, $p = 0.15$, $= 0.119$) and drop jump height ($F = 1.5$, $p = 0.24$, $= 0.091$) after both interventions. Maximal voluntary concentric contraction torque showed a significant main effect of time ($F = 7.59$, $p = 0.02$, $= 0.336$). However, only after foam rolling, the maximal voluntary concentric contraction torque significantly decreased ($p = 0.01$, $d = 0.39$). Our results suggest that vibration foam rolling effectively alters passive muscle properties without decreasing muscle strength and performance.</p>
keyword	shear elastic modulus, maximal voluntary isometric contraction, concentric strength, drop jump, roller massage

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