# 研究業績　英文表記

| 和文 | |
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| 表題 | 超音波画像診断装置とハンドヘルドダイナモメーターは 1RM を効率的に推測できる |
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| **英文** | |
| Title | Efficacies of ultrasound and a handheld dynamometer to predict one-repetition maximum |
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| Abstract | [Purpose] It is important to accurately measure one-repetition maximum to determine the training load and number of repetitions. However, huge and expensive equipment, such as a torque machine and/or dynamometer, is needed to measure one-repetition maximum. Therefore, a more accessible and affordable method has been developed to predict one-repetition maximum. In this study, we aimed to investigate whether one-repetition maximum of the knee extensor could be predicted more accurately with a combination of muscle strength, measured using a handheld dynamometer, muscle thickness, and thigh circumference. [Participants and Methods] Participants were sixty-four non-athletic healthy adult volunteers (33 males and 31 females). Muscle strength of the knee extensor measured using one-repetition maximum, maximal voluntary isometric contraction measured using a handheld dynamometer, muscle thickness of the quadriceps and/or thigh circumference measured on ultrasonography. [Results] The stepwise regression analysis revealed that body mass, gender, muscle thickness at 15 cm above the patella, and maximal voluntary isometric contraction were the significant and independent determinants (R2=0.813). [Conclusion] One-repetition maximum could be predicted more accurately with a combination of maximal voluntary isometric contraction measured using a handheld dynamometer and muscle thickness. |
| keyword | One-repetition maximum, Muscle thickness, Handheld dynamometer |

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