The purpose of this study was to clarify the muscle structural characteristics of trunk, upper arm and thigh in baseball players. The subjects were twelve collegiate baseball players (BG) and five non-active students as a control group (CG). Their mean age was 19.4 ± 0.8 years old, mean height was 175.3 ± 4.5 cm, mean body weight was 70.3 ± 7.3 kg in BG. Whereas, mean age was 21.2 ± 1.1 years old, mean height was 171.9 ± 5.7 cm, mean body weight was 64.1 ± 6.2 kg in CG. Muscle cross-sectional area on trunk (obliquus abdominal and latissimus dorsi muscles), upper arm (flexor and extensor muscles) and thigh (quadriceps femoris and hamstrings muscles) were measured by magnetic resonance imaging (MRI) respectively. The estimated muscle volumes on trunk (EMVtrunk), upper arm (EMVupper arm) and thigh (EMVthigh) were obtained by device of bioelectrical impedance analysis in all the subjects. In addition, relative muscle volume of trunk, upper arm and thigh to whole body muscle volume were calculated in all the subjects.

The cross-sectional area of the obliquus abdominal muscle in BG was significantly higher than that of CG (p<0.05). In latissimus dorsi muscle, significant difference between BG and CG was observed in dominant side. In upper arm and thigh, higher muscle cross-sectional areas in BG were showed than that of CG (p<0.05). Significant side differences were observed between obliquus abdominal muscles (non-dominant side > dominant side) and latissimus dorsi (non-dominant side < dominant side) in BG. And also, muscle cross-sectional area of upper arm in dominant side was significantly higher than that of non dominant side in BG (p<0.05). On the other hands, side difference on trunk, upper arm and thigh were not observed in CG. EMVupper arm in BG was significantly higher than that of CG. In dominant side, significant difference between BG and CG were not observed in EMVtrunk and EMVthigh. Relative muscle volume of upper arm to whole muscle volume of BG was significantly higher than that of CG.

From these results, it was considered that specific muscle hypertrophy growth on trunk and extremity may occurring by baseball training.

Reference
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