Association between Anthropometric Characteristics and Physical Fitness in Male Judoists; Based upon Weight Class

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The purpose of this study is to examine anthropometric characteristics of outstanding Judoists and examine the changes caused by physical fitness difference based upon weight class classification. One hundred five male university Judoists were participated in this study. Anthropometric characteristics and physical fitness test based upon weight class as light weight class (-60kg, -66kg, -73kg; n=41), middle weight class (-81kg, -90kg; n=46), and heavy
weight class (-100kg, 100kg; n=18) were conducted. 50-M run and Z-jump were tested for measuring power and muscular endurance and 20-M shuttle run test was conducted for measuring aerobic performance capacity. One-way ANOVA was used to test the difference among participant characteristics, physical fitness, and anthropometrical characteristics based upon weight class. As weight class was increased, 50m running records were significantly increased ($p<0.05$). Otherwise, 20m MSRT ($p<0.05$) and Z-jump were significantly decreased as weight class was increased. There was a significant inverse relationship between anthropometric characteristics and physical fitness (50-M run and 20-M MSRT) in endomorphy and mesomorphy ($r= -0.30$ to $-0.57$ ($p<0.05$)). Otherwise, there was a significant positive relationship between anthropometric characteristics and physical fitness (50-M run and 20-M MSRT) in ectomorphy ($r=0.41$ to $0.54$ ($p<0.05$)). In conclusion, aerobic and anaerobic capacity of middle weight class judoists might not have a higher association with anthropometric characteristics unlike light and heavy weight class judoists.

**Key Words:** endomorphy, mesomorphy, ectomorphy, physical fitness, muscle fitness

**Funding source:** This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2010-413-G00007).

**Introduction**

It has been well known that physical fitness and skill revelation capacity of Korean male judoists are much better than judoists from traditional powers of Judo such as Japan, France, and Russia. Judo is a weight class based sport such as Taekwondo, wrestling, and boxing. All weight class based sports considers athletes’ muscular strength and have been applied for athletes’ well-faired competition (Artioli et al., 2010). Judo matches have been expected to have different energy usage based upon weight class due to simultaneously attack and defense in standing and laying down position (Kim, Cho, Jung, & Yoon, 2011). Moreover,