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### **【Poster Presentation by Students】**

#### **Electromyographical analysis during eggbeater kick**

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Lower limb plays an important role in play water polo, when they swim, float, turn and jump. Stroke to use to help them float called the "eggbeater kick". I was considered that eggbeater-kick is related significantly to the performance of water polo. However, muscle activation pattern when the water polo players to eggbeater kick is not clear. So, it is a study intended to clear up the muscle activity of lower limb at the eggbeater kick. We were using the electromyograph (DL-5000, S&ME, Japan) that made the waterproof treatment for the measurement of muscle activity. Further, we have taken motion using a high speed camera can be

used underwater (HAS-200, DITECT, Japan). The subjects was one male water polo player with experience in more than 10 years. EMG data were collected at 1,000 Hz. After careful abrasion of the skin, the electrode pairs were placed longitudinally over the following muscles on the right side of the body with an interelectrode distance of 20mm: rectus femoris, medial vastus, adductor, biceps femoris, tibialis anterior, gastrocnemius and gluteus medius. Then the subject was asked to two tasks. The first task eggbeater kick in a state in which nothing holds. Second, the eggbeater kick in the state holding the plate 10kg.