

Department of Orthopaedic Surgery

Division of Sports Medicine

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General Summary

Clinical Research

The ongoing research in our department concentrates on competitive athletes (including professionals), amateur athletes who include sports activities in their daily lives, and young athletes engaged in school sports clubs or dedicated to training within sports clubs. In 2014 we have been mostly focused on basic research.

Research Activities

A questionnaire for ankle sprain in elite ballet dancers

We investigated the incidence and risk factors of ankle sprain in elite ballet dancers with a questionnaire we developed. The study group consisted of 28 male and 105 female dancers. When these dancers were aged 11 to 15 years, 56% had an ankle sprain and 50% had bilateral ankle sprains. Dancers who had used pointe shoes before the age of 10 years tended to have more than one injury and complained of instability of the ankles. Ballet dancers appear to need measures to prevent ankle sprains based on specific risk factors.

Correlation of deep squatting and sitting ability with the incidence of sports injuries of the lower extremity in baseball and soccer players: A prospective study

We performed a prospective study to examine possible correlations of deep squatting and sitting position ability with the incidence of sports injuries in the lower extremity in baseball and soccer players. The subjects were 30 patients in each group with an average age of 18 years. The correlation (phi coefficient) of deep squatting with the incidence of sports injuries of the lower extremity was 0.94 in baseball players and 0.78 in soccer players. The correlation (phi coefficients) of deep sitting with the incidence of sports injuries was 0.48 in baseball players and 0.47 in soccer players. The ability to perform deep squatting can be easily examined and can serve as a useful evaluation method to predict future sports injuries.

Therapeutic effects of high molecular weight hyaluronan injections for tendinopathy in a rat model

We analyzed the therapeutic effects of hyaluronan injections for tendinopathy in a rat model, which was developed with a rodent treadmill machine. Rats with tendinopathy received injections of high molecular weight hyaluronan, normal saline, or nothing (control group) into the space between the patellar tendon and the fat pad of both knees. The number of spontaneous locomotor activities was significantly greater after the injection of hyaluronan than of normal saline or nothing. On histologic examinations, the numbers of

microtears, laminations, or apoptotic cells in patellar tendons were significantly lower after the injection of hyaluronan than of normal saline or nothing. Injections of high molecular weight hyaluronan were effective for pain relief and for partial restoration of the patellar tendon in our tendinopathy rat model.

A junior high school baseball player with bilateral anterior iliac pain of independent pathology: A case study

We reported on a 14-year-old baseball player who sustained bilateral anterior iliac pain of independent pathology: overuse syndrome on the right side and iliacus hematoma on the left. We speculated that early diagnosis with magnetic resonance imaging was effective for preventing serious complications, such as an avulsion fracture and femoral nerve palsy.

Arthroscopic reduction and internal fixation for fracture of lateral process of the talus

We reported on a 22-year-old snowboarder who had a type I fracture of the lateral process of the talus and underwent arthroscopic reduction and internal fixation. This was the first report describing the arthroscopic approach for treatment of this fracture.

Publications

Funasaki H, Kato S, Hayashi H, Marumo K.

Arthroscopic excision of bone fragments in a neglected fracture of the lateral process of the talus in a junior soccer player. *Arthrosc Tech.* 2014; **3**: e331-4.

Hayashi H, Funasaki H, Sakamoto K, Tsuruga R, Marumo K. Recovery in muscle strength after anterior cruciate ligament reconstruction (in Japanese). *Nihon Seikeigeka Supotsu Igakkai Zasshi.* 2014; **34**: 322-8.

Ito S, Funasaki H, Hayashi H, Kawai K. Com-

parison of silent period between the operated and non-operated side after reconstruction of anterior cruciate ligament (in Japanese). *JOSKAS.* 2014; **39**: 821-5.

Reviews and Books

Sugiyama H, Kim S. Sports injuries in the pelvis and hip joints (in Japanese). *MEDICAL REHABILITATION.* 2014; **176**: 155-62.