of the collateral ligaments, and moderate (type 2) bone loss. Hinged prostheses can be used in the presence of complete disruption/absence of the ligaments with moderate (type 2) or severe (type 3) bone loss.
Conclusions A selection algorithm of the revision implant constraint based on the state of ligaments and the bone loss AORI classification could provide stable knee reconstructions and the long-term success of the knee revisions.

SPORTS TRAUMATOLOGY 2

The proximal tibial epiphyseal and apophyseal lesions in children sports injuries

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Introduction The fracture of the tibial tuberosity associated with proximal epiphyseal lesions in children are very rare, corresponding to 1 % of all physis's injuries. They are morphologically complex and affecting young athletes very often due to high-energy trauma. We present the surgical treatment results of these lesions.
Methods We carried out a retrospective review of seven tibial apophyseal and epiphyseal fractures surgically treated. Were examined the age, the weight, the injury mechanism, the radiological classification, the surgical technique and the clinical and radiographic long term results.
Results Our series includes seven apophyseal and epiphyseal fractures (6 M/1 F), mean age of 12.75 years, average weight of 51.25 kg, mean FU 1.6 years. All injuries occurred during sports activities (6 soccer/1 athletics high jump). All patients were treated in emergency. One of these patients was treated with internal fixation with Kirschner wires, the other with screws. In none of the cases there has been a compartment syndrome. All athletes returned to sports after about 6 months. In one case (female athlete) there has been patellar pain in a slight tibial varus deformity.
Discussion The apophyseal fractures associated with proximal tibial epiphyseal lesions requires the immediate reduction and osteosynthesis in emergency. These lesions, often affecting the joints, are not adequately documented by simple X-ray images and require a second level of imaging (CT/MRI) for a complete pre-operative classification, a correct surgical planning and a right prognostic evaluation. Is recommended to perform a surgical approach with complete exposure of the lesion based on the frequent presence of periosteal flap and/or muscle that are interposed between the fragments, making it impossible closed anatomical reduction. The fixation can be performed with screws that can be placed in the epiphyseal without damage of the growth plate. It is recommended in all cases to remove, as early as possible, the surgical fixation to minimize any interference with the growing plate.
Conclusions Our experience in the treatment of these children rare sports injuries emphasizes the need for a pre-operative diagnostic evaluation based on a three-dimensional study, suggests the need for a new classification of 3D, requires an intra-operative balance of the soft tissues injuries and recommend a wound closure at different times to reduce, as much as possible, the risk of compartment syndromes. If these lesions are correctly treated the long term risk of tibial deformity is low but higher for female athletes in whom also the risk of femoro-patellar malalignment is more common.

Ultrasound-guided viscosupplementation in glenohumeral microinstability in sports athletes

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Introduction Glenohumeral microinstability (AIOS, aquired instability in overstessed shoulder), often found in athletes who perform overhead activities (e.g. tennis, water polo, volley, swimming) is put in relation to the repeated glenohumeral extreme movements of abduction, external rotation and extension typical of some athletic gestures. These, combined with intrinsic factors specific of the athlete (ligamentous laxity, loss of muscle tone etc.) and extrinsic (technical failures or overload etc.), cause a conflict-crushing of the insertion of supraspinatus tendon between the greater tuberosity of the humerus and the glenoid labrum at the level of the posterior superior edge of the glenoid called posterior superior impingement (PSI) thus representing ground for reduction in sports performance.
Methods Eighteen athletes (14 men, 4 women) suffering from non advanced grade AIOS (no partial and/or total tendon tear) were selected by clinical and instrumental examination (MRI). The patients were treated with ultrasound guided infiltration (5–13 MHz multifrequency linear probe with lateral guide) of capsular region with low molecular weight ialuronic acid (three intra-articular infiltration with once-weekly basis) and subsequent physiokinesitherapy with active exercises with rubber bands. All patients were assessed by rating scale of Constant and MRI. Were recorded, also the time to return to sports activity.
Results In 90 % of patients was obtained, at the end of the treatment cycle of infiltration, a significant reduction of shoulder pain assessed by VAS, so as to allow them a quick return to sports activity.
Conclusions The infiltrative treatment with hyaluronic acid was effective in reducing pain and rapid recovery of athletic movement in patients with gleno-humeral microinstability.

Anatomic mini-invasive repair of distal biceps tendon ruptures

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Introduction Distal biceps tendon rupture is not common and the literature is mainly limited to case series. The preferred treatment of distal biceps tendon ruptures is by operative repair. There are several methods for the refixation of the distal biceps tendon. These include suture anchors, cortical button, and interference screw fixation which show a variable complication rate, mostly neural lesions and heterotopic ossifications. The best approach for repair (single or double) is still debated. The aim of the present study was to evaluate the clinical outcome and complication rate after distal biceps repair with a two incision mininvasive cortical button technique not needing a radial preparation. Radial preparation is the main cause of complications, as emerges from the literature.
Methods Clinical results, complications, strength of elbow flexion and supination and radiological evidence of heterotopic ossification were evaluated in 11 male patients submitted to distal biceps tendon repair with a two incision transosseous repair with cortical fixation not needing a radial preparation. Six of the 11 patients were high level