

TREATMENT STRATEGIES FOR CARTILAGE INJURY IN THE PROFESSIONAL ATHLETES: SPORT RECONDITIONING ON THE FIELD



Tencone F

Isokinetic Sport Rehabilitation Network, Torino, Italy

There is a wide agreement that a proper rehabilitation program is crucial to attain the functional recovery after cartilage sports injuries. Despite improvement in treatment procedures articular cartilage lesions still take a long time to recover, which greatly delays a return to competitive sport. Due to the risk of damaging the repair with inappropriate loading of healing tissue, return to high impact activities, like soccer, rugby, volleyball, basketball and martial arts, is recommended at 12-18 months (1).

The difficulty to understand the assessment of the maturation of the graft over time and the lack of evidence for rehabilitation in cartilage repair procedures produce reluctance to apply deleterious forces and may lead to graft failure. Moreover this fear and lack of experienced therapists in this field can result in an overcautious rehabilitation.

Many studies have shown the positive influence of exercise on the healing of articular cartilage defects and have demonstrated that physical training improves long-term results after cartilage treatments (2). Thus the positive effect of a correct rehabilitation to favour the healing of cartilage suggest a potential for "accelerated" return to the level of previous activity.

The final phases of the athletes rehabilitation preceding the return to sport must be performed on a specialized rehabilitation field (on-field rehabilitation: OFR), under control of OFR specialists. During OFR the injured athlete is considered as a whole with a multi-disciplinary approach aimed to obtain the best possible functional recovery.

The criteria for starting OFR are minimal or no pain (VAS less than 3/10), minimal effusion (grade 0 or 0/1+), complete ROM and maximal peak torque difference less than 20% between limbs on isokinetic test. Patients must also be able to run on the treadmill at 8 km/h for more than 10 minutes. So the starting of OFR and the loading progressions are criterion-based rather than time-based, considered surgical and interpersonal differences. This strategy underline one of the main themes of sports rehabilitation, that objective criteria, rather than specific timetables should guide rehabilitation decision-making (3).

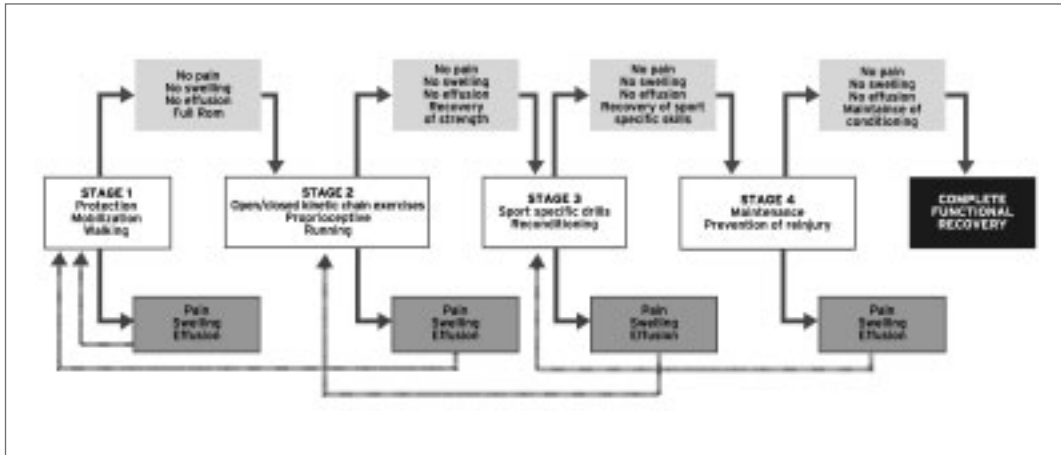


Fig. 1: In the goal oriented rehabilitation pathway the transition from one stage to the next is allowed when the goals of the stage are attained without pain, swelling and/or intra or extra articular effusion. If the patient experience one or more of these symptoms the rehabilitation goes back to the previous stage (dotted lines) (3).

OFR has to be sports-specific oriented so the athletes attains the functional recovery of the sport specific skills and returns to his team and to competitions. During OFR the athlete must also dedicate specific sessions performing cardiorespiratory and conditioning exercises and has to control the excess of body fat. The goal of this phase is to maintain a good quality of life and to prevent the risk of re-injury.

References

1. Hambly K, Bobic V, Wondrasch B. Autologous chondrocyte implantation postoperative care and rehabilitation: science and practise. *Am J Sports Med* 2006; 34:1020-38
2. Mithöfer K, Peterson L, Mandelbaum BR. Articular cartilage repair in soccer players with autologous chondrocyte transplantation: functional outcome and return to competition. *Am J Sports Med* 2005; 33:1639-46
3. Creta D, Della Villa S, Roi GS. Rehabilitation after arthroscopic autologous chondrocyte transplantation with three dimensional hyaluronan-based scaffolds of the knee. In: Brittberg M, Neher S, Marcacci M, Zanasi S, Cancedda R (Eds). *Basic science, clinical repair and reconstruction of articular cartilage defects: current status and prospects*. Timeo Editore, Bologna 2006, pp. 677-684