

evidence on effective non-pharmacological managements of HFPS.

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### A DECADE AFTER THE DELAWARE-OSLO ACL TREATMENT ALGORITHM: WHAT ARE THE LONG-TERM OUTCOMES?

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**Introduction** The Delaware-Oslo ACL treatment algorithm is distinct as it includes progressive rehabilitation with repeated functional testing, patient education and shared decision-making about treatment. We described and compared 10-year knee osteoarthritis and patient-reported outcomes in athletes who followed our treatment algorithm and chose early (<6 months) anterior cruciate ligament reconstruction (ACLR) with pre- and postoperative rehabilitation, delayed (>6 months) ACLR with pre- and postoperative rehabilitation, and progressive rehabilitation alone.

**Materials and Methods** We included 276 athletes with unilateral ACL injury from a prospective cohort. Tibiofemoral radiographs, the International Knee Documentation Committee (IKDC) and the Knee injury and Osteoarthritis Outcome Score (KOOS) subscales were assessed. Radiographic osteoarthritis was defined as Kellgren and Lawrence (K&L) grade  $\geq 2$  and symptomatic osteoarthritis as KOOS pain score  $\leq 72$  and K&L grade  $\geq 2$ .

**Results** At 10 years, 138 athletes had interpretable radiographs, whereof 59% had chosen early ACLR, 14% delayed ACLR, and 27% progressive rehabilitation alone. Across treatment groups, 12% had radiographic osteoarthritis and 1% had symptomatic OA. The mean $\pm$ SD IKDC score was 87 $\pm$ 11 points, while the KOOS subscales ranged between 76 $\pm$ 20 (quality of life) and 98 $\pm$ 4 (activities of daily living) points. The KOOS sport and recreation score was statistically significantly lower following delayed ACLR compared to early ACLR ( $p=.002$ ) or rehabilitation alone ( $p=.004$ ). No other outcomes differed between groups ( $p>.2$ ).

**Conclusion** Patients with ACL injuries who followed our treatment algorithm had low rates of knee osteoarthritis and good patient-reported outcomes at 10 years. Our findings reflect outcomes after treatment as it occurs in clinical practice.

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### LOWER LIMB ATROPHY AND FATTY INFILTRATION AFTER ACHILLES TENDON RUPTURE ASSESSED BY COMPUTER TOMOGRAPHY

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**Introduction** In the aftermath of Achilles tendon rupture (ATR) a period of immobilization is always needed. For ATR, the immobilization period is normally 6–8 weeks which can cause significant leg muscle deconditioning and muscle weakness. Descriptive studies of limb deconditioning in the early stages after ATR injury are lacking and could yield new insights on how to best limit limb deconditioning after injury.

**Material and Methods** 15 patients with unilateral non-operated ATR were included from a randomised controlled trial. At 6 weeks after injury, all patients underwent computer tomography investigation from mid-thigh to plantar foot. Muscle CSA and attenuation were measured and associated with both patient-reported- and functional outcome one year after injury.

**Results** The soleus muscle of the injured limb contained at mean 19.5% more intramuscular fat than the uninjured limb at 6 weeks after injury ( $p<0.05$ ). The lateral and medial gastrocnemius contained at mean 8.3% and 14.8% more fat than the uninjured limb respectively ( $p>0.05$ ). Mean CSA of the uninjured lateral-, medial gastrocnemius and soleus were 11.4%, 8.4% and 6.7% larger than the injured limb ( $p>0.05$ ). No association between CSA or fatty infiltration and patient outcome were observed. There was no association between patient weightbearing during immobilization and muscle deconditioning.

**Conclusion** Muscle deconditioning occur early after ATR. Significant fatty infiltration in the muscle had occurred, with no significant difference in muscle CSA. However, no significant association to patient outcome were observed at one year, which might be due to the low number of patients in this study.

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### SUPERIOR OUTCOMES AFTER PROGRESSIVE PRE- AND POSTOPERATIVE REHABILITATION COMPARED WITH USUAL CARE 10 YEARS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

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**Introduction** Better two-year outcomes are achieved when anterior cruciate ligament reconstruction (ACLR) is combined with progressive preoperative and postoperative rehabilitation than with usual care, but long-term outcomes are not investigated. We therefore compared patient-reported outcomes 10 years after ACLR in patients who followed progressive preoperative and postoperative rehabilitation versus those who followed usual care.

**Materials and Methods** We included patients from the Norwegian arm of the Delaware-Oslo ACL cohort (progressive preoperative and postoperative rehabilitation,  $n=101$ ) and the Norwegian Knee Ligament Registry (usual care,  $n=3162$ ). Patients had primary unilateral ACLR using a patellar tendon or hamstring autograft after 2006, no substantial concomitant injuries, and were aged 13–40 years. The 10-year Knee Injury and Osteoarthritis Outcome Score (KOOS) subscale scores and proportion exceeding the patient-acceptable