

# The Faroese Knee Cohort. An investigation of etiology and long-term implications of trochlear dysplasia and patellar dislocations.

Eysturoy, NE. Mortensen, ES. Holmich, P. Blønd, L. Gregersen, NO. Barfod, KW.

The National Hospital of the Faroe Islands, Copenhagen University Hospital Amager Hvidovre, Zealand University Hospital Køge, IOC Research Center Copenhagen, Sports Orthopedic Research Center Copenhagen (SORC-C)

## Background/Aims:

Patellar dislocation is a major problem for function, pain and quality of life, typically starting in adolescence. The two major predisposing factors for instability in the patellofemoral joint are femoral trochlear dysplasia (TD) and patella alta (PA). The incidence in Denmark is reported to be 42 per 100.000 person years. The etiology of patellar instability (PI) is yet to be fully explained, but a familiar association is under suspicion.

It is the belief of the investigators, that there is an overrepresentation of PI and TD in the Faroese population, a country with 52.000 genetically isolated people in the North Atlantic. The overall aim of the study is to investigate etiology and long-term implications of PI in young adults in the age from 15-20 years, with a special focus on TD and PA.

## Method/design:

The study is designed as a prospective national cohort study with 30 years follow up. All inhabitants in the age from 15-20 years old at time of enrollment with PI (patellar dislocation, patellar instability) will be invited to join the project. All patients will have both knees clinically investigated; they will take standardized x-rays and MR-scan both knees. They will answer standardized questionnaires about function, pain and quality of life, and take a blood sample for later use. The familiar association will be calculated in cooperation with the Genetic BioBank of the Faroe Islands, using a multi-generation registry going back to the 17<sup>th</sup> century. Risk factors for patellar dislocations will be calculated with fitting-regression models using data from the clinical investigation, MR-scans and questionnaires. The participants will answer questionnaires every year and take an x-ray of the knees every 5 years for 30 years. This allows us to see how the patient reported outcome develops and see if they develop retro-patellar arthrosis.



## Results:

We expect there to be a higher incidence of PD and TD in the Faroe Islands compared to Denmark, as well as a familiar association. We expect to find the same risk-factors for patellar dislocations as already known, however relatively more due to TD. We expect that the study population has a worse score in the PROM's regarding function, pain and quality of life, compared to age-matched groups in other European countries. At last, we expect the development of retro-patellar arthrosis to be worse and earlier in the study group compared to normal.

We expect to start the study in 2021. The first results are expected to be published in 2022-2023.

