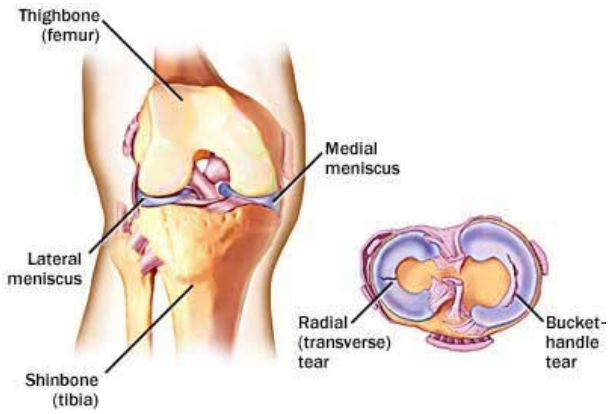
PhD project/thesis

Topic: **T**otal **R**epl**A**cement of **M**eniscus with **M**inimally Invasive **POL**ymer **I**mpla**N**t (TRAMMPOLIN)

For: Masters degree holders in polymer science, physics and mechanical, material or Biomedical engineering.



Project description: Meniscus failure in patients cause progressive joint pain and premature osteoarthritis even after meniscectomy. No satisfying treatment options are available yet. In this project a non-resorbable, biostable meniscus implant will be developed using a suitable thermoplastic elastomer (polyurethanes etc.) with converging chemical, mechanical and biological properties. The work will be done in close collaboration with groups at the Technical University Eindhoven and Radboud University Nijmegen Medical Centre (RUNMC) who will look at the other biological and mechanical characteristics. The work by the PhD students includes basic tribological and physicochemical characterization of Cartilage, Meniscus and the candidate material for artificial Meniscus. This will be done using the lateral force atomic force microscope. Furthermore adsorption of synovial fluid proteins (PRG4, HA) and formation and stability of the conditioning film, essential for lubrication, on the candidate materials will be studies using the quartz crystal microbalance. The final step in the tribological analysis will be to test the meniscus implant on a knee simulator. This will be done in collaboration with Institute of Medical and Biological Engineering at the University of Leeds in UK and RUNMC. The project TRAMMPOLIN is funded by top institute- BioMedical Materials program, The Netherlands. The project has to result in a PhD thesis within 3y.

Start: June 2011, Applications invited till 1st May 2011

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Conditions of employment: The UMCG offers a salary of minimally € 2.086,- in the first year up to a maximum of € 2.550,- in the last year (gross per month). The conditions of employment comply with the collective labor agreement CAO-UMC. It concerns a temporary full-time position for three years. A performance evaluation will take place after the first year.

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