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DISSERTATION TITLE: *Disc herniation, inflammatory mediators and lumbar radicular pain*

Sciatica is often associated with lumbar disc herniation, and may be related to mechanical compression of the nerve-roots, but also by an inflammatory process induced by the herniated disc tissue.

The magnitude of pain varies from one person to the next. We just do not know why this is, but some of the explanation may lie within the genes. In the dissertation "Disc herniation, inflammatory mediators and lumbar radicular pain" Aurora Moen studies the relationship between genes, inflammatory factors and development of sciatica. This work enbodies both animal studies and observation of patients.

In a rat model, it was shown that the inflammatory response associated with the herniated disc tissue can induce a persistent increase in the neuronal activity in the pain pathways. An increased gene-expression of the inflammatory mediators IL-1, IL-6, TNF, CSF-1 and FasL also was demonstrated. Moreover, increased serum levels of a panel of inflammatory mediators were observed in patients with persistent sciatica. Furthermore, genetic variability related to increased release of IL1 was associated with more pain the first year after disc herniation.

Finally, a new group of tiny molecules regulating gene expressions, called microRNA, was demonstrated in disc tissue of rats. This trace was continued on patients. These data show that high levels of microRNA (miR-223) after disc herniation may be associated with a better recovery. How these microRNAs really work and if they inhibit inflammation are yet to be investigated.

It is concluded that inflammatory factors may be important for the recovery after disc herniation.