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## The impact of chronic musculoskeletal pain on male reproductive hormones and sperm quality

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The association between reproductive hormones (FSH, LH, testosterone and prolactin) and human semen parameters has long been established. Previous studies have recognized that increase in cortisol levels under chronic pain conditions can potentially lead to testosterone deficiency in chronic pain patients, possibly posing a negative effect on sperm quality and eventually affecting male fertility potential. However, other studies reporting no significant difference in testosterone, LH and cortisol levels in men with chronic musculoskeletal pain making it a controversial topic that calls for further investigation. Blood samples from 10 chronic musculoskeletal pain patients and 10 healthy matched controls were collected to assess serum reproductive hormone levels at Aalborg University Hospital. Sperm samples were also collected by masturbation in accordance with the WHO semen sampling guidelines and analyzed for sperm concentration, motility and kinematic parameters using the Sperm Class Analyzer (SCA<sup>®</sup>) computer aided sperm analysis system. Serum levels of reproductive hormones and sperm DNA fragmentation did not show any significant difference between the test and control groups. However, significantly lower percentage of static and non-progressive motile sperm ( $P < 0.05$ ) was observed in the chronic pain patients; while the control group demonstrated significantly higher sperm concentration, progressive motility and percentage of hyper-activated sperm ( $P < 0.01$ ). Chronic musculoskeletal pain patients differ from matched healthy controls in several sperm quality parameters but no significant difference exists between the two groups in terms of reproductive hormone levels. These findings highlight the importance of other factors involved in sperm quality decline in chronic pain patients, which needs further investigation.

### Biography

Fereshteh Dardmeh has completed her Doctor of Veterinary Medicine (DVM) from Urmia University, Iran in 2011. She then joined the Laboratory of Reproductive Biomedicine and Center for Sensory-Motor Interaction (SMI) in the Department of Health, Science and Technology of Aalborg University, Denmark as a PhD student in 2013. She has since been actively involved in teaching and research in the area of Reproductive Health and Medicine with her current studies focusing on "Probiotic supplements as a novel strategy in pain management and translational investigations of possible associations between pain, obesity and fertility".

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