

# High occurrence of hereditary osteochondrosis and loose bone fragments in Norwegian standard bred trotters

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Credit: Jens Sølvsberg/Samfoto

A PhD research project carried out at The Norwegian School of Veterinary Science has revealed that 50.7% of Norwegian standard bred horses of the same age suffer from loose bone fragments and defects in

their joints. Genetic analyses show that osteochondrosis occurring in the hock and Birkeland fractures in the fetlock are caused by complex, hereditary diseases, which must be taken into account in breeding.

Osteochondrosis, Birkeland fractures and other loose fragments in joints are frequently occurring orthopaedic diseases in horses. These diseases can result in [lameness](#) and weaker performance and therefore have a significant effect on both the horses' welfare and on profitability in the horse industry.



Credit: Jens Sølvsberg/Samfoto

Sigrid Lykkjen, doctor of veterinary medicine, took x-rays of 464 one-year old standard bred trotters born in 2006 and 2007 and discovered that 21.5% of them had osteochondrosis in the hock and 23.1% suffered

from Birkeland fractures of the fetlock. The occurrence of osteochondrosis was significantly higher than that previously reported in Norwegian and Swedish studies. X-ray findings from an earlier Norwegian study of 753 standard bred trotters and pedigree information were included in the study when calculating the genetic parameters of these two diseases.

Lykkjen's research demonstrates that osteochondrosis of the hock and Birkeland fractures are [hereditary diseases](#) and a positive genetic correlation indicates that these disorders may share the same genes. Calculations show that the occurrence of these diseases is equally high in American and French trotters.

The research project also includes analyses of the horse's whole genome for the purpose of uncovering DNA variations that may be linked with the occurrence of osteochondrosis and Birkeland fractures. Lykkjen found areas of DNA associated with these two diseases in several chromosomes, which proves that these are complicated ailments influenced by many genes. Taken as a whole, the results of this project confirm that osteochondrosis of the hock and Birkeland [fractures](#) of the fetlock in standard bred trotters are relevant subjects for further research. Breeders can and should take account of these diseases in their work.

DVM Sigrid Lykkjen defended her PhD research on 24th October 2012 at The Norwegian School of [Veterinary Science](#) with a thesis entitled "Genetic studies of developmental orthopaedic joint diseases in the standard bred trotter". Her doctoral research was carried out as a collaborative project between the Horse Clinic and Department of [Disease](#) Genetics at The Norwegian School of Veterinary Science, the University of Ås and the University of Minnesota.

Provided by Norwegian School of Veterinary Science

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