

32. Peripheral blood mononuclear cells do not reflect skeletal muscle mitochondrial respiration in horses

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In human medicine, skeletal muscle mitochondria and their link to a variety of conditions have been investigated extensively. In horses, using respirometry, mitochondrial dysfunction has been reported in horses affected by equine atypical myopathy and polysaccharide storage myopathy.

It was recently suggested that peripheral blood mononuclear cells (PBMCs) may reflect mitochondrial bioenergetics in muscle. Blood sampling and subsequent PBMC analysis is a less invasive alternative to muscle biopsies. Therefore, respirometric measures were recorded for both types of samples in order to compare mitochondrial respiration in equine PBMC and skeletal muscle fibers. Skeletal muscle microbiopsies and whole blood were sampled in six horses of different breeds. Microbiopsies were taken at 5 cm depth in the long head of the *triceps brachii*. Muscle fibers were processed and analyzed following a standardized procedure. Whole blood was collected in 9 ml EDTA tubes and PBMCs subsequently isolated with a density-separation medium (Lymphoprep™), washed and analyzed within 4 hours of blood draw. Respiratory capacities were assessed using a specific substrate-uncoupler-inhibitor titration protocol for analysis of oxidative phosphorylation and electron transfer capacity. The flux control ratios (*FCRs*) and substrate control ratios (*SCR*) were calculated for both PBMCs and muscle fibers. Neither *FCR* nor *SCR* showed a correlation between the two samples (Spearman's correlation $p > 0.05$). Even though PBMC may potentially be an indicator of overall metabolic health, our results do not support the theory that circulating PBMC cells can replace muscle biopsies for studies of skeletal muscle mitochondrial function in horses.

33. Geo-spatial representation of the distribution of *Salmonella* Dublin in Wallonia.

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Introduction: *Salmonella enterica* subspecies *enterica* Dublin (SD) is a serotype adapted to cattle which can cause a very high mortality rate, especially among calves, and heavy economic losses for producers (Harvey et al., 2017). This bacterium has not been studied in Belgium, or only to a very limited extent. However, among the farms in Wallonia, cattle farms are the most numerous. The main objective is therefore to draw up an initial inventory of the situation of SD in Wallonia, its distribution by commune in relation to the number of cattle farms present per commune. Method: Using of ARSIA data that reported bovine samples tested positive to SD from ARSIA laboratory analysis between 2011 and 2019 as well as the cattle farms present in 2015 on the Walloon territory. QGIS software is used for geo-spatial representation. Results: Almost all of Wallonia is reached. It is mainly the Ardennes-Fagne-Famenne-Condruz region. Significant relation between communes affected by SD and number of cattle farms present per commune was found. The areas with the highest density of cattle farms are generally those most affected by SD.