Amyotrophic lateral sclerosis (ALS, also known as Lou Gehrig's disease) is a neuromuscular disease characterized by motor neuron death in the brain and spinal cord. Symptoms of the disease begin with muscle weakness, eventually leading to complete paralysis and death within two to four years following diagnosis. Vitamin D supplementation increases antioxidant activity, decreases inflammation and increases motor neuron survival, characteristics that may influence disease progression and lifespan in ALS. Studies investigating the effects of vitamin D deficiency in animal models of disease that share common properties with ALS, such as multiple sclerosis, have yielded conflicting results. Our lab has previously demonstrated an improvement in muscle performance measures with vitamin D supplementation compared to mice fed an adequate amount of the vitamin. Our results demonstrate that vitamin D deficient mice reach disease onset later and had a lower disease severity early on in disease progression compared to mice fed an adequate amount of vitamin D. These improvements are transient as vitamin D deficient mice show a decreased performance in measures of muscle function following disease onset. Vitamin D deficiency had no effect on lifespan. Further research is needed to identify the molecular mechanisms responsible for the observed changes in this animal model prior to projecting our results to humans.

Reference: Solomon JA, Gianforcaro A, **Hamadeh MJ**. Vitamin D(3) Deficiency Differentially Affects Functional and Disease Outcomes in the G93A Mouse Model of Amyotrophic Lateral Sclerosis. PLoS One. 2011;6(12):e29354.

View this article [PDF].