

IMPACT OF DIETARY N-3 AND N-6 PUFA ON OXIDATIVE STATUS AND INFLAMMATION IN YELLOW-RUMPED WARBLERS

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Abstract

The intake and ratio of the essential fatty acid classes, n-3 and n-6 polyunsaturated fatty acids (PUFA), impact animal health. The dietary ratio of these fatty acids can be important as n-3 PUFA are considered anti-inflammatory, while n-6 PUFA are pro-inflammatory. Additionally, the increased number of double bonds in PUFA makes them more vulnerable to oxidative damage, potentially increasing the demand for antioxidants. Wild passerine diets differ greatly in intake and ratio of PUFA, with the ratios often beyond what is generally considered healthy for humans and domestic species. Limited data is available on the effect of n-3 and n-6 PUFA on inflammation and oxidative stress in exotic bird species. We studied the influence of n-3 and n-6 PUFA intake on the health of yellow-rumped warblers (*Steophaga coronata*). Warblers were fed diets enriched in either n-3 or n-6 PUFA, or a low PUFA control diet for 6 weeks and then sampled at rest or after an endurance flight in a wind tunnel. Plasma haptoglobin was measured as an indicator of general inflammation in the body, and neither diet nor flight influences its values. Further analyses are on-going but will include the antioxidant capacity and markers of oxidative damage in the liver and flight muscle. Fatty acid analysis of the plasma, liver and muscle will also be completed. The influence of dietary PUFA on oxidative capacity and damage will be reported and related to the fatty acid composition of the tissues. This study will help further our understanding of PUFA nutrition by directly testing for potential negative effects of n-3 and n-6 PUFA, and can be used in the formulation and evaluation of captive passerine diets.