

Effect Of Diet On Body Composition And Growth Parameters In Juvenile Seahorses (*Hippocampus spp.*) At The Toronto Zoo

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To date, all information on the feeding of seahorses (*Hippocampus spp.*) is contained in fish hobbyist magazines emphasizing acceptance of feed rather than its nutritive value. The juvenile stage is most critical in seahorse development and the most problematic in terms of feeding. This study compared the effects of two typical diets, *Neomysis integer* and *Mysis relicta*, on the body composition, body weight, liver weight, liver fatty acid composition, liver histopathology, and other growth parameters in juvenile seahorses. Eighty-eight juvenile seahorses were separated by weight (< 1.4 g, > 1.4 g) into four tanks per diet (11 seahorses/tank). It was hypothesized that the freshwater *M. relicta*, although showing adequate nutrient levels, would have lower levels of docosahexanoic acid (DHA) and eicosapentaenoic acid (EPA) possibly resulting in fatty acid deficiency. Seahorses showed some minor morphometric differences at the end of the study. Those fed *N. integer* had increased liver weight as well as greater body weights and the larger fish grew heavier than all other treatment groups. Moderate hepatic lipidosis was exhibited in all tanks. In terms of body composition, higher ash and lower lipid levels were found in the *N. integer* treatment fish. Several fatty acids, including DHA, EPA, and saturates were significantly higher in the livers of seahorses fed *N. integer* while C14:0, unsaturated, and omega 6 fatty acids were higher in the *M. relicta* livers. Lower C22:1 was found in the livers of smaller fish on either diet and C22:2n6 was lower in the small fish of *N. integer* fed animals and higher in the small of the *M. relicta* group. The information gathered in this study will provide a basis for a wide variety of future nutrition and metabolism related experimentation with these fish.

Key words: fatty acids; docosahexanoic acid; eicosapentanoic acid; nutrition; body mass