SHORT TERM IMPACT OF A SINGLE DOSE OF IODINE SUPPLEMENTATION ON SERUM IODINE IN BLACK BLOTCHED STINGRAYS (*TAENIURA MEYENI*)

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Abstract

Iodine is an essential nutrient for normal thyroid function. In fish, iodine in sea water is absorbed by the gills. When artificial sea water is sanitized by ozonation, iodine ions are oxidized into iodate; rendering them unavailable to animals. Elasmobranchs in aquaria are commonly supplemented with dietary iodine, as part of a multi-nutrient supplementation regimen. At Disney's The Seas with Nemo and Friends®, we have reported serum iodine concentrations magnitudes higher in our southern stingray population when compared to managed and wild rays in natural sea water without supplementation (Williams, *et al*., 2016; Williams *et al*., 2017). In humans, dietary iodine is excreted in urine within 24-48 hours, (Zimmerman and Andersson, 2012). We tested the impact of a single dose of iodine supplementation on serum iodine status at set intervals.

After a minimum one month without iodine supplementation, we collected initial samples before feeding a multi-nutrient supplement including iodine (Mazuri Shark/Ray II Vitamin, 5MD8/5M1Y), at the manufacturer's recommended rate. We utilized eleven black blotch rays (*Taeniura meyeni*) and collected paired serum samples for each animal; one initial sample pre-dose and a follow-up sample at one of three set intervals post dose. The collection occurred either 24 (n = 3), 48 (n = 3) or 72 hours (n = 5). We found that 24 hours post supplementation showed the greatest serum iodine concentration and initial levels returned by the 72-hour mark. While this implies longer than 48 hours for full dose excretion, it does not consider potential accumulation over time and warrants further investigation.

Literature Cited

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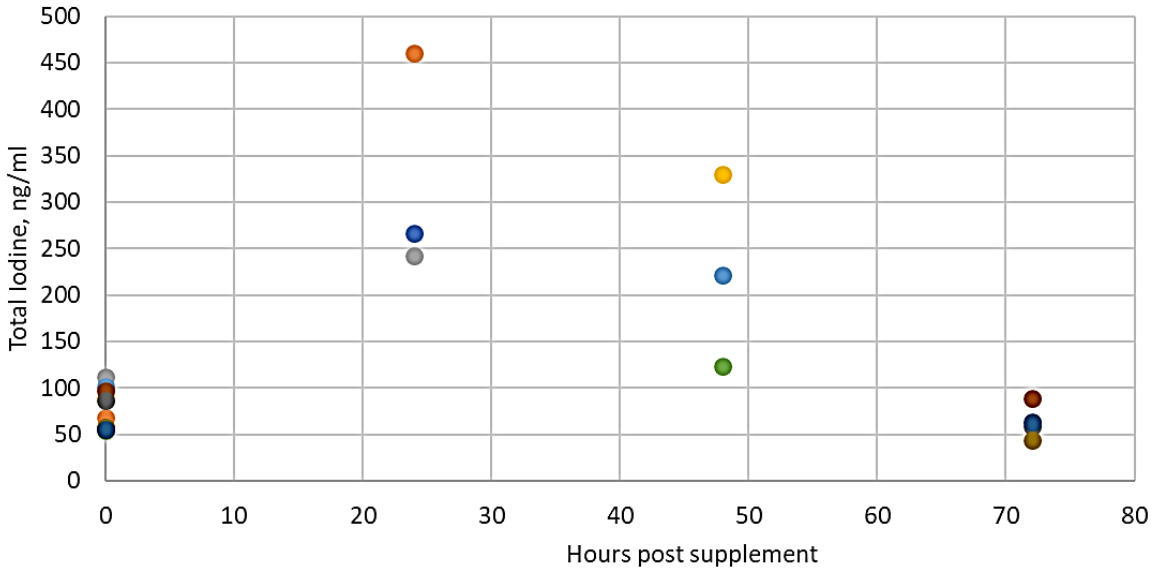

Figure 1. Serum total iodine concentration (ng/ml) over time after a single dose of iodine supplementation in black blotched stingrays (*Taeniura meyeni).*