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Capture myopathy in mammals and how this condition may apply to marine mammals

Capture myopathy (CM) is a condition that has been described in terrestrial mammals and birds following capture, handling and/or transportation; but appears to be rare in marine mammals and carnivores. There are numerous names for CM and include muscular dystrophy, capture disease, degenerative polymyopathy, overstraining disease, white muscle disease, leg paralysis, muscle necrosis, idiopathic muscle necrosis and exertional rhabdomyolysis. The pathophysiology associated with capture, handling and transportation of animals is extremely complex and associated with the sex, body condition, health of the animal, length of time of chase/pursuit, method/roughness of handling and the environmental condition (heat/cold) and other factors. The primary pathophysiological changes are characterized by intra and intercellular lactic acidosis and regional ischemia that predispose to rhabdomyolysis and necrosis of various internal organs especially in the cortex of the kidneys. Hyperthermia or hypothermia can play a vital role in the outcome of CM. There are at least four stages or forms of capture myopathy: capture shock syndrome, ataxic myoglobinuric form, ruptured muscle form and the delayed-peracute form. In my opinion the most likely scenarios in which CM may be a problem in marine mammals would be in dolphins that have been caught several times in tuna fisheries in a short period of time (perhaps a week) and perhaps in eared seals following capture (acute shock) or during recapture on the second or third day following the initial capture (peracute form).

Hidden Trauma in pinnipeds

Trauma is a common cause of death in pinnipeds. There are two primary types of trauma: sharp and blunt trauma. Gun shot is a third condition that may be placed under the category of sharp trauma (bullets/arrows ect). Usually sharp trauma can be observed on external examination, but blunt trauma is often missed. Primary causes of sharp trauma include bite wounds, boat propellers, entanglement by netting and perhaps gun shot/arrows. Causes of blunt trauma are most common in young animals and are usually caused by crushing type wounds. Pups are commonly crushed by older animals especially in crowded condition and during territorial fighting by the males. Other scenarios include being hit by boats, falling off of cliffs during times of excitement, ect. An important type of blunt trauma to the head and abdomen is not uncommon in northern fur seals that is associated with dystocia. The most common types of hidden trauma are caused by blunt trauma. Necropsy of pinnipeds is of utmost importance to confirm trauma especially blunt trauma. A tremendous degree of internal damage (ie fractured liver, kidney, skull) can follow blunt trauma and be totally missed following external examination.