Title: Molecular mechanisms of defense against oxygen lack

Authors: Hochachka, PW

Keywords: exercise
model
hypoxia

Issue Date: 1989

Abstract: Evidence has been accumulating over the last several years suggesting that suppression of oxidative metabolism without concomitant glycolytic activation and the maintenance of cell membrane electrochemical gradients are central and minimal provisions for protecting tissues against oxygen lack. This evidence for diving vertebrates is reviewed and evaluated. It is concluded that the model explains long-term anoxia and hypoxia tolerance of aquatic lower vertebrates. Whereas this strategy, which is dominated by metabolic suppression capacities, may also be utilized by large, long-duration divers such as Weddell seals, it is unlikely to play a significant role in smaller and faster swimming marine mammals, where the energy demands of exercise greatly exceed the energy savings achievable by switching down metabolic rates of hypoperfused tissues.

Description: Undersea and Hyperbaric Medical Society, Inc. (http://www.uhms.org)

URI: PMID: 2529688
http://archive.rubicon-foundation.org/2510

Appears in Collections: Undersea Biomedical Research Journal

Files in This Item:

File	Size	Format	
2529688.pdf	939Kb	Adobe PDF	View/Open