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Effects of chronic temperature stress on zebrafish, *Danio rerio*

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Experiments were conducted to examine the effects of temperature stress on the physiology of Zebrafish, *Danio rerio*. Disease-free zebrafish were obtained from Scientific Hatcheries of Huntington Beach, California. Upon arrival, fish were acclimated and then divided into 3 experimental groups; control at 28°C, test 1 at 32°C, and test 2 at 23°C; each with 2 replicates. Water qualities were monitored on a regular basis and fish were taken care of according to the guidelines of the animal care protocol. Fish (10 per group) were sampled at a regular interval of 2 weeks (weeks 0, 2, 4, 6 and 8). At each sampling period, sampled fish were first checked for effects on length and weight and physiological changes (oxygen consumption and ventilation rates), and then were euthanized and dissected to obtain fish tissues for immunological (macrophage respiratory burst and phagocytosis) and cellular response (protein profiles). There were no significant differences in ventilation rates and oxygen consumptions among the fish groups. But fish in test groups had significantly lower levels of respiratory burst activities at weeks 2 and 6. There was no significant difference in length, but fish in both test groups had less weight as the experiment progressed suggesting that chronic temperature stress induces weight loss and affects immune response. (This research was funded by Indiana University Research and the University Graduate School).