

Experience Effects: Changes in Perceived Fighting Ability or By-Product of Metabolic Changes?

Plan II Masters Defense Seminar

Mark J. Garcia

August 31st, 2012 @ 3:00pm, Biology 202



Prior contest experiences can predictably alter an individual's competitive performance and probability of contest success; win begets win (winner effect) while loss begets loss (loser effect). Although these experience effects are well studied across many animal taxa, their adaptive value(s) have yet to be elucidated. Two predominant hypotheses posit that contest experience alters an individual's perceived (self-assessment) and/or actual fighting ability (by-product). We addressed these hypotheses and potential physiological mechanisms driving experience effects in the green anole lizard (*Anolis carolinensis*). Focal individuals were given a loss/win in a contest against larger/smaller opponent, respectively. Following the contest focal individuals were 1) processed immediately to examine changes in tissue metabolism, 2) processed 2d later, or 3) given a secondary contest prior to processing. Changes in perceived/actual fighting ability were determined by examining an individual's probability of victory in escalated or non-escalated secondary contests. Assays of metabolic physiology, lactate and glucose, were conducted on muscle, liver, and plasma to determine whether energetic state could drive changes in future contest success. Results reveal a significant loser effect but no winner effect. Perceived fighting ability was significantly altered due to losing experience only and changes in metabolic physiology were not responsible for the presence/absence of either experience effect.