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# MUTUAL ASSESSMENT OF FIGHTING ABILITY IN CONTESTS OF *MELANOTES ORNATA* (ORTHOPTERA: GRYLLIDAE)

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In order to understand the evolution of fighting behaviour, it is crucial to recognize how contestants decide to withdraw from their fight: do they reach a self-threshold of costs associated to their fighting ability regardless of opponent's information or do they assess opponent's fighting ability and estimate their relative inferiority? If the first scenario holds, do injuries caused by opponents affect the speed such threshold is reached? We evaluated these questions with *Melanotes ornata* male crickets, by analysing the relationship between fight-associated costs and contestants' fighting ability in 39 observations. We considered hind femur length (hereby: HFL) as a proxy of fighting ability, and contest duration and the probability of kick exchange between opponents as proxies of fight-associated costs. There was a linear positive relationship of contest duration with losers' HFL and a negative one with winners' HFL. In size-matched contests (where ΔHFL<0.3mm, n=14) there was no relationship between contest duration and mean HFL. We also found a negative relationship between probability of kick exchange and HFL difference. The influence of winners' fighting ability on contest duration demonstrates that opponents' actions are important to the losers' decision to withdraw. There are two possible explanations for this: 1) as winners' fighting ability increases, the injuries they cause also increases, and losers reach their self-threshold faster, or 2) as winners' fighting ability increases, the necessary time for losers to estimate their inferiority decreases. Our results support the second scenario: there was no relationship between contest duration and fighting ability when the later was controlled (size-matched contests), demonstrating that relative rather than absolute fighting ability is more important. Also, kick exchange between opponents only occurred in fights where individuals had very similar fighting abilities, suggesting that costly activities are performed only when it is difficult to estimate which is the weaker opponent.

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