# How 'winner and loser effects' impact social rank in animals—and humans

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Research has shown that in many animals, the winners of a fight are more likely to win subsequent contests, while the losers tend to lose their following fights. In experiments where male stickleback fish were

randomly introduced to another fish, 65% of the winning fish won the second match, while all losing fish lost the second contest.

Such winner and loser effects can greatly influence individual behavior and fitness. This effect happens in humans as well. In "Winner and Loser Effects and Social Rank in Humans," recently published in *The Quarterly Review of Biology*, authors Noah M. T. Smith and Reuven Dukas provide a narrative review of the relevant similarities and distinctions between nonhumans and humans to assess the causes and consequences of winner and loser effects in humans.

The authors review winner and loser effects and their adaptive significance in nonhumans, including chimpanzees and fruit flies, and review additional factors that influence social rank in nonhumans and humans. The two-way interactions between social rank and winner and loser effects can alter cognition and behavior in various domains.

They then evaluate the potential role of such winner and loser effects and their social consequences. In nonhumans and humans, winner and loser effects may guide individuals to behave according to their apparent social rank, with winners adopting assertive postures and losers becoming submissive.

While physical formidability is the dominant dimension determining social rank in nonhuman species, in adult humans, social conventions, physical attractiveness, competence in complex skills, and social competence are more important for social rank.

Recent studies have explored winner and loser effects in humans competing in sports. Smith and Dukas tested winner and loser effects using first-person shooter video games and a reading comprehension assignment. Randomly assigned video game winners performed significantly better in the second phase than did randomly assigned first-

phase losers, and first-phase high scorers had higher reading scores in the second phase than first-phase low scorers.

The authors note that "our experimental protocol, which involved random assignment of participants to winner and loser treatments, is crucial for ruling out selection bias, whereby better performers simply win against weaker opponents in successive contests."

Future lines of research may provide further understanding of how and why winner and loser effects shape human cognition, mood, and behavior. These findings can provide additional implications in areas such as "red shirting" (the effect of enrolling children in school at a later age), winner and loser effects in investment banking and gambling, and the mood effects of winning and losing.

**More information:** Noah M. T. Smith et al, Winner and Loser Effects and Social Rank In Humans, *The Quarterly Review of Biology* (2024). DOI: 10.1086/732049

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