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Alternative mating tactics (AMTs) may show different trade-offs between current reproduction and survival; however, the proximate mechanisms underlying this pattern remain unclear. Among them, the relationship between reproductive effort and parasite resistance mediated by hormonal secretion has received increasing attention. We monitored 19 marked adult male chamois Rupicapra rupicapra within the Gran Paradiso National Park (Italy) between the pre- and post-rut 2011, to investigate the trade-off between mating effort and parasites associated with AMTs, and the underlying physiological mechanism. Territorial males sharply increased mating effort, faecal androgen and cortisol metabolites, and parasite levels during the rut, whereas non-territorial ones displayed a similar pattern only for androgen metabolites levels. During the rut, territorial males invested more in rutting activities, while having higher levels of hormone metabolites and greater faecal counts of parasites than non-territorials. Before and after the rut, differences between male types (territorials and non-territorials) were smaller. Our analysis suggests that a trade-off between mating effort and parasitism exists, and that the proximate mechanism underlying this pattern may be found in the secretion of androgen metabolites. The greater investment in rutting activities, which territorial males make, suggests potentially high mating benefits. However, mating benefits could be counter-balanced by greater risks of injuries, consumptions of fat reserves and higher hormone levels, which might favour the suppression of immunological defence and the subsequent decrease in parasite resistance.

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