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Doping for sex: bad for mitochondrial performances? Case of testosterone supplemented *Hyla arborea* during the courtship period

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ABSTRACT

Sexual selection has been widely explored from numerous perspectives, including behavior, ecology, and to a lesser extent, energetics. Hormones, and specifically androgens such as testosterone, are known to trigger sexual behaviors. Their effects are therefore of interest during the breeding period. Our work investigates the effect of testosterone on the relationship between cellular bioenergetics and contractile properties of two skeletal muscles involved in sexual selection in tree frogs. Calling and locomotor abilities are considered evidence of good condition in *Hyla* males, and thus server as proxies for male quality and attractiveness. Therefore, how these behaviors are powered efficiently remains of both physiological and behavioral interest. Most previous research, however, has focused primarily on biomechanics, contractile properties or mitochondrial enzyme activities. Some have tried to establish a relationship between those parameters but to our knowledge, there is no study examining muscle fiber bioenergetics in *Hyla arborea*. Using chronic testosterone supplementation and through