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Otoacoustic emissions in sheep (Ovis aries): Sex differences and prenatal androgen effects

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Otoacoustic emissions (OAEs) were measured in Suffolk sheep (*Ovis aries*), the first ruminant species tested for OAEs to our knowledge. Some sheep had been administered testosterone or estradiol during prenatal development, some had been gonadectomized after birth, and some had been allowed to develop normally. The click-evoked otoacoustic emissions (CEOAEs) exhibited by the female control group (N = 11) were stronger than those in the male control group (N = 15), which is the same direction of effect reported for other mammals, including humans. The females administered testosterone prenatally (N = 13) had substantially weaker (masculinized) CEOAEs than control females. Both outcomes suggest that prenatal exposure to androgens weakens the cochlear amplifiers. The CEOAEs of males administered testosterone prenatally (N = 5) were not different from those of control males, which is contrary to expectation, but in accord with data from similarly treated rhesus monkeys. Seven males (of 24) and seven females (of 34) had no measurable DPOAEs at any frequency or level of primary tones tested, even though all did have normal-appearing CEOAEs. No spontaneous otoacoustic emissions (SOAEs) were found in any ears, a common finding in non-human species.
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