11 β- HYDROXYSTEROID DEHYDROGENASE ACTIVITY IN FELINE, EQUINE, AND OSSABAW SWINE ADIPOSE TISSUE.

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ABSTRACT

Enzymatic 11βHSD1 amplification of glucocorticoid concentrations in adipose tissue has been associated with obesity, diabetes, hypertension, dyslipidemia, and cardiovascular disease in humans and mice. Unfortunately, very little is known about 11βHSD1 in other species. Therefore, three species were studied to determine if 11βHSD1 activity existed in adipose tissue in a species dependent manner and if so, did the amount of enzymatic activity differ with respect to specific adipose depots within that species.

Feline (carnivore): Fat samples were collected from 6 cats, each sampled from 5 different adipose depots. Immunohistochemically, 11βHSD1 was found in each of the adipose depots. Level of 11βHSD1 activity differed with depot and cat tested (P < 0.05). Morphometric analyses revealed that adipocyte diameters differed (P < 0.05) with adipose depot and cat, however, adipocyte volume did not correlate with level of 11βHSD1 activity.

Equine (herbivore): Fat samples were collected from the abdominal and subcutaneous adipose depots of 23 horses. Immunohistochemically, 11β-HSD1 was present in equine adipose, but level of activity did not differ with depot, nor body condition score of the horse.

Porcine (omnivore): Fat samples were collected from abdominal and subcutaneous adipose depots from 8 Ossabaw pigs. Immunohistochemical analysis revealed the presence of 11β-HSD1 in porcine, but the level of activity did not differ between tissue depots.