

Comparison of Estrogen Concentration in Bovine Blood and Saliva

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Abstract: Steroids serve as chemical messengers between certain body tissues. The sex steroid, estrogen and other steroids are able to be measured through different body fluids, such as blood or saliva. However, we do not have a clear understanding of the mechanism by which steroid hormones travel between body systems and fluids. With this in mind, we attempted to answer two questions: Is there a difference in the levels of estrogen in blood versus saliva? And, is there a correlation between the estrogen concentration of blood and saliva? To answer these questions, previously collected blood and saliva samples from beef cows were tested for estrogen via ELISA (Enzo #ADI 901-008) using two different protocols. First, the kit was completed as instructed in the manufacturer, and then again without using the “steroid displacement” solution step. Data was collected and observed to see if there is a correlation between blood and saliva and if the steroid displacement step is critical to this similarity. The results show that there was not a significant difference in the concentration of blood and saliva with the SDS ($W=0.989$), but, there was a difference between blood and saliva without the SDS ($W<0.001$). In addition, there is not a significant relationship between estrogen levels in blood or saliva (Spearman’s $\rho=0.1338$ with SDS and Spearman’s $\rho=.20229$ without SDS). One significant implication is the possibility that hormones in saliva, while commonly identified as bioavailable, may actually just be bound in a uniquely different way.