

Seminal Plasma Alkaline Phosphatase May be a Marker of Testicular Function in the Stallion

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We have shown previously that high levels of alkaline phosphatase (AP) activity are present in the seminal plasma of ejaculates from normal stallions and that the majority of this enzymatic activity originates from the epididymis and the testis. Therefore, seminal plasma alkaline phosphatase (SPAP) activity can be used as a sperm-independent marker for ejaculation in the stallion. The aim of the current study was to determine if SPAP activity and/or SPAP concentrations differed significantly between fertile stallions and stallions with abnormal testicles. The hypothesis was that, since the testis is a major contributor to SPAP activity, testicular pathology would result in a significant decrease in SPAP activity. If present, this decline in SPAP activity could be used clinically as a marker of testicular function. To test this hypothesis, we compared SPAP concentration and total SPAP activity between normal, fertile stallions and a group of (to date) 28 azoospermic or severely oligospermic stallions. Significantly lower levels of SPAP activity were identified in the abnormal stallions compared to normal animals. However, a large standard deviation was present. While SPAP activity in some abnormal stallions fell within the range of that reported for normal stallions, there were few or no cases in which normal stallions had 'low' SPAP activity. Thus, we conclude that SPAP activity may be useful as a specific, but not highly sensitive assay for testicular pathology in the stallion. However, our data continue to indicate that, in all cases, SPAP activity can be used as an accurate indicator of the presence of testicular contributions to the ejaculate. Thus, even in stallions with severely abnormal testicles, SPAP activity can be used as a marker for ejaculation. Additionally, our preliminary data suggest that SPAP activity may be useful to identify cryptorchid testicular tissue when a scrotal testicle is not present.

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