

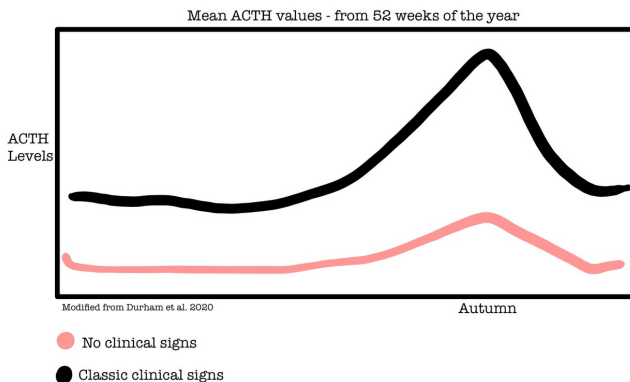


Diagnosing PPID when results are borderline.

In any disease that is high on our radar and recognized earlier, test results may come back in the grey zone or equivocal range. The warm and fuzzy biological world we are investigating should be considered to be on a spectrum. Endogenous ACTH is noted as an excellent test for PPID but definitely has limitations given the impact of age, sex, body condition, season, stress, exercise and disease status. The average specificity and sensitivity are reported as approximately 75-80%.

In order to improve diagnostic thresholds, researchers Durham et al used a detailed database of over 30,000 basal ACTH results collected under strict conditions. They once again confirmed there is a strong seasonal variation. ACTH values were relatively stable between December and June. After June, values steadily rose with a peak in late September - early October.

Regardless of whether the population analyzed had no reported clinical signs versus classic clinical signs, mean peak early autumn values increased by upwards of ≈ 2.75 times those noted between December and June!



Those horses with classic clinical signs had mean values significantly higher throughout the entire year. The researchers created cut offs with 95% sensitivity and specificity depending on the case population being examined.

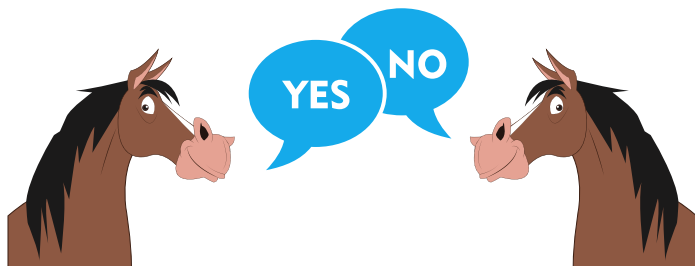
It has been suspected that repeat basal ACTH testing in the fall could lead to better test accuracy. The same researchers set out to determine what is the best way to address an "equivocal"* basal ACTH test result obtained between January and June.



In 1100 horses a repeat autumn basal ACTH captured an additional 26% of cases with PPID. PPID could be ruled out in 10% of cases while over 60% of cases were still borderline.

A non-autumn TRH stimulation confirmed $\approx 50\%$ of cases as not PPID thus avoiding unnecessary medication. Similarly, 28% of cases were confirmed as having PPID. Only 23% of cases were borderline. A clear result was provided in over 75% of the cases.

Summary for Equivocal Basal ACTH Results based on Durham et al 2020 Study.



- By adjusting diagnostic cut-offs values throughout the year based on clinical signs it is possible to increase the specificity and sensitivity of a basal ACTH upwards of 95%.
- Consider if it is important to avoid a false positive diagnosis in an otherwise relatively young horse with limited clinical signs versus confirm a diagnosis in a patient that appears in significant need of medical therapy.
- Keep realistic expectations for repeating autumn testing. It may help confirm the diagnosis in an additional $\approx 25\%$ of cases.
- If TRH is available, a non-autumn TRH stimulation can either rule out or help confirm disease in the majority of cases.



**"Equivocal" basal ACTH results were defined according to Durham et al 2020 lying between a "low cutoff" at 95% sensitivity and a "high cutoff" at 95% specificity.

References:

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