

Explanation of a False-Negative EPM test

Here's what Dr. S had to say on the subject...for the newcomers, "Dr. S" was very generous in helping to explain "stuff" to us as she was/is actively participating in EPM research (hence the pseudonym).

A positive test (either on blood or CSF) indicates that the parasite has been inside the horse's body, causing the horse to mount an antibody response. A horse won't produce antibodies by being "exposed" to *S. neurona*, since this only implies an opportunity for infection, not an actual infection. Many apparently healthy horses (22-66% of horses in different geographic areas studied) test positive for serum antibodies to *S. neurona* and never go on to develop EPM. This suggests that most horses can respond successfully to the the infection before the bug can cause problems. But no one yet knows whether a seropositive horse has really cleared the infection or has a chronic, subclinical infection that is kept in check by the immune system. With CSF testing, the waters are still pretty muddy. As with serum, a negative test is more likely to be informative because it rules out past or present infection with *S. neurona*. **False negatives are possible, but are very rare. (They can occur if the horse has an acute infection and develops disease before it can mount a detectible antibody titer, or if the majority of the antibodies are tied up in "complexes" with the circulating antigen (parasite).) A negative result on a CSF antibody test should cause the clinician to seek other causes of the neurological disease, but in some cases they do retest for EPM if they suspect a false negative due to the circumstances I described.** If the CSF test is positive, and blood contamination has been excluded as a source of the antibodies detected in the sample, it suggests past or current infection with *S. neurona* in the CNS. Not all horses that have CSF antibodies to *S. neurona* have neurological disease, some apparently fight off the infection or keep it in check. That is why CSF tapping of normal horses (for pre-purchase, or other non-diagnostic purposes) is discouraged. A positive test keeps EPM on the list of differentials, but it's still wise to try to rule out some of the other possible causes like wobblers or other arthritic changes to the neck, tumors, bacterial infections, herpes, etc... If no other possible cause is found, the diagnosis is usually EPM.