



## Juvenile Idiopathic Epilepsy (JIE)/Juvenile Epilepsy Syndrome (JES)

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Juvenile Idiopathic Epilepsy (JIE), also known as Idiopathic Epilepsy (IE) or Juvenile Epilepsy Syndrome (JES), is a brain disorder which appears to be self-limiting and is not usually fatal. Foals appear to be born normal, but begin to exhibit seizures as soon as a couple of days after foaling up to as late as 6 months of age. Seizures generally disappear between 1 – 2 years of age. Between episodes the foal appears normal, although there is the risk of an injury during a seizure, such as head trauma, which can cause complications. The seizures are caused by a disruption of the electrical activity in the brain; medications, such as phenobarbital and diazepam, can be used to help control or lessen the severity and duration of the seizures.

Clinical signs of seizures range from partial to full with clinical signs ranging from something as minor as twitching and chewing motions to more severe signs such as loss of consciousness and rapid muscle contraction. During a seizure, a foal may lose control of bodily functions such as urination and defecation. After a seizure, the foal experiences a phase (the postictal phase) that may include depression, blindness, confusion, head pressing and/or loss of suckling reflex. Because pneumonia has been found to be the most common concurrent disease for foals with JIE, it is recommended that foals not nurse or eat until the postictal phase is over, to help prevent any aspiration of milk or food into the lungs from a weakened swallowing reflex.

JIE has been studied since 1985 at the University of California, Davis, and research findings suggest an autosomal dominant mode of inheritance. Autosomal means that the trait is not sex linked; being a “dominant” trait requires only one copy of the mutated gene for a foal to be affected. Because only one copy of the mutation is needed for expression of the trait, only one parent needs to be a carrier in order for a foal to be affected. Because some forms of epilepsy can be caused by injury or infection, it is important to rule out other potential causes of seizures. In addition, a potential link to Lavender Foal Syndrome (LFS) has been suggested. Now that the mutation responsible for LFS has been located, further investigation of this theory will be pursued.

For information on JIE research contact:

Dr. Monica Aleman

Neuromuscular Disease Laboratory, University of California One Shields Avenue Davis, CA 95616-8744

Phone (530) 752-1170 or (530) 752-7267

Email: [mr Aleman@ucdavis.edu](mailto:mr Aleman@ucdavis.edu)

### Reference Materials

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### ARABIAN HORSE ASSOCIATION<sup>SM</sup>

10805 East Bethany Drive | Phone 303-696-4500  
Aurora, Colorado 80014 | Fax 303-696-4599  
[www.ArabianHorses.org](http://www.ArabianHorses.org) | [info@ArabianHorses.org](mailto:info@ArabianHorses.org)



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**ARABIAN HORSE ASSOCIATION<sup>SM</sup>**

10805 East Bethany Drive | Phone 303-696-4500  
Aurora, Colorado 80014 | Fax 303-696-4599  
[www.ArabianHorses.org](http://www.ArabianHorses.org) | [info@ArabianHorses.org](mailto:info@ArabianHorses.org)