

Improving equine health: Research studies vaccinations to protect newborn foals

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A Kansas State University veterinary medicine student is investigating ways to improve horse vaccinations and defend them against pathogen challenges at an early age.

Research from Allison Jordan Bryan, a graduate student in [biomedical sciences](#) and a second-year [veterinary medicine](#) student, Huntington Beach, Calif., may help protect foals as young as 3 months of age from pathogens such as [West Nile virus](#), tetanus, equine influenza virus, Equine Herpes Virus-1, Eastern equine encephalomyelitis and Western equine encephalomyelitis.

"It is important, especially in the equine world, to vaccinate the foals as soon as possible so they will be protected against environmental pathogens they may come into contact with, even at an early age," Bryan said.

Bryan recently received a second place award at the K-State Research Forum for her oral research presentation titled "Characterization of [immune activation](#) in healthy foals when vaccination is initiated at 3 months of age."

Foals acquire maternal antibodies and [immune cells](#) that help protect them from environmental pathogens before they can fully develop their own immune systems, Bryan said. Newborn foals acquire these maternal antibodies and cells through ingestion and absorption of colostrum.

Foals are usually vaccinated at 6 months of age, which gives time for maternal antibodies to decline so they do not interfere with any vaccines. But Bryan is looking at the possibility of vaccinating foals at 3 months of age -- the earlier age is better because it gives foals more protection against pathogens earlier in life.

"We're trying to determine whether those [maternal antibodies](#) are still in high enough concentration at 3 months to interfere with vaccines and block the active immune response or to see if these antibodies have waned enough to allow a robust immune response," Bryan said.

Bryan is still collecting and analyzing data. Preliminary data has indicated an [immune response](#) in 3-month-old foals, making it possible to vaccinate foals at a younger age and increase protection.

Although Bryan has always been interested in the [immune system](#), she got involved with equine research after spending a summer in the university's Veterinary Research Scholars Program, which is funded by the National Institutes of Health, or NIH, and Merial, a worldwide animal health company.

Bryan is now participating in the NIH-funded Basic Research Immersion Training Experience, or BRITE, program. Her faculty advisers are Elizabeth Davis, associate professor of clinical sciences, and Melinda Wilkerson, professor of diagnostic medicine and pathobiology.

"Jordan is a talented individual who has a very bright future in the field of biomedical research," Davis said. "In the past year she has gained knowledge and skills that will help her with her future investigative endeavors. It has been a pleasure to have her as a graduate student in our program."

"The mentorship and guidance has made it a wonderful experience and I

will definitely pursue a career in research following completion of my veterinary degree," Bryan said. "I have been very fortunate to work with extremely talented individuals at K-State and am honored to be a part of the research community here at K-State."

Provided by Kansas State University

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