



## UTERINE CULTURE

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Culture of the uterus to determine if one or more microorganisms are present or if the mare is 'clean' (i.e. free of organisms) is an important diagnostic test. Cultures may be performed as part of a breeding soundness examination, prior to the onset of the breeding season, during the breeding season, or at the end of the breeding season. In many instances, a stallion manager may require that a mare be cultured and determined to be 'clean' prior to live cover or prior to shipping semen. An important reason for culturing a mare prior to breeding is that the odds are very low that a mare will become pregnant or stay pregnant with an active uterine infection.

Possible exceptions to the guideline that mares should be cultured 'clean' prior to breeding are foaling mares and maiden mares. Postpartum mares entering their foal heat commonly have bacteria in their uterus, and culture results at the foal heat are not correlated with pregnancy rates. This does not hold true for cycles after the foal heat. Maiden mares are another possible exception to the 'culture required' rule. Mares that have never been bred have a very low probability of having bacteria in their uterus. Young Thoroughbred mares have a tendency to aspirate air and potentially bacteria into their vaginal vault (i.e. 'wind-suck'), but very few young Quarter Horse mares have this tendency.

Uterine infection or endometritis can be suspected in a mare that exhibits an abnormally short estrous cycle, has a vaginal or cervical discharge, an inflamed cervix on speculum examination, fluid in the uterus detected on ultrasound, and possibly failure to conceive when bred to a fertile stallion. Endometritis is a significant cause of reproductive failure in broodmares.

Collection of a culture from the uterus is relatively simple, provided some guidelines are followed. The tail should be wrapped or held out of the way. The perineal area is thoroughly cleaned with soap and water, rinsed with clean water and then dried with paper towels. A sterile obstetrical sleeve, to which a small amount of sterile lubricant has been applied, is worn by the examiner. A sterile, disposable guarded culture instrument is guided into the vagina and then passed through the cervix into the uterus. The swab is advanced beyond the protective sheath until it contacts the endometrium and then is gently rotated, collecting a sample of fluid and cells from the uterine lumen and endometrial wall. The inner swab is then withdrawn into the outer sheath, and the entire culture instrument is withdrawn. Once outside the mare, the swab tip may be transferred into a special culture transport system, labeled and submitted to a microbiological laboratory

for culture. The swab should be refrigerated if any significant time period is to elapse prior to submission of the culture.

In the laboratory, the swab is applied to bacterial culture media plates and incubated. Bacterial growth is usually evident within 24 to 48 hours, while yeast and other fungal growth often take several days. Antibiotic susceptibility tests may be performed for any bacteria cultured. This is especially important for organisms for which the antibiotic susceptibility pattern is not predictable. This would include *Escherichia coli*, *Pseudomonas aeruginosa*, and *Klebsiella pneumonia*.

Antibiotic therapy can be initiated when endometritis is suspected, but therapy should be adjusted according to results of culture and susceptibility tests to determine the optimal treatment. The bacteria most commonly recovered from the uterus of mares are shown in the following table. As can be noted, *Streptococcus* infections are the most common in the uterus of mares. Yeast organisms are occasionally recovered from the uterus of older mares with a history of chronic reproductive problems. As a final note, culture results prior to the breeding season are not necessarily representative of the same mare months later after she has been bred multiple times over several estrous cycles. It may be necessary to culture a mare more than one time during a breeding season to accurately monitor uterine health.

A uterine culture can help determine if a mare is free of infection, identify a potential pathogen, and determine the optimal antibiotic to use to eliminate the infection. Please consult with your equine veterinarian for further information on culturing your mare.

**Prevalence of bacteria recovered from the uterus of mares**

<b>Organism</b>	<b>Prevalence</b>
<i>Streptococcus zooepidemicus</i>	40-50%
<i>Escherichia coli</i>	20%
<i>Pseudomonas aeruginosa</i>	10%
<i>Klebsiella pneumonia</i>	10%
Miscellaneous organisms	10-20%