

# HORSE HEALTH

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## Minimally Invasive Surgery

Large animal surgeon Dr. David Wilson of the Western College of Veterinary Medicine's Department of Large Animal Clinical Sciences discusses the development of laparoscopic approaches to conduct a range of minimally invasive surgical techniques in the horse. The main benefits: a decreased chance of developing surgery-related morbidity and a much quicker return to the arena, field or show ring for equine patients.

As laparoscopic surgery in humans became popular, rapid developments were made in laparoscopic instruments, allowing the development of laparoscopic surgical techniques in the horse. Today, the advantages of this minimally invasive surgery include reduced morbidity and early return to function, and this type of surgery is now used for a wide range of surgical conditions.

Standard equipment includes a laparoscope, a light source, a camera and video monitor, and an assortment of laparoscopic instruments as well as an insufflator—a device that uses carbon dioxide gas to distend the abdomen during the procedure.

### Laparoscopic cryptorchidectomy

This minimally invasive approach to removing an undescended testicle allows the surgeon to visually locate the testis in the abdomen. The surgery usually requires three small incisions. Its use is ideal for a horse exhibiting stallion-like behaviour when there's no reliable history of castration. While the testis is easier to locate in the standing patient, the procedure can be performed on either the standing or recumbent horse. In both approaches, the animal is given phenylbutazone for three days following surgery and can usually return to performance in 10 days.

- **Standing laparoscopic cryptorchidectomy:** Feed is withheld for a minimum of 24 hours, and the horse is restrained using stocks. During the procedure, the horse is sedated as well as given an epidural and anesthesia.

- **Recumbent laparoscopic cryptorchidectomy:** Because the procedure is performed with the horse under general anesthesia, no restraint is required. Although manipulation of the instruments is easier for the surgeon, locating the abdominal testis may be more challenging. Feed is withheld for a minimum of 24 hours with the preference being 48 hours as an emptier abdomen ensures easier manipulation within the abdomen. The horse is positioned on its back with its hindquarters elevated.

### Laparoscopic ovariectomy

This procedure involves the removal of one or both ovaries and is indicated for removal of ovarian tumours or for behaviour modification. The surgery can be performed in either a standing or recumbent horse, and the approach is chosen based on the temperament of the horse and the size of the ovary as well as the surgeon's experience and preference. In a standing patient, the ovary is easier to locate and to manipulate.

For both approaches, *flunixin meglumine* (a non-steroidal anti-inflammatory drug) is administered for three days following surgery, and normal exercise can be resumed in 10 days.

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# Minimally Invasive Surgery *(continued)*

- **Standing ovariectomy:** Feed is withheld for a minimum of 24 hours. The mare is sedated and given an epidural. If both ovaries are being removed, an enlarged incision may be required on one side only or on both sides, depending on the surgeon's preference. At least two smaller incisions will also be required. Possible complications include lack of patient compliance, difficulty in achieving ovarian anesthesia, and postoperative colic.

- **Recumbent ovariectomy:** Withholding feed for 48 hours is recommended prior to the recumbent procedure in order to increase the exposure of the ovaries. The mare is positioned on her back, and one small incision is made in the midline with usually two others on each side. Complications are rare but can include abdominal vessel damage, internal bleeding and postoperative colic.

## Laparoscopic inguinal herniorrhaphy (hernia repair)

This type of hernia occurs congenitally in some colts and is an acquired condition in mature stallions. The laparoscopic approach to repair is safer for foals and allows for sparing the testes in both foals and mature stallions.

- **Foals with castration:** If the condition is deemed congenital, most surgeons recommend castration. The foal is placed under general anesthesia and positioned on its back. In most cases, this position causes the herniated intestine to spontaneously return to the abdomen. However, if it doesn't do so, the laparoscope allows the surgeon to visually assess and manipulate the hernia so that it returns to the abdomen prior to removal of the testes. The foal is usually given nonsteroidal anti-inflammatory drugs (NSAIDs) for three days following the procedure. There is usually some swelling at the incision sites, but the scrotum is neither inflamed nor sensitive.

- **Mature stallions:** The testes can be spared in mature stallions. With the animal standing, a cylinder of mesh is inserted so that the horse's inflammatory response to the material reduces the size of the opening and prevents the hernia from recurring.

## Laparoscopic colopexy

This procedure, usually performed four to six weeks after colic surgery, involves attaching a portion of the colon to the abdomen wall in order to prevent twisting of the intestine. Withholding feed for 48 hours makes manipulation of the colon easier. The procedure requires one long skin incision as well as at least three smaller ones.

After surgery, horses are restricted to a stall for 30 days, followed by 30 days of paddock rest. Conservative surgeons recommend this procedure for nonathletic horses while opting

for removal of the colon in athletes as tearing of the colon can be a rare, life-threatening complication.

## Laparoscopic reosplenic space ablation

Left-dorsal displacement of the large colon (entrapment of the colon in the reosplenic space) is a condition that can be resolved several ways. However, some horses seem predisposed to repeated left-dorsal displacement, and in those horses, surgical ablation of the reosplenic space can be an effective preventive measure.

This procedure is performed on the standing horse and requires that feed be withheld for at least 24 hours prior to the surgery. The procedure involves three small incisions. The animal is restricted to a stall for 30 days after the surgery but can then return to normal activities. The prognosis is generally good, but experience with the procedure is currently limited.

## Summary

Minimally invasive approaches to surgical conditions in the horse offer viable alternatives to more traditional open techniques. As in human medicine, these techniques have become popular options for treating horses because they offer reduced morbidity, they're associated with low complication rates, and they allow patients to return to normal activities and performance much more quickly than traditional surgical methods.

*Wilson, David G. "Minimally Invasive Surgery in the Horse." Large Animal Veterinary Rounds. 8(2), 1-6. Original article summarized by Lynne Gunville.*

*All content is based on comprehensive articles that have been written by veterinarians and published in issues of Large Animal Veterinary Rounds — a veterinary resource that's available online at [www.larounds.ca](http://www.larounds.ca).*

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