

# Embryo Transfer in Mares

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## Embryo Transfer

ET is the method by which a valuable mare's embryo, the donor, is flushed from the uterus and transferred into another mare, the recipient, who goes on and has the donor mare's foal. This was first successfully accomplished surgically in 1972 but has become more common recently with the development of non-surgical transfer methods which are safer for the mares and with technical advances very successful.

## Why ET?

There are several advantages gained from the use of ET

One mare may produce more than one foal a year using either the same or different sires for each pregnancy.

ET enables us to produce offspring from a mare while she is still in active work.

Aged or sub-fertile mares which for clinical or physical reasons are no longer able to carry normal pregnancies to term may still produce foals.

ET allows us to obtain foals out of valuable mares without risk to their health.

Fillies may start their breeding career earlier, without the inconvenience and potential problems of becoming pregnant at an early age.

One may buy or sell embryos which are offspring of both mare and stallion of one's choice.

Embryos are now able to be frozen for later transplantation or for use internationally.

ET allows production of foals from late-foaling mares, leaving them empty over the winter for an early start the following spring.

## What is involved?

Managing donor mare

The donor mare must be managed to time her oestrus cycle with that of the potential recipient mares. This is accomplished by using a hormone called prostaglandin to induce mares to cycle. When she is ready she is inseminated with semen from the selected stallion at the optimal time as determined by ultrasound examinations. She is monitored post insemination to confirm the timing of ovulation. Depending on requirements we can provide full management of your mare during this time (potentially including keeping her in work) or manage her through day visits to our equine facilities or to your property. Between the 6th and 9th day after ovulation we then harvest the embryo by introducing a specialized uterine catheter through the cervix and flushing

pre-warmed embryo recovery fluid into the uterus. This fluid is recovered from the mares' uterus and run through a filter to retrieve the less than pin head sized embryo. At this stage the mare can return to her normal work or we can repeat the process if further embryos are wanted from her.

### **Management of the embryo**

After the embryo has been recovered with the aid of a special microscope, it is transferred through several washes and loaded into an insemination straw protected by dams of air and embryo hold fluid. Once the recipient mare is prepared the straw is then loaded into a special insemination pipette and transferred through the cervix into the uterus of the recipient mare.

### **Management of recipients**

As mares can be variable in relation to their cycling, even with the use of hormone manipulation it is essential that we have several recipient mares available for each donor. These mares are approximately size matched to the donor (to ensure you obtain your mare's full genetic potential) and need to be in good health (both reproductively and physically) with an appropriate temperament.

These mares are monitored via ultrasound exam to determine timing of ovulation and the best recipient is then selected for the embryo. The herd of recipient mares is managed at Otaki Equine Services. After transfer the selected recipient remains with them for a further 10 days when a scan to confirm pregnancy is performed. During this period and then on until day 42 the mare is administered oral progesterone to help with maintenance of the pregnancy.

### **Costs**

The basic costs can be divided up into 3 stages.

Up to and including embryo flush. The work performed with the donor mare is the same basic cost as any other insemination so depends largely upon the semen and method of insemination that you have chosen. The additional costs are for the actual embryo flush which is charged as a set price based on the management of recipients and current cost of materials which works out to \$2956.90. If no embryo is recovered from the first insemination a reduced cost of \$2173.10 would apply to subsequent attempts.

Transfer of embryo to recipient up to and including 17 day scan is an additional cost of \$856.90

Management of recipient through until 42 day scan. There is a further agistment cost of \$15.00 per day if you choose to leave her with us up until the 42 day scan. Please remember that if you choose to manage the recipient mare at home she will still require daily oral treatments until a 42 day scan is performed to confirm the pregnancy has maintained. It is most important that the oral progesterone is given daily. Missing a day could jeopardize the pregnancy.

### **What to expect**

Success rates for embryo transfer can be measured for the two facets of the procedure:

1. Embryo recovery from the donor mare. Embryo recovery is usually the limiting factor. Recovery rates will vary with the individual mare's fertility; young mares can have very high

rates, typically around 80% per cycle. Older mares with history of infertility, as a group, will have recovery rates around 30% per cycle. Individuals within these groups will have higher or lower recovery rates. So far we are flushing embryos at higher than expected rates.

2. Establishment of pregnancy in the recipient mare. Once the embryo is recovered, one can expect a pregnancy success rate of approximately 80% at 16 days, with about a 10% rate of pregnancy loss after that time. Pregnancy rates for transported embryos are slightly lower than for on-site transfer.

Combining these factors for a young fertile mare the average expected pregnancy rate would be 64%. At the other extreme a subfertile mare will have an expected pregnancy rate of only 24%. These factors need to be considered when planning for this procedure.

### **What can you do maximize chances of a successful outcome?**

Plan ahead. Speak with us about the options and make decisions that maximize chances of success. For example if wanting to obtain an embryo from a sub-fertile mare then consider using chilled semen from a fertile stallion rather than using frozen semen. This will significantly increase the chance of a successful embryo recovery. Ensure your mare is in good health prior to breeding and preferably on a rising plane of nutrition to maximize her fertility. Let us know your plans early so we can allocate suitable surrogates. Plan ahead not only for the insemination period but also managing the pregnant recipient, the foaling and the mare and foal up to weaning.