

Embryo Transfer

and factors that influence the chance of success



Embryo Transfer is the technique of removing (flushing) an embryo from one mare - the biological dam - and placing it in the uterus of a recipient mare.

The recipient mare carries and delivers the foal and nurses it until weaning. This allows the biological dam to continue in work and potentially breed more than one foal per season.

Success rates with Embryo Transfer (ET) have improved enormously over the last 10 years. It is now a routine gynaecological procedure for competition mares that are unable or unsuitable to carry their own pregnancy.

The donor mare is inseminated as normal with fresh, chilled or frozen semen. The embryo is then flushed from her uterus at day 7 or 8 after she has ovulated and is transferred non surgically into a recipient mare whose reproductive cycle has been synchronised to that of the donor.

A minimum of two potential recipient mares should be supplied for synchronisation by the owner of the donor mare. If suitable recipient mares are not available, then the embryo can be flushed out of the donor mare at day 6 post-ovulation

and stored frozen for transfer at a later date, or alternatively the embryo can be transported for transfer into a mare at an alternative ET centre.

Pregnancy scans of the recipient mare are performed initially at 5 to 7 days after transfer when the embryo is 12 to 14 days old. Follow up scans are performed as necessary until a healthy embryo and heartbeat have been confirmed.



Embryo Transfer

Several factors can influence the success of performing embryo transfer on your mare, some of which can be controlled, some of which can't.

Semen selection

Fresh semen routinely gives the highest embryo retrieval rates so choosing a local stallion is the preferred choice. If a stallion further afield takes your fancy then ultimately the most important thing is stallion fertility and semen quality - the better the semen the higher the success rate of the embryo flush.

Donor mare fertility

Although your mare doesn't have to carry the foal until term multiple elements should be considered when determining the likely success of embryo retrieval.

- The oocyte quality decreases as mares age, resulting in lower embryo survival. A mare's fertility begins to significantly decrease when she reaches 12 years old and embryos are noticeably smaller in size at the point of flushing in mares 18 years and older. Mares less than 10 years of age have the highest retrieval rates.
- Endometritis can negatively influence both the embryo retrieval and transfer success rates. If an infection or inflammation of the uterus is detected it may need to be treated before the mare is inseminated.
- A tight cervix, commonly found in maiden mares of all ages and older mares that have not had a foal for many seasons, can cause problems with fluid retention. Excessive or prolonged fluid present within the uterus can negatively impact embryo survival when it descends into the uterus around day 6 post-ovulation. A compromised cervix from, for example, a traumatic foaling also has a negative effect as there is not a tight seal to create a safe uterine environment for the embryo. Donor mares with cervical issues may require careful management around the time of breeding.

Donor mare management

Many mare owners utilise embryo transfer to breed their competition horses. Heat, stress and exercise can all have a negative effect, however, on the process.

- Temperatures of above 30°C can result in as much as 50% lower embryo retrieval rate.
- Stress causes an increased level of circulating cortisol which influences the hormones required for the mare to produce a dominant follicle and subsequently ovulate. Many factors can affect this process, including exercise and transportation. Management from the time that the mare is in season until the embryo flush is crucial; stress and heavy exercise should be kept to a minimum.

Recipient mare selection

Recipient mares are a very important part of the transfer success and the mares in the recipient herd at the B&W Willesley Stud are carefully selected.

The recipient mares should have excellent reproductive and general health, be no older than 14 years old, at least the same size or bigger than the donor, of good temperament and have a normal udder.

The recipient and donor mares need to have their oestrus cycles synchronised and a minimum of two are required to ensure that if an embryo is retrieved from the donor mare that a suitable recipient mare is available (also useful in the rare case that twin embryos are detected).

Embryo services offered at B&W Willesley

- **Complete embryo transfer packages** - B&W manages the donor mare and the recipients throughout the whole process. Recipients from our own recipient herd can be used leased out until weaning, or we are happy to use privately owned recipients if they are suitable.
- **Embryo flushing service** - B&W performs the embryo flush (and transfer) of a donor mare who has been bred by the referring vet. The embryo can be transferred into B&W recipients, or privately owned recipients who have been lined up either by the referring vet, or by us at B&W.
- **Transported embryo service** - the embryo is shipped chilled to B&W by the referring vet, and transferred to a B&W (or privately owned) recipient mare.
- **Embryo freezing and storage service**
- **Embryo thawing and transfer service**

For further information and our prices, please contact us on 01666 880501.

Our Willesley Stud has a selection of recipient mares available for hire.