Equity®

The evolution of living organisms has selected high-performance animal tissues. From the Eocene, 50 million years ago, equine pericardium has evolved to its present state becoming a dense collagen reticule able to withstand 1.5 billion cardiac cycles in 30 years of life. Its dynamic nature makes it ideal for one-step breast reconstruction: an extraordinary mechanical resistance concentrated in just 0.4 mm of thickness.

During breast reconstruction the surgeon needs to take into account a series of variables for selecting the prosthesis. The shape and volume need to be such so as to naturally adapt in order to guarantee good protection and adequate ptosis.

Weft and warp

The spatial layout of collagen fibres influences its resistance and the thickness of the membrane: ADMs are composed of dense parallel bundles of collagen fibres, while pericardiums (ECM*) which have the function of supporting multidirectional cardiac stimuli, are composed of collagen fibres crisscrossed into a mesh. With the same resistance a pericardium membrane is much thinner and softer than an ADM.

*Extracellular matrix: Extracellular mesh complex of macromolecules which, in addition to performing a cementing function between the cells and tissues, provides an organised structure where cells can migrate and interact with each other.

Equity® why

Recent studies have demonstrated that early complications after ADM implant for one-step breast reconstruction depend on an imperfect decellularisation of the matrix, the presence of cross-linked substances or preservative residue. 1,2,3

The result of the use of chemicals in the processing and deantigenation processes of such biomaterials is not completely known. 4,5

Some authors believe that the number one cause of failure is the quantity of implanted ADM. 6,7

The quantity of seroma also depends on the quantity of ADM implanted.

Equine derived collagen has demonstrated greater degradation stability, less communicable disease risk and greater shape stability compared to collagens from other sources. Equine pericardium is the most suitable biomaterial for the creation of regenerative membranes. 8

The Equity® membrane observed at SEM presents a multistratum and compact appearance, characterized by a dense web of collagen fibres.

University of Padua (Italy), Biology Department – Electronic microscope service
Equity® when

All cases of one-step reconstruction after nipple or skin sparing mastectomy.
In patients with good subcutaneous layer (pinch test ≥ 1cm).
Discreet ptosis (PAR II, III).
Breast of medium dimensions
Not indicated after recent radiation treatment.

Our experience has shown that by reducing the use of electronic scalpels and preserving the subcutaneous layer so that as much tissue as possible is left that it is better supplied with blood and promotes the integration of the matrix. The tension free suture must start with reabsorbable single stitches from the inframammary fold, and then continue to the pectoralis major leaving the membrane soft.

The use of a sizer may be helpful in this delicate surgical phase. Draining should be limited to what is absolutely necessary and if possible no longer than 10 days. Early and prolonged use of a conforming bra and reduced mobility of the arm will decrease the seroma formation.

Safety

The Equity® membrane is a totally biocompatible biological graft, composed of native collagen. It is soft and elastic and integrates with the patient’s tissue. Equity® is obtained from equine pericardium which is specifically selected for quality and suitable thickness. It is then treated with an exclusive enzyme deantigenation process used to remove all of the potentially immunogenic elements but maintaining the original biological and biomechanical characteristics.
The Equity® membrane undergoes a freeze drying process so that it can be stored for 5 years at room temperature without using preservatives.
A completely biocompatible graft is obtained which acts as an active biological scaffold.

Pericardium is classified by WHO as one of the safest biological materials. The processing system it undergoes for the production of the Equity® membrane is validated for the removal of all immunogenic components and deactivation of bacteria and viruses guaranteeing absolute safety parameters.

Equity® is an excellent support for the tissue regeneration process and does not cause undesired reactions in the surrounding tissues. Once grafted, the Equity® membrane acts as a reinforcement and support matrix for fibroblastic infiltration and from the substrate for the deposit of new collagen. Equity® then gradually degenerates and is replaced with the patient’s new connective tissue.
Equity® is

- **Pericardium:** thin and strong
- **Equine:** no BSE, very dense structural reticule
- **Natural:** minimises foreign body reaction
- **Dry:** no preservatives or harmful residue
- **Meshed:** improves fluid circulation

The result is a perfected deantigenated biomaterial, highly tolerated by the body, which does not cause fever and/or skin reddening. The inflammatory reaction remains functional for the remodelling process. From a plastic surgery viewpoint Equity® acts like a flexible and malleable "second skin" suitable for optimizing the interface with the subcutaneous tissue. Since Equity® is a natural biomaterial, it can be cut and shaped in the theatre without the need for repeat washing. Storage temperature 4-40°C.

**References**

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<th>Structure</th>
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**Bibliography**

Your Equity® distributor