



## HISTORY, BENEFIT, FUNCTION AND APPLICATION OF AMNIOTIC MEMBRANE

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### SUMMARY

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Fresh Amniotic membranes (AM) were first used as wound dressing in transplantation of skin in 1910 by Davis and the first used in ophthalmology for treatment of ocular burn wound in 1940 by de Rotth. The clinical uses of amnion grafts increasing since 1990s and since then numerous clinical procedures have been published.

Amniotic membrane has multiple functions and biological content which produces various growth factors, cytokines as well as stem cells and bioactive peptides. The functions of AM are: to promote epithelialisation, inhibits fibrosis, inhibits angiogenesis and inflammation, lack of immunogenicity and stimulation of neovascularization. Some benefits of amnion grafts for wound treatment are: good adherence, effective barrier, bacteriostatic effects, analgesic effect, promote healing, able to absorb exudates, semi permeable, and stimulation to reduce formation of hypertrophic scar so it will reduce keloids formation. Air-dried and freeze-dried amnion grafts can easily be stored at room temperature or 20°C and are convenient for long distance dispatch.

Based on its function and biological contents some advantages in using amnion grafts for clinical applications are as follows:

- Ethically non-controversial and has been widely used in treating patients
- Potential source for scaffolding tissues and adult stem cells
- Absence of blood vessels, lymphatic or nerve cells therefore no rejection

Some clinical applications of amnion grafts are as follows: as wound dressing in leprosy and diabetic ulcer, in plastic and periodontal surgery, in post-surgery wound, in ophthalmology and potentially suitable for use as scaffold in tissue engineering.

It can be concluded that the AM has a number of properties that has made its clinical application a success.