BIOACTIVE BETA-GLUCAN GEL AND PREPARATION OF THE WOUND BED

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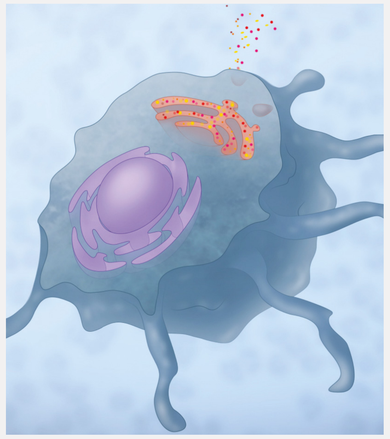
Introduction

Wound bed preparation (WBP) has gained acceptance as the guiding principle in wound management, especially for those wounds that are difficult to treat or slow to heal[1]. This structured approach to management guides treatment strategies to ensure that the barriers to wound healing are addressed through application of relevant advanced wound care products[2].

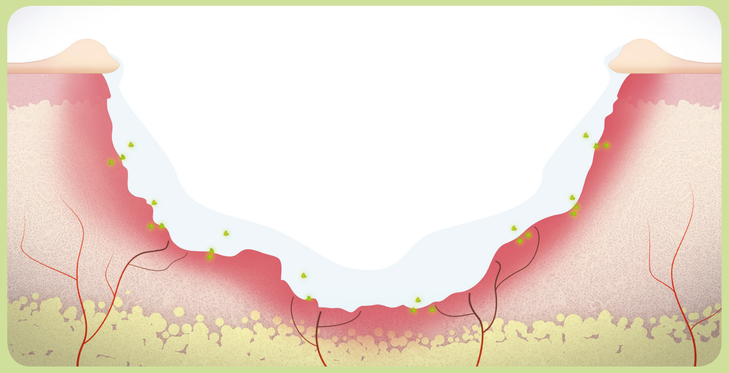


Beta-glucans are natural polymers found in the cell walls of bacteria, yeast, fungi, algae, grain and seaweed. They have been shown to have a potent immunomodulatory function. Receptors on neutrophils and macrophages bind to specific molecular patterns located in these cell walls, and immune cells flood into the area[3 4]. Their presence leads to a cascade of events that contributes significantly to all phases of the wound healing process[5].

Wound bed preparation and TIME

The TIME framework provides structure to WBP in the management of wound healing through secondary intention[6]. The clinical observations and related interventions of WBP are grouped into four areas (TIME model):

- **T**issue [non-viable or deficient],
- **I**nfection/Inflammation,
- **M**oisture imbalance and
- **E**pithelial edge advancement



Bioactive Beta-Glucan Gel*

The harnessing of the natural compound beta-glucan has led to the development of a sterile, homogenous viscous gel containing:

- water (76%),
- glycerol (20%),
- soluble beta-glucan (SBG) (2%),
- carboxymethylcellulose (CMC) (1.5%).

This gel provides ideal WBP properties.

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Bioactive Beta-Glucan Gel: mode of action and relationship with the elements of TIME

Mode of action of Bioactive Beta-Glucan Gel	**TIME** element
Aids autolytic debridement	**T** removal of devitalized tissue
Hydrogel qualities provides a moist wound healing environment	**M** The dry nature of some wounds does not support cellular proliferation as there is a moisture imbalance
Activates phagocytic cells	**T** Stimulation of macrophages with bioactive beta-glucan gel increases cellular phagocytic activity[8 9] and removes devitalized tissue **I** while concurrently combatting microbial proliferation
Beta-glucan modulates a dysregulated inflammatory response as found in stalled chronic wounds	**I** thereby accelerating healing
Enhances cellular proliferation, increases wound contraction	**E** macrophages release signal molecules and growth factors (TNF, IL, TGF, PDGF, FGF, EGF, VEGF) positively influencing cell division and growth[9], blood vessel formation[9] and proliferation, increased wound contraction[9]

Conclusion

In chronic wounds, if the wound bed has not been adequately prepared, healing will not progress. A new bioactive product is now available, containing Soluble Beta-Glucan. This advanced wound gel has a positive role to play in wound bed preparation not only by addressing moisture imbalance in dry wounds through moisture donation and autolytic debridement, but also through activation of white blood cells leading to increased phagocytosis, stimulation of macrophages and release of signalling molecules and growth factors.

**Bioactive Beta-Glucan Gel is marketed as Woulgan®*

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