

It's all about prevention



Prevention of skin breakdown with Linovera®

Why does skin care play a key role in wound management?

There are various factors that can affect the skin's health and wound healing. The normal ageing process is one factor that may cause the skin to become vulnerable and at risk, creating changes in the skin's structure and making it more fragile and susceptible to damage. Other factors include:

- Genetic skin conditions
- Some medication
- Pressure, friction or shear
- Maceration.

Skin breakdown can be caused by a multitude of factors and can affect many different groups and individuals (Beeckman et al, 2020). To support the health of skin and the healing of wounds, clinicians must recognise and understand both the complex nature of the skin and what lies beneath (Orsted et al, 2017).

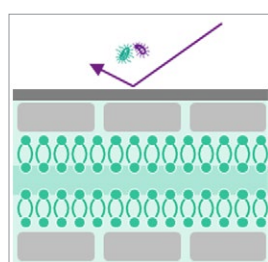


Figure 1: Healthy skin with intact lamellar structure.

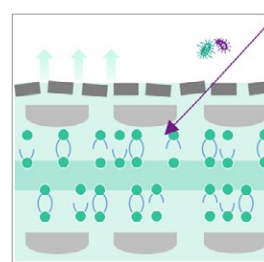


Figure 2: Impaired skin barrier with disrupted lamellar structure.

Anatomy and physiology of the skin

The skin is the largest organ of the body and contains three main layers: the epidermis, the dermis and the hypodermis. The primary function of healthy skin is to serve as a barrier against external factors such as hazards, microorganisms and allergens. The skin also regulates the body's temperature and manages sensory perception.

In healthy individuals, the skin is strong, resilient and has a remarkable repair capacity. If an individual's skin is at risk of breakdown, this can increase the risk of skin tears or pressure ulcers (Beeckman et al, 2020).

What are the ingredients in Linovera?

Linovera Oil consists of hyperoxygenated fatty acids (HOFA), aloe vera, centella asiatica and rosemary essence. Linovera Emulsion additionally includes ginkgo biloba.

The key ingredients HOFA contain more than 75% of linoleic acid, which is a crucial component for maintaining the natural epidermal barrier. Aloe vera acts as an emollient and humectant, while centella asiatica and ginkgo biloba have a toning and soothing effect on the skin (Kiezel-Tsugunova et al, 2018). In combination, the different ingredients lead to the preventive functionality of Linovera on the skin.

Indications

Linovera can be used to promote and maintain skin integrity. It is indicated when intact skin and the periwound skin is at risk of breakdown. Linovera Oil and Emulsion are indicated for the prevention and treatment of stage 1 pressure ulcers. Linovera Emulsion may also be used in the prevention and treatment of lower limb ulcers.

Benefits of Linovera

- Helps to maintain the moisture barrier function of the skin and prevent skin dehydration
- Enhances the cellular cohesion of the epidermis and increases the skin's resistance to external factors
- Reduces the incidence of pressure ulcers in high-risk people (Aloweni et al, 2017)
- Lowers the risk of micro-trauma caused by scratching as a reaction to itching skin.

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Wound bed preparation with Prontosan®

What is a biofilm and why is it a problem in the management of chronic wounds?

Biofilm form when bacteria adhere to surfaces by excreting a thick and slimy substance known as an extracellular polymeric substance (EPS). The EPS surrounds the growing colony and acts as a protective barrier against the host immune response, leading to resistance to antimicrobial treatment. Biofilms are often difficult to detect visually but delay wound healing and present a constant risk to develop a wound infection (Bjarnsholt et al, 2017).

Therapeutic cleansing with Prontosan

Since biofilms are ubiquitous in chronic wounds, most of these wounds may require extended mechanical cleansing. In combination with topical antimicrobials, the use of surfactants increase the penetration of the antimicrobials across the wound.

Together with debridement strategies, therapeutic cleansing solutions are recommended to physically remove the most tolerant microorganisms from the wound bed and to create an environment that prevents or delays biofilm reformation (International Wound Infection Institute, 2022).

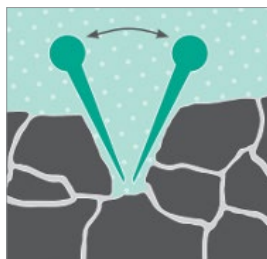


Figure 3: The polar heads of surfactant molecules repel each other.

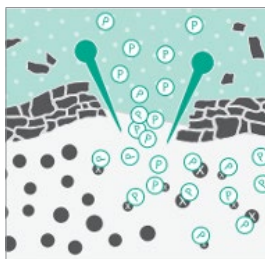


Figure 4: The door opening effect of betaine helps polyhexanide to enter the biofilm.

What are the ingredients in Prontosan?

Betaine is a gentle effective surfactant which is able to penetrate, disturb, clean and remove biofilm and wound debris. Surfactants consist of a hydrophilic, water-attracting head, and a water-repellent, hydrophobic body. The polar heads of the surfactant molecules have the same electric load and therefore repel each other (Figure 3). This is how they break up the biofilm and work as a door opener for polyhexanide, which can subsequently enter the biofilm and performs an adjuvant antimicrobial effect (Figure 4).

Polyhexanide is highly effective against gram negative and gram-positive bacteria and yeast, including methicillin-resistant *Staphylococcus aureus*, *Pseudomonas aeruginosa* and vancomycin-resistant *enterococcus* (Kaehn, 2010).

Indications

Prontosan is indicated for cleansing, moistening and decontamination of:

- Acute non-infected and infected wounds such as traumatic wounds (e.g. lacerations, crush injuries), thermal and non-thermal burns
- Chronic non-infected and infected wounds such as pressure ulcers, vascular ulcers and diabetic ulcers.



References

- Aloweni F et al (2017) *Wound Practice & Research* 25(1): 24-34
- Andriessen AE, Eberlein T (2008) *Wounds* 20(6): 171-5
- Atkin L et al (2020) *J Wound Care* 29(7): 380-86
- Beeckman D et al (2020) *Wounds International*, London
- Bjarnsholt T et al (2017) Management of wound biofilm Made Easy. *Wounds International* 8(2)
- International Wound Infection Institute (2022) *Wounds International*, London
- Kaehn K (2010) *Skin Pharmacol/Physiol* 23(suppl1): 7-16
- Kiezel-Tsugunova M et al (2018) *Biochem Soc Trans* 46(1): 119-29
- Krasowski G et al (2021) *Membranes (Basel)* 11(1): 62
- Orsted HL et al (2017) *Wound Care Canada*: 26

Benefits of Prontosan Wound Irrigation Solution

- Prevents and removes biofilm and infection (Andriessen and Eberlein, 2008; Krasowski et al, 2021)
- Promotes wound healing
- Improves quality of life
- Reduces pain
- Improves wound bed condition (reduced wound odour, exudate and slough; Atkin et al, 2020)
- Proven to reduce treatment time (Andriessen and Eberlein, 2008) and dressing change frequency of chronic wounds (Atkin et al, 2020).

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