Advancing the science of wound bed preparation

drawtex®

A Hydroconductive Wound Dressing with **Leva***Fiber*™ Technology

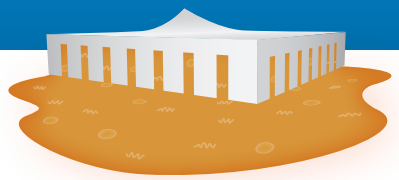
URGO MEDICAL
Healing people®

How Drawtex® wound dressing works

Leva*Fiber*™ Technology provides three different types of action.

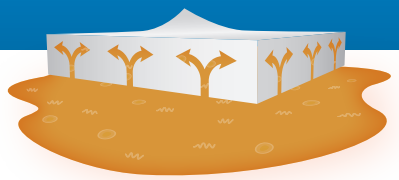
Mechanisms of Action

Capillary Action



Capillary action gives Drawtex its ability to move wound exudate and wound debris into the porous material of the dressing. With the small pores acting as capillaries, inter-molecular attractive forces between the exudate and solid surfaces of the wound dressing allow the exudate to be drawn upward against the force of gravity.

Hydroconductive Action



Hydroconductive action is controlled by Darcy's Law, which defines the ability of a fluid to flow through porous media. Fluid can move from wetter to drier, even against gravity. This explains how water can be transported from the roots of a tree to the leaves. The **Leva***Fiber* Technology of Drawtex allows the dressing to lift, hold, and transfer the wound exudate both vertically and horizontally by hydroconductive action.

Electrostatic Action

Electrostatic action occurs when the negatively charged Drawtex wound dressing comes into contact with the wound exudate. Ions from the exudate form a mobile layer of the opposite charge known as the electric double layer, effectively reversing the charge on the surface of the dressing to become positive. This allows the dressing to draw out a large amount of exudate, wound debris, bacteria, and harmful MMPs.

Based on these mechanisms of action, Drawtex facilitates effective wound bed preparation.[1,2]

How to use Drawtex

Drawtex is indicated for wounds with moderate to high levels of exudate, including:

Acute wounds

- Complex surgical wounds
- Burns

Chronic wounds

- Leg ulcers
- Diabetic foot ulcers
- Pressure ulcers (stage 2-4)

NOTE: Drawtex is contraindicated for arterial bleeding.

Protocols for use

Cut

Drawtex may be cut to conform to wound shape. Any side of Drawtex can be used against the wound bed.

Apply

For dry or less exudative wounds, apply a nonadherent (perforated) dressing, such as UrgoTul Contact Layer or UrgoTul Ag Contact Layer, before applying Drawtex. For best results, ensure nonadherent dressing has direct contact with wound bed.

Layer

For moderately to highly exudative wounds, apply Drawtex directly to wound bed. For heavy exudate, apply additional layers as necessary.

Cover

Cover with a secondary dressing or bandage of choice.

Change

Change Drawtex every 1 to 3 days, as necessary. Once exudate is under control, dressing may be changed less frequently. If Drawtex is adherent, irrigate with saline for easy removal.

Drawtex can be easily cut and shaped to fit each type of wound.

Sacral shape

To fold into heart-shaped wounds, while vertical cuts splay slightly, filling the area.

Rope shape

To fill cavities or cover amputations.

Tracheostomy & Tube shape

To fit around G-tubes and trach tubes. Drawtex Tracheostomy Dressing may also be used.

Drain shape

To drain by way of cutting strips with the opposite end going into a colostomy bag.

Advancing the science of wound bed preparation.

Drawtex facilitates effective wound bed preparation.

Wound bed preparation is the management of a wound in order to accelerate endogenous healing or to facilitate the effectiveness of other therapeutic measures.[3] Recent data have been published showing how wound treatment with Drawtex assists with the complex challenges of wound bed preparation[1,4]:

Facilitates removal of debris

Using an advanced pattern-recognition software algorithm* to analyze digital wound images, researchers calculated wound measurements and analyzed tissue composition of the wound bed. They found:

- Drawtex actively draws fluid away from the wound up to 150 cc/hour, retaining its integrity when moist.[5]
- Drawtex helps to remove debris from the wound by drawing out fibrin and slough, while leaving healthy granulation tissue in place.[5]

Draws and absorbs excessive wound exudate

Another study concluded that the advantages of exudate removal by Drawtex were numerous. Not only was the fluid removed, but nutrients in the exudate that facilitate biofilm production were also drawn off.[1,6]

Draws bacteria from the wound

- A study that evaluated Drawtex in an infected burn model demonstrated that Drawtex can draw methicillin-resistant *Staphylococcus aureus* (MRSA) from either an inoculated broth or an experimental burn wound eschar.[7]
- Similar results were reported in patients with chronic wounds, where tissue biopsy bacterial counts decreased from 10^6 to 10^2 CFUs per gram of tissue, while at the same time the bacterial counts in the Drawtex dressings increased up to 10^4 CFUs.[8]

Draws harmful MMPs from the wound

Chronic wounds have excessive inflammation, increased pro-inflammatory cytokines, increased proteases such as MMPs, and decreased growth factors.[9-11] Removing or decreasing the harmful MMPs is an important aspect of wound bed preparation.

- One study reported that Drawtex could draw MMP-9 and transport it for a distance up to 7 cm from the wound.[12]
- Another similar study showed that both MMP-9 and MMP-1 were drawn out of chronic wounds with Drawtex wound dressings, with a concomitant rise in MMPs in the Drawtex dressings.[8]

Sets the stage for endogenous healing or wound closure procedures

With Drawtex meeting the goals listed above for wound bed preparation, obstacles to endogenous wound healing or wound closure procedures are reduced.

*iCLR Technology® powered by Elixr®

Drawtex®, with its hydroconductive action, lifts and moves exudate, slough, and debris away from the wound surface. Clinical results have shown it to decrease wound exudate, tissue bacterial levels, nutrients for biofilm production, and deleterious cytokine levels such as matrix metalloproteinases (MMP-9).[1,2]

Based on these actions, Drawtex® facilitates effective wound bed preparation and serves as a possible alternative to passive absorptive products, like calcium alginates, hydrofibers, foams, and super absorbers.[3] In addition, at times it can replace some enzymatic, antimicrobial, and negative-pressure wound therapy (NPWT).[4]

Drawtex Tracheostomy & Tube Dressing

Drawtex Tracheostomy & Tube Dressing has 3 mechanisms of action to actively manage sputum, enteric or urinary fluid, and other secretions detrimental to skin integrity.[13]

Advantages:

- Hydroconductive wound dressing technology
- Draws out exudate, debris, bacteria and proteases[1,5,8,12]
- Fits snugly around tube with interlocking closure[14]
- Prevents peristomal maceration[14]
- Easy to use

Catalog # 00310

Drawtex Rope

Drawtex Rope takes the Drawtex technology even deeper, allowing you to reach deeper undermined or tunneled areas in your wounds without fear of losing the dressing due to saturation. It is comfortable to any environment where fluid needs to be removed, managed, or contained.[13]

Effective for:

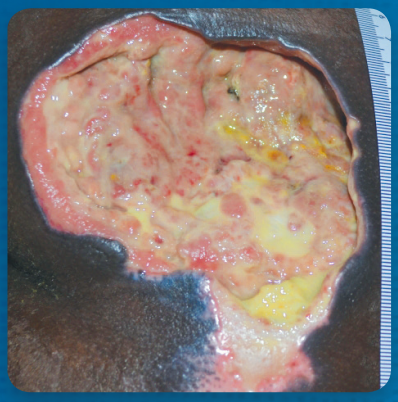
- Fistula management[15]
- Sinus tracts
- Undermining
- Tunneling
- Packing

Catalog # 00321

How Drawtex helps meet the complex challenges

Case Study (I)

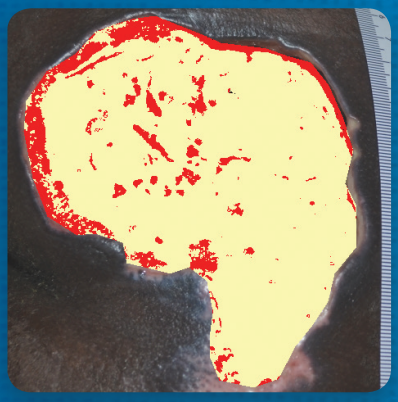
This 32-year-old man was admitted to the Trauma ICU with a gunshot wound. He developed a sacral pressure ulcer that was treated with negative pressure wound therapy (NPWT) prior to the decision to use hydroconductive dressings. Multiple layers of Drawtex were changed on alternate days until wound bed preparation was deemed acceptable. The wound initially was covered by debris and slough. After 8 days of treatment with Drawtex, the amount of slough and debris was greatly decreased.



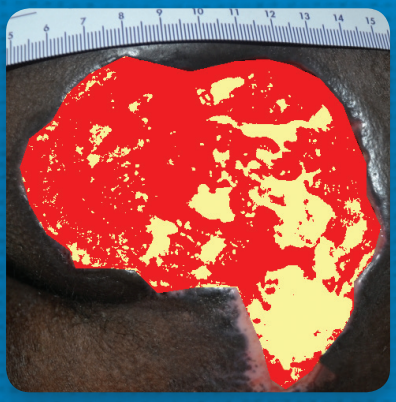
Before

After 8 Days

iCLR Technology® powered by Elixr®*

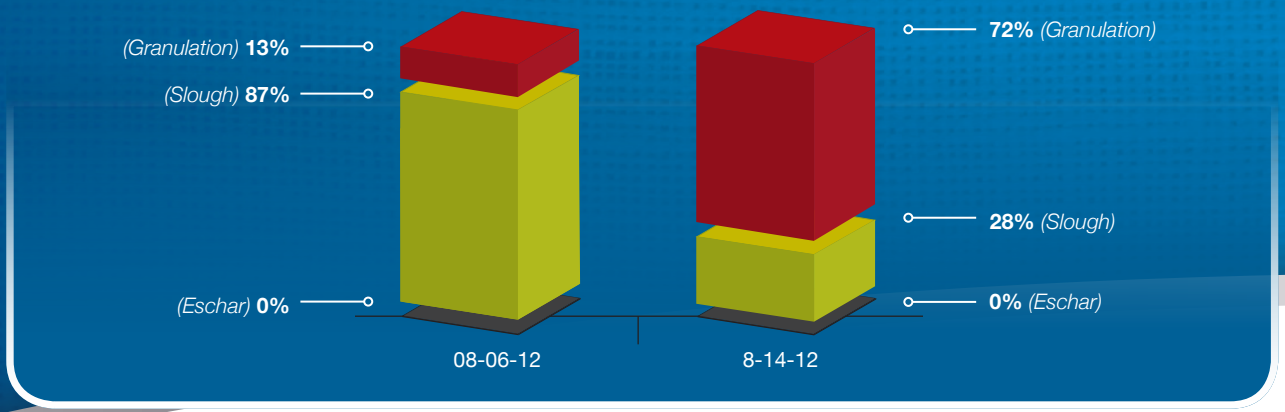


Before



After 8 Days

Effect of Drawtex After Eight Days



*iCLR Technology® powered by Elixr® is a statistical pattern recognition algorithm that classifies each individual wound color pixel in a wound image, providing a documented variance of only 1% (with flat wound images).

s of wound bed preparation

Case Study (II)

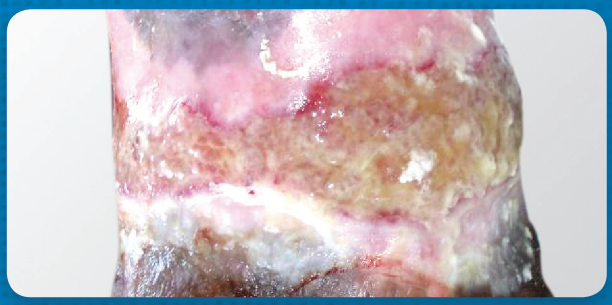
This 68-year-old male presented with a venous ulcer that had been present for 35 years. During that time, it had been treated with a hydrogel dressing covered by short stretch bandaging changed twice weekly. Drawtex was applied directly onto the wound and short stretch bandaging continued. After 6 days of treatment with Drawtex, the ulcer had decreased in size by 50%.

Before

After 6 Days

Case Study (III)

This female patient had developed a wound after her leg started “itching.” Skin irritation and scratching caused a small wound that grew larger every day. The wound discharged large volumes of fluid, leading to more scratching by the patient. Only 24 hours after Drawtex was applied, the “itching” disappeared completely. The wound bed responded well to the treatment, and the patient experienced no more itching, pain or discomfort.



Before

After 5 Days

Case Study (IV)

This patient suffered from a severe burn wound for more than a month, with complaints of incapacitating pain and a bad odor. Skin grafting was not possible because the wound bed was badly infected, with high volumes of exudate. Topical medication along with standard treatment produced very limited success. Drawtex was used along with petrolatum gauze, and after 24 hours the dressings were green with *Pseudomonas*. By Day 7, the Drawtex treatment had reduced the swelling and odor, and blood circulation improved. In addition, enhanced granulation took place, thus creating a healthy wound bed. The wound healed completely within 30 days, and no skin grafting was required.

Before

After 7 Days

Drawtex mechanisms of action lift and move exudate, wound debris, bacteria, and harmful MMPs away from the wound bed, facilitating effective wound bed preparation.[1-12]

- Drawtex facilitates removal of wound debris.[5]
- Drawtex draws exudate, bacteria, and harmful MMPs.[1-12]
- Drawtex sets the stage for endogenous healing or wound closure procedures.
- Drawtex combines 3 mechanisms of action to differentiate it from other standard dressings.[1]

Drawtex Product Information

Catalog #	Size	Carton Qty.	Shipper Qty.
00300	2 x 2 in (5 x 5 cm)	10 Dressings	10 Cartons (100 Dressings)
00301	3 x 3 in (7.5 x 7.5 cm)	10 Dressings	10 Cartons (100 Dressings)
00302	4 x 4 in (10 x 10 cm)	10 Dressings	10 Cartons (100 Dressings)
00303	6 x 8 in (15 x 20 cm)	10 Dressings	10 Cartons (100 Dressings)
00304	8 x 8 in (20 x 20 cm)	10 Dressings	10 Cartons (100 Dressings)
00305	3 x 39 in (7.5 cm x 1 m)	5 Rolls	4 Cartons (20 Rolls)
00306	4 x 39 in (10 cm x 1 m)	5 Rolls	4 Cartons (20 Rolls)
00307	8 x 39 in (20 cm x 1 m)	5 Rolls	4 Cartons (20 Rolls)
00310	4 x 4 in (10 x 10 cm) Tube Dressing	10 Dressings	10 Cartons (100 Dressings)
00321	⅜ x 18 in (1 x 46 cm)	10 Dressings	10 Cartons (100 Dressings)

References: **1.** Smith DJ, Karlnoski RA, et al. The treatment of partial-thickness burns with a hydroconductive wound dressing: clinical and mechanistic effects. *Surgical Science*. 2013;4:268-272. **2.** Spruce P. Preparing the wound to heal using a new hydroconductive dressing. *Ostomy Wound Management*. 2012;58(7):2-3. **3.** Schultz GS, Sibbald RG, et al. Wound bed preparation: A systematic approach to wound management. *Wound Rep Regen*. 2003;11(Suppl 1):S1-S28. **4.** Robson MC. Innovations for wound bed preparation: The role of Drawtex hydroconductive dressings. *Wounds*. 2012;24(9) (Suppl):2. **5.** Wolvos T. Analysis of wound bed documentation in advanced wound care using Drawtex, a hydroconductive dressing with LevaFiber technology. *Wounds*. 2012;24(9)(Suppl):9-10. **6.** Wolcott RD, Cox S. The effects of a hydroconductive dressing on wound biofilm. *Wounds*. 2012;24(9) (Suppl):14-16. **7.** Ortiz RT, Moffatt LT, et al. *In vivo* and *in vitro* evaluation of the properties of Drawtex LevaFiber wound dressing in an infected burn wound model. *Wounds*. 2012;24(9) (Suppl):3-5. **8.** Ochs D, Uberti G, et al. Evaluation of mechanisms of action of a hydroconductive wound dressing (Drawtex) in chronic wounds. *Wounds*. 2012;24(9) (Suppl):6-8. **9.** Nwomeh BC, Yager DR, et al. Physiology of the chronic wound. *Clin Plast Surg*. 1998;25:341-356. **10.** Tarnuzzer RW, Schultz GS. Biochemical analysis of acute and chronic wound environments. *Wound Rep Regen*. 1996;4:321-325. **11.** Mast BA, Schultz GS. Interactions of cytokines, growth factors, and proteases in acute and chronic wounds. *Wound Rep Regen*. 1996;4:411-420. **12.** Wendelken M, Lichtenstein P, et al. Detoxification of venous ulcers with a novel hydroconductive wound dressing that absorbs and transports chronic wound fluid away from the wound. *Wounds*. 2012;24(9) (Suppl):11-13. **13.** Amling J. The Use of Hydroconductive Dressings to Prevent and Treat Skin Excoriation in Young Children. *Ostomy Wound Management*. 2015; 61(5): 16-17. **14.** Wachtel TL. A novel tracheostomy dressing: Extension of a hydroconductive wound dressing. *Ostomy Wound Management*. 2013; 59(2):10-11. **15.** Denham D. Treating Entercutaneous Fistulas With a Hydroconductive Dressing. *Ostomy Wound Management*. 2014; 60(2): 8, 10.

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Manufactured by: Beier Drawtex® Healthcare
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