Adaptic Touch® non-adherent dressing

There are a wide range of non-adherent primary wound contact layers available. The desirable features of these products include conformability to the wound bed, the ability to stay *in situ* over wear time, transmission of wound exudate to the secondary dressing, minimal trauma on removal and ease of use. One such dressing is Adaptic Touch® (Systagenix). Its properties and their supporting evidence will be explored in this article.

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KEY WORDS
Non-adherent wound contact layer
Atraumatic
Ease of application
Adaptic Touch®

When developing dressing materials, researchers and scientists use different methods to assess their fitness for purpose. *In vitro* and *in vivo* studies, focus groups and case reports all form essential parts of the evidence base to give clinicians the information that they need about the suitability of a product as treatment for patients with acute or chronic wounds.

Non-adherent silicone-based dressings have been developed to minimise damage to the wound bed and surrounding tissue. They can be particularly useful in fragile or friable skin. Silicone is also inert (Thomas, 2003), which makes it suitable for patients with a high risk of sensitivity, such as those with leg ulcers.

Adaptic Touch®

Adaptic Touch® (Systagenix) silicone

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dressing is a non-adherent, flexible, open-mesh primary wound contact layer comprised of cellulose acetate coated with a soft tack silicone. It is designed to stay in place unassisted during dressing application and to be atraumatic with regard to both the wound and surrounding skin during dressing change. The atraumatic nature of the dressing should also help to reduce pain during dressing changes.

The cellulose acetate knitted mesh is designed to be non-adherent and to allow the passage of exudate into an absorbent secondary dressing. The soft tack silicone assists dressing application, prevents adherence of the secondary dressing to the wound and on removal is atraumatic to the wound and surrounding skin.

Adherence of dressing materials to the wound bed or surrounding skin can damage newly-forming cells and cause distress to the patient. Dykes and Heggie (2003) found repeated application and removal of dressings with traditional adhesives can lead to damage to the skin's surface and strip the skin's barrier. Additionally, skin weakens naturally as it ages (Cooper et al, 2006). Therefore, elderly patients' skin may be particularly susceptible to external trauma such as removal of adherent dressings. Woo and Sibbald (2008) suggest that pain is common in chronic wounds and that it may be exacerbated at dressing change. Non-adherent silicone-based products are designed to minimise trauma and pain.

An evaluation was carried out to determine the ability of several wound contact layers to provide low adherence (Stephens et al, 2010a). In this *in vitro* experiment a fibrin clot method was used. The contact layer was applied with sufficient pressure to ensure the clot was in contact with the contact later. This test specimen was then placed in an incubator for 24 hours at body temperature. The force required to remove the contact layer from the clot was measured. Results indicated that Adaptic Touch demonstrated low adherence properties. Low adherence to the wound is important, however, damage to the wound bed may also occur if there is adherence to the secondary dressing. Therefore, adherence of secondary dressings, a foam and an alginate, in combination with Adaptic Touch were also assessed. Adherence of the fibrin clot was first assessed using the foam and alginate dressings as primary dressings, followed by Adaptic Touch as a primary dressing with the foam and alginate dressings as secondary dressings. Results indicated significant reduction in adherence where Adaptic Touch was the primary contact layer (84% reduction with the foam dressing and 92% reduction with the alginate). This indicates that wound contact layers can minimise the potential for mechanical trauma at dressing change, and subsequently pain.

Exudate from chronic wounds can slow down or even stop proliferation of key cells such as keratinocytes, fibroblasts and

endothelial cells (Falanga, 1999). Maceration of the surrounding tissue can also occur. Passage of exudate through the wound contact layer into the secondary dressing is therefore important to minimise damage at the wound site.

Stephens et al (2010b) used three different *in vitro* methods to determine the impact of a wound contact layer on the performance of a secondary dressing. In a standard test, moisture vapour transmission rate (MVTR) was assessed to determine whether the addition of a wound contact layer altered the function of a foam dressing (Tielle®, Systagenix). Results indicated that Adaptic Touch did not impede MVTR. The researchers then used the Wound Care Research for Appropriate Products (WRAP) model (Grocott et al, 2008). In this experiment, an absorbent pad is used to mimic a wound. Fluid is pumped continuously into the pad for a period of 2.5 hours with the wound contact layer on top of the pad and absorbent filter paper on top of the contact layer. The experiment showed Adaptic Touch allowed fluid to pass through. The WRAP method gives useful information but it is in a fixed position which does not mimic real life.

In a further experiment (Stephens 2010b), a simulated leg model was used to evaluate wound care products in the vertical position. This consists of a 2l Perspex container with a small hole bored to mimic the wound. Adaptic Touch and Tielle were positioned over the hole and simulated wound fluid was pumped via silicone tubing through the hole over a 24-hour period. It was found that Adaptic Touch did not interfere with the passage of fluid into the absorbent dressing in the vertical position.

A further evaluation of Adaptic Touch was carried out using three different methods (*in vivo, in vitro* and focus group) to determine its usefulness in different wound types (Stephens et al, 2010c).

In vivo study

This *in vivo* study was undertaken to evaluate the performance of Adaptic Touch and other commercially available non-adherent contact layers. Partial-thickness wounds were created on the flank of domestic white pigs. Each contact layer was assessed on day 3 and 7 for:

- Tack to peri-wound site on initial application
- Retention at wound site during wear
- Adherence to wound and marginal tissue
- Adherence of foam secondary dressing to wound tissue through the contact layer
- Wound surface damage on removal
- Any unexpected adverse events.

Adaptic Touch demonstrated tack to the wound margins on initial application and retained its position on the wound bed when the secondary dressing was removed at dressing changes. This was similar on both highly exuding (day 3) and dry wounds (day 7).

Removal of dressings at day 3 resulted in minimal to moderate damage (bleeding). Stephens et al (2010c) suggested that this may be explained by the friable nature of the newly epithelialised wound tissue. At day 7, when the wound sites were virtually re-epithelialised, no or minimal damage was recorded for the majority of contact layers.

To determine the effectiveness of wound exudate transmission, Stephens et al (2010c) simulated use under negative pressure wound therapy (NPWT). The contact layer was applied to a chicken breast, with NPWT being applied at 125mmHg for three hours. On removal, an imprint of the dressing was visible on the surface and fluid had been collected into the collection vessel. This *in vitro* experiment indicated that Adaptic Touch allows fluid passage under the foam component of a NPWT system.

In a final arm to this evaluation, practical aspects of handling the dressing were assessed (i.e. ease of use). This was the first time that clinicians had seen or worked with Adaptic Touch. A focus group of wound care specialists, including tissue viability nurses, nurses and podiatrists, assessed Adaptic Touch and other commercially available wound contact layer products for ease of removal from pouch, ease of removal from release paper, ease of cutting, ease of handling with gloves and with forceps. There was no significant difference in the scoring and Adaptic Touch was considered easier to cut.

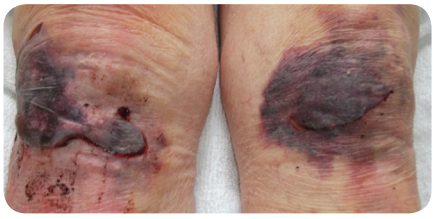

Figure 1. Bilateral knee wounds following a fall.

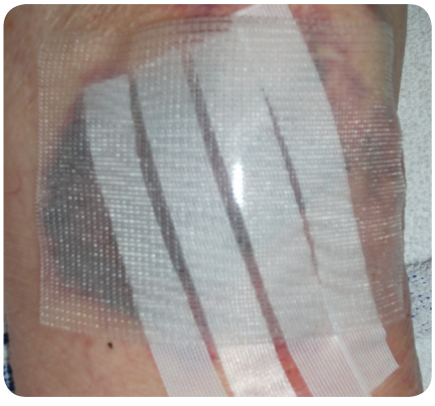

Figure 2. Wounds covered with Steri-strip and Adaptic Touch.

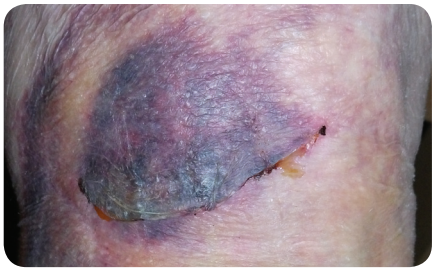

Figure 3. Wound on day 10. Wound edges have taken and bruising is subsiding.

The following case reports demonstrate the use of Adaptic Touch in clinical practice.

Case report one

This case featured an 85-year-old female who was admitted to hospital after falling and tripping on a step. She sustained bilateral knee wounds (*Figure 1*). The wounds were re-aligned, and Steri-strip was used to oppose the edges, covered with Adaptic Touch (7.6x11cm) (*Figure 2*). The secondary dressing was borderless Eclypse (Advancis Medical), which was secured by toe-to-knee Soffban® (Smith & Nephew) and a blue line Comfifast® tubular bandage (Synergy Health). The dressings were left in place for five days and then reviewed. Appeel® Sterile sachet (CliniMed) was used to facilitate pain-free dressing changes. The same regimen was repeated with the

dressings being left in place for a further five days. On dressing review at day 10, the wound edges had taken and bruising was subsiding (*Figure 3*). There were no signs of skin trauma with this dressing regimen.

The patient said that the wound felt comfortable when she was mobilising and the dressing remained in place despite the difficult anatomical region.

This case had the additional challenge of thinning and friable skin, which is common in the elderly and can pose problems at dressing removal. However, Adaptic Touch was found to support the surrounding skin, with no trauma on removal.

Case report two

This 34-year-old male was an intravenous (IV) drug user who was known to the podiatry department of tissue viability. He was admitted to the intensive treatment unit (ITU) having collapsed and subsequently developed kidney failure. On initial assessment (01/02/11) by the tissue viability team he had lower leg oedema and blistering to both legs (*Figure 4*). Biopsies were taken by the dermatologist to rule out any undiagnosed dermatological condition which may have been causing the blistering. Biopsy results did not reveal any abnormality. The podiatry team were also in attendance and the patient's left great toe nail was removed.

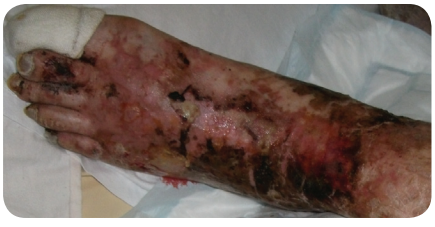

Figure 4. Lower leg oedema and blistering at initial assessment.

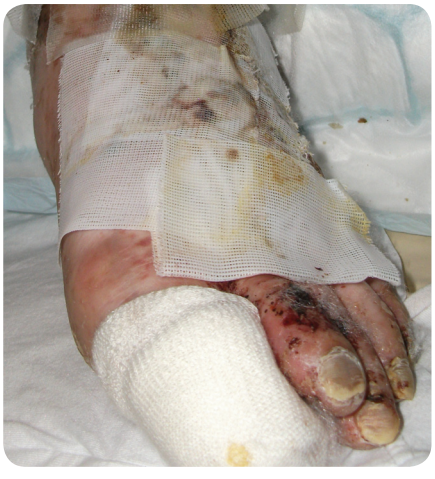

Figure 5. Adaptic Touch as a primary contact layer.

Treatment included application of 50/50 white soft paraffin in liquid paraffin (50/50) to intact skin, all the blisters and skin breaks on both the lower legs. Adaptic Touch was applied on top as a primary contact layer (*Figure 5*).

The right leg was secured with a combined compression bandage regimen of yellowline Comfifast, Soffban, and a further layer of yellowline Comfifast to reduce the oedema gradually.

The left leg, which had more extensive blistering, was treated with Borderless Eclypse® (Advancis Medical) as a secondary dressing to absorb exudate from the blisters. As before, this was secured with the combined compression bandage regimen.

Dressings were changed every 1–2 days depending on the level of exudate. At dressing change it was noted that wound fluid had transferred freely through the Adaptic Touch dressing, with no evidence of maceration to the surrounding skin (*Figure 6*). Additionally, the dressing was easy and painless to remove. During this time the patient continued on regular dialysis. Follow-up reviews were carried out on a regular basis. At final review the lower leg oedema had subsided, there was no new blistering (28/02/11) and the remaining dead tissue was removed. No further dressing was required (*Figure 7*).

Conclusion

Adherence of wound dressings to the wound can delay the wound healing process and be extremely distressing to the patient. Chronic wound exudate, when left in contact with the wound, is also thought to have a deleterious effect on the healing process (Falanga, 1999).

Data generated from the laboratory studies, focus groups and case reports indicate that Adaptic Touch non-adherent primary contact layer is clinically effective with regard to ease of application, free flow of exudate to the secondary dressing, and minimal or no trauma on removal. As demonstrated here, the dressing stays in place in articulating surfaces, allowing mobilisation and rehabilitation to take place. WUK

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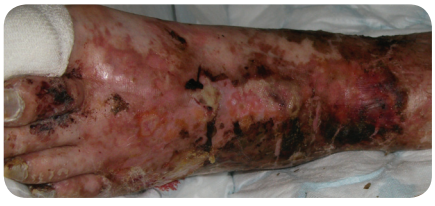

Figure 6. At dressing change no evidence of maceration to the surrounding skin was found.

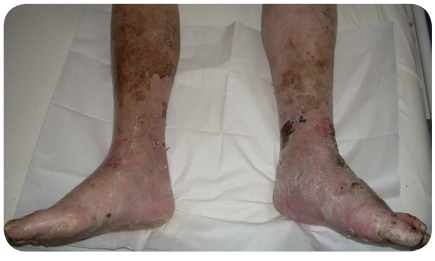

Figure 7. At final review the oedema had subsided and no further treatment was required.