

**DRESSINGS CONTAINING HYDROFIBRE TECHNOLOGY
RESPOND TO CHANGES IN WOUND ENVIRONMENT**

Mike Walker

ConvaTec GDC, Deeside, Flintshire, United Kingdom

Aim: With our greater understanding of the wound environment and the need to reduce the levels of localised stimulation of inflammation it is important that modern wound dressings respond to increases in either fluid or cellular activity. Studies will be presented to show that dressings that contain hydrofibre technology demonstrate these events. Equally important if these modern dressings contain an antimicrobial agent (e.g. silver) silver is made available in a controlled and a sustainable manner and not in such quantities as may induce localised skin staining or prove damaging to cells involved in the wound healing process (e.g. fibroblasts).

Methods: Microscopy was used to evaluate fibre swelling and the uptake of cellular components into hydrofibre dressings. Microcalorimetry studies have been used to evaluate the quantity of silver required to reduce wound bioburden, whilst human skin samples were tested to show possible skin staining. Finally a wound fibroblast gel contraction model was used to assess contraction and viability.

Results: Confocal microscopy showed that individual fibres swell to at least ten times their original size upon contact with fluid, coalescing into each other resulting in the formation of a cohesive gel structure. In vivo studies showed neutrophilic granulocytes uptake into the hydrofibres. Further in vitro studies showed that the quantity of silver availability is not important (microcalorimetry), but that excessive availability led to skin staining (human skin studies) and markedly reduced fibroblast viability (collagen contraction model).

Discussion / conclusion: Choice of wound dressing should be based on clinically applicable measures such as wound type and condition. Performing more relevant in vitro scientific studies should help to make that choice easier.