

# DETOXIFICATION OF VENOUS ULCERS WITH A NOVEL HYDROCONDUCTIVE WOUND DRESSING THAT TRANSFERS CHRONIC WOUND FLUID AWAY FROM THE WOUND

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**Objective:** To evaluate a viscose, polyester, cotton hydroconductive (natural vacuum) wound dressing (HWD)\* in venous ulcers patients.

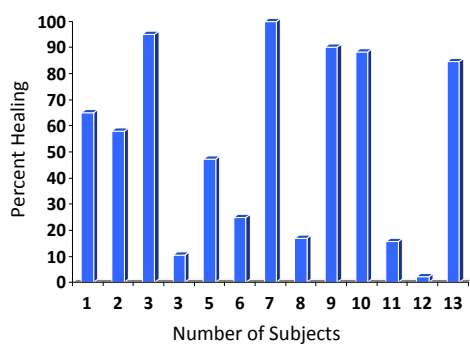
**Design:** Controlled, single center, pilot study involving 28 subjects (13 treated with HWD and compression and 25 historical controls treated with compression alone).

**Endpoints:** Wound healing outcomes were graded using Photodigital Planimetry Software (PictZar) and a numerical scale of +3 to -3 (+3= complete closure, +2= >50% closure at 4 weeks, +1= 25-49% closure at 4 weeks, -1= 1-24% closure at 4 weeks, -2= no improvement, -3= wound deterioration). In addition wound fluid gelatinase (MMP-9) was measured in both wound and HWD.

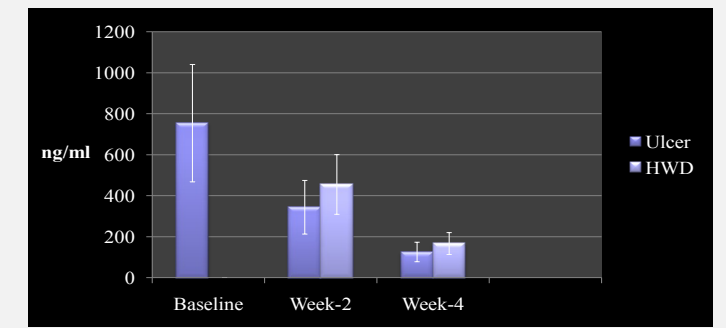
### Ulcer Characteristics

Treatment	Ulcer Duration	Ulcer Surface Area
HWD	16 mo	18.1 cm <sup>2</sup>
Control	9 mo	10.5 cm <sup>2</sup>

### Effect of HWD on Wound Closure at 4 Weeks



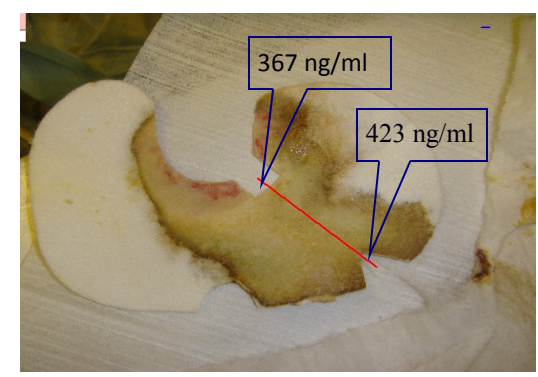
### MMP-9 Concentrations in Venous Ulcers and on HWD at Baseline at Week 2 and Week 4



Concentrations of MMP-9 were measured using ELISA according to the manufacturer's protocol (Calbiochem)

**Results:** In the HWD group, the mean wound score was 2.1 and in the standard care group the mean wound score was 1.5. Wound MMP-9 levels decreased throughout healing in the HWD. Upon MMP analysis of HWD, MMP-9 was detected in HWD at wound interface and distal (up to 7cm) away from the wound.

**Right:** MMP-9 Levels at the Center of HWD and Leading Edge at Week 1



Treatment	Wound Score	> 50% Closure in 4 Weeks (%)
HWD	2.1	58.8%
CONTROL	1.5	43.2%

**Conclusions:** HWD was 29% more effective than standard care. HWD effectively transfers wound fluid away from wounds by a "natural vacuum" created by the hydroconductive viscose (Leva) fibers. More studies are needed in a variety of inflammatory chronic wounds to investigate the mechanism and effect of this wound fluid transfer phenomenon.

\*Drawtex Hydroconductive Wound Dressing  
SteadMed, Inc Fort Worth TX  
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**Above:** 1 ml of wound fluid applied to the center or edge of HWD (note that HWD is more efficient when absorption takes place from the edge).

**Right:** Before and after photographs of ulcers treated with HWD