

ALLEVYN[◇] COMPLETE CARE Foam Dressing helps protect against factors known to contribute to pressure injuries by absorbing mechanical energy and mitigating tissue strain through frictional sliding and internal shear between its unbonded layers

Orlova D, Orlov A, Gefen A. The protective efficacy of a new soft silicone multi-layer dressing in reducing the heel pressure ulcer risk. *Int Wound J*. 2025;22(1):e70764.

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Key points

Laboratory findings



93% absorption of mechanical energy by ALLEVYN COMPLETE CARE Dressing



ALLEVYN COMPLETE CARE Dressing **reduces strain in the majority of the modelled tissue by 55%**

Clinical finding



Clinical evidence supports laboratory findings, indicating that the MOA demonstrated in **ALLEVYN COMPLETE CARE Dressings** can help provide enhanced PIP efficacy vs standard care alone

ALLEVYN COMPLETE CARE Dressing

ExuMASK[◇]

Change indicator technology

ExuLOCK[◇]

Advanced lock-in technology

HighFLEX

Multi-way stretch technology

ALLEVYN Foam

Highly breathable top film

ShearDEFENSE[◇]

Unbonded layer technology



ComfortSTAY[◇]

Soft silicone adhesive technology

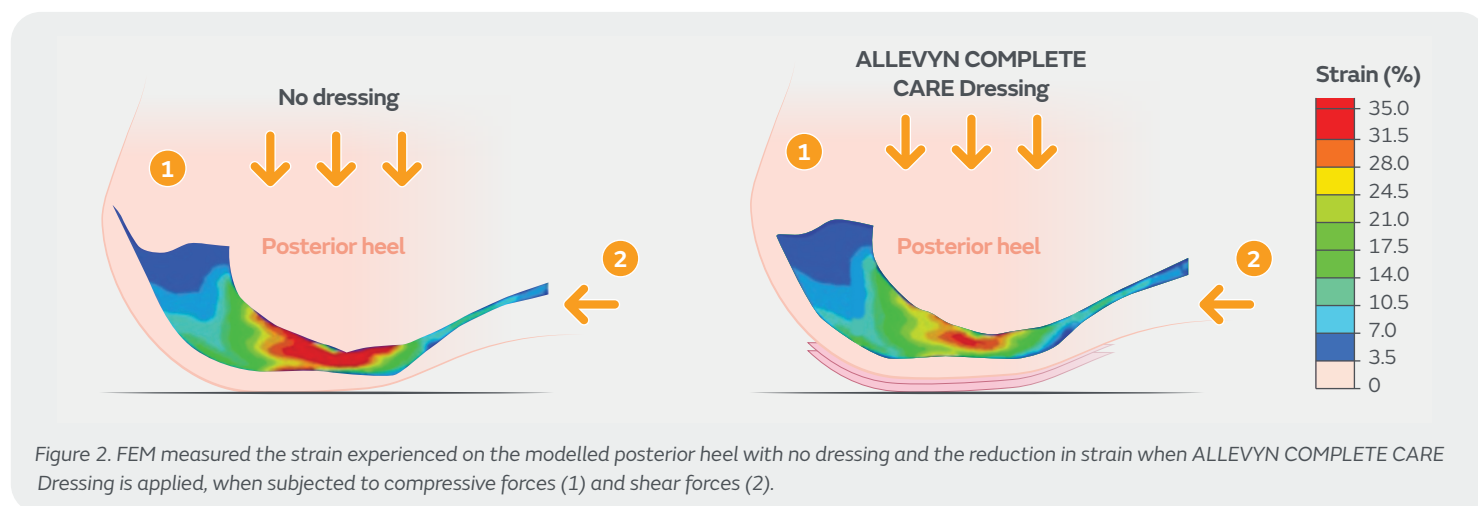
Figure 1. ALLEVYN COMPLETE CARE Dressing

Overview

- Current international clinical practise guidelines recommend the use of foam prophylactic dressings, such as ALLEVYN COMPLETE CARE Dressing, on high-risk anatomical sites including the heels and sacrum to support pressure injury prevention (PIP)¹
 - ALLEVYN COMPLETE CARE Dressing was designed with ShearDEFENSE Technology, a distinct mode of action featuring unbonded dressing layers to help reduce shear in soft tissues²
- A previously validated in vitro test methodology and metric, frictional energy absorber effectiveness (FEAE),³ was used to calculate the amount of mechanical energy that is absorbed by the frictional sliding of ALLEVYN COMPLETE CARE Dressing's unbonded layers
 - Absorbed mechanical energy measured under these clinically relevant test conditions describes the ability of the dressing to mitigate the transfer of shear force to the skin, that may result in a pressure injury
- Finite element modelling (FEM) was used to accurately assess tissue strain mitigated by ALLEVYN COMPLETE CARE Dressing on clinically relevant models of the posterior heel
 - Computer modelling method that divides complex objects and interactions into small pieces (finite elements)

Laboratory results

- FEAE analyses demonstrated that frictional sliding and internal shear of ALLEVYN[®] COMPLETE CARE Dressing's unbonded layers absorbs 93% of mechanical energy
 - Absorption of mechanical energy within the dressing layers reduces the total energy transferred to soft tissues
 - Removal of energy transferred to soft tissues helps to prevent pressure injuries
- FEM showed that ALLEVYN COMPLETE CARE Dressing reduces strain in the majority of tissue by 55% and effectively eliminates peak strain* (Figure 2)
 - These results indicate that ALLEVYN COMPLETE CARE Dressing helps to distribute strain more evenly than no dressing
- Taken together, the FEAE and finite element modelling results offer useful insight into dressing design principles and testing methods for pressure injury prevention (PIP)
 - ALLEVYN COMPLETE CARE Dressing may help to reduce pressure injuries in real-world use, as demonstrated by these clinically relevant analyses



Clinical results



Evidence from a recent systematic literature review and meta-analysis, on the previous ALLEVYN 5-layer dressing that features the same mode of action (MOA), indicates that this MOA plays a meaningful role in reducing pressure injuries among at-risk patients⁴

- Findings of this analysis, which included 3 randomised controlled trials, indicate that ALLEVYN 5-layer dressings in combination with a standard PIP protocol are capable of significantly reducing the incidence of pressure injuries compared to standard PIP protocols alone by 66%
- The consistency between the laboratory results shown here and high-quality clinical studies highlights the improved PIP effectiveness of ALLEVYN 5-layer Dressings when used alongside a standard PIP protocol, compared with standard protocol alone

Conclusions

The laboratory testing demonstrates that application of ALLEVYN COMPLETE CARE Dressing reduces 93% of energy transferred to modelled soft tissues via effectively absorbing mechanical energy internally, through combination of material shear and frictional sliding of its unbonded layers. ALLEVYN COMPLETE CARE Dressing also reduces strain in the majority of tissue by 55% and effectively eliminates peak strain experienced by soft tissues of the posterior heel. These results suggest that ALLEVYN COMPLETE CARE Dressing may help to reduce incidence of pressure injuries and aid pressure injury prevention.

*Peak strain is represented by the top quartile (25%) of the dataset.

References: 1. European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and treatment of pressure ulcers/injuries: clinical practice guideline. The international guideline. Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA: 2019. 2. Smith+Nephew 2024. Internal Report CSD.AWM.24.057 V2. 3. Marché C, Creehan S, Gefen A. *Int Wound J*. 2024;21(4):e14871. 4. Atkinson L, Costa B. Poster presented at: European Wound Management Association (EWMA); May 1–3, 2024; London, UK.

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