convatec
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Summary of a computer-simulated modeling study on personalization of convexity for improved ostomy outcomes.

Evidence-based insights on how convexity characteristics impact ostomy skin barrier performance

Learn more by downloading the full study[1] from Bradley-Clarke et al. (2025), or get in touch with your sales representative today.

Not all convexity is the same.

Selecting the right convexity fit can help prevent leakage, protect peristomal skin and improve wear time—key factors in maintaining patient comfort and confidence.

Five key characteristics determine the behavior of convexity. Understanding their impact enables better clinical decision-making and contributes to enhanced patient outcomes.

Depth **Compressibility** **Flexibility** **Tension location** **Slope**

Convexity in context

Understanding how the three characteristics — depth, tension location and compressibility — impact patient outcomes

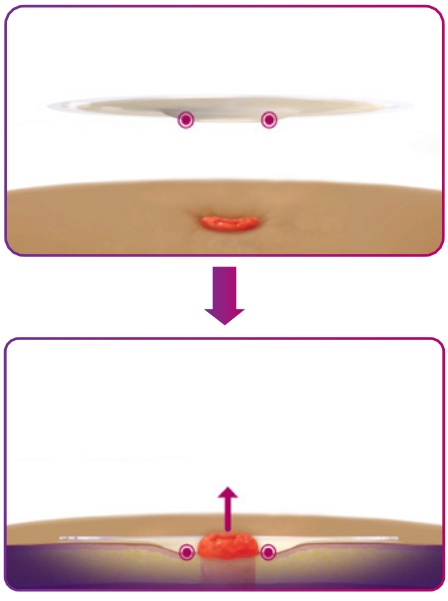
- **Depth** determines the magnitude of the force applied
- **Tension location** determines *where* the force is applied by the convex product. Tension in the skin is the stretch required to flatten skin folds and irregular skin plane
- **Compressibility** indicates how rigid or soft a product is

Exploring the influences that result in central and peripheral tension

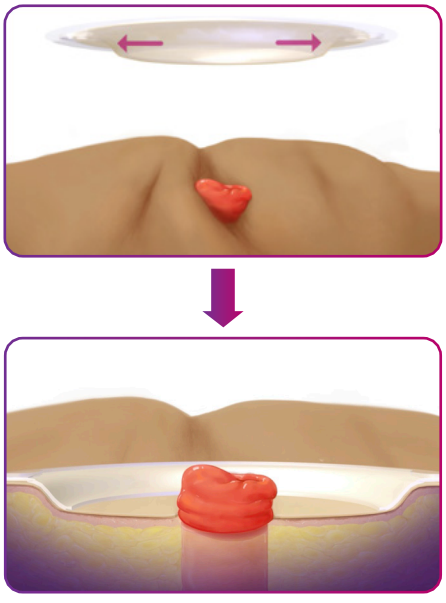
Central tension: Central tension location and depth are the most important characteristics for creating tissue compression near the stoma which is ideal for supporting stoma protrusion and reducing leakage.

Peripheral tension: Wider tension location and depth are the most influential characteristics to exert compression in the peristomal skin which helps flatten uneven peristomal skin, improving the seal and reducing gaps caused by irregular contours.

Note: Flexibility was not measured in this simulation study, so the results only reflect tension effects and not how easily the barrier bends or adapts. Slope supports the creation of peripheral tension, but it is not relatable to healthcare providers when making product choices, as it is a consequence of manufacturing characteristics such as tension location and depth.



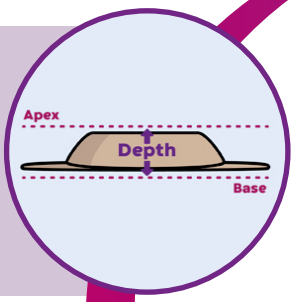
Central tension
Applies force immediately around the stoma to help protrude.



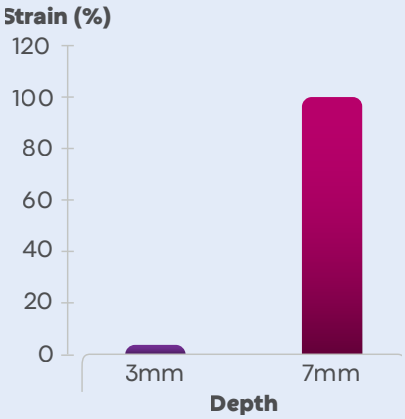
Peripheral tension
Applies force away from the stoma to help flatten skin folds and irregular skin.

Depth vs. compressibility:

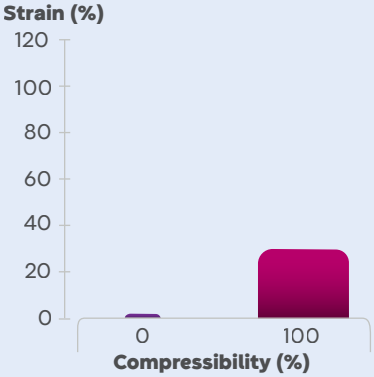
Increasing depth is more effective than switching to a rigid convex barrier



Increasing depth from 3mm to 7mm increased strain by 100%



Doubling the rigidity of the convex dome only changed strain in the tissue by 30%



Key takeaways[1]:

- The study shows that depth associated with tension location has more impact on stoma protrusion than compressibility.
- Through adjustable depth and tension location placement, soft convex products demonstrate broader capability and performance across a wider range of abdominal profiles.
- Soft convex skin barriers—whether at shallow depths around 3.5mm or deeper around 7mm—can effectively achieve substantial fat compression.

Important: as established by McNichol et al.'s consensus guidelines, always use the **least amount of convexity**, which means selecting only the minimal convex support necessary to achieve a secure, leak-preventing seal tailored to the patient's risk level, body contours, and stage of healing.[2]

Choosing the right convexity

Select convexity based on clinical assessment and desired outcome

1 Consider your desired outcome. Do you need to flatten the skin or protrude the stoma?

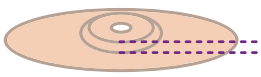
2 Define the ***tension*** **location**, or where the force must be applied.

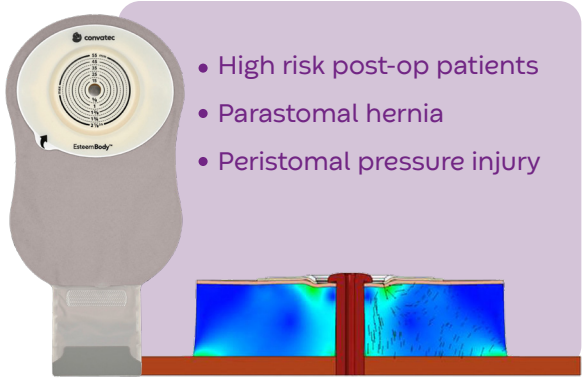
3 Determine the ***depth*** needed; this is the magnitude of the force applied.

- **Flatten the skin** → **Peripheral Tension** → **Shallow 3.5 mm** / **Deep 7 mm**
- **Stoma protrusion** → **Central Tension** → **Shallow 3.5 mm** / **Deep 7 mm**

What to consider when choosing Esteem Body™ solutions

3.5mm





- High risk post-op patients
- Parastomal hernia
- Peristomal pressure injury

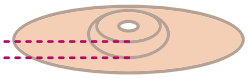
Peripheral tension

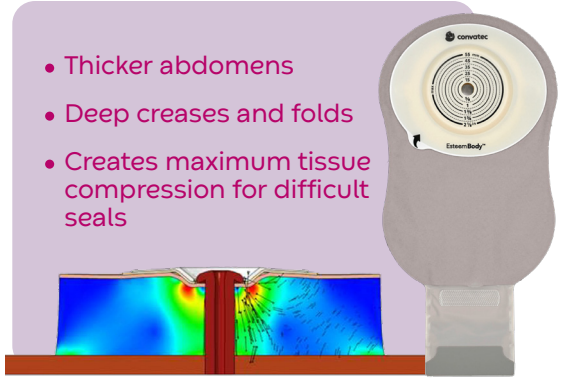
Maximum skin flattening

Central tension

Flush Stomas

7mm





- Thicker abdomens
- Deep creases and folds
- Creates maximum tissue compression for difficult seals

Peripheral tension

Maximum skin flattening

Central tension

Flush & retracted Stomas

Not all convexity is the same: Convatec Esteem Body soft convex solutions adapts to every body

Gentle flexibility provides comfortable, effective support at different depths while offering **the least amount of convexity** to achieve the desired clinical outcome. Soft convex is a more comfortable choice for many body types compared with rigid barriers.

Healthy Bonds™:
Stronger Connections.
Better Ostomy Care.

Convatec delivers whole-person support through innovation, education, and community – because better care starts with stronger bonds.

References: **1.** Bradley-Clarke J, Evans J, Waller J, McGill K, Long C, Brindle T, Carty N. Computer-Simulated Model Examining the Effects of Convexity Characteristics at the Skin Barrier–Abdomen Interface. J Wound Ostomy Continence Nurs. 2025;52(5):392-400. **2.** McNichol L, Cobb T, Depaifve Y, Quigley M, Smitka K, Gray M. Characteristics of Convex Skin Barriers and Clinical Application: Results of an International Consensus Panel. J Wound Ostomy Continence Nurs (Enfermería de heridas, ostomía y continencia). 2021;48(6):524-532. doi:10.1097/WON.0000000000000831. **AP-78978-GBL-ENGU-v1**