

*Acteev*  
MED

**Computer Aided Engineering  
for Medical Devices**



# How could this benefit you?

Our team can support you by..

- Modelling your best design during dynamic, not just static, movements to understand performance to a new level.
- Utilizing learnings to predict and produce even better future designs.
- Demonstrating how the Acteev Med devices outperform others by helping clinicians visualize it.

See example of the work and results from an orthotic device,  
and let's discuss how to benefit medical compression

# Computer Aided Engineering (CAE)

High performance applications demand more engineering, testing, and analysis resources. CAE accelerates our application development process.

Our applications team offers deep industry experience and CAE support to help optimize system designs.

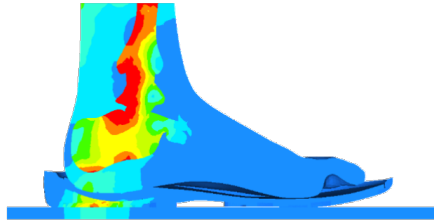
## Computer Aided Engineering Support

- Device design and application development support
- Topology & parametric optimization

## Material, Science and Process Support

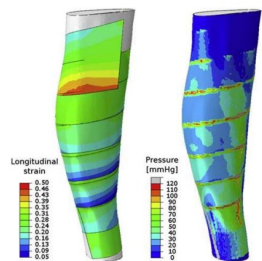
- Resin to final device construction and testing from compression to wound care to surgical applications
- Durability and performance
- Fiber technology lab support

Example included

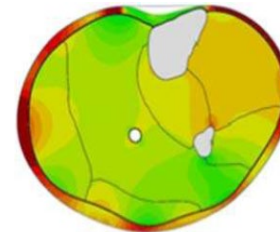


Pressure Transfer through soft Muscle

Looking for the right partner..

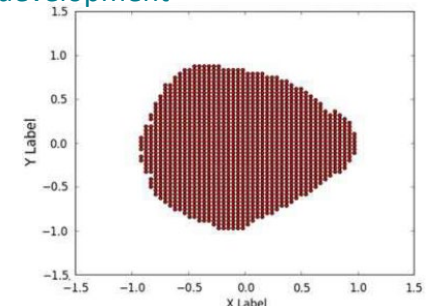


Pressure distribution in bandage wrapping



Hydrostatic Pressure Distribution in leg cross-section

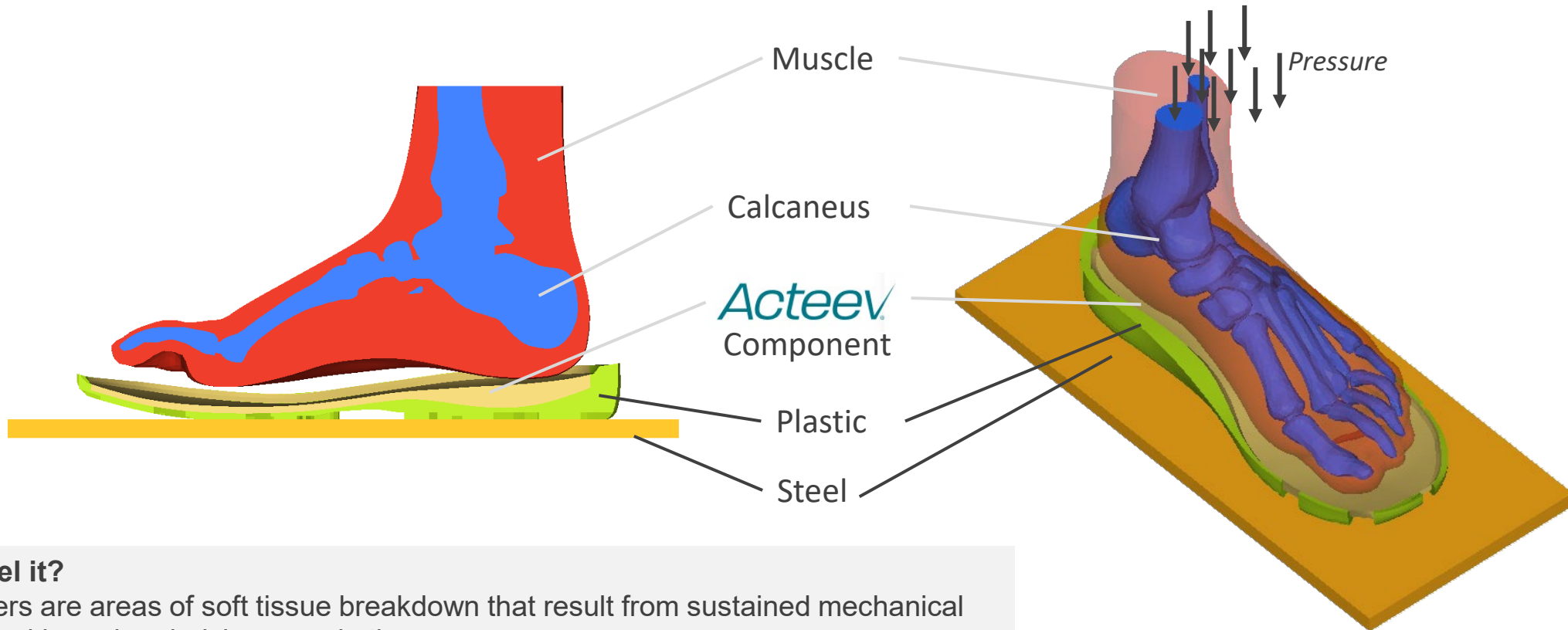
In development



Wound Closure Model

Advanced Materials Engineering Partnership = Optimized Product Design

We can determine the impact of the Acteev® MED device to the patient.



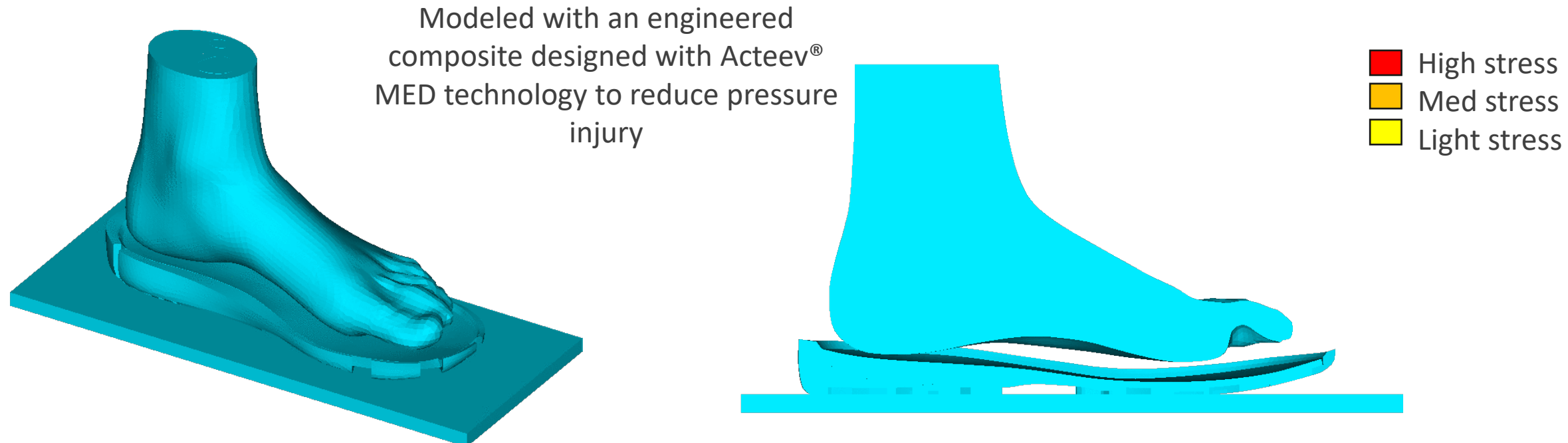
## Why to model it?

Pressure ulcers are areas of soft tissue breakdown that result from sustained mechanical loading of the skin and underlying muscle tissues.

The loading may be direct pressure or pressure with shear or friction force.

A 3D-heel model uses geometrical volume to provide a first-order approximation of the bone and soft muscle and can be used to optimize performance of the O&P device by modeling the pressure transfer through the materials used.

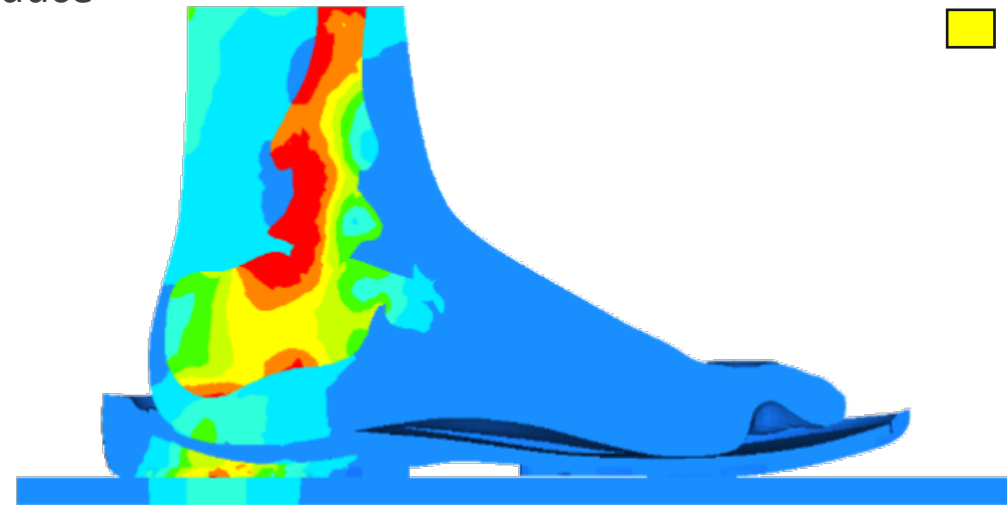
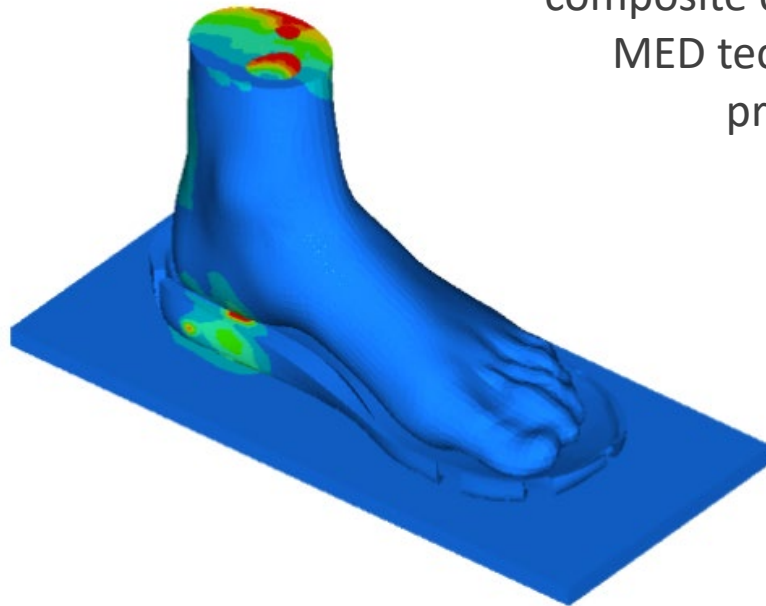
## Pressure Transfer and Distribution – Video as pressure is applied through the heel model



- Pressure transfer and pressure distribution can be modeled for greater understanding and visualization of the pressure distribution and transfer
- Ascend's CAE capability and materials expertise enables our customers unlock next gen medical device

High stressing points to the heel and lower leg determined.

Modeled with an engineered composite designed with *Acteev*<sup>®</sup> MED technology to reduce pressure injury



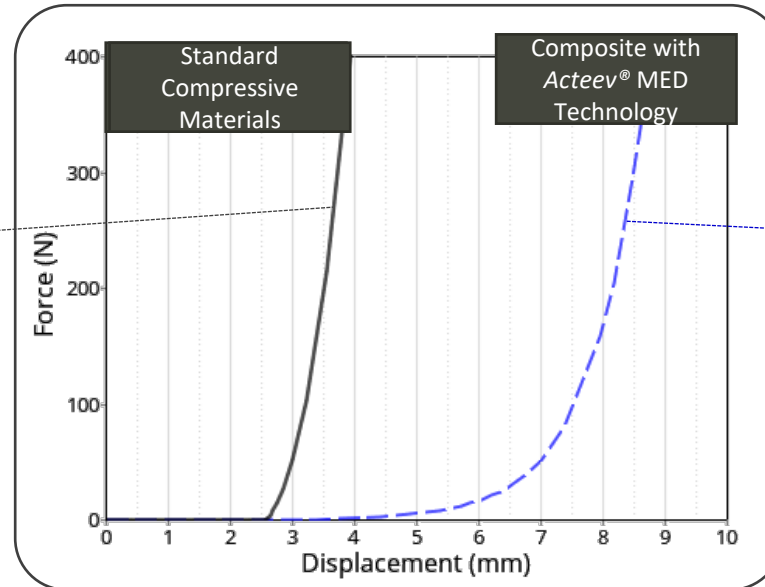
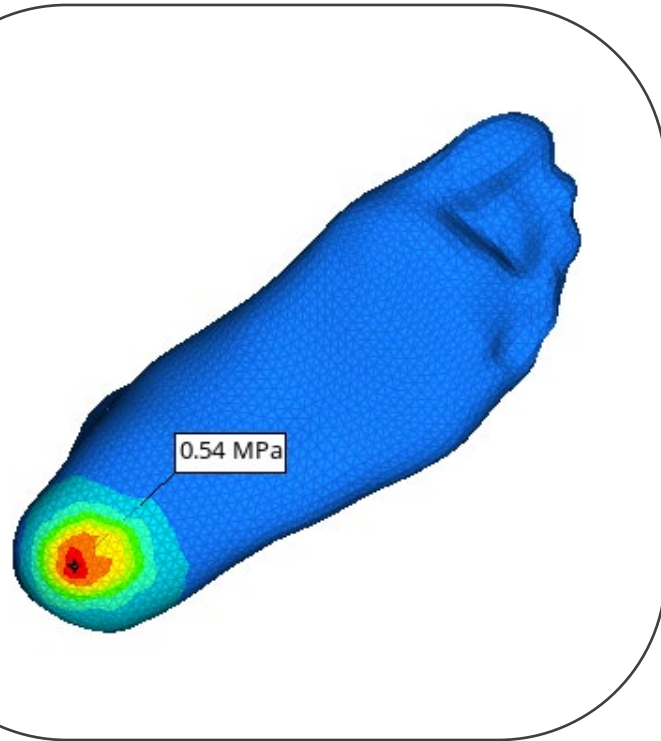
High stress  
Med stress  
Light stress

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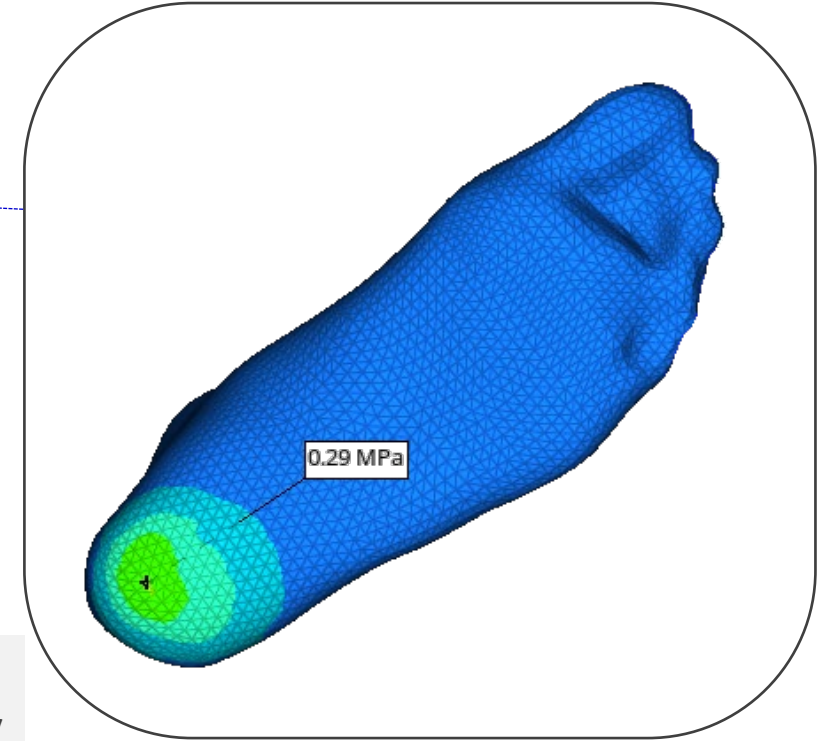
# Modeling pressure transfer through soft muscle layers

High stress gradient or pressure points can be relieved through proper materials properties.

Standard Compressive Materials



Acteev<sup>®</sup> MED Technology



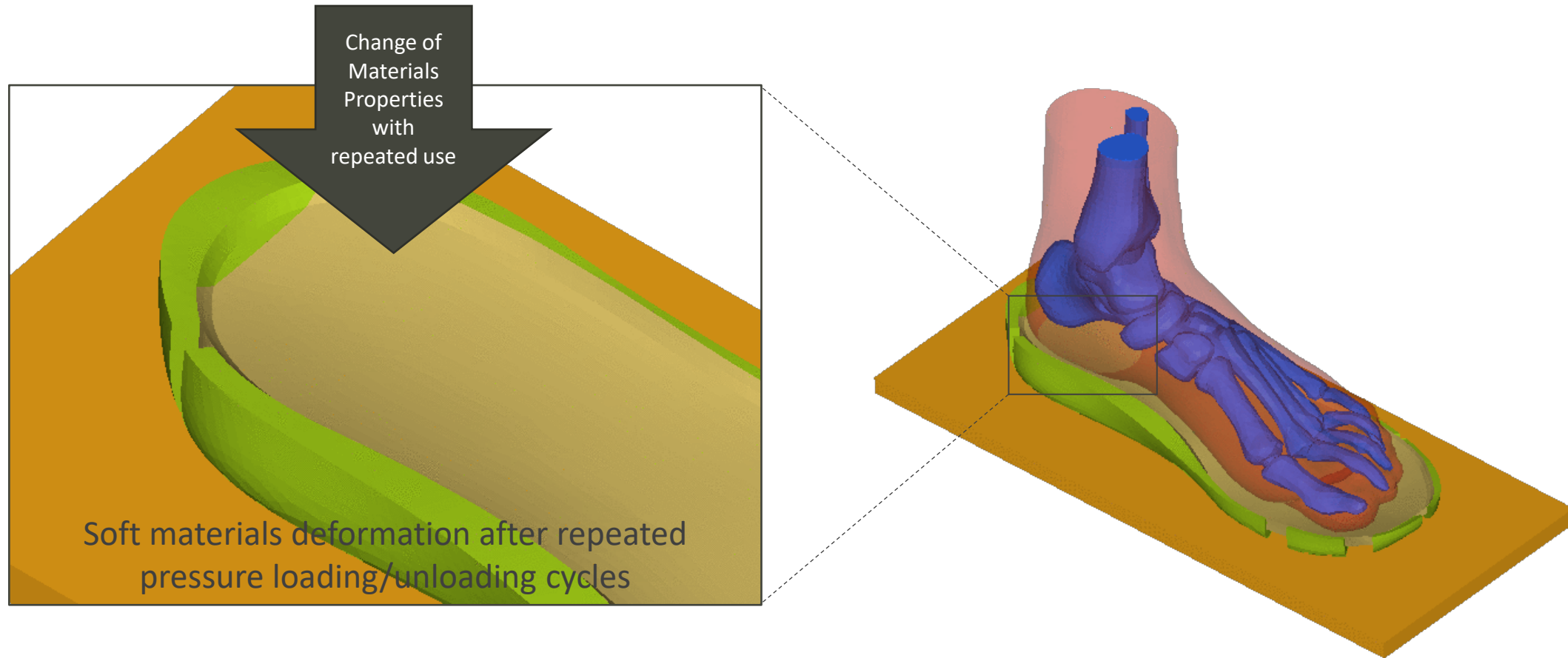
High stress gradient can be relieved by using composite designed with Acteev<sup>®</sup> MED technology

- High stress
- Med stress
- Light stress



# Performance with extended and repeated use

Impact to the material after extended and repeated use can also be visualized.



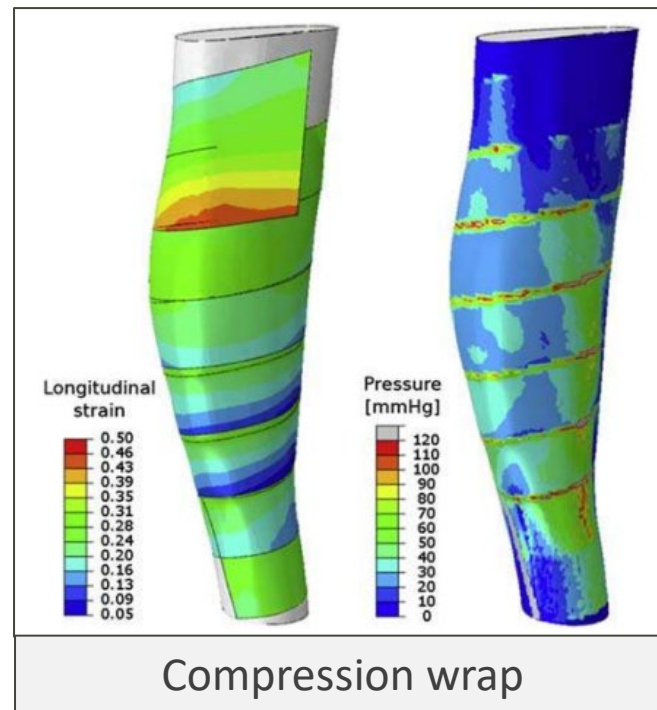
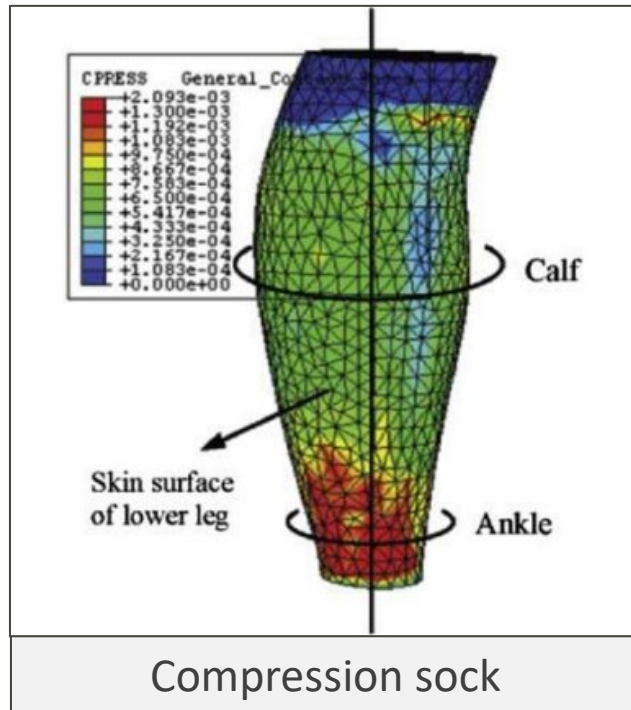
- Performance of a device with an extended and repeated use can help our customer design a better medical device



# Skin Pressure Distribution in Compression Therapy

Consistent and desired skin pressure distribution are key to a superior compression product. Compression therapy products are used to improve various venous and lymphatic diseases that can be modeled to visualize the pressure distribution and optimize product/material performance.

## Skin Pressure Distribution



*Demonstrating through CAE, we empower designers to visualize complex scenarios, enhancing their understanding and decision-making.*

*Let's discuss today!*