

Pressure Injury Education: Chapter 2 Cause

(0:00 - 0:16)

In Module 2, we will review how pressure injuries develop. The rationale on pressure injury development has evolved. While ischemia, or inadequate blood supply, plays a role, we now know the primary driver for pressure injury is soft tissue deformation.

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Direct damage from sustained deformation can result in cell damage in a matter of minutes. How do pressure injuries develop? They are caused by a combination of mechanical forces, pressure, friction, and shear. Let's explore this in more detail, starting with pressure.

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As mentioned earlier, when soft tissues are subjected to prolonged pressure over a bony prominence and another surface, like a bed or medical device, that's pressure. Friction occurs when two surfaces rub against one another. Have you ever experienced rug burn from sliding across carpet? That's friction.

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Shear happens when unaligned forces push part of the body in one direction and another part of the body in the opposite direction. Imagine going down a playground slide on a hot summer day, and your skin sticks to the slide halfway down, stopping your motion. Your skeleton is still being propelled downward, but your skin stays in the same spot.

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That's shear. Now, think about a patient sliding down in a hospital bed. There's friction from their skin rubbing repeatedly against their clothing and or bed sheets.

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And there's shear at the interface between their skin and a bony prominence as they slide down. While friction affects the surface of the skin, shear affects the tissues deep within the skin, leading to tissue breakdown that can ultimately lead to a pressure injury. Moisture, which may include sweat, urine, faeces, or excessive wound exudate, is another component of pressure injury risk.

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When the skin is wet, the stratum corneum, or outermost layer of the skin, becomes weaker and more susceptible to damage. Moisture can also exacerbate the damage done by friction, as it creates more drag between patient skin and the fabric of their gown and bed sheets.

Microclimate is the word that may be unfamiliar to you, but it is important.

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Microclimate refers to the temperature, humidity, and airflow next to the surface of the skin. With an increase in temperature and humidity, the skin becomes weaker, and there is an increased risk of friction at the surface of the skin. So imagine a patient sitting on a plastic incontinence pad, the warmth and moisture trapped between the surfaces of the skin and the pad.

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Any friction in this area will increase the patient's risk for pressure injury. So where should you look for pressure injuries? As mentioned, pressure injuries can occur on nearly any location on the body, but there are some areas that are more vulnerable than others. For patients in the supine position, at-risk areas include heels, sacral, coccygeal area, elbows, shoulders, and head.

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For patients in the ICU, spending extended time in the prone position, attention should be focused on feet, knees, groyne, hip bones, elbows, chin, nose, and forehead. Thank you for watching Module 2, where we discussed how pressure injuries develop. We hope you will join us for the next module.