

# WHY WOUNDS FAIL TO HEAL SIMPLIFIED



Some of the common signs of failure  
to heal with possible causes  
and some interventions

# WHY WOUNDS FAIL TO HEAL

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**There must be adequate supplies of nutrients and oxygen available in the body for cell metabolism and effective waste product removal for a wound to heal at the optimal rate**

There are several reasons why wounds fail to heal and these can be classified as intrinsic, (internal), and extrinsic (external). It is important that the patient is assessed holistically, as healing is a systemic process and factors affecting the patient will ultimately effect the healing of a wound.

## INTRINSIC FACTORS:

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- Age
  - Psychological
  - Body build
  - Lifestyle
  - Nutritional status
  - Medication
  - Comorbidities
- (Peate & Glenrose, 2015; Driscoll, 2010)

### Age

Observable changes in wound healing in the elderly include increased time to heal and the fragile structure of healed wounds. Delays are speculated to be the result of a general slowing of metabolism and structural changes in the skin of elderly people.

### Psychological

Studies have shown that high levels of emotional stress, negative thought processes and anxiety can impact on wound healing. These stressors can impact on the physiology and influence health outcomes. Mental health, such as recurrent self harming may also contribute to wounds failing to heal.

### Body Build

Body build can affect the delivery and availability of oxygen and nutrients at the wound site. Underweight individuals may lack the necessary energy and protein reserves to provide sufficient raw materials for proliferative wound healing. Bony prominences lack padding and become readily susceptible to pressure due to the



reduced blood supply of wounds associated with bony prominences. Poor nutritional habits and reduced mobility of overweight individuals, can lead to an increased risk of wound dehiscence, hernia formation and infection.

## Lifestyle

Extrinsic factors such as smoking, alcohol and drug use all have an intrinsic effect on the physiology of wound healing and can delay the healing process.

## Nutritional Status

Healing wounds, especially full-thickness wounds, require an adequate supply of nutrients. Wounds require calories from carbohydrate, fats and proteins, vitamins and minerals and an adequate fluid intake. Calories provide energy for all cellular activity and when in short supply in the diet, the body will utilise stored fat and protein.

## Medication

Many medications have the capacity to affect wound healing such as steroids, anti-inflammatory drugs, chemotherapy drugs and immunosuppressants.

## Extrinsic Factors

- Mechanical stress
- Debris
- Temperature
- Desiccation and maceration
- Infection
- Chemical stress
- Wound dressing
- Wound care skill/technique (Peate & Glenrose, 2015; Driscoll, 2010)

## Mechanical Stress

Mechanical stress factors include pressure, shear and friction.

## Debris

Debris, such as necrotic tissue or foreign material, must be removed from the wound site in order to allow the wound to progress from the inflammatory stage to the proliferative stage of healing.

## Temperature

Temperature controls the rate of chemical and enzymatic processes occurring within the wound and the metabolism of cells and tissue engaged in the repair process.

## Desiccation and Maceration

Desiccation (drying out) of the wound surface removes the physiological fluids that support wound healing activity. Maceration resulting from prolonged exposure to moisture may occur from incontinence, sweat accumulation or excess exudate. Maceration can lead to enlargement of the wound, increased susceptibility to mechanical forces and infection.

## Infection

Infection at the wound site will ensure that the healing process remains in the inflammatory phase.

## Chemical Stress

Chemical stress is often applied to the wound through the use of antiseptics and cleansing agents. Routine, prolonged use of iodine, peroxide, chlorhexidine, alcohol and acetic acid has been shown to damage cells and tissue involved in wound repair.

## Wound dressing

The use of an inappropriate dressing that maintains an adverse wound healing environment, can cause trauma and result in delayed healing.

## Wound care skill and technique

A common reason wounds fail to heal is down to the wound care technique of the healthcare professional. This refers to the potential use of an incorrect dressing, not following clean wound procedures (aseptic techniques), leaving a dressing in place for too long and trauma upon dressing removal.

## References

Peate I, Glencross W; *Wound Care at a Glance*, Wiley Blackwell 2015). Driscoll P (2010) *Advanced Medical Technologies. Factors that affect Wound Healing*. "Worldwide Wound Management, 2008-2017", Report S247. Vuolo, J; *Wound care made incredibly easy*. London. United Kingdom. Williams and Wilkinson. 2009.

# SIGNS OF DELAYED WOUND HEALING

SIGN	CAUSES	INTERVENTION
Wound bed too dry	<ul style="list-style-type: none"> <li>Inadequate hydration</li> <li>Exposure of tissues/cells to air</li> <li>Ischaemia/arterial disease</li> </ul>	<ul style="list-style-type: none"> <li>Add moisture or use a dressing that retains moisture, such as a film, hydrocolloid or hydrogel dressing</li> <li>Vascular referral</li> </ul>
No change in size or depth	<ul style="list-style-type: none"> <li>Pressure or trauma to the area</li> <li>Poor nutrition, circulation, or inadequate hydration</li> <li>Poor control of disease processes eg diabetes</li> <li>Inadequate pain control</li> <li>Infection (biofilms may not have visible signs or symptoms)</li> </ul>	<ul style="list-style-type: none"> <li>Reassess the patient for local or systemic problems that may impair healing and intervene as necessary</li> <li>Address infection if present.</li> </ul>
Increase in size or depth	<ul style="list-style-type: none"> <li>Ischaemia due to excess pressure or poor circulation</li> <li>Infection</li> </ul>	<ul style="list-style-type: none"> <li>Poor circulation may not be able to be resolved, but consider adding warmth to area</li> <li>Address possibly infection</li> </ul>
Necrosis	<ul style="list-style-type: none"> <li>Ischaemia</li> </ul>	<ul style="list-style-type: none"> <li>Consider debridement following a vascular assessment</li> </ul>
Increase in drainage or change in drainage colour from clear to purulent	<ul style="list-style-type: none"> <li>Debridement</li> <li>Infection</li> </ul>	<ul style="list-style-type: none"> <li>If caused by debridement, no intervention necessary as change of colour expected with breakdown of dead tissue</li> <li>If debridement not the cause assess the wound for infection</li> </ul>
Tunnelling	<ul style="list-style-type: none"> <li>Pressure over bony prominences</li> <li>Foreign body</li> <li>Deep infection</li> </ul>	<ul style="list-style-type: none"> <li>Protect the area from pressure</li> <li>Irrigate and inspect the tunnel for foreign material</li> <li>Take a swab for infection</li> </ul>
Wound edges: red with increased skin temperature, tenderness and induration	<ul style="list-style-type: none"> <li>Inflammation due to excess pressure or infection</li> <li>Contact dermatitis</li> <li>Allergy to dressing</li> </ul>	<ul style="list-style-type: none"> <li>Protect the area from pressure</li> <li>If pressure relief doesn't resolve inflammation, topical antimicrobial may be indicated</li> <li>Consider topical steroid</li> </ul>
Maceration	<ul style="list-style-type: none"> <li>Excess Moisture</li> </ul>	<ul style="list-style-type: none"> <li>Protect the skin with a liquid barrier</li> <li>Use a more absorptive dressing</li> </ul>
Rolled skin edges	<ul style="list-style-type: none"> <li>Wound bed too dry</li> </ul>	<ul style="list-style-type: none"> <li>Rehydrate the wound</li> </ul>
Undermining or ecchymosis (loose or bruised skin edges)	<ul style="list-style-type: none"> <li>Excess shearing force to the area</li> </ul>	<ul style="list-style-type: none"> <li>Protect the area</li> </ul> <p>Adapted from Vuolo (2009)</p>

## Carrying out an initial assessment for recognising hard-to-heal wounds

1. Carry out an initial assessment
2. Record patient and wound descriptors, comorbidities and resource requirements

### Wound:

Duration  
Location  
Size and shape  
Wound bed  
Margins  
Exudate  
Odour  
Pain  
Peri-wound skin

### General/ systemic:

Comorbidities  
Medication  
Social  
Health and social  
requirements

### Regional:

Perfusion  
Function  
Deformity

### Are there any resource, skill or concordance issues that may affect outcome?

#### Resource/ skills:

Equipment  
Dressings  
Access to specialist skills

#### Concordance:

Mental state  
Pain  
Intolerance

### Are there any systemic or regional issues (ischaemia, paralysis or deformity) that may affect outcome?

### Are there any wound related issues that may affect outcome?

Inflammation  
Infection  
Ischaemia

Wound location  
Exudate, pain, odour  
Necrosis/ slough

Tendon/ bone exposed  
Prosthesis  
Undermining

YES

NO

### Hard-to-heal wound

Consider need for advanced products and/or refer for specialist care option

Establish treatment goals, timelines and methods of care targeting issues identified and record review period

### MEASURE OUTCOMES

- Has treatment plan been followed?
- Has treatment been effective and reduced symptoms?
- Have treatment goals been reached?
- Has the wound reduced in size and/or has there been an improvement in the wound bed, margin or periwound skin?

YES

NO

Does anything suggest that this wound is not healing/ will not heal, i.e. is it hard to heal?