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Do Not Disturb: The Power Of Undisturbed Wound Healing

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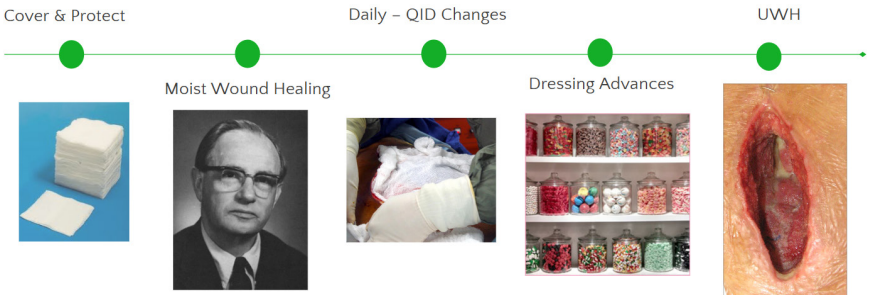
Wound Healing Takes Time

Wound healing is a complex physiological phenomenon. A series of sequential and concerted processes must occur for proper healing to occur in a timely and predictable manner. Wound healing is often compared to building a house – work disruptions may occur with inefficient or insufficient workers, lack of supplies, or workers coming at the wrong time. When these happen, the house cannot be built properly, efficiently, or at all. Similarly, each phase of healing must occur undisturbed.[1] Stable wound temperature (at 35-35 ºc) is conducive for wound healing.[1] The wound must be moist – it must not be too dry nor too wet.[1] Tissue that is healing or newly healed should also be protected from trauma, shear, friction and pressure.[1] The aim of local wound care should optimize these conditions and support the body's normally healing processes. Local wound care includes wound hygiene, debridement (when appropriate), managing inflammation and/or infection, and maintaining moisture balance (when appropriate). Most importantly, wound care practitioners must understand the etiology and underlying causes of the wound and establish wound healing goals **with** their patients.

Essential elements of optimal wound healing environment[1]

- Each phase of healing occurs undisturbed
- Temperature remains stable (35-37ºc)
- Moist but not wet conditions for all healing processes
- Protection from trauma, shear, friction, and pressure

The Evolution of Undisturbed Wound Healing (UWH)[2,3,4]



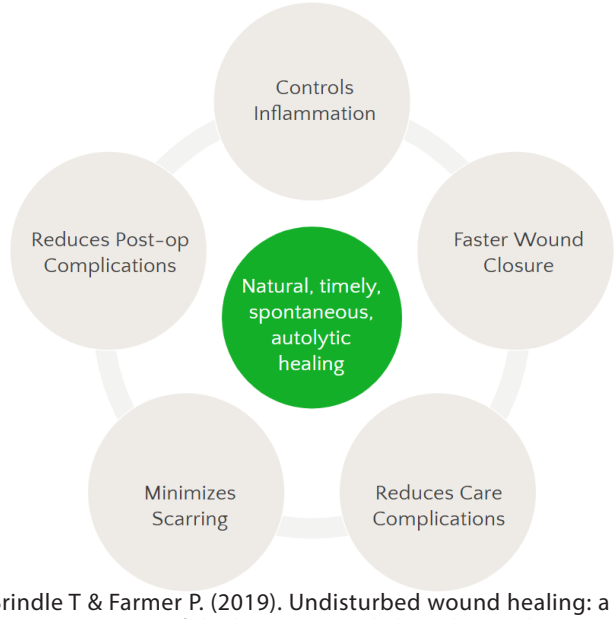
Gauzes were the earliest and most common dressing in the early days of wound care. Gauzes were primarily used to cover and protect the wound. Wet-to-dry dressing was a common practice in wound care. However, studies have shown that bacteria can penetrate up to 65 layers of moist gauze. Gauzes are also non-insulating – they can-

not maintain optimal healing temperature. Wet-to-dry dressing with gauzes can also traumatize the wound and elicit pain. In the 1960's, there was a paradigm shift in wound care practices as a result of the work of *George Winters* (often known as the Father of Moist Wound Healing). Maintaining a moist wound environment is essential to support and expedite healing. Dressing changes used to occur frequently, sometimes as often as four times daily. This was highly labour intensive and can lead to decrease in wound temperature – it can take up to 6-8 hours to regain optimal wound temperature. Since then, dressing technologies have advanced significantly, allowing for longer wear times and less frequent dressing changes. These advanced interactive dressings are an essential component of undisturbed wound healing (UWH).

An ideal wound dressing should:

- Promote a moist healing environment
- Provide an effective barrier against trauma and micro-organisms
- Manage bacterial load, including wound biofilm
- Absorb and transfers exudate away from the wound bed
- Minimize wound and peri-wound trauma; Supports peri-wound healing
- Stay in place and conforms to the skin contours
- Support and maintains optimal wound temperature

The term "undisturbed wound healing" (UWH) is relatively new, but the concept in practice is quite common. It is basically allowing the wound to "rest" by alleviating unnecessary dressing changes. UWH is founded on the principle of moist wound healing – it supports natural, timely, spontaneous and autolytic healing processes.[4] UWH can accelerate wound closure; reduce care and post-operative complications; minimize scarring; and control inflammation.[4]



Brindle T & Farmer P. (2019). Undisturbed wound healing: a narrative review of the literature and clinical considerations. Wounds International. 10(2), 40-48.

Choosing The Right Patient, Situation And Wound for UWH[4]

Wound management plans must be individualized and unique to each patient and their circumstances. Wound care practitioners must understand the etiology of the wound, the wound history and the patient's wound goal(s). Each management plan must balance optimized wound outcomes with individual patient needs. Practitioners must also consider the patient's access to provider care and ability to perform self-care. In addition, bacterial burden and wound infections must be addressed and managed accordingly.

When adopting UWH practices, practitioners must consider the **patient**. Dressings should be selected to ensure patient comfort and minimize pain; reduce frequency of wound interruption; and alleviate potential stress or anxiety related to wound trauma. Dressings should also be atraumatic to the **wound**, ensuring no damage, or impact, to the wound bed and developing extracellular matrix. Practitioners should also consider the **caregivers** involved. Dressings chosen should instill performance confidence such that frequency of changes is based on clinical assessment rather than a fear of dressing failure. Last but not least, practitioners must consider the resources available (i.e., **time and money**). A dressing should be chosen to decrease overall cost of care.

Considerations for Undisturbed Wound Healing for Different Types of Wounds[1]

Type of Wound	Dressing considerations for UWH	Examples of Dressings Click on the product name for details
Pressure injuries	• Adjunct to preventative measures to mitigate pressure, shear and friction and excessive moisture (e.g., offloading, repositioning)	Mepilex® Border Sacrum https://www.molnlycke.ca/products-solutions/mepilex-border-sacrum/ Mepilex® Border Heel https://www.molnlycke.ca/products-solutions/mepilex-border-heel/ Z-Flo Positioner™ https://www.molnlycke.ca/products-solutions/molnlycke-z-flo-fluidised-positioner/ Z-Flex™ Boot https://www.molnlycke.us/products-solutions/molnlycke-z-flex-heel-boot/
	• Increase rate of closure and minimize other care complications	Negative pressure wound therapy (NPWT)
Traumatic wounds (e.g., skin tears)	• Reduce dressing-related pain • Minimize wound disturbance • Manage exudate by allowing exudate to pass through to a secondary absorbent dressing	Mepitel® https://www.molnlycke.ca/products-solutions/mepitel/
	• Address bacterial burden • Provide extended wear time	Contact layer with antimicorbial (Mepitel® Ag) https://www.molnlycke.ca/products-solutions/mepitel-ag/
Burns	• Address bioburden as these wounds are a high risk for infections • Manage exudate • Minimize pain if higher dressing frequency is needed	Contact layer with antimicrobial (Mepitel® Ag) https://www.molnlycke.ca/products-solutions/mepitel-ag/
Surgical incisions	• Provide extended wear times • Manage exudate • Provider a barrier against bacteria • Protect peri-wound skin injury	Mepilex® Border Post Op https://www.molnlycke.ca/products-solutions/mepilex-border-post-op/
Dehisced surgical incisions	• Manage exudate and promote moist wound healing environment • Manage bacterial burden • Facilitate autolytic debridement • Decrease wound pain and dressing frequence • Provide peri-wound management and support	Foam with silicone contact layer and antimicrobial (Mepilex® Border Ag) https://www.molnlycke.ca/products-solutions/mepilex-border-ag/

Diabetic foot ulcers	• Support moist wound healing • Address bioburden • Compatibility with offloading modality wear time (e.g., total contact casting)	Foam with silicone contact layer (Mepilex® Border Flex) https://www.molnlycke.ca/products-solutions/mepilex-border-flex/ Exufiber® https://www.molnlycke.ca/products-solutions/exufiber/
Venous leg ulcers	Compatibility with compression bandages Frequency of compression bandage (and dressing) changes Manage exudate as these wounds are typically highly exudative Manage wound pain	Mepilex® XT https://www.molnlycke.ca/products-solutions/mepilex-xt/
Atypical wounds (where etiology and underlying cause are known and managed)	Manage moisture Reduce dressing frequency Reduce actual and anticipatory pain and dressing-related stress	Foam dressing for challenging areas of the body (Mepilex® Border Flex Oval) https://www.molnlycke.ca/products-solutions/mepilex-border-flex-oval/

Michelle Labbie RN MN NP is a Nurse Practitioner who is passionate about complex wound management in the context of chronic disease management particularly in people with lower leg ulcerations and diabetic foot complications. She has focused her expertise in this area for over 35 years and is actively involved in clinical research, pathway and practice guideline development and in implementation of evidence-based care. Michele practices in an out-patient wound clinic and is involved in ambulatory intravenous and infusion therapy. She is also an instructor at MacEwan University in Edmonton.

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