# Wound Healing

We always encounter having wound once at a life time. Different wound heals up differently. Complex wound needs special treatment, for example you have a wound on your left leg which is inflammation and causes liquid substances leaks out from your wound (due to swelling feet). This type of wound usually requires long time treatment and special techniques to deal with. We will take an example and provide solutions how to deal with this situation.

**Situation**: You are a patient and go to the doctor for a treatment on your wound on your left leg. Symptoms you have, severe pain, water keeps leaking out from the wound, you found out that the liquid substances are sort of greenish in colour (possibly due to inflammation). Wound even with dressing won’t heal up.

**Resolution**: Now we are very clear to the problem and the symptoms. As said from the patient traditional dressing method won’t heal up the wound. So, we need to understand what the root causes is. Very clear swelling foot. No matter how you dressed up the wound water keeps leaking out, right! That means we need to deal with the swelling foot first. But why water leaks out from the wound but sometimes not on another wound? This type of water leaking out is the process we call “**Capillary action**”.

**What is “Capillary action”?**

Capillary action is a fascinating natural phenomenon where a liquid—like water—**moves through narrow spaces without external force**, often **against gravity**. It’s the reason why water climbs up a paper towel, travels through plant roots, or rises inside a thin straw.

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| **Force** | **What It Does** |
| Adhesion | Liquid molecules stick to the surface of a material (e.g., water to glass) |
| Cohesion | Liquid molecules stick to each other (e.g., water molecules bonding via hydrogen bonds) |
| Surface Tension | Minimizes the surface area of the liquid, helping it forms a curved meniscus and rise |

When adhesion is stronger than cohesion, the liquid climbs up the surface—**defying gravity** in narrow tubes or porous materials. That is main reason why water keeps leaking out from your wound. But why not all wounds, this is due to you are using **dressing material** covered on the wound, which causes different surface tension, **as you are keep using dressing material on your wound, water will always keeps running out from the wound,** so that is why the wound will not heal up properly or even not healing up**.**

**Propose method:** Remove excess water from your body before any wound treatment. We have pills to remove excess water from your body and dispatch through the urine system. Below the table show 2 common water pills:

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| **Feature** | **Hydrochlorothiazide** | **Lasix (Furosemide)** |
| Diuretic Class | Thiazide | Loop |
| Potency | Mild to moderate | Strong |
| Onset of Action | Slower | Fast |
| Duration | Longer | Shorter |
| Best for | Hypertension, mild edema | Severe edema, heart/kidney issues |
| Electrolyte Risk | Lower | Higher (especially potassium) |

**Clean the Wound (Frequently)**

Clean the wound with Saline solution.

**Dressing The Wound (Frequently)**: Any **sterilized** wound dressing wound pad will work. You will encounter pain and discomfort (very stiff and dry skin) during the dressing stage, and that is normal. Why there is pain? Pain is a good symptom, below describes:

**When Pain Is a Good Sign**

Inflammation phase (first few days): Your immune system sends white blood cells to fight infection and clear debris. This causes swelling, redness, and pain.

* Nerve regrowth: Sensory neurons grow into the injured tissue and release healing signals like CGRP (calcitonin gene-related peptide), which helps coordinate immune cells and tissue repair.
* Tissue remodelling: As new skin cells migrate and collagen forms, mild discomfort or itching can occur.

So mild to moderate pain, tenderness, or itchiness during healing is often a sign that your body is doing its job.

**Yellowish Substances runs out from the wound Is also a Good Sign**

* Serous fluid: Clear to pale yellow, slightly thicker than water. It’s made mostly of water, electrolytes, and proteins.
* It helps keep the wound moist, protects against infection, and transports nutrients to aid healing.
* Serosanguineous fluid: If it’s slightly pinkish, it’s a mix of serous fluid and a bit of blood—also normal during healing.

**Cure Pain and Inflammation**

**(Non-Bacteria Infected)**: If you encounter sever pain and inflammation usually can be seen if there are greenish substances leaks out from the wound or stick on the dressing pad. We have pills to stop the pain together with **NSAIDs** (Nonsteroidal Anti-Inflammatory Drugs) or **Steroids** such as Prednisone (oral) to cure the inflammation. For how to deal with the Pain and Inflammation please check the article (**The Pain and Inflammation**).

**Subscribe Antibiotic (Bacteria Infected)**

What Are Antibiotics?

Antibiotics are medications designed to kill or inhibit the growth of bacteria. They target bacterial cells without harming human cells, which makes them incredibly effective for treating infections like:

* Strep throat
* Pneumonia
* Urinary tract infections (UTIs)
* Skin infections
* Wound infections

They **do not work** against viruses (like the flu or common cold), fungi, or parasites.

**How Antibiotics Differ from Steroid**

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| **Feature** | **Antibiotics** | **Steroids (Corticosteroids)** |
| Purpose | Kill/inhibit bacteria | Reduce inflammation and suppress immune response |
| Target | Bacterial cells | Human immune system and inflammation pathway |
| Used For | Infections | Autoimmune diseases, allergies, asthma |
| Examples | Amoxicillin, azithromycin | Prednisone, hydrocortisone |

Important Note:

* Overusing antibiotics can lead to **antibiotic resistance**, making infections harder to treat.
* Always **complete the full course** prescribed—even if you feel better.
* Never use antibiotics for **viral infections** unless prescribed for a secondary bacterial issue.

**Cure Pain**

You can take **Acetaminophen (**Brand:Panadol or Tylenol) to cure the Pain. Another option is to take **NSAIDs** (Nonsteroidal Anti-Inflammatory Drugs) if you have no cuts or wound (suitable for ladies having pregnancy **before** birth and if **after** birth **Acetaminophen -** Brand:Panadol or Tylenol).