

PEPTI-repair and PEPTI-pro col

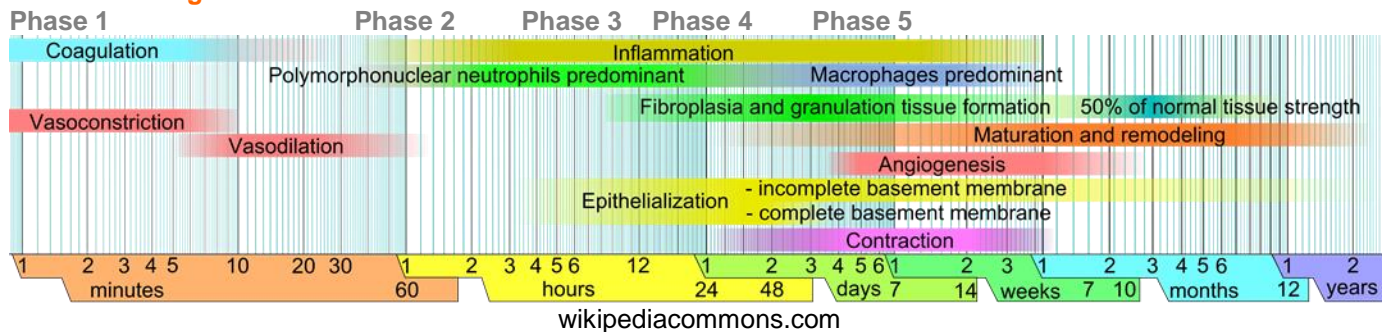


We have all experienced skin trauma at some point in our lives. Whenever there is a catalyst (injury), the Inflammation or Inflammatory Cascade is triggered. This process is a sequence of biological events that is part of wound healing.

The five overlapping phases in wound healing or skin repair are:

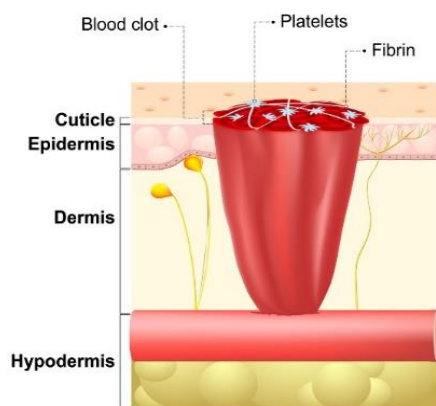
1. Hemostasis
2. Inflammation
3. Cellular Proliferation/Migration
4. Contraction
5. Remodeling

Wound Healing Phases



Keep in mind, that these phases often overlap.

Peptides play pivotal roles in restoring skin integrity. They send messages that initiate cellular activity.



1. Hemostasis

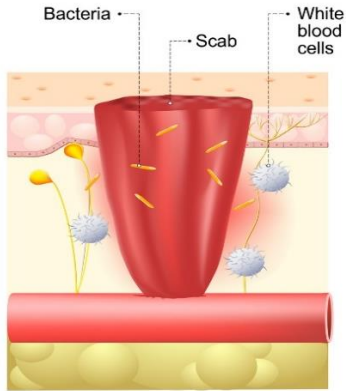
Phase 1 – Hemostasis

During this initial phase, if there is active bleeding, the wound will clot. The clot protects the wound from the environment.

Platelets (thrombocytes) release clotting factors in response to signals received from messengers called cytokines which are responsible for:

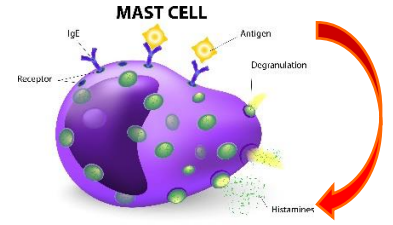
- Cell growth
- Immune responses through neutrophils, mast cells, and fibroblasts
- Cell migration
- Matrix production
- Enzyme production

The clot also acts as the initial scaffolding that will allow skin regeneration.



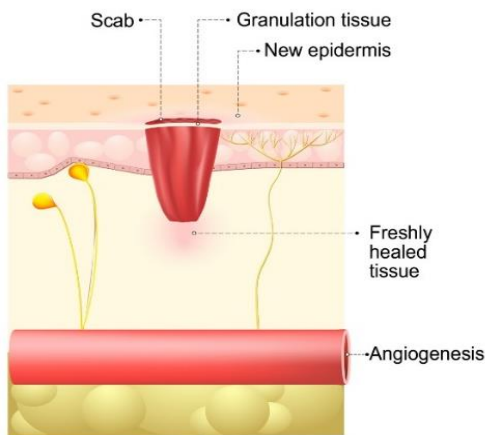
Phase 2 – Inflammation

Mast cells (activated by the cytokines) release histamines; which is why sometimes you can feel itchy after a chemical peel. You are experiencing a histamine response. Itchiness also occurs as the skin is regenerating.



Vasodilation occurs during both phase 1 and two. The capillaries expand allowing for blood flow to carry healing cells like monocytes to the site of injury.

2. Inflammation

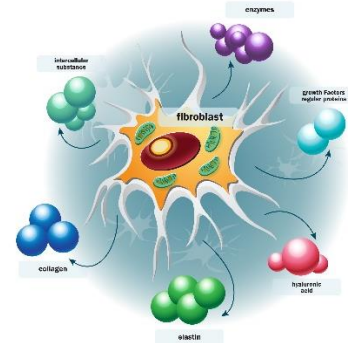


Phase 3 – Cellular Proliferation/Migration

Monocytes travel to the site of injury and interact with monocytes that pre-existed as part of the tissue. The monocytes transform into macrophages as they are transported to the wound site through a chemotaxi.

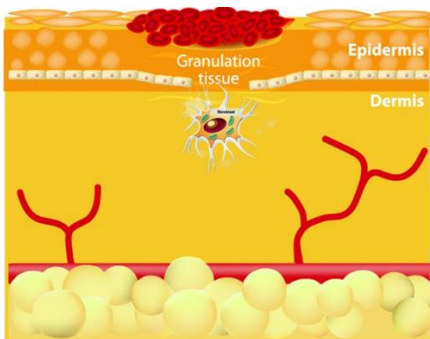
Monocytes also release cytokines as an indicator that the inflammation stage has ended, and cellular proliferation has begun.

The primary active cell in the proliferation phase is the fibroblasts who secrete peptides, proteins, growth factors to rebuild the dermis.



The other dominant cell is the keratin-ocyte, (the major epidermal cell) which moves to close up the wound.

3. Proliferation

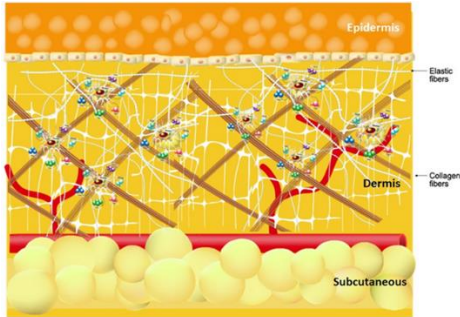


Phase 4 – Contraction

The injury site can begin contraction when re-epithelialization has completed. The keratinocyte cells close up the space between the epidermis and dermis – as which is about to occur in this illustration.

The collagen and elastin fibers secreted by the fibroblast cells act as mini muscles to contract and shrink the wound. The problem with the contraction phase is that collagen 1 is secreted, the disorganized form. (Did you know that there are 30 types of collagen?) The enzyme collagenase will digest this disorganized form (type 1), and it will be replaced by type 3 in the remodeling phase.

4. Contraction



5. Remodeling

Phase 5 – Remodeling

The final phase in the wound healing process lasts the longest – from 4 weeks to 2 years. The dermal matrix grows stronger as time passes.

One important note, studies show that at best, only 80% of the strength of the original intact skin is regained.

To sum it all up ...Analogy

Think of proper skin structure as a tightly woven basket. Think of scarring as a pile of material just thrown in a disorganized heap, with no structure.

Weather Alert! Imminent Flooding in your area!

If you heard the news alert, you would race to your local hardware store to buy sand bags or pile up rocks to protect your house (or quickly dig a culvert to divert the water elsewhere). As you are frantically piling up rocks, your method is disorganized- **SCARRING**. After the initial floodwaters subside, you can build a more sturdy, organized and reliable brick and mortar foundation, which will sustain the severe weather.



Just as disorganized collagen can be broken down and rebuilt to remodel the skin and minimize scarring, various peptides can signal the initiation of matrix remodeling, repair, replacement and restructuring of collagen. The peptides in **PEPTI-pro-col** and **PEPTI-repair** were both discovered and based on the natural peptides released during the healing process.

PEPTI-pro col Ingredients: Water, Propanediol, Carnitine, Glycerin, Salicylic Acid, Sodium Borate, Caffeine, Arginine, Asparagine, Glycine, Histidine, Lysine, Glutamic Acid, Proline, Aspartic Acid, Serine, Valine, Xanthan Gum, Diazolidinyl Urea, Iodopropynyl Butylcarbamate

PEPTI-repair Ingredients: Water, Propanediol, Glycerin, Arginine, Asparagine, Glycine, Histidine, Lysine, Proline, Serine, Glutamic acid, Valine, Diazolidinyl Urea, Iodopropynyl Butylcarbamate, Aspartic Acid, Xanthan Gum