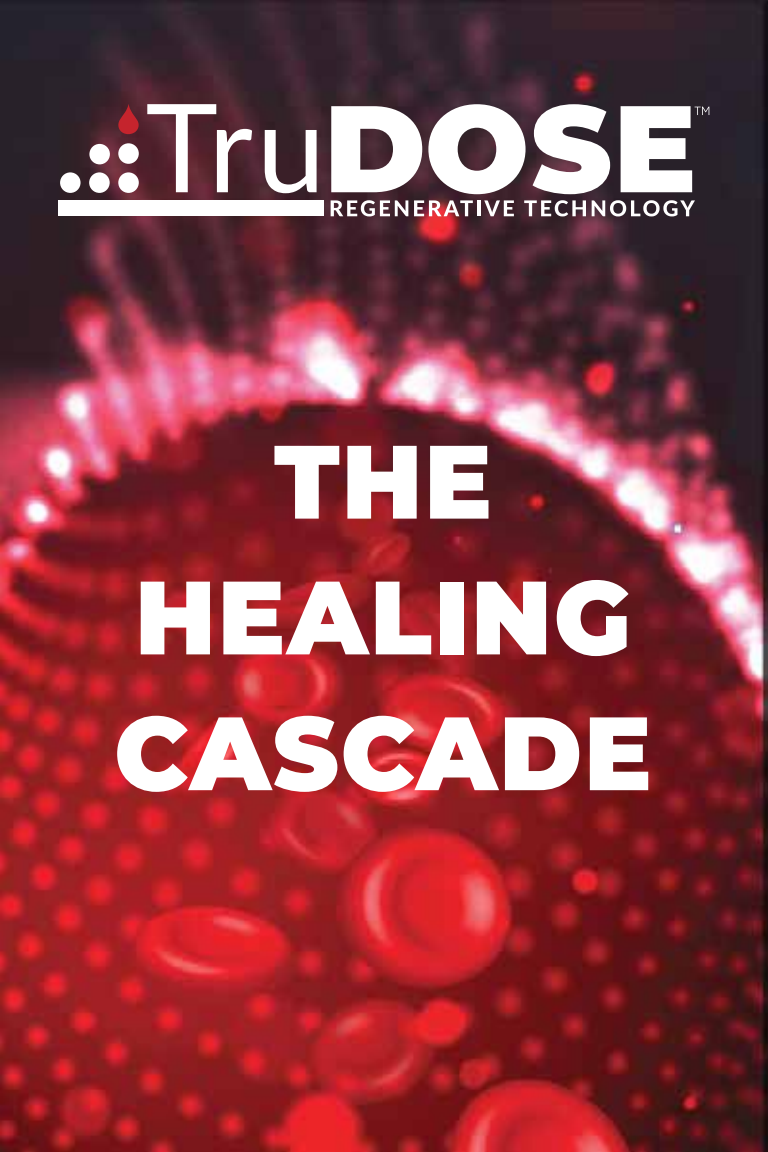

TruDOSE™
REGENERATIVE TECHNOLOGY
THE
HEALING
CASCADE

THE HEALING CASCADE

The body repairs every tissue in the body in a sequential order of events called the healing cascade, which can be understood as 5 sequential events your body undergoes to heal any injury in the body – from a paper cut to a traumatic brain injury.

THE HEALING CASCADE

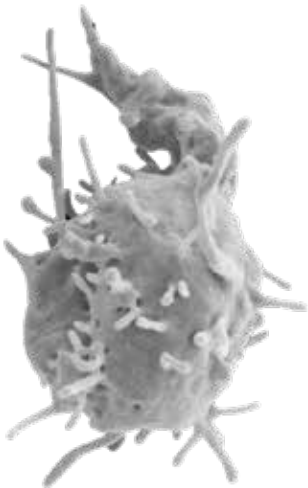
The importance of your platelets

At the heart of the Tru**DOSE**™ therapy there contains a dose specific concentration of your body's platelets. Platelets can be compared to drones[1] circulating in the blood stream continuously searching for two things...

1. Repair needs
2. Threats

When your platelet encounters a repair need, it activates the healing cascade.

[1]Li et al. 2017. Platelets as autonomous drones for hemostatic and immune surveillance



Mature Platelet @SEM
Magnification x 5,335

THE HEALING CASCADE

The importance of your platelets

Not only do platelets initiate and actively participate within the healing cascade, they govern the sequential events to ensure the entire process can be completed under time sensitive constraints.

THE HEALING CASCADE

Let's go through the process...

1. **HEMOSTASIS**
2. **INFLAMMATION**
3. **GRANULATION & ANGIOGENESIS**
4. **RE-EPITHELIALIZATION**
5. **TISSUE REMODELING**

PHASE ONE

1

HEMOSTASIS

There is an injury

Circulating platelets identify an injury and activate the 5 steps of repair

Identifying Injury

When tissues and cells become injured, they release information molecules into the bloodstream called DAMPs. In a sense, DAMPs are like an injury status report.

- *What caused the injury*
- *Extent of the injury*
- *What's needed to fix the injury*

Identifying Injury

Platelets posses antennas that are continually looking out for these DAMP reports. When the platelet intercepts this report, it immediately initiates the healing cascade while simultaneously signaling your bone marrow to start making platelets equipped with all of the repair packages needed for this individual repair.

PHASE TWO

2

INFLAMMATION

Inflammation

This is where the platelet calls in the body's immune cells.

Inflammation

Considering the platelet has intimate knowledge of the injury site, it is capable of signaling to the immune system the quantity and type of immune cells needed for Step Two. Furthermore, the platelet manages the activity of these immune cells like a general contractor on a job site. Upon arrival, the platelet delivers execution, as well as, an order of sequence instructions to the immune cells to facilitate repair efficiency. Without the platelet's involvement, these inflammatory cells would be lost and execute their individual part in the wrong order.

PHASE THREE

3

GRANULATION & ANGIOGENESIS

New blood vessels are created

This is where the platelet actively involves itself within the process to create new blood vessels.

Blood Vessel Formation

Platelets are the only cell that contain the specific growth factors that give rise to new blood vessels. The important point to realize is stem cells cannot reach damage tissue. Blood vessels are like water channels leading to an ocean. If there are no channels there is no access. If there are no blood vessels; oxygen, nutrients, and tissue repair “stem cells” have no way of accessing the injured tissue.

PHASE FOUR

4

RE-EPITHELIALIZATION

Beginning stages of tissue re-modeling

This is where the platelet summons the stem cells to begin turning itself into new tissue.

Tissue Repair/ Granulation

This stage is known as biomass replacement. Every organ and tissue has an optimum number of differentiated cell types needed for healthy organ function. Damage, injury, infection, or toxin exposure results in lost cells that must be replaced. Once the insult has been addressed, cells must be replaced to restore organ function. Following the creation of new blood vessels, the platelet summons stem cells to come and replace the lost biomass.

PHASE FIVE

5

TISSUE REMODELING

Final stages of tissue re-modeling

Injured tissue completes its' repair and exits out of the healing cascade

Final Tissue Remodeling

The final stage of remodeling can be seen as:

- Older cells continually dividing into new cells
- Older cells pass along instructions, metabolic memories, and programming to the new cells from before the time of the injury and activation of the Healing Cascade.
- Complete biomass tissue replacement is completed with cells.

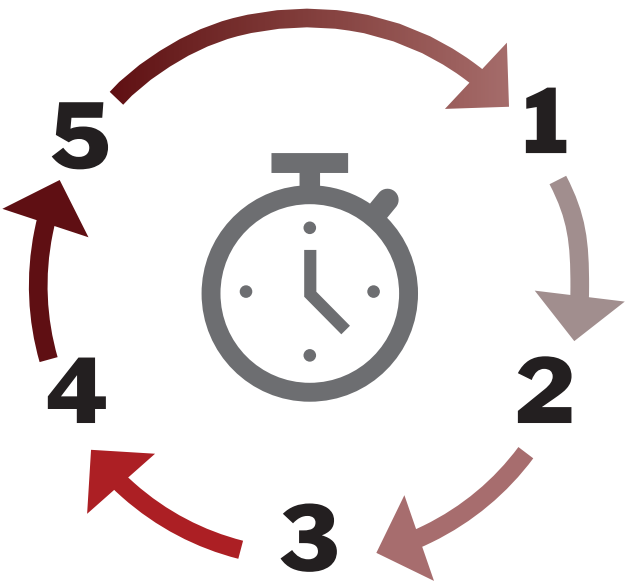
Final Tissue Remodeling

- Healing continues as instructions and materials are passed along from older, neighboring cells carrying metabolic memories and programming from before the time of the tissue injury that initially activated the Healing Cascade.
- Cells, allocated by the body, are returned to back to their original areas and consider their involvement complete.

What happens when the healing cascade doesn't go as planned?

What happens if the tissue isn't fully repaired by Stage 5?

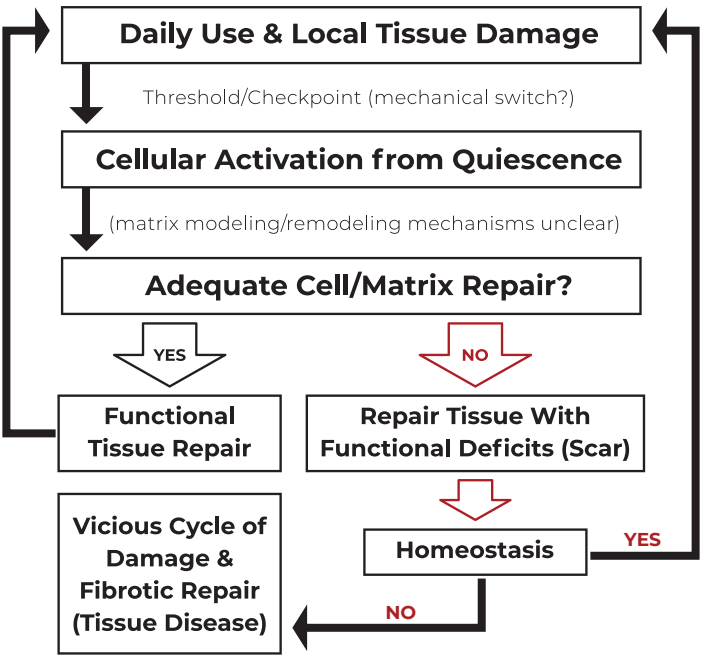
BECOMING CHRONIC



Becoming Chronic

The Healing Cascade is a time sensitive order of events. Simply, the body cannot allocate resources for repair indefinitely and so it must establish a time clock when it will return these resources back to their original areas. Hopefully the damaged tissue has been fully repaired by this time point whereby it resumes normal function. However, if the tissue has not been fully repaired by this time point, then it is left to complete its final repairs without the body's help.

Becoming Chronic



after Archambault et al. 1995; Arnocrky et al. 2007

Becoming Chronic

When we are younger, our tissues carry a reservoir of cells they can use to complete repairs but this reservoir becomes depleted as we age. When the tissue cannot complete repairs, it continually signals help from the body to which no help is provided. This leaves the damaged tissue in a continuous vicious cycle of continually trying to fix itself.

CHRONIC INFLAMMATION

2 INFLAMMATION

If your condition of pain exceeds past 90 days, then you are officially, and clinically, living with a chronic condition stuck in a negative feedback loop of inflammation. Simply, the damaged tissue is unable to complete its repairs and continually signals the body for help. Immune cells continually arrive, but are not guided by the platelet. Thus, a continuous cycle of painful inflammation ensues.

CHRONIC INFLAMMATION

Most people only seek “stem cell” treatments when all other treatments have failed and as the last resort. When you get a stem cell injection and have any chronic condition, that is essentially skipping steps 1,2, and 3 of the healing cascade and going right to step 4. Not only does this ignore the body’s innate order of healing itself but if there are no vascular highways reestablished to the injured tissue. Thus, amount of stem cells can ever make it if vascular highways are not present.

CHRONIC INFLAMMATION

The TruDOSE™ platelet therapy differs because it supplies the one thing responsible for reinitiating the body's natural order of events to begin – the platelet.

It's a tailored therapy containing a dose specific/ high concentration of your body's platelets and restarts the healing cascade process.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