Regenerative medicine is the process of replacing or regenerating human cells, tissues or organs to restore or establish normal function. This field holds the promise of regenerating damaged tissues and organs in the body by replacing damaged tissue and/or by stimulating the body's own repair mechanisms to heal previously irreparable tissues or organs.

4 Phases of wound healing

- **Phase 1**: Hemostasis (Day 1 to 3) - Stop bleeding
- **Phase 2**: Inflammation (Day 3 to 20) - New frame work for blood vessel growth
- **Phase 3**: Proliferation or Granulation (Week 1 to 6) - Pulls the wound closed
- **Phase 4**: Remodeling or Maturation (Week 6 to 2 Years) - Final proper tissue

**ACUTE INFLAMMATION**
- Innate Immunity
  - **Stimulus**
  - Immune helper cells do their job of healing
  - End stimulus/Healing

**CHRONIC INFLAMMATION**
- Adaptive Immunity
  - **Ongoing Stimulus**
  - Immune helper cells try to do their job of healing but ongoing stimulus results in more cell recruitment, increased inflammation, and changes to cells
  - Repetitive cycle
  - Increased disease
Adipose Tissue:

- Turnover rate for cells in adipose depots ranges from 6 to 15 months
- Stem cell population within adipose tissue is responsible for replacing mature adipocytes

Implies that adipocytes are generated from a progenitor or stem cell pool.

Adipose Cells: A population of cells found in adipose/fat tissue that are different from blood cells
- Contain a subset of multipotent progenitor cells
- Adipogenic, chondrogenic & osteogenic differentiation potential
- Angiogenic & Vasculogenic
• Used clinically for healing properties attributed to increased concentrations of growth factors and secretory proteins that enhance the healing process on a cellular level
• Enhances recruitment

Stem Cell Kits produced according to cGMP guidelines. Stem Cells are isolated in around 35 minutes utilizing an innovative isolation process.

Once the adult stem cells have been isolated, they will be resuspended in saline or platelet rich plasma and then reinjected into the patient.

**Wound Healing**
**Finger Regrowth**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 weeks</th>
<th>6 months</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index Finger</strong></td>
<td>7 cm</td>
<td>7.4 cm</td>
<td>8.0 cm</td>
</tr>
<tr>
<td><strong>Middle Finger</strong></td>
<td>3.8 cm</td>
<td>4.4 cm</td>
<td>4.7 cm</td>
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</tbody>
</table>