



Stem Cell Therapy

Salsabeel Salah (2376), Najat Sami (2361), and Wafaa Ahmed (1655)

First Year PharmD Students

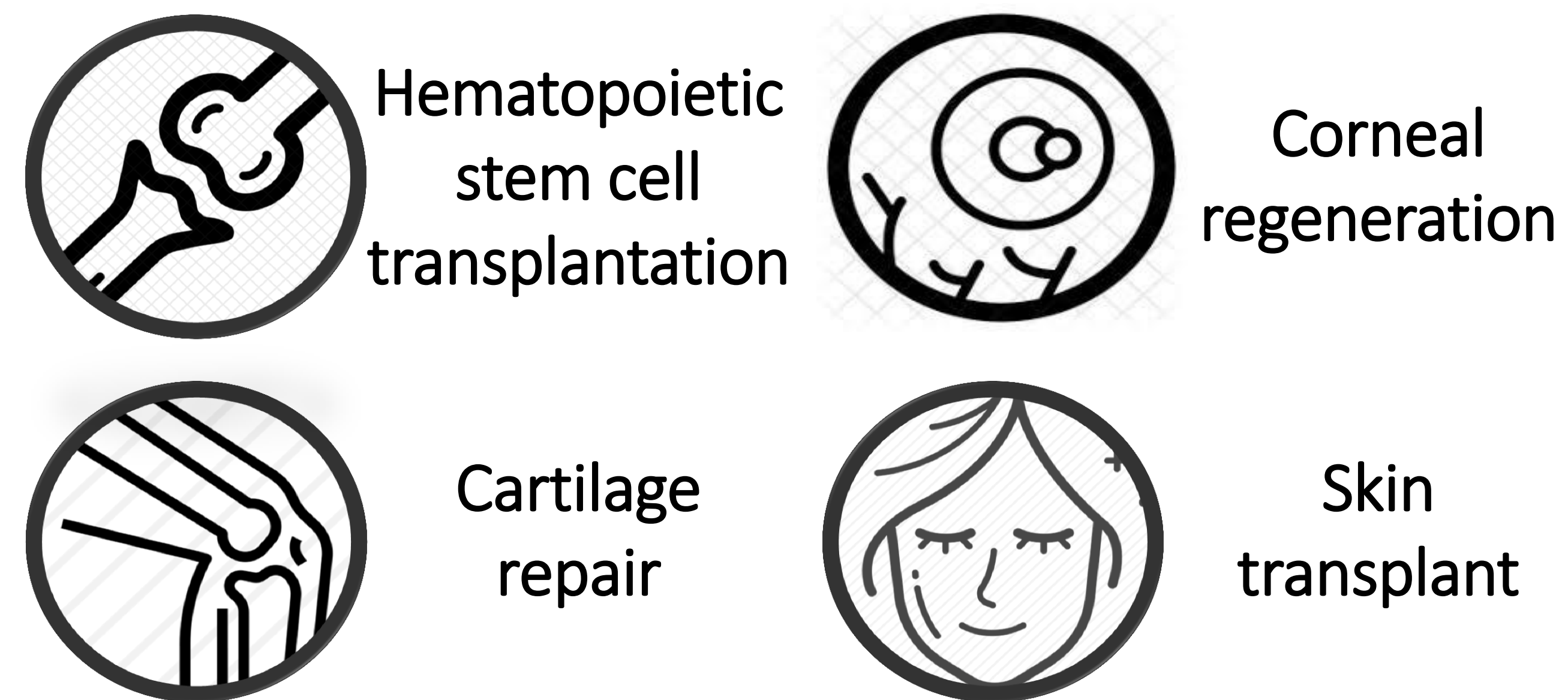
Faculty of Pharmacy, Libyan International Medical University



Introduction

Stem cell research has been acclaimed to revolutionize the future of medicine, and to offer new treatments for previously incurable diseases. Despite years of research, however, the therapeutic potential of stem cell research has not yet been fully realized. The current uses, risk factors, and potential goals of stem cell therapy are discussed in this poster.

Medical Usage of Stem Cells



Risks of Stem Cell Therapy

The identified risks (i.e. risks identified in clinical experience) or potential/theoretical risks (i.e. risks observed in animal studies) include tumor formation, unwanted immune responses and the transmission of adventitious agents.

Stem Cells and Stem Cell Therapy

A Stem cell is an undifferentiated cell that can divide to produce some offspring cells that continue as stem cells and some cells that are destined to differentiate. Stem cell therapy or regenerative medicine encourages the reparative response of dysfunctional, injured, or diseased tissue through stem cells or their derivatives.

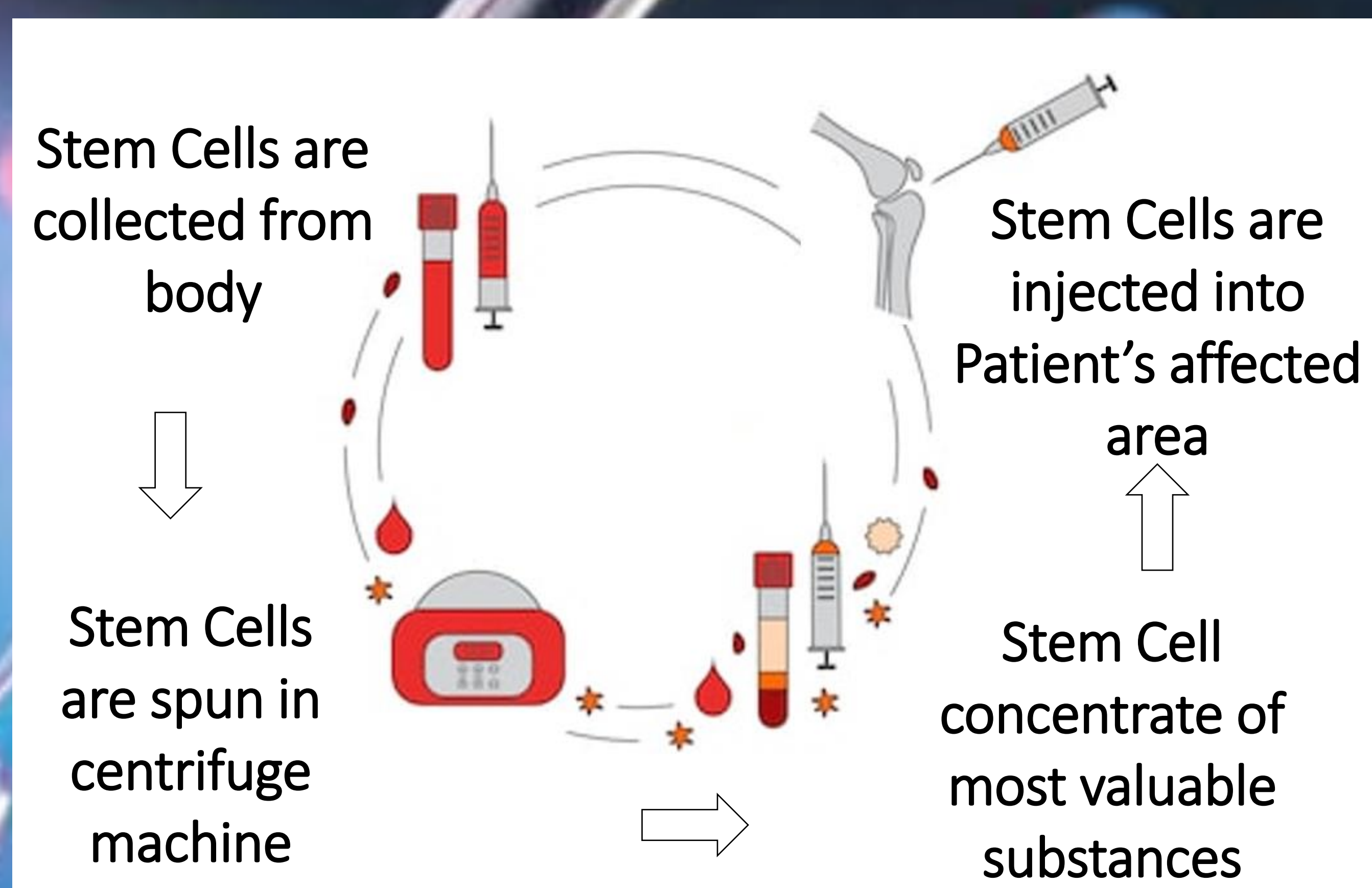
Future of Stem Cell Therapy

Researchers and doctors hope stem cell studies can help to:

- Identify how undifferentiated stem cells become the differentiated cells that form the tissues and organs.
- Learn to predictably control cell proliferation and differentiation.
- Investigate more uses for stem cells in serious medical conditions such as cancer, birth defects, spinal cord injuries, type 1 diabetes, cardiovascular diseases, and Neurodegenerative diseases.
- Generate healthy cells to replace diseased cells (regenerative medicine).
- Test new drugs for safety and effectiveness.

Sources and Types of Stem Cells

Source	Type
3-5 Days old embryo	Embryonic Stem Cell
Bone marrow or fat	Adult Stem Cell
Genetically modified adult stem cell	Induced Pluripotent Stem Cell
Umbilical Cord or Amniotic Fluid	Perinatal Stem Cell



References

- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4264671/>
- <https://www.mayoclinic.org/tests-procedures/bone-marrow-transplant/in-depth/stem-cells/art-20048117>
- <https://www.medicalnewstoday.com/articles/245704.php#4>

Summary

It is clear that many challenges must be overcome before stem cells can be safely, effectively, and routinely used in the clinical setting for eventual therapies for degenerative and life-ending diseases. However, their potential benefits are numerous and hold tremendous promise for an array of new therapies and treatments.