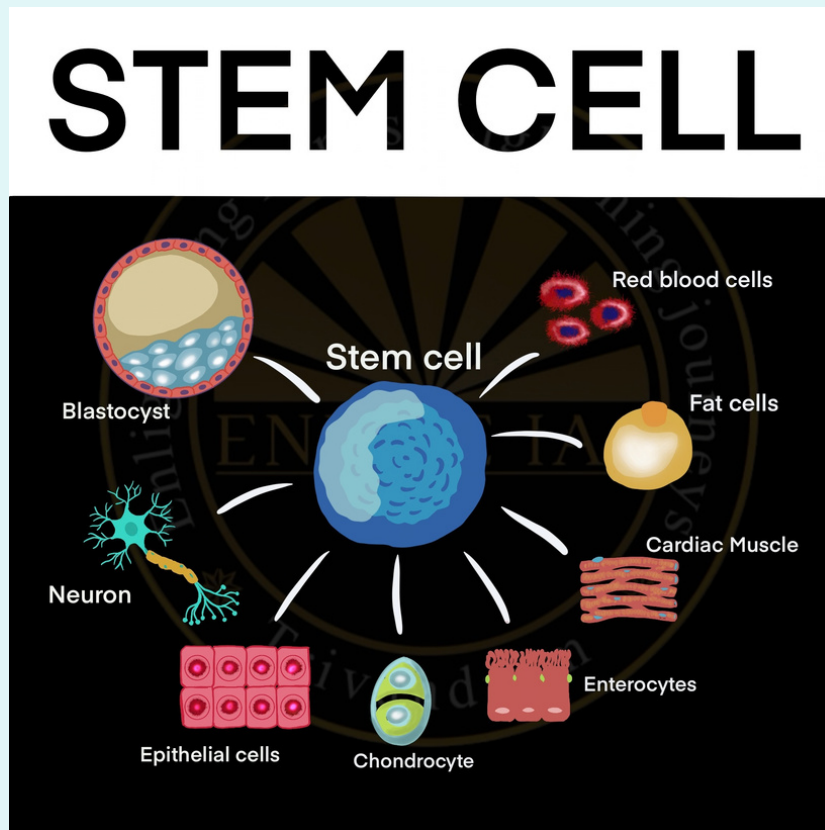


1 Stem Cell and Stem Cell Therapy (Source: The Hindu)

Stem Cell

- Stem cells are undifferentiated cells capable of self-renewal and of developing into specialized cells such as nerve, muscle, or blood cells.
 - Sources Stem Cell:** Bone marrow, Umbilical cord blood, Adipose tissue, Allografts, Amniotic fluid



Stem Cell Therapy

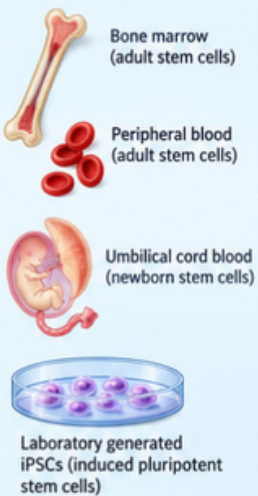
- Stem cell therapy is a form of regenerative medicine that uses stem cells to replace, repair, or support damaged or diseased tissues

How Stem Cell Therapy Works

Stem cell therapy uses stem cells – cells that can self-renew and develop into specialized cells – to replace, repair or support damaged tissues and restore normal function.

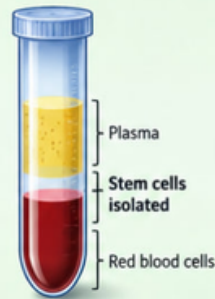
1 Source of stem cells

Stem cells are obtained from various sources.



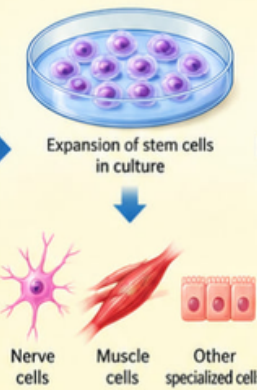
2 Collection and isolation

Stem cells are collected and separated from other cells.



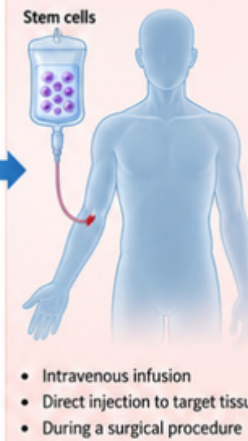
3 Processing in laboratory

Cells are purified, multiplied and sometimes guided to develop into specific types of cells.



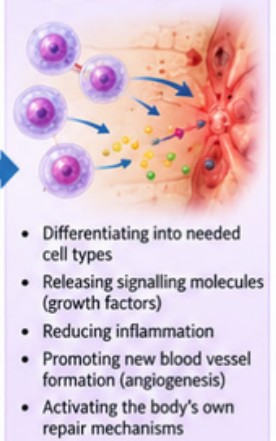
4 Administration

Stem cells are given to the patient through suitable routes.



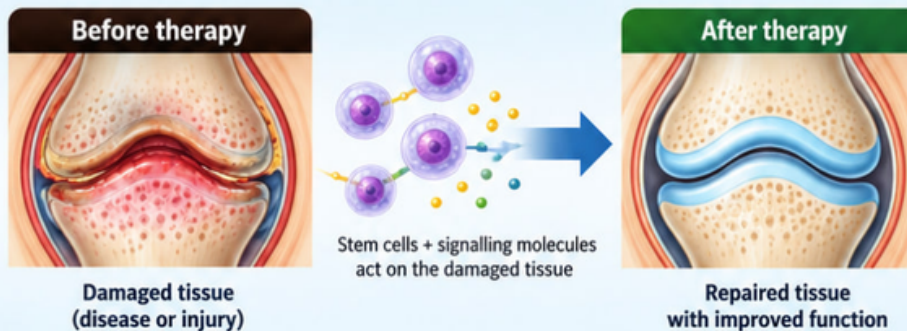
5 Homing and action at the target site

Stem cells reach or interact with the damaged tissue. They work through:

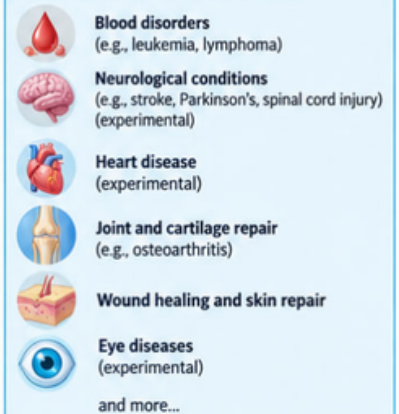


6 Tissue repair and regeneration

The stem cells help replace damaged cells and stimulate repair, leading to improved structure and function.



Potential Applications



Result: Replacement, repair and regeneration of damaged cells and tissues, leading to improved health and quality of life.

Note: Hematopoietic stem-cell transplantation is an established treatment for several blood and immune-system disorders. Many other stem-cell therapies are still under clinical research and are experimental.



DATE: 18 SEPTEMBER 2026

2 European Union (EU) (Source: The Hindu)

- The European Union was established in 1993 and comprises 27 European nations.
- *Following the Maastricht Treaty, also known as the Treaty of the European Union (TEU), the EU came into force.*
 - 28 nations ratified the treaty, and it entered into force in 1992. Recently, Britain exited the treaty.
- *It is an economic and political bloc of 27 countries; 19 countries use the EURO as their official currency.*
- The EU has developed an internal single market through a standardized system of laws that apply in all member states in matters where members have agreed to act as one.



3 Big Cats: Classification (Source: The Indian Express)



Big Cats

Classification (Genus *Panthera*)

Big cats refer to the largest wild cats in the world, belonging to the genus *Panthera*.

The big cats are the largest wild cats in the world, belonging to the genus *Panthera*.

Kingdom
Animalia

Phylum
Chordata

Class
Mammalia

Order
Carnivora

Family
Felidae

Genus
Panthera

Species under Genus *Panthera* (6 Big Cats)

Tiger	Lion	Leopard	Jaguar	Snow Leopard	Clouded Leopard
					
Tiger <i>Panthera tigris</i>	Lion <i>Panthera leo</i>	Leopard <i>Panthera pardus</i>	Jaguar <i>Panthera onca</i>	Snow Leopard <i>Panthera uncia</i>	Clouded Leopard <i>Panthera nebulosa</i>
- Largest of all cats - Distinct black stripes on orange coat - Found in Asia (including India)	- Only social big cat (lives in prides) - Males have a mane - Found in Africa (Asiatic lions in India – Gir, Gujarat)	- Highly adaptable - Rosette-shaped spots - Found in Africa and Asia (including India)	- Robust build - Large rosettes with central dots - Found in Central and South America - Not found in India	- Thick fur and long tail - Light grey coat with rosettes - Found in high mountains of Central and South Asia (including Himalayas)	- Unique cloud-shaped markings - Excellent climber - Found in Southeast Asia - Not in India
EN IUCN Status: Endangered	VU IUCN Status: Vulnerable	VU IUCN Status: Vulnerable	NT IUCN Status: Near Threatened	VU IUCN Status: Vulnerable	VU IUCN Status: Vulnerable

Key Points

- Big cats belong to the genus *Panthera* (6 species).
- They are apex predators and play a crucial role in maintaining ecological balance.
- They are native to Asia and/or Africa, except the jaguar (Americas).
- In India, four big cat species occur – tiger, Asiatic lion, leopard and snow leopard. Jaguar and clouded leopard are not found in India.
- Conservation threats include habitat loss, poaching and human-wildlife conflict.
- All big cats are protected under CITES Appendix I and in India under Schedule I of the Wildlife (Protection) Act, 1972 (except jaguar).

Global Distribution of Big Cats



- Tiger (Asia)
- Lion (Africa/India)
- Leopard (Africa & Asia)
- Jaguar (Americas)
- Snow Leopard (Asia)
- Clouded Leopard (Southeast Asia)

Conservation Measures

- Protect and restore habitats
- Prevent poaching and illegal trade
- Reduce human-wildlife conflict
- Ensure sustainable coexistence

*Six Species. One Genus.
A Wilder, More Balanced Planet.*



Conserve Big Cats. Conserve Biodiversity.