



Regenerative ability and wound healing

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Objectives

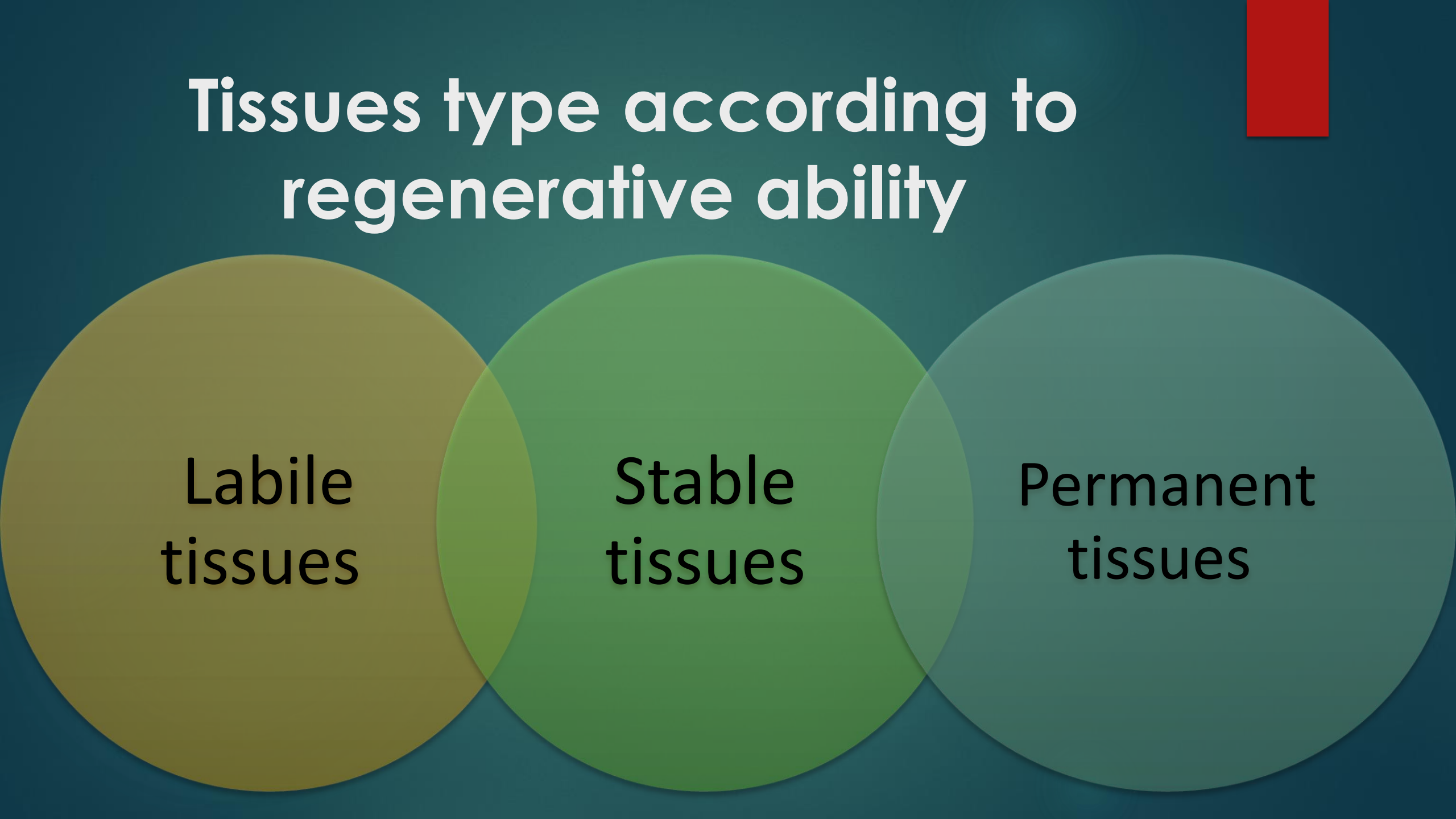
- ▶ Classify cell according to the regenerative ability
- ▶ List factor affecting wound healing

Introduction



In our topic today will classify the tissue according to regenerative ability also will list factor affecting wound healing.

Tissues type according to regenerative ability



Labile
tissues

Stable
tissues

Permanent
tissues

1. Labile (continuously dividing) tissues

- ▶ Cells of these tissues are continuously being lost and replaced by maturation from stem cells and by proliferation of mature cells.

1. Labile (continuously dividing) tissues

- ▶ Labile cells include hematopoietic cells in the bone marrow and the majority of surface epithelia, such as the stratified squamous surfaces of the skin, oral cavity, vagina, and cervix;
- ▶ These tissues can readily regenerate after injury as long as the pool of stem cells is preserved.

2. Stable tissues

- ▶ Cells of these tissues are quiescent and have only minimal replicative activity in their normal state.
- ▶ However, these cells are capable of proliferating in response to injury or loss of tissue mass.

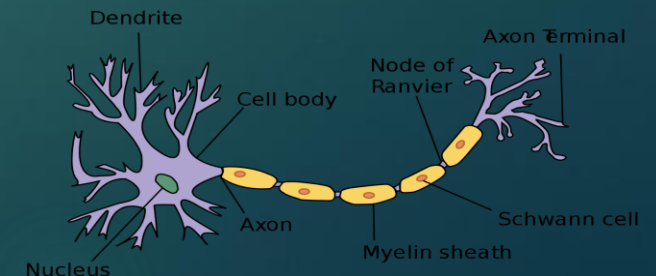
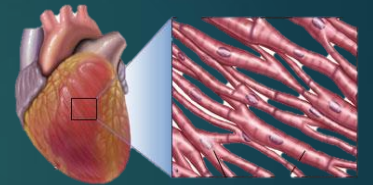
2. Stable tissues

- ▶ Stable cells constitute the parenchyma of most solid tissues, such as liver, kidney, and pancreas.
- ▶ They also include endothelial cells, fibroblasts, and smooth muscle cells.
- ▶ The proliferation of these cells is particularly important in wound healing.
- ▶ With the exception of liver, stable tissues have a limited capacity to regenerate after injury.



3. Permanent tissues

- ▶ The cells of these tissues are considered to be terminally differentiated and nonproliferative in postnatal life.
- ▶ Most neurons and cardiac muscle cells belong to this category.
- ▶ Thus, injury to brain or heart is irreversible and results in a scar, because neurons and cardiac myocytes cannot regenerate.



3. Permanent tissues

- ▶ Limited stem cell replication and differentiation occur in some areas of the adult brain, and there is some evidence that cardiac stem cells may proliferate after myocardial necrosis.
- ▶ Nevertheless, whatever proliferative capacity may exist in these tissues, it is insufficient to produce tissue regeneration after injury.

3. Permanent tissues

- ▶ Skeletal muscle is usually classified as a permanent tissue, but satellite cells attached to the endomysial sheath provide some regenerative capacity for this tissue.
- ▶ In permanent tissues, repair is typically dominated by scar formation.



Factors affecting wound healing

local

Infections

Mechanical variables

Foreign bodies

The location of the injury

Aberrations of cell growth

Systemic

Nutrition

Glucocorticoids (steroids)

Poor perfusion

Conclusion

1. Regenerative ability

- ▶ Label, stable and permanent tissue

2. Factors affecting wound healing

- ▶ Systemic and local factors



Thank you

Any question ?