ADIPOSE TISSUE

A Specialty Connective Tissue

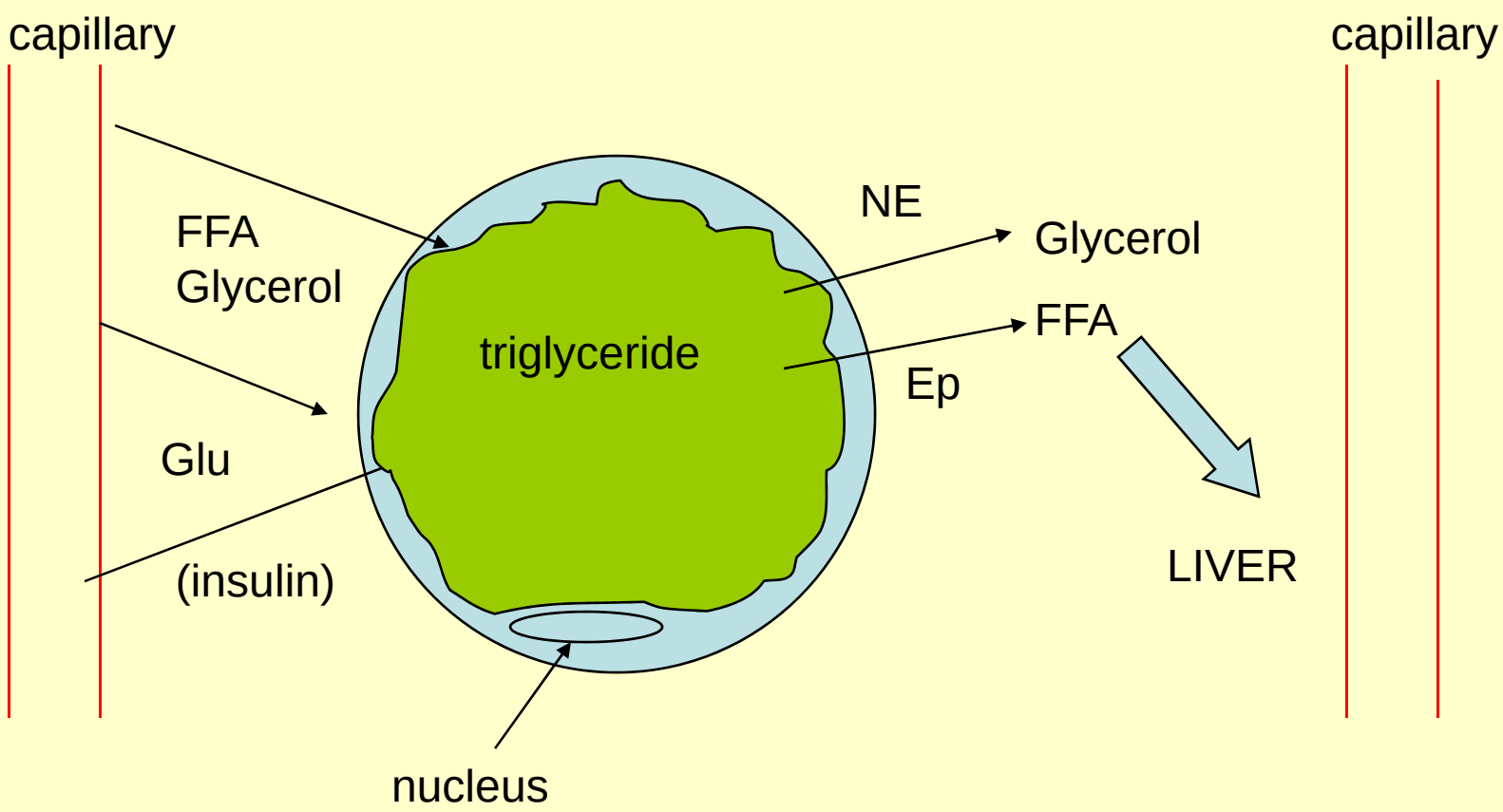
Function of Adipose Tissue

- Largest repository of energy in the body
  - Triglycerides
  - 9.3kcal/g
- Contributes to thermal insulation
  - Important for temperature regulation
- Fills spaces between structures/protects
  - Between organs
  - Aids fit of valves in heart
  - Pads of fat protect heels, palms

How Fat is Used in Adipose Cell

- Fatty acid + glycerol move into cell from capillary.
- Sympathetic stimulation (NE) and Ep from adrenal gland stimulate adipose cell:
  - Release fatty acid, glycerol
  - Used as a source of energy

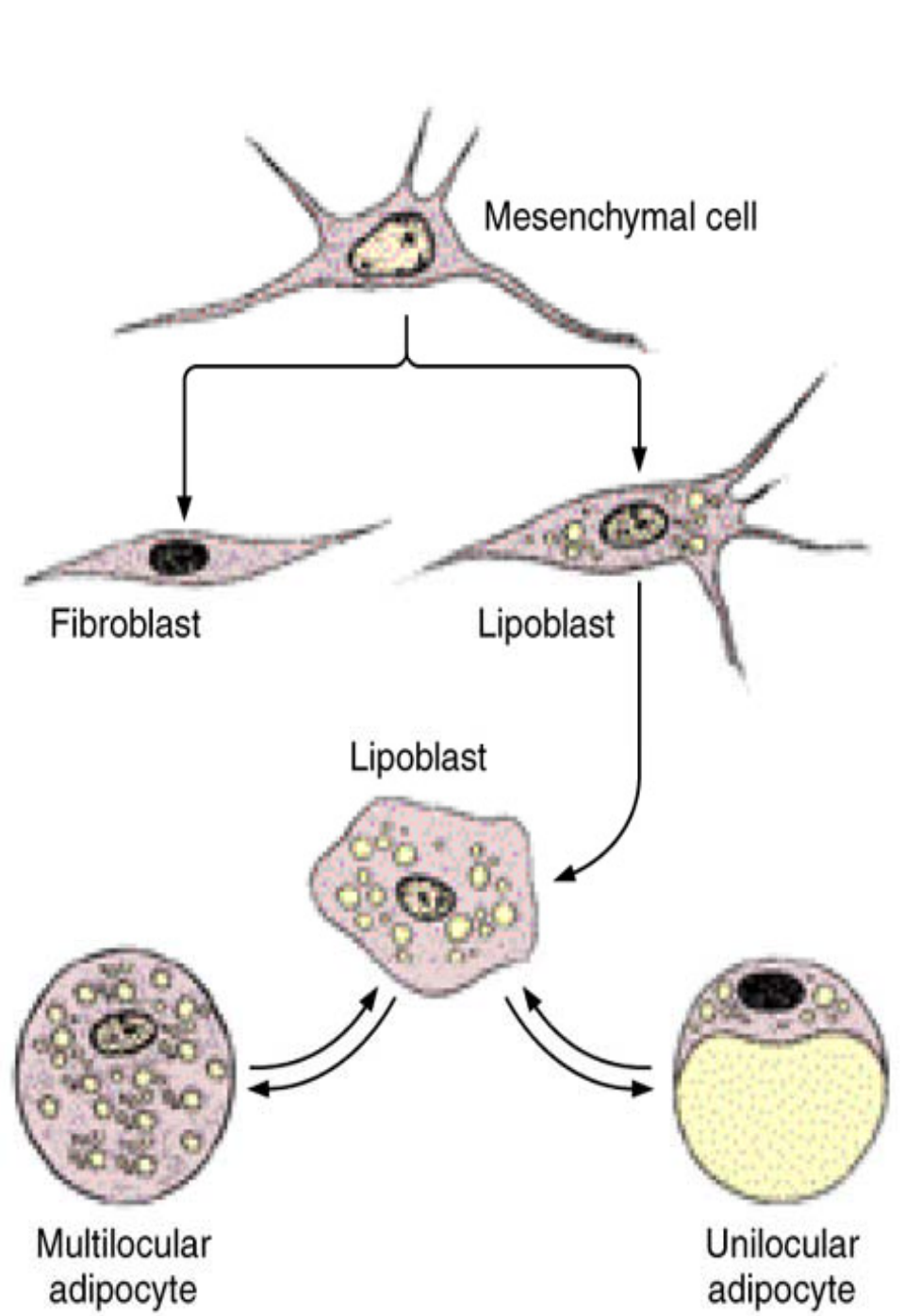
Adipose Dynamics



Route of FFA to Adipose Tissue

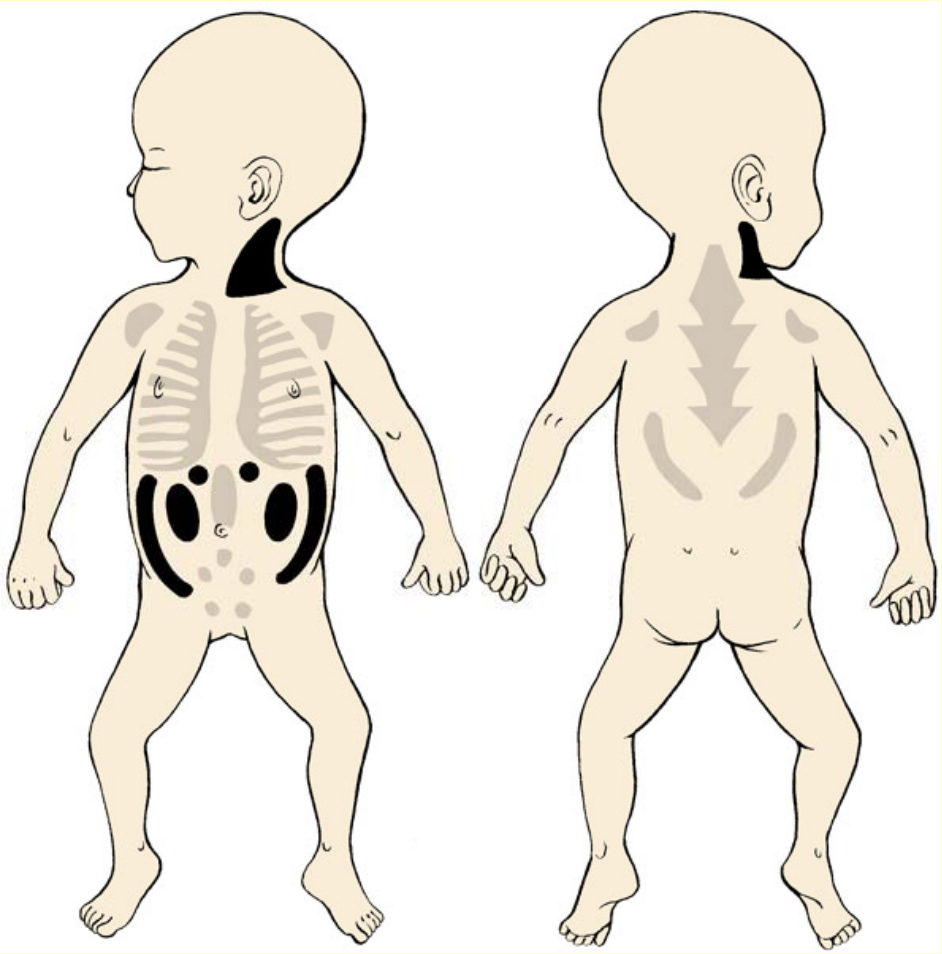
- Capillary endothelium
- Basal lamina
- CT ground substance
- Adipocyte basal lamina
- Adipocyte plasma membrane

Development of Fat Tissue



Distribution of Adipose Tissue

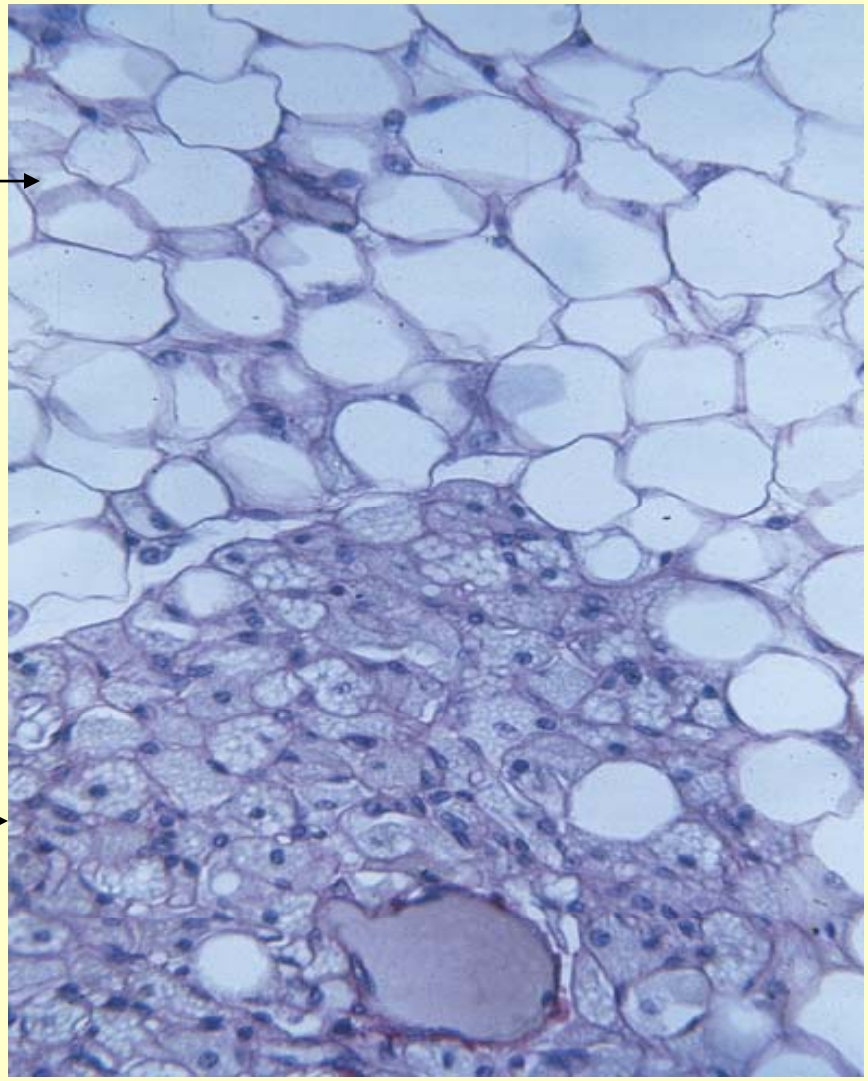
In a human newborn, multilocular adipose tissue constitutes 2—5% of the body weight and is distributed as shown. The black areas indicate multilocular adipose tissue; shaded areas are a mixture of multilocular and unilocular adipose tissue. (Modified, redrawn, and reproduced, with permission, from Merklin RJ: Growth and distribution of human fetal brown fat. Anat Rec 1974;178:637.)



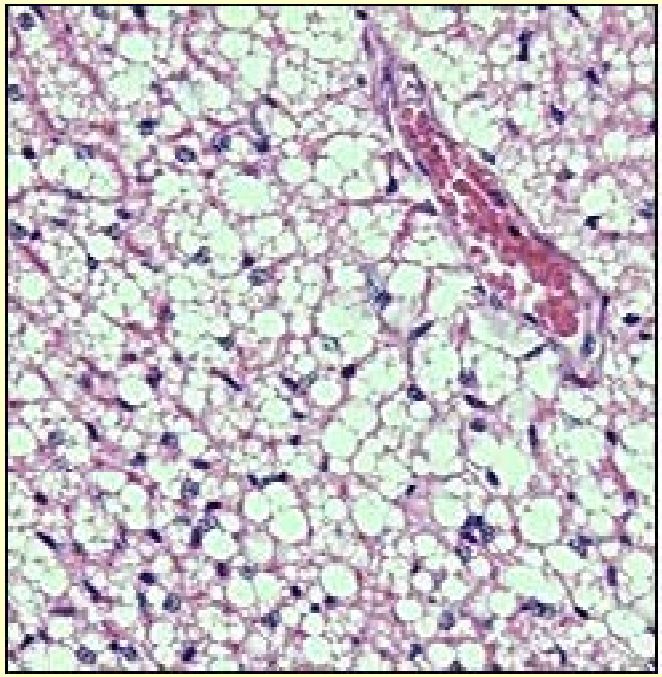
Adipose Tissue

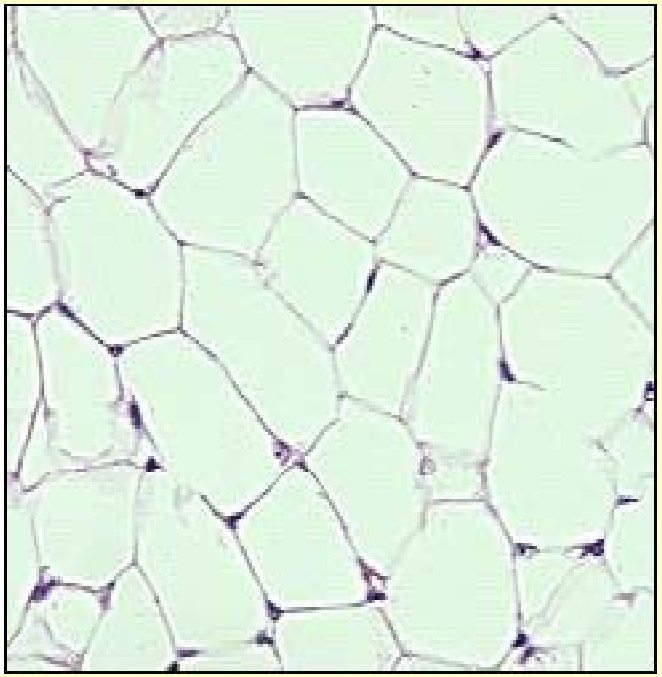
Unilocular

Multilocular
(Brown Fat)

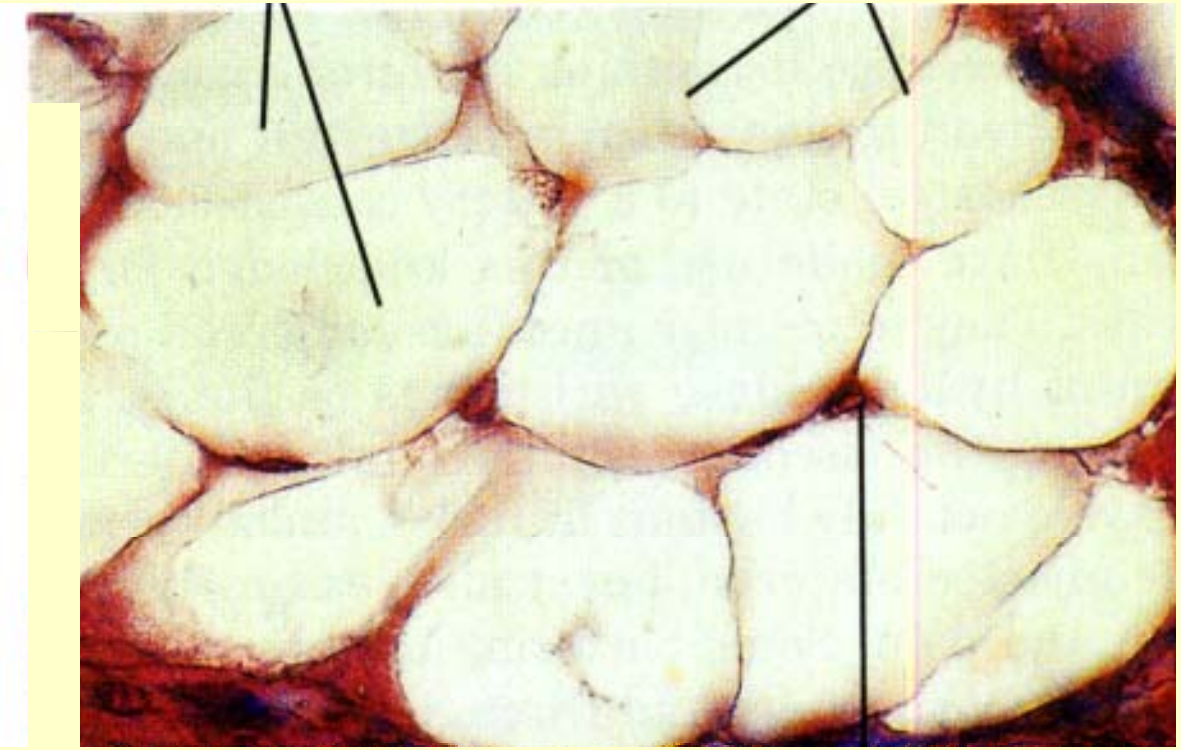


Adipose Tissue



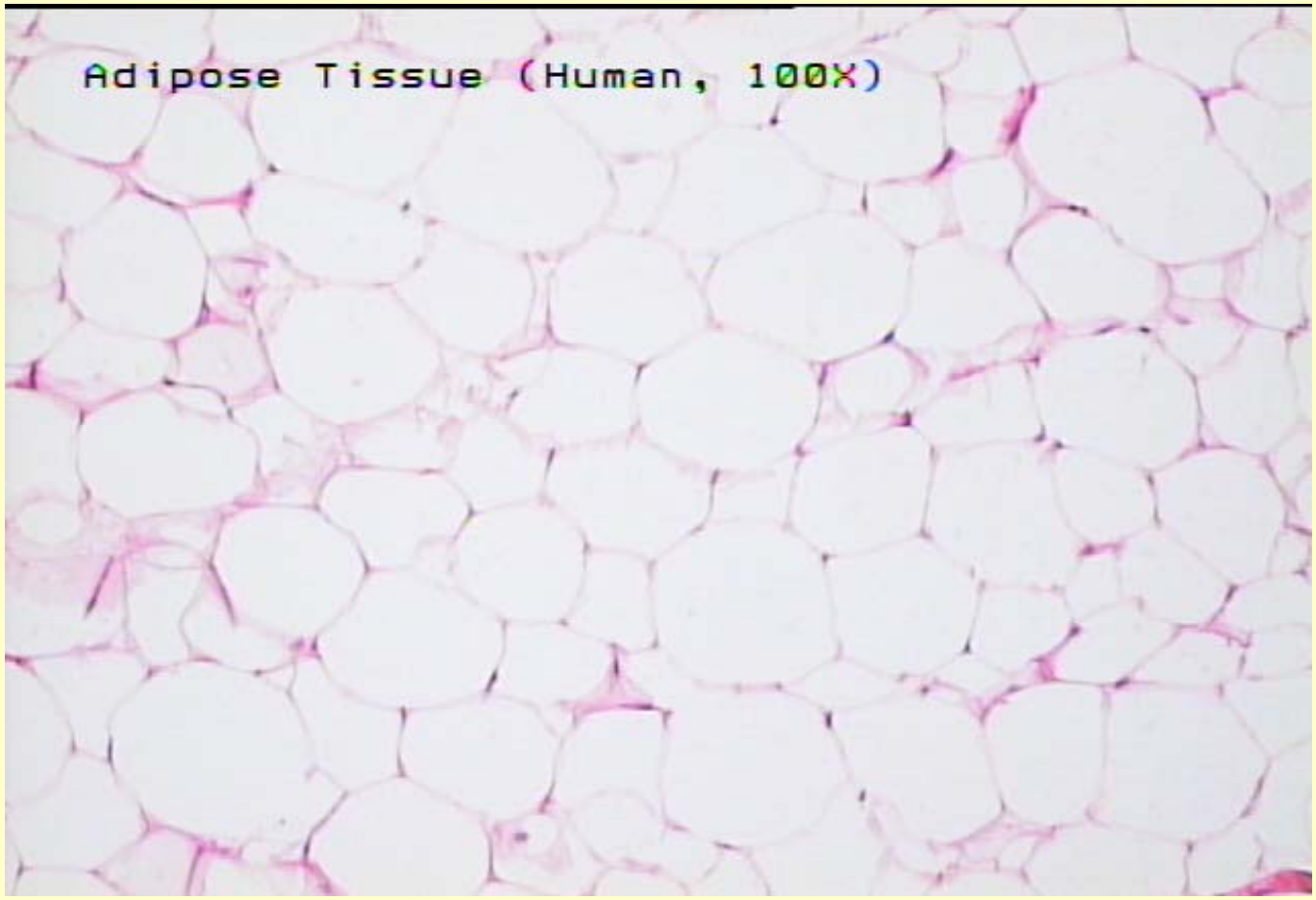


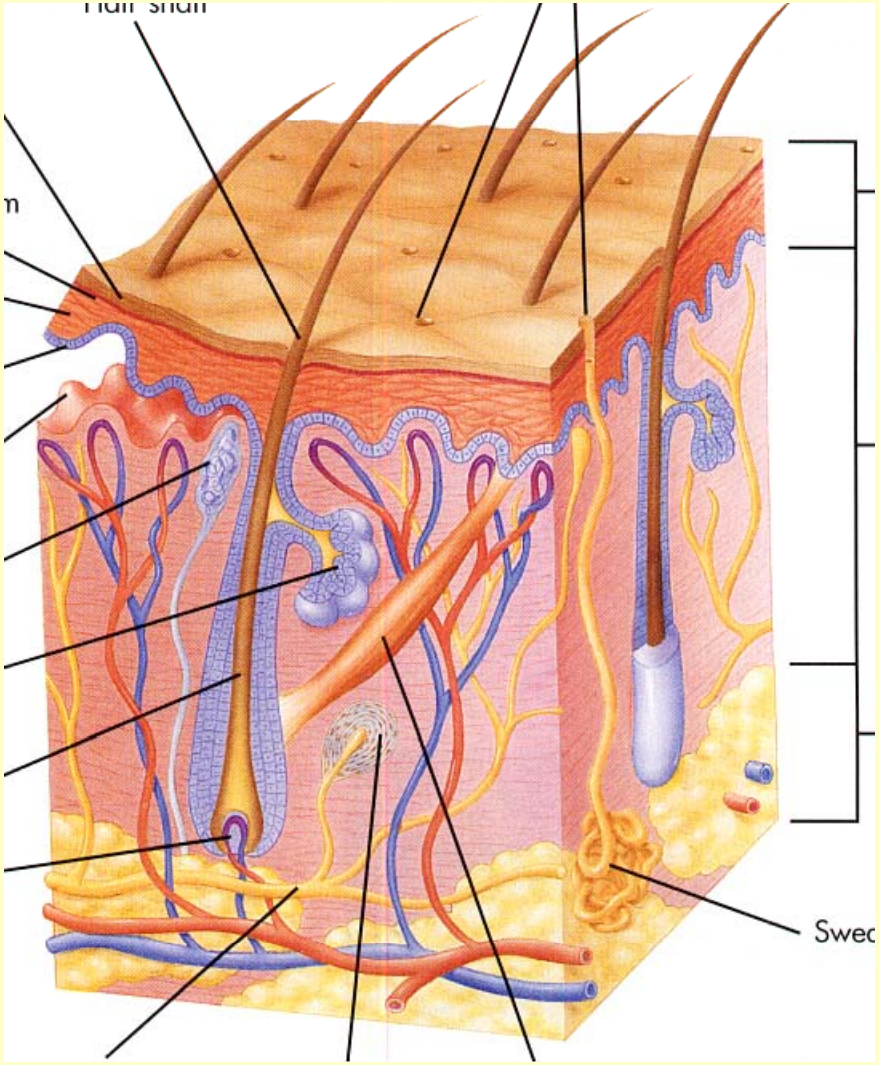
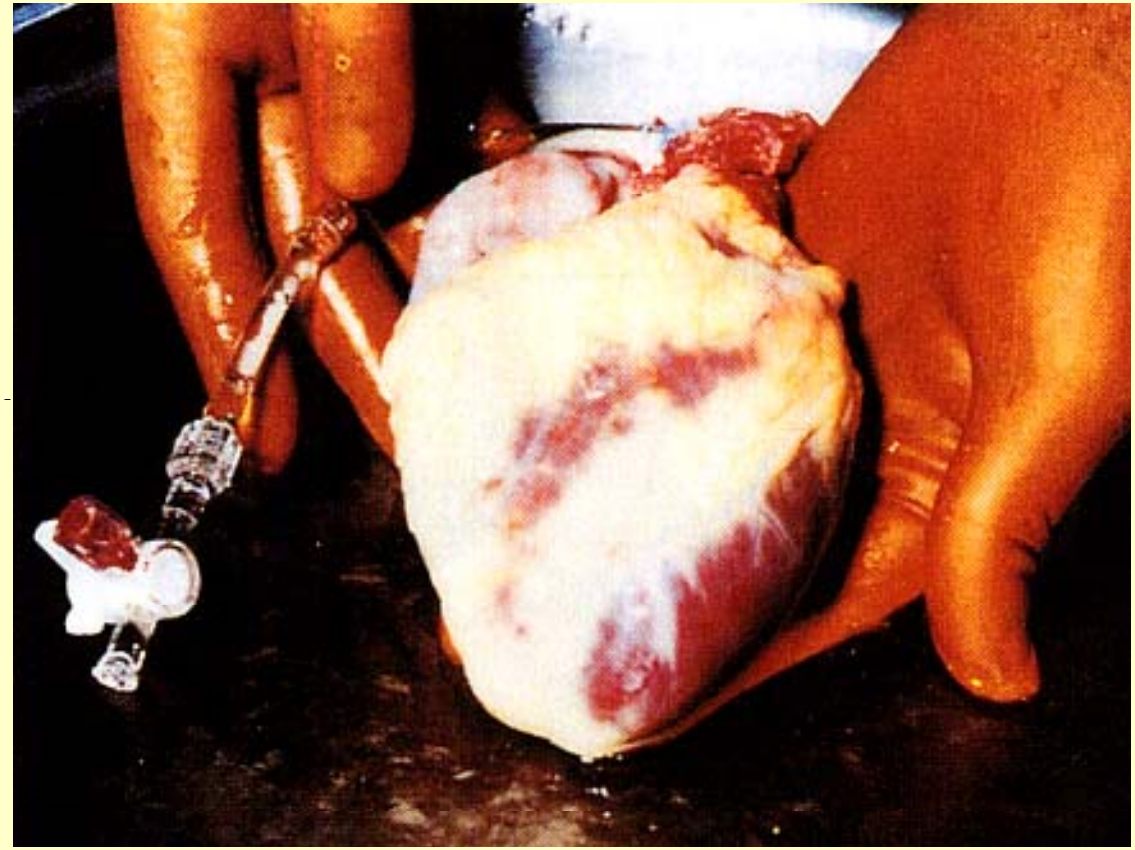
Adipose Tissue



Location: Subcutaneous

ADIPOSE TISSUE




Swec