

Histology

Modified n. 13A (adipose)

Writer: Ahmad Abu Aisha

Corrector: Raneem



Adipose Connective Tissue

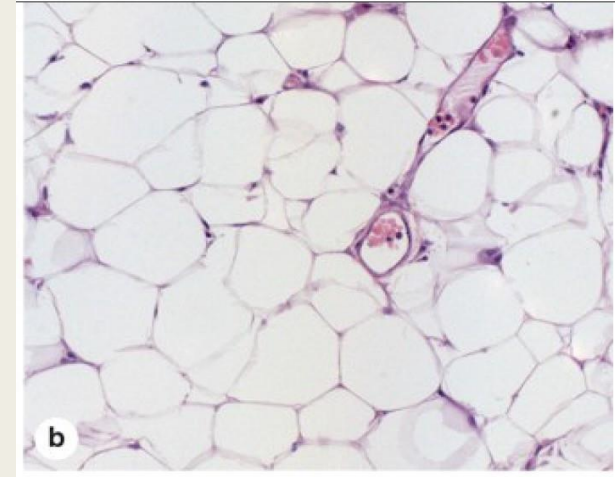
Adipose Tissue

- Large cells found isolated or in small groups within loose or dense irregular connective tissue.
- Occur in large aggregates in adipose tissue
- Connective tissue in which fat-storing cells or adipocytes predominate.
- Represents 15%-20% of the body weight in men, more in women.
- Storage depots for Neutral fats, chiefly triglycerides
- White and brown adipose tissues are different in color, location, function, and structure.

This is not a fixed percentage. for example, we see much less percentage in athlete.

also, distribution

White Adipose Tissue



- More common.

In adults, there is more white adipose CT, than brown.

- Cells each containing one large cytoplasmic droplet.
- Long-term energy storage
- When completely developed, a white adipocyte is very large, between 50 and 150 umm in diameter... unilocular

That means each fat cell contains only one fat vacuole.

- Signet-ring appearance.

The nucleus is pushed to the periphery, as the cytoplasm is full of fat. so this gives a ring shape under microscope, because the fat is washed out.

- Lipomas !

- The distribution of white adipose tissue changes significantly through childhood and adult life.

in newborns and babies , it seem to be evenly distributed throughout the body , but after puberty things differs.

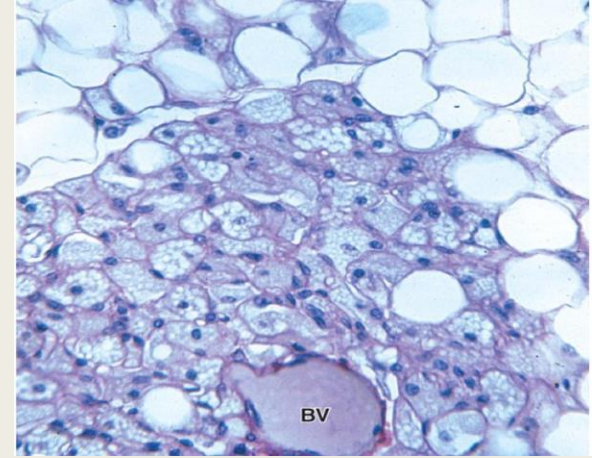
- Adipocytes develop from mesenchymal stem cells.

So, by liposuction we can get the fat tissue, process it then, here u go u have the mesenchymal stem cells. this is so useful and less harming than taking these cells from bone marrow.

In females: around the belly region
buttock region.
the breast area
In males: usually around the
abdomen.

usually found in newborns, and decrease with time, however there are small amounts of it in adults.

Brown Adipose Tissue



- Constitutes 2%-5% of the newborn body weight
- Located mainly in the back, neck, and shoulders. *In newborns.*
- In adults it is found only in scattered areas: around the kidneys, adrenal glands, aorta, and mediastinum. *In adults, there is also small amount in the neck.*
- Color of brown fat: very abundant mitochondria and the large number of blood capillaries.
- Brown adipocytes contain many small lipid inclusions....Multilocular
- Tissue's principal function of heat production and warming the blood (thermogenesis).
- Cells of brown fat are smaller than white adipocytes..... nucleus is more centrally located.

so, it is burned to maintain the temperature .
(الحيوانات اللي تؤدي السبات الشتوي) also, it can be seen in hibernating animals