

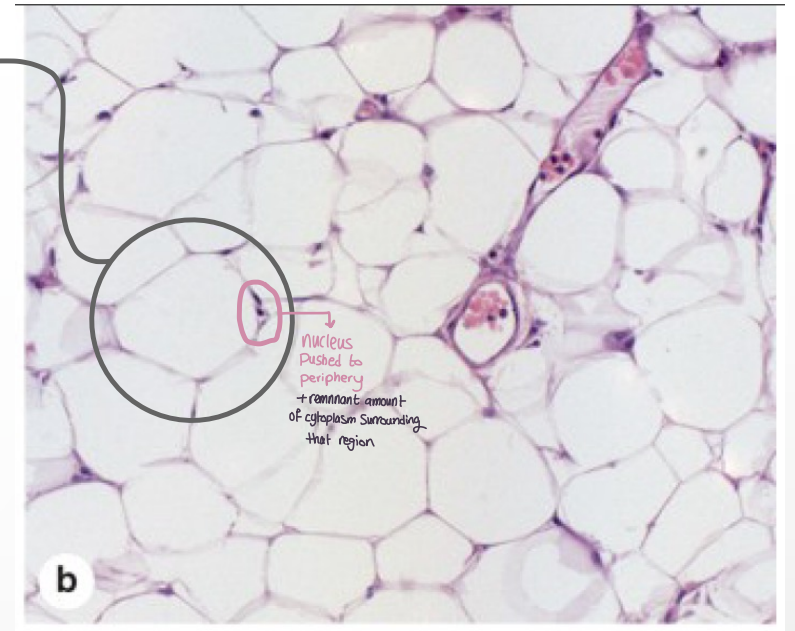
# Adipose Connective Tissue

↳ special 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.  
→ not fixed percentage
- Storage depots for Neutral fats, chiefly triglycerides
- White and brown adipose tissues are different in color, location, function, and structure.

# White Adipose Tissue



- More common.
- 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

↳ having one lipid vacuole

• Signet-ring appearance.

• Lipomas ! → fatty lump

• The distribution of white adipose tissue changes significantly through childhood and adult life. more white than Brown CT

• Adipocytes develop from mesenchymal stem cells.

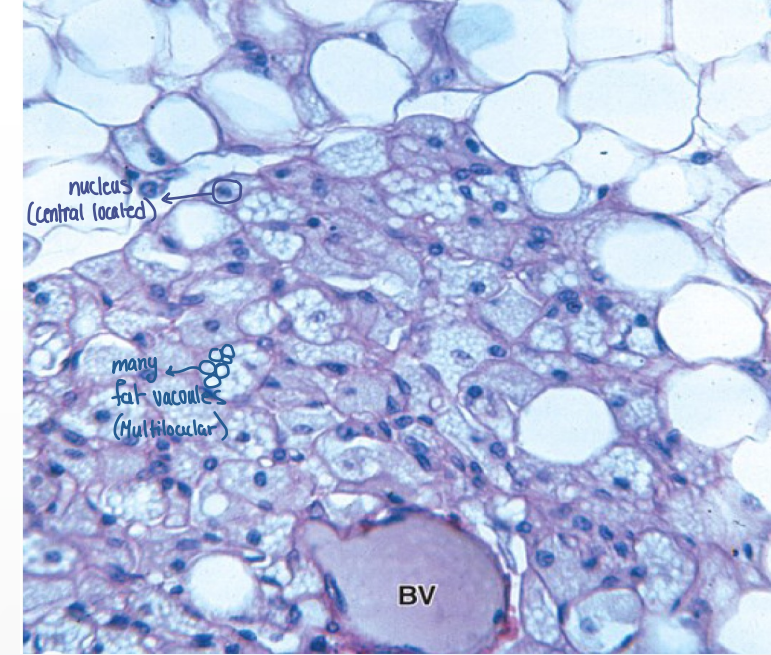
→ in newborns it is evenly distributed and it gets shifted when we have our sex hormones coming around puberty time so this will influence the distribution

→ Adipose CT has those cells in it (in Adults the % of these cells is extremely low)  
 So we need to hunt them → when we retrieve them we need to make sure that it is less invasive as possible, less morbid  
 they used to take them from bone marrow (Hip bone)  
 → we have to drill into the bone → then aspirate it.  
 Now → we could easily do liposuction → get the fat → digest the tissue (separate cells) and then extract mesenchymal stem cells

→ men: more around the belly region (Abdomen)  
 → Women: more around the hips, Buttock region breast area.  
 - We still need bone marrow for Hematopoietic stem cells (only found there)

# Brown Adipose Tissue

↳ we usually have it in newborns  
and it seems to decrease with time



- Constitutes 2%-5% of the newborn body weight
- Located mainly in the back, neck, and shoulders.
- In adults it is found only in scattered areas: around the kidneys, adrenal glands, aorta, and mediastinum.

↳ imp for producing heat.

- Color of brown fat: very abundant mitochondria and the large number of blood capillaries.

- Brown adipocytes contain many small lipid inclusions... Multilocular → that's why the nucleus is more relaxed (central located)

- Tissue's principal function of heat production and warming the blood (thermogenesis) → Burns fats and Produces heat.

- Cells of brown fat are smaller than white adipocytes..... nucleus is more centrally located. (Internal Heater) that's why it's abundant in babies.

↳ We can see it in Hibernating animals.

→ Bears that sleep in extremely cold regions survive by those lots of fats that keeps their body temperature around the required levels.

اللهم نستودعك أهالي غزّة وفلسطين  
فانصرهم واحفظهم بعينك التي لا  
تنام، واربط على قلوبهم وأمدهم  
بجُندك وأنزل عليهم سكينتك وسخر  
لهم الأرض ومن عليها.

Duaa\_blessings\_



Best of Luck ☺

Mas Nafoukh