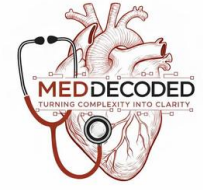


بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



**HISTOLOGY**

**MID | Lecture 13**

# Adipose Tissue

وَلَقَدْ خَلَقْنَا الْإِنْسَانَ وَنَعَلَهُمَّا تَوْسُوسٌ بِهِ نَفْسُهُ وَنَحْنُ أَقْرَبُ إِلَيْهِ مِنْ حَبْلِ الْوَرِيدِ

**Done By: Dopamine 023**



# **Adipose Connective Tissue**

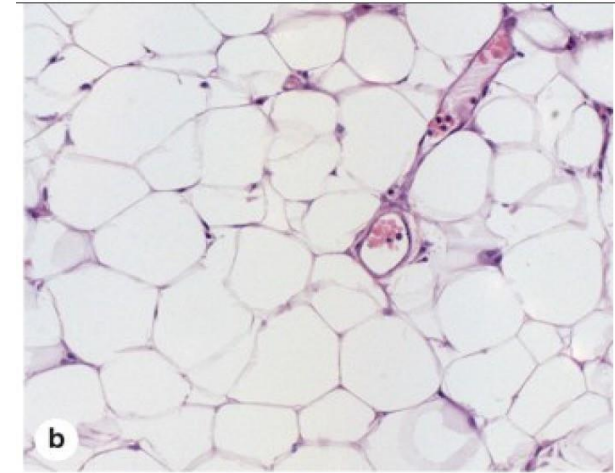
# Adipose Tissue

- 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.

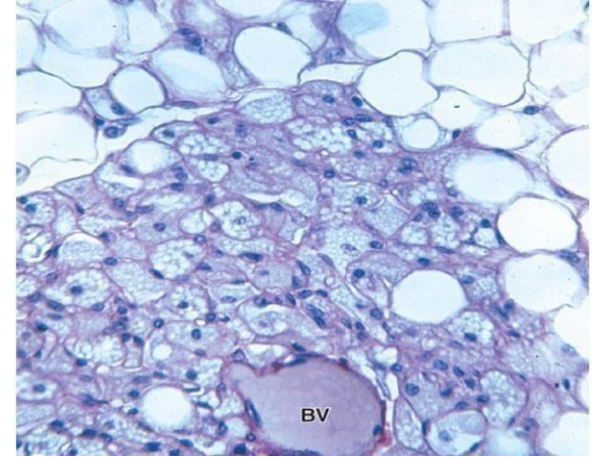
- Adipocytes develop from mesenchymal stem cells.

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 .  
also, it can be seen in hibernating animals

For any feedback, scan the code or click on it.



**Corrections from previous versions:**

Versions	Slide # and Place of Error	Before Correction	After Correction
V0 → V1			
V1 → V2			

## Additional Resources:

## رسالة من الفريق العلمي:

اللهم علّمنا ما ينفعنا وانفعنا اللهم بما علمتنا واهدنا  
واهد بينا يا رب العالمين

يقول النبي صلى الله عليه وسلم: "أحبُّ الناس إلى الله  
أنفعهم للناس" 