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Human Anatomy I

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Gum Tissues

Objective: "State the location of various tissues in the body."

Topic: Tissue Layers of Gums and Diseases that may cause damage to tissues/bones.

Gums offer tissue support for both mandible and teeth, which also helps with digestion and functioning for getting essential nutrients for proper bone and body growth. Gingival tissue is very dense and filled with fibrous tissue. It's a type of mucosa tissue with several layers.

According to the Anatomy book by Koller and Sepra, there are multiple tissue layers that come together to form the one structure known as gums and explains the different structures. Within this we have the base layer which is the bone. The human bone is made up of a surplus amount of dense hard connective tissue. Gingival tissue or gum tissue sits on top of the mandible and maxillary part of the jaw bone. On the bone seats the first layer of gingival tissue is the Stratum basale which is the lowest level attached to the bone. On top of this level is the stratum granulosum; it is made up of polyhedral keratinocytes which are fibrillary proteins that help keep the other cells of the tissues bound tightly together. The stratum granulosum layer is the next upper most layer that is consistent with keratinocytes but these have started to produce large amounts of keratin. Most dentists explain that the keratin helps to protect the roots and hold your teeth in place and keep your teeth stable and not mobile in your mouth. Without the help of the keratin within the gingival tissue you wouldn't be able to keep the teeth healthy or the teeth in the mouth at all. The next and outermost layer is the Stratum corneum; this layer of the gingival

tissue helps to prevent organelles and other unwanted or needed microorganisms from entering the body. The tissue of the Stratum corneum is made up of lots of mini layers of necrosis keratinocytes.

Seeing how the gingival is made up of lots of tissue layers it is important that you keep the area in the mouth thoroughly clean. By making sure you brush your teeth and gums you will help to diminish the quantity of bacteria and other microorganisms within the mouth. Bacteria can enter your mouth through another or different way. One way is by placing numerous items within your mouth such as food, objects and other miscellaneous things. Once placing these objects in your mouth the bacteria or other microorganisms can travel through the saliva and get in between the crevices where the teeth are placed within the gingiva or gums. Once the bacteria gets into these grooves it can cause plaque build up and over time that hardens and calcifies in those areas and becomes tartar which will become extremely hard to remove without a licensed hygienist to remove it. Once a person gets tartar build up it makes bacteria more susceptible to getting inside the Stratum corneum and causing severe problems and complications with the tissue. Once the bacteria starts affecting the tissue you will notice that it will cause substantial inflammation along the gums and gum line you will also notice possible blood or bleeding from the gums when they are touched. This is known as gingivitis. Over time this can lead to severe periodontal issues such as recession and bone loss. Once a person gets so much recession and bone loss the tissue will start to deteriorate and actually pull away from the teeth. This will often cause the roots of the teeth to appear and will make the tooth and or teeth extremely mobile and can oftentimes be lost if not treated. This is paraphrased from the effects of tissue disease like periodontal. The article from Mann, Berstein, and Findler explain the prevention of periodontal disease like flossing and brushing teeth. It's important to look at the structures of prevention that

describe how the tissues can remain healthy and bone structures within the mouth. Maintaining healthy tissues and bone density will greatly impact overall health.

Gingival tissue is highly unique and it is very tough. However even if someone was to have or get exposed to severe periodontal disease the gums or gingival don't quite regenerate like the rest of the tissues in the body. Once a person has gum recession the only way to get more tissue in that area would be from a gum graft. That is when you would take tissue from another part of the mouth and place it in the required area. Over time the tissues will fuse together and heal over time.

In correlation with the information given, the assigned project is art related to dental offices. Most offices use different models, even made by different artists and prosthodontists. Thus, I tried to implicate my own models as art within a dental office. Along with infographics used in many establishments, I tried to use my own artistic talents to identify the possible implications of gum tissue damage. I provided various art techniques possibly used in a dental office. I also provided molds used with clay and playdough. This is to bring awareness of different tissues in the body along with diseases that might implicate the tissue and the bones.

Citations

Mann, J., Bernstein, Y., & Findler, M. (2020). Periodontal disease and its prevention, by traditional and new avenues. *Experimental and therapeutic medicine*, *19*(2), 1504-1506.

Koivisto, J. T., Gering, C., Karvinen, J., Maria Cherian, R., Belay, B., Hyttinen, J., ... & Parraga, J. (2019). Mechanically biomimetic gelatin–gellan gum hydrogels for 3D culture of beating human cardiomyocytes. *ACS applied materials & interfaces*, *11*(23), 20589-20602.

Koller A, Sapra A. Anatomy, Head and Neck, Oral Gingiva. [Updated 2021 Aug 11]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK560662/>