Epithelial Tissue

- Epithelial tissue (singular: epithelium) is one of the 4 main types of tissue in the body. It lines the cavities and exposed surfaces of the body, as well as producing secretions such as saliva
 - Epithelial cells line the digestive, respiratory, reproductive and urinary tracts as well as chest cavities, brain ventricles and the chambers of the heart
- There are certain characteristics associated with epithelial tissue:
 - The cells are **bound tightly together by interconnections called cell junctions**
 - The cells have a 'polarity'
 - They have an exposed and attached surface, the exposed surface is termed 'apical' and the attached surface is called 'basal'
 - The base of an epithelium is bound to a thin **basal lamina/basement membrane**
 - This connects the epithelium to the underlying connective tissue
 - The cells lack a blood supply and so are termed avascular
 - This means they must **obtain their nutrients by diffusion or absorption** across either the basal or apical surface
 - Finally, when cells become lost or damaged at the exposed surface, they are **continuously** replaced by the division of stem cells
- \circ The epithelium has a number of functions that can vary depending on its speciality
 - It can protect the underlying content from abrasion, dehydration or destruction
 - It can control the permeability of its layer by allowing selective absorption of secretion
 - It provides **sensation** due to the **large nerve supply**
 - These specific cells are called **neuroepithelium**
 - Epithelial tissue can also produce specialis dis Cletions from glandular epithelia
 - Most epithelial cells producers Cretions
- Epithelial tissue can be specified depending on p job
 - It al most conversent of flue contraction surface to provide protection and lubrication
 - It can allow the movement of fluids through the epithelium and so controls permeability
 - It provides secretions to act as physical protection or chemical messenger
 - They can also have hair like projections and come in two ways:
 - Microvilli
 - Microvilli are found on epithelial tissue that **line internal passageways such as the intestinal tract**
 - They are abundant where secretion and absorption take place as they **increase the surface area of cells by** ~20x
 - Cilia
 - Cilia are found on **ciliated epithelial cells**
 - They beat in a coordinated fashion and so have many mitochondria for energy
 - They are **used to transport molecules such as mucus along a pathway** such as the respiratory tract
 - The following is an EM of microvilli (left) compared to cilia (right)



• Epithelia classified based shape and



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