HOW DOES ORAL EPITHELIUM ADAPT TO DIFFERENT FUNCTIONAL REQUIREMENTS?

PL1 EN DENTAL MEDICINE
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INTRODUCTION

KERATINIZED AND NON-KERATINIZED STRATIFIED SQUAMOUS EPITHELIUM

Stratified squamous epithelium is a type of mucous membrane epithelium in its non-keratinized form. It consists of several layers of cells that protect underlying tissues from friction and damage.
Keratinized epithelium is found in the epidermis of the skin. Its surface contains dead, flattened cells filled with keratin, which protects the body and helps prevent water loss.

Non-keratinized epithelium is found in moist areas such as the mouth, esophagus, and vagina. It forms part of the mucous membranes lining these organs. Its surface cells remain alive and retain their nuclei, protecting the tissues while keeping the surface moist.

The main difference is that keratinized epithelium has dead, keratin-filled surface cells, whereas non-keratinized epithelium has living surface cells. Both protect the tissues underneath them.

GOALS

The main goal is to determine the relation between the presence of keratina in some part of the oral cavity and the function of the epithelium in which it is found.

REFERENCE

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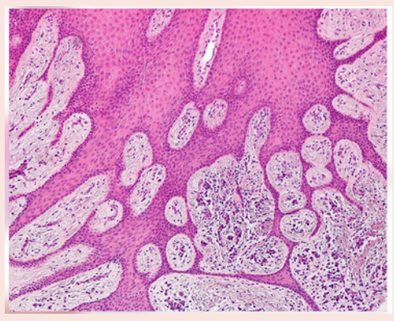
THE DIFFERENTS ORAL EPITHELIA

MASTICATORY MUCOSA — KERATINIZED

Location: Gingiva (gums) and hard palate.
Why ? These areas experience strong friction and pressure during chewing. Keratin provides a protective barrier against mechanical damage.

GINGIVA

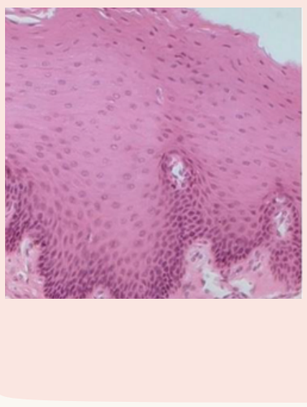


HARD PALATE



LINING MUCOSA — GENERALLY NON-KERATINIZED

INNER CHEEKS



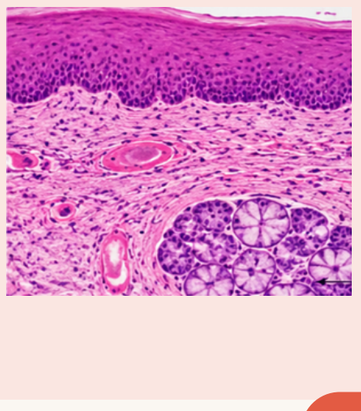
SOFT PALATE



FLOOR



LIP

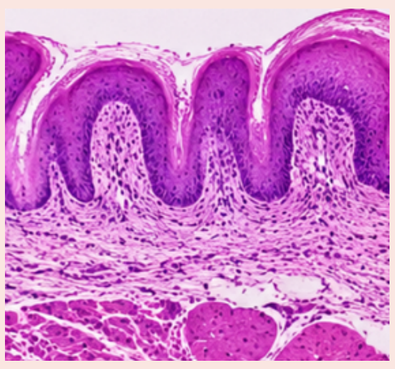


Location: Inner cheeks, lips, soft palate, floor of the mouth and underside of the tongue.
Why ? These areas need to remain flexible and stretch during speaking, chewing and swallowing. A non-keratinized epithelium helps accommodate movement while protecting the underlying tissues.

SPECIALIZED MUCOSA — VARIABLE KERATINIZATION

Location: Mainly the dorsal surface of the tongue.
Why ? The tongue has specialized structures called papillae. Some, especially filiform papillae, are keratinized to withstand friction and help manipulate food. Other papillae are less keratinized and are associated with taste.

TONGUE (DORSAL)



CONCLUSIONS

THE ORAL EPITHELIUM ADAPTS ITS DEGREE OF KERATINIZATION TO LOCAL FUNCTIONAL DEMANDS: KERATINIZED MUCOSA PROTECTS HIGH-FRICTION MASTICATORY AREAS, WHILE NON-KERATINIZED MUCOSA PRESERVES FLEXIBILITY AND MOISTURE FOR SPEECH AND SWALLOWING. TOGETHER, THESE STRUCTURAL VARIATIONS ENSURE OPTIMAL PROTECTION, MOBILITY, AND SENSORY FUNCTION ACROSS THE ORAL CAVITY.