

# DENTAL PRODUCTS



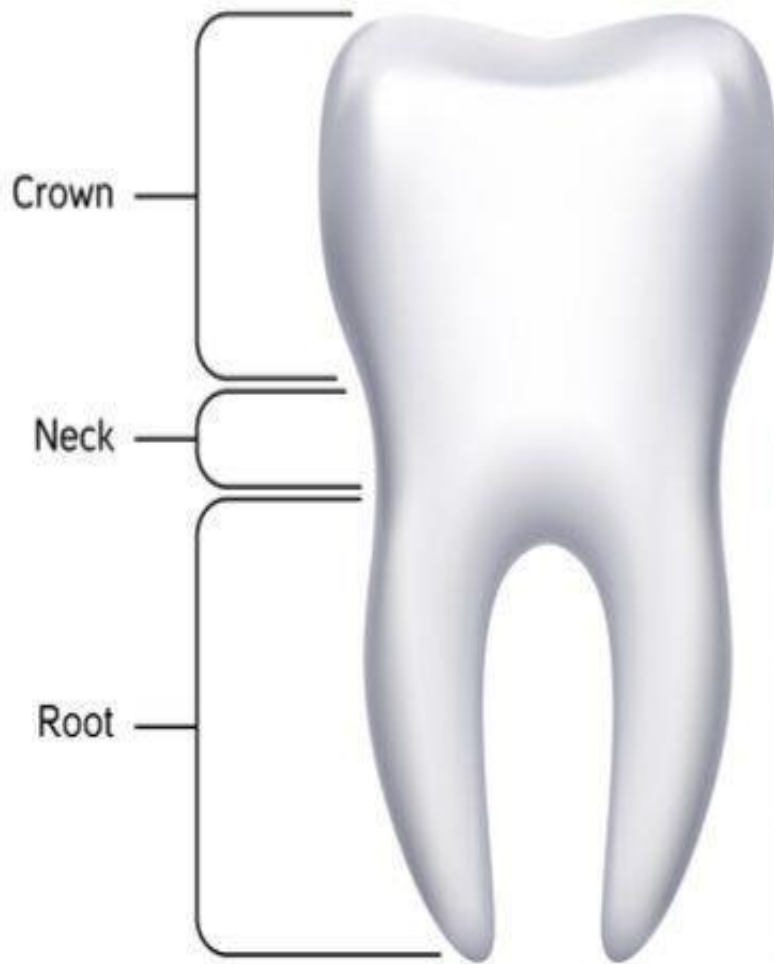
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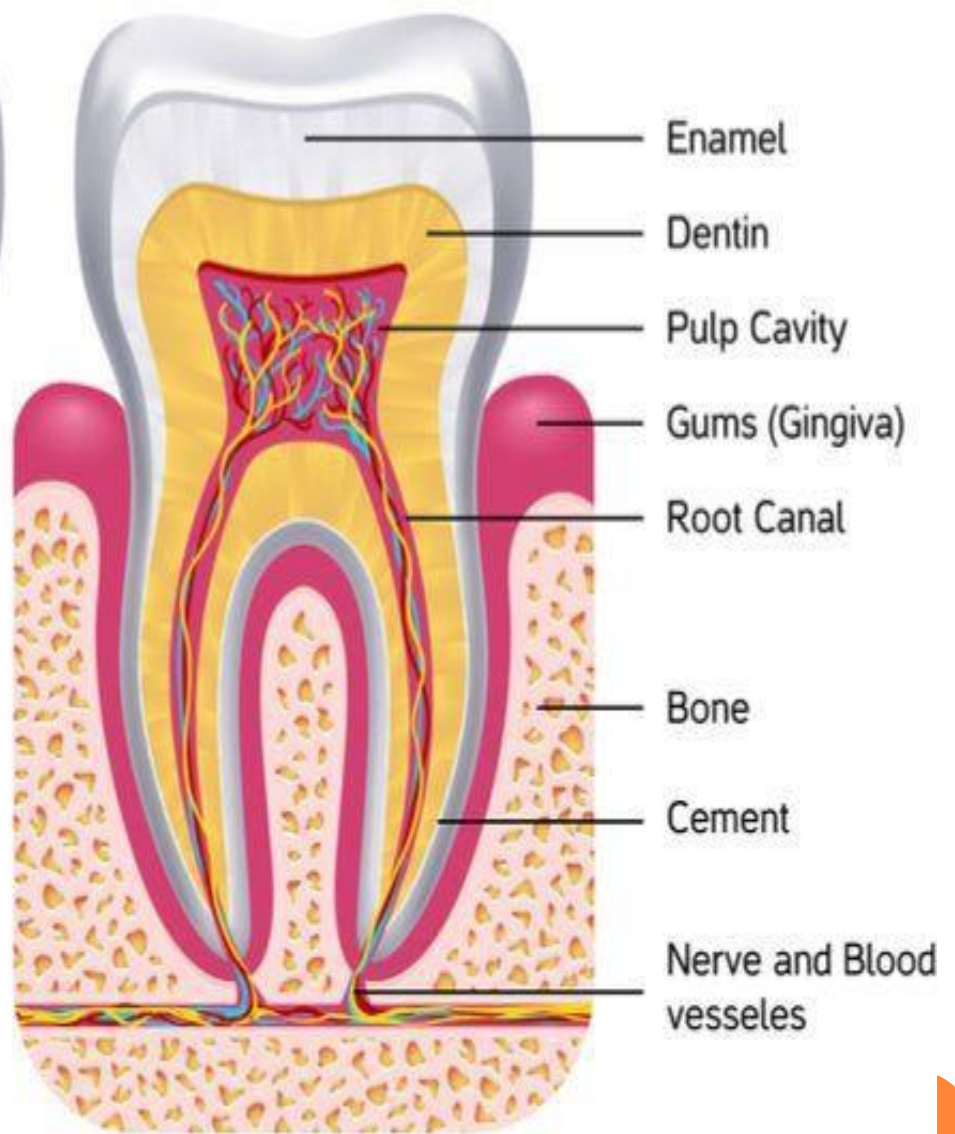
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# TOOTH ANATOMY



**Tooth enamel** is one of the four major tissues that make up the tooth in humans and many other animals, including some species of fish. It makes up the normally visible part of the tooth, covering the crown. The other major tissues are dentin, cementum, and dental pulp. It is a very hard, white to off-white, highly mineralised substance that acts as a barrier to protect the tooth but can become susceptible to degradation, especially by acids from food and drink

**Dentin** -A thick **dentin** layer forms the bulk of dental mineralized dental tissues. **Dentin** is capped by a crown made of highly mineralized and protective enamel, and in the root, it is covered by cementum, a structure implicated in the attachment of the **teeth** to the bony socket

**cementum-** **Cementum** is a specialized calcified substance covering the root of a **tooth**. The **cementum** is the part of the periodontium that attaches the **teeth** to the alveolar bone by anchoring the periodontal

The **pulp** -**pulp** chamber is the soft area within the center of the **tooth** and contains the nerve, blood vessels, and connective tissue. The **tooth's** nerve is in the "root" or "legs" of the **tooth**.

The dental pellicle, -acquired pellicle, is a protein film that forms on the surface enamel by selective binding of glycoproteins from saliva that prevents continuous deposition of salivary calcium phosphate.

# Dental Products

- Dental products are the pharmaceutical preparations widely used in dentistry for the following aspects –
  - To prevent dental caries as anticaries agent
  - To clean & polish teeth.
  - To bring freshness to the mouth
  - To reduce the sensitivity of the teeth to hot & cold.
  - To prevent various periodontal disease.

## TYPES OF DENTAL PRODUCTS

- **ANTICARIES AGENT**
- **DENTRIFRICES**
- **DESENSITING AGENTS**
- **MOUTH WASHES**
- **CEMENTS AND FILLERS**



# DENTIFRICES

Dentifrice is a substance used with a tooth brush for the purpose of cleaning the accessible surfaces of the tooth

## It contains

- therapeutic agent such as fluoride to inhibit caries
- Antimicrobial agents- chlorhexidine, cetrимide
- Anticalculus agent - Zn-chloride



# Forms of dentifrices:-



*Toothpastes;*



*Tooth Powders;*



*Tooth Gels;*

# What is Fluoride?

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- ❑ Fluoride is the ionic form of the element fluorine.
- ❑ Fluoride is a mineral found throughout the earth's crust and widely distributed in nature.
- ❑ Found in soils rich in fluorspar, cryolite, and other minerals.

# Prevention of cavities by Fluoride.

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Two different ways:

- ❑ Fluoride concentrates in the growing bones and developing teeth of children, helping to harden the enamel on baby and adult teeth before they emerge.
- ❑ Fluoride helps to harden the enamel on adult teeth that have already emerged.

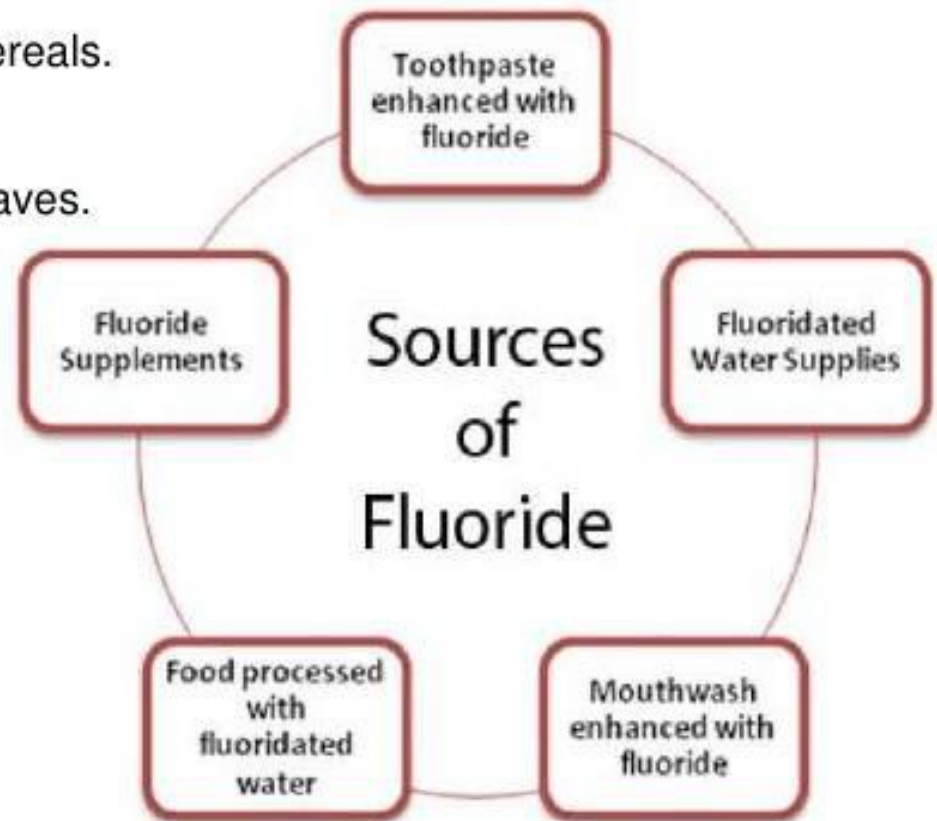


# Sources

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**Small amounts:** fruits, vegetables, cereals.

**Rich amounts:** sea foods and tea leaves.



# Desensitizing agents

- Desensitizing agents reduce the pain in sensitive teeth caused by cold, heat, acids, sweets or touch.
- These products are nonabrasive and should not be used on a permanent basis unless directed by a dentist.
- Example : 5% potassium nitrate compounds (Sensodyne, Colgate sensitive).

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Official product:

1. Zinc Chloride USP
2. Zinc –Eugenol Cement NF : 2 parts

The powder and the liquid. Ten parts of powder to be mixed with one part of liquid to form thick paste immediately before use.

# ZINC OXIDE-EUGENOL CEMENT

- Eugenol has a soothing effect on the pulp and is often used on patients when postoperative sensitivity may be a concern
- *Type I*
  - Lacks strength and long-term durability and is used for temporary cementation or provisional coverage
- *Type II*
  - Has reinforcing agents added for the permanent cementation of cast restorations or appliances

# Zinc oxide eugenol

PCS regular & Extended Working Time PCS EWT

## **Powder:**

Zinc Oxide	34-41.2%
Precipitated silver	25-30%
Oleo resins	30-16%
Thymol iodide	11-12%

## **Liquid:**

Oil cloves	78-80%
Canada Balsam	20-22%

## **Advantage:**

- Excellent lubricating property
- More working time
- Germicidal
- Greater bulk

## **Disadvantage**

- Staining ability
- Rapid setting in high heating
- Type IV zinc oxide eugenol cements are used for intermediate restoration



# Strontium chloride

- Dentifrice containing **10% strontium chloride hexahydrate** as the desensitizing agent
- **Sensodyne** tooth paste was formulated with strontium chloride hexahydrate in 1961
- Kun.... topical application of concentrated strontium chloride solution
- penetrated the dentin to a depth of about 20 microns and extended into dentinal tubules





**Potassium nitrate:** The potassium ion hyperpolarizes<sup>[3]</sup> the nerve and stops it from firing. The nerve impulses are thus desensitized and there is no pain.

**Strontium acetate and chloride:** These compounds share a similar chemical structure to calcium. Strontium based toothpastes (acetate and chloride) are therefore able to replace some of the lost calcium and block the exposed tubules in the dentinal tissue. This helps prevent the movement of the fluid within the tubules in response to a sensitivity stimulus that could otherwise cause tooth pain.<sup>[4]</sup>

Some Sensodyne products contain calcium sodium phosphosilicate CSRS (Novamin), which appears to help

# ACKNOWLEDGEMENT

This power point presentation is part of following sites

- ❑ <https://en.wikipedia.org/wiki/Sensodyne>
- ❑ <https://www.livestrong.com/article/248944-ingredients-in-sensodyne-toothpaste>
- ❑ <http://brainstrom.org/a> general overview on dentrifies/