Role Of Fluoride In Dental Health

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Objectives

1-Illustrate The Different Sources Of Fluoride

2-Discuss The Important Amount of Fluoride

3-List The Different Types Of Fluoride

4-List The Toxicological Effects Of Fluoride

5-Describe Fluoride storage And Excretion

INTRODUCTION

Fluoride is a naturally occurring mineral found in water in varying amounts , It can help prevent tooth decay, which is why it's added to many brands of toothpaste and in some areas

Sources of fluoride

Fluorides in water :

Owing to the universal presence of fluorides in the earth's crust, all water contains fluorides in varying concentrations

Fluorides in air :

Fluorides can also be widely distributed in the atmosphere, originating from the dusts of fluoride-containing soils and from gaseous industrial waste

Fluorides in foods and beverages :

- Extensive reviews on food borne fluoride show that the fluoride concentration in unprocessed foods is usually low

- Leaves of the tea plant have a fluoride concentration ranging from 3.2 to 400 mg/kg

How much fluoride you need ?

The amount of fluoride you need each day depends on your age and sex

Life stage	Recommended Amount
Birth to 6 months	0.01 mg
Infants 7-12 months	0.5 mg
Children 1-3 years	0.7 mg
Chlidren 4-8 years	1 mg
Children 9-13 years	2 mg
Teens 14-18 years	3 mg
Adult men +19 / Adult women +19	3 / 4 mg

Different types of fluoride

1

Stannous Fluoride

first formulated successfully into a dentifrice to deliver an anticaries benefit in the 1950s.

2

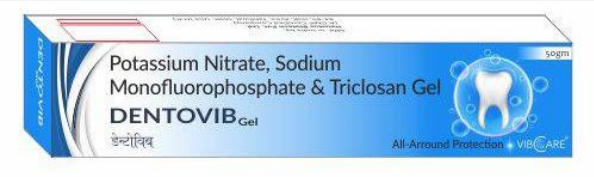
Sodium Fluoride

Sodium fluoride (NaF) is a fluoride salt commonly used in dentifrices and oral rinses.

3

Sodium Monofluorophosphate

Sodium monofluorophosphate (SMFP) was introduced into Colgate's first fluoridated dentifrice



Different delivery systems for professional topical application of fluorides

1 — Gels

2 — Prophlixis paste

3 — Smislow-release and slow-release fluoride agents

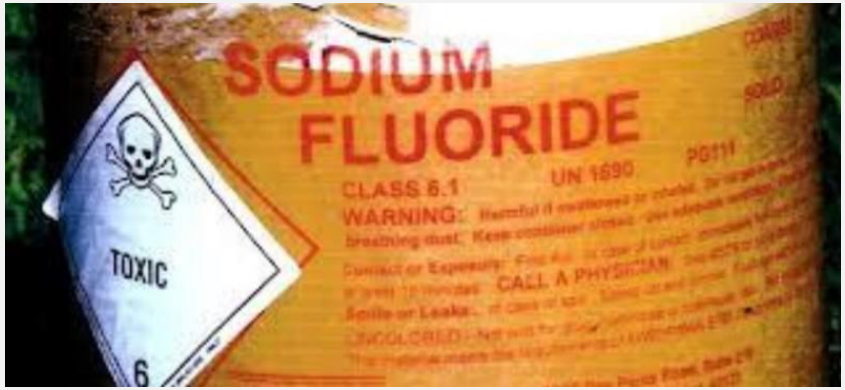
Toxicology :

- **Topical fluoride agents are safe and harmless if used strictly as directed.**

- **The probable toxic dose** defined as the threshold dose that could cause serious or life threatening systemic signs and symptoms necessitating immediate emergency treatment and hospitalization, is **5 mg of F/kg of body weight.**

- **Child death** is likely to occur if a child ingests a fluoride dose in excess of **15 mg of F/kg of body weight**

- It is essential that the fluoride concentrations in dental products **be known** to the persons who use them.



The toxic effects of fluoride are mainly due to 4 different actions :

- Burning the tissues
- Impeding nerve function
- Cellular poisoning
- Skeletal fluorosis

Storage of fluoride :

- Deposited in calcified structures.

Skeletons of older persons contain more fluoride than those of younger ones.

– Amount of fluoride in bone gradually increases with age

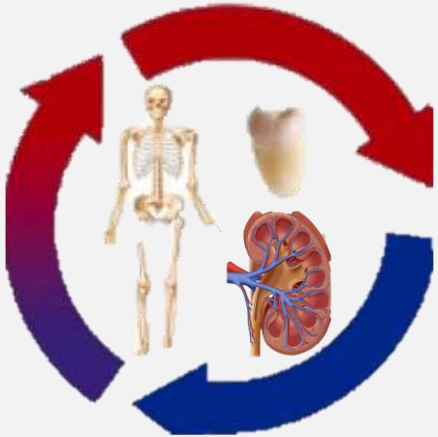
– Greatest during active growth years.

Excretion of fluoride

- The fluoride that is not stored in bone is excreted mainly via the kidneys, with a minimal quantity excreted through feces.

Both **urinary flow** and **pH** are involved in regulating renal clearance of fluoride from plasma.

- Principal route of excretion is urine **(90 – 95%).**
- Remaining **5 – 10%** in the feces.



Conclusion

- Fluoride is a naturally occurring element with multiple implications for human health

- The toxicity & metabolism of fluoride leads to conclusions that at appropriate levels

- Fluoride has been established as a safe & an effective agent in the prevention of dental caries & development of dental fluorosis

References

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Thank you