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Prevalence of Developmental Dental Defects in Children

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INTRODUCTION

Developmental Dental Defects (D3) is a term used to broadly describe anomalies, abnormality, irregularity, deviation from normality that occur during the formation of the tooth inside a child's jaw.

BACKGROUND

There is an estimated projected global incidence of 12 million new cases of dental defects in children per year. They are extremely common with a high prevalence estimated at 15% of the childhood population.

MAJOR TYPES

1. Enamel hypo mineralization/ Chalky Teeth:

- Insufficient deposits of the mineral calcium during tooth development.
- soft and porous, instead of hard and shiny.

2. Fluorosis:

- Occurs due to excessive exposure to Fluoride.

3. Enamel hypoplasia:

- An error in the formation of the enamel
- inconsistency in its thickness
- depressions on the enamel surface.

4. Amelogenesis Imperfecta:

- Genetic errors are usually to blame for this condition that can affect the entire set of teeth.



Figure1 "Molar Hypomin" Shows discoloration of teeth. Created by James Bruke.



Figure 2 "Fluorosis" Shows teeth which has been exposed to excessive fluoride. Created by Ken Perrott(2017).



Figure 3 "Enamel Hypoplasia" shows error in the formation of the enamel. Created by Wikipedia(2019).



Figure 4 "AL" Shows genetic mutation in enamel surface formation. Created by Genetics Home Reference(2019).

PREVALENCE:

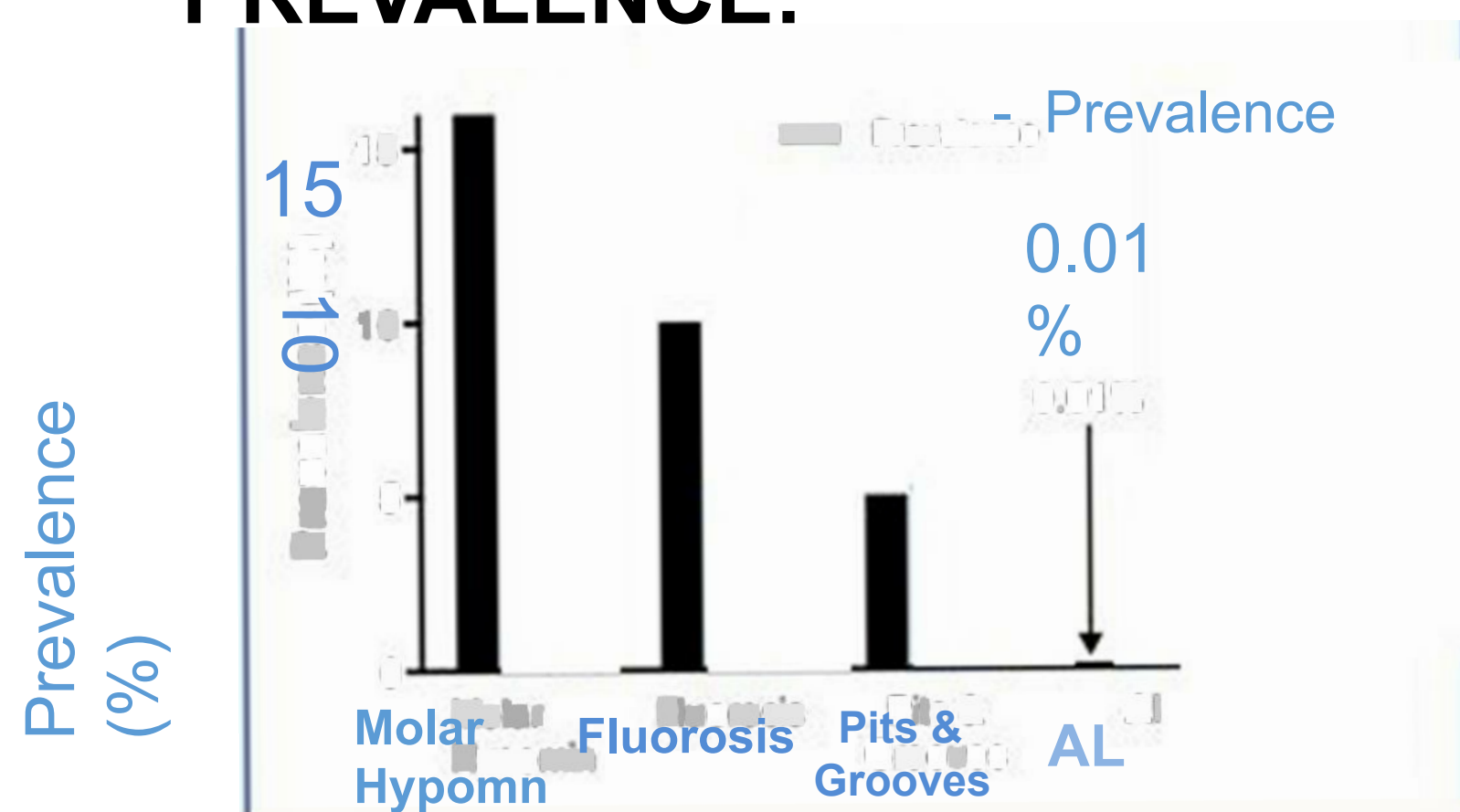


Figure 5 "Rate of Prevalence of Developmental Dental Defects" Created by The D3 Group.

Molar Hypo mineralization has the highest prevalence. Fluorosis is the commonest D3 after Molar Hypo mineralization, Enamel hypoplasia on 3rd and AI is least common with 0.01%.

COMPARING MAJOR D3S

	Enamel Hypo Mineralization	Fluorosis	Enamel Hypoplasia	Enamel Hypoplasia
Occurrence	1-in-6	1-in-10	1-in-20	1-in-10,000
Teeth Affected	molars (+ front teeth)	Front teeth mostly	Any tooth	All teeth
Risks	Toothache, decay	Cosmetic issues mostly	Decay, cosmetic issues	Toothache, decay, cosmetic issues
Dental Consequences	Fillings, extractions,	Cosmetic dentistry	Cosmetic dentistry, fillings	Fillings, extractions, tooth replacement
Causes	Infantile illness	Fluoride excess	Infantile illness	Genetic mutation

CONCLUSION

Therefore, despite major advancement regarding nature of defects and genes involved in enamel defects, further research is required to fill the gaps. Currently, Enamel defects are managed by treating symptoms. Future research should also focus on development of suitable techniques and aesthetic restorative materials that can bond effectively to defected enamel.

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Reference for Images

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