

# Effect of the Fluoride on Inhibition of Enamel Demineralization-Clinical Success

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**Abstract:** *Aim: To investigate the effect of preventive local method of fluoride spray application in dental caries of permanent dentition. Materials and Methods: For the permanent dentition treatment of the age group 12 years old we used the spray preparation of fluoride 5% Sodium Fluoride. In the control group we had initially 198 individuals, 80 females (40.4%) and 118 males (59.6%). In the fluoridation group we had 157 individuals, 63 females (40.1%) and 94 males (59.9%). Results: Statistical analysis showed significant difference between control group and fluoridation group before and after fluoride treatment. The values of ( $p < 0.05$ ) were statistically significant. The mean of caries experience for the sample in the control group is DMFT = 2.9. The mean for the caries experience for the sample in the fluoridation group was DMFT = 2.7. The mean of caries experience for the sample in the control group in the end is DMFT = 3.07. The mean experience of the caries in the sample in the fluoridation group is DMFT = 2.33. In the fluoridation group we notice a decrease of the mean value of DMFT index from 2.7 to 2.33. The data collected from the applications and was analyzed on statistical program SPSS 18. Conclusion: The results obtained in the present study showed that use of fluoride spray affectivity inhibit the risk of caries disease of the children under experimental conditions.*

**Keywords:** Sodium fluoride, dental- caries, DMFT, mix dentition.

## 1. Introduction

Caries is a multifactorial disease associated with the destruction of the tooth structure [1]-[4]. The cariogenic activity of the food depends on the containing elements and is affected from various factors [5]. Apart from the cariogenic content of the food, an important role has the way of food consumption [6]. The risk factors are important to know, and the presence of the protective factors as the oral hygiene and the use of fluoride in various forms and controlled doses [7] - [11]. The studies show that the higher the concentration of fluoride in saliva and the dental plaque, the lower the caries incidence [11]-[12].

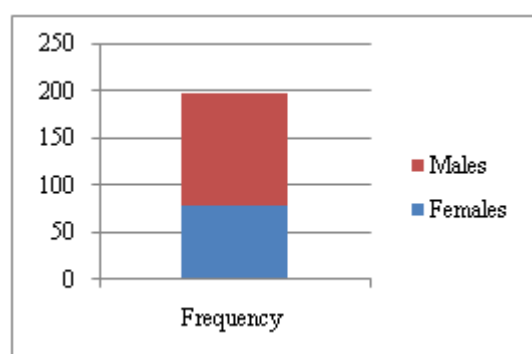
## 2. Aim

To investigate the effect of preventive local method of fluoride spray application in dental caries of permanent dentition.

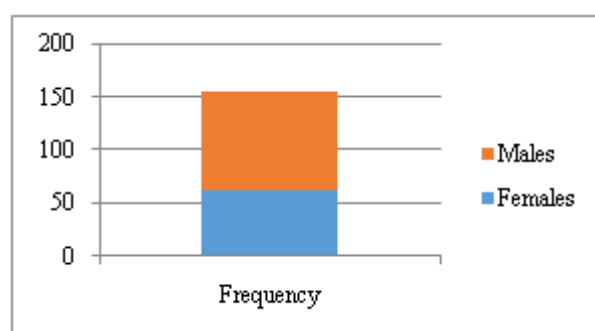
## 3. Material and Methods

For the permanent dentition treatment of the age group 12 years old we used the spray preparation of fluoride 5% Sodium Fluoride 22.600 ppm. In the control group we had initially 198 individuals, females 40.4% and males 59.6%. In the fluoridation group we had 157 individuals, females 40.1% and males 59.9%. The frequency of the caries experience in the control group and the fluoridation group distributed according the minimal and maximal values of DMFT index (decayed teeth, filled teeth and extracted teeth). The data collected from the applications and was analyzed on statistical program SPSS 18.

## 4. Results

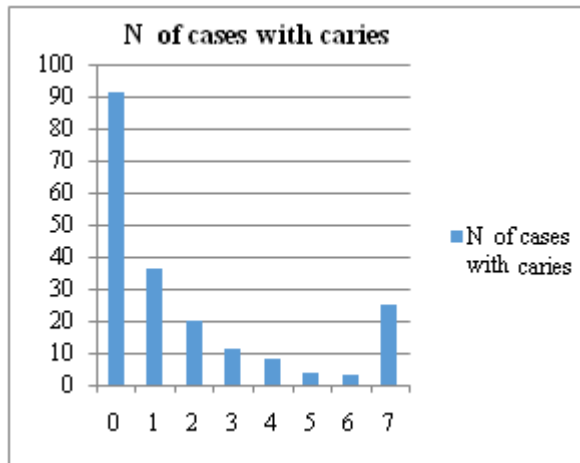


**Figure 1:** The number of individuals in the control group in the beginning of the study was N = 198. Gender distribution in the control group



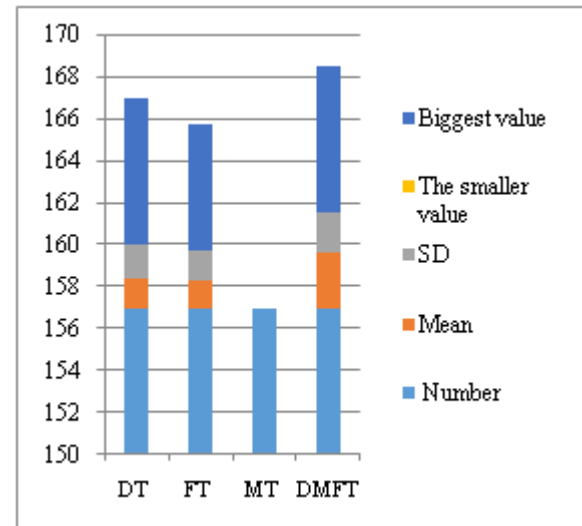
**Figure 2:** Gender distribution in the fluoridation group

The number of individuals in the fluoridation group in the beginning of the study was N = 157. Frequency of percentages of the number of the teeth with caries in the control group at the beginning of the study.

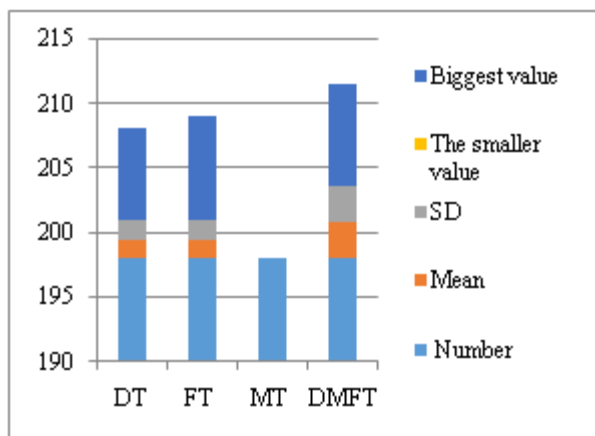


**Figure 3:** Control group at the beginning of the study

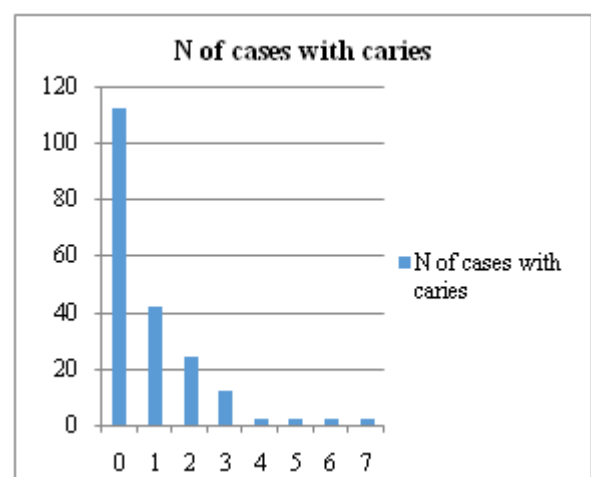
DMFT: decayed teeth, filled teeth and extracted teeth in the control group at the beginning of the study.



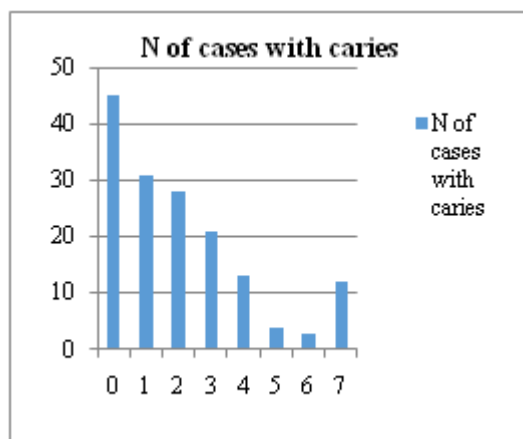
**Figure 6:** The mean for the caries experience for the sample in the fluoridation group was DMFT = 2.7



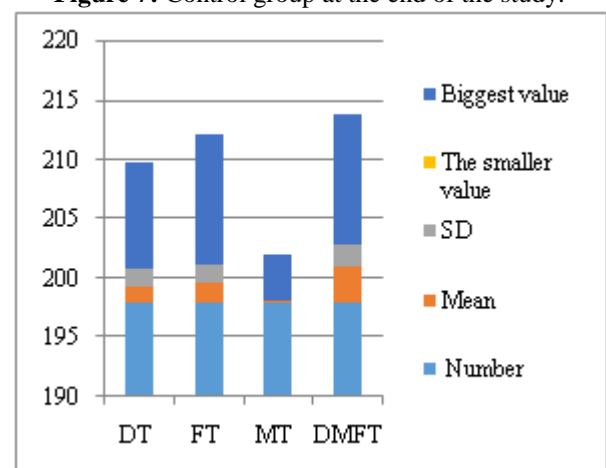
**Figure 4:** Presents the mean number of permanent teeth with dental caries DT= 1.4 mean fillings FT = 1.5. The mean of caries experience for the sample in the control group is DMFT = 2.9.



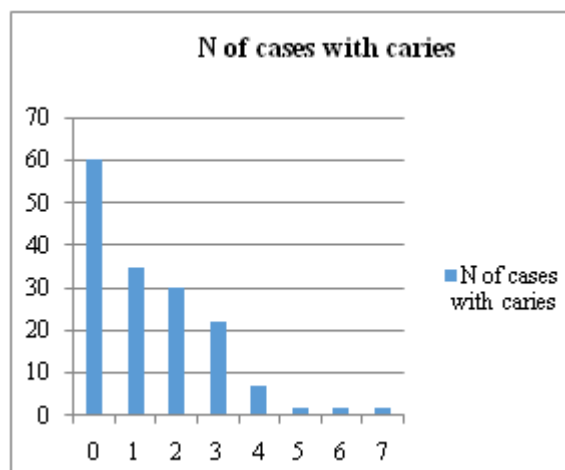
**Figure 7:** Control group at the end of the study.



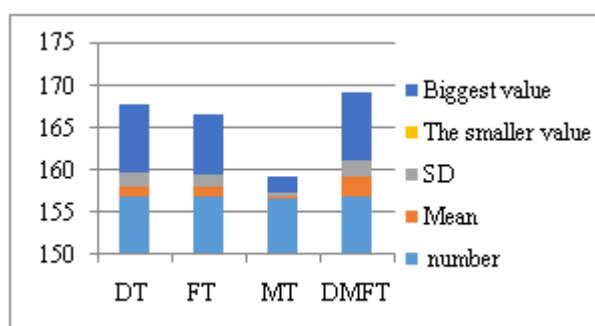
**Figure 5:** Frequency of percentages of the number of the teeth with caries in the fluoridation group at the beginning of the study.



**Figure 8:** The descriptive data for the permanent number of teeth (DT) decayed , filled (FT), extracted (MT) and DMFT index in control group at the end of the study.



**Figure 9:** Frequency of percentages of the number of the teeth with caries in the fluoridation group at the end of the study. The number of individuals in the fluoridation group at the end of the study is N =157.



**Figure 10:** The mean for the caries experience for the sample in the fluoridation group was DMFT = 2.33

## 5. Discussion

In the control group and the fluoridation group in the beginning of the study we notice a high caries experience in the values of DMFT (control) = 2.9 and DMFT (fluoridation) = 2.7. In the fluoridation group we notice a decrease of the mean value of DMFT index from 2.7 to 2.33. The cause of this condition is the absence of a preventive program. In Western European countries we notice a totally different situations because the data of the mean of DMFT index show that the caries experience is low for example Italy 1.1, Netherland 0.8, Great Britain 0.7, Germany 0.7. Weintraub and Ramos-Gomez in their study in temporary dentition conclude for a preventive fraction varying from 53% in cases where fluoride spray is applied only once to 93% when it is applied 3-4 times during a time period of 2 years [14]. In an Australian 2 year study there is a comparison of the impact of fluoride spray application and counseling in dental caries [15]. At the end of the study in the counseling group and the spray group resulted 24-36% less teeth caries surfaces [15]. The use of fluoride spray based on the risk of caries disease of the population would reduce the costs and improve the prevention of this disease. Studies show that fluoride spray may be more effective than other ways of professional application of fluoride in demineralization of initial caries lesions [15].

## 6. Conclusion

The results obtained in the present study showed that use of fluoride spray 5% NaF affectivity inhibit the risk of caries disease of the children under experimental conditions.

## 7. Acknowledgment

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