

Editorial

Dermatoglyphics: a tool for dental caries predictor?

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The term dermatoglyphics means the study of the patterns formed by the dermal ridges at the end of the fingers and palms of the hands [10]. These dermatoglyphics' patterns have been recently considered a window for dental analysis. This is possible because the dermal ridges appear during the same time as that when tooth formation in intrauterine life begins [5, 9, 11, 13, 16]. Thereby, this editorial presents some concepts and studies that investigate dermatoglyphics as a tool for dental caries predictor.

The first aspect that should be presented to the readers is regarding the dermatoglyphics. Cummins and Midlo's methodology is considered standard in dermatoglyphics studies [7, 15]. This method consists of counting the frequency of three fingerprint stereotypes among the ten digits: loops, whorls, and arches, as shown in the Figure 1.

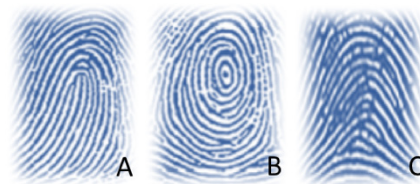


Figure 1 - Conventional dermatoglyphics: (A) loop, (B) whorl, (C) arch [14, 17]

The evaluation of the association between dermatoglyphics and dental caries is based on the frequency of occurrence of fingerprint patterns among subjects with high dental caries and in subjects with low dental caries or without caries, using decayed, missing, and filled teeth (DMFT)/dmft index. The results of most studies tend to show a high loop pattern in low dental caries subject groups [3-6, 8, 18, 19, 20-23], while the high caries group show more whorl patterns [1-3, 6, 18, 20, 22, 23]. The arc pattern frequency has appeared in both groups with no significant differences [2, 4, 12].

Some other investigations in this field were also performed. Veeresh *et al.* [22] evaluated the association between dental caries and dermatoglyphic patterns and their association with environmental factors such as salivary pH. Moreover, in this work caries-free people showed an inflated frequency of loops and decay score in whorls pattern subjects. The authors also observed that the total finger ridge count was higher in individuals with high DMFT scores, and salivary pH was inversely proportional to the DMFT score.

Dawasaz *et al.* [8] assessed relative tooth enamel thickness using cone beam computed tomography images and correlated it with caries and dermatoglyphics. This study observed a greater thickness of tooth enamel to lower dental caries development. In addition, loop pattern was predominant in the thicker enamel group, and microbiological analysis, as well as its association with dental caries and dermatoglyphic in children, was performed. The microbiological levels of *Streptococcus mutans* [18, 20] and *lactobacillus* [18] were evaluated qualitatively and quantitatively. They found that whorls showed a significant and positive association with caries, *S. mutans* and *lactobacillus* level [18, 20], whereas ulnar loops and total ridge count showed negative association [20].

However, some studies did not find such association between dermatoglyphic patterns and caries disease [2, 12]. The reasons for this disparity in results maybe the different classifications used among

the studies to analyze the fingerprints and the sample size of the studies [2]. Genetic and racial differences of the subjects could also explain the dissimilarity observed in the studies [12].

Dermatoglyphics patterns have the potential to be used as markers for dental caries. Dermal patterns once formed are unchanged for life and constitute the genetic basis of each person [11, 13]. Record of dermatoglyphics can be performed quickly, inexpensively, and without causing trauma to the patient. For decades, researchers have recognized dermatoglyphics as a powerful tool for medical and genetic diagnosis. The literature gives us hope in predicting dental caries using dermatoglyphics before the onset of the disease, allowing sufficient time to implement preventive measurements and personalized dental treatment.

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