

Evaluation of the susceptibility to pigmentation of orthodontic esthetic elastomeric ligatures

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Editor's summary

The increased demand for a treatment that aims a more pleasing esthetics, forced fixed appliances to have esthetic accessories, such as elastic ligatures in colors that are similar to esthetic brackets. With the aim of maintaining the esthetic appearance for the longest time possible, and assuming that these ligatures undergo pigmentation when exposed to some types of foods, it is important to assess the pigmentation susceptibility of these materials to these types of foods. Thus, the objective of this study was to evaluate, *in vitro* the susceptibility to pigmentation of esthetic elastic ligatures (clear and pearl color) of different brands. A total of 60 ligatures were evaluated divided into twelve groups according to the brand used and the normal or stretched condition. The groups were divided into: Morelli clear, TP Orthodontics clear, American Orthodontics clear, Unitek/3M clear and American Orthodontics pearl and Unitek/3M pearl, separated as to the normal and the stretched condition (n = 5). The assessment of staining changes was performed by means of digital photography and computer analysis using the Adobe Photoshop software.

Standardized digital photographs were taken at the times T_0 - before the pigmentation process, with the ligatures in normal state, and T_1 - after pigmentation process, which lasted 5 days. The pigment solution used was composed of artificial saliva and foods with staining potential. At time T_1 the ligatures were in the stretched condition and in normal condition (without stretching). The results demonstrated that esthetic elastic ligatures are susceptible to pigmentation. Among the commercial brands evaluated, TP Orthodontics clear and American Orthodontics clear were the most stable, but Unitek/3M pearl demonstrated statistically significant changes in all assessed variables. Thus, the authors concluded that the evaluated esthetic ligatures are likely to pigmentation, with no difference among them in terms of their condition during the process of pigmentation, i.e. whether stretched or not, except for TP Orthodontics clear, which pigmented more when stretched. Despite this tendency to pigmentation, TP Orthodontics and American Orthodontics clear ligatures were more stable regarding this susceptibility to color change. On the other hand, Unitek/3M pearl presented greater propensity to pigmentation.

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