Micro-invasive approach to controlling white spot lesions

Caries infiltration is an effective treatment in controlling white spot lesions of non-cavitated active carious lesions in vestibular areas. Aesthetic improvement of carious white spot lesions is based on the masking effect of these enamel lesions by resin infiltration, which optically adapts the appearance of the lesions to the surrounding healthy enamel. Active lesions or post-orthodontic white spots immediately after removal of fixed orthodontic appliances often have a very thin surface layer. These types of lesions are therefore especially indicated for infiltration treatment and their aesthetic appearance can be improved easily and effectively.

Infiltration of the lesion is carried out with a low-viscosity resin. The resin is applied to the lesion to infiltrate it, driven by capillary forces. The capillaries of a carious lesion are extremely thin, a penetration time of 5 minutes is required to ensure complete infiltration of the lesion. Caries infiltration creates a diffusion barrier for cariogenic substrates inside the lesion, unlike sealing, which only forms a barrier on the surface. This procedure prevents the creation of artificial plaque retention areas and the formation of marginal gaps.

A positive side-effect of caries infiltration is that the enamel lesions will lose their whitish or brownish appearance, thereby neutralising unfavourable aesthetic effects. Once the micro-porosities have been filled, the light refraction behaviour adapts to that of the surrounding healthy enamel. The light refraction behaviour is described by the refraction index.

Academy of Osseointegration

Contact Info

Prof. Marcio Garcia dos Santos
Assistant Professor in Restorative Dentistry at the University of São Paulo in Brazil. He can be contacted at marciogarciasanto@yahoo.com.br.

Contact Info

Prof. Guilherme Martinelli Garone
Assistant Professor in Restorative Dentistry at the University of São Paulo in Brazil.