

## Beautiful occlusion and stable results with Early Orthodontic Treatment

- Early orthodontic treatment aims to detect malocclusions at an early stage and stop their development. The silicone eruption guidance appliance has been specifically developed for the needs of early orthodontic treatment. It guides a child's erupting teeth and jaw growth as well as widens dental arches. Eruption guidance appliance is mainly used at night, says Professor Emeritus **Juha Varrela**.

The best time to start eruption guidance appliance treatment is at the beginning of the early mixed dentition, i.e. at around 6 years of age, when the lower front teeth are about to erupt, but before the upper front teeth erupt. Varrela emphasizes that the malocclusions of early mixed dentition are usually milder and the treatment therefore easier compared to the treatment given during the later occlusion development stages. Early eruption guidance appliance treatment also significantly lowers the costs of orthodontic treatment, because fewer treatment visits are needed, and those visits are shorter in duration than the treatment visits of orthodontic treatment performed with fixed appliances. The biggest cost factor of orthodontic treatment is the treatment time spent at the orthodontist's clinic. Less frequent treatment visits also put less stress on the patient and their family.

In Finland, the LM-Activator™ eruption guidance appliance has been a part of orthodontic treatment for 20 years already, and it has been used for the treatment of occlusion of thousands of Finnish children. LM-Activator™ effectively corrects various types of malocclusions. It is suitable for the treatment of overjet, vertical overbite, deep bite, anterior open bite, crowding, distal bite and anterior crossbite. By controlling the eruption of the teeth and the growth of the jaws, the appliance corrects the vertical, sagittal, and transverse relations of the upper and lower dental arches.

### Effectiveness of the eruption guidance appliance demonstrated by a study

An extensive study conducted in Finland showed that by using an eruption guidance appliance as an early orthodontic treatment appliance, it was possible to correct already developed malocclusions and prevent them from getting worse. This way it was possible to avoid the need for more challenging and expensive orthodontic treatment in later stages. The study included 167 children who received orthodontic treatment with an eruption guidance appliance during the early mixed dentition period, and a control group of 104 children. The occlusion of the children treated with the eruption guidance appliance improved significantly, while the occlusion of the children in the control group worsened.

“The results indicate that orthodontic intervention with the eruption guidance appliance in the early mixed dentition is effective for treating malocclusions with Class II or Class II tendency, excess overjet, deep bite, open bite, crowding, anterior cross-bite, or buccal crossbite.

In the middle of the mixed dentition stage, there was little – if any – need for treatment in the treatment group compared to the control group, where the frequencies of malocclusions were more common. None of the children in the treatment group were considered to need further treatment.”

Orthodontic intervention in the early mixed dentition: A prospective, controlled study on the effects of the eruption guidance appliance. K. Keski-Nisula, R. Hernesniemi, M. Heiskanen, L. Keski-Nisula, J. Varrela. American Journal of Orthodontics and Dentofacial Orthopedics: 2008;133:2: 254-260. <https://doi.org/10.1016/j.ajodo.2006.05.039>

Class II treatment in early mixed dentition with eruption guidance appliance: effects and long-term stability. K. Keski-Nisula, L. Keski-Nisula, J. Varrela. European Journal of Orthodontics: 2020;42:2:151-156. <https://doi.org/10.1093/ejo/cjz092>

## Easy and straightforward orthodontic treatment method for young patients

Most children will easily adapt to using the LM-Activator™ while sleeping. Usually using the eruption guidance appliance just at night during the early mixed dentition is enough to achieve the desired treatment results. If the malocclusion is more severe, the effect of the appliance can be increased by using it during the day as well.

The cooperation between the patient and the treatment team is essential for the orthodontic treatment. Although younger children usually cooperate better than older children, the orthodontist is responsible for being able to motivate the patient in the right way, regardless of the child's age. Parental support is also required when a young child is learning how to use a removable appliance. Motivational materials, such as posters and user diaries, to support the development of cooperation and the continuity of care are also made available.

Orthodontic treatment with the LM-Activator™ eruption guidance appliance is most optimal during the early mixed dentition. The treatment usually lasts 2–3 years and is followed by a retention phase. In this phase, the same appliance can be used, for example, 2 nights a week. Orthodontic treatment is always followed by a retention phase, which aims to maintain the treatment results until the teeth and jaw structures adapt to their new situation and until there is no longer a risk of the malocclusion returning.

## Early Orthodontic Treatment enables treating a larger number of patients

- In principle, children's orthodontic care should be supported by government, just like children's dental care in general. When orthodontic treatment is done at the right time the development of a functionally and aesthetically good occlusion can be ensured, says Juha Varrela.

By treating malocclusions in the early stages of occlusion development, a biologically better, stable occlusion can be achieved, and it is also possible to provide treatment to a wider number of patients with the same resources. The treatment effect of the eruption guidance appliance is based on controlling the growth of the jaws and the eruption of the teeth. If orthodontic treatment is delayed, the hard and soft tissues of the face have already adapted to the malocclusion, and this in turn increases the risk that the malocclusion will return after finishing the treatment. All parents wish their children would have a functional occlusion and a beautiful smile without having to have any of their teeth extracted. The aesthetic aspect of orthodontic treatment is sometimes overlooked, but studies show that dentition plays an important role in the development of a child's self-image and self-esteem.

- It is important to recognize the benefits of early orthodontic treatment. Decision-makers should understand that with the help of early treatment, orthodontic treatment would be more cost-effective and comprehensive, Varrela emphasizes.

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## Who is Juha Varrela?

Juha Varrela is a Finnish dental specialist in orthodontics and a pioneer of early orthodontic treatment research and education.

He has:

- Published studies related to early treatment together with Katri Keski-Nisula
- Been a dentist for approx. 48 years and specialized in orthodontics in 1986
- Worked as a professor of orthodontics at the University of Turku and the University of Toronto
- Been interested in early treatment ever since he saw how good results can be achieved with it.
- Given lectures on early orthodontic treatments internationally, for instance in the United States, Japan, Colombia, and China

*Juha Varrela*

*Professor Emeritus of Dental Development and Orthodontics*