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## Morphometric and Functional Parameters of the Facial Part of the Upper Jaw in Children

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### ABSTRACT

There are many orthodontic devices that are used to treat distal occlusion of the dentition. According to the principle of operation, the devices are divided into devices of mechanical and functional (functionally guiding and functionally acting) actions, as well as devices of a combined type (combined). The history of functional devices dates back to 1879, when Norman Kingsley introduced a device for extending the lower jaw. The removable Kingsley plate with clasps on the molars can be considered a prototype of functional devices with a vestibular arch and a bite pad. According to his description, "the purpose of the treatment was not to achieve protrusion of the lower teeth, but to change the position of the lower jaw in the case of its posterior position."

### KEYWORDS

Edward Engle (1855-1930) used a pair of locking rings located on the first molars of the upper and lower jaw to push the lower jaw forward. It is believed that Wilhelm Roux was the first to begin studying the influence of natural forces and functional devices on the anatomy of the maxillary system (1883). His work became the basis for general orthopedic and functional dental principles. Later, Karl Goyl saw the potential of Roux's hypothesis and explained how functional apparatuses work through the activity of orofacial muscles. Pierre Robin (1902) was the first doctor to use functional orthopedic devices for the treatment of malocclusion.

### INTRODUCTION

There are many orthodontic devices that are used to treat distal occlusion of the dentition. According to the principle of operation, the devices are divided into devices of mechanical and functional (functionally guiding and functionally acting) actions, as well as devices of a combined type (combined). The history of functional devices dates back to 1879, when Norman Kingsley introduced a device for extending the lower jaw. The removable Kingsley plate with clasps on the molars can be considered a prototype of functional devices with a vestibular arch and a bite pad.

According to his description, "the purpose of the treatment was not to achieve protrusion of the lower teeth, but to change the position of the lower jaw in the case of its posterior position." Edward Engle (1855-1930) used a pair of locking rings located on the first molars of the upper and lower jaw to push the lower jaw forward. It is believed that Wilhelm Roux was the first to begin studying the influence of natural forces and functional devices on the anatomy of the maxillary system (1883). His work became the basis for general orthopedic and functional dental principles. Later, Karl Goypl saw the potential of Roux's hypothesis and explained how functional apparatuses work through the activity of orofacial muscles. Pierre Robin (1902) was the first doctor to use functional orthopedic devices for the treatment of malocclusion.

His device had an effect on muscle activity, thereby changing the spatial arrangement of the jaws. Robin's monoblock was actually a modification of Kingsley's removable maxillary apparatus. Pierre Robin developed his monoblock specifically for children with congenital malformation of the maxillofacial region, accompanied by a triad of clinical signs: • underdevelopment of the lower jaw; • glossoptosis (underdevelopment and sinking of the tongue); • cleft palate. This congenital defect was called Pierre Robin syndrome. In 1909, Viggo Andresen (1870-1950) installed a removable upper jaw retainer like a Howley device before his daughter left for the summer holidays.

**Conclusion.** He placed an arc in the area of the teeth of the lower jaw, guiding the lower jaw forward by about 3-4 mm. Upon his daughter's return, he was surprised to see that wearing the device at night eliminated the distal occlusion and the resulting new position of the lower jaw was stable. Applying this technique to other patients resulted in significant sagittal correction, which he could not achieve with conventional non-removable devices. Initially, the Andresen activator was a passive device consisting of a plastic base covering the palate and teeth of both arches, which changed the position of the lower jaw in order to correct distal occlusion. The new Andresen device was not widely used at the beginning, since removable devices were not particularly popular at that time. In 1925, Andresen began developing a simple treatment method for Norwegian children for the University of Oslo. He turned his retainer into an orthodontic device, using a wax template to register the anterior position of the lower jaw in a constructive bite.

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