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# Skeletal and dentoalveolar effects in patients with Class II malocclusions using Twin Block appliance

## A review of literature

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# Skeletal and dentoalveolar effects in patients with Class II malocclusions using Twin Block appliance

## A review of literature

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### Abstract

Functional appliances therapy have been shown to be an effective treatment protocol for growing Class II patients, through a combination of skeletal and dentoalveolar effects. Many literature studies revealed a significant increase in mandibular length and a minimum restriction on the maxillary growth in Class II malocclusion after Twin Block therapy. Reduction of overjet, palatal tipping of the upper incisors, labial tipping of the mandibular incisors, vertical and sagittal correction of the molar relationship are dentoalveolar effects produced by Twin Block appliance.

### Introduction

Class II malocclusion is a common dysgnathia in orthodontic practice and studies reveal it is found in one-third of the population. Class II functional therapy includes a wide variety of orthodontic devices that stimulate multiple muscle groups responsible for the function and mandibular position. The result is an adaptive skeletal growth to correct the skeletal discrepancy.

The Twin Block appliance was introduced by William Clark in 1988 and it is the most popular functional appliance in the United Kingdom. Twin Block appliance can be realized with many modifications depending on the characteristics of the malocclusion. It consists of maxillary and mandibular removable plates with acrylic bite blocks that contact at an angle of 70 degrees posturing mandible in the correct position. These two unattached plates would make Twin Block more acceptable to patients than other removable functional appliances, which are generally monoblocks, considering more freedom they have in mandibular movements. Delta clasps improve the retention of the appliance. A labial bow is rarely required to prevent retraction of upper incisors by the lips.

### Methods

Our review was conducted on the electronic literature database, Pubmed, using specific keywords. The period considered was from 1998 to 2016. Keywords: Twin Block; functional therapy; Class II malocclusion; skeletal effects; dental effects.

### Discussion

The main objective of functional therapy in Class II malocclusion is the achievement of an adequate intermaxillary relationship by promoting the mandibular growth. Many authors have found a significant increase in mandibular length measured from distance Art-Pg, Art-B (3,4,5,10), Co-Po, Co-B (10) and Co-Gn (17) and forward movement of point Pg. Lund and Sandler and other authors claim that it is impossible to know whether the raise in Art-Pg depends on the increase in mandibular length or on the repositioning of the mandible (3,12). The mandibular growth can be demonstrated also by the significant increase in SNB angle in patients treated with Twin Block appliance (3,4,5,11,15) and the reduction in ANB angle (3,7).

According to some authors Twin Block appliance would be able to limit the growth of the maxilla (15). However, several studies reveal that a restraining effect by Twin Block on the maxilla could not be demonstrated (3).

Many studies showed that Twin Block appliance produce a significant reduction of overjet in Class II, Division 1 malocclusions, through a combination of skeletal and dentoalveolar effects. Dentoalveolar changes produced by Twin Block therapy consist in retroclination of the maxillary incisors and proclination of the mandibular incisors, distal movement of upper molars and mesial movement of lower molars for the correction of a Class II molar relationship. An acrylic capping to cover the edges of mandibular incisors minimizes the tipping of incisors and promotes skeletal effects (4).

The versatility of Twin Block appliance consists in the ability to promote or not the eruption of molars depending on the facial divergence (3). Some authors found an increase in vertical facial dimension after

Twin Block therapy, but the ratio lower anterior facial height/ total anterior facial height remained generally unchanged (4,5).

## Conclusions

Twin Block appliance produces a significant increase in mandibular length. Dentoalveolar changes mainly consist in the reduction of overjet and in the improvement of the molar relationship.

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