

# Study of the dento-alveolar effects of Beneslider using three-dimensional superimposition

Damien BRÉZULIER, Alice PHILIPPI, Olivier SOREL

Université de Rennes 1

## Objective

To analyze the dento-alveolar effects of the Beneslider, a device for distalizing maxillary molars on palatal temporary anchorages, by combining CBCT data and digital impressions on an adolescent population.

## Material & Method

Scheme of the study: prospective, therapeutic, monocentric (unité fonctionnelle Orthopédie-Dento-Faciale, CHU Rennes)

### Sample

#### Inclusion criteria :

- Classe II Angle malocclusion
- Indication for maxillary molars distalization
- Normo or hypodivergency (GoGn < 32°)
- Limited mandibular crowding (Nance < 5mm)
- Good oral hygiene (Index Loe < 2)

#### Non inclusion criteria :

- Other orthodontic device in the mouth
- Cranio-facial pathology

10 patients included

2 patients excluded :

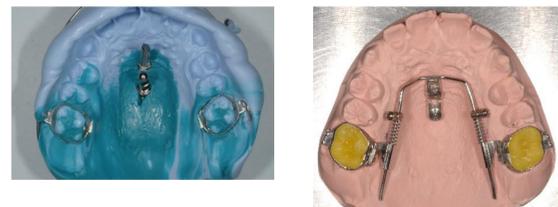
- The recovery of the device
- Non respect of the protocol

8 patients  
16 teeth analyzed

### Clinical protocol

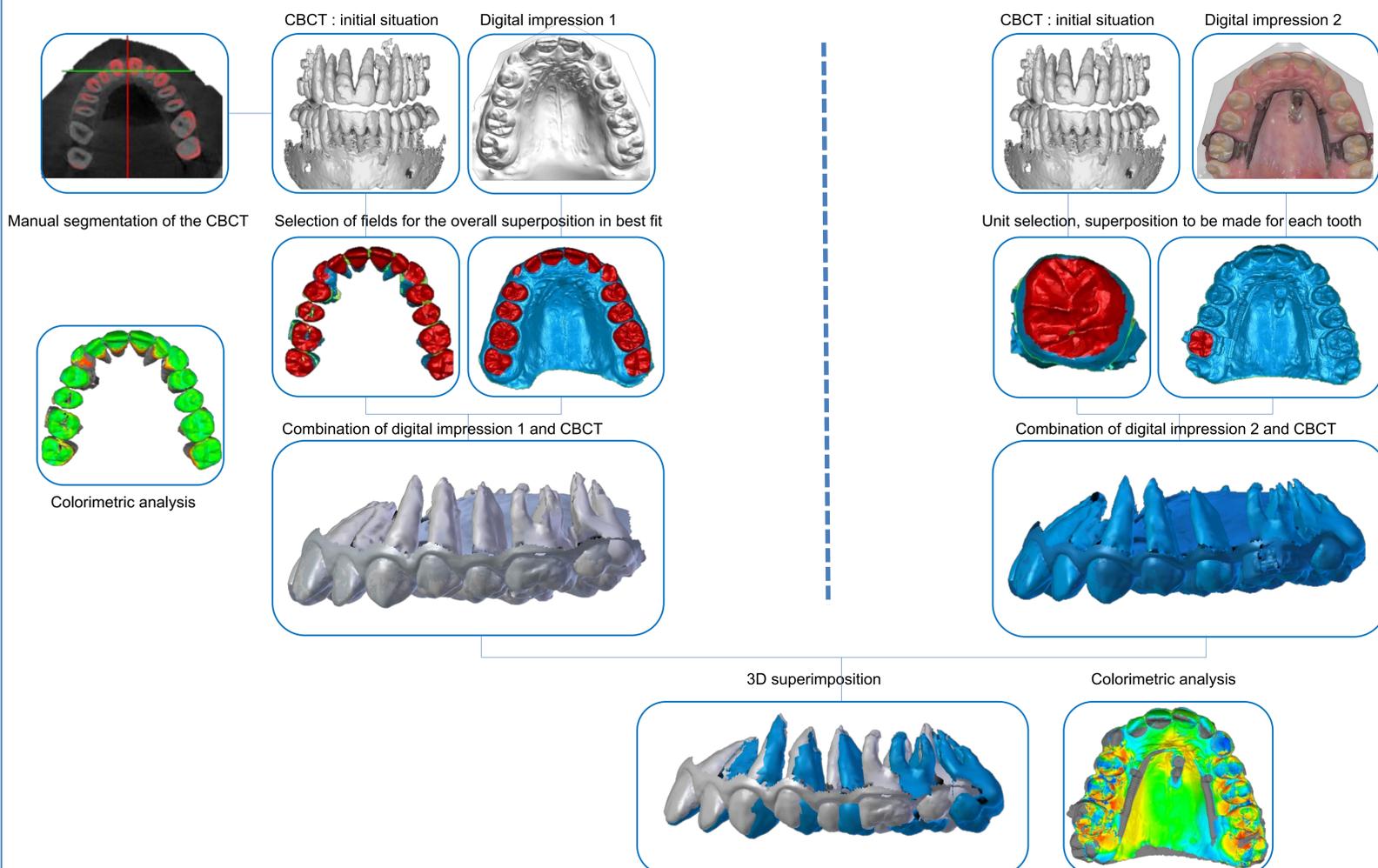


Insertion of two Benefit® screws using a guide



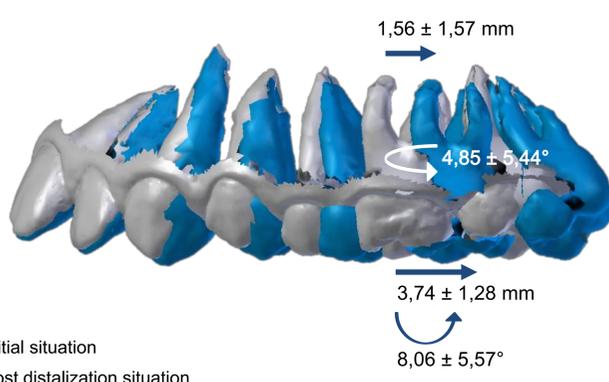
Lab : PVS impression with analogs and designed appliance

**Method for collecting data :** Data from the CBCT and the optical impression can be combined. This phase, carried out prior to the treatment established the correspondence between the roots and crowns resulting from the CBCT and the crowns resulting from the intra-oral scan. Subsequently, an optical impression is sufficient to evaluate the position of the roots.



## Results

### Two-dimensional results for the 1st molar



### Three-dimensional results :

#### 1st molar :

Translation : 2,53 ± 1,16 mm  
Version : 11,7 ± 5,31 mm

#### 2nd premolar :

Version : 11,01° ± 4,12°  
apical displacement is not significant.

#### Incisor :

Non-significant displacement

## Conclusion

The Beneslider is a reliable device for molar distalization with a translational movement associated with a slight version.

Its main interest is to obtain a class I molar relationship without the use of any other appliance, which reduces bracket duration.

It does not implicate the lower arch, which is particularly noteworthy for patients whose mandibular periodontium is thin contra-indicating the wearing of inter-maxillary elastics.

### References:

- Wilmes B, Drescher D. Application and Effectiveness of the Beneslider: a Device To Move Molars Distally. World J Orthod. 2010;11(4):331-40.  
 Wilmes B, Drescher D. A miniscrew system with interchangeable abutments. J Clin Orthod. 2008;42 :574-580.  
 Lee RJ, Weissheimer A, Pham J, Go L, De Menezes LM, Redmond WR, et al. Three-dimensional monitoring of root movement during orthodontic treatment. Am J Orthod Dentofac Orthop. 2015;147(1):132-42.