

## Key Words

Palatal Anchorage  
Digital Orthodontic  
Blu Sky Plan  
Mesh Mixer



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# HIGH technology and LOW costs in palatal anchorage: *mission (im)possible?*



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## Aim

Palatal skeletal anchorage is a clinical reality more and more used by orthodontists. However the costs, especially of initial design, can limit the use of palatal devices.

The purpose of this work is to illustrate, through the use of videos, 2 of the most common softwares on web with free license that have orthodontic applications and can be used to reduce costs

## Materials and Methods

Two license-free and multiplatform softwares have been tested. The first is **Blue Sky Plan** (Blue Sky Bio, LLC 2019), a software that was born as an implant design in the surgical field. DICOM files and STL files can be matched in an extremely simple and intuitive way, then it's possible to insert virtually full-custom TADs into the project. The creation of the surgical guide is simple and intuitive, can be exported in .stl format and 3d printed.

The second software is **Meshmixer**, a free 3D modeler distributed by Autodesk. It is developed to model and repair three-dimensional meshes: it can modify surfaces, repair them, combine them, color them and even create ad-hoc support structures.

10 patients were analyzed (8 females, 2 males, mean age 21.9 +/- 8), to whom a palatal device with skeletal anchorage was applied on 2 miniscrews each. The 20 total miniscrews were inserted using a surgical template designed by combining the 2 described softwares



## How does BSP work?

Scan the QR code with your smartphone and watch the video on the main features of Blu Sky Plan

[www.bluskyplan.com](http://www.bluskyplan.com)

*blu sky plan*



*meshmixer*

## How does MM work?

Scan the QR code with your smartphone and watch the video on the main features of Meshmixer

[www.meshmixer.com](http://www.meshmixer.com)



## Results

The software-created guides made it possible to insert the palatal miniscrews in an absolutely precise way, parallel to each other and compliant with the project. There was no surgical side effects, and all 20 miniscrews were stable at the end of the orthodontic movements.



## Conclusions

There are many free softwares that can be easily used by the orthodontists in everyday practice. For many of these, free online tutorials are available on web that allow the user to quickly learn the functions and commands of the programs in total autonomy and in a short time.

**These new generation of programs will help to create a new horizons and new perspectives in the orthodontics.**

The future is in front of us.

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