

Succeed with your scans for the “simplified guided surgery”

INTRODUCTION

The use of the HYGITECH surgical guide software requires the obtaining of computer files adapted and readable by the latter. The whole of this document, consisting of independent communication forms, will allow you to know and carry out appropriate actions or supply work support to professional associates: prosthesis laboratories and radiology centres.

PREREQUISITE FOR OBTAINING THE SURGICAL GUIDE

The manufacture of a surgical guide perfectly adapting to the patient's morphology requires the retrieval of information related to the latter.

It will be based upon the patient's scan and on the plaster mould (or impression) of the area concerned.

The information supplied from the plaster mould will allow us to manufacture a guide adapted perfectly for the soft tissue and the remaining teeth.

COMPUTER FORMAT

The processing of DICOM images is necessary so that they are exportable and accessible.

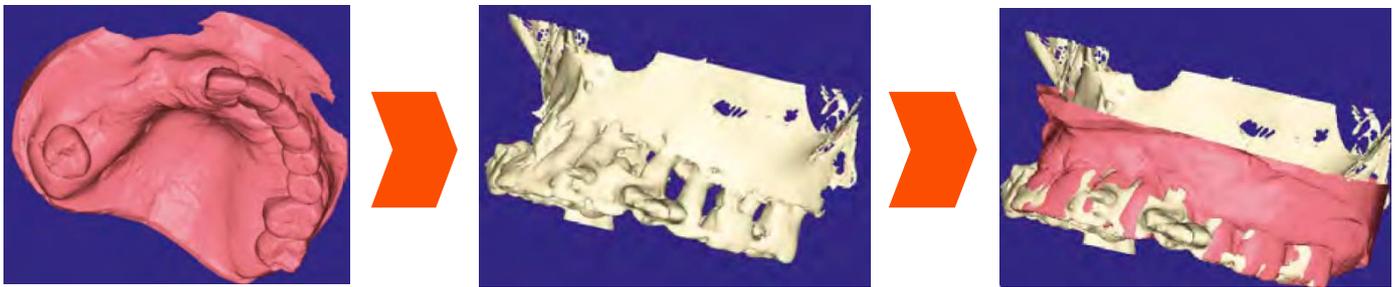
All the files must be in the .dcm format without the presence of a viewer as radiology centres normally do. In fact, the majority of viewers are under a closed license and prevent the extraction of source files.

Simple scan procedure or technique with plaster model

PRINCIPLE

The unique scanning technique allows the dentist to receive a simplified surgical guide using a scan of their patient with a scan of a plaster model (or of an impression) of the latter. It needs to respect the strict protocol which we will detail.

Before the planning is carried out by the HYGITECH dental expert, the assimilation of the scan of the plaster model in comparison with the patient scan is done on the HYGITECH software by the manual step of repositioning the dental supragingival elements in relation to one another. This technique would be effective only for partially edentulous patients.



REQUIRED CONFIGURATIONS

The software of the surgical guide needs "standard" images and cannot process the images coming from a scan with wrong parameters. This is why it is imperative to follow the configuration described below.

CT SCAN		
Export	DICOM Format	
Algorithm	Bone or bone +	High definition ok
Mould	512 x 512	
Slice	$0.25 < X < 0.8$	Ideally: 0.6
Incrementation	$X < 1$	Ideally: 0.3
Gantry tilt	0°	

Note: An acquisition in continuous mode is recommended for a better reconstruction. It is necessary to supply only the axial images, no reconstruction is required.

For Cone Beam users, put the latter in "high resolution" format.

PREPARATION AND SELECTION OF THE PATIENT

The repositioning of the model being made by analogy, which means by assimilation of two similar areas, the patient's scan must be particularly readable. The patient must therefore be able to present areas allowing the possibility of an assimilation, which means without artifacts.

In this case, we will not be able to obtain satisfactory results with the patients presenting one of the following dentition:

- There are few remaining teeth (< 3).
- The only remaining teeth are implants (the radiation of this will impede the repositioning).
- The remaining teeth are covered with metallic elements.
- The remaining teeth are gathered in the same area (risk of an unstable guide).
- The remaining teeth move.

Before the scan, take out all removable metallic elements present in the patient's mouth.

PROTOCOL

Patient Scan

- Take out all removable metallic elements from the patient's mouth.
- Sort out the patient and get them to bite on **cotton rolls** at the back of the mouth.
- Carry out a normal patient scan on the maxillary concerned.
- Make sure you have the right shot then export the data as recommended previously.



Scan of the plaster model

The aim of this step is to obtain an STL file corresponding to the scan of the plaster model. This will be done on an optical scanner used in CAD/CAM

- Carry out a complete scan of the model.
- Ensure that there is not a grey area at the time of this stage.



Note: The HYGITECH team offers to carry out the scan for you and to assimilate the model on the bone volume.

The .stl file import can be done after your planning, so you can send us the plaster model with your planned case. This also allows to check the guided surgical guide on this model.

POST-EXTRACTION SURGERY USE

The use of the scan with the plaster model is often used for post-extraction surgeries where the previously taken out teeth when placing the guide, are filed under the plaster model. This technique is efficient if the previously written prerequisites are observed and if there is still enough teeth after the extraction.

Note: As a part of this technique, HYGITECH does not take charge of the preparation of the plaster model and will only accept pre-prepared models from clients

ADVICE

- Export the data under the DICOM format without compressing them. The export must be done without the presence of a viewer. In fact, the majority of viewers are under a closed license and prevent the extraction of file sources. The software being used for to read it will be the HYGITECH software.
- A successful export will give you a folder containing all the images under the .dcm format. This format is not necessarily recognised by Windows, so you have a series of files without a particular denomination or under the format "file"