Trumergence LLC

Protocol ECO-DT: Edentulous / BCT+Optical / Deskop Scanner

Since the adaptation of the surgical guide is derived from an optical scan (and not the CBCT), this protocol provides the ultimate in accuracy and fit of the surgical guide. It can be inconvenient when a CBCT and and a desktop optical scanner are not in the same location, but the high accuracy is worth it in our opinion. This technique is published as an article on LinkedIn: [Scanning Appliances are so Yesterday. Mee](#)t the "Stack Merge"!.

Facilities / equipment needed:

- -CBCT scanner
- -Desktop Optical Scanner (Your Dental Office or Dental Laboratory)

   Note: If you have an intra oral scanner, [click here for that protocol](#)

Items required:

- 1) Patient's existing denture (provided it is suitable for the treatment plan), or
  - -Denture waxup (if patients VDO, etc is being changed), or
  - -Duplicate of denture if patient refuses to drive toothless from the CBCT to the Lab with his/her denture in a box, or if the lab is at a distant location (see Item 3c under "Procedure").
- 2) Suremark VF-20, V-20, or CF-23 marker tapes with dimensional ball
  - -We use the V-20   <— (Click to zoom)
  - -Here is a link to Suremark's site page with these products on it: Suremark Dental Markers
- 3) Cotton rolls

figure 1

figure 2

Procedure:

- 1) Place 5 or 6 of the tape markers on the exterior surface of the denture (figure 1).
- 2) CBCT Scan: Patient Wearing Stickered Denture or Waxup:
  - -If the patient's opposing arch has a removable prosthesis, he/she should be wearing it.
  - -Place cotton roles in the vestibules.
  - -Patient should bite on additional cotton rolls in the posterior quadrants. It is important that the patient NOT be in occlusion during the scan.
  - -Field of View (FOV) should be limited to the dental arch in question and extend apical to just beyond the inferior border of the orbits (maxillary scan) or inferior border (mandibular scan).
  - -Retrieve the denture, making sure all stickers remain intact.
- 3) Optical Scan:
  - -Create a Denture + Model assembly. Use one of the following Denture + Model options:
    - a) If you are using a denture waxup with the master model it was made on, this is your Denture + Model assembly. Making sure to not remove the stickers, send this waxup and model to the lab.
    - b) If the desktop scanner and the optical scanner are in the same facility, or if the patient does not mind traveling "toothless" from the CBCT facility to the lab with the optical scanner:
      - -Patient proceeds to the lab with the stickered denture in a box.
      - -Lab: Pour-up the denture in alginate or PVS, and flip onto a base. This is your Denture + Model assembly (figure 2).
    - c) If neither of the above 2 situations exists, you will need to use a duplicate denture for the CBCT and optical scan.
      - -It can be pink and white ("embarrassment" denture) or clear, but NOT barium containing acrylic throughout.
        - -Option: you can optionally do a dual pour; denture teeth area in 20% barium sulfate, BUT NO BARIUM in the rest of the denture. If you do this, you do not have to use stickers, and it is helpful for the surgical planning software.
      - -After the CBCT, send to the lab.
      - -Lab: Pour-up the duplicate denture in alginate or PVS, and flip onto a base. This is your Denture + Model assembly.
  - -Place the Denture + Model assembly in the desktop scanner and scan full arch.
  - -Then carefully remove the denture from the model without disturbing the model clamp, and scan the edentulous model.
    - -Because the desktop scanner maintains the same coordinate system between scans, the denture and model are automatically merged to each other (figure 3).
- 4) Prepare Scans for Export to Us:
  - -CBCT: ask technician to give/send you files in one of these two formats:
    - -Standard DICOM SET (A folder with hundreds of .DCM files, one for each slice)

- -Anatomage Invivo (.INV file)
- -LAB: STL files of (1) the denture, and (2) the model.
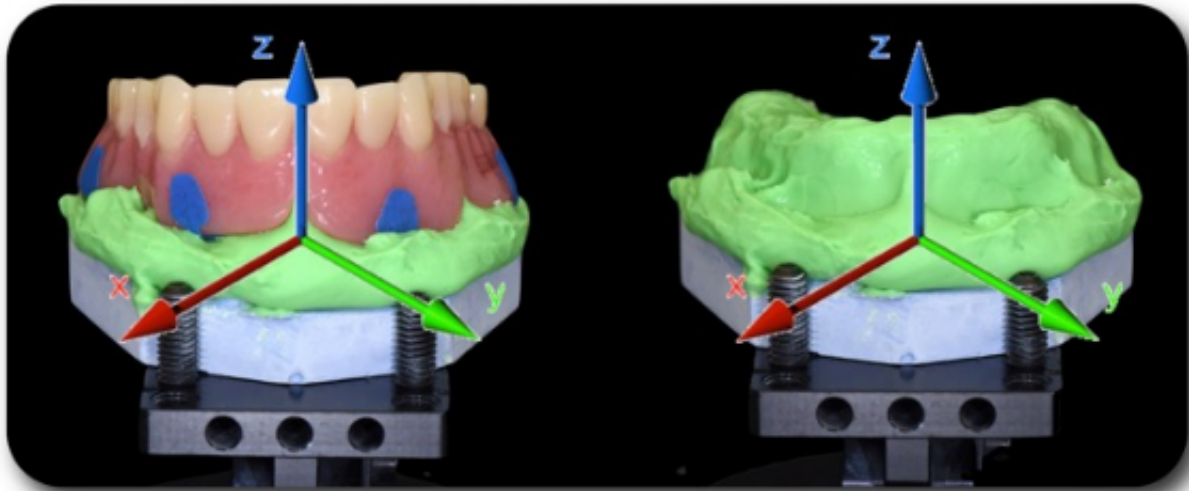- 5)   Upload:
  - -Go to our upload page and upload the 3 files.

figure 3