

NDX Recommended Retraction Technique for Intraoral Scanning

Although digital impressions can capture exact images, there are several important factors to consider when taking an intraoral scan (IOS) to ensure a high-quality scan is provided to your dental laboratory.

Capturing An Accurate Margin With Double Cord Retraction

With IOS, you do not have the assistance of the physical impression material to help aid in soft tissue retraction. Therefore, it is best to ensure that the sub-margin is clearly defined visually in the scan. You should confirm that there is no tissue or moisture around the prep as both can affect the scan quality and whether or not the laboratory can proceed with the case. The margin of the preparation needs to be free of any moisture or tissue as the scanner only picks up what is visibly defined.

To ensure that the subgingival margin line is clearly defined in your scan, tissue management is an important factor. Retracting tissue can be achieved by using the cord retraction technique. Retraction cord is used to temporarily move soft tissue out of the way of the prepped margins. The retraction cord should be gently placed into the sulcus. It is suggested to use a presoaked retraction cord or to soak your cord in a hemostatic agent prior to packing to help prevent and control bleeding¹.

For the double cord retraction process, first, place a small-sized cord (00) and pack this under the margin (0.50mm). After the small-sized cord is placed, pack a larger size (1) piece of cord directly on top of the small cord. It is suggested to leave this cord in for approximately two minutes¹.

After the two minutes pass, remove the large cord (size 1). At this time, there is the option to leave the small cord in place while scanning (as long as it does not interfere with the visibility of the margin by being approximately 1 mm below the margin) or to remove the smaller cord as well. Then, complete your prep scan as instructed for your specific scanner. If you are using a scanner that has the option to review in stone or gray scale, review this image and ensure that the margins are defined in the scan, and that there is no tissue or moisture interfering with the prep. Lastly, complete your scan by capturing the opposing and the bite.

Reference:

1. Yankov S, Chuchulska B, Slavchev D, Hristov I, Todorov R. The place of retraction cords among the tissue displacement methods. J of IMAB. 2017 Oct-Dec;23(4):1854-1858. <https://www.journal-imab-bg.org/issues-2017/issue4/JofIMAB-2017-23-4p1854-1858.pdf>

Optional Retraction Techniques for Intraoral Scanning

Using Retraction Cord And Retraction Paste To Expose Margins

The method of using a combination of retraction cord and retraction paste is useful for proper tissue displacement when there is not enough free tissue to pack double cord. With this method, you will place your selected size of retraction cord that was previously soaked in a hemostatic agent around the margin. After placing the cord, inject the selected retraction paste into the sulcus, over the cord, and place a cotton roll over the prep. Allow the material to sit for the manufacturer's recommended time (usually two to five minutes)¹. After the required time has passed, rinse the retraction paste, leaving a clear view of the margin.

After the retraction paste is completely rinsed from the prep, the small cord can be left in place while scanning (as long as it does not interfere with the visibility of the margin by being approximately 1mm below the margin) or remove the thin cord as well before taking your prep scan, ensuring the prep is clean of the retraction paste and free from moisture.

Using A Soft Tissue Laser To Expose Margins

A soft tissue laser can be useful to expose subgingival margins when unhealthy tissue or inflamed tissue needs to be removed. The laser may be preferable for patients with hemorrhagic tissue as the removal of the retraction cord or paste may initiate bleeding, which will affect the scanner from capturing the preparation margins.

After treating areas with a dental laser, peroxide solution can be used to remove tissue debris. More moderately inflamed areas can be treated with a retraction paste that may help to provide hemostasis and physical separation between the margin and tissue¹. The paste is injected into the sulcus and left in place for two to five minutes, and then the paste is rinsed away, leaving a clear view of the margin. All debris must be cleaned from the preparation prior to scanning to ensure a high-quality scan that captures the defined margin.

Reference:

1. Yankov S, Chuchulska B, Slavchev D, Hristov I, Todorov R. The place of retraction cords among the tissue displacement methods. J of IMAB. 2017 Oct-Dec;23(4):1854-1858. <https://www.journal-imab-bg.org/issues-2017/issue4/JofIMAB-2017-23-4p1854-1858.pdf>