

“At Bremadent we respect Dentistry, Dental Technology and Science which makes us stand out from competition ” *Kash Qureshi, Managing Director*

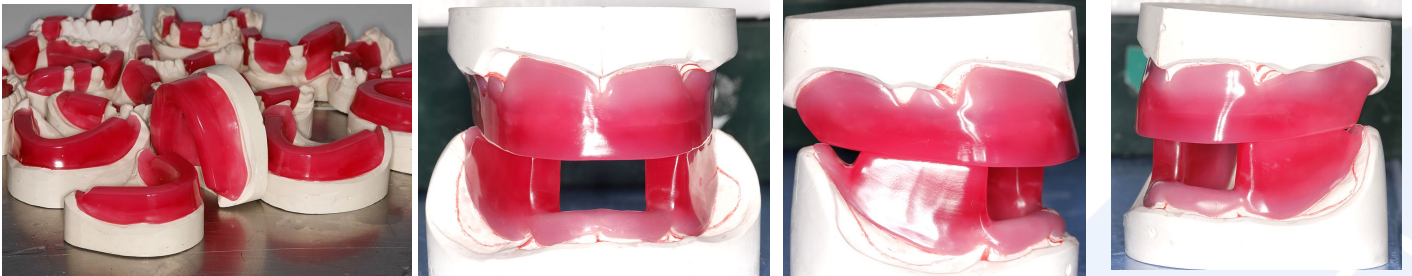
Bite Registration Technique for Complete Dentures

Taking a bite registration is the second most important part of Denture construction (First is impressions). The information obtained from the patient creates the parameters for the Dentures to be made exact to the patient unique characteristics

Conventional Bite Rims or a Manchester rim ?

The first step is to choose between conventional bite rims, Manchester rims and Gothic arch tracing. Today you'll learn about Manchester rims and taking a bite registration clinically and what information is transferred and utilised that creates the try-in in the Laboratory.

Although Manchester rims and conventional bite rims look similar and may give you the same result, it actually simplifies the process of taking a bite registration effortlessly due to its design.



Manchester rims was developed in the University Dental Hospital of Manchester. Above is pictures of conventional bite rims on the left hand side and Manchester rims on the right hand side.

Manchester rims have a few advantages over CBRs:

- After a certain amount of time wax can change dimensionally and make the bite rim loose and may not allow you to assess retention, extension, stability and support.
- A solid base plate allows you to assess the retention and stability of the base plate and establishes a relationship between the base and the underlying tissues. You can easily take an imp wash inside the base plate if it is not sufficient.
- It allows you to check the extensions around the peripheral area and trim that area if there is interference or cheek dislodgement.
- Being stable & retentive allows you to seat the MRs without having to worry about it dropping whilst performing a bite registration. This also makes life easier when assessing the frontal and occlusal plane with a fox gauge.
- It allows you easily capture the patients facial features with the rims being retentive and stable, e.g the centre line will not move as the base plate will keep the rim stationary.
- The lower rim is made with blocks between the premolar to the molar region and is only used to obtain and lock the OVD which provides accurate control over the OVD. When the contacts, bilaterally, are even at the selected OVD it can be locked together via a PVS or putty material, which allows you to simply place it back into the mouth to verify its accuracy.
- It's patient friendly, if made correctly, it does not feel like a mouthful of wax.
- The drawback is the uncertainty of achieving the most retruded mandibular position and the lack of information on eccentric mandibular movement (if this is what you need, you may prefer to use Gothic arch tracing method instead).

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Information from the patient facial features creates the parameters for the technician to work too. As the Technician will not see the patient, we have to provide this information in a form that they will understand e.g lines scribed on a bite rim.

The retention, extension, stability and support of each base plate would be the assessed individually before continuing. If any of the above is not correct perform an imp wash inside of the base plate and have a new model made. If all of the above is sufficient, continue assessment:

Orientation, Frontal Plane & Occusal Plane

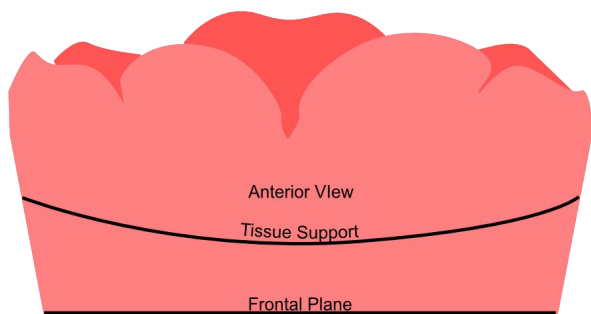
With the use of a Fox Plane, asses the frontal plane by placing the fox plane on the bite block anteriorly and checking if it's parallel to the interpupillary line. Adjust anterior section if one side is higher or lower until this is achieved. Use a heated Rim Former.

The occlusal plane is checked by keeping the fox plane in the same position and placing a horizontal device e.g ruler from the ala of the nose to the tragus of the ear and making sure the orientation of the FP is parallel to to this.

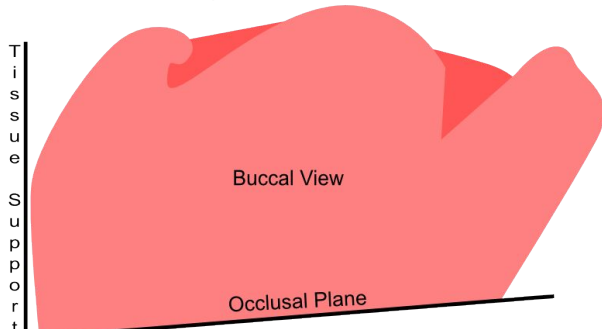
This will set the orientation of how the anterior and posterior teeth will be placed for aesthetics, phonetics, comfort, chewing efficiency and balanced occlusion.

Tissue support is determine by preference, clinical decision e.g checking the profile buccally of the previous denture. This determines how far the anterior teeth will be positioned forward and how thick the anterior flange shall be.

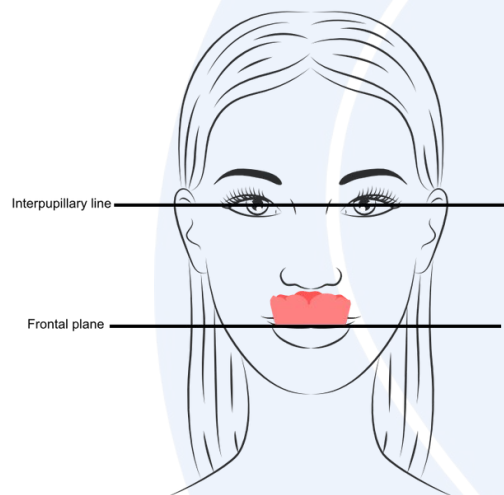
Orientation



Orientation

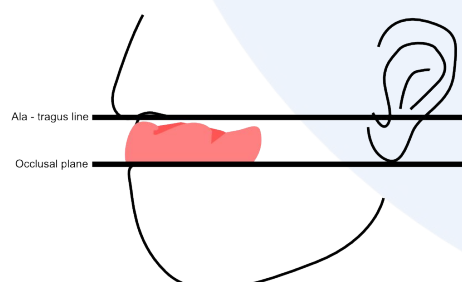


Orientation



Frontal plane parallel to interpupillary line

Orientation



Occlusal plane parallel to the Ala-tragus line (Campers line)

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Facial Features

Facial features sets the parameters for the anterior teeth in terms of mould selection, e.g width and height of anterior teeth & positioning of the teeth within the centre line & canine lines. All facial features should be scribed onto the upper bite registration.

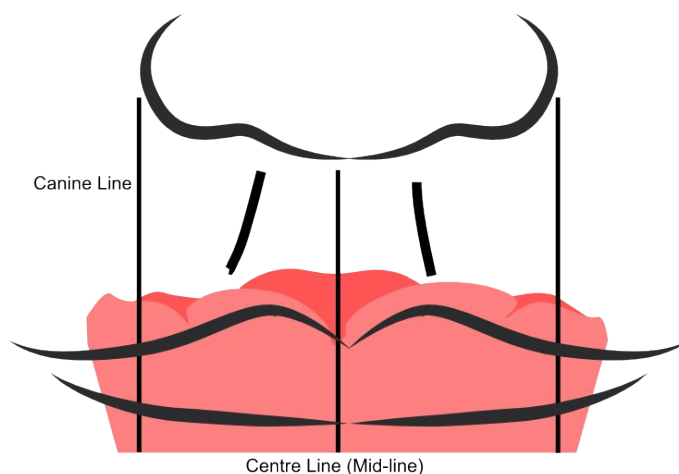
The centre line (mid line) is dictated via the philtrum, DO NOT use the nose, as this can be give a false reading as the nose is not usually centralised with the mid line of the face and can be skewed. This allows centralisation of the upper centrals to the exact mid-line of the patient.

The canine line is dictated via the width of the nose, this is common in 95% of humans. This determines the width of the anterior teeth. The canines should not go past this line, unless other factors dictate the canine lines e.g patient preference. The body or the labial mesial body should be on or just after this line in the tooth set up, this will allow a natural alignment within the patients facial features.

Facial Features



Facial Features



Centre Line (Mid-line) to be centralised with the Philtrum.
Canine lines to match the width of the Nose.

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Smile Features

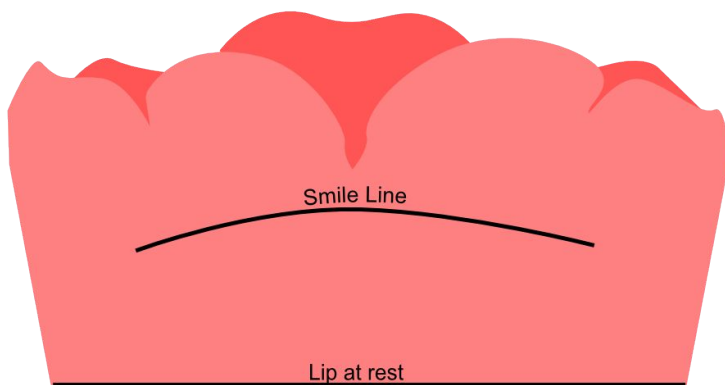
Smile features work in sync with the facial features, for the creation of the anterior parameters. This also determines how much tooth should be shown when the patients is smiling or how much is shown when the patients lip is at rest, for example when the patient smiles and shows too much gum, this would mean that the smile line should be set higher and the anterior teeth should either be set higher or more of the necks of the teeth exposed to correct the 'Gummy Look'.

The smile line is dictated from the bottom of the upper lip at the highest point (high lip line). Ask the patient to preform a big smile and scribe this on the bite block at that level (cold wax knife, never use a heated instrument). This dictates how much tooth neck and gum is shown when the patient smiles, it also can dictates the dentogenics of the smile by optimising tooth positioning.

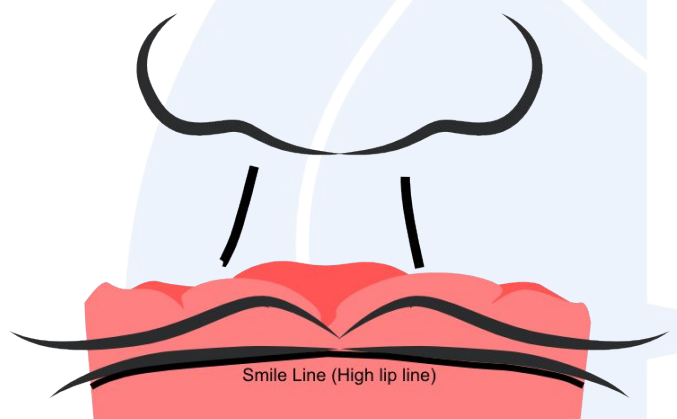
The low lip line is dictated by many factors including age. Ask the patient or use the previous denture to dictate how much bite rim should be shown and make sure you tell the patient that this is how much tooth will be shown when the lip is relaxed.

With the combined parameters of the facial features and smile features, it creates a box, within that box is the parameters for the aesthetics of the denture which dictates, the positioning, width and height of the anterior teeth.

Smile Features

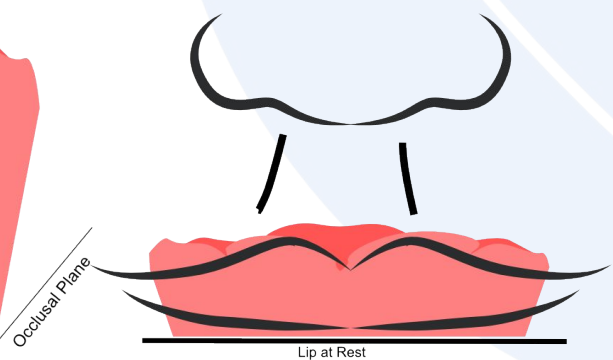


Smile Features



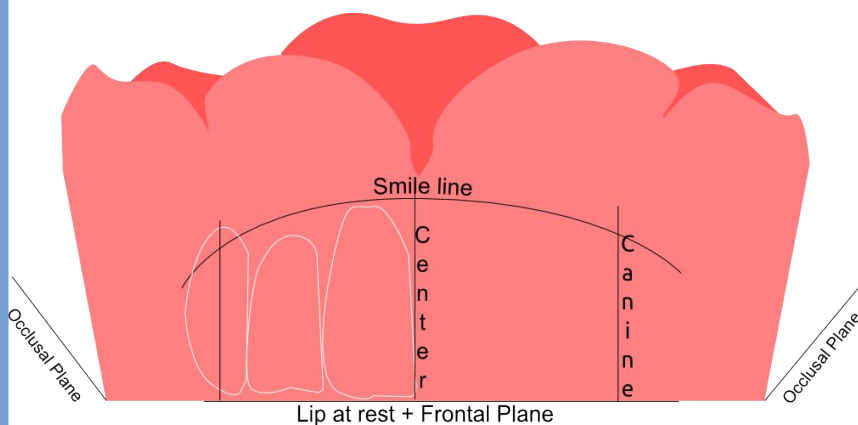
Smile Line to match the High lip line.

Smile Features



Low lip line dictated by age, previous denture, preference.

F/F Bite Registration



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OVD, RVD & Free way space

Once the aesthetic parameters is set, we need to establish the OVD and jaw relationship.

With the help of a Willis guage, it will obtain the OVD by placing the solid arm facing towards you on the base of the patients nose and the second arm towards the patient that slides up and down on the border of the chin. You then lock it into position via the screw on the movable arm, this will show the overall vertical dimension (OVD) in mm.

You can use the previous dentures and ask the patient to bite together to obtain the OVD and check the distance on the Willis gauge e.g 45 mm on the Willis gauge

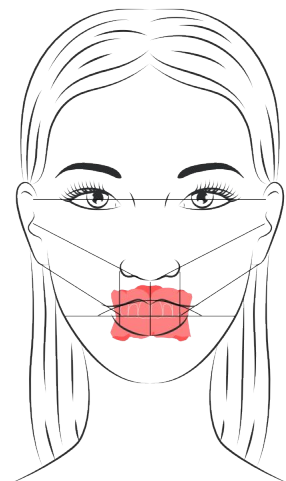
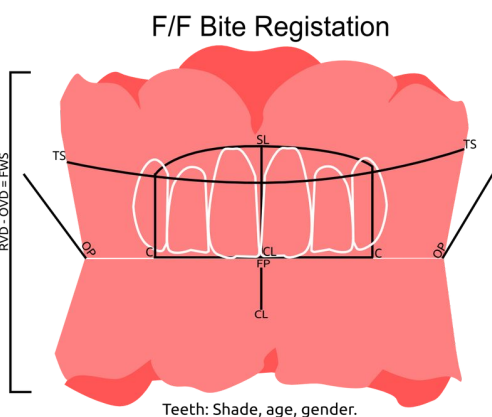
The RVD (resting vertical dimension) is obtained by removing the lower denture and asking the patient to close their lips together and check the number on the Willis gauge e.g 47mm on the Willis gauge. The mathematical answer shows that $RVD 47 - OVD 45 = 2mm$, this is now your free way space. Free way space is the distance between the occluding surfaces of the maxillary and mandibular teeth when the mandible is in its physiologic rest position.

Once you have the previous measurements, place the MRs together to obtain the same OVD measurement, increase or decrease dependent on the situation. Make sure that the wax blocks have even bilateral contact.

Once assessed, ask the patient to bite together several times and scribe a a location mark between the posterior regions of upper bite rim and the lower posterior block in a closed position. Check to see if the patient is producing a reproducible bite by the use of the scribed lines, asking the patient to roll their tongue backwards can help with creating a reproducible bite if the patient has abnormal bite patterns.

Take the bite rims out and cut location grooves into posterior regions of the upper and lower bite rims to allow for space for the bite registration paste to lock together the U/L bite rims, this creates a jig saw effect and allows you or the technician to place the bite rims back together to verify its accuracy. Place back into the mouth and ask the patient to bite together once more to check if the bite is reproducible, open and place the paste only in the posterior region, location groove areas and ask the patient to close. Warn the patient, when they open the bite rim will be joined together. Check and verify if needed.

Remember, all of the hard work preformed to obtain all of the information will not work if a shade has not been taken.

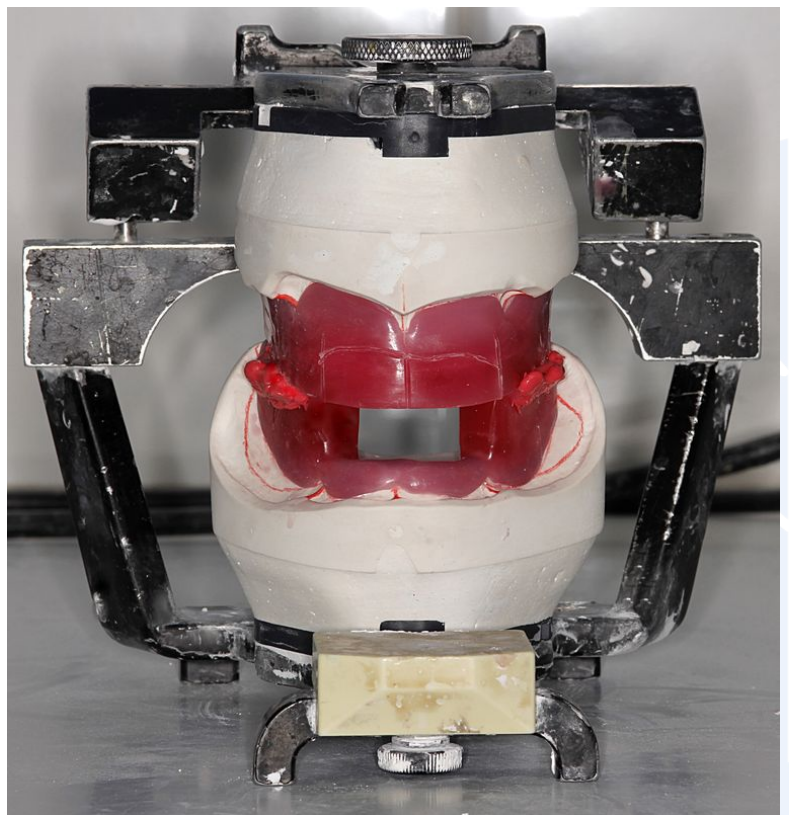
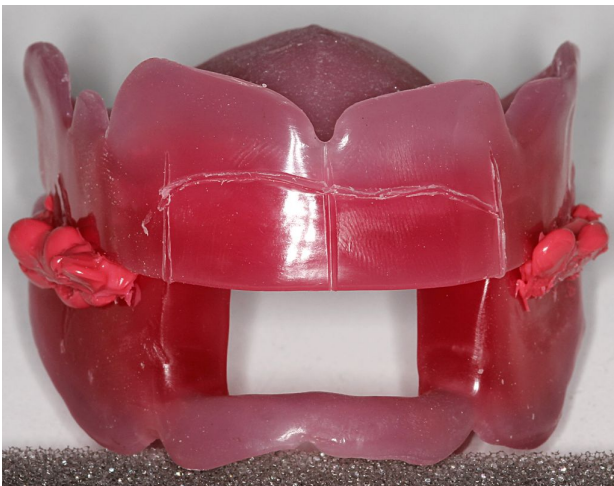


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Now that you have obtained all of that information from the patient clinically, do you know what the dental laboratories do to turn your beautiful bite registrations into functional try-in?

Step 1 - Patient Details, Assessment of the bite registration, Articulation

The prescription is checked for patient details, age, sex, shade and any special instructions. Then the bite registration is checked for the aesthetic parameters, accuracy of the jaw relationship and base plate to the cast. Once checked the bite registration is then articulated with low expansion articulating stone with the guide pin set on 0mm and centric relation locked together during articulation.



Step 2 - Transferring the patient information from the bite registration

Once articulated, lab putty is placed underneath the upper bite rim to transfer the frontal plane & occlusal plane onto the lab putty as a guide once. The putty is placed at the same level as the bite rim anteriorly for tissue support and determines the anterior tooth positioning. The aesthetic parameters is transferred onto the lab putty and on the cast above the bite rim. The excess lab putty is trimmed to the same level as the bite rim.

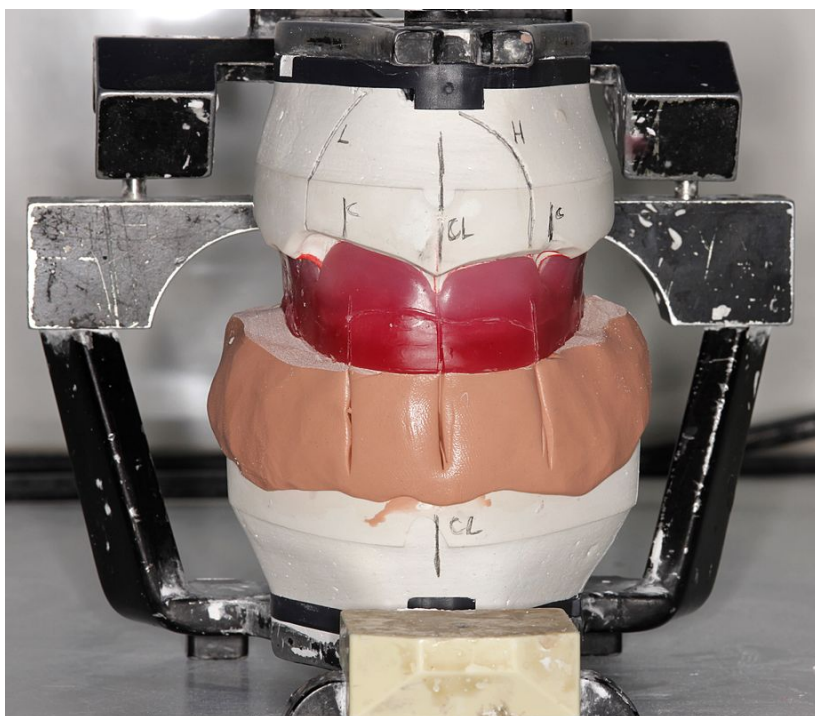
This makes sure every aspect of the bite registration is transferred, the frontal plane, occlusal plane, aesthetic features with the smile features are scribed above the cast for cross checking.

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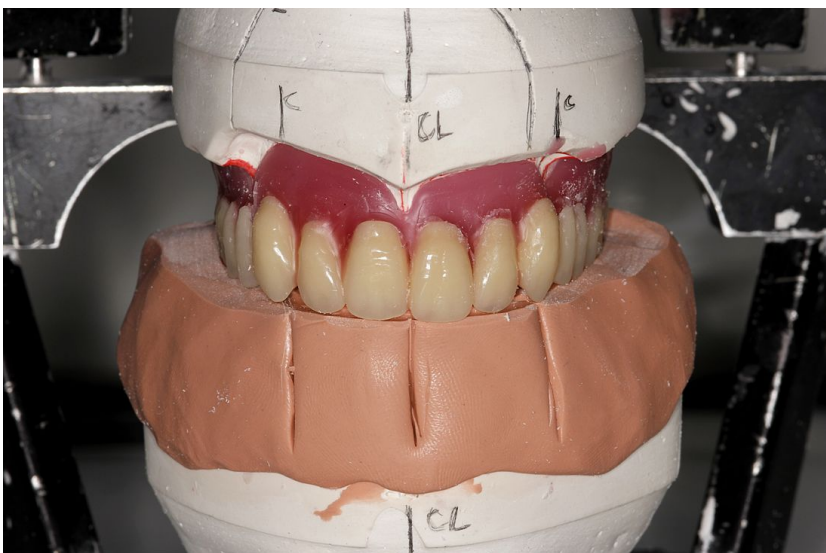
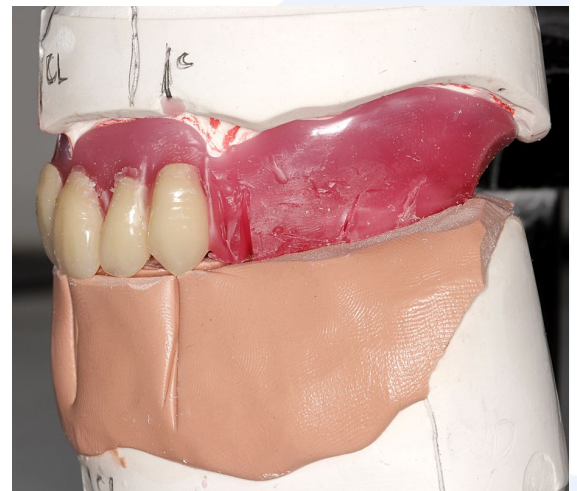
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Step 3- Setting up Dentures, Tooth positioning & Dentogenics

Now that the information has been transferred, we can now determine the anterior tooth mould from the parameters & shade e.g width/ height of the parameters from canine line to canine line and smile to low lip line . Once we have found the correct mould, the centrals are positioned in line with centre line, low & high lip line, frontal plane & tissue support is set via the parameters of the upper bite rim on the putty plate. The rest of the anterior teeth are positioned in line within central teeth and the parameters of the canine lines.

The posterior teeth are positioned on the lab putty to follow the occlusal plane set via the upper bite rim on the putty plate. Once the upper denture has been set the lower denture is constructed to the upper denture.

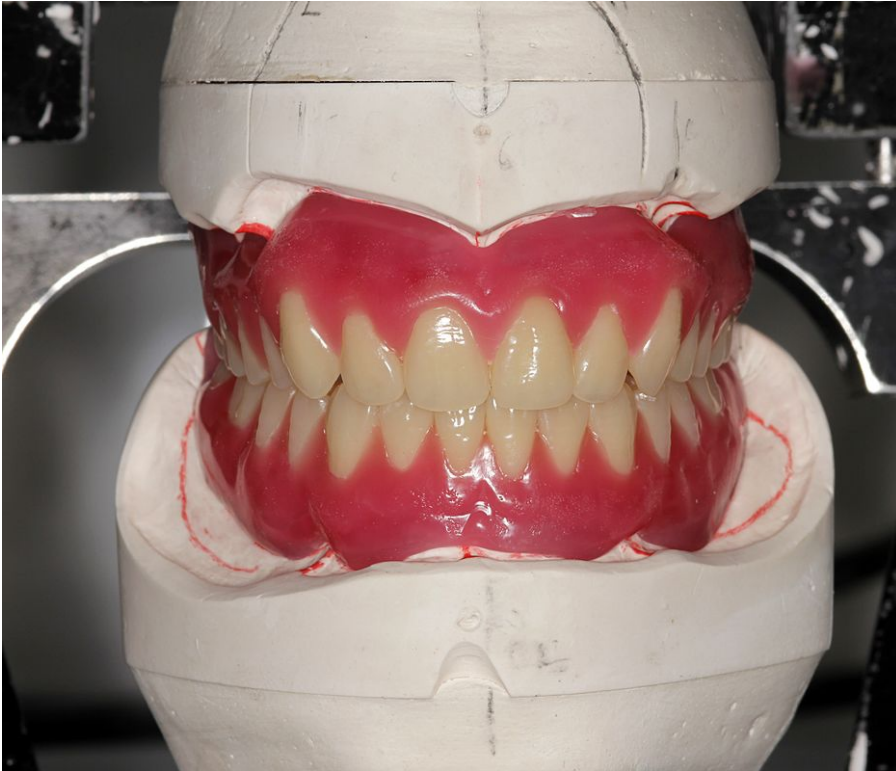
By setting up the denture in this technique you have successfully utilised the centre line, canine line, smile features, high / low lip line, frontal & occlusal plane whilst maintaining the OVD via the articulator. This makes the technique bullet proof as you have not guessed where to place the teeth, the try-in has been constructed exclusively and exactly from the bite rims provided.



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Step 4 - Waxing up, contouring

Once everything has been checked, the try-in is waxed up with the smile features taken into consideration when determining the height of the necks and how much wax should be added. The wax up is then complete and then re-checked back onto the articulator.



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Conclusion

Hopefully this guide has provided more of an insight on how important a bite registration is . I have trained many technicians and they always say to me that i am too quick at setting up and waxing etc, my reply back is simple, its not about being the fastest, its about being the most productive, accurate and consistent. You can be the quickest technician in the world, without understanding, quality, accuracy and consistency, you ain't going no where.

When i set up, i do not do it quickly, i do it productively, accurately, precisely and consistently. I make sure all of the information is utilised, the patient information, anatomical features, peripheral areas, aesthetical parameters, smile features, orientation, OVD and all of the teeth are set up accordingly with the correct axis's per tooth .

I do however, get this comment from time to time "if i had the time to do that, then i could do exactly the same" they are right and wrong , any one can do that but ill be honest i do not have the luxury of spending a huge amount of time per job as i would like (See image below, feel sorry for the technician who has the wax them up.... for the morning).

(Timing Record for the above job Set up: 12 mins upper, 8 mins lower, Wax up Privately: 21 mins)

