

How to take a 'Denture Bite Registration' - Clinical Guide

The first stage of any denture case is: Patient details & history, denture history, E/O & I/O examinations, diagnoses, prognosis, treatment options and a treatment plan.

How to take bite registration is broken down into 3 steps:

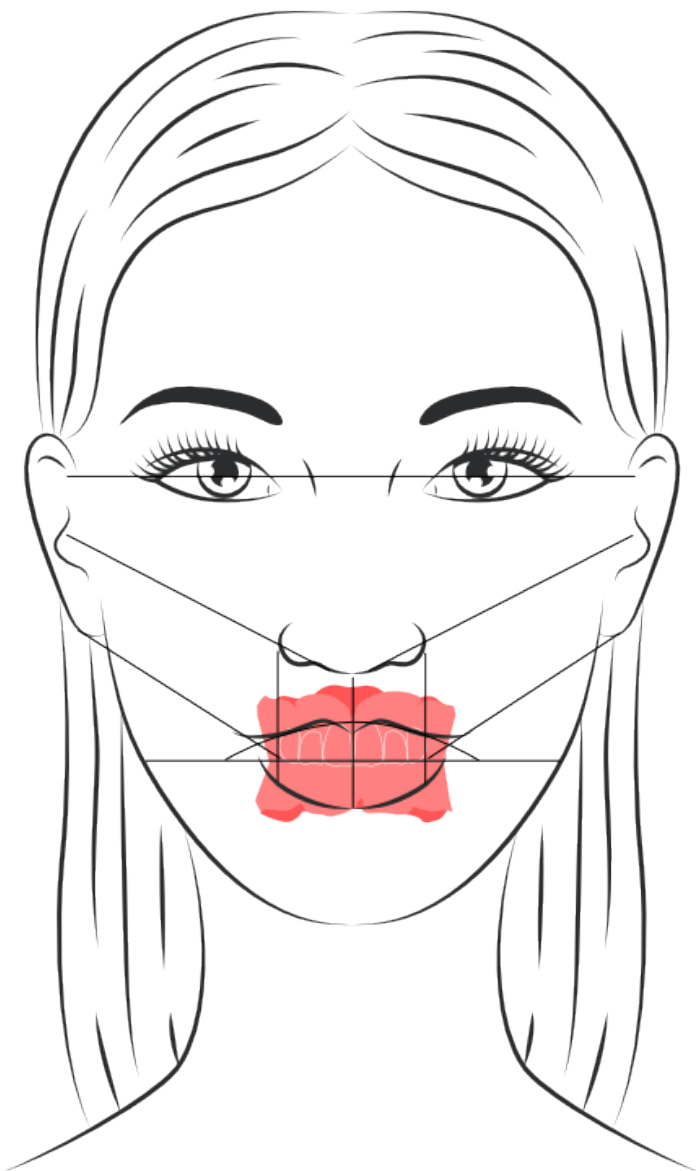
Step 1: Orientation

Step 2: Facial and smile features

Step 3: Register the bite

Tools: Fox's bite plane, rim former, Willis gauge, wax knife, Bunsen burner, PVS dispensing gun.

Materials: Wax, bite registration paste.



Step 1: Orientation

Information from the patient facial & smile 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

For establishing the orientation a Fox's Bite Plane tool is used. Fox's Bite Plane establishes the orientation of the occlusal plane in an anteroposterior direction (Spee curve) and also the frontal plane with the interpupillary line.

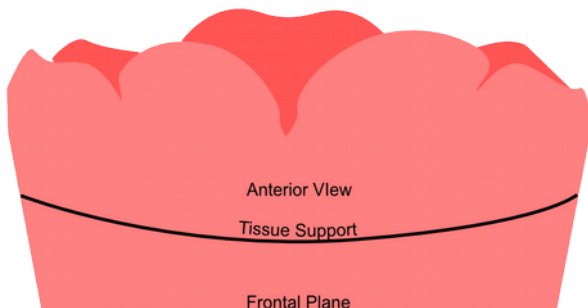
With the use of a fox's bite plane we assess the frontal plane by placing the fox plane on the bite block anteriorly and checking if it's parallel to the interpupillary line. Adjust the anterior section if one side is higher or lower until this is level and parallel to the interpupillary line. Use a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

The occlusal plane is assessed by placing 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 fo's bite plane is parallel to to this.

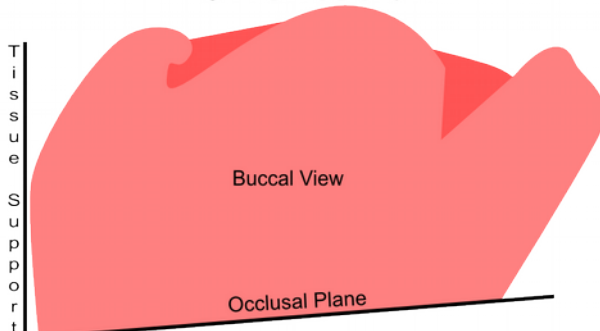
This will set the parameters of how the anterior and posterior teeth will be placed for aesthetics, phonetics, comfort, chewing efficiency and balanced occlusion.

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 will be.

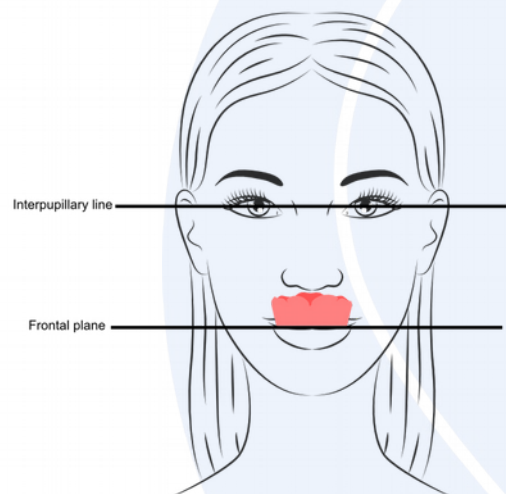
Orientation



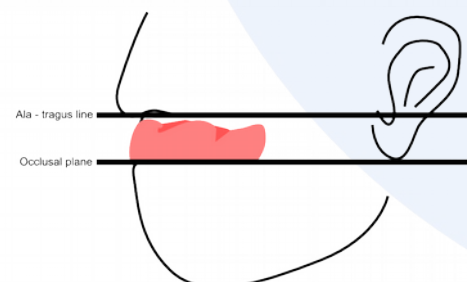
Orientation



Orientation



Frontal plane parallel to interpupillary line
Orientation



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



Step 2: Facial & Smile Features

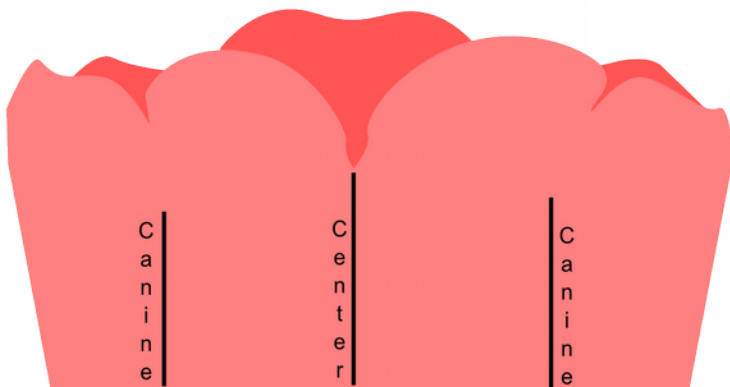
Facial Features

Facial features sets the aesthetic 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.

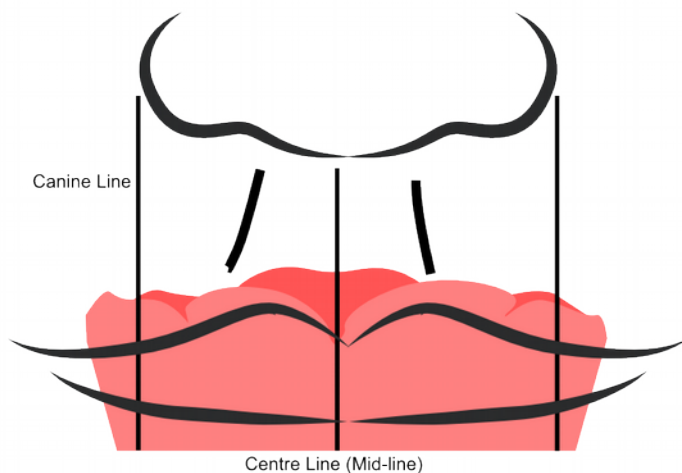
The centre line (mid line) is dictated via the philtrum, DO NOT use the nose, as this can be give a false reading as the nose is not usually centralised with the mid line of the face and can be skewed. This allows centralisation of the upper centrals to the exact mid-line of the patient.

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.



Step 2: Facial & Smile Features

Smile Features

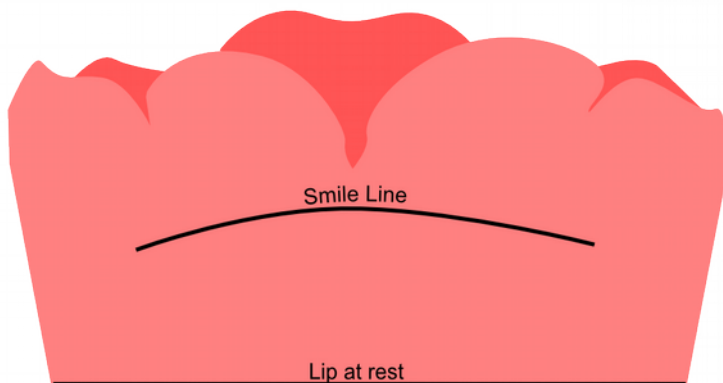
Smile features work in sync with the facial features, for the creation of the anterior aesthetic parameters. This also determines how much tooth should be shown when the patients is smiling or how much is shown when the patients lip is at rest, for example when the patient smiles and shows too much gum, 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.

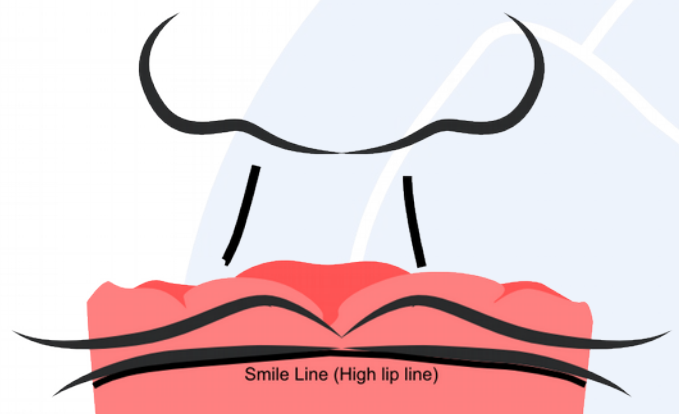
The low lip line is dictated by many factors including age. Ask the patient or use the previous denture to dictate how much bite rim should be shown and make sure you tell the patient that this is how much tooth will be shown when the lip is relaxed.

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

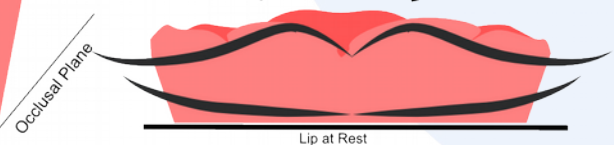
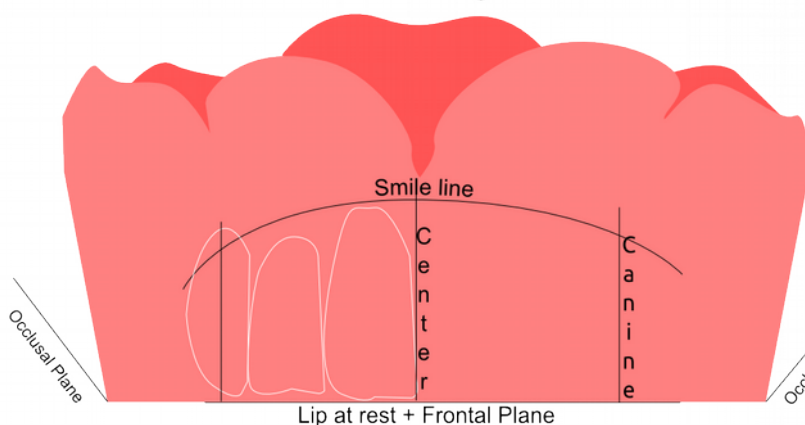


Smile Features



Smile Line to match the High lip line.

Smile Features



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



Step 3: Register The Bite

OVD, RVD & Free way space

Once the aesthetic parameters is set, we need to establish the functional parameters of the bite registration via vertical dimensions, jaw relationship and registering the bite.

The vertical dimension is obtained with the help of a Willis Guage. A Willis Gauge is a tool used to measure the vertical dimension in millimeters between the maxilla and mandible.

OVD (Occusal vertical dimension) is an important factor for patients aesthetics and function. A reduced OVD will cause complaints about aesthetics and an increased OVD may lead to discomfort.

OVD indicates the measurement between the occlusal relationship of the maxilla and mandible. For dentate patients, the OVD is established by occluding the maxillary and mandibular teeth together. In edentulous patients, this is established by bite rims placed on the maxillary and mandibular ridge, this can also be obtained from the patients previous set of dentures.

RVD (Resting vertical dimension) indicates the measurement between the maxilla and mandible when the muscles are relaxed e.g not in occlusion, this is obtained by removing the lower denture and asking the patient to close their lips together without occluding.

FWS (Freeway space) Free way space is the established between the RVD & OVD measurement of the maxilla and mandible when the mandible is in its physiologic rest position. This is usually between 2 – 4 mm.

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

The RVD is then obtained by removing the lower denture and asking the patient to close their lips together without occluding and check the number on the Willis gauge e.g 47mm on the Willis gauge.

Now we calculate the FWS by subtracting the RVD from the OVD, this is now the free way space. e.g $RVD\ 47mm - OVD\ 45mm = 2mm\ FWS$. Increasing or decreasing the dimensions is dependent on the situation for example if they have an old set of dentures. Make sure that the wax blocks have even bilateral contact when establishing the bite.

If there is no previous denture present, you can visually see the patients facial muscles in determining if the OVD is correct. Often, if the OVD is increased or reduced beyond it physical dimensions the facial muscles will often indicate this by facial tension.

Once the OVD is established, ask the patient to bite together several times and scribe a location mark between the posterior regions of upper bite rim and lower posterior part in a closed position, this will establish a reproducible jaw relationship. Asking the patient to roll their tongue backwards can help with creating a reproducible jaw relationship if the patient has abnormal bite patterns.

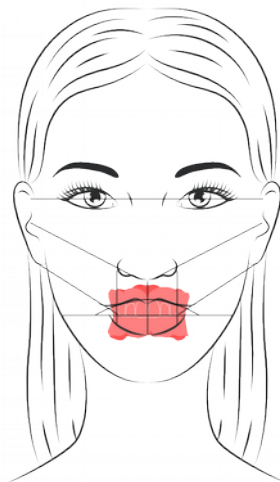
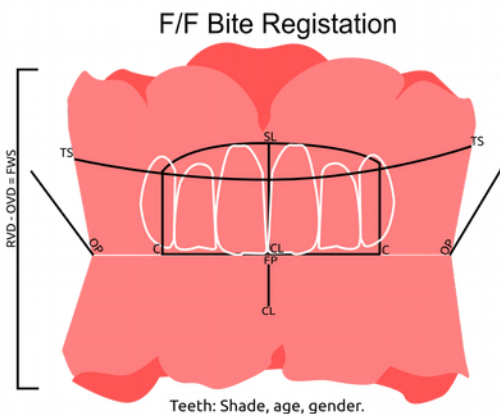
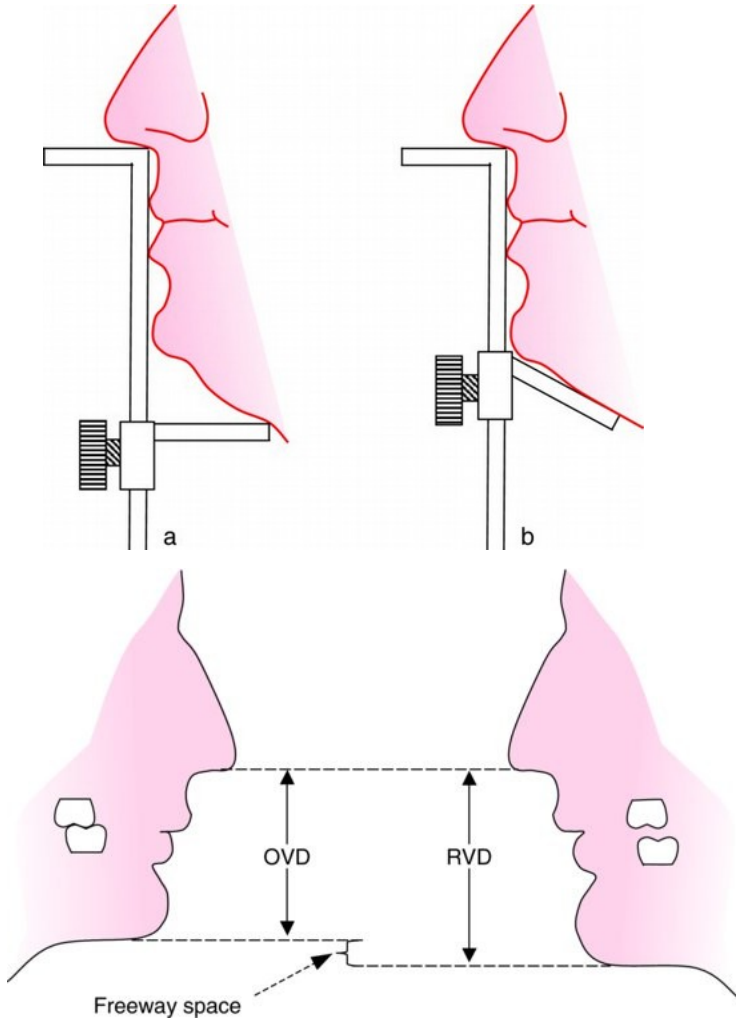


OVD, RVD & Free way space

Take the bite rims out and cut location grooves into posterior regions of the upper and lower bite rims to allow space for the bite registration material to flow into this area and lock together the U/L bite rims, this will register the bite and transfer the patients jaw relationship into the bite rims and will allow the dentist and technician to verify it's accuracy.

Place the U/L bite rims into the mouth and ask the patient to bite together once more to check if the bite is reproducible via the location mark lines. Once the bite is reproducible and verified, open or place the bite reg paste in the posterior region areas of the location groove areas and ask the patient to close and wait for it to set. 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 will not work if a shade has not been taken.



About the author:

Kash Qureshi is a Clinical Dental Technician (Denturist) in the U.K who oversees and quality controls over 3000+ fixed and removable prosthesis including implant cases from a clinical and technical aspect monthly at Bremadent Dental Laboratory & Swissedent Denture Clinic in London.

Kash qualified in the U.K (BTEC National Diploma & Foundation Degree: Dental Technology and Diploma in Clinical Dental Technology) and started his apprenticeship under John Gerrard in 2005 at the age of 16 . Kash became 'Prosthetics Manager' in 2010 and took over the laboratory as 'Managing Director' in 2015. He opened the Swissedent Denture Clinic in conjunction with the acquisition. As of 2014/2015 the GDC confirmed that he qualified as the 'Youngest Clinical Dental Technician' in the UK at the time.

He is accredited in 'Valplast' flexible dentures, 'Swissedent Natural Looking Dentures' and has undergone various courses in 'Private Prosthetics', 'Implant Prosthetics' including 'All on 4/6' Immediate Implant loadings, 'Implant Retained Locator, Ball Prosthetics' and 'Implant Bar Dentures'.

He has also trained on PTC Dental Laboratory Management, PTC Crown & Bridge and a GNVQ in Accountancy level 2.

