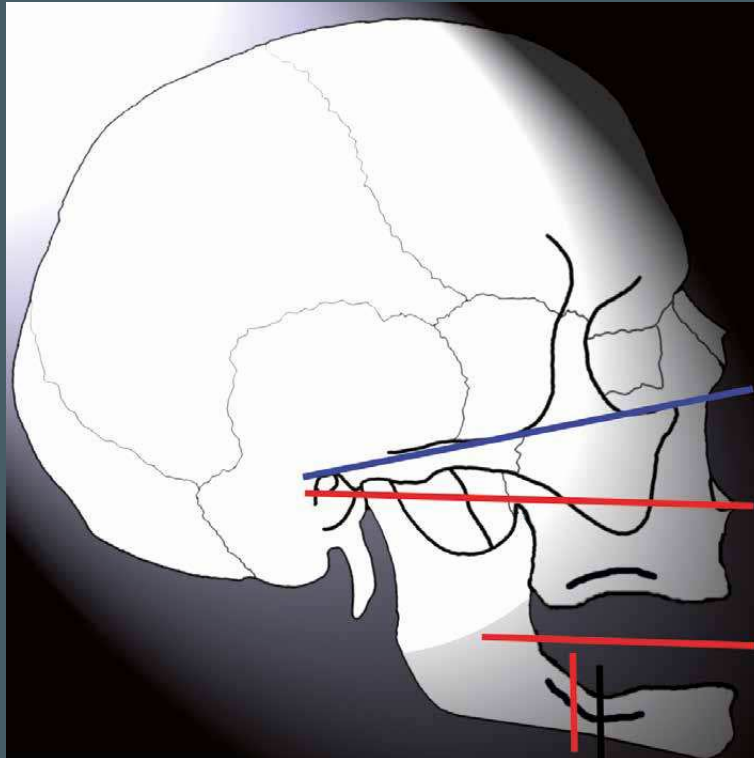


VISION ALIGN

neo.lign

Set-up
instructions



Model Analysis

The middle of the model is determined with the help of the first bony ridge in the upper jaw and the middle of the palatal groove in the course of the mid-palatal sutura.

At the fourth position in the upper jaw we find a premolar width behind the assumed canine position. The middle of the tuber in the upper jaw is also required for later static equilibrium (structural lines).

The anatomical middle of the lower jaw is measured by halving the space between both retromolar pads and this is transferred dorsally to the model. Then the middle of the model is transferred via the frenulum of the tongue to the front edge of the model.

The mandibular ridge is marked at a right-angle to the anatomical middle of the lower jaw and transferred to the edges of the model. This serves as a guide when fitting for positioning the basal surfaces of the lower front teeth.

A parallel line to the middle of the mandibular ridge, which runs through the middle of the mucolabial fold, is also transferred to the model edges. This is meant to limit fitting the lower front teeth towards the vestibular.

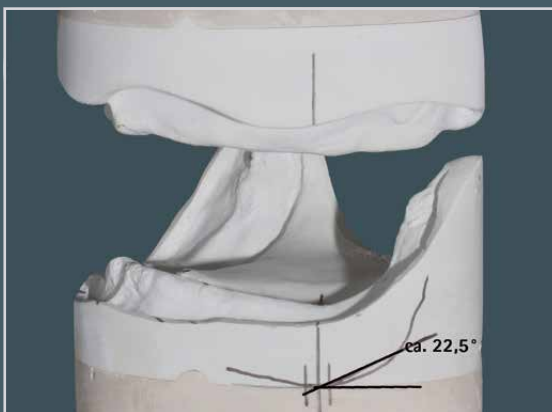
As a further reference point in the model analysis, we need the position of the first premolars. This is found around the extension of the frenulum of the cheek on the mandibular ridge or slightly behind it.





Using profile dividers, the profile of the jaw ridge is transferred to the model edges. For this purpose, the profile dividers are held at a right angle to the occlusion plane. This angle should be held until marking has been completed. Otherwise the profile will be wrongly depicted!

Draw a perpendicular to the occlusion plane at the lowest point of the profile of the jaw ridge - this gives the position of the largest masticating unit of the lower jaw. Approx. 1.5 mm mesial and distal from this intersection, the functional loading zone of the largest masticating unit of the lower jaw (position δ) is marked.



A line is drawn at an angle of 22.5° from the intersection of the largest masticating unit of the lower jaw in a dorsal direction.

If the course of this line leads to an intersection with the progression of the mandibular ridge (i.e. at an angle of $> 22.5^\circ$ from here), this intersection limits fitting of the lateral teeth in a dorsal direction. a



The so-called STOP line arises at the intersection. A further limitation to fitting in a dorsal direction is the start of the retromolar pad in the lower jaw and/or the tubera in the upper jaw. These structures should not be loaded from a structural point of view.

The position of the largest masticating unit of the lower jaw is lengthened vertically until it meets the upper jaw. These markings are transferred to the mid-points of the mandibular ridge.



The determination of the actually relevant lines from a static point of view now begins. For this purpose, a ruler, a geometrical set square or simply a rubber band are needed.

The fundamentally relevant points in the lower jaw from a static point of view run through the fourth positions and the middle of the retromolar pads.



The inner correction in the lower jaw runs from the fourth position to the lingual boundary of the retromolar pads.

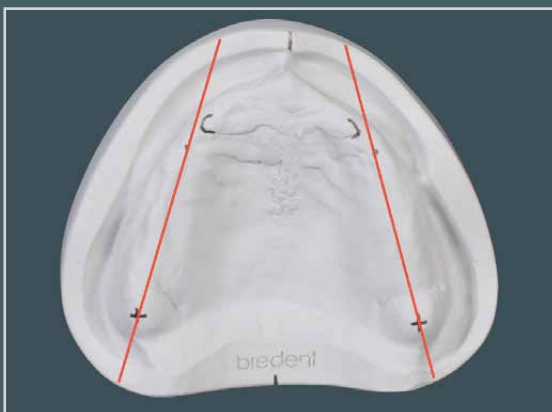


The outer correction of the lower jaw normally runs from the fourth position to the vestibular boundary of the retromolar pads.

When determining the STOP line, it is established, however, that the second molar for structural reasons can no longer be set up, then it should run from the fourth position to the position of the largest masticating tooth of the lower jaw.



The complete model analysis in the lower jaw.



The essential structural static in the upper jaw runs through the fourth positions and the middle of the tuber.



The inner correction in the upper jaw runs from the fourth position to the buccinator fold of the palate.

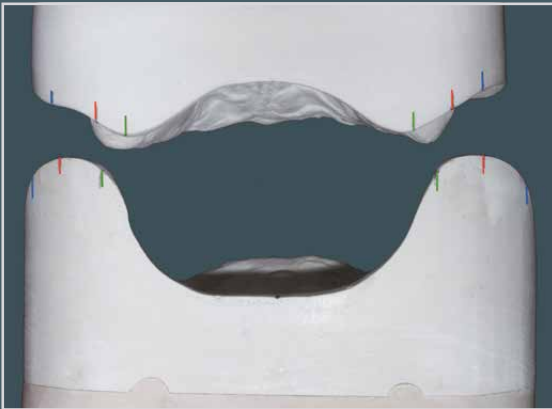


The outer correction in the upper jaw is made by the boundary of the upper ridge to the mucolabial fold.

All contacts between the lateral teeth which extend beyond this boundary have to be brought out of contact.

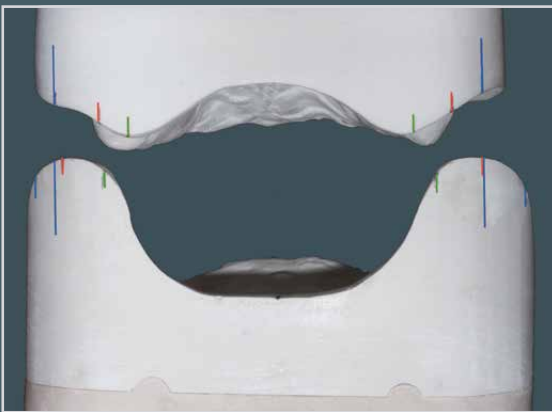


The complete model analysis in the upper jaw.

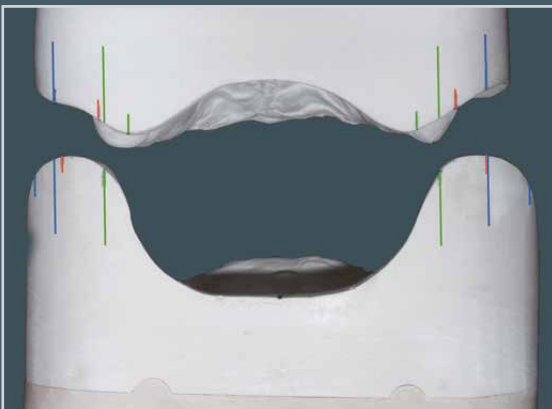


The markings on the model analysis on the dorsal model surfaces. The static equilibrium lines of both jaws are normally offset to one another.

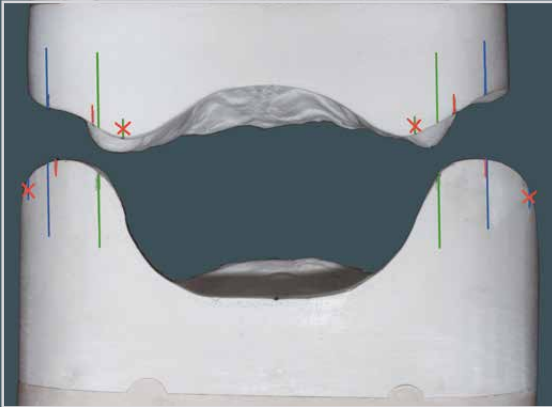
In order to now arrive at a common static equilibrium, the lines have to be correspondingly corrected or mediated.



The interior outer correction becomes the common outer boundary of the set-up corridor.

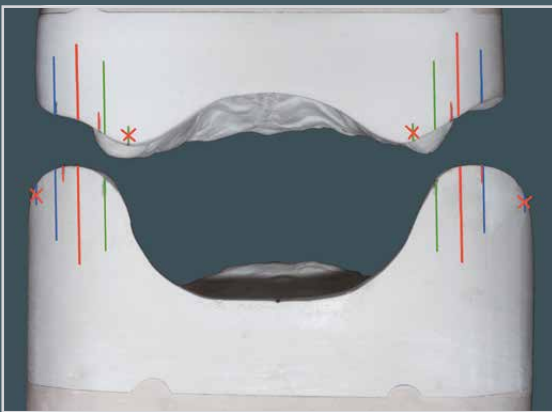


The outside inner correction becomes the common inner boundary of the set-up corridor.



The common set-up corridors lie within the bony lining of the jaw, respectively.

Through their orientation to the bony substrate and the mylohyoid line and/or the ligaments of the tubera they provide points of reference, so that the buccal area can be fully utilized and the tongue space optimally released.



The common set-up line is now marked within the corridor.

This has to guarantee an optimal supporting position, especially against the cheek and provide sufficient tongue space.

Set-up

The width of the lateral dentition is determined via the established positions of the 1st premolar and the 1st molar teeth.

The width and shape of the front teeth can be selected on the basis of the positions of the canine teeth and physiognomic aspects.



G2

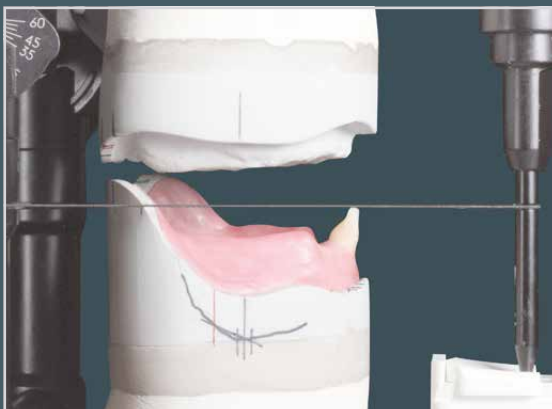
G3

G4



The lower 1st incisors are positioned basal in the middle of the mandibular ridge.

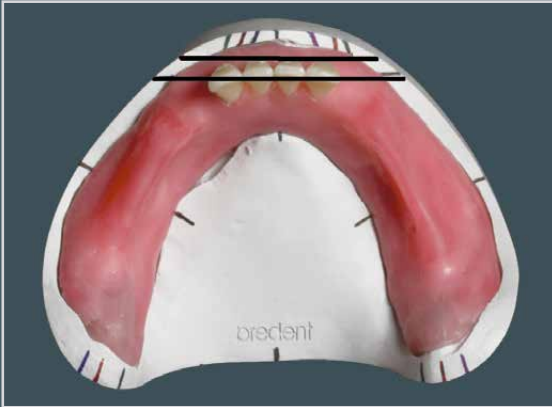
The labial surfaces of the lower front teeth should be according to the deepest point of the mucolabial fold.



The height is based on the occlusion plane.



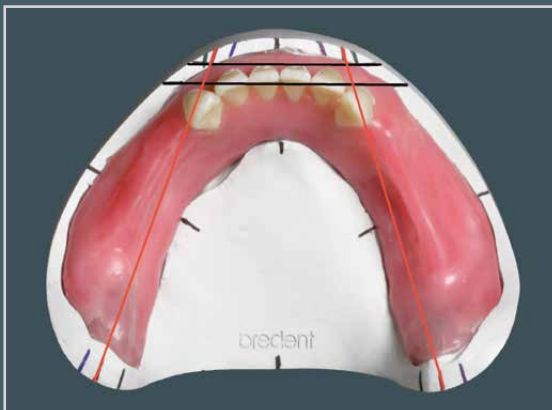
Continued setting-up of the anterior teeth in a harmonious front dental arch.



The lateral incisors are also oriented according to the occlusion plane.



The lower canine teeth are also aligned to the distal facet, in accordance with the basic static equilibrium.



The lower canines are placed on or up to one millimetre above the occlusal plane, depending upon the degree of abrasion.

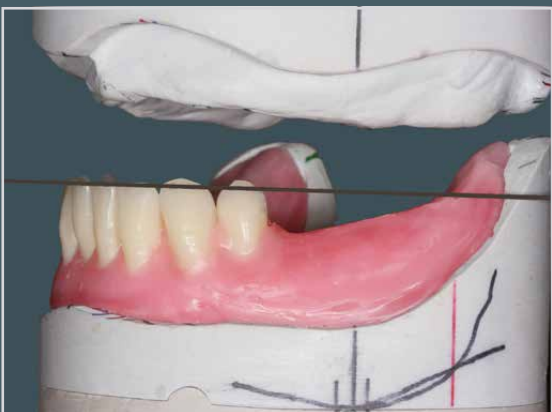


The 1st premolar is positioned with the middle of its buccal cusp slope on the basic static equilibrium.



The buccal tip of the cusp is aligned uniformly sloping towards oral and vestibular.

In this way, a clear guidance with the upper 1st premolar will be ensured in the lateral movement. In addition, there is a harmonious transition in the crown alignment of the lateral teeth.



The 1st premolar stands 1 mm above the occlusion plane and its tooth axis is aligned vertically to the occlusion plane.



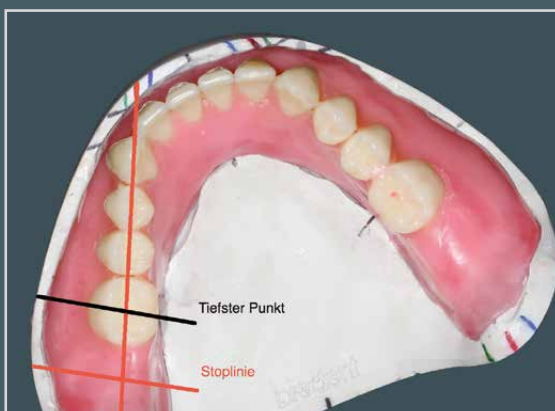
The 2nd premolar stands with its central fissure on the basic static equilibrium line and thus forms the functional transition to the molars.



The 2nd premolar stands at the occlusion plane, aligned vertically with its tooth axis to the occlusion plane.



Fitting the 1st and 2nd molars is also carried out with the central fissure on the common set-up line.



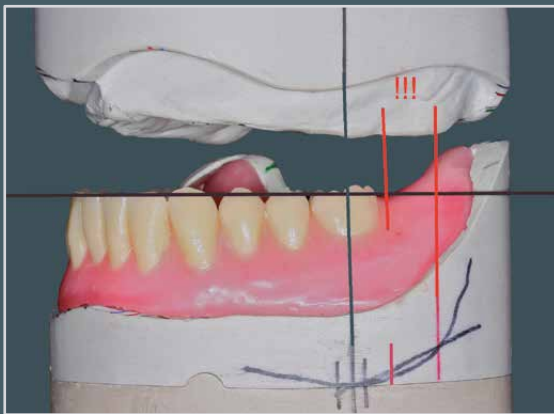
The 1st molar stands with the lowest point of its central fissure above the lowest point of the mandibular ridge progression.

The set-up ends at the STOP line and/or when the retromolar pad or tuber is reached.



The slopes of the distolingual and the mesiobuccal cusp of the molars are aligned uniformly sloping towards the central fissure, in order to achieve angular compensation of the two guiding surfaces.

This is important in order to maintain a balance in the molar area later on (mediotrusion/ laterotrusion).



If there is no fitting of the 2nd molars, the 1st molar is positioned with its mesiobuccal cusp in the occlusion plane and its centrobuccal and distobuccal cusps 1 mm above that.

If the 2nd molar is put in position, then this stands distal above the occlusion plane and the 1st molar with all buccal cusps on the occlusion plane. Fitting always ends at the STOP line and/ or when the retromolar pad or the tuber is reached. Nevertheless, in order to ensure cheek support, a ridge is modelled behind the last tooth.



The 1st and 2nd molars are set up as the first teeth in the upper jaw. In this case, tooth on tooth.



The most important reference point in this case is the orientation of the mesiolingual cusp of the upper molars in the central groove of the lower molars.

Subsequently, the centric locks of the articulator should be opened in order to check the correct balance.



The next tooth to be set up is the 1st upper premolar. This stands vertically to the occlusion plane, with its mesial groove on the buccal cusp tip of the lower 1st premolar.

This tooth supports the canine tooth with its long mesial facet (reverse angle and curved characteristic) in laterotrusion movements.

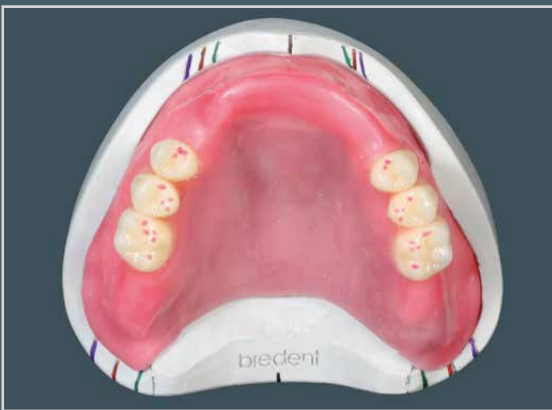


Contact relationship between lower and upper 1st premolar.

Upper jaw contact in the mesial groove and the mesial marginal ridge and lower jaw at the buccal cusp tip.



The 2nd premolar also stands vertically to the occlusion plane and with its mesial groove on the buccal bevel angle of the lower 2nd premolar.



Contact relationship between the lower and upper 2nd premolars.

Besides contacts in the mesial groove, the lingual cusp of the 2nd upper premolar has contact in the central groove of the lower premolar.



Fitting the upper canine teeth is carried out from a functional and aesthetic point of view.

After setting-up the upper canine teeth, the centric locks of the articulator are opened and a correctly set-up premolar/canine guidance is checked for laterotrusive and protrusive movement.



The position of the upper front teeth can be transferred to the set-up with the help of a vernier calliper or a silicon impression of the correctly shaped check-bite.



Final setting-up of the upper front teeth should always be made on the patient, however, taking aesthetic and phonetic aspects into account.

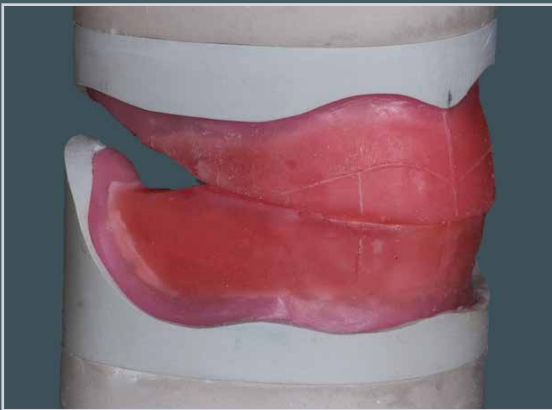
Procedure

Patient Case

Set-up for the aesthetic try-in and further course of action.

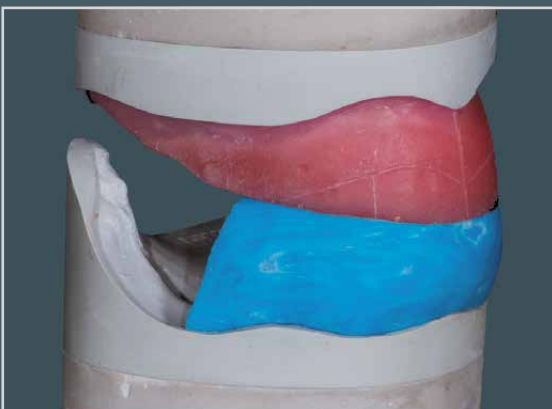


The start point for setting-up is an individually shaped manual check-bite from the practitioner. The ridges are shaped by the practitioner according to phonetic and aesthetic aspects, as well as according to the markings, and are to be transferred in a first step to the model and later on when setting-up.



A silicon bite registration is made of the lower jaw for this purpose.

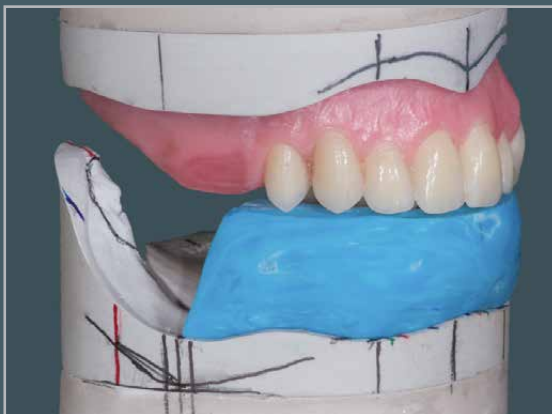
This silicon impression determines the shape of the front dental arch and the length of the front teeth in the upper jaw. Markings such as the mid-line, canine tooth line and smile line are transferred to the base of the model using a ruler.





A further silicon key is used to transfer the front dental arch.

The lines defined by the practitioner can also be recognizable on this silicon key.



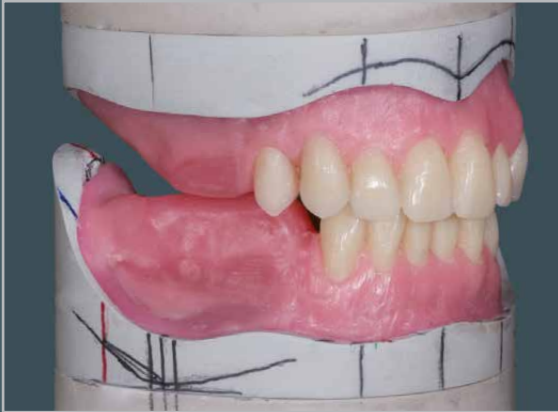
Setting-up of the front teeth of the upper jaw is made comparing this to the silicon bite registration in the lower jaw.

The upper first premolar should also always be set-up, as this simplifies an assessment of the position of the canine teeth. A pink wax ridge behind the canine teeth tends to be more irritating in this case.



Upper jaw anterior tooth assembly.

Compliance of the lines made by the practitioner is then checked with a ruler.



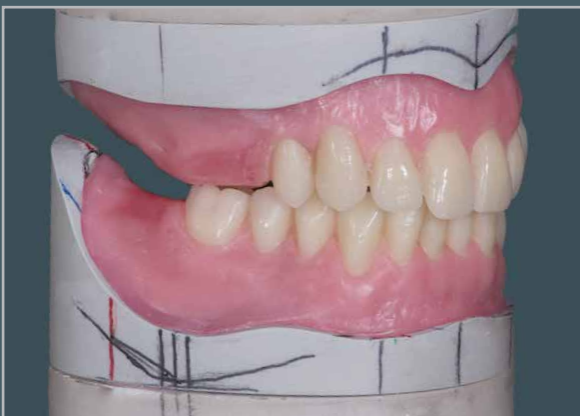
Setting-up of the anterior teeth in the lower jaw now follows.

The front of the lower jaw is set-up taking the static aspects in particular into account.



Finished aesthetic try-ins.

For aesthetic try-ins, the bases should already correspond to the later contouring - the gingival parts should be anatomically fully modelled. The lateral teeth are replaced by correctly positioned hard wax ridges according to the respective static equilibrium.



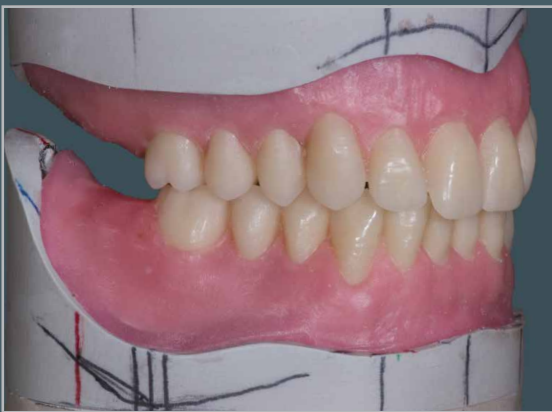
After successful aesthetic try-in, setting-up is continued with the lower lateral teeth.

In this case, care should be taken to position the largest mastication tooth and the premolars, as described in the basic assembly instructions.



Checking the frontal view.

It is important to maintain the lateral teeth corridor and the correct incline of the lateral teeth.



The upper 1st molar and the 2nd premolar are now set-up.

The static and dynamic occlusions are to be subsequently checked.



The anatomically fully modelled assembly is now ready to try in.

A further check is made of the prosthesis base for correctly modelled edges and muscle gripping shape.

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The authors speaking about the neo.lign fitting instructions

There are a multitude of publications about complete denture prosthetics and removable implantation prosthetics from numerous authors. The present Fitting Instructions are intended to serve as a guideline for newcomers finding their way in this challenging segment of dentistry. For this reason, it is intended to be used as a User Manual, and should serve as a help in daily laboratory practice, especially for young dental technicians.

The present edition represents a systematic guide for model analysis and fitting in a didactical way. In the "Procedure Patient Case", a possibility is given to use what has been previously learnt in daily practice.

In the "Curriculum", interested dental technicians will find an overview of the available occlusion concepts.

Acknowledgements to the authors

Both authors have been concerned with focusing on total and implantation prosthetics as part of their teaching assignments at the College for Master Craftsmen in Frankfurt am Main for many years, and during many advanced training courses which have been part of their professional lives. Practical courses were created and training documents prepared with their help and advice, as was the case with this manual.

Furthermore, the authors have acquired a competent name in the field of odontogenesis, experimental new designs and the preparation of concepts for transferring know-how and product application. The critical discussion about theoretical principles, their use in professional practice and finally plausible implementation in teaching makes them valuable partners for us.

The bredent team wishes to express a very hearty "Thank You"!

We wish you much success!

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DMS von Hr. Zahn anlegen lassen!!!

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