Model analysis

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The purpose of model analysis is to assess the prosthetic situation.

No human being is symmetrical. This means that the goal cannot be to achieve maximum symmetry in the model analysis markings. Instead, each side must be assessed independently of the other and marked or characterised by means of the lines sketched on the model. These lines serve as a guideline for the subsequent wax set-up of the denture teeth.

From the point of view of statics however, functional stability is not automatically guaranteed in the resulting setup. These lines represent a guideline. Every complete denture must be checked intraorally for chewing stability by the dentist.

The dentist's markings on the model show

- the centre of the alveolar ridge, transferred to the margin of the model with the aid of a set square,
- the progression of the alveolar ridge with the aid of a pair of compasses on the model base,
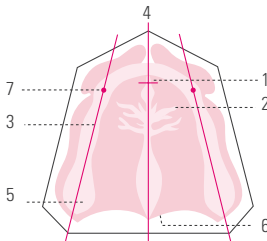- the retromolar triangle on the mandibular model.

Fig. 1: Upper jaw
1. Incisal papilla (papilla incisiva)
2. Large palatal ridge
3. Centre of alveolar ridge
4. Midline of model
5. Maxillary cusp (tuber maxillaris)
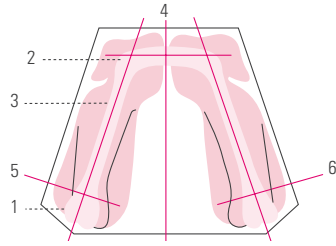6. Palatal vibrating line
7. Canine point

Fig. 2: Lower jaw
1. Retromolar triangle (trigonum retromolare)
2. Centre of alveolar ridge, front
3. Centre of alveolar ridge, lateral
4. Midline of model
5. Border line (setup limit) for the distal sides of the last molars

 The deepest point in the posterior area is also marked on the model base.

If the height of the occlusal plane is not given, this can be calculated as an average value by measuring the distance between the deepest point of the mucolabial fold in the upper and lower jaw, and halving this value.

The final setup line is determined by determining the alveolar ridge markings and transferring these to the outer margin of the model at the front and back. These form the outer limit of the static field.

Furthermore, the following values which the dentist indicated on the bite template are transferred to the models: midline, canine line.
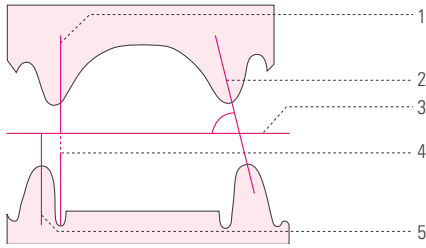
Fig. 3:
1. Centre of alveolar ridge of upper jaw
2. Interalveolar line (alveolar ridge connecting line)
3. Occlusal plane
4. Maximum innermost setup limit for lower teeth
5. Centre of alveolar ridge of the upper

If the inclination of the interalveolar line to the horizontal plane (4) is over 80°, a neutral bite should be setup; if it is under 80°, a cross-bite should be setup (Gysi).
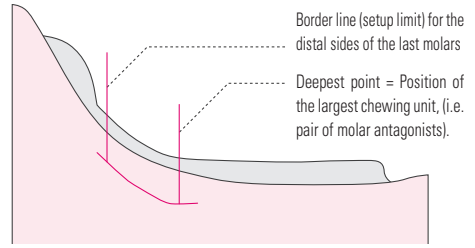

Border line (setup limit) for the distal sides of the last molars

Deepest point = Position of the largest chewing unit, (i.e. pair of molar antagonists).

Fig. 4:

Behind the border line for the distal sides of the last molars begins the steep upward slope of the mandibular ramus. No more teeth should be set-up here, as this would result in the prosthesis slipping forwards (proglissement). Constant forward sliding of the mandibular prosthesis would result in age-related mandibular protrusion. In the case of flat alveolar ridges, the setup of the teeth ends at the mesial of the retromolar triangle.

Notes

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