Co/Cr Denture Design

The design must be finalised prior to taking the master impression

The denture design must be finalised prior to completing any necessary restorative procedures as it may influence the overall treatment plan. Rest seats, guide planes and undercut regions may be incorporated into indirect restorations.

Gauge the undercut regions and assess the occlusal contact points on the study casts

Review the radiographs and clinical notes on the considered abutment teeth

CoCr denture design must be conducted using surveyed and articulated study casts. The design must conform to the patient's occlusion, if ICP cannot be achieved or the casts cannot be hand articulated, a jaw registration must be conducted first (*See page 158*)

Outline the saddles

Outline the edentulous areas and teeth to be replaced.

Determine the support

- Tooth bourne: rest seats, crowns and roots. Ensure rest seats do not interfere with the occlusion, preparation may be necessary.
- Mucosa bourne.
- Both.

Determine how retention and reciprocation will be provided

Direct retention:
- Resistance to vertical displacement of the denture.
- Provided by clasps, guide planes, path of insertion and precision attachments.
- A cobalt chromium clasp, 15mm in length, will engage a 0.25mm undercut.
- Minimise the clasp number, a tripod of clasps is sufficient. Aim for the largest triangle.
- Consider an RPI system for free end saddle designs

Indirect retention:
- Resistance to rotational displacement of the denture.
- Provided by major connectors, minor connectors, rest seats, saddles and the denture base.
- Identify the clasp axis around which the denture can rotate by envisioning a line between two clasps on opposite sides. Indirect retention is achieved by drawing a line perpendicular to this and placing a component on the opposite end.

Reciprocation:
- An opposing force to the clasp to make the clasp passive.
- Provided by an opposing clasp arm or the connector.

Connector type (*See page 156*)

Review the design for hygiene and tolerance

Confirm the denture design with the patient. Gingivally approaching clasps may be deemed unsightly in moderate-high smile line cases

Carry out any tooth preparations/ modifications according to the design

Composite additions may be made to create undercuts or cingulum rest seats. Rest seats may require a 0.5mm depth preparation with a round diamond bur to avoid the rest seat interfering with the occlusion.

Continue to the master impression stage