

# Partial dentures Clinical techniques

Rob Jagger

1 March 2017

## Treatment plan

### Removable treatment options

- Refurbish
- New denture Standard technique
- New denture Special technique(s)

## Aims - afternoon session

- Describe the clinical stages of partial denture prosthetics
- Describe alternative techniques and materials
- Describe problem solving techniques

An opportunity to discuss any aspect of partial denture prosthetics

## A word about materials.....

- Waxes
- Impression materials
- Denture base materials

## Waxes

- Modelling wax
- Soft wax
- Sticky wax
- Occlusal registration wax

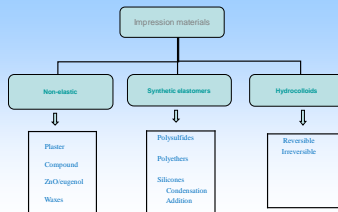


## Impression materials

- Accurate
- Good surface detail
- Dimensionally stable

Options?

## Classification of impression materials.



## Impression materials

- Non-elastic
  - Compound
  - ZnO eugenol



## Impression materials

- Elastic
  - (Reversible/ Agar)
  - Irreversible / Alginate (5 day Hydrogum)
- **Hydrocolloids**
- **Elastomers**
  - (Polysulfides)
  - Polyethers
  - Silicones
    - condensation
    - addition



### Clinical stages

- Impressions
- Jaw relations
- Try
- Fit
- Review

### Impressions

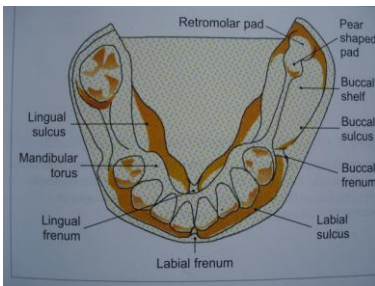
It is recognised good practice to take

- Primary
- Secondary

Why?  
Always?

### Impressions

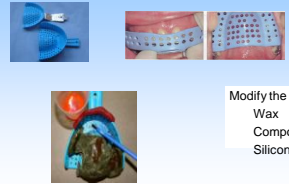
- Applied anatomy
  - Optimum surface area
  - Including free end saddles



### Primary Impression Tray selection?



### Primary Impression Tray modification?



Modify the tray using  
Wax  
Compound  
Silicone

Adhesive

### Primary Impression



Freeend saddle

### Primary Impression



### Final Impression



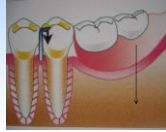
Acrylic	Alginate	Spaced*	Perforated
CoCr	Silicone	Spaced	Non perforated

### Final Impression alginate silicone

- Tray modification
- Blocking out undercuts
- Adhesive



### Free end saddle impression technique



### Primary Impression



- Buccal shelf
- Retromolar pad
- Retromylohyoid

### Secondary impression

Trim the trays



### Secondary impression

Greenstick free end saddles  
Enables a mucodisplacive impression  
c.f. altered cast technique

- Ridge
- Retromolar pad
- Buccal shelf
- Retromylohyoid



### Secondary impression



Silicone impression in a special tray

### Handling impressions

- Disinfection
- Transport
- Casting

### Summary Dealing with the FES

- Support
  - Rest
  - Wide saddle coverage / palatal plate
  - Clinical muco-displacive impression
- Stability
  - Retromylohyoid extension
- Retention
  - Indirect
- Abutment damage
  - Mesial rest
  - Flexible clasp

Metal try in

## Metal Framework



## Metal Framework

- **Fit** -  
Does it fit the cast?  
Does it seat correctly in the mouth?  
Adjust now
- **Occlusion** -  
Is it interfering with the occlusion?  
Adjust now
- If two frameworks –  
adjust each separately then  
both together



## CJR stage

The purpose of the CJR stage is to collect the following information for the technician

- Record of CJR
- Tooth position
- Tooth selection



## Jaw relationships

Tooth contact is stable?  
- Hand articulate

Tooth contact but is not stable  
- Wax rims for jaw relations  
Retain intercuspal contacts ICP

If there is no intercuspal position use  
Retruded arc / OVD principles as for complete dentures

## Tooth position

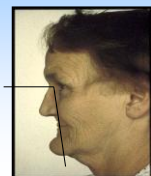
The technician uses anatomical landmarks

If any information is missing (extensive tooth loss), the principles are the same as for complete dentures

## How?

- ICP if possible
- Or
- Trim upper
- Trim lower
- Record CJR - AP and Vertical
- Select teeth

## Lip support

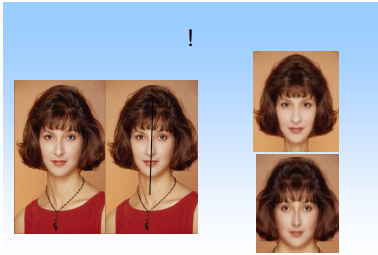
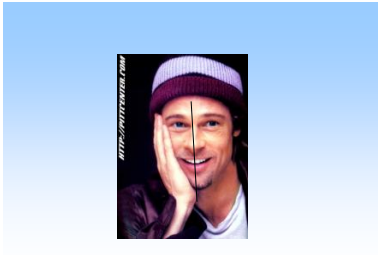
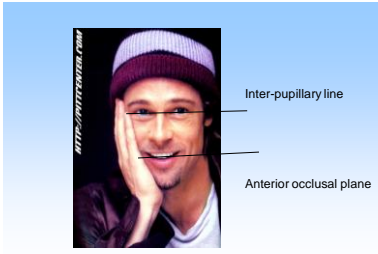


■ Naso labial angle

## Lip support



Alma gauge



**How to determine OVD**

1. RVD
2. OVD previously satisfactory dentures
3. Appearance

Decide!  
Too much FWS causes fewer problems than too little

**Changing OVD**

- Need to increase OVD?
- The greater the change the greater adaptation needed
- Try testing an increase?
  - Acrylic
  - Splint

**Aesthetics**

- OVD
- Major tooth position
- Minor tooth position
- Tooth selection
- Tooth modification
- Gingival modification
- Path of insertion
- Clasps

## Tooth selection



- I. Material
- II. Mould
- III. Shade

## Tooth selection

Mould and shade

Facial shape

- Square
- Ovoid
- Tapering

Previous dentures

Photos



## Tooth selection

Mould and shade

Facial shape

- Square
- Ovoid
- Tapering

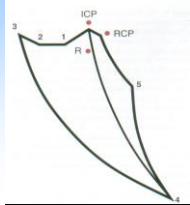
Previous dentures

Photos



## Recording CJR

Posselt's space envelope  
Border movements  
Recording RCP



## Recording CJR

How?

Base stability  
Horizontal and vertical control  
Locate

## Restoring the occlusion - dental articulators



1. Simple hinge



2. Average value



3. Semi adjustable



4. Fully adjustable

## EBD - facebows for prosthodontics



Farias-Neto A, Dias AHM, de Miranda BFS, de Oliveira AR 2013  
Face-bow transfer in prosthodontics: a systematic review of the literature.  
Journal of Oral Rehabilitation 40:686-692

## Occlusion

- Occlusion and partial dentures

Partial denture teeth should not interfere with natural teeth contact in ICP or lateral excursions

If a new occlusion is provided principles are as for complete dentures

**TRY IN**

### Try in

- Base
- Occlusion
- Tooth position
- Appearance

### N.B.

Process partial dentures on duplicate models



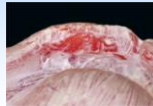
### Fit

- Fit
- Occlusion
- Appearance

### Fit



### Fit



### Fit

- Look
- Listen
- Feel
- Ask patient

- Artic paper back up



### Fit

- Occlusion
  - ICP RCP Cusp fossa
  - Balance BULL



### Fit

- If correction would be excessive - remove teeth

### Instructions

What to expect

What to do

Cleanser  
Adhesive

## Adhesives



## Cleaners



## Review

- History
- Examination
- Treatment plan

Adjustments without identifying the cause can lead to multiple adjustments and the possible need to remake.

## Refurbishment

- Relines
- Repairs
- Additions
- etc.

## Reline materials

- Hard
  - Lab acrylic
  - Chairside acrylic copolymer  
local Takuso Rebase
- Soft
  - Chairside Viscogel



## Problem Solving



## Problem Solving

Systematic approach!

- Assessment
- Diagnosis

## Problem Solving

- History
- Exam
- Special investigations
- Diagnosis

Treatment plan  
Prognosis

## Problem Solving

- Assessment

Use a standardised format in order to detect-

Patient factors  
Denture factors



### Problem Solving

- Patient factors

- Anatomy
- Pathology
- Physiology - function
- Psychology



### Problem Solving

- Patient factors

- Psychology Normal
- Personality



### Problem Solving

- Patient factors

- Psychology abnormal
  - Neuroses
  - Psychoses
  - Personality disorders
  - Other



### Problem Solving

- Denture factors

- Fit surface
- Clasp units
- Polished surface
- Teeth (selection position)
- Occlusion



### Problem Solving

- Assessment
- Diagnosis

- Options
  - Nothing
  - Adjust/correct
  - Replace
    - Standard technique
    - Special technique

### Problem Solving

- Looseness
- Fracture
- Appearance
- Allergy
- Impaction
- Other

- Loose

- Support
- Stability
- Retention

All can be controlled to a degree - partial dentures may be loose

- Patient factors

- Anatomy
- Saliva
- Ability
- Expectations



- Denture factors

- Fit surface / clasps
- Polished surface
- Tooth selection position
- Occlusion



### Problem Solving

- Assessment
- Diagnosis
  - Options
    - Nothing
    - Adjust /correct
    - Replace
      - Standard technique
      - Special technique

### Problem Solving

Systematic approach can be applied to -

- Looseness
- Fracture
- Appearance
- Allergy
- Impaction
- Other

### Special materials / Special techniques

### Implant retained prosthesis

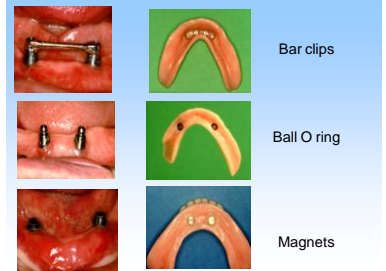
Mr L



### Advantages Disadvantages

- |                 |                         |
|-----------------|-------------------------|
| • Stability     | • Surgery               |
| • Function      | • Failure/complications |
| • Psychological | • Maintenance           |
|                 | • Cost                  |

Benefit v Harm  
**Informed consent**



### Controlling aesthetics



### Controlling aesthetics

1. Perfect - BSD
2. Imperfect anonymous
3. Imperfect and personal



- Complex argument regarding what should be done in clinical practice
  - Build on success
  - Informed consent

### Factors that control aesthetics

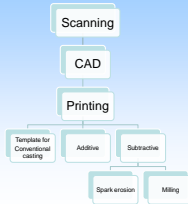


### Factors that control aesthetics

- OVD
- Major tooth position
- Minor tooth position
- Tooth selection
- Tooth modification
- Gingival modification



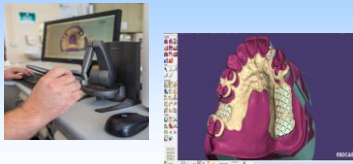
### CAD CAM



### CAD CAM



### CAD CAM



### a. CAM - template



### b. CAM CoCr sinter



### Valplast

- Thermoplastic nylon
- Flexible
- Aesthetic



### Valplast

- Mucosa borne
- Added to a CoCr tooth borne or tooth and mucosa borne framework

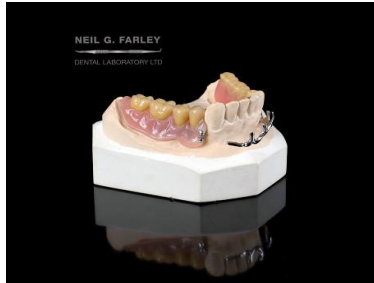


### Valplast

- Flexible base
- Adjustable?
- Reline?
- Repair?



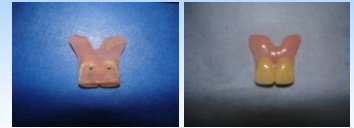
## Swinglock dentures



## Two part dentures

- Sectional dentures Locked by -
- Two parts with different paths of insertion
  - Bolt
  - Split pin

## Two part dentures



## Unilateral partial dentures



- Two part
- Cobalt chrome
- Valplast



Goodall W et al. Brit Dent J. 2017; 222:79 - 84



## Impaction

Swallowed Inhaled

- Symptoms
  - Early
  - Medium
  - Late
- Risk factors
- Diagnosis /Treatment
- Prevention



## Allergy



## Allergy

Diagnosis?

- Infection
- Irritation
- True allergy



## Allergy

Allergy to what?

- MMA
- Pigments
- Metals



## Allergy

Testing



Alternative materials

- Luxene Vinyl resin
- Valplast Nylon

## Retching

Normal v abnormal



## Retching

- The retch reflex
  - Normal
  - Abnormal
    - Mechanical
    - Olfactory
    - Auditory
    - Anticipatory

Assessment - Patient factors / Denture factors

## Retching

### Structured assessment

Patient factors

Denture factors

## Retching

- Patient factors

Anatomy  
Pathology  
Physiology  
Psychology

## Retching

- Denture factors

Fit surface  
Polished surface  
Tooth position  
Occlusion

## Retching

- During dental treatment, retching can be managed by

- Reducing mechanical stimuli
- Psychological
- Pharmacology
- Alternative measures

## Prominent retch reflex

- Making a denture

Mechanical  
Good technique  
Psychologic  
Anti anxiety  
Distraction  
Pharmacologic  
Anti anxiety  
Relative analgesia  
Alternative  
Hypnosis

## Prominent retch reflex

Tolerating the denture Options

- Reducing mechanical stimuli  
Thin / small denture  
IROD
- Psychological  
Errorless learning  
Systematic desensitisation

## Prominent retch reflex

Management - Tolerating the denture

*Denture design –*

Thin

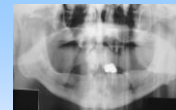
Reduced extension

Palateless



## Implant retained prosthesis

Mr L



### Prominent retch reflex

Combined physical and psychological treatment



### Prominent retch reflex

Management - Tolerating the denture

- Mechanical
  - Denture design
  - Palateless
  - IROD
- Psychological
  - Anti anxiety
  - (Errorless learning)
  - Systematic desensitisation

### Prominent retch reflex

Desensitisation

- Maxillary impression warm alginate or compound
- Training plate 2/3 post dams
- Progressive increase in wearing
- Add teeth
- New denture ? copy technique



and finally.....

### Laboratory



### Success in prosthetic dentistry

- Good basic technique
- Knowledge of special techniques
- Sympathetic manner



### Success in prosthetic dentistry

- Good basic prosthetic techniques
- Knowledge of special techniques
- Sympathetic manner
  - Good communication
  - Good treatment planning

### Aims and objectives

- To describe clinical prosthetic dentistry
  - Describe clinical stages partial denture prosthetics
  - Describe problem solving techniques
- To give you the opportunity to discuss any aspect of partial denture prosthetics