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OH16 2012 Design and manufacture complete removable prostheses

OVERVIEW

This standard focuses on the design and manufacture of complete removable prostheses - polymeric dentures. These are dental devices which are custom-made to fit the patient's unique mouth shape and which replace the complete set of upper and/or lower teeth. The prosthesis incorporates one or more of the following factors:a method of retentionaesthetics including the creation of an overdenturethe degree of occlusion including the use of onlays, deep overbitethe requirement for minor obturationimplant supported precision attachments.The removable prostheses may be new, replacement, immediate or duplicate and may contain resilient liners. The worker needs to design and manufacture a trial prosthesis, modify these where necessary following a try-in and then manufacture, and finish final complete removable prosthesis.The term 'client' is used to mean the member of the oral health care team who has prescribed the custom-made prosthesis. Clients may be external to the organisation (such as other laboratories, dental practitioners, training schools) or internal (within a dental hospital). The patient is the individual for whom the custom-made prosthesis is being made.Users of this standard will need to ensure that practice reflects up to date information and policies.Version No 2

KNOWLEDGE AND UNDERSTANDING

You will need to know and understand:

1. the skeletal anatomy, physiology of the head and neck and tooth morphology
2. the structure, function, and movement of the oro-facial musculature including the tongue and temporomandibular joint
3. disorders and diseases affecting the oral cavity
4. the aetiology and classifications of malocclusions
5. the physiological and pathological changes associated with ageing process and trauma related to the oral environment
6. the importance of retention of the periodontal ligament and the changes in proprioception due to loss of periodontal ligament
7. the broader factors (sociological, behavioural, environmental and economic) that contribute to oral health and illness
8. the emotional response by the patient to tooth loss
9. the role of removable prostheses in the restoration and maintenance of:
    1. tissue support
    2. aesthetics

3. phonetics
4. function of occlusion and the temporomandibular joint

10. the importance of restoring and maintaining the occlusal vertical dimension
11. the benefits and restrictions of immediate tooth replacement in the provision of removable prostheses
12. the benefits and restrictions of retaining root structures in the provision of removable prostheses
13. the use and need for transitional removable prostheses
14. the purpose and use of resilient liners and tissue conditioners; effect of in vivo environment on long term performance of liners; microbial contamination of liners, effect of surface topography on in vivo performance
15. the design limitations of large anterior undercuts and pre-existing dental conditions
16. the use of a dental surveyor and identifying useable and non useable undercuts in the design of the partial dentures and clasp positioning
17. retention and stability
18. aesthetics and phonetics
19. articulation
20. the classification and sub-classification of materials on the basis of chemical composition and internal structure
21. the mechanical, physical, thermal, chemical and biological properties of materials
22. products for cast and mould manufacture
23. waxes or similar materials used in the manufacture of removable prostheses
24. dental polymers
25. structural features of polymer chains:
26. denture base polymers
27. artificial tooth materials
28. impression, duplicating and cleaning materials
29. methods of developing, maintaining and improving communication and information relating to the provision of custom-made dental devices
30. the importance of communicating with individuals at a pace, in a manner, and at a level appropriate to their understanding, needs and preferences, whilst maintaining their dignity and choice
31. methods of infection control when handling received impressions and other items which may have been in the mouth, or which are intended to be placed in the mouth
32. the purpose of personal protective equipment
33. the range of equipment used in the design and manufacture of dental devices; methods of using equipment and materials safely including the use of chemicals and other hazardous substances; methods of storing different equipment and materials safely and securely; methods of cleaning and maintaining different types of equipment and your role in this
34. the reasons for maintaining records throughout the process and of clearly identifying the products during the manufacturing process
35. organisational procedures and requirements for the recording of information about incoming work, work in progress and work delivered to clients, and the purpose of this
36. principles of quality assurance including effective recording and sampling; processes and procedures for quality assurance in your workplace
37. methods of setting and calibrating equipment and of testing that this is correct
38. the effects of modifying manufacturers' products to meet laboratory requirements on the physical properties of products and on quality assured products, and the legal implications of poor manufacturing
39. legal requirements of the contract of employment, confidentiality and employers' regulations

40. health and safety at work legislation and related procedures and liability; principles of and how to apply, legislation and regulations relating to the manufacturing of devices
41. the role and obligations of members of the dental team and the regulatory functions of the General Dental Council

PERFORMANCE CRITERIA

You must be able to do the following:

1. effectively clean the returned occlusal registration rim and baseplate and transfer registration information accurately to the cast
2. mount the cast on an appropriate articulator with any available occlusal registration information
3. survey and block out unwanted undercuts and duplicate the cast if required
4. transfer registration information accurately to the cast
5. modify, position and attach the prescribed artificial teeth to the baseplate
6. shape and contour the supportive wax consistent with the patient's musculature
7. effectively clean the trial removable prosthesis, prepare and package it safely for despatch and return it to the client at the agreed time
8. check the returned trial prosthesis for loosening or movement of teeth which may have occurred during try-in and make any adjustments which are necessary
9. fit the returned trial prosthesis to the cast if it needs to be modified, articulate it if this is required and make the required modifications
10. evaluate the prescription, the casts, the design and the modified trial prosthesis and decide:
    1. whether to use a duplicate cast for processing the final prosthesis
    2. how the occlusal load should be distributed in the final prosthesis
    3. whether there is a need for spacers
11. make a mould with the appropriate material to size and shape for converting the wax trial prosthesis to polymeric material
12. eliminate wax from the mould and prepare the surfaces of the mould and the artificial teeth for the introduction of polymeric
13. add spacers to create the correct size of void for a resilient lining reservoir chamber if this has been prescribed
14. select polymeric material to manufacture the prosthesis and any resilient liner of a type and colour which is compatible with the patient
15. mix resin and monomer and process to manufacturers' guidelines
16. determine the need for and perform a trial closure when using conventional packing, making additional modifications to form the resilient lining until the final required prosthesis is produced
17. process the polymeric material in accordance with the manufacturers' guidelines
18. release the processed removable prosthesis from the mould without causing damage and trim any excess material
19. select methods, materials and equipment for trimming, finishing and polishing the final prosthesis that are appropriate to the type of prosthesis and the materials used to make it
20. check finished denture fit and occlusion on the articulator and make any necessary adjustments to maintain the original vertical dimension of the occlusion

21. correctly identify the finished prosthesis with the patient's unique reference and date of production
22. effectively clean the finished prosthesis, identify with the patient's unique reference and package it safely for despatch along with any instructions for the patient and/or client
23. provide Statement of Manufacture for the appliance as required under current regulation

ADDITIONAL INFORMATION

This National Occupational Standard was developed by Skills for Health. It replaces DT04 and DT05.This standard links with the following dimension within the NHS Knowledge and Skills Framework (October 2004):Dimension: HWB9 Equipment and devices to meet health and wellbeing needs