

LESSON PLAN 2& TEST QUESTIONS
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I.COVER SHEET:

Course: DEH 321 Dental Materials

Topic: Impression Materials

Audience: Adult Learners (Junior Dental Hygiene Student)

Time: 50 Minutes

Personnel: None needed

Instructional Objectives:

Upon completion of the lecture, the student should be able to:

1. Define the dental impression and impression materials.
2. List the classification of impression materials.
3. Describe the uses of dental impression materials.
4. Summarize the Impression techniques.
5. Share the advantages and disadvantages of each impression material.

Materials: PowerPoint

References:

- Cervino, G., Fiorillo, L., Herford, A., Laino, L., Troiano, G., Amoroso, G., Crimi, S., Matarese, M., D'Amico, C., Nastro Siniscalchi, E., & Cicciù, M. (2018). Alginate Materials and Dental Impression Technique: A Current State of the Art and Application to Dental Practice. *Marine Drugs*, 17(1), 18. <https://doi.org/10.3390/md17010018>
- Craig, R. (1988). Review of Dental Impression Materials. *Advances in Dental Research*, 2(1), 51–64. <https://doi.org/10.1177/08959374880020012001>

Gupta, R., & Brizuela, M. (2022). Dental Impression Materials. Retrieved 31 March 2022, from <https://www.statpearls.com/ArticleLibrary/viewarticle/131826>

Impression materials: a comparative review of impression materials most commonly used in restorative dentistry. Pocket Dentistry website. pocketdentistry.com/impression-materials-a-comparative-review-of-impression-materials-most-commonly-used-in-restorative-dentistry/. Published June 15, 2016. Accessed March 6, 2020.

Impression materials for dental prosthesis. (2019, January 1). ScienceDirect.

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TIME	LESSON CONTENT	NOTES
	<u>II. INSTRUCTIONAL SET</u>	
2 Minutes	<p><u>1. Introduction</u> An accurate record of the dimensional characteristics of oral soft & hard tissues structures is vital in dentistry. Today we will discuss the relationship between impression material and dental health.</p> <p><u>2. Established Mood</u> By attending today's lecture, you show a great deal of responsibility as a dental hygienist to the patients to perform the right instrument for specific use. Today we will learn about dental impression material and the definition of impression.</p> <p><u>3. Gain Attention/Motivate</u> Assume you are required to obtain a dental impression for a patient. Will you be able to tell which types to use? How will you be able to tell the difference between the various imprint materials?</p> <p><u>4. Established Rational</u> By understanding all information provided regarding dental impression material and the advantages and disadvantages of each type, you will be able to make a dental impression for your patient.</p> <p><u>5. Established Knowledge Base</u> What are the uses of impression materials? What are the most impression material is used? How many techniques could be used by the impression materials?</p>	<p>Slide #1</p> <p>Impression Material Title</p> <p>Note:</p> <p>The impression materials must be both safe and easy to manipulate for the patient.</p> <p>Q: Why do we need to make an impression on the patients?</p> <p>A: The impression has many uses including diagnosis, and treatment planning</p> <p>Slide #2</p> <p>Media: Funny quote of dental impression</p>
2 Minutes		

TIME	LESSON CONTENT	NOTES
2 Minutes	<p><u>6. Instructional Objective</u></p> <p>After today's lecture, you should be able to define the dental impression and impression materials, list the classification of impression materials, Describe the uses of dental impression materials, summarize the Impression techniques, and share the advantages and disadvantages of each impression material.</p>	<p>Slide #3 Objectives</p>

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u>	
2 Minutes	<p>I. Impression materials</p> <p>A.Impression material Definition:</p> <p>The materials used to record the shape accurately and dimensional characteristics of teeth to precisely transfer the impression to the model</p> <p>B. Dental Impression Definition:</p> <p>The dental impression is the negative replica of the oral soft & hard tissues.</p>	<p>Slide #4 Impression materials</p> <p>Q: Is the dental impression can copy the details of the hard tissue? A: Yes</p> <p>Media Picture of dental impression</p> <p>Note: Dental impressions let dental work to be performed even when the patient is not present.</p>
2 Minutes	<p>C. Uses of dental impression materials:</p> <p>The dental impression materials are used to copy the oral soft & hard tissues for:</p> <ol style="list-style-type: none"> 1. Analyze and diagnose a clinical case 2. Build occlusal splints and mouthguards 3 Treatment planning 4. Maintaining records 	<p>Slide #5: Uses of dental impression materials:</p> <p>Media: pictures of the different use for the impression materials</p>
2 Minutes	<p>D. Impression techniques:</p> <ol style="list-style-type: none"> 1. Full dentures impression 2. Partial dentures impression 3. Fixed prosthodontics 	<p>Slide #6 Impression techniques:</p> <p>Media: 2 pictures of Impression of full and partial.</p>

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
3 Minutes	III. BODY/CONTENT	Slide #7 Classification of impression materials:
	II. Classification of impression materials: A. Non-elastic (Rigid): Material is complex and not suitable for the final impression. Types of non-elastics: 1. Impression Plaster 2. Impression compound 3. Zinc oxide-eugenol 4. Impression waxes	Media: picture of the non-elastic impression. Note: Non-elastics material cannot be used in areas where undercuts Q: Why non elastic material cannot be used in area where undercut? A: because upon setting the material would become locked in place or fracture when removed
2 Minutes	B. Elastic: The elastic is flexible at the time of removal from the mouth Types of elastics: 1. Hydrocolloids: a. Reversible (Agar) b. Irreversible (Alginate) 2. Elastomers: a. Polysulfide b. Silicones c. Polyether	Slide #8 Classification of impression materials (count): Note: hydro mean water, colloids mean gelatin substance

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u>	
2 Minutes	<p>III. Requirement for impression materials:</p> <ol style="list-style-type: none"> 1. Sufficiently fluid to reproduce all of the fine details. 2. Suitable setting time (2-3 minutes) 3. Acceptable to the patient (pleasing odor, color, and taste) 4. Safe (Not toxic or irritant) 5. Sufficient mechanical strength 6. Dimensionally stable 7. Compatibility with die and cast materials 8. Good keeping qualities <p>IV. Non-elastics:</p> <p>1. Impression Plaster:</p> <ol style="list-style-type: none"> A. Used for final impression for a complete denture. B. Rarely used these days 	<p>Slide #9 Requirement for impression materials:</p> <p>Q: What happens if the impression material could include toxic material?</p> <p>A: Do not use it until be sure it's safe</p> <p>Slide #10 Impression Plaster:</p> <p>Media: 2 pictures of Impression Plaster</p>
2 Minutes	<ol style="list-style-type: none"> C. Advantages <ol style="list-style-type: none"> a. Simple to mix b. Work time 2-3 minutes 	<p>Slide 11# Advantages and disadvantages of Impression Plaster:</p>

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u>	
	<ul style="list-style-type: none"> c. Set time 2-3 minutes d. Low cost e. Good accuracy and dimensional stability 	
	D. Disadvantages: <ul style="list-style-type: none"> a. Insufficient strength b. rough surface finish c. Abrasion resistance is poor d. Rigid when set 	
	2. Impression compound:	
	A. a thermoplastic, rigid and reversible impression material.	
	B. Types of impression compound: <ul style="list-style-type: none"> a. Types 1: Low fusing impression compound. Making primary impression for an edentulous ridge. b. Types 2: High fusing impression compound. Making impression tray. 	Slide #12 Impression compound: Q: What is the difference between the two types of impression compound? A: The difference is one of them is low fusing, and other one is high fusing Media: 2 Pictures of Impression compound Note: (it can be reused in the same patient if an impression needs to be repeated). It is known as a modeling compound). Note: in 1857, Charles Stent created a thermoplastic modeling compound similar to today's impression compound
2 minutes		
1 Minute	C. Advantages and disadvantages of Impression compound: A. Advantages: <ul style="list-style-type: none"> a. Added or removed until achieved a good impression. 	Slide #13 Advantages and disadvantages of Impression compound:

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
3 Minutes	<p><u>III. BODY/CONTENT</u></p> <p>b. Reused for the same patient.</p> <p>B. Disadvantage:</p> <p>a. Not record fine details.</p> <p>b. Poor dimensional stability</p>	<p>Slide #14 #Zinc oxide-eugenol:</p>
	<p>3.Zinc oxide-eugenol:</p> <p>A. Used for final impression for complete denture</p> <p>B. Advantages:</p> <p>a. Low-cost and simple to use</p> <p>b. A good flow aids in the recording of small details</p> <p>c. Good dimensional stability</p> <p>C. Disadvantage:</p> <p>a. Setting time varies depending on temperature and humidity</p> <p>b. It is not compatible with stock trays</p> <p>c. Fragile</p>	<p>Media: Pictue of zinc oxide-eugenol</p> <p>Note: It is wash impression</p>
2 Minutes	<p>4.Impression waxes:</p> <p>A. Used to record the edentulous ridge</p> <p>B. Used to correct a small imperfection in other impressions.</p>	<p>Slide #15 # Impression waxes:</p> <p>Media: picture of impression waxes</p> <p>Q: what is the first impression material that was?</p> <p>A: impression wax</p>

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u>	
	C. Used as bite registration	Note: Wax was the only impression material used in dentistry until the mid-19th century
1 Minutes	VI. Elastic: A. Hydrocolloid impression 1. Agar (Reversible) <ol style="list-style-type: none"> Used for crown and bridge impression. rarely used now the first elastic impression material to be used in dentistry. 	Slide #16 Hydrocolloid impression: (Agar) Note: rarely used now due to the need for special conditioning units and water-cooled trays for impression taking. Media: pictures of the agar impression
2 Minutes	<ol style="list-style-type: none"> Advantages and disadvantages of Impression agar 1. Advantages: <ol style="list-style-type: none"> Dimensionally accurate No mixing is required Reversible Affordable 2. Disadvantages: <ol style="list-style-type: none"> Tears easily Dimensional instability Infection control is a difficult task. Material prepared in advanced Water bath is required 	Slide #17 Advantages and disadvantages of Impression agar: Media: Q: why impression agar is rarely use in these days? A: Need for special conditioning units and water-cooled trays for impression taking

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u>	
1 Minute	2.Irreversible (Alginate): A. Most widely used impression material B. Used as Diagnostic casts for treatment planning	Slide #18 # Irreversible (Alginate): Media: Picture of Irreversible (Alginate)
2 Minutes	C. Advantages and disadvantages of Impression Irreversible (Alginate): 1. Advantages: a. Inexpensive b. Easy to use c. Hydrophilic d. Good impression 2.Disadvantage: a. Low tear strength b. Dimensional instability	Slide #19 Advantages and disadvantages of Impression Irreversible (Alginate): Q: What stage is suitable for alginate? A: Alginate materials are suited well for preliminary impressions
2 Minutes	B. Elastomers impression 1. Polysulfide: A. Useful For a long working time B. Advantages:	Slide #20 elaster, Elastomers impression: 1- polysulfide. Note: When accuracy is needed, such as when preparing crowns and bridges or implant placement, elastomers are necessary.

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u> a. Long working time b. High tear resistance c. Margins easily seen C. Disadvantages: a. Requires custom trays b. Good with stone c. Stains clothing d. Bad odor. e. Impression to be poured within 1 hour	Media: picture of impression polysulfide
2 Minutes	2.Silicone: A. Addition Silicone: The most widely used impression material in fixed prosthodontics 1.Advantages: a. Highly accurate b. High dimensional stability c. Pour up to one week 2.Disadvantages: a. Hydrophobic	Slide #21 #Silicone: Media: picture of addition silicone Q: Which type of silicone consumes more time? A: Condensation Silicone
2 Minutes	B. Condensation Silicone: More affordable than other elastomeric materials 1.Advantages: a. Excellent elasticity recovery	Slide #22 Silicon (count): Media: Picture of the periodontal file.

TIME	LESSON CONTENT	NOTES – MEDIA – Q/A
	<u>III. BODY/CONTENT</u>	

TIME	LESSON CONTENT	NOTES – MEDIA- Q/A
	<u>VIII. CLOSURE</u>	
2 Minutes	<p>A. <u>Summary of Major Points - Relate Back to Objectives</u></p> <p>I hope that you now have a better understanding of impression materials. I hope that you can take what you have learned today and use this knowledge to perform it when you work as a dental hygienist in the dental clinic. I hope you know you can recognize the use of impression materials. Also, to distinguish the differences between the types of impression materials. In addition, you could</p>	<p>Slide #24 Objectives</p> <p>Q: What are the two main types of impression material? A: elastic impression and non-elastic impression</p>

Share the advantages and disadvantages of each impression material.

Provide a Sense of Accomplishment

I hope you will be more comfortable and able to classify the types and use of impression materials and analyze the difference between elastic impression and non- elastics.

B. Assignment:

For a better understanding of our topic today you should:

After today's lesson, I hope you will

1. Review the textbook
2. Search resources regarding this topic
3. Ask me or your instructor

4 Minutes

CRITICAL THINKING ACTIVITY:

Case: Assume that a patient came to your dental clinic, and you checked on his teeth, and everything was great. You cleaned his teeth, and when you finished, he told you that he wanted to do a bleaching tray.

Q: What is the appropriate impression material can be used to do bleaching tray?

Answer: Alginate materials are suited well for preliminary impressions

Q: What is the most widely used impression material?

A: Irreversible (Alginate):

Note: understanding the impression materials will make you do great in the clinic, and you must review the lectures and review the textbook

Media: Video show how to take an Awesome Alginate Impression

Slide #25 Critical Thinking Activity

Q after you got the impression from the patient and the patient left the clinic, you noticed an imperfection in the impression. What can you do?

Answers: after pouring the cast on the impression, you can use the impression waxed to correct the small imperfection. If the imperfection still appears, you should call the patient and make another impression.

Test Questions

1. **Objective #1:** Define the dental impression and impression materials.

Test Item: Which of the following could be copied when applying dental impressions to patients:

- A. Hard palate
- B. Tongue
- C. Teeth
- D. Pulp

1. **Objective #2:** List the classification of impression materials

Test Item: All the following are involved into types of non-elastics **EXCEPT** one. Which is the **EXCEPTION**?

- a. Polysulfide
- b. Impression Plaster
- c. Impression compound
- d. Zinc oxide-eugenol

2. **Objective #3:** Describe the uses of dental impression materials.

Test Item: All the following are involved into the uses of dental impression materials **EXCEPT** one. Which is the **EXCEPTION**?

- a. Build occlusal splints and mouthguards
- b. Analyze and diagnose a clinical case
- c. Treatment planning
- d. Examine the gingival status

4. **Objective #4:** Summarize the Impression techniques.

- **Test item:** Write the three types technique that used for impression?

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5. **Objective #5.** Share the advantages and disadvantages of each impression material.

Test Item: Write one advantage of the alginate impression?

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Correct Answers:

1. c
2. a
3. d
4. Full mouth impression technique
5. Inexpensive, easy to use, hydrophilic, or good impression.