TIME	LESSON CONTENT	NOTES/ MEDIA/ Q &A

Lesson Plan

Course: Clinical Dental Hygiene DHYG 1110

Topic: Occlusion

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

1. Explain basic principles of occlusion.
2. Describe functional and parafunctional contacts.
3. Classify occlusion on a patient using Angle's classification and facial profiles associated with each classification.
4. Discuss types of occlusal trauma and the effects on oral structure.
5. Indicate a commitment to your role as dental professional in identifying and assessing occlusion in the clinical setting.

Materials: Power Point, Computer, Projector

References:

Boyd, L. D., Mallonee, L. F., Wyche, C. J., & Wilkins, E. M. (2020). *Wilkins' clinical practice of the dental hygienist*. Jones & Bartlett Learning.

Carriere, L. (2016, April). *Nonsurgical correction of severe skeletal class III malocclusion*. JCO Online. Retrieved January 28, 2022, from https://www.jco-online.com/archive/2016/04/216/

de Vasconcellos, O. (n.d.). *(PDF) development of Orthodontics in Brazil and in the world*. Retrieved February 5, 2022, from https://www.researchgate.net/publication/262499739_Development_of_Orthodontics_in_Brazil_and_in_the_world

Occlusion: An overview of Dental Anatomy: CE Course. Country. (n.d.). Retrieved January 26, 2022, from https://www.dentalcare.com/en-us/professional-education/ce-courses/ce500/occlusion

Miniscrew-assisted customized lingual appliances for predictable treatment of skeletal class II malocclusion with severe deep overbite and overjet (2018). Pocket Dentistry. Retrieved January 18, 2022, from https://pocketdentistry.com/miniscrew-assisted-customized-lingual-appliances-for-predictable-treatment-of-skeletal-class-ii-malocclusion-with-severe-deep-overbite-and-overjet-2/

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Personnel: None needed

Time: 50 minutes

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	I. INSTRUCTIONAL SET	
1 Minute	A. Introduction Occlusion is described as the way the teeth meet when the maxilla and mandible make contact together. When the teeth are not in proper occlusion, it is termed *malocclusion.* Depending on the way the teeth align, this can change the shape of an individual's profile (retrognathic or prognathic.) Additionally, teeth in malocclusion can cause speech difficulty, issues with chewing, periodontal issues, and esthetics.	Slide #1 Occlusion Title Slide Q: What are some terms that you think of when referring to occlusion A: Answers will vary
	B. Established Mood By attending today's lecture, you will have a better understanding of occlusion and how it affects the patient. Today we will learn about occlusion and the effects of malocclusion.	Slide #2: GIF of Angles Classifications
2 minutes	C. Gain Attention/ Motivate In this case study, the patient has severe Class III occlusion. You can see how severe the underbite is.	Slide #3: Picture of severe Class III Malocclusion
	D. Established Rationale By understanding the position of teeth and occlusion is important to your role as a dental hygienist because you must be able to identify abnormalities of the teeth and relay your clinical findings to the dentist. Is a patient ready for orthodontic intervention? If a tooth is mobile, is it because the patient is hitting too hard on the specific tooth or is it periodontally involved? If the patient's chief complaint is a sore jaw and headaches in the morning and presents with severe wear, Is the patient clenching and grinding? Does the patient have an open contact in one area and tight interproximal contacts in another? We might have to make different OHI recommendations based on malpositioned teeth.	
	E. Established Knowledge Base Has anybody worked as a dental assistant in general or orthodontic office? Have you assisted with doing fillings or seating a crown on a patient and the day after treatment they call and state, the tooth hurts? Typically, this is caused because the filling material or crown is too high and needs	

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	to be smoothed down so that the teeth are in proper occlusion.	
1 minute	F. Instructional Objectives After today's lecture, you should be able to: 1. Explain basic principles of occlusion. 2. Describe functional and parafunctional contacts. 3. Classify occlusion on a patient using Angle's classification and facial profiles associated with each classification. 4. Discuss types of occlusal trauma and the effects on oral structure 5. Indicate a commitment to your role as dental professional in identifying and assessing occlusion in the clinical setting.	Slide #4: Objectives
4 minutes	**II. THE BODY/CONTENT**	
	I. OCCLUSION A. Static Occlusion B. Centric Occlusion C. Occlusal Classifications a. Angle's Classification 1. Developed in 1900 2. Based on the relationship of 1st molar	Slide #5 Slide #6 Note: Dr. Angle is known as the "Father of modern orthodontics"
	A. Normal Occlusion	
	1. Definition: The ideal mechanical relationship between the teeth of the maxillary arch and teeth of the mandibular arch with an even bilateral distribution of occlusal forces between the maxillary and mandibular arches that is symmetrical.	Slide #7 Note: Normal occlusion is: Mesisobuccal cusp of max 1st molar occludes with buccal groove of mand 1st molar
	2. Facial Profile a. Mesognathic b. Slightly protruded jaws	Slide #8
	3. Molar Relation a. Mesiobuccal cusp of maxillary 1st permanent molar b. Buccal groove of the mandibular 1st permanent molar c. Occlusal force greater on posterior teeth	Slide #9

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	4. Canine Relation a. Maxillary permanent canine occludes: aa. Distal half of mand canine ab. Mesial half of mand 1st premolar	Slide #10
2 minutes	**B. Malocclusion** **1. Definition:** any deviation from the physiologically acceptable relationship of the maxillary arch and/or teeth to the mandibular arch and/or teeth.	Slide #11
	2. 3 Classes of Malocclusion a. Class I b. Class II c. Class III	Slide #12 Note: Summarize 3 classes (facial profile, mention molar relation determines class)
2 minutes	**3. Class I Occlusion** a. Facial Profile b. Molar relation c. Canine relation d. Malposition of Teeth aa. Crowded Anteriors bb. Protruded/ Retruded Max incisors cc. Crossbite dd. Mesial drift of molars	Slide #13 Slide #14 Slide #15 Slide #16 Slide #17 Q: What OH aids would you recommend for these conditions
4 minutes	**4. Class II Occlusion** a. Description, including 2 divisions b. Facial Profile c. Molar Relation d. Canine Relation e. Class II, Division I aa. Description/Condition f. Class II, Division II aa. Description/Condition bb. Example	A: Answers will vary Slide #18 Slide #19 Slide #20 Slide #21 Slide #22 Slide #23 Slide #24 Q: Where are the central/ lateral incisors in occlusion? A: Central= Retruded Lateral:Protruded
3 minutes	**5. Class III Occlusion** a. Description b. Facial Profile c. Molar Relation d. Canine Relation e. Common Malocclusion Conditions	Slide #25 Slide #26 Slide #27 Slide #28 Slide #29

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	aa. Anterior crossbite bb. Anterior incisors—edge to edge cc. Mand incisors crowded lingual to anteriors	
4 minutes	**C. Malrelations of Groups of Teeth** 1. Crossbites aa. Anterior bb. Posterior 2. Edge-to-Edge 3. End-to-End 4. Open Bite 5. Overjet aa. How to measure 6. Underjet 7. Overbite aa. Normal bb. Moderate cc. Deep/ Very Deep dd. Clinical Examination	Slide #30 Slide #31 Slide #32 Slide #33 Slide #34 Slide #35 Slide #36 Slide #37 Note: Pictured is the incorrect way to measure Slide #38
2 minutes	**D. Terminology for Malposition of Individual Teeth** 1. Labioversion 2. Linguoversion 3. Buccoversion 4. Supraversion 5. Torsiversion 6. Infraversion	Slide #39
5 minutes	**II. OCCLUSION OF PRIMARY TEETH** **A. Normal Occlusion** 1. Primary Canine Relation aa. with primate space bb. without primate space 2. Second Primary Molar Relation aa. Variations in distal surface relationships bb. Variations in terminal plane cc. Effects of occlusion of first permanent molars **B. Malocclusion of the Primary Teeth** 1. Same as permanent teeth	Slide #40 Slide #41 Q: What type of occlusion results in Terminal Plane? A: End-to-End

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4 minutes	**III. DYNAMIC OR FUNCTIONAL OCCLUSION**	Slide #42
	A. Types of Occlusal Contacts	
	1. Functional contacts	
	aa. Define	
	2. Parafunctional contacts	Slide #43
	aa. Define	
	bb. Pathologic Wear	
	i. Facets and attrition	
	ii. Pulpal involvement	
	iii. Tooth movement	
	cc. Etiology	Slide #44
	i. Tooth-to-Tooth	
	ii. Tooth-to-Hard Object	
	iii. Tooth-to-Oral Tissues	
	B. Proximal Contacts	Slide #45
	1. Define	
	2. Physiologic functions	
	aa. Dissipates masticatory force	
	bb. Prevents drifting of teeth	
	cc. Protects arch integrity	
	dd. Prevents food impaction	
	cc. Abnormal contacts	
	i. Bone loss	
	ii. Periodontal issues	
4 minutes	**IV. TRAUMA FROM OCCLUSION**	
	A. Types of Occlusal Trauma	Slide #46
	1. Primary	
	2. Secondary	
	3. Acute Trauma	
	4. Chronic Trauma	
	B. Effects of Trauma from Occlusion	Slide #47
	C. Recognition of Signs of Occlusal Trauma	Slide #48
	1. Clinical Findings Associated with Occlusal Trauma	
	aa. Tooth mobility	
	bb. Fremitus	
	cc. Discomfort to pressure	
	dd. Tooth drifting/ pathologic migration	
	2. Radiographic signs	
	aa. Thickening of lamina dura *ortho	Note: Thickening of lamina dura can also be a result of ortho
	bb. Widening of PDL space	
	cc. Root resorption	
2 minutes	**VI. DOCUMENTATION**	Slide #49
	A. Important to clinical notes	

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	aa. Document changes	
2 minutes	**VII. Advancements in Technology** **A. Itero** aa. Scan entire mouth bb. Shows occlusion cc. Sent to Lab dd. Re-scans at hygiene visits ee. Video--	Slide #50 Q: Have any of you used equipment like this? A: Answers will vary Slide #51 Note: Watch Itero Video
3 minutes	**VIII. CLOSURE** A. Summary of Major Points—Relate Back to Objectives I hope that you now have a better understanding of occlusion. I hope that you can take what you learned today and use this knowledge to identify Angle's classes of occlusion and identify occlusal abnormalities in the clinical setting with your patients. As a dental practitioner, we have an important role in assessing oral health and guiding the patient with oral hygiene instruction based on our findings. It is important to keep in mind while you are assessing the patient, if they have misaligned, rotated, or areas with open contacts, to make tailored recommendations specific to their needs. Provide a Sense of Accomplishment I hope you will be more comfortable with identifying classes of occlusion and recognizing facial profiles that are associated with each class and identifying the different types of occlusal trauma.	Slide #52 Note: Revisit Objectives
	B. Assignment For a better understanding of our topic today, you should: 1. Watch this YouTube video: Dental Occlusion, Angle's Classifications: https://www.youtube.com/watch?v=dn53y40PJuE 2. https://itero.com/education-and-support 3. Spend time with study models	Slide #53
5 minutes	**CRITICAL THINKING ACTIVITY** **Case Study #1:** The woman presents for a routine cleaning at your dental office. She is unhappy with her smile and	Slide #54

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her chief complaint is that food is getting caught on her front teeth. She brushes and flosses all the time, but finds that these areas are difficult to keep clean.

1. When you look at the photos, what do you notice? Are her teeth in "normal occlusion"?
   A: Her maxillary teeth are crowded. No, her teeth are not in normal occlusion.
2. What profile does she have?
   Retrognathic
3. Using Angle's Occlusion Classification, what class is she in? Where is the buccal groove of the mand 1st molar in relation to the mesiobuccal cusp of the max 1st molar? Is her left side in the same occlusion as the right?
   Class II, Division II on both sides
4. Are her anterior teeth retruded or protruded?
   Max Central incisors are retruded, Max laterals are protruded
5. What malrelations do you notice?
   Anterior crowding, End-to-End, Deep Overbite
6. As dental hygienist, what OHI would you recommend for this woman?
   Stress flossing, really wrapping the C-shape on the anteriors; Electric TB to get down at the gumline, smaller TB head to access crowded anteriors.

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Test Questions

Objective #1: Explain basic principles of occlusion.

Test Item: Static occlusion is described as:

A. The study of contacts when the mandible is moving; determined for both incisal and molar relationship
B. The study of contacts when the mandible is not moving; determined for both incisal and molar relationship.
C. The study of contacts when the mandible is moving And lateral and protrusive movements of the mandible.
D. The study of the contacts when the mandible is not moving; determined for both incisal and molar relationship.

Objective #2: Describe functional and parafunctional contacts.

Test Item: Which of the following describes the physiologic functions of proximal contacts?

A. Prevents mesial migration
B. Protects arch integrity
C. Dissipates masticatory forces around the dental arch
D. All of the above

Objective #3: Classify occlusion on a patient using Angle's classification and facial profiles associated with each classification.

Test Item: Which of the following describes Angle's Class III malocclusion?

A. The buccal groove of the mandibular 1st molar occludes with the mesiobuccal cusp of the maxillary 1st molar.
B. The buccal groove of the mandibular 1st molar is mesial to the mesiobuccal cusp of the maxillary 1st molar.
C. The buccal groove of the maxillary 1st molar is mesial to the mesiobuccal cusp of the mandibular 1st molar.

D. The buccal groove of the mandibular 1st molar is distal to the mesiobuccal cusp of the maxillary 1st molar.

Objective #4: Discuss types of occlusal trauma and the effects on oral structure.

Test Item: Which is **true** of the following statement: Primary occlusal trauma occurs when excessive occlusal forces on a tooth with normal bone support; Secondary occlusal trauma occurs when normal and abnormal forces are placed on a tooth with inadequate alveolar bone support.

A. First statement is false; Second statement is true
B. First statement is true; Second statement is false
C. Both statements are true
D. Both statements are false

Objective #5: Indicate a commitment to your role as dental professional in identifying and assessing occlusion in the clinical setting.

Test Item: Write 3-4 sentences explaining why of occlusion is important when assessing the patient.

Correct Answers:

1. B
2. D
3. B
4. C
5. As a dental hygienist, it is important for us to know Angle's classifications to be able to identify occlusion in children to determine if they might be ready for ortho. It is important that we know when assessing the patient if the tooth is undergoing occlusal trauma or determine if the tooth is periodontally involved or both. Additionally, as oral health care providers, we need to be able to give oral hygiene recommendations tailored specifically for patients that have open contacts and malpositioned teeth.

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