

American Board of Orthodontics (ABO)



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On-line ABO
Documentation
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Presentation

Electronic Cast Radiograph-Evaluation (CR-E)

<https://americanboardortho.com/media/1191/grading-system-casts-radiographs.pdf>

American Board of Orthodontics (ABO) Electronic Cast-Radiograph Evaluation (CR-E)

Established nearly one hundred years ago, the specialty of orthodontics has made great advances in the orthodontic care that is now available to the public. The result of that care, however, is absent of any credible objective treatment assessment that can be consistently measured. With the development of the new electronic ABO/CR-E assessment tool, we now have a consistent and statistically dependable method to address this past deficiency.

The purpose of this technology is:

1. To determine-with statistical accuracy-a consistent method to evaluate orthodontic treatment outcomes.
2. To assess the areas of needed clinical improvement in a practitioner's result.
3. To provide the American Board of Orthodontics the ability to establish a standard of care that will aid in protecting the public's welfare when receiving orthodontic care from a dental practitioner.

The past decade has seen a meteoric rise in orthodontic software development and its capabilities. A continuous development with positive clinical additions to Ortho Insight 3D™ software is no exception.

The following are the important steps taken by the ABO for the development of a dependable CR-E assessment tool.

Step One:

- Definition and establishment of dental landmark locations in the initial and finished dentition (“feature points”)

Step Two:

- Establishment of requirements for the accurate creation, duplication and printing of digital models
- Creation of a method for accepting measurable digital models in a nonproprietary manner (DICOM).¹⁰ (see 3DPrinting Stereolithographic Final Models)²

American Board of Orthodontics (ABO) Electronic Cast-Radiograph Evaluation (CR-E)

Step Three:

- Creation of the electronic CR-E measuring tool to objectively evaluate and measure treatment outcomes (finished orthodontic treatment results).
- To enhance the reliability and validity of the exam, the Board established a Cast Radiograph-Evaluation tool(CR-E ruler) to evaluate the final dental casts and panoramic radiographs. This scoring system was developed systematically through a series of field tests and the Board has used this initial system-with continuous updates-to evaluate clinical case reports since 1999³.

Step Four:

The Board continuously evaluates the needs of the profession. In response to changes within the profession and in society, the ABO has modified the clinical exam from a case-based oral examination to a scenario-based virtual clinical examination. These changes to the examination required:

- a) The creation of an electronic CR-E measuring tool to objectively assess treatment results virtually.
- b) Training in the use of this software.
- c) Testing of the new electronic measuring tool for reliability.
- d) Statistical assessment of the electronic CR-E measuring tool in a **non-graded portion** of the scenario-based virtual clinical examination.
- e) Subsequent modification/s of the software if necessary based on the statistical assessment of the digital software^{4,5}

The American Board of Orthodontics (ABO)

- **The Mission of The American Board of Orthodontics** is to elevate the quality of orthodontic care for the public by promoting excellence through certification, education and professional collaboration.
- **ABO Vision: The American Board of Orthodontics** is the global leader in orthodontic board certification sets the standards of care for excellence in orthodontics and dentofacial orthopedics.

The new virtual ABO Scenario-based Clinical Examination will be administered at testing centers worldwide and has far reaching implications. It removes physical barriers for the attainment of board certification with the goals to increase the numbers of ABO certified orthodontists worldwide and to improve the quality of orthodontic care being delivered to patients.

References:

1. ABO Morphological Points ©
2. <https://www.americanboardortho.com/media/1157/abo-digital-model-requirements.pdf>
3. <https://www.americanboardortho.com/media/1191/grading-system-casts-radiographs.pdf>
4. ABO Model Analysis Revised Final Document © jg_vk 12_30_2020
5. ABO CR-E Power Point © jg_vk 12_30_2020

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

1. Ortho-Share 3D^(TM)-Online

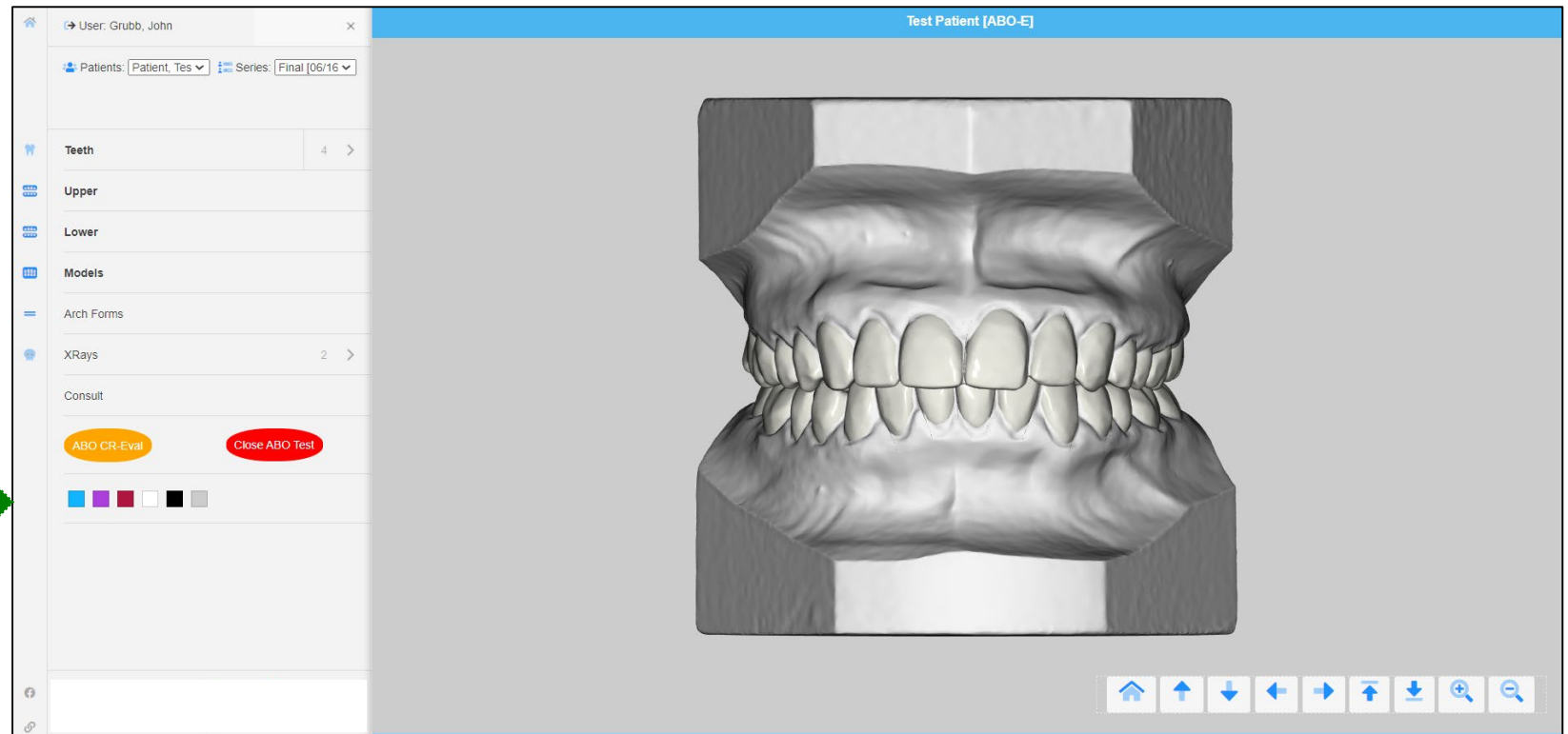
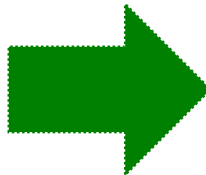


<https://viewer.motionview3d.com/index.php>

2.

Please Login

Username:	<input type="password" value="*****"/>
Password:	<input type="password" value="*****"/>
<input type="button" value="Login"/>	
Status: Waiting...	



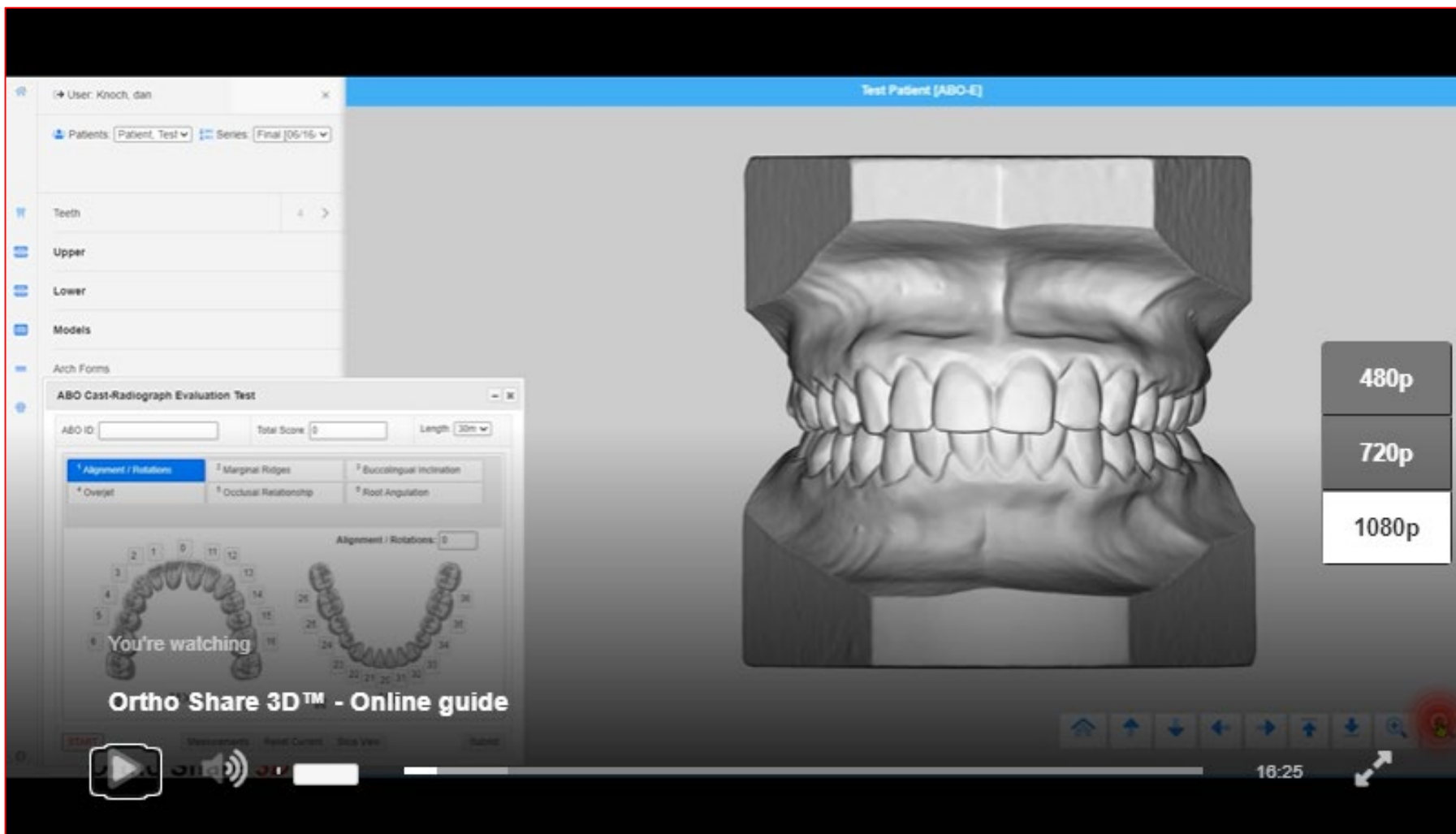
ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D -Online Web Viewer

The screenshot displays the Ortho Share 3D web viewer interface. On the left is a navigation sidebar with categories like Teeth, Upper, Lower, Models, Arch Forms, XRays, Consult, Settings, and About. The main area shows a 3D dental cast of a patient's teeth. Overlaid on this is a window titled "ABO Cast-Radiograph Evaluation Test". This window includes fields for "ABO ID", "Total Score: 0", and "Length: 30m". It lists six evaluation categories: 1 Alignment / Rotations (highlighted), 2 Marginal Ridges, 3 Buccolingual Inclination, 4 Overjet, 5 Occlusal Relationship, and 6 Root Angulation. Below the list are two dental arch diagrams with numbered teeth (0-16 for the upper arch, 20-36 for the lower arch) and a label "Alignment / Rotations: 0". At the bottom of the window are buttons for "START", "Measurements", "Reset Current", "Slice View", and "Submit". A red dashed arrow points from a red-bordered box containing the text "Informational Video- click on ? mark to view the video" to a question mark icon in the top-left corner of the sidebar.

Informational Video- click on ? mark to view the video

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D -Online Web Viewer

Informational Video



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

The screenshot displays the Ortho Share 3D™-Online web viewer interface for ABO Cast-Radiograph Evaluation. The interface is divided into several sections:

- Top Bar:** Shows the user name "User: Grubb, John" and the patient name "Test Patient [ABO-E]".
- Left Sidebar:** Contains navigation options for "Teeth", "Upper", "Lower", "Models", "Arch Forms", "XRays", and "Consult". A red arrow points to the "ABO CR-Eval" button in the "Consult" section.
- Central Evaluation Panel:** Titled "ABO Cast-Radiograph Evaluation", it includes fields for "ABO ID", "Total Score: 0", and "Length: 30m". It features six evaluation categories: 1. Alignment / Rotations, 2. Marginal Ridges, 3. Buccolingual Inclination, 4. Overjet, 5. Occlusal Relationship, and 6. Root Angulation. Below these is a diagram of a dental arch with numbered teeth (1-36) and a sub-panel for "Alignment / Rotations" with a score of 0. Buttons for "START", "Measurements", "Reset Current", "Submit", and "Cancel" are at the bottom.
- 3D Model:** A large 3D rendering of a dental cast showing the upper and lower teeth.
- Bottom Bar:** Includes a navigation bar with icons for home, up, down, left, right, zoom in, and zoom out, and a date "Final [06/16/2020]".
- Footer:** The Ortho Share 3D™-Online logo is visible in the bottom left corner.

To Begin C-RE Evaluation Click ABO CR-E

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 1

Timer
for Test

User: Grubb, John

Patients: Patient, Te... Series: Final [06/16/2020]

Teeth: 4

Upper

Lower

Models

Arch Forms

XRays: 2

Consult

ABO CR-Eval Close ABO Test

ABO Cast-Radiograph Evaluation

ABO ID: Total Score: 0 Length: 30m

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Alignment / Rotations: 0

R MX L R MD L

START Measurements Reset Current Submit Cancel

Final [06/16/2020]

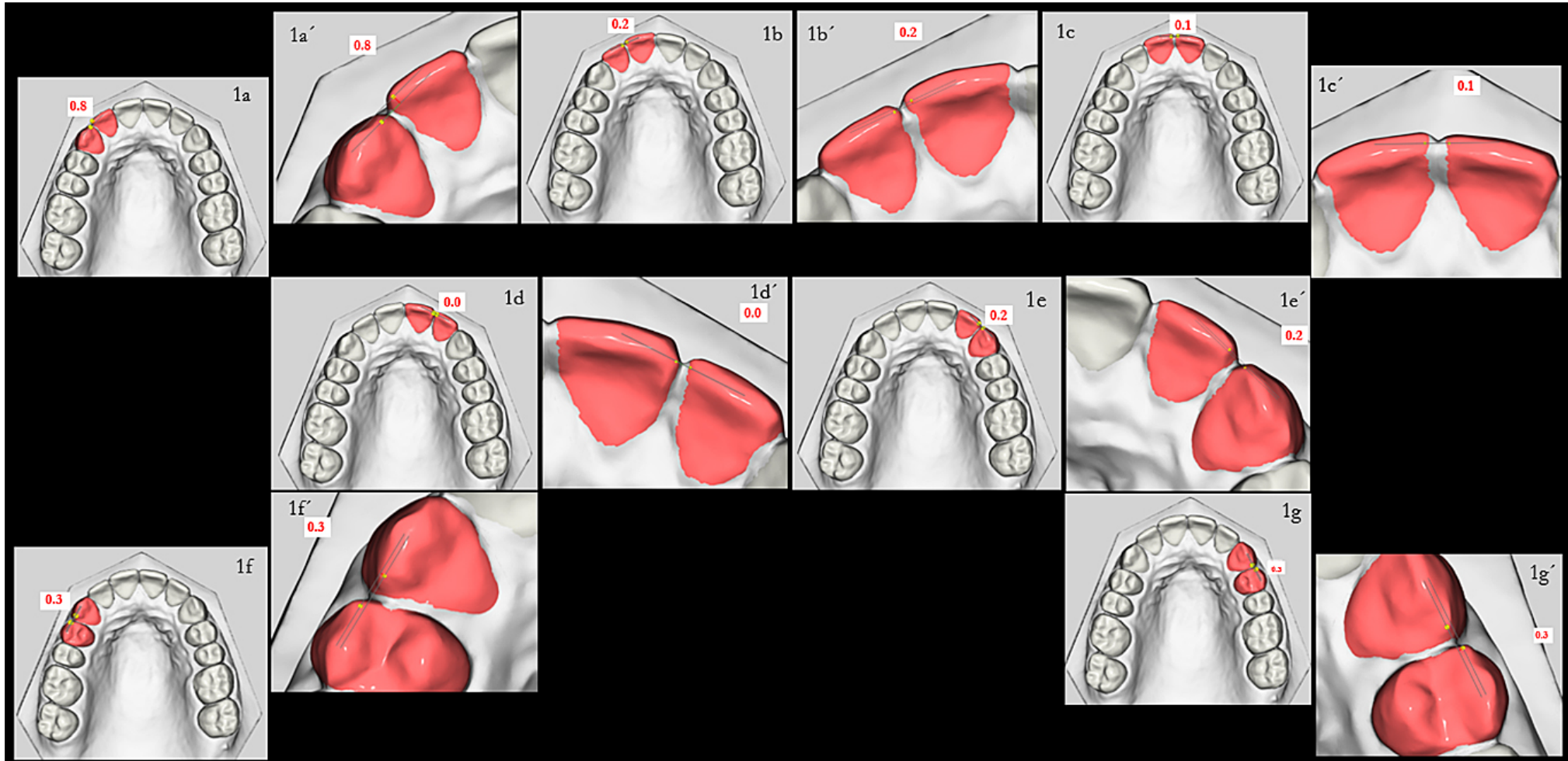
Ortho Share 3D™-Online

To Begin CR-E Testing Click **Start**

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Maxillary and Mandibular Anterior Alignment

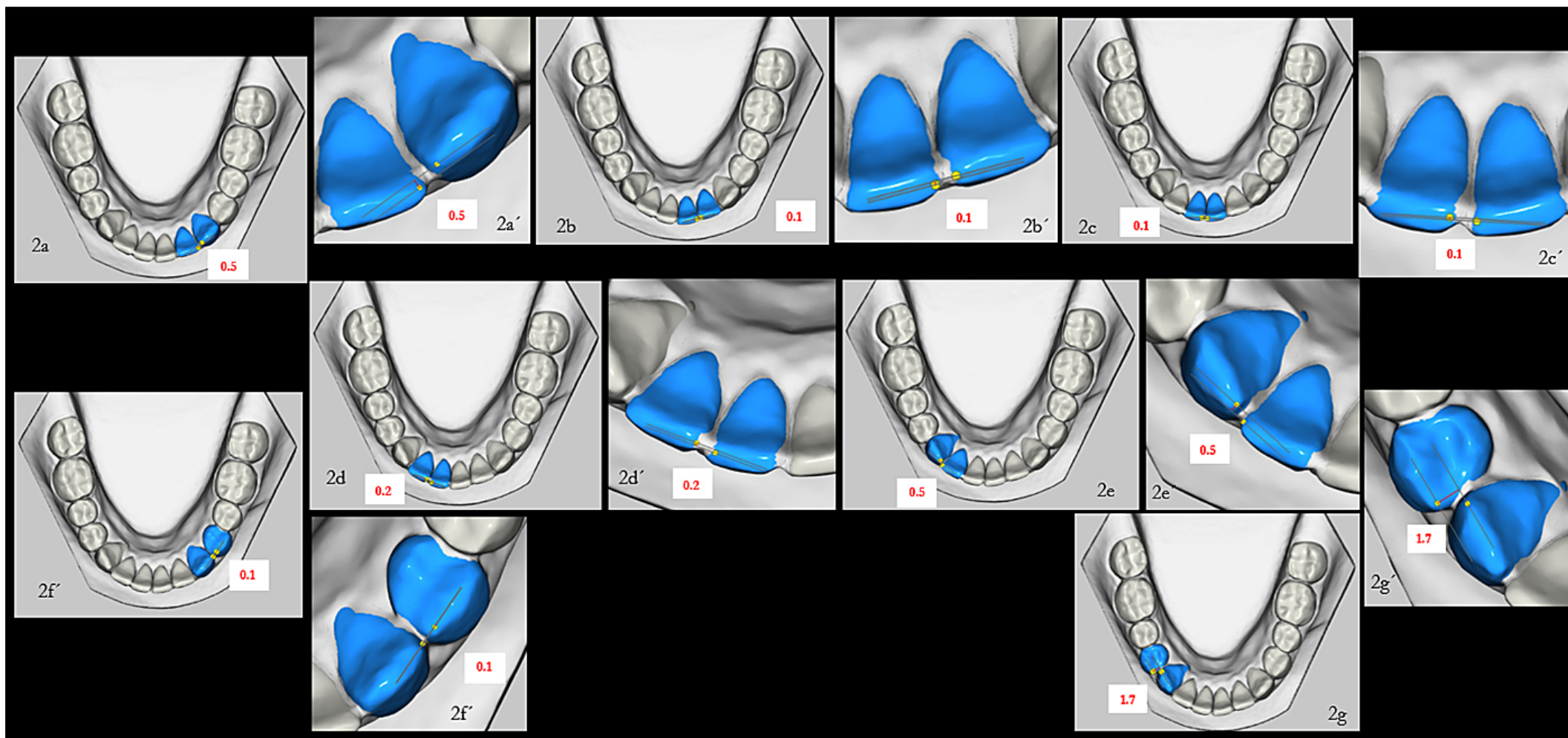
In the maxillary and mandibular anterior regions, proper alignment is characterized by coordination of alignment of the incisal edges and lingual incisor surfaces of the maxillary incisors and canines (figs. 1a-g')



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

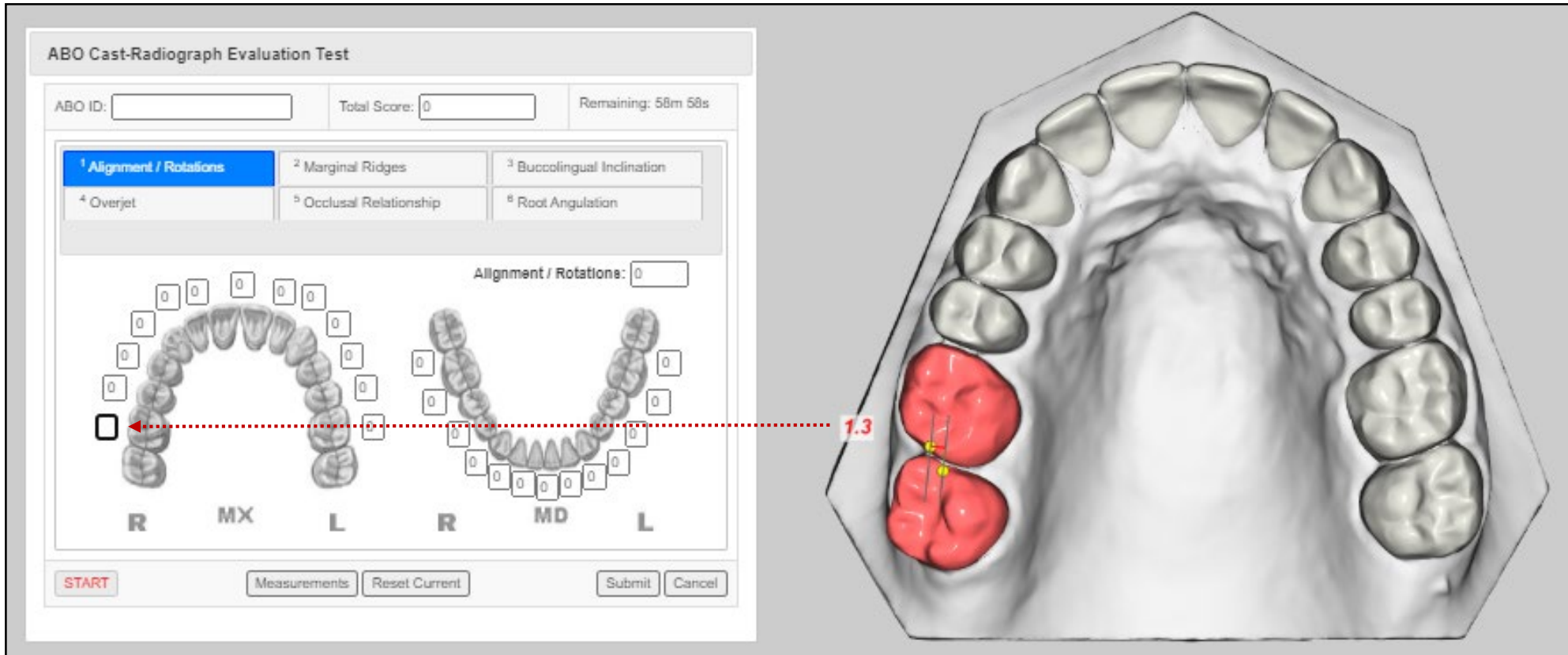
Maxillary and Mandibular Anterior Alignment

and the incisal edges of the labial surfaces of the mandibular incisors and canines (figs. 2a-g')



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 1



Reference: ABO CR-E Model Analysis Revised Final Document

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 2

The image shows the ABO Cast-Radiograph Evaluation Test interface on the left and a 3D dental model on the right. The interface includes a header "ABO Cast-Radiograph Evaluation Test", input fields for "ABO ID:", "Total Score: 0", and "Remaining: 58m 58s". Below these are six assessment categories: 1 Alignment / Rotations (highlighted), 2 Marginal Ridges, 3 Buccolingual Inclination, 4 Overjet, 5 Occlusal Relationship, and 6 Root Angulation. A "Alignment / Rotations: 0" input field is present. The interface also features a "START" button, "Measurements", "Reset Current", "Submit", and "Cancel" buttons. The 3D model shows a maxillary arch with the right 2nd molar and 1st molar highlighted in red. A red dashed line connects the highlighted box in the interface to the 3D model, with the value "1.3" displayed next to the line.

1. Alignment of the maxillary right 2nd molar and 1st molar is 1.3 therefore a number two (2) is placed in the highlighted box.
2. When placing a value in this box it will activate the next assessment area.

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

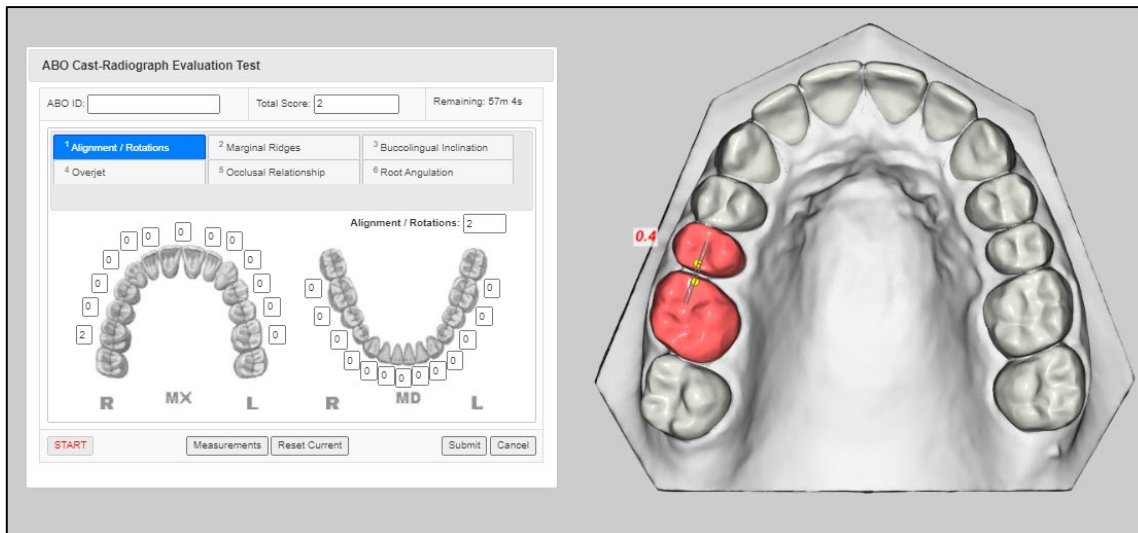
Step # 3

The image shows a screenshot of the 'ABO Cast-Radiograph Evaluation Test' interface on the left and a 3D dental model on the right. The interface includes a header 'ABO Cast-Radiograph Evaluation Test', an 'ABO ID' field, a 'Total Score: 2' field, and a 'Remaining: 57m 4s' timer. Below this is a grid of assessment categories: 1 Alignment / Rotations (highlighted), 2 Marginal Ridges, 3 Buccolingual Inclination, 4 Overjet, 5 Occlusal Relationship, and 6 Root Angulation. A 'Alignment / Rotations: 2' field is visible. The interface also features a 'START' button, 'Measurements', 'Reset Current', 'Submit', and 'Cancel' buttons. A red dotted line points from the 'START' button to the 3D model. The 3D model shows a maxillary dental arch with the right 1st molar and 2nd premolar highlighted in red. A red '0.4' label is placed next to these teeth, indicating a measurement value.

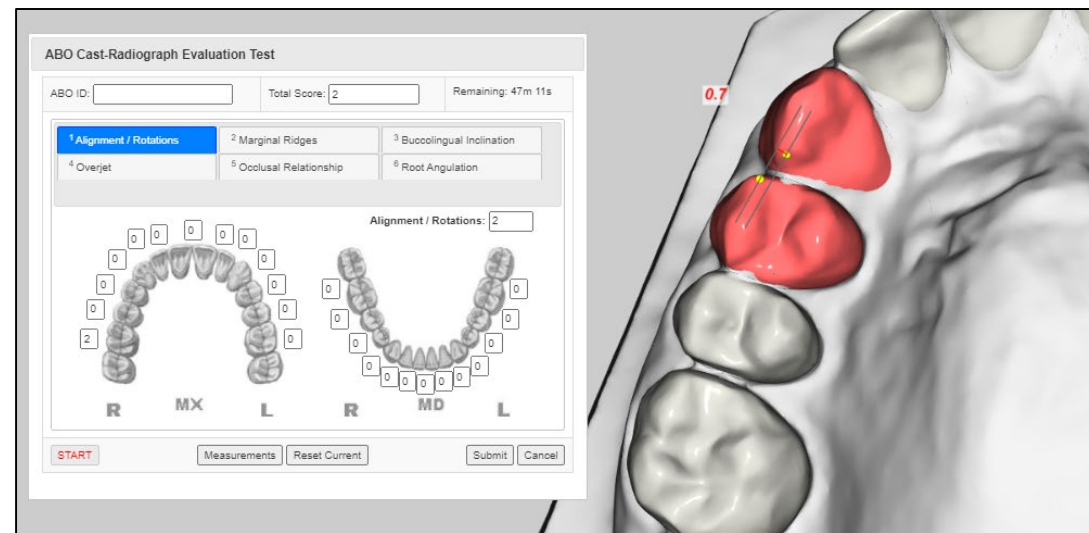
1. Alignment of the maxillary right 1st molar and 2nd premolar is 0.4 therefore a number zero (0) is placed in the highlighted box.
2. When placing a value in this box it will activate the next assessment area.

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

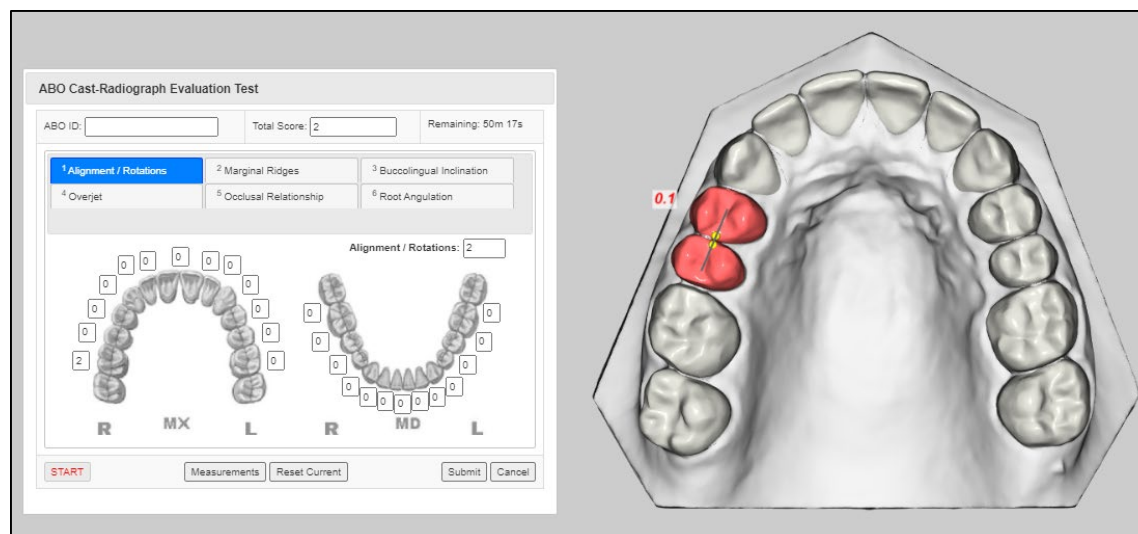
Step # 4



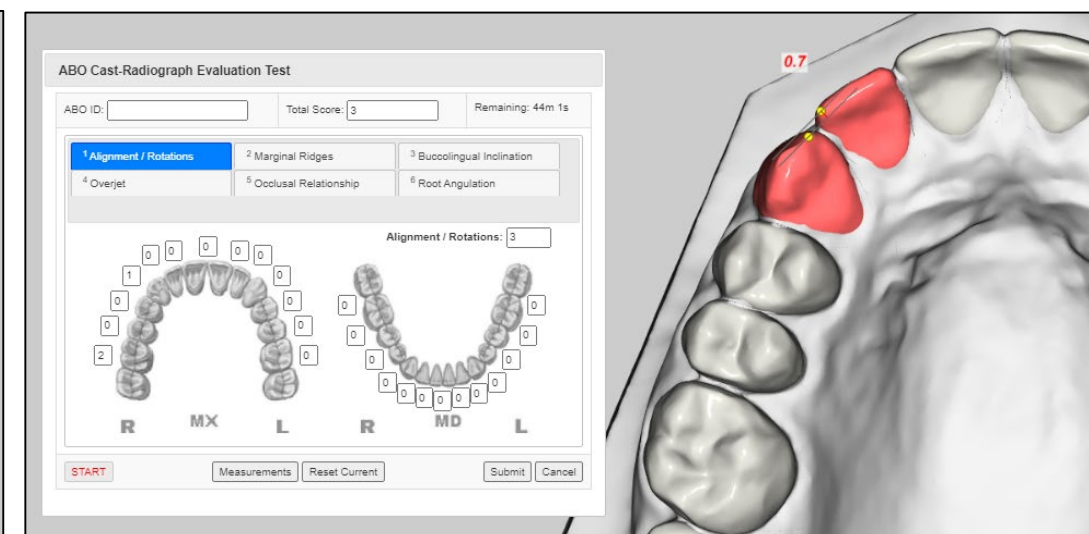
Step # 6



Step # 5



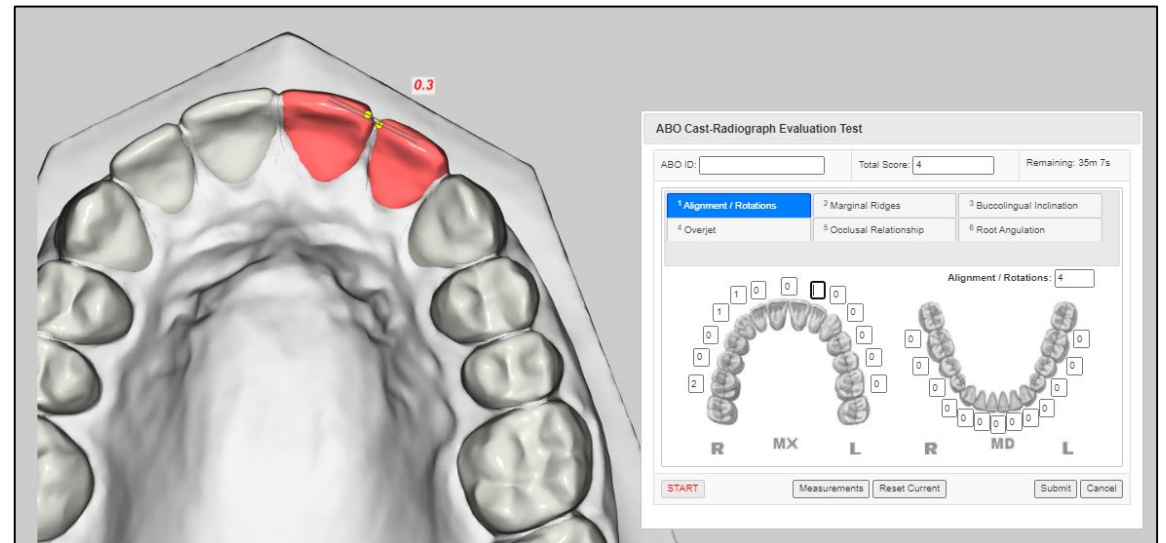
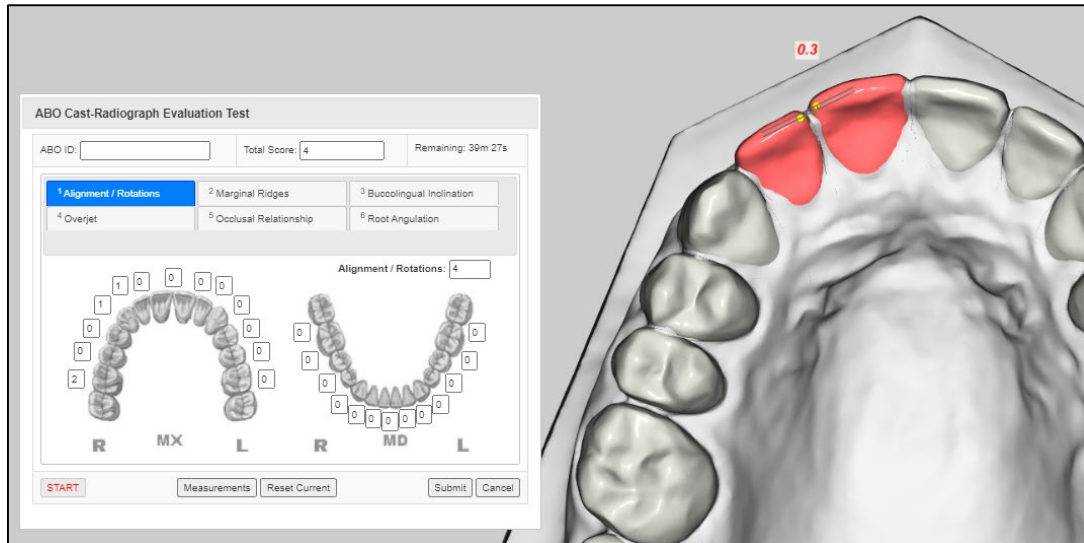
Step # 7



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

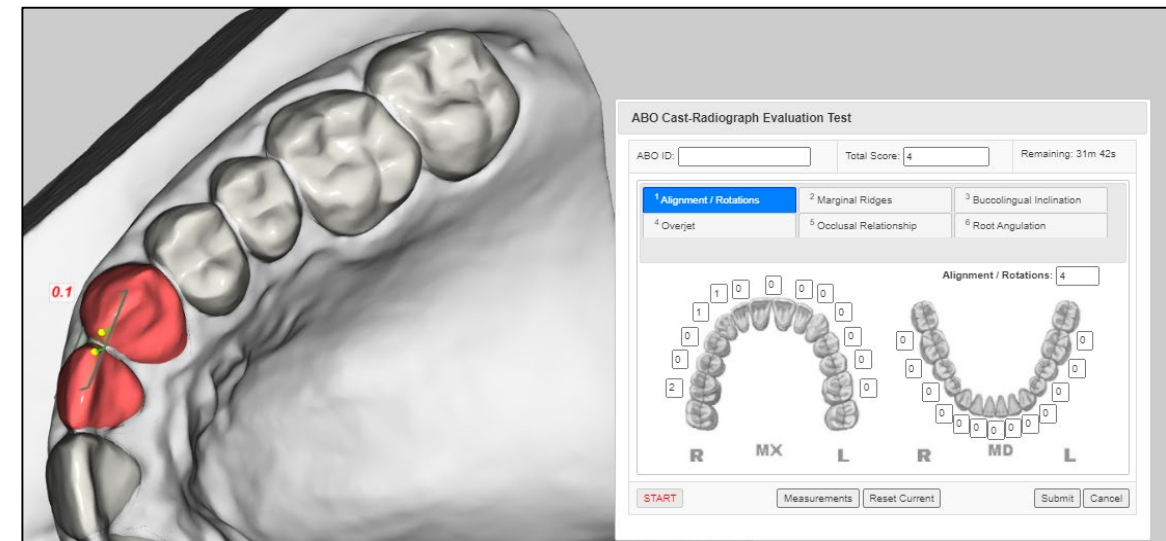
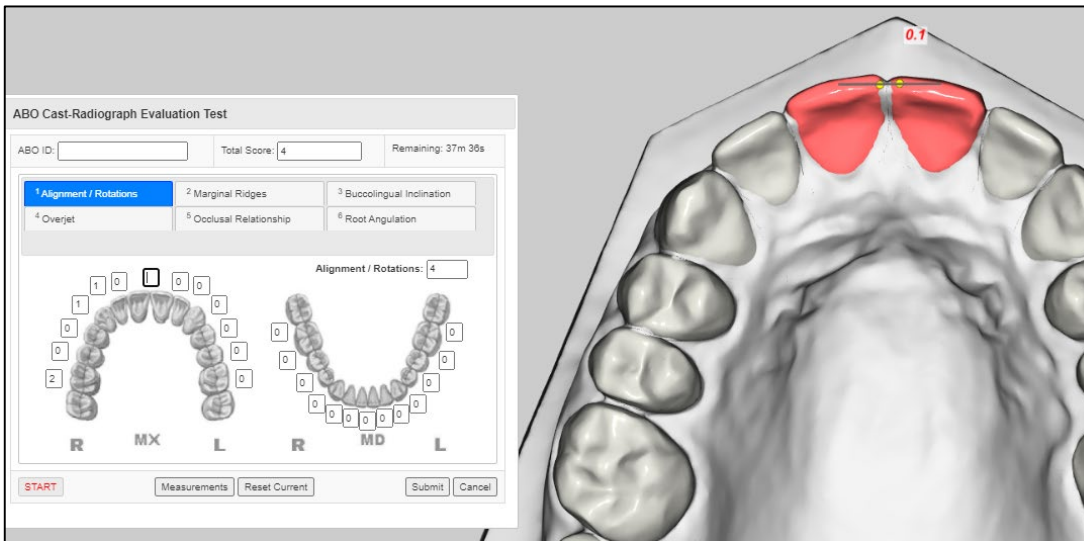
Step # 8

Step # 10



Step # 9

Step # 11

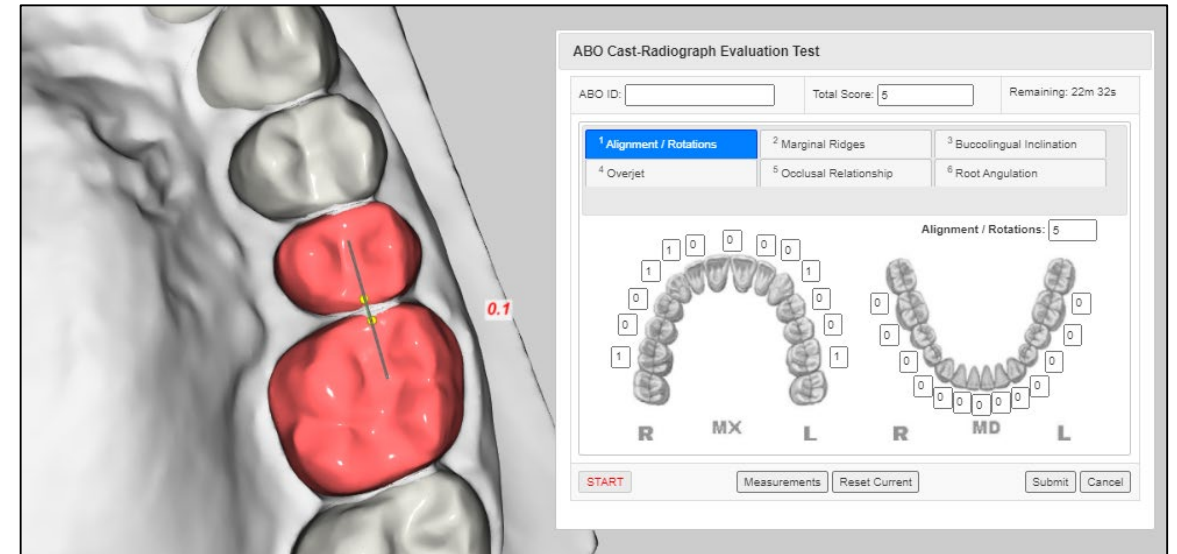


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 12



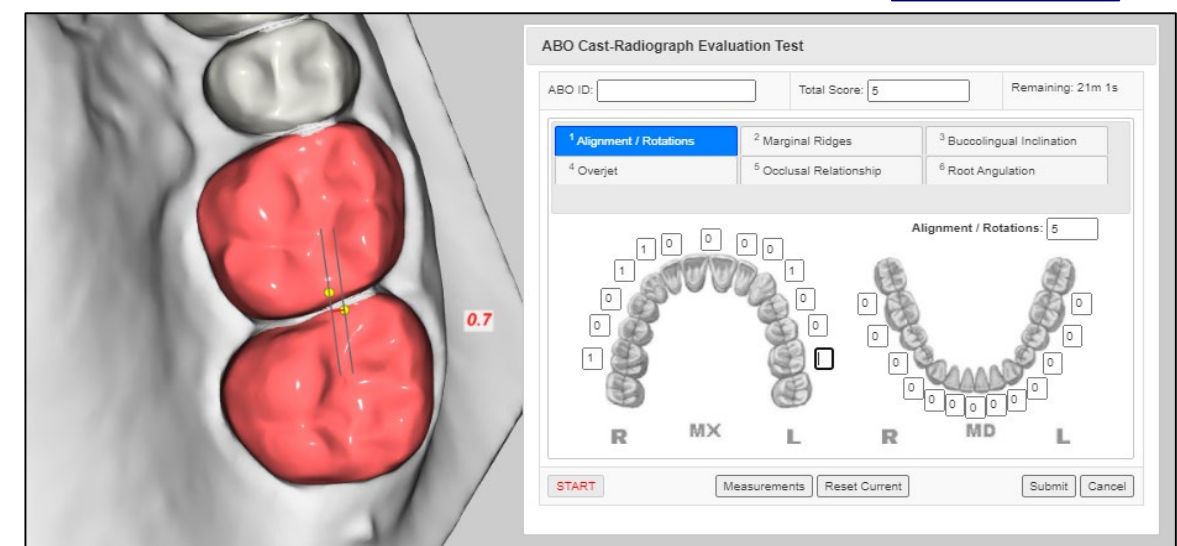
Step # 14



Step # 13

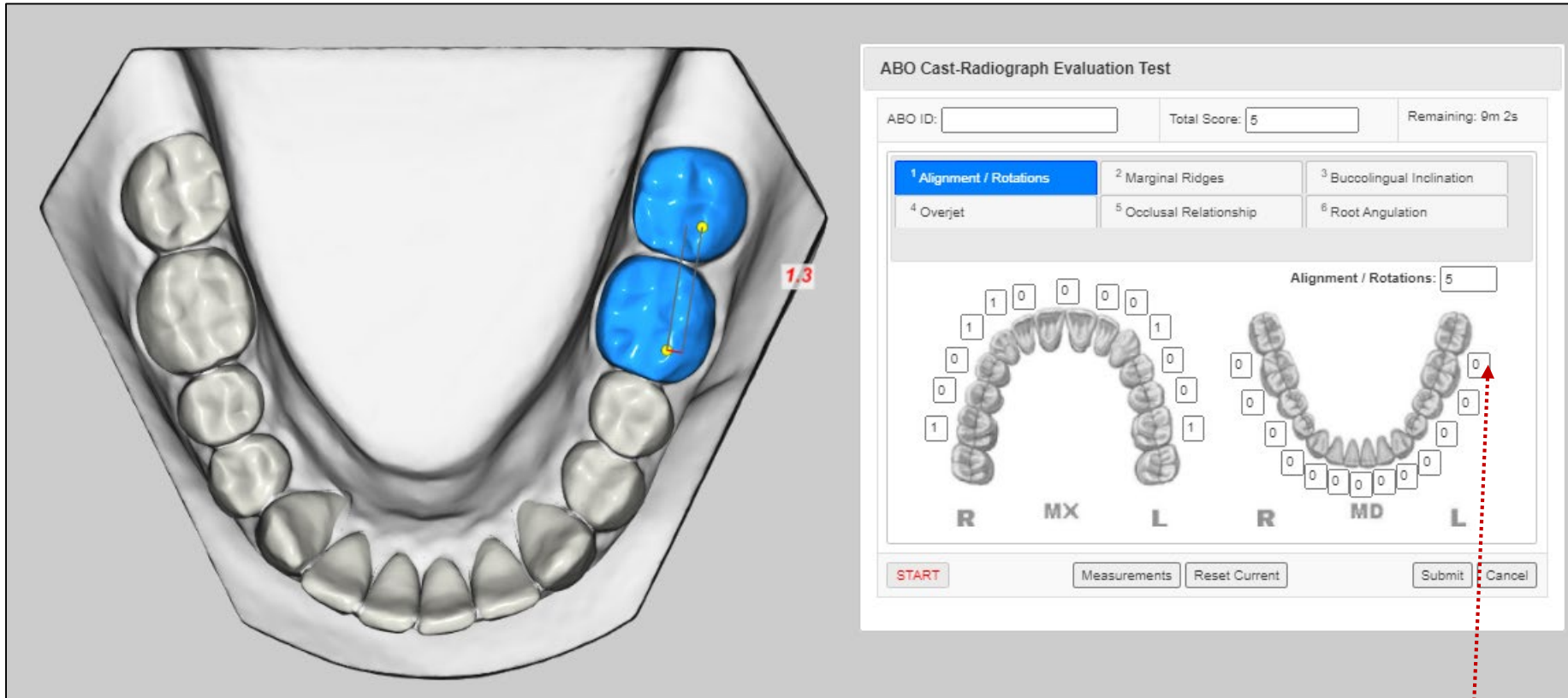


Step # 15



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 16



1. Alignment of the mandibular left 2nd molar and 1st molar is **1.3** therefore a number two (2) is placed in the highlighted box.
2. When placing a value in this box it will activate the next assessment area.

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 17

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 5m 12s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Alignment / Rotations:

R MX L R MD L

START Measurements Reset Current Submit Cancel

1. Alignment of the mandibular left 1st molar and 2nd premolar is 0.2 therefore a number zero (0) is placed in the highlighted box.
2. When placing a value in this box it will activate the next assessment area.

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 18

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 7 Remaining: 0m 30s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 7

R MX L R MD L

START Measurements Reset Current Submit Cancel

Step # 20

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 8 Remaining: 10m 19s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 8

R MX L R MD L

START Measurements Reset Current Submit Cancel

Step # 19

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 7 Remaining: 16m 20s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 7

R MX L R MD L

START Measurements Reset Current Submit Cancel

Step # 21

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 8 Remaining: 6m 27s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 8

R MX L R MD L

START Measurements Reset Current Submit Cancel

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 22

ABO Cast-Radiograph Evaluation Test

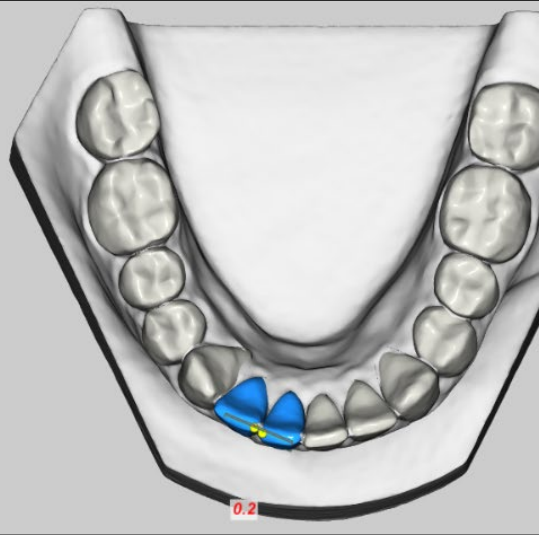
ABO ID: Total Score: 8 Remaining: 14m 4s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 8

R MX L R MD L

START Measurements Reset Current Submit Cancel



Step # 24

ABO Cast-Radiograph Evaluation Test

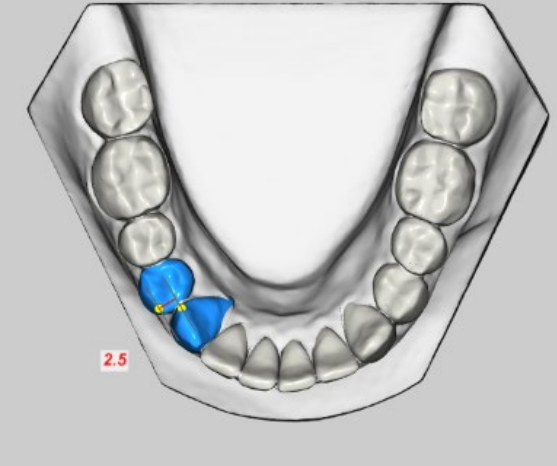
ABO ID: Total Score: 8 Remaining: 2m 55s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 8

R MX L R MD L

START Measurements Reset Current Submit Cancel



Step # 23

ABO Cast-Radiograph Evaluation Test

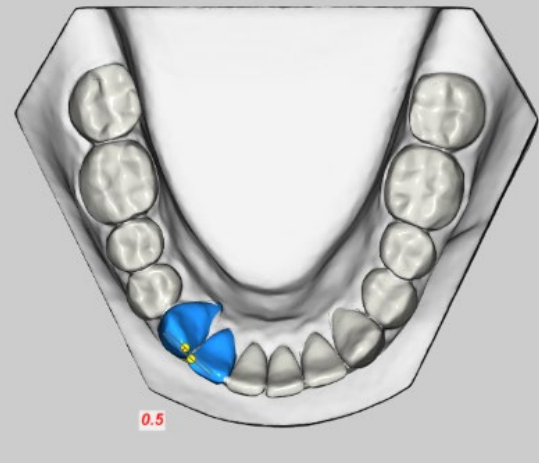
ABO ID: Total Score: 8 Remaining: 4m 9s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 8

R MX L R MD L

START Measurements Reset Current Submit Cancel



Step # 25

ABO Cast-Radiograph Evaluation Test

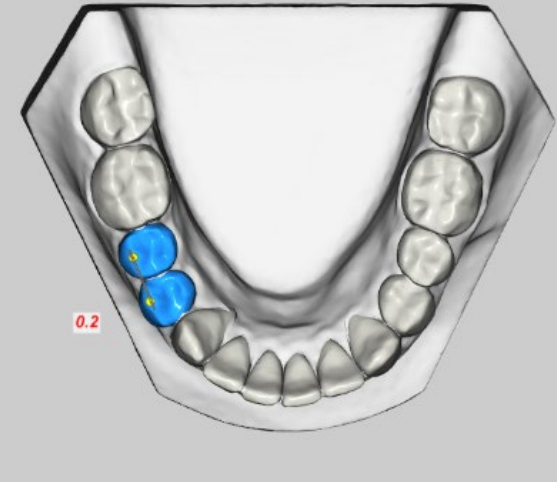
ABO ID: Total Score: 10 Remaining: 1m 52s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Alignment / Rotations: 10

R MX L R MD L

START Measurements Reset Current Submit Cancel



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 26

Step # 27

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 11 Remaining: 26m 42s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Alignment / Rotations: 11

R MX L R MD L

START Measurements Reset Current Submit Cancel

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 11 Remaining: 23m 34s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Alignment / Rotations: 11

R MX L R MD L

START Measurements Reset Current Submit Cancel

ABO Cast-Radiograph Evaluation Test

ABO ID: JGrubb Total Score: 11 Remaining: 20m 21s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Alignment / Rotations: 11

R MX L R MD L

START Measurements Reset Current Submit Cancel

An examinee may go back and check each of the alignment numbers and change them if necessary after completing this area of analysis or at the completion of the total evaluation.

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Mandibular Alignment

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 11 Remaining: 23m 34s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Alignment / Rotations: 11

R MX L R MD L

START Measurements Reset Current Submit Cancel

Step # 1

When this button is activated by adding 0 points, the mandibular alignment will transfer to the next assessment **Marginal Ridges**

Marginal Ridges

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 11 Remaining: 24m 38s

1 Alignment / Rotations **2 Marginal Ridges** 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Marginal Ridges: 11

R MX L R MD L

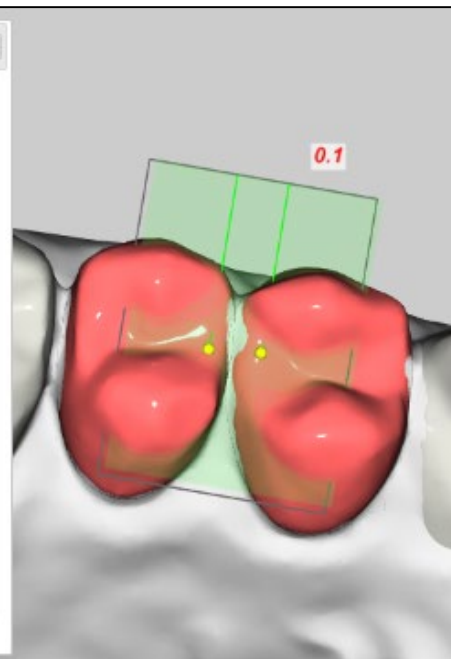
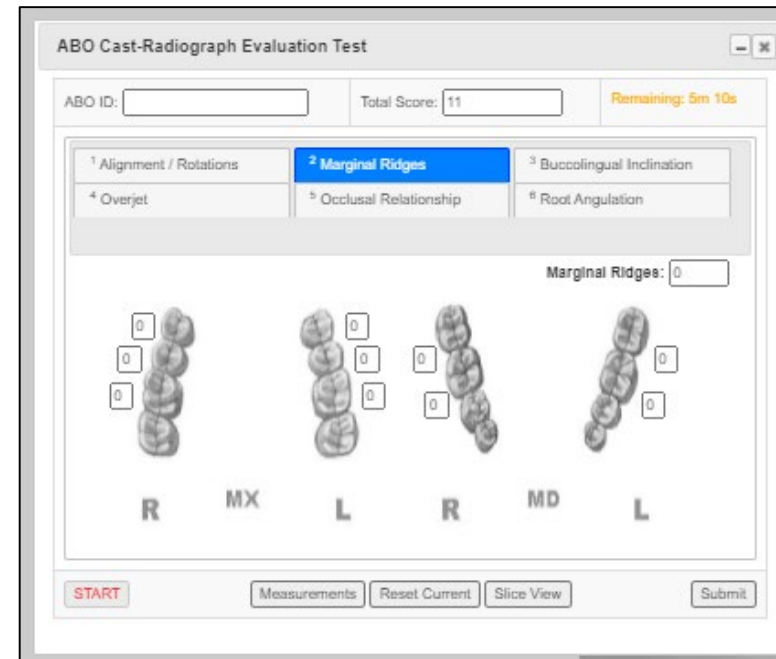
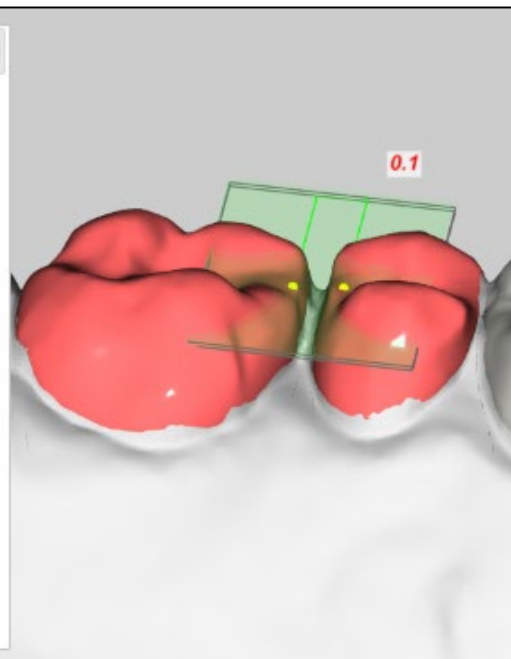
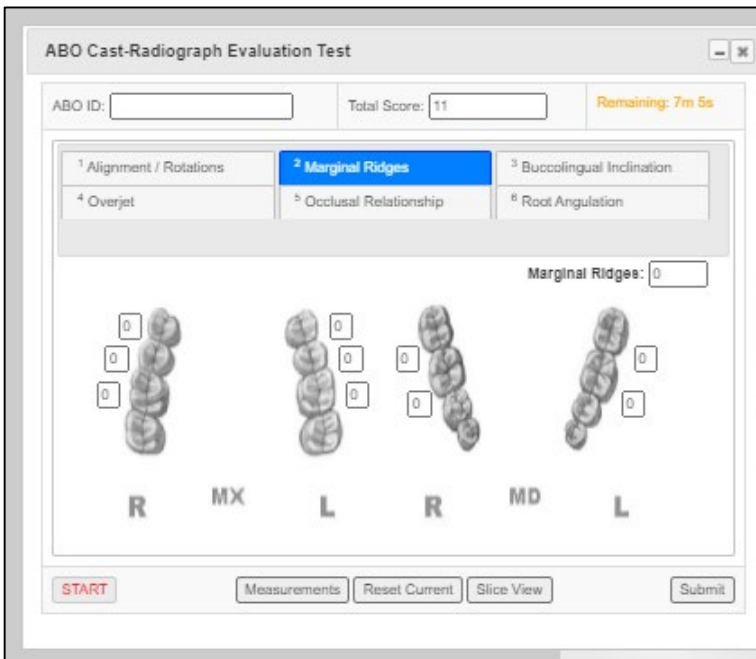
START Measurements Reset Current Slice View Submit

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 2

Marginal Ridges

Step # 3

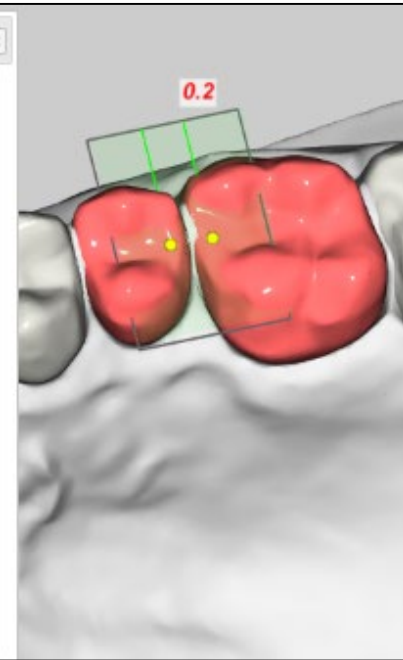
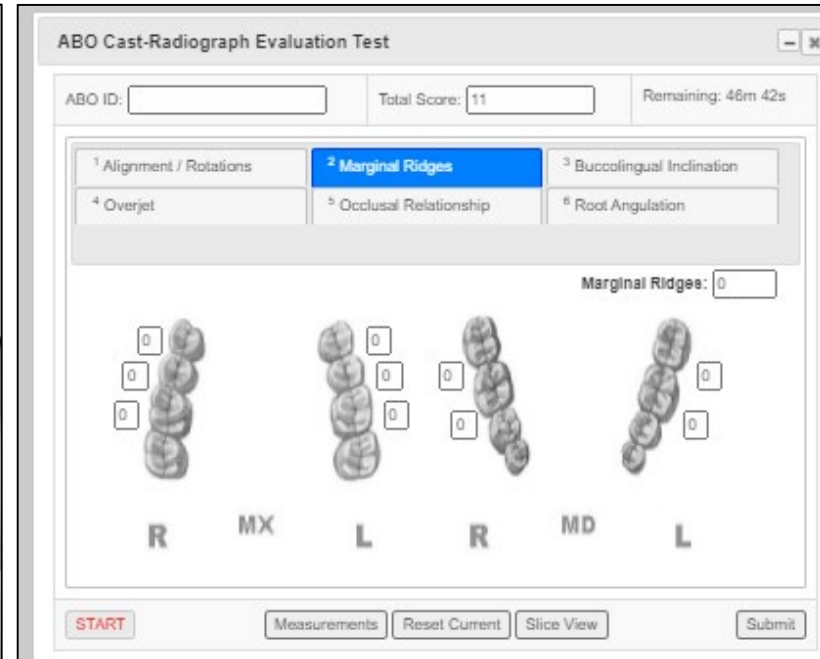
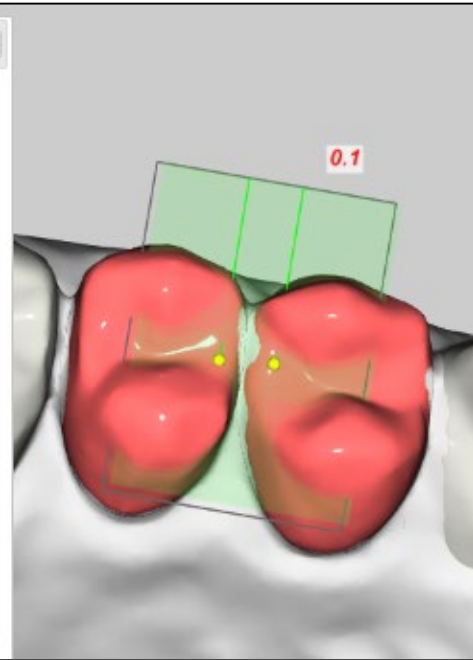
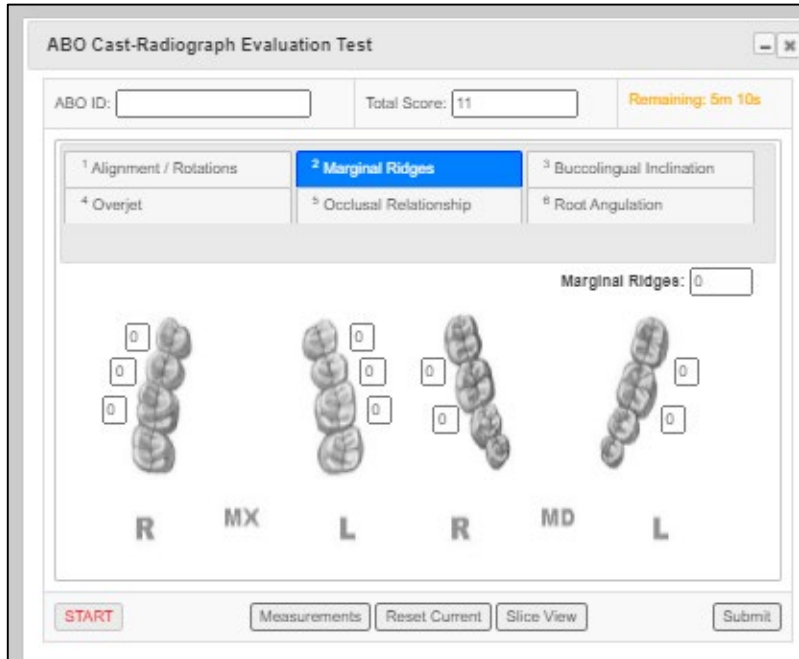


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 4

Marginal Ridges

Step # 5

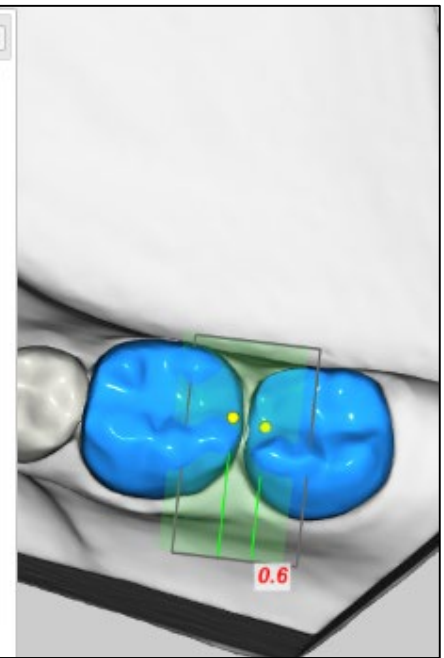
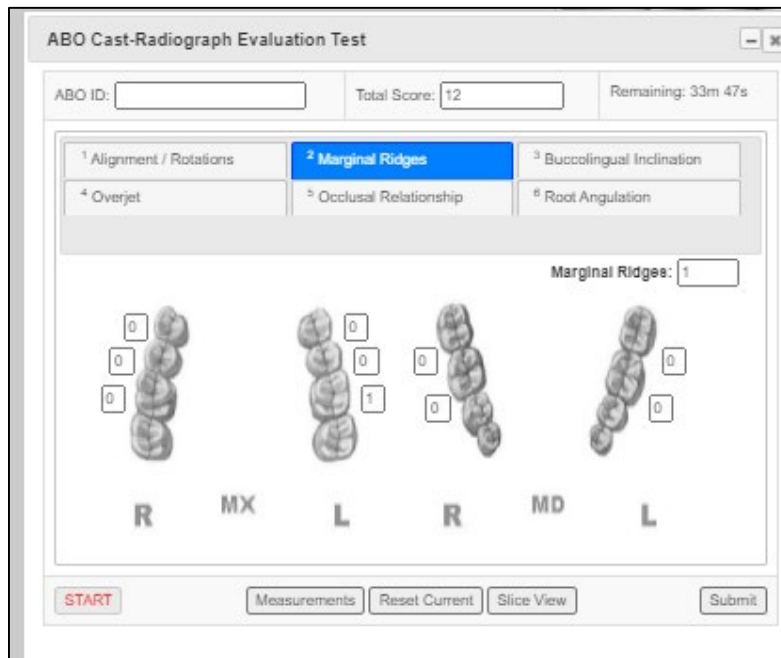
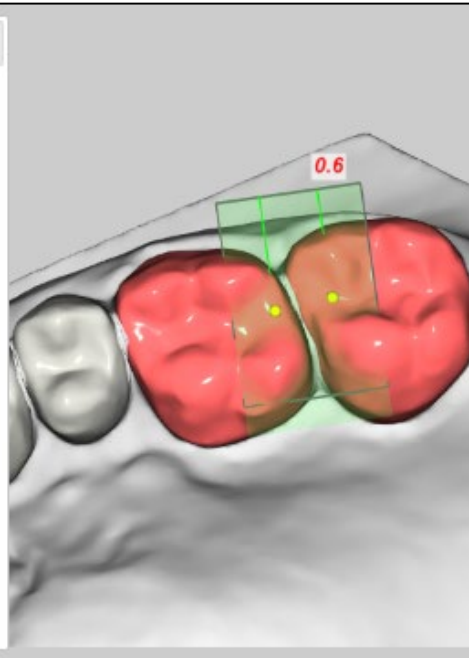
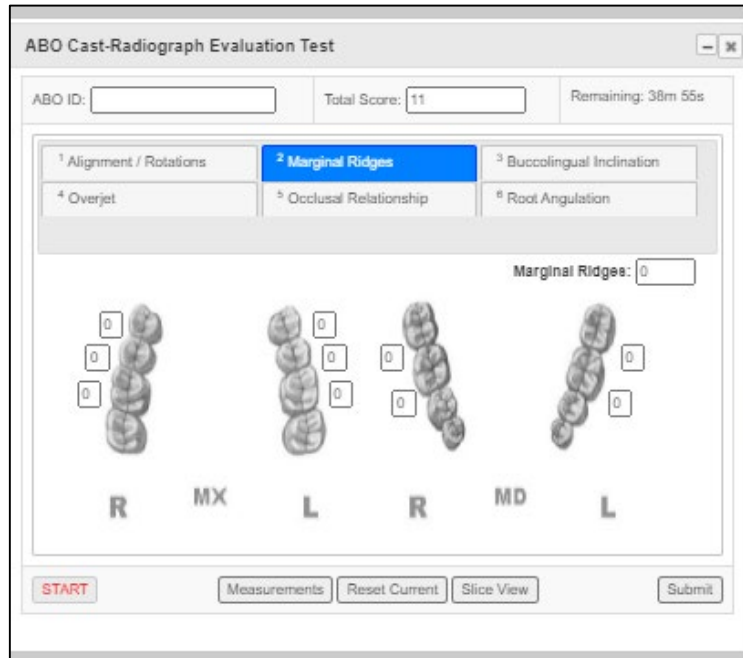


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

Step # 6

Marginal Ridges

Step # 7



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 8

Marginal Ridges

Step # 9

ABO Cast-Radiograph Evaluation Test

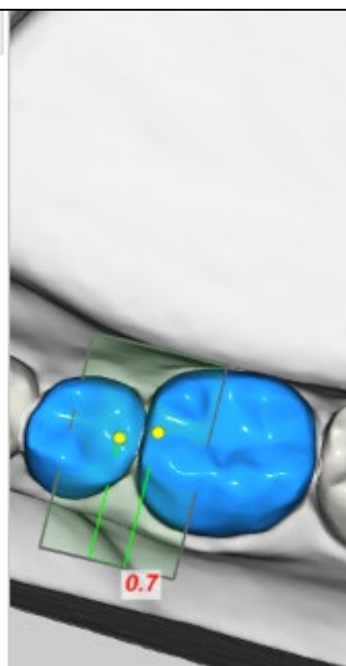
ABO ID: Total Score: Remaining: 28m 37s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Marginal Ridges:

R MX L R MD L

START Measurements Reset Current Slice View Submit



ABO Cast-Radiograph Evaluation Test

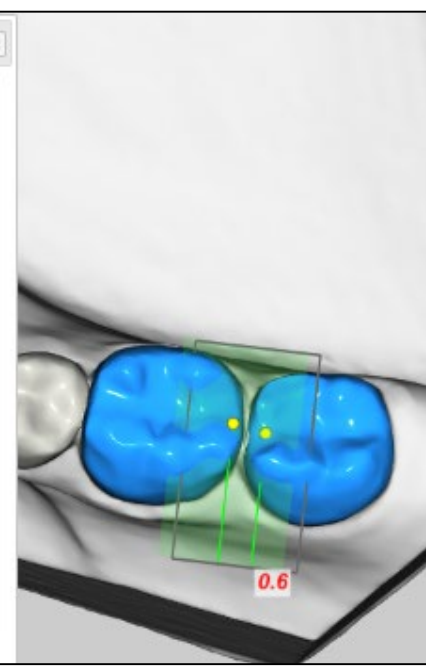
ABO ID: Total Score: Remaining: 33m 47s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Marginal Ridges:

R MX L R MD L

START Measurements Reset Current Slice View Submit



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 10

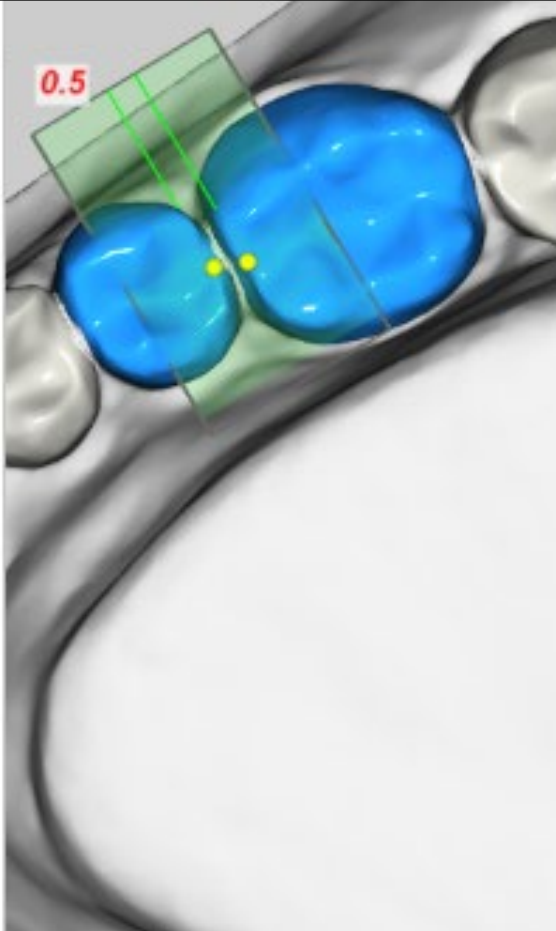
Marginal Ridges

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: 14 Remaining: 23m 42s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Marginal Ridges:



R MX L R MD L

START Measurements Reset Current Slice View Submit

The image shows a screenshot of the ABO Cast-Radiograph Evaluation Test interface. The interface includes a header with the test name, a progress bar showing 'Total Score: 14' and 'Remaining: 23m 42s', and a navigation menu with six categories: 'Alignment / Rotations', 'Marginal Ridges' (highlighted in blue), 'Buccolingual Inclination', 'Overjet', 'Occlusal Relationship', and 'Root Angulation'. Below the menu, there are four 3D dental models labeled 'R', 'MX', 'L', and 'MD', each with small boxes containing scores (0 or 1). A 'Marginal Ridges' score of 3 is displayed in a text box. At the bottom, there are buttons for 'START', 'Measurements', 'Reset Current', 'Slice View', and 'Submit'. To the right of the interface is a 3D dental model showing a close-up of a tooth with a green box highlighting the marginal ridge area, with a red '0.5' label indicating the score for that specific feature.

ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 1

Maxillary Buccolingual Inclination

Step # 2

ABO Cast-Radiograph Evaluation Test

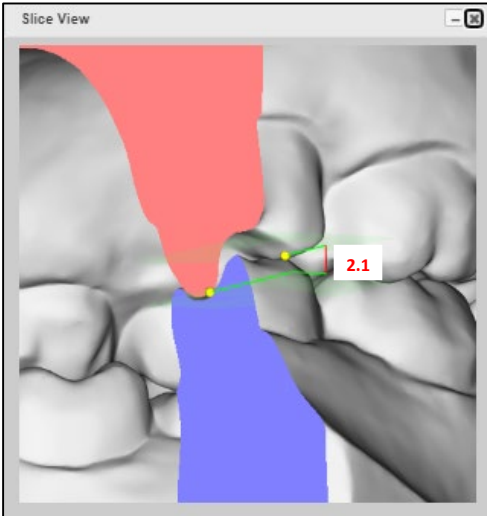
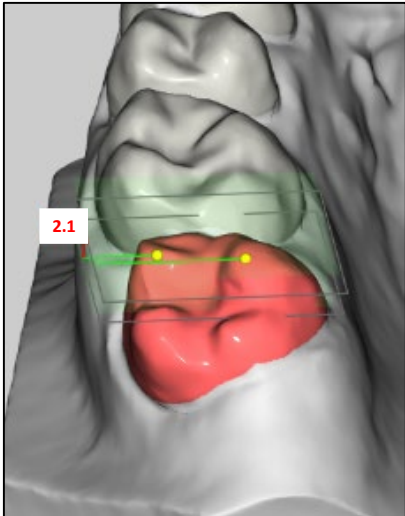
ABO ID: [] Total Score: 14 Remaining: 55m 30s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Buccolingual Inclination: 0

R MX L R MD L

START Measurements Reset Current Slice View Submit



ABO Cast-Radiograph Evaluation Test

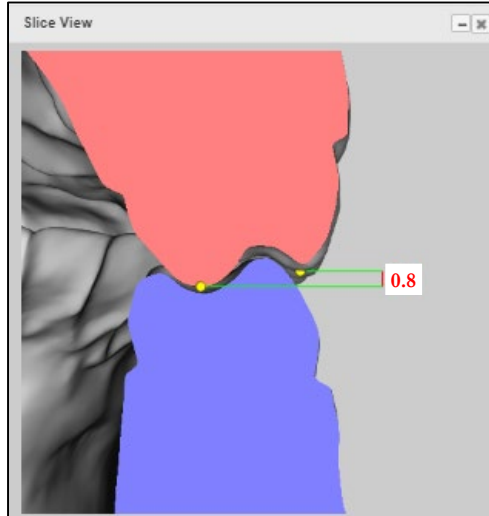
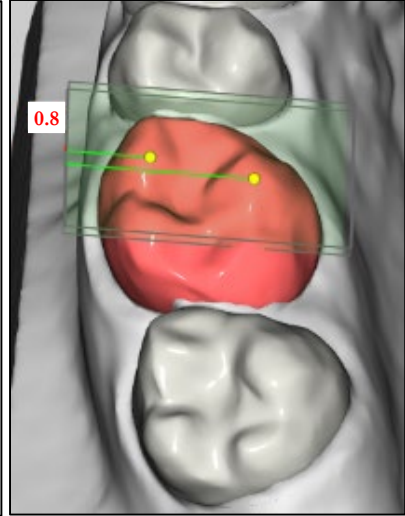
ABO ID: [] Total Score: 16 Remaining: 29m 44s

1 Alignment / Rotations 2 Marginal Ridges 3 Buccolingual Inclination
4 Overjet 5 Occlusal Relationship 6 Root Angulation

Buccolingual Inclination: 2

R MX L R MD L

START Measurements Reset Current Slice View Submit

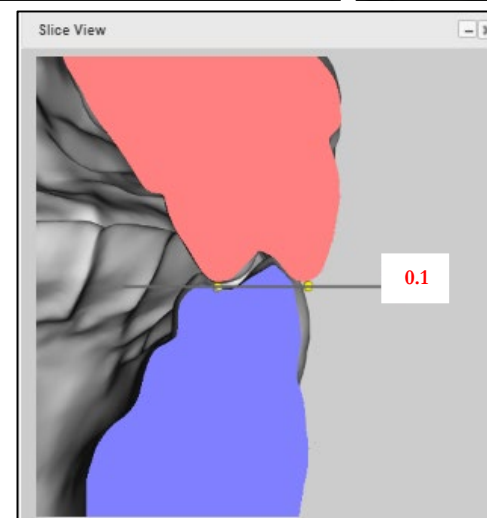
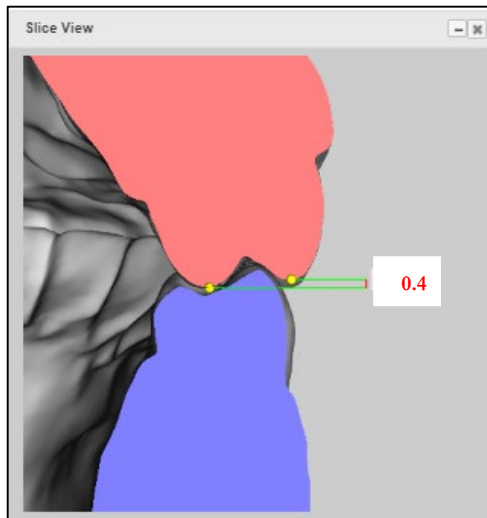
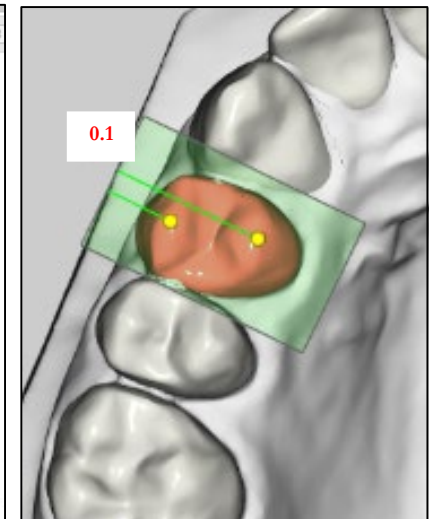
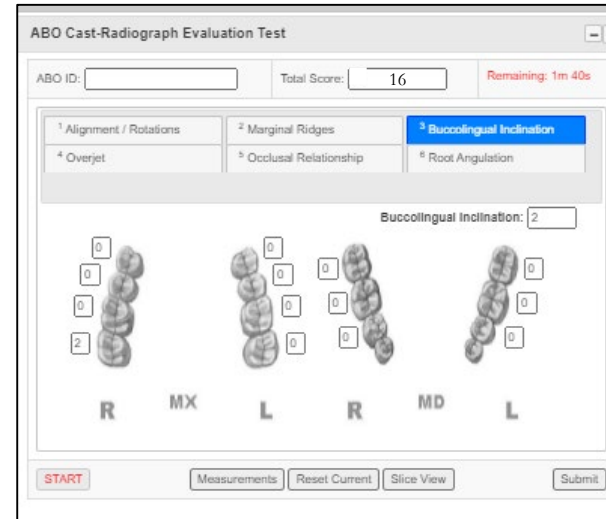
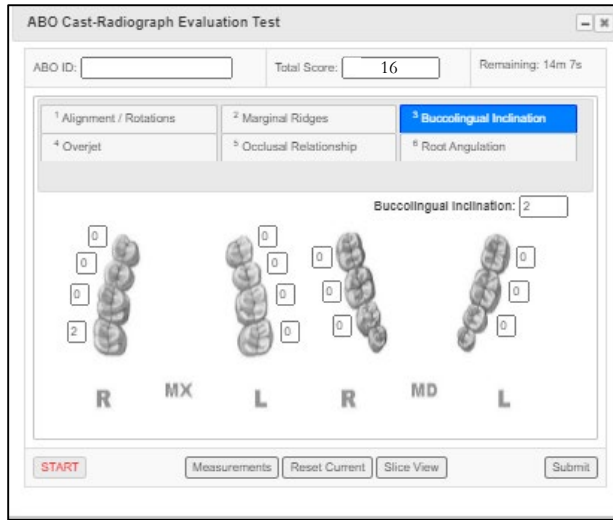


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 3

Maxillary Buccolingual Inclination

Step # 4

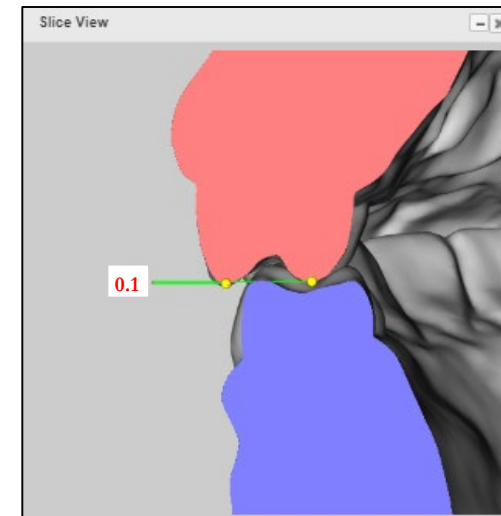
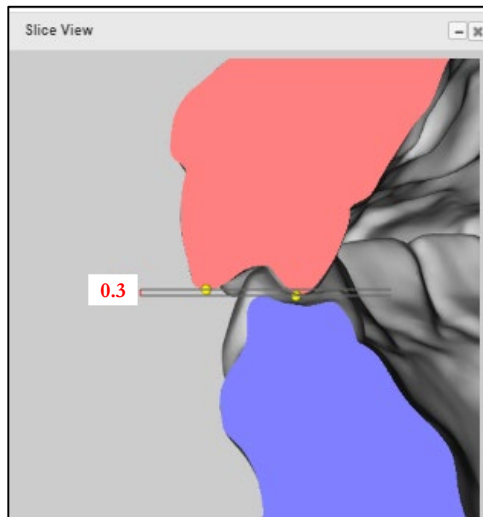
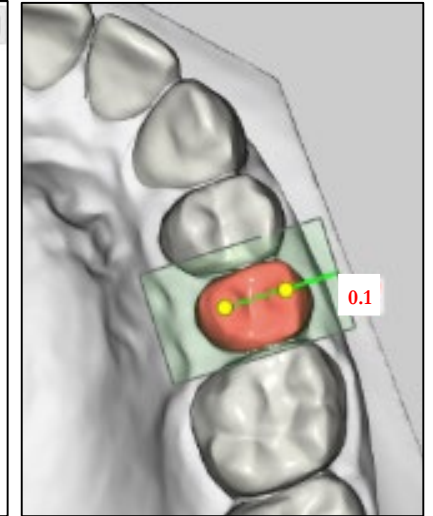
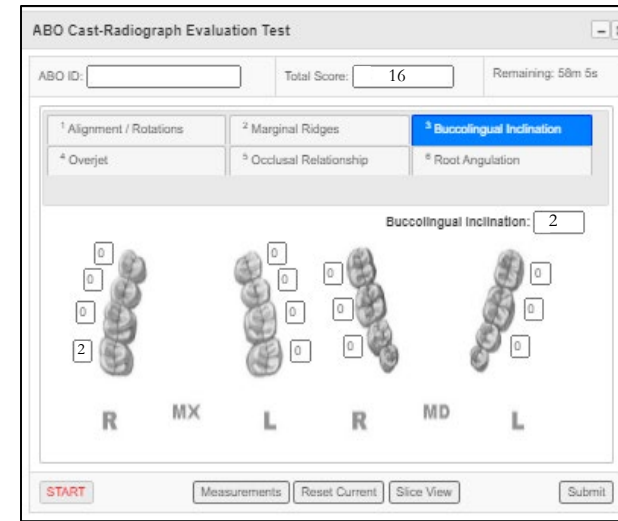
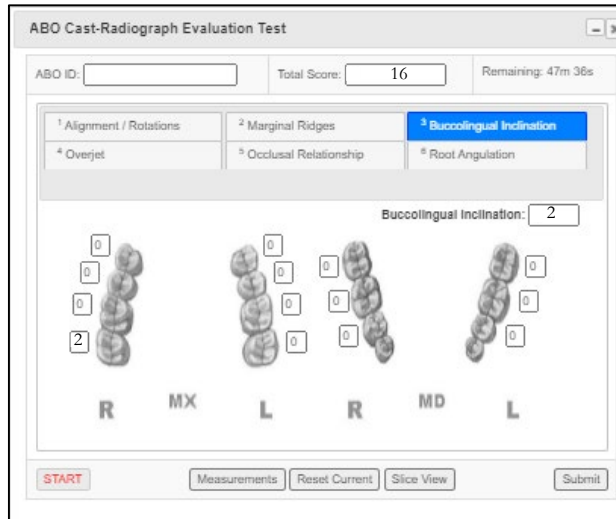


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 5

Maxillary Buccolingual Inclination

Step # 6

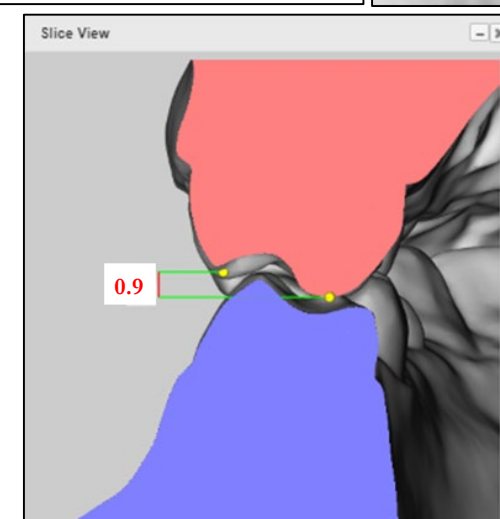
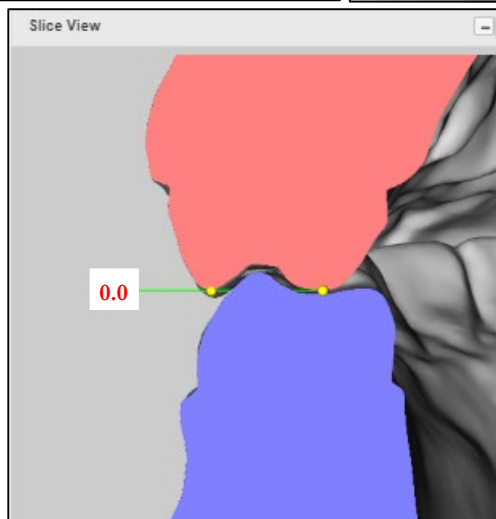
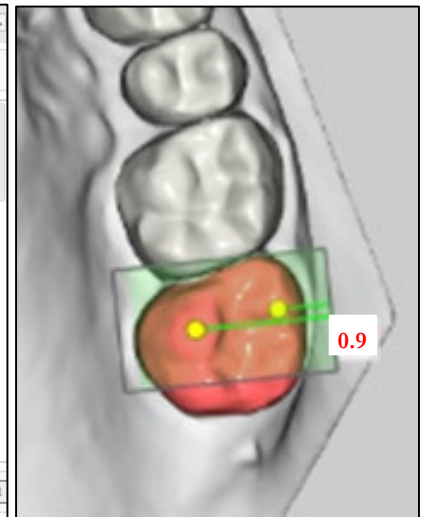
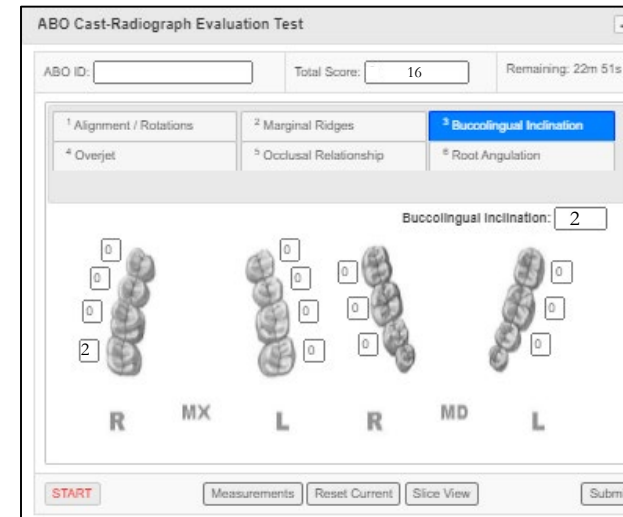
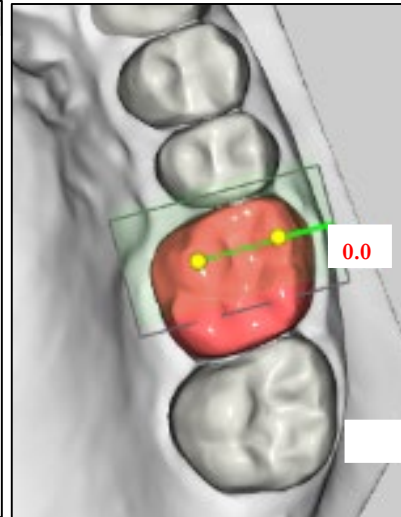
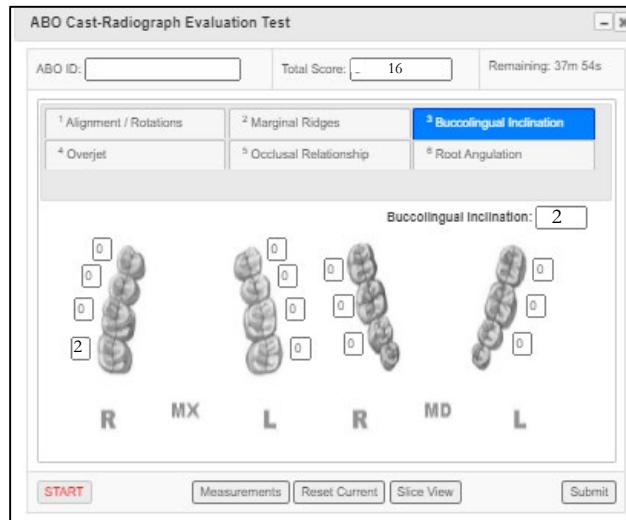


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 7

Maxillary Buccolingual Inclination

Step # 8

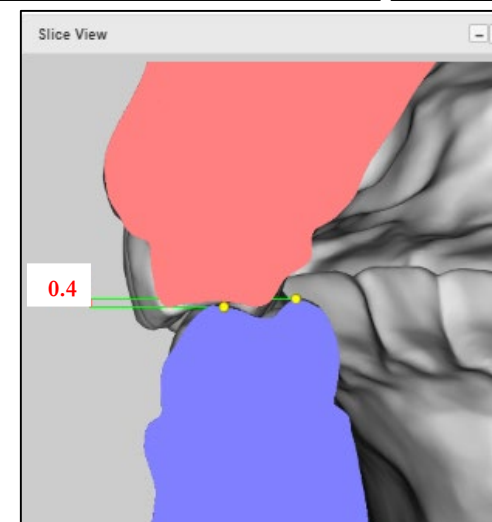
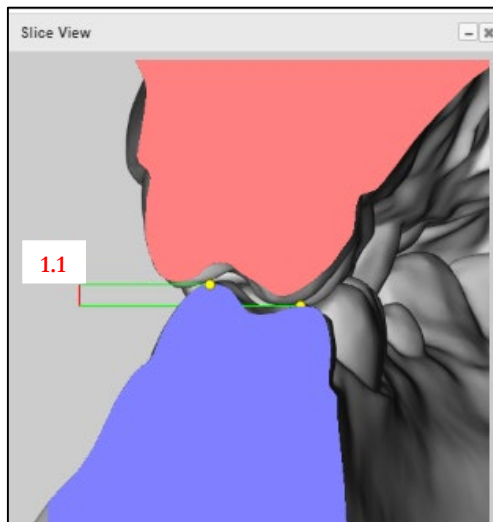
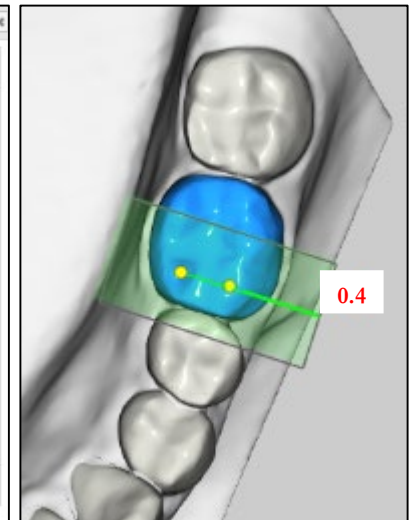
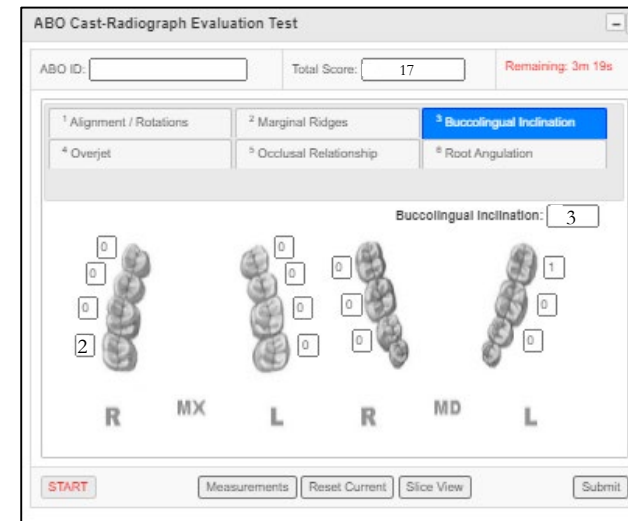
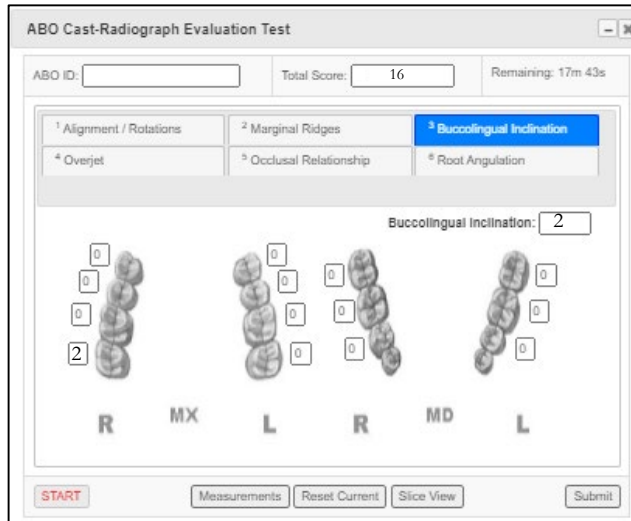


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 9

Mandibular Buccolingual Inclination

Step # 10

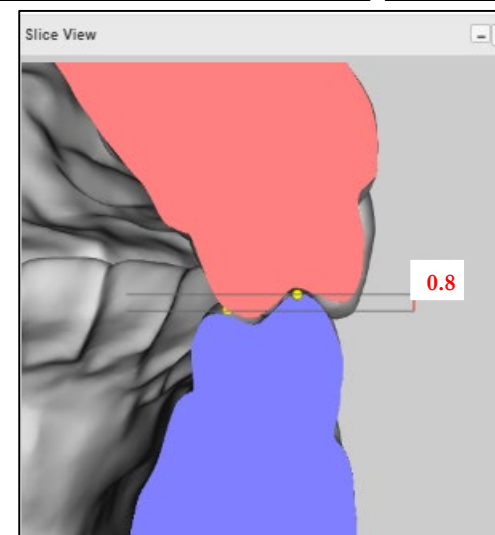
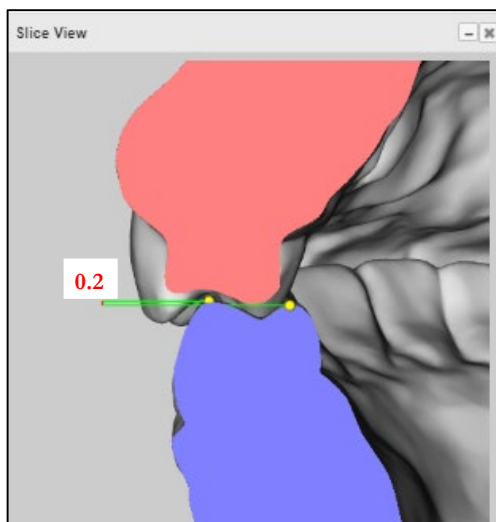
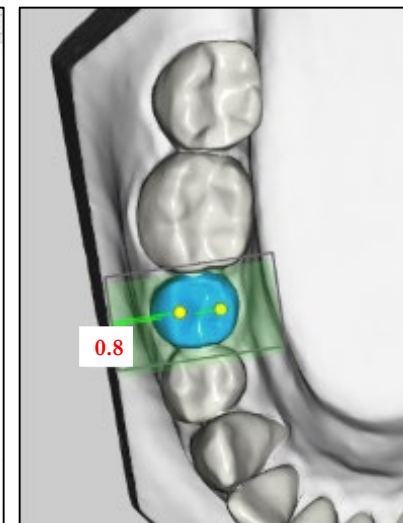
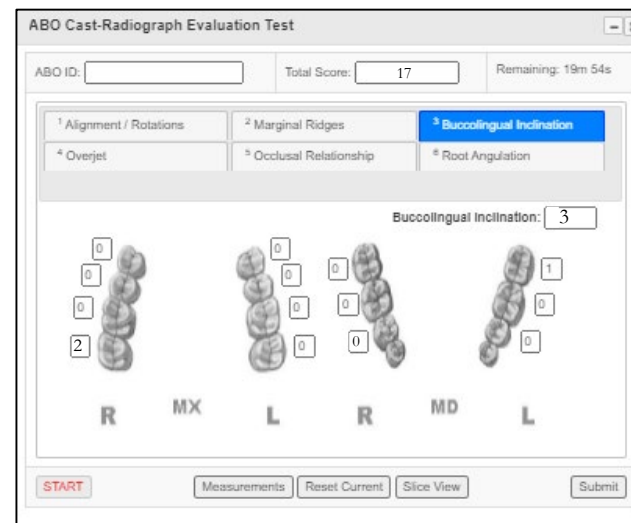
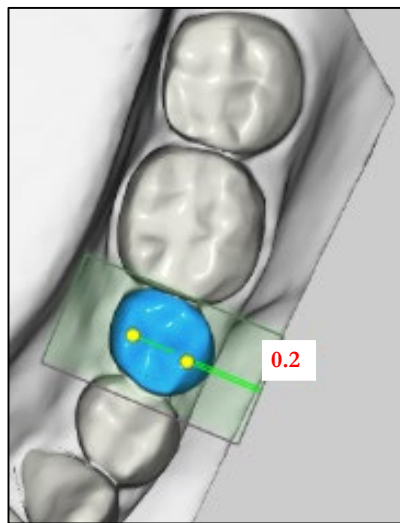
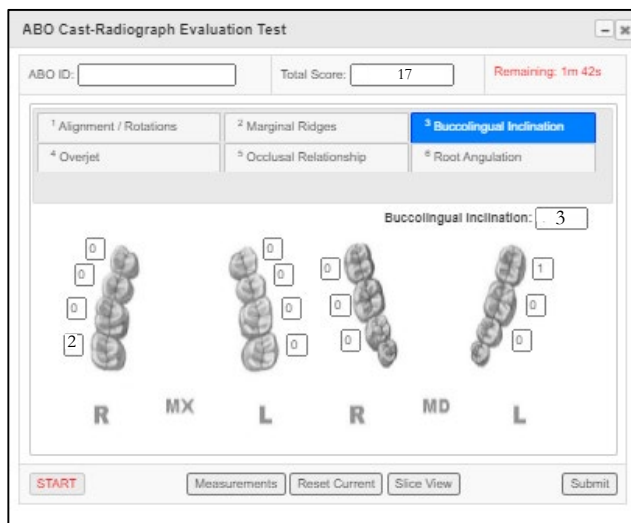


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 11

Mandibular Buccolingual Inclination

Step # 12

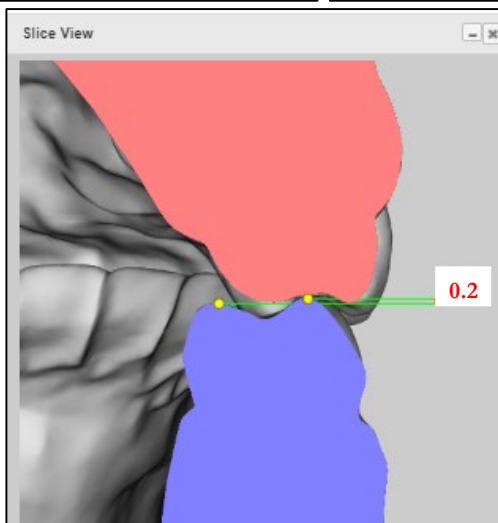
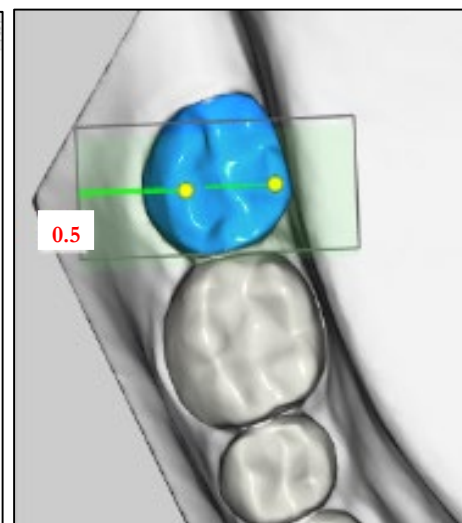
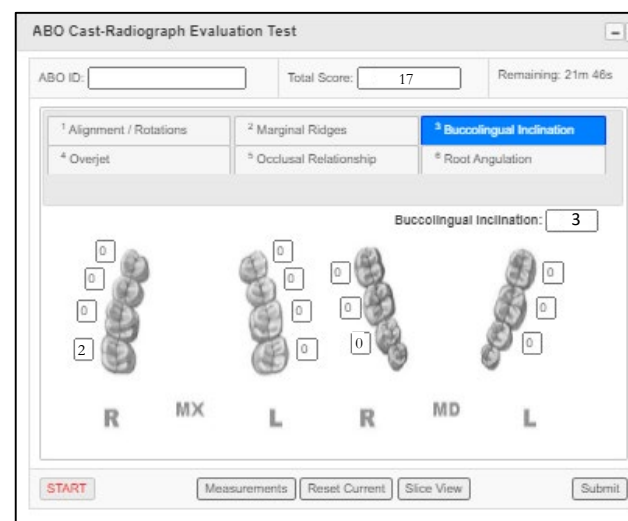
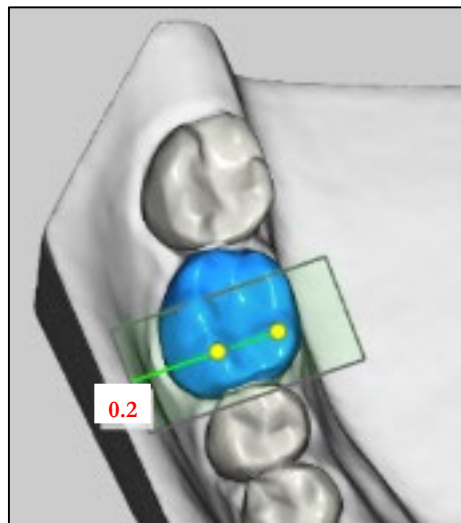
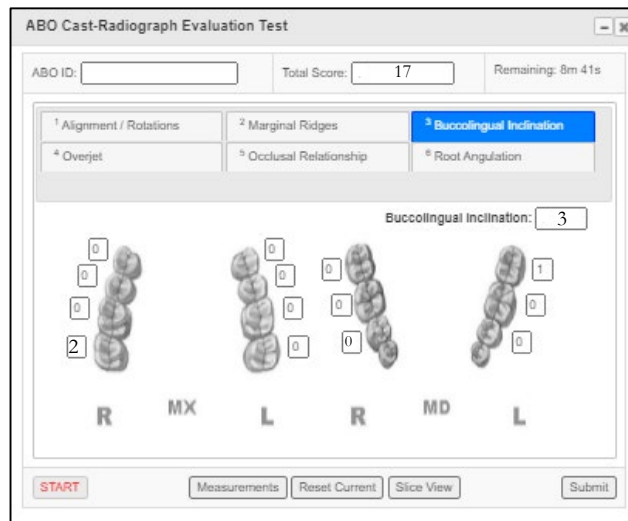


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 13

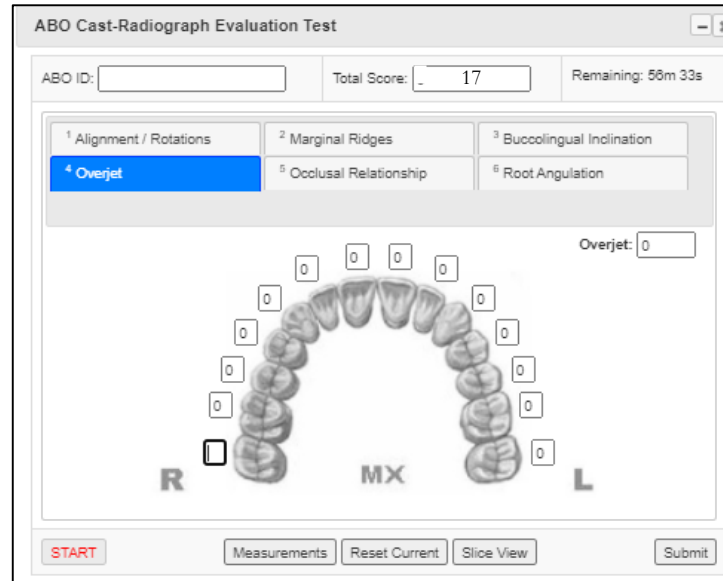
Mandibular Buccolingual Inclination

Step # 14

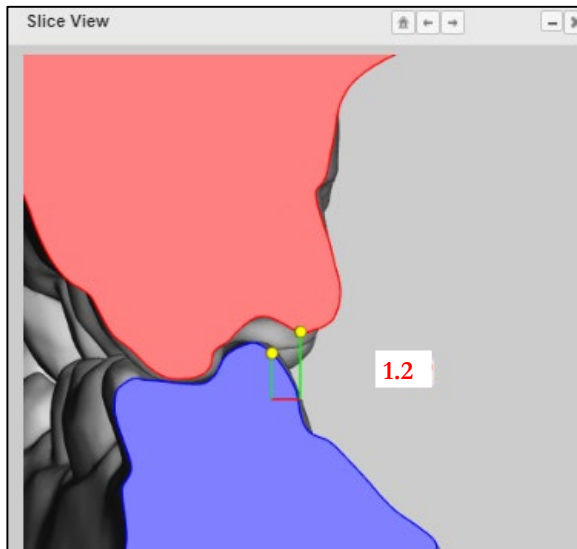
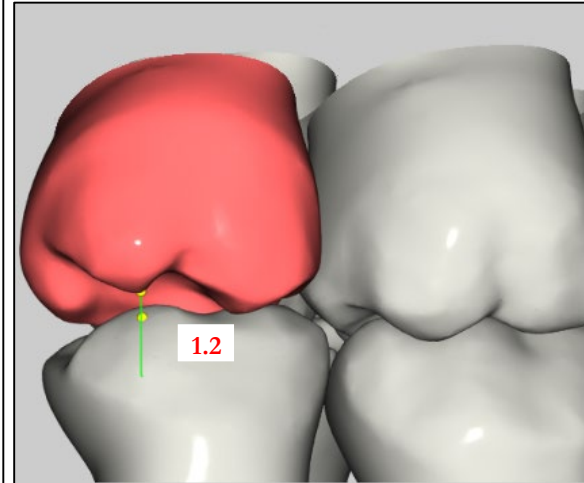


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 1

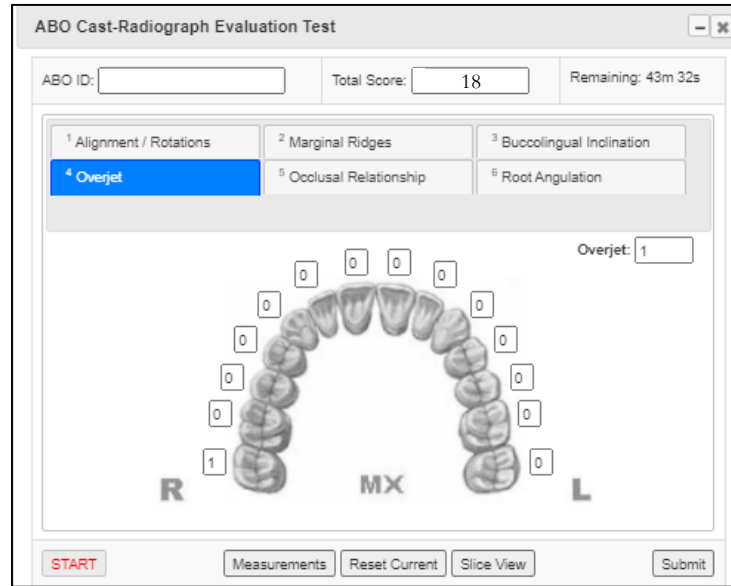


Posterior Overjet

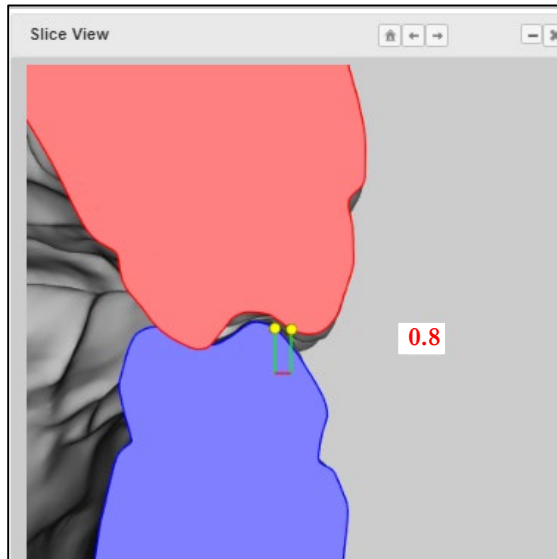
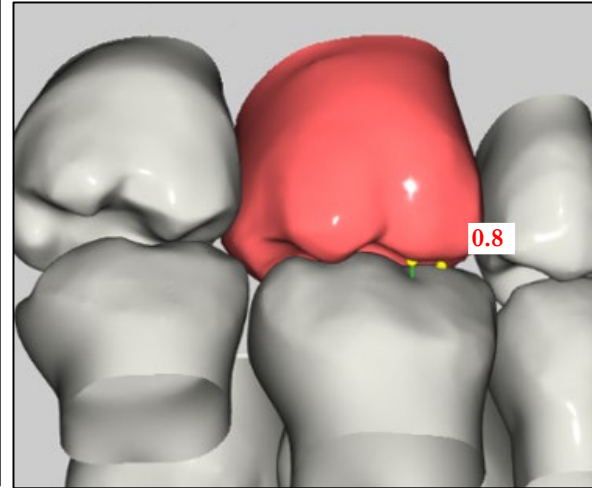


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 2

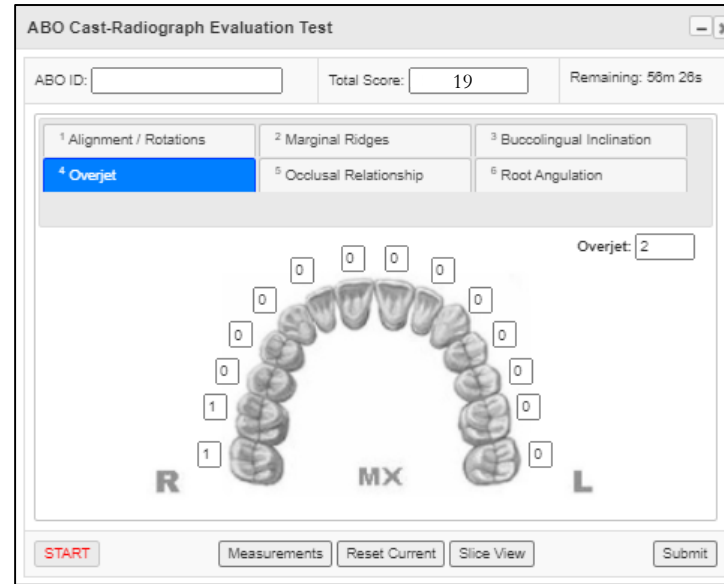


Posterior Overjet

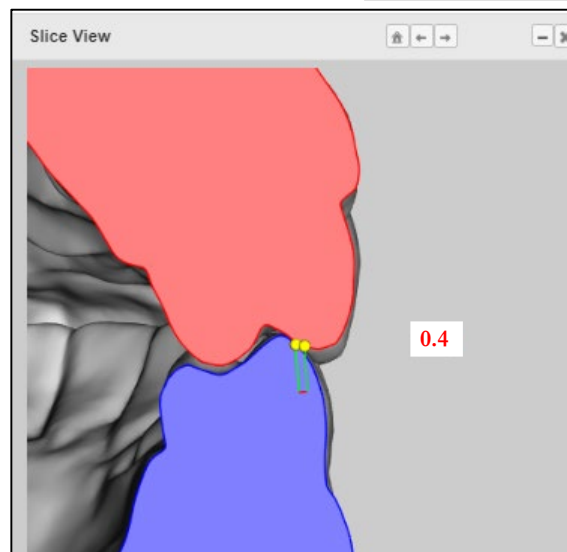
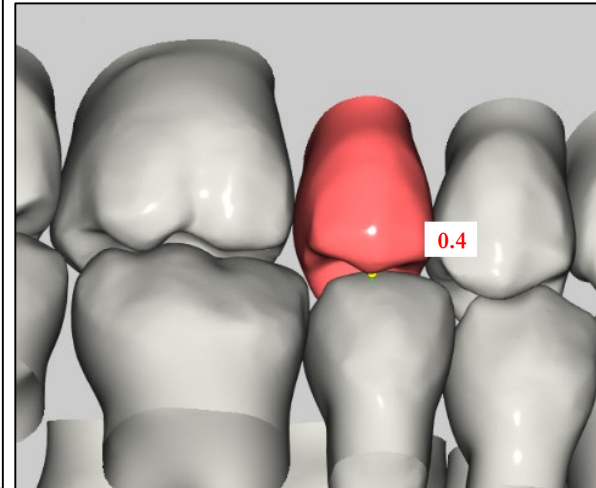


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

Step # 3

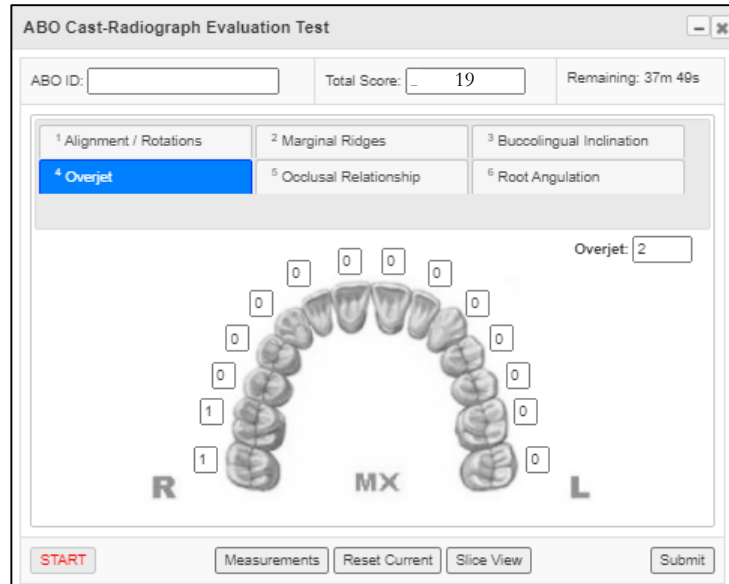


Posterior Overjet

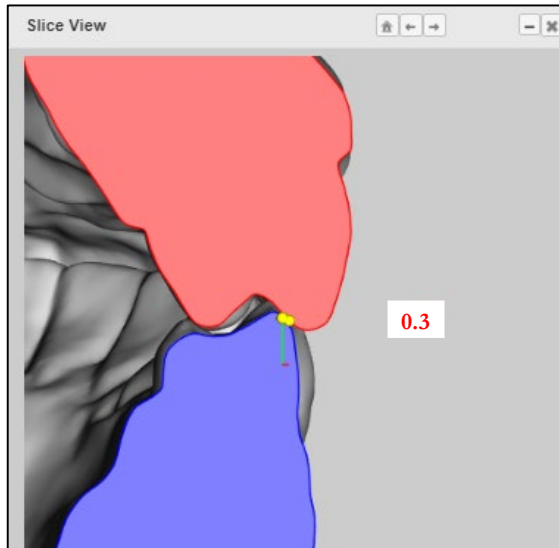
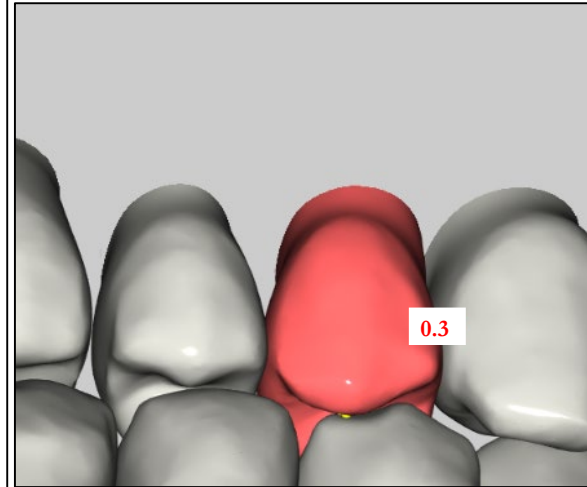


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D[™]-Online Web Viewer

Step # 4

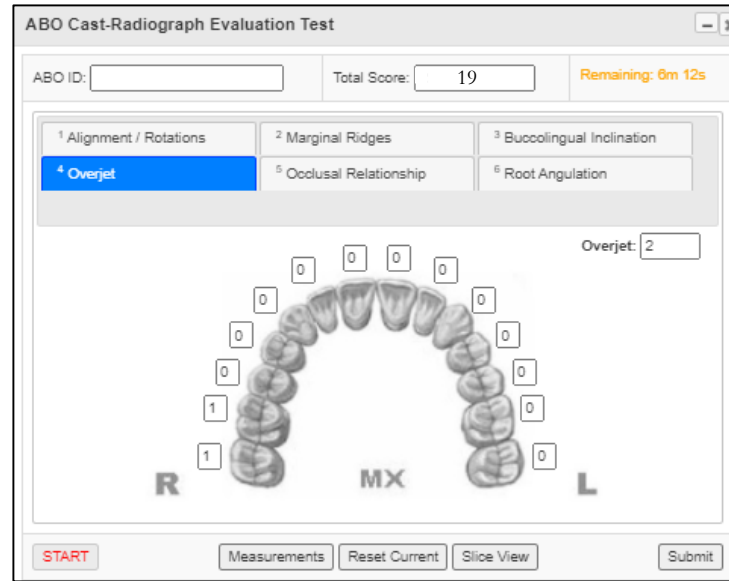


Posterior Overjet

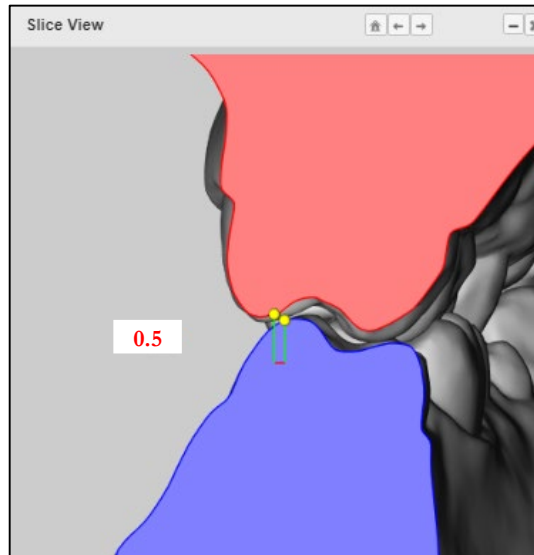
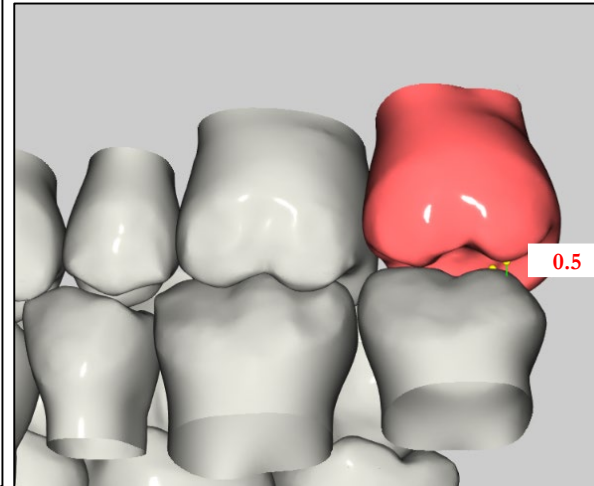


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 5

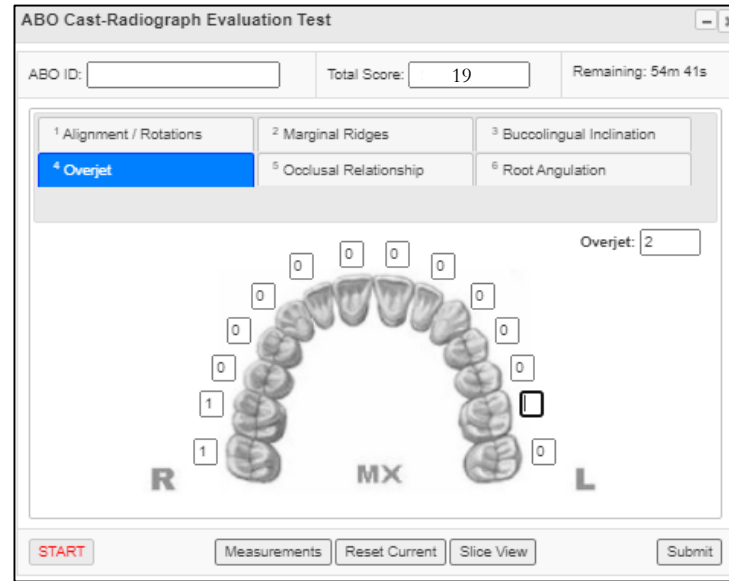


Posterior Overjet

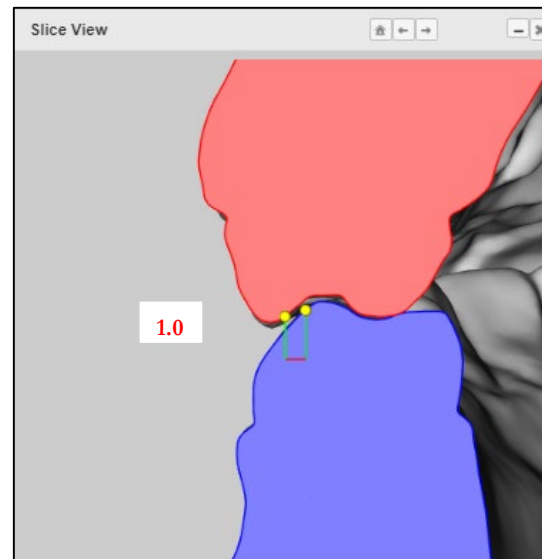
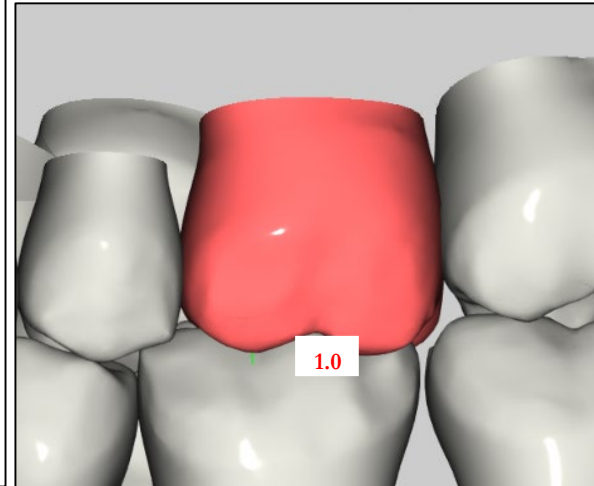


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 6

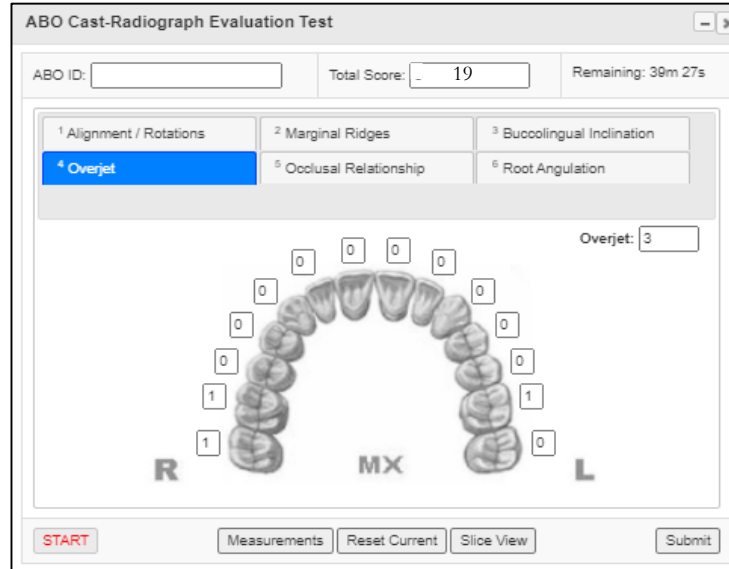


Posterior Overjet

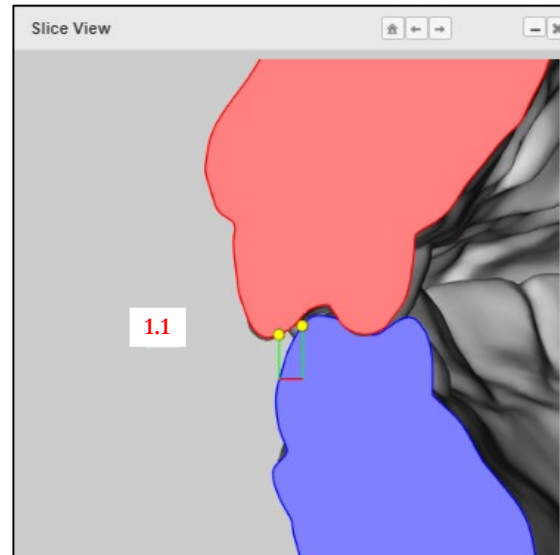
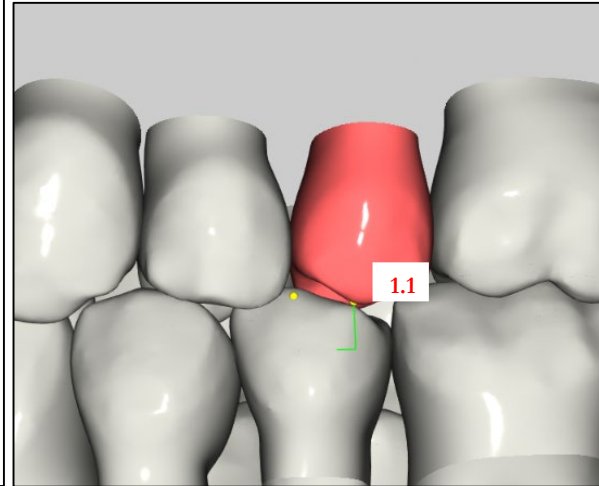


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 7



Posterior Overjet



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 8

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 22m 1s

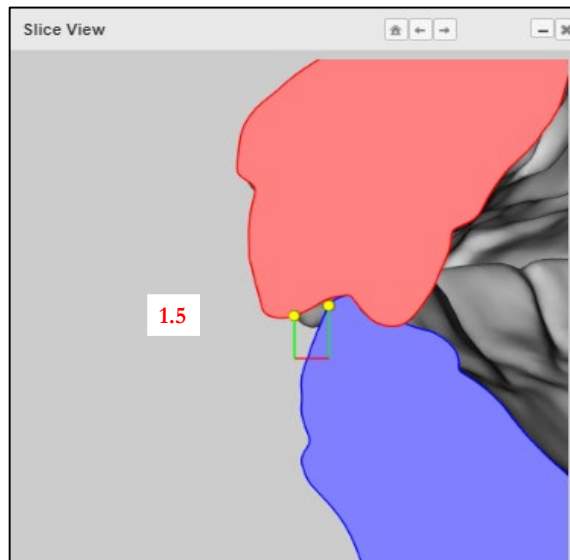
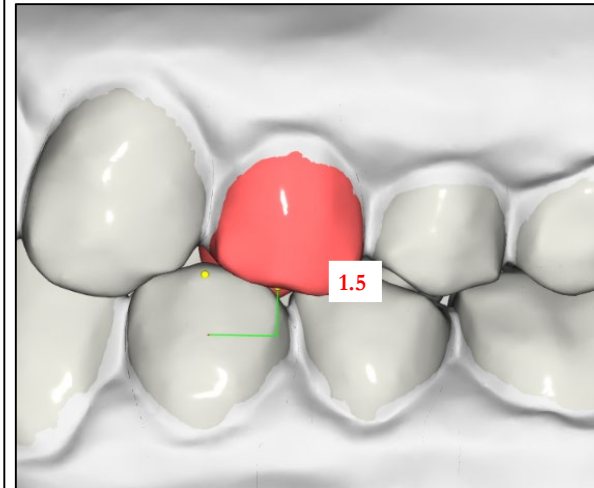
1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

Overjet:

R MX L

START Measurements Reset Current Slice View Submit

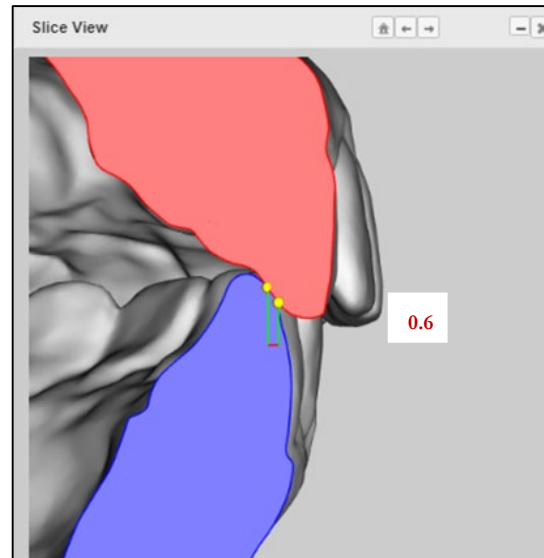
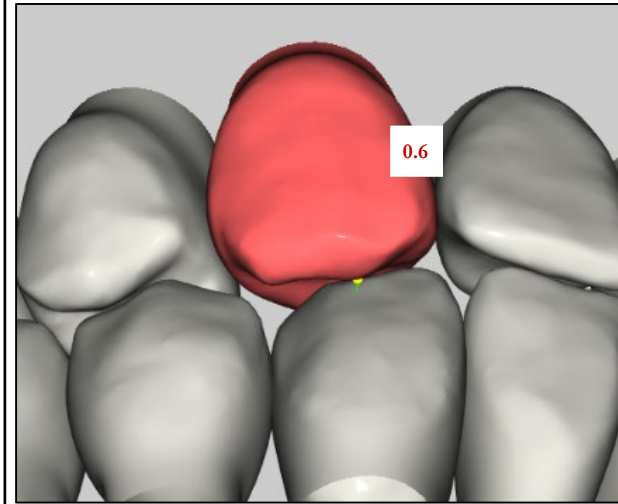
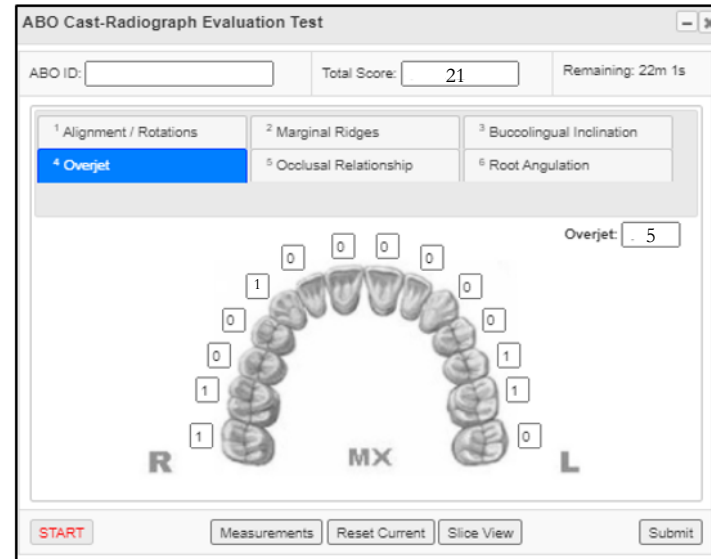
Posterior Overjet



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3DTM-Online Web Viewer

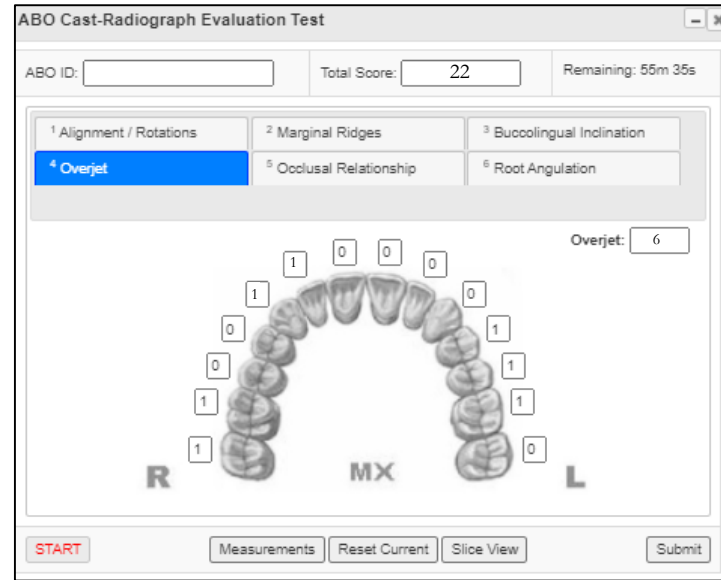
Anterior Overjet

Step # 1

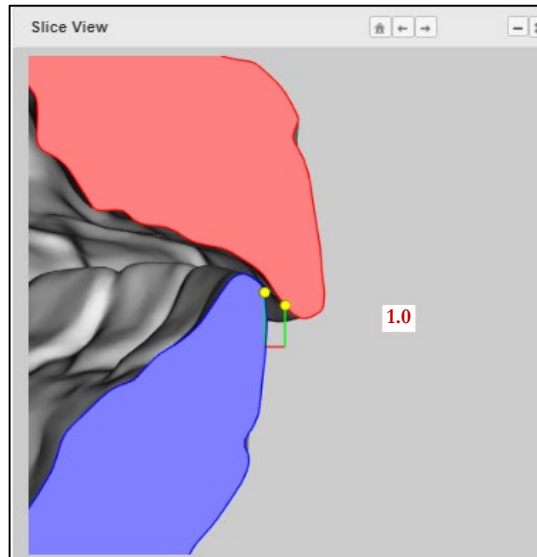
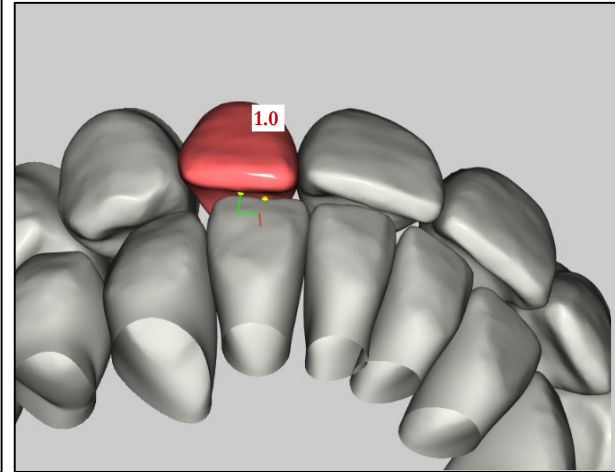


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 2

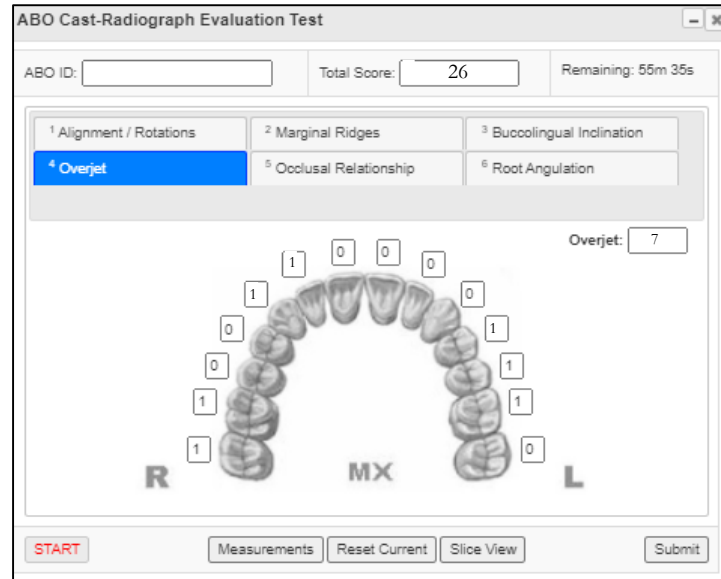


Anterior Overjet

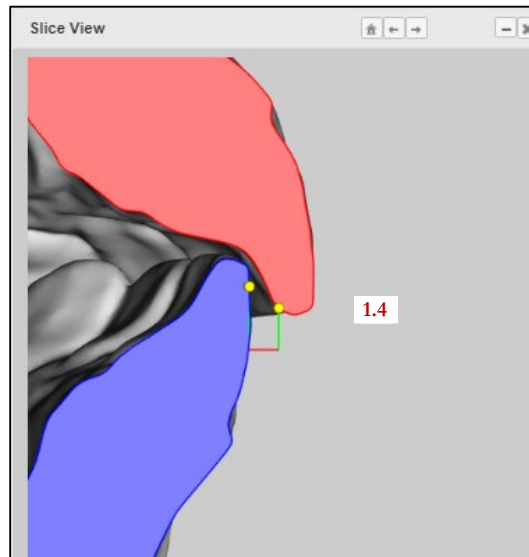
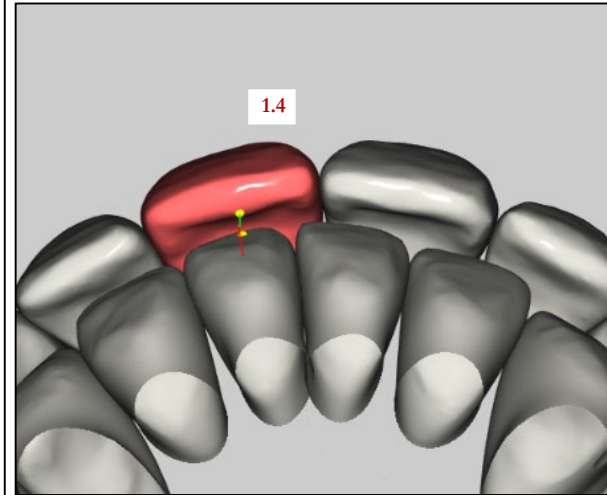


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 3

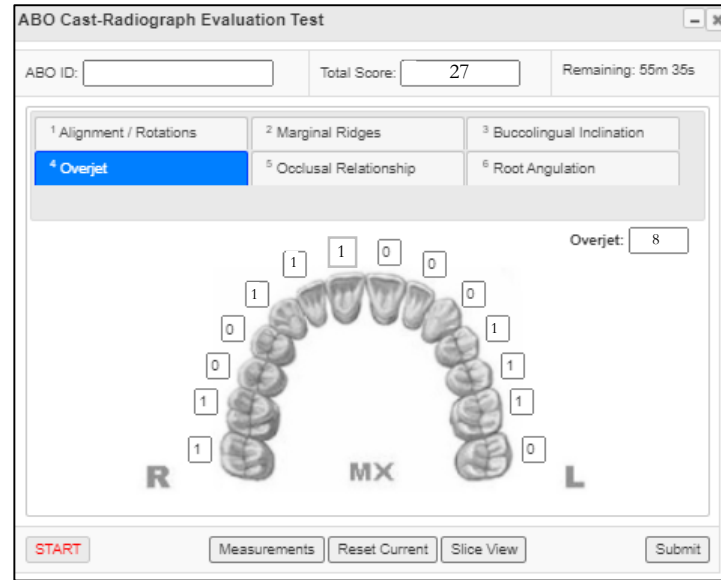


Anterior Overjet

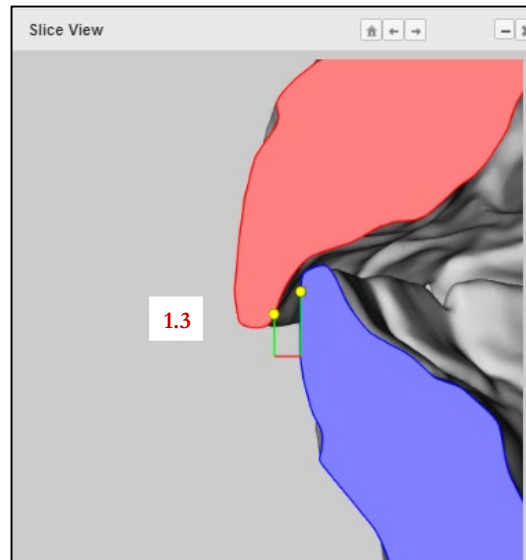
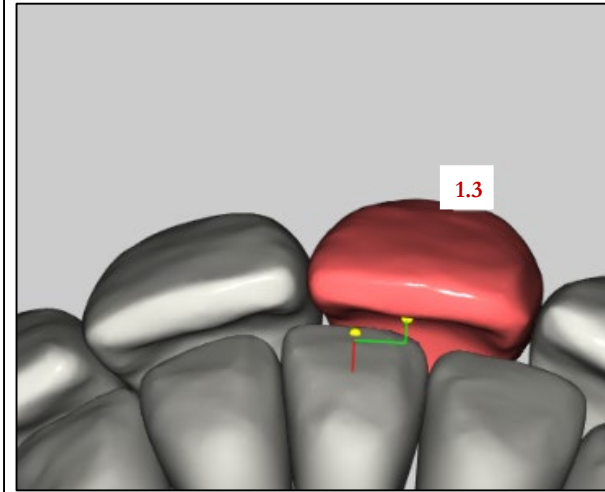


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 4

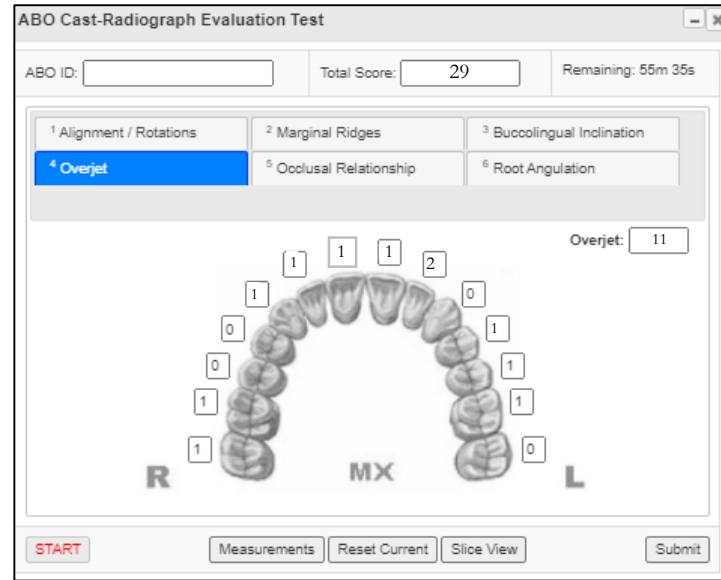


Anterior Overjet

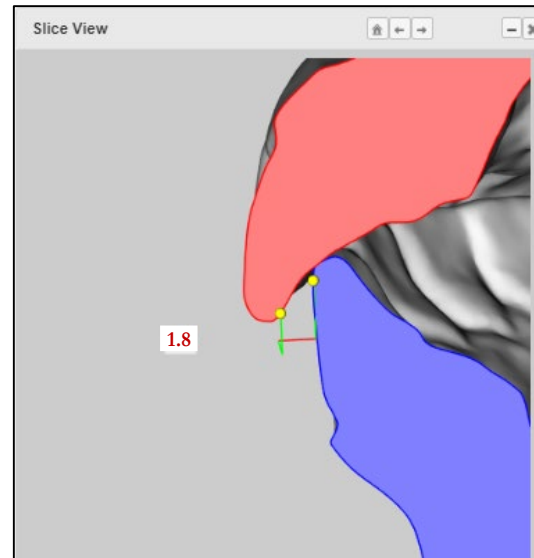
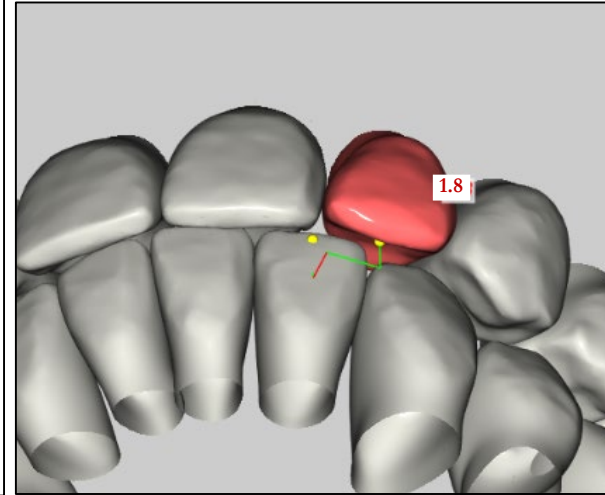


ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 5



Anterior Overjet



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Step # 6

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 55m 35s

1 Alignment / Rotations	2 Marginal Ridges	3 Buccolingual Inclination
4 Overjet	5 Occlusal Relationship	6 Root Angulation

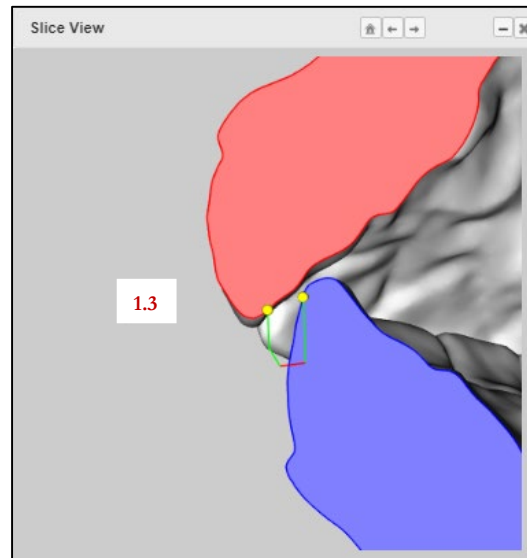
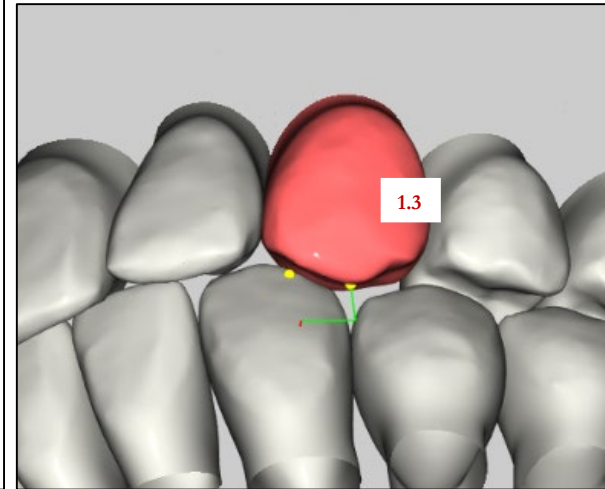
This will complete the overjet after adding one (1) to the maxillary left canine tooth for a total of 12.

Overjet:

R MX L

START Measurements Reset Current Slice View Submit

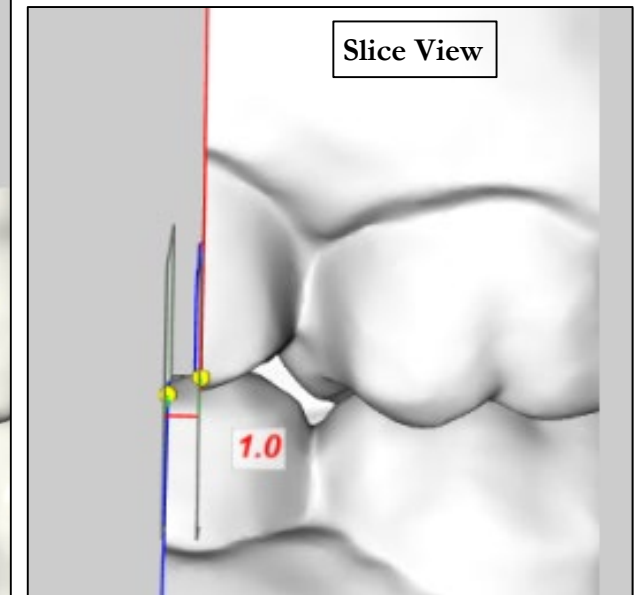
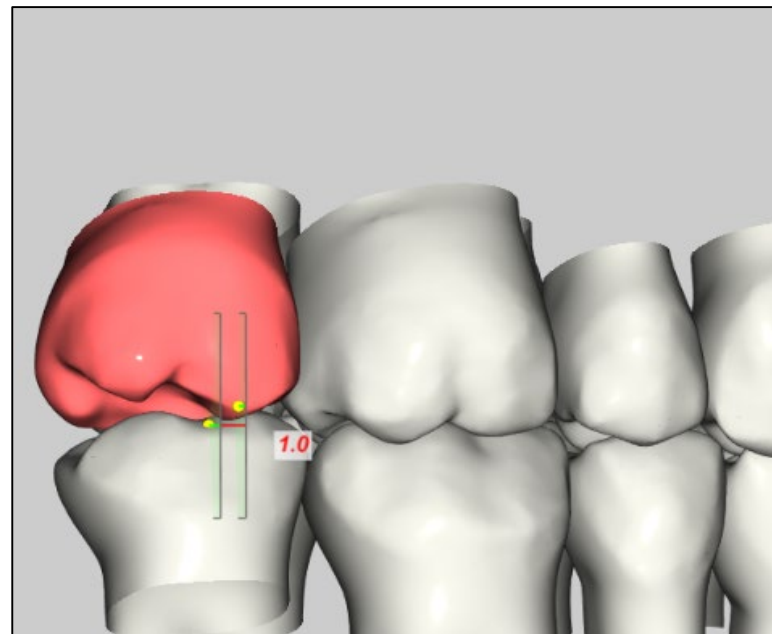
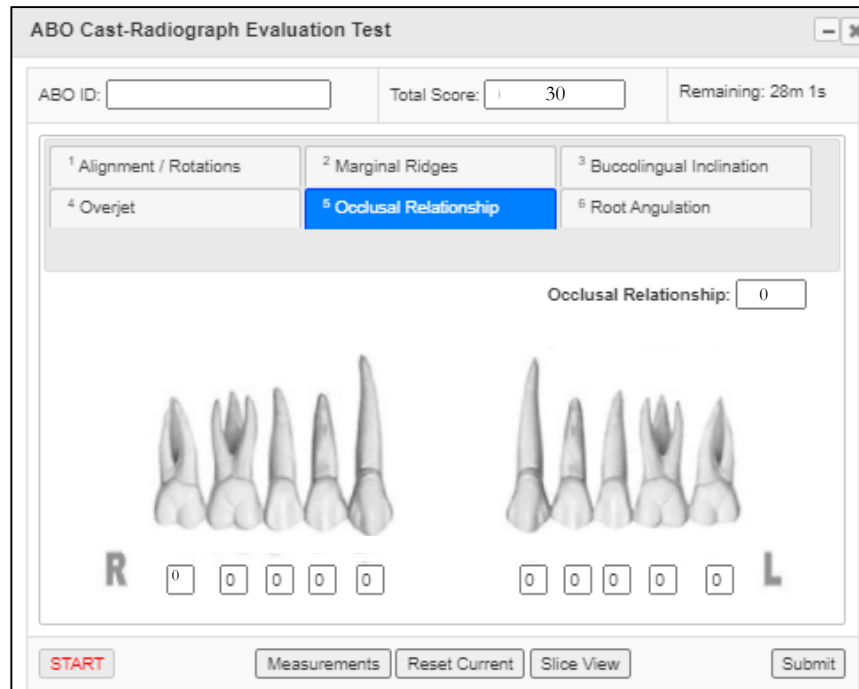
Anterior Overjet



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

Occlusal Relationship

Step # 1



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

Occlusal Relationship

Step # 2

ABO Cast-Radiograph Evaluation Test

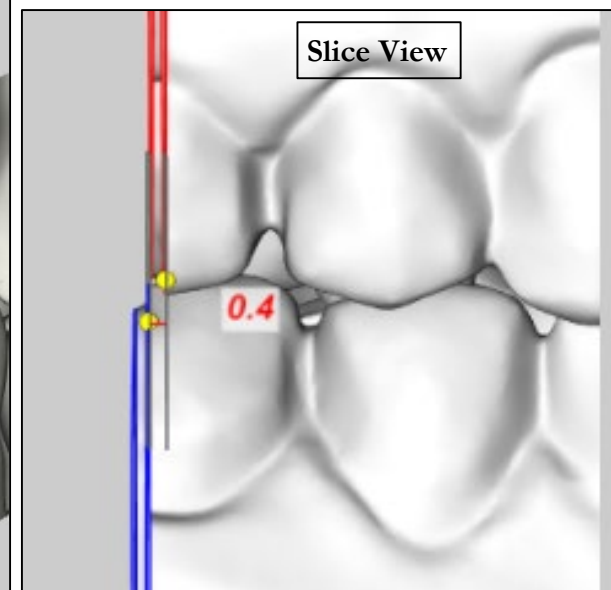
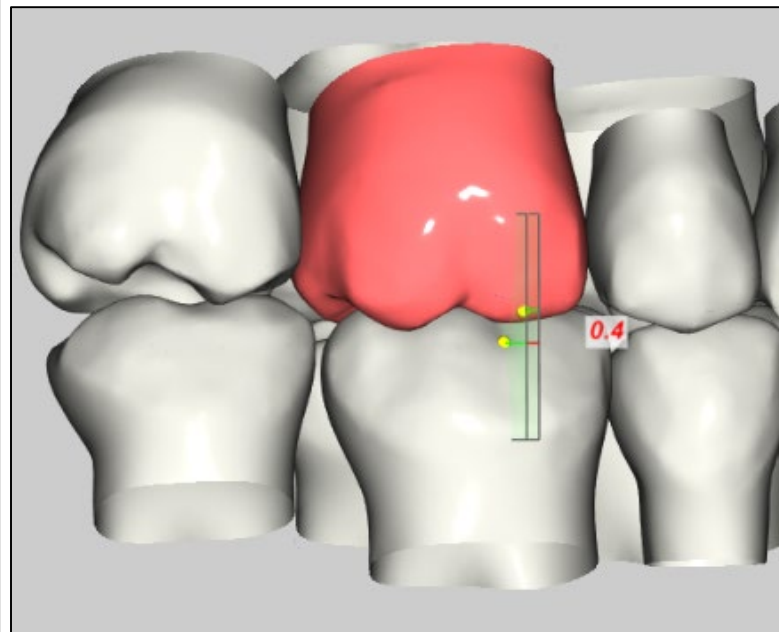
ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

R L

START Measurements Reset Current Slice View Submit



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Occlusal Relationship

Step # 3

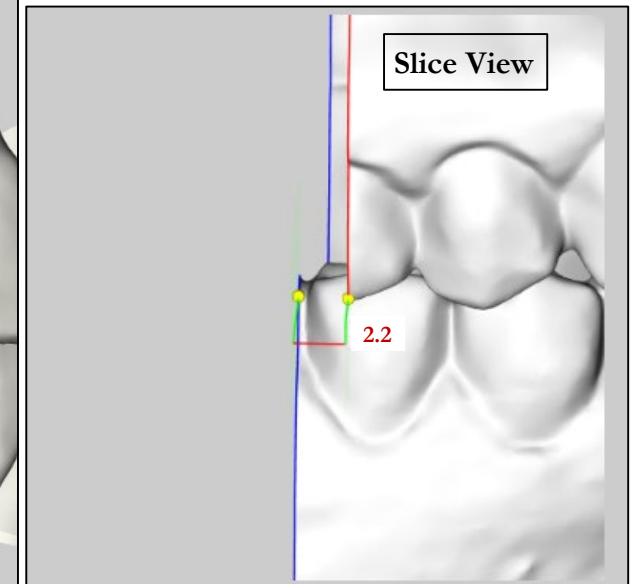
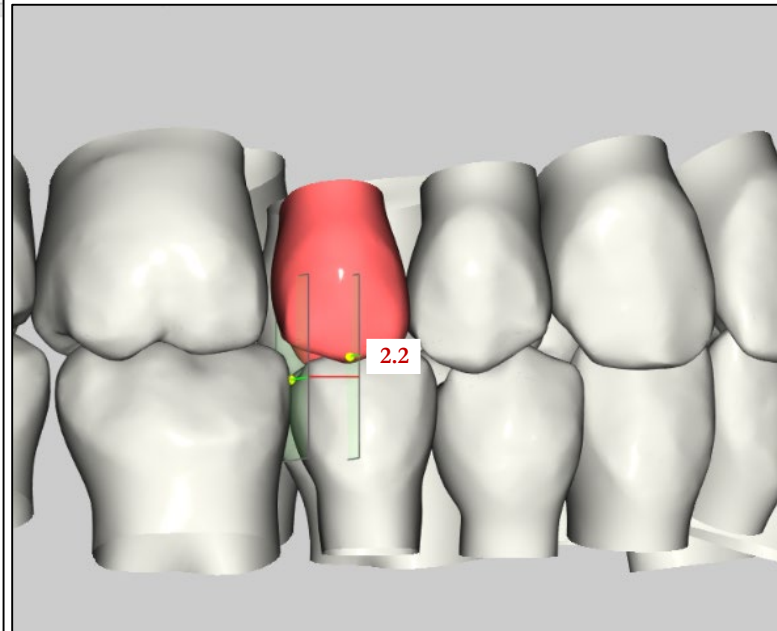
ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

R L



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Occlusal Relationship

Step # 4

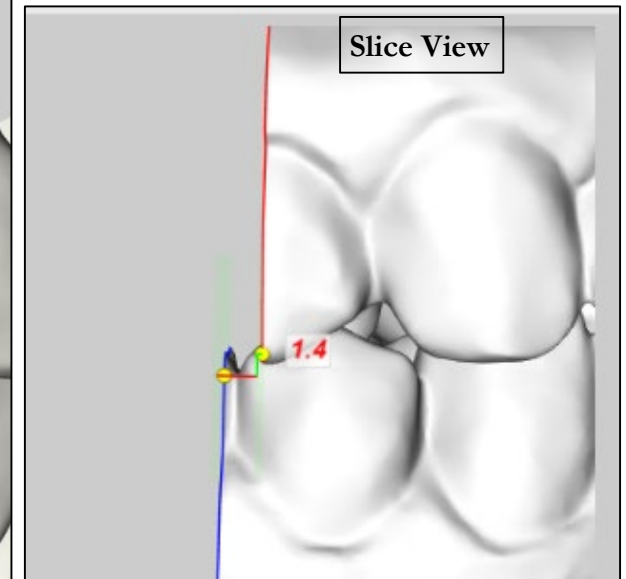
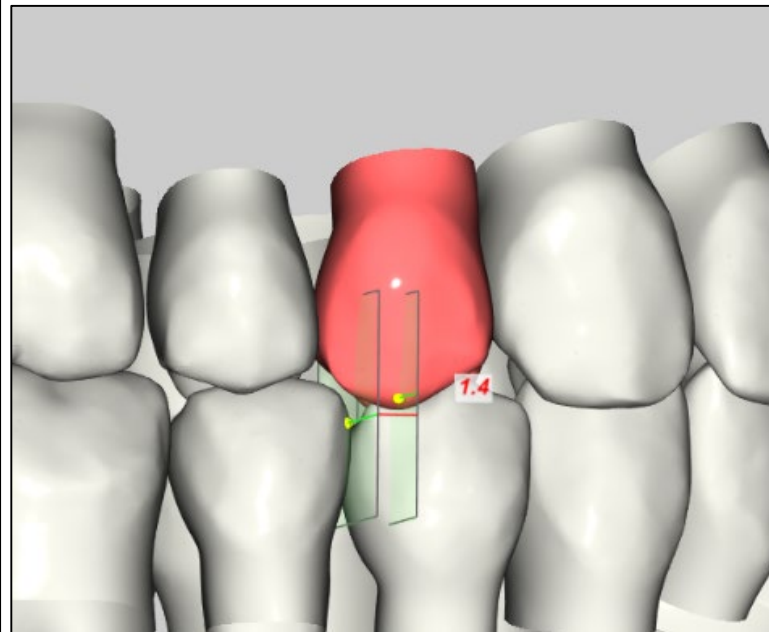
ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

R L



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Occlusal Relationship

Step # 5

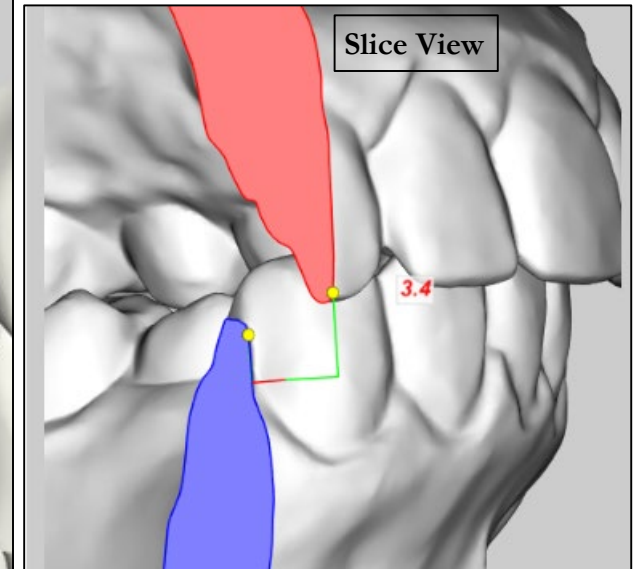
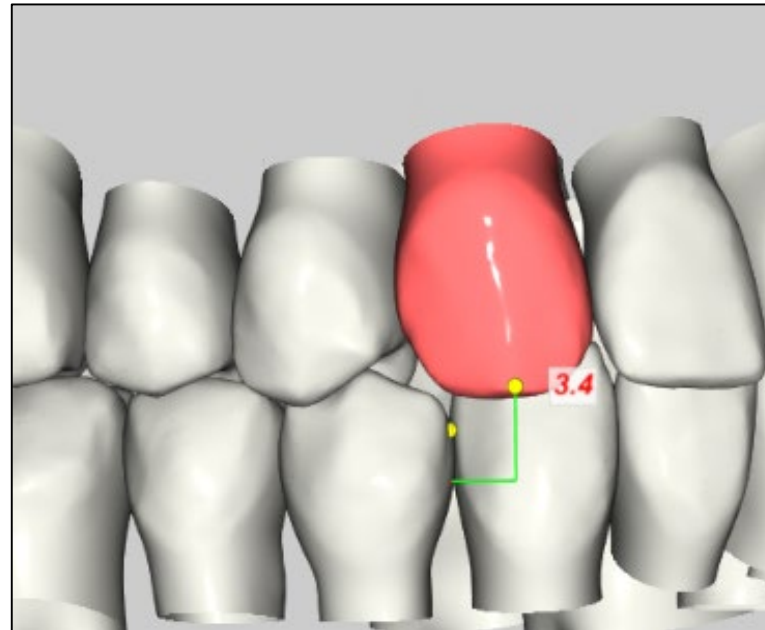
ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

R L



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

Occlusal Relationship

Step # 6

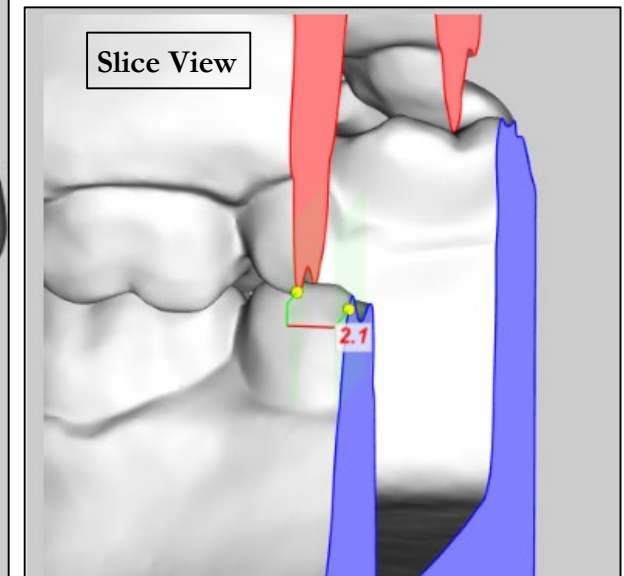
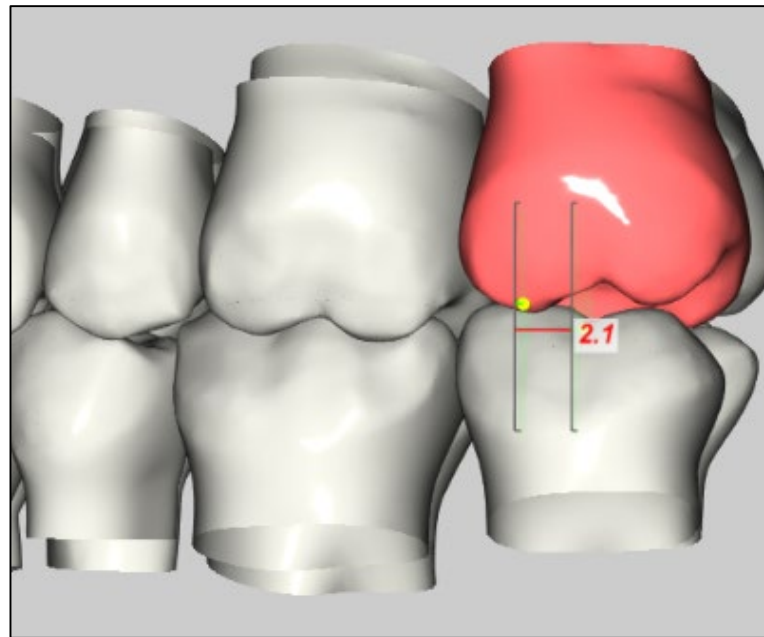
ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

R L



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Occlusal Relationship

Step # 7

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

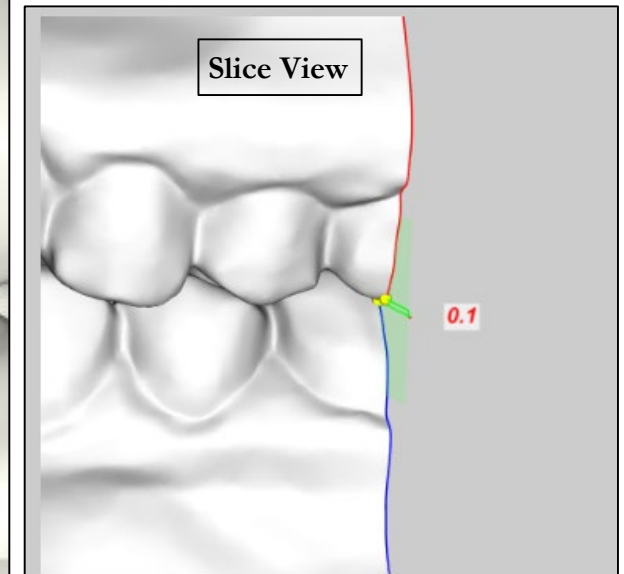
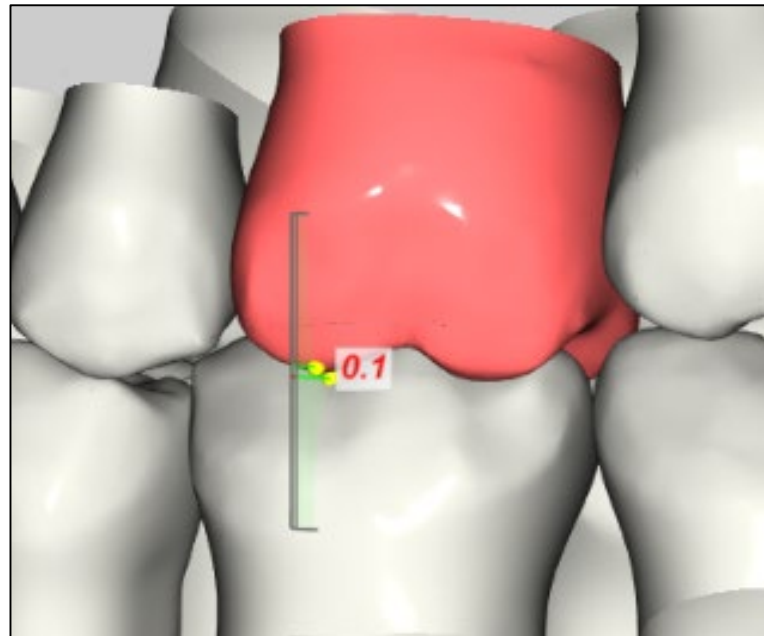
Occlusal Relationship:

R

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--------------------------------	--------------------------------	--------------------------------	--------------------------------	--------------------------------

L

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ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Occlusal Relationship

Step # 8

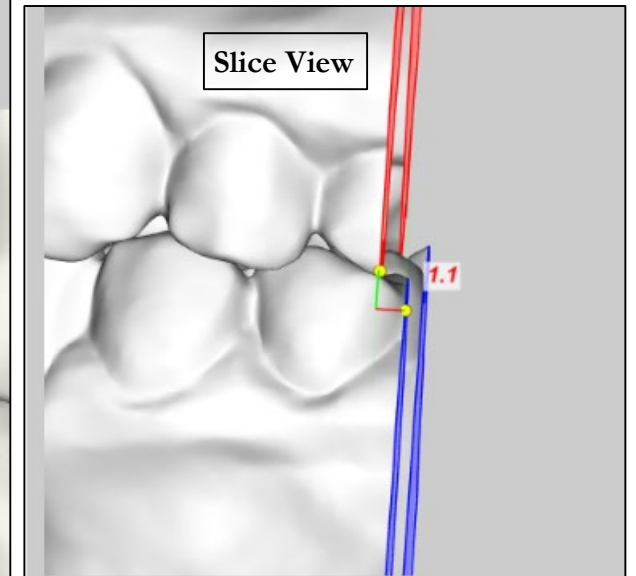
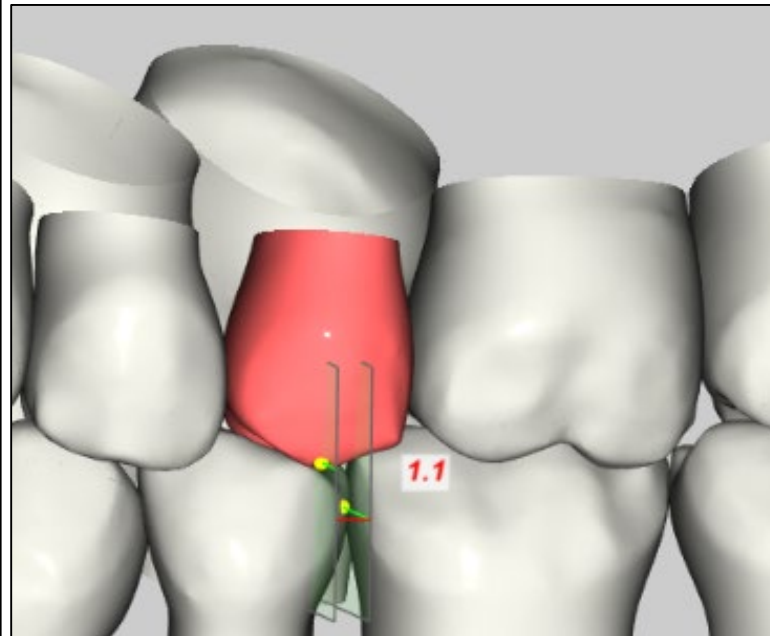
ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

R L



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D™-Online Web Viewer

Occlusal Relationship

Step # 9

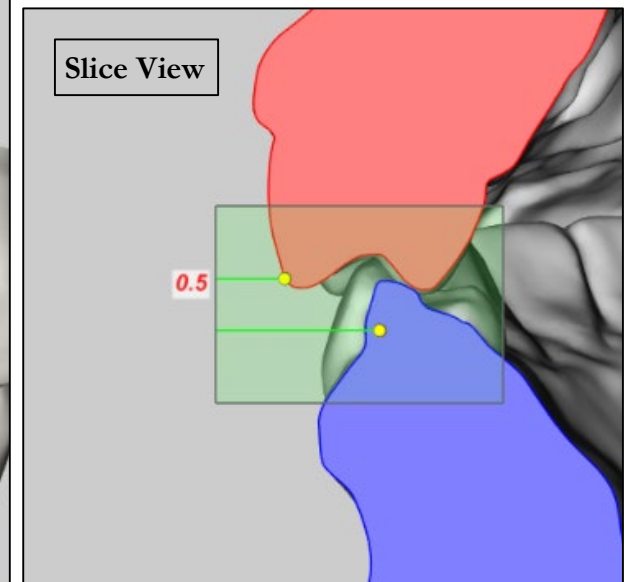
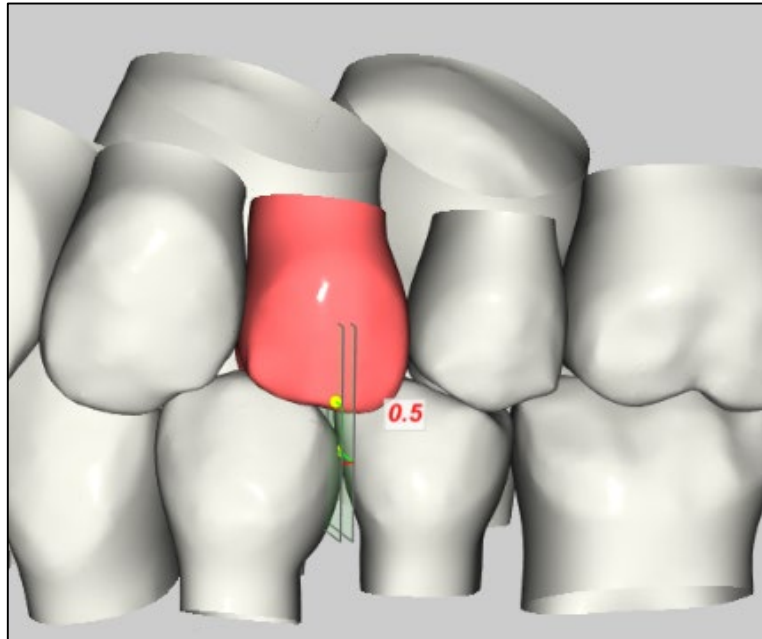
ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 28m 1s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Occlusal Relationship:

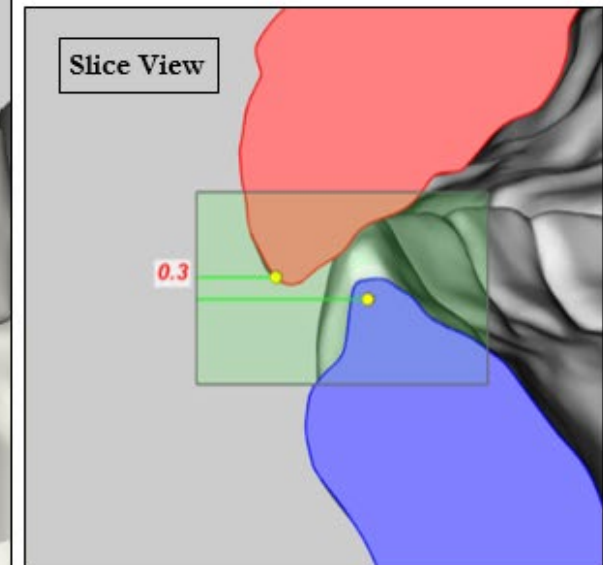
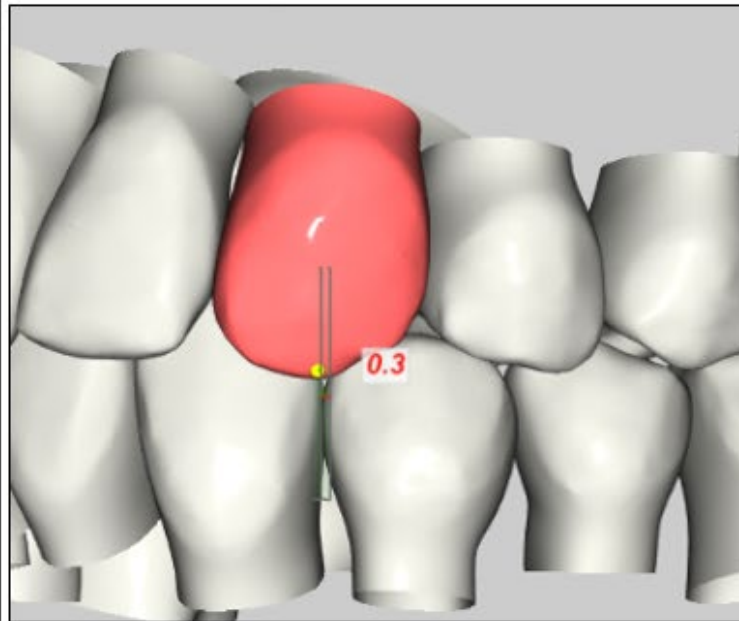
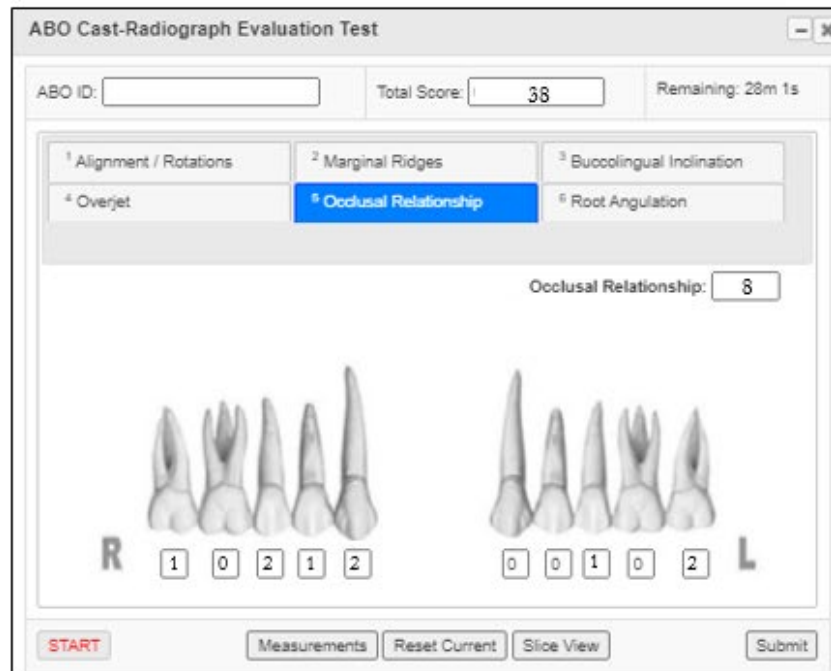
R L



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3DTM-Online Web Viewer

Occlusal Relationship

Step # 10



ABO Cast Radiograph-Evaluation (CR-E) Using Ortho Share 3D^(TM)-Online Web Viewer

Root Angulation

ABO Cast-Radiograph Evaluation Test

ABO ID: Total Score: Remaining: 20m 18s

¹ Alignment / Rotations	² Marginal Ridges	³ Buccolingual Inclination
⁴ Overjet	⁵ Occlusal Relationship	⁶ Root Angulation

Root Angulation:

R L

START Measurements Reset Current Slice View Submit

