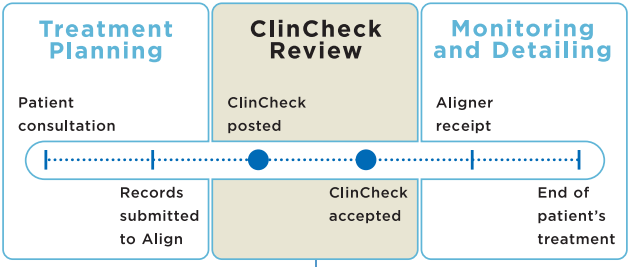
Version 1.0

ClinCheck® Evaluation Guide



invisalign®

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ClinCheck® is a 3-dimensional virtual representation of a doctor's prescribed treatment plan and reflects the stages of treatment from which Aligners are manufactured. ClinCheck provides viewing and navigation tools to enable better treatment planning and better clinical decisions.

The review of ClinCheck is an integral part of achieving excellent treatment outcomes with Invisalign®.

Table of Contents

Introduction

Purpose

The purpose of this document is to familiarize new and existing Invisalign users with helpful techniques to clinically review a 3-dimensional model using Align's ClinCheck software.

> This Guide will help you achieve better and more consistent clinical outcomes with Invisalign by helping you use ClinCheck more effectively.

The Guide offers both broad and in-depth approaches to ClinCheck analysis in order to meet different user needs. It will also enable users to gain a better understanding of the role of ClinCheck in the treatment planning process.

> Careful review of ClinCheck is critical.
> If a movement is not represented in ClinCheck, it will not be present in the Aligner and may not manifest clinically.

ClinCheck review is your opportunity to carefully consider your treatment plan and goals and communicate any modifications you deem necessary to achieve an excellent treatment outcome. Only the movements portrayed in the ClinCheck file will be present in the Aligner design. In instances in which the ClinCheck does not match /represent your treatment plan, additional instructions should be provided to Align to clarify and request modifications to ClinCheck to ensure that all movements are reflected appropriately.

> Benefits of Thorough Review
>
> - Improved treatment planning
> - Streamlined modification requests
> - Better clinical results
> - Fewer Refinements

Purpose cont.

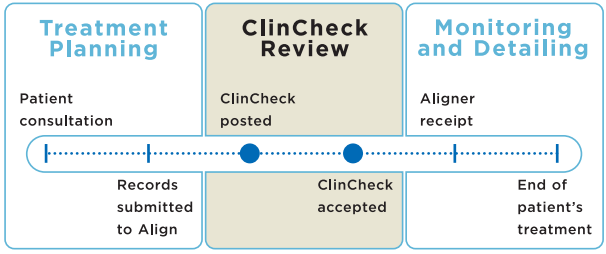
About this Guide

- It presents an easy, visual approach to evaluate ClinCheck using illustrations and step-by-step instructions to guide you in your analysis and show you what to do.
- It works like a reference book. You can go directly to areas of specific interest and quickly look up the information you need.
- It provides supporting explanations to highlight areas for evaluation.
- It is written by Clinicians for Clinicians.

About the Series

The ClinCheck Evaluation Guide is Part II of a Three-part series designed to help doctors better use Invisalign to achieve optimal clinical outcomes.

The ClinCheck Evaluation Guide does not replace the User Guide, technical support, or other educational materials provided by Align for the use of its software. To further develop your understanding of the software, Align encourages you to use all of the resources available. Be sure to keep up with the latest updates by visiting the Online Clinical Education Center (www.invisaligncec.com) and by contacting your local Sales Representative.



How to Use this Guide

Preview what you'll find in this guide and learn valuable tips on the best way to use it.

This guide is broken out into three core sections:

1. Before Evaluating your ClinCheck
2. Reviewing your ClinCheck Set-Ups
3. Communicating with Align through ClinCheck

To begin, it is recommended that you first familiarize yourself with how ClinCheck fits within the treatment process and learn the features and functions of the software. Next choose from a broad or focused analysis approach with which to review your ClinCheck set-ups. Finally, utilize the proposed communication methods for successful interactions with Align technicians.

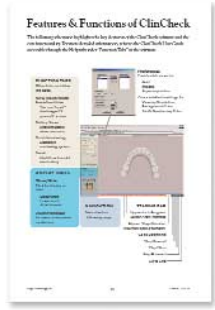
Section 1. Before Evaluating your ClinCheck

Review "Getting Quality Clinical Outcomes with Invisalign" (see p. 6).

- Review ClinCheck carefully
- Keep patient's biology in mind

Become familiar with the features and functions of the ClinCheck software (see insert).

- Learn the different sections of the screen
- Identify the controls
- Learn how to move the virtual model to help you in your analysis
- Reference the User Guide for additional detailed instruction on ClinCheck use



The "Features & Functions" displays an overview of the ClinCheck screen.

How to Use this Guide, cont.

Section 2. Reviewing your ClinCheck

Before you accept ClinCheck, careful analysis is the key step in making sure the manufactured Aligners match your treatment goals—prior to production. In this Guide, two different analytical approaches are presented. Using one, or a combination of the two, will help you to achieve your envisioned outcome.

Five Basic Steps for Reviewing ClinCheck. This subsection presents a broad approach for successful ClinCheck analysis. Screen shots and case photos, along with detailed clinical and software instructions aid you in your understanding of the high level concepts being presented. Circled numbers in the text refer you to illustrated examples.

Steps for Reviewing ClinCheck in Detail. Organized by view within the 5 Basic Steps framework, each consideration shows a detailed illustration explaining why it is important, and provides step-by-step instructions on how to use ClinCheck in your review process. Icons show the features to use to complete the steps.

The "Five Basic Steps" provide key points for a broad analysis approach.

"Detailed Reviews" provide a more focused analysis approach.

Section 3. Communicating with Align

If, after your analysis, you decide to make modifications to your original treatment plan, these Communication Guidelines will help you to avoid vague communications and ensure proper interpretation of your instructions.

The "Communication Guidelines" provide examples for your use.

Evaluation

Section 1.
Before Evaluating your ClinCheck

Getting Quality Clinical Outcomes with Invisalign

The following are critical determinants to achieving your desired clinical outcome. They affect your ClinCheck set-up and your ClinCheck review process, therefore it is important to keep them in mind to consistently meet your treatment goals.

1. **Submit High Quality Records (particularly PVS impressions and photos)**

   The #1 reason for poor Aligner fit is an incomplete or distorted impression.

   a. For optimal Aligner fit and clinical outcomes, accurate dental data and quality photos are necessary.
   b. Find helpful tips on impression-taking and photography on the Invisalign Online Clinical Education Center.

Your ClinCheck can only be as good as your records.

2. **Be Detailed when Treatment Planning**

   a. The more specific and clear you are with your instructions, the better able your Align technicians will be to provide an initial setup that meets your expectations.
   b. Set up your Treatment Preferences in VIP for Align technicians to reference as they design your ClinCheck set-up.
   c. Begin with the end in mind. Depending on the type of case or movements planned, you may need to plan ahead for the use of auxiliaries.

Visualize the End Result. Your treatment plan is your roadmap.

3. Review ClinCheck Carefully

a. ClinCheck is a virtual representation of a doctor's intended treatment plan.
b. Review comments from Align posted in your ClinCheck for special information regarding your requests.

Analyze the model.
What you see is what you get in the Aligner.

4. Keep Patient's Biology in Mind

a. Viewing teeth 3-dimensionally and in isolation can influence perception for "needed" changes not included in your original treatment plan.
b. Refer back to your treatment plan to verify your original goals.
c. If you still wish to make changes, ensure you have strategies in place to support your requested movements.

Manage your expectations.
Remember the "Real" in the 3D world of the "Ideal".

5. Monitor Carefully and Plan to Detail

a. Monitoring and detailing during treatment are critical to achieving the treatment plan reflected in ClinCheck.
b. Compare clinical progress at patient appointments with stages in ClinCheck.

Keep track of progress.
Is everything going according to the treatment plan?

Features & Functions of ClinCheck

The following schematic highlights the key elements of the ClinCheck software and the core functionality. For more detailed information, refer to the ClinCheck User Guide accessible through the Help tab under “Function Tabs” in the software.

Preferences
Enables tab views for:

Grid
Images
Superimposition

Choose default settings for:
Viewing Resolution
Background Color
Tooth Numbering Color

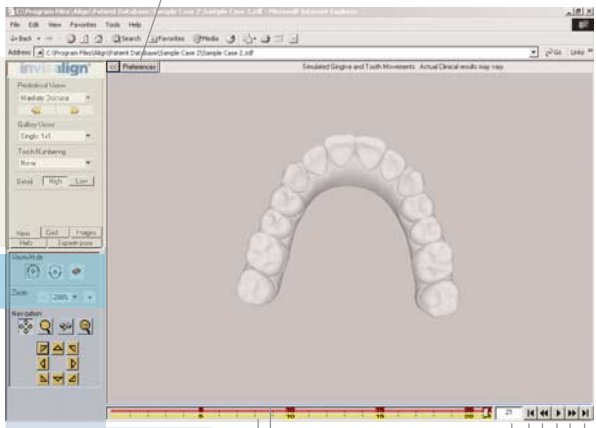
FUNCTION TABS
Additional tabs on the next page.

View Tab (default)
Predefined View
You can “reset” the image if it goes off-screen

Gallery Views
Shows multiple views onscreen

Tooth Numbering
Displays a selected numbering system

Detail
High/Low (model resolution)



DISPLAY TOOLS

Show/Hide
Click to display or hide:

Upper arch
Lower arch
Attachments

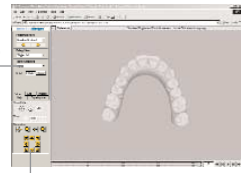
Zoom Pulldown
Increase or decrease model size

NAVIGATION
Described on the next page

STAGING BAR

Upper Arch Progress
Lower Arch Progress
Aligner Stage Number (You may type a number)
Go to Beginning
Step Rewind
Play/Stop
Step Forward
Go to End

FUNCTION TABS



NAVIGATION

Superimpose*
Allows comparison of any 2 stages of treatment for your case.

Colored area shows where movement is occurring.

Grid*
Overlay a grid in multiple orientations onto the ClinCheck model.

Move the Grid over the model.

Images*
Output a movie of the treatment plan.

Print an image.

Create a single digital image

Help
Indicates current version of ClinCheck.

Accesses the ClinCheck User Guide. (requires Adobe Acrobat.)

* Must be enabled in Preferences dialog box.

Move (Translate/Slide)
Moves the model up/down/left/right/ diagonal.

(Tip: to activate “Move” when another Tool is selected, hold shift button and drag the mouse.)

Zoom
Allows enlarging or reducing the size of the model.

Use mouse, pulldown menu or “wheel”.

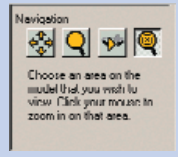
Drag the mouse to bottom of screen to increase size; top of screen to decrease size.

(Tip: to activate “Zoom” when another Tool is selected, hold control button and drag the mouse up or down.)

Rotate
Rotate model at any angle.

Use “wheels” to selectively rotate in a sagittal, facial or occlusal direction.

(Tip: to activate “Rotation” when another Tool is selected, right-click and drag the mouse.)



Seek (Selective Zooming)
Click on the specific portion of the model you would like to enlarge.

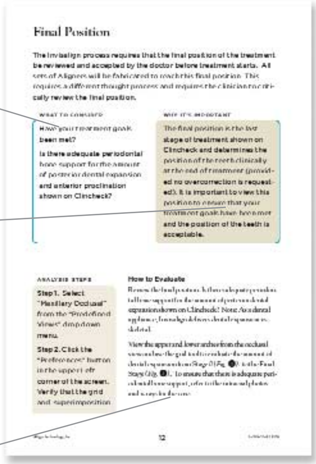
Section 2.
How to Review your ClinCheck Set-Ups

Part 1. Five Basic Steps to Reviewing ClinCheck

There are 5 basic steps to follow when reviewing your ClinCheck set-ups:

1. Final Position
2. Interproximal Reduction (IPR)
3. Staging
4. Attachments & Pontics
5. Overcorrection

The format of this section is described below:



What to Consider

The description introduces fundamental concepts to consider when analyzing your patient's teeth as a 3-dimensional model.

Why It's Important

In support of the consideration presented, this area illustrates how ClinCheck offers a different way of looking at your treatment plan. This includes planning specific movements over time at the outset, as well as interactions of specific tooth movements.

How to Evaluate

The evaluation area presents a process for review with guidance on "What to Look For", along with recommended steps to perform the analysis.

1. Final Position

The Invisalign process requires that the final position of the treatment be reviewed and accepted by the doctor before treatment starts. All sets of Aligners will be fabricated to reach this final position. This requires a different thought process and requires the clinician to critically review the final position.

WHAT TO CONSIDER	WHY IT'S IMPORTANT
Have your treatment goals been met? Is there adequate periodontal bone support for the amount of posterior dental expansion and anterior proclination shown on ClinCheck?	The final position is the last stage of treatment shown on ClinCheck and determines the position of the teeth clinically at the end of treatment (provided no overcorrection is requested). It is important to review this position to ensure that your treatment goals have been met and the position of the teeth is acceptable.

ANALYSIS STEPS

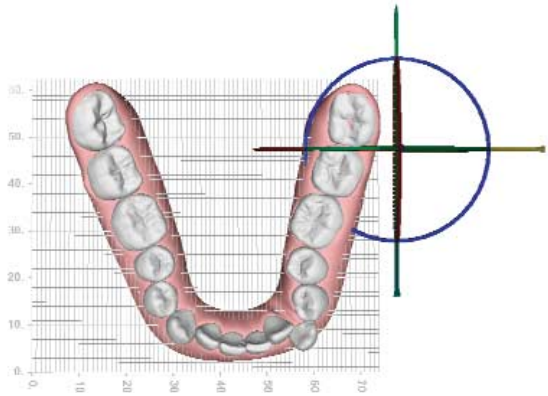
Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. Click the "Preferences" button in the upper left corner of the screen. Verify that the grid and superimposition

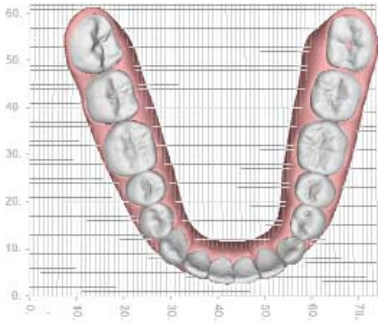
How to Evaluate

Review the final position. Is there adequate periodontal bone support for the amount of posterior dental expansion shown on ClinCheck?
Note: As a dental appliance, Invisalign delivers dental expansion vs. skeletal.

View the upper and lower arches from the occlusal view and use the grid tool to evaluate the amount of dental expansion from Stage 0 *(Fig.* ❶*)* to the Final Stage *(Fig.* ❷*)*. To ensure that there is adequate periodontal bone support, refer to the intraoral photos and x-rays for the case.



❶ *Initial position with grid and axis activated.*



❷ *Final position with grid.*

The superimposition tool can also be used to evaluate the amount of dental expansion *(Fig.* ❸*)*.

❸ *Initial position (blue transparency) superimposed over the final position. Note: The amount of planned expansion in the upper right second bicuspid region and the lateral incisor can be evaluated with this tool.*

tools are listed as "Enabled Plug-ins".

Step 3. To display the "Grid" tool, check the "Show Grid" box within the "Grid" Tab. Place the cursor over the grid; right click on one of the grid lines to display the "Axis" tool. Highlight one of the "Wheels" to move the grid in the desired direction.

Step 4. To display the "Superimposition" tool, check the "Enable" box within the "Superimposition" Tab.

Step 5. Compare the initial to final stage. Click the "Go to End" button ⏭ in the "Staging Bar" to show teeth in the final stage.

Step 6. Repeat for "Mandibular Occlusal" view.

Final Position, cont.

How to Evaluate

Consider if there is adequate periodontal bone support for the amount of anterior proclination shown on ClinCheck.

View the upper and lower arches from the occlusal *(Fig.* ❹*)* and buccal *(Fig.* ❺*)* views to measure the amount of proclination. To ensure that there is adequate periodontal bone support, refer to the intraoral photos and x-rays for the case, in addition to periodontal depth and recession findings.

❹ *Initial position (blue transparency) superimposed over the final position to evaluate the amount of anterior proclination.*

ANALYSIS STEPS

Step 1. Select "Right Buccal" from the "Predefined Views" drop down menu.

Step 2. Repeat for "Left Buccal" view.

❺ *Initial position (blue transparency) superimposed over the final position to evaluate the amount of anterior proclination.*

View the anterior teeth from the frontal view to ensure that any pre-existing interproximal black triangles have been closed to your desired amount at the end of treatment. Anterior teeth that are overlapped can often develop black triangles once they are aligned due to the insufficient interproximal bone present for papillary support *(Fig.* ❻*)*.

Due to the gingival simulation in ClinCheck, it is best to resolve the appearance of any new black triangles at Refinement should they materialize, as black triangles may fill in naturally based on actual gingival response.

❻ *Evaluate pre-existing black triangles and determine if they have been closed to your desired amount.*

NOTES

1. If you decide to close black triangles in ClinCheck, IPR is frequently required.

2. Consider your patient's biology when assessing whether any black triangles in ClinCheck will be present clinically.

ANALYSIS STEPS

Step 1. Select "Anterior View" from the "Predefined Views" drop down menu.

Step 2. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 3. Compare the initial to final stage. Click the "Go to End" button in the "Staging Bar" to show teeth in the final stage.

Step 4. View the model at approximately 200%. Click the "Zoom" button under "Navigation" and drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

2. Interproximal Reduction

IPR (interproximal reduction) is required in certain cases to help alleviate crowding. Any case requiring interproximal reduction will have an IPR form indicating when, where and how much is required *(Fig.* ❶*)*. A successful treatment outcome is dependent on accurately following the IPR instructions during treatment.

WHAT TO CONSIDER	WHY IT'S IMPORTANT
Do you feel comfortable with the amount (mm), locations (contact points), and timing (stages of occurrence) of interproximal reduction, especially if the tooth has a restoration present?	IPR is performed where additional space needs to be created to help alleviate crowding. IPR can be done prior to the PVS impression (and retained prior to Aligner delivery) or during treatment. If performed during treatment, properly following the IPR instructions is extremely important for a successful treatment outcome. If the adequate amount of IPR is not performed by the correct time during treatment, crowded teeth will not be able to align properly and treatment will not progress.

NOTE

If you desire less or more reproximation, or different distribution, be sure to request the modification before accepting the case for Aligner fabrication.

❶ *Reproximation Chart (IPR Form)*

How to Evaluate

Review the IPR instructions. Are you comfortable with the amount, location and timing of the IPR?

View the treatment from the occlusal views. Play the treatment one stage at a time and refer to the IPR form to determine when, where, and how much IPR is prescribed.

1. Look carefully at the **total amount** of IPR required between each tooth. Is the tooth shaped favorably to accommodate this amount of IPR?
2. Look carefully at the **location** of IPR. Is IPR required on teeth with restorations (personal preference)? Is IPR required on posterior teeth (personal preference)?
3. Look carefully at the **timing** of IPR. Will proper clinical access exist to perform IPR at the indicated stage? *(Fig.* ❷*)* When the form indicates that stripping should be done from Stages 5-9, this means that IPR can be done at any time prior to Stage 5. However, IPR must be started no later than Stage 5 and completed by Stage 9. The total amount indicated on the form must be performed in advance of Stage 9 to ensure proper Aligner fit, and the area should continue to be monitored throughout treatment. At each appointment, contacts around crowded and rotated teeth should be checked with unwaxed floss to ensure adequate space for alignment.

❷ *Ask yourself, in areas when the teeth are overlapping each other and require IPR: "Can I access the contact to perform the indicated IPR at the indicated stage or should I open space first to gain access?"*

ANALYSIS STEPS

Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. View staging in entirety. Click the "Play" button ▶ in the "Staging Bar" to evaluate what was done.

Step 3. Closely review each stage. Click the "Step Forward" button ⏭ in the "Staging Bar".

Step 4. Refer to the IPR schedule to ensure the timing of IPR is clinically feasible.

Step 5. Repeat for "Mandibular Occlusal" view.

NOTE

IPR is represented in ClinCheck with teeth overlap. Dental anatomy is **not** removed to represent IPR.

3. Staging

Staging is the process of sequencing tooth movements from the initial to the final position. The treatment approach desired will determine the type of staging. For example, distalization will have a different staging pattern than intrusion, etc.

WHAT TO CONSIDER	WHY IT'S IMPORTANT
Are you comfortable with the timing, path and sequence of tooth movements?	Staging is the timing, path and order of the tooth movements. Proper staging is important for the flow and progress of a successful treatment.

NOTE

Aligners are currently manufactured to move teeth 0.25–0.33 mm per tooth per stage maximum. However, you may choose to request movement speeds different from Align's protocol in certain cases.

How to Evaluate

Review the staging. Are you comfortable with the timing, path, and order of tooth movements?

Does the sequence of movements shown on ClinCheck make sense biomechanically? View the ClinCheck stage by stage from the occlusal views *(Figs.* ❶ ❷*)*. If there is no IPR, is there adequate space, mesial and distal, around the tooth for alignment?

1 *Stage 1–5. Distalization case showing moving the second molars distally during the first few stages.*

2 *Stage 6–9. Once the second molar has been distalized halfway back to its final position, the first molar is distalized using the anterior teeth as anchors.*

ANALYSIS STEPS

Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. Closely review each stage. Click the "Step Forward" button in the "Staging Bar".

Step 3. Repeat for "Mandibular Occlusal" view.

NOTE

Given the staging pattern associated with distalization, such cases may require many Aligners.

4. Attachments & Pontics

Attachments are tooth colored composite forms that are bonded onto the teeth using a template to help anchor Aligners for better force delivery. Pontics are spaces built into the Aligner that narrow over the course of treatment as the spaces are closed.

WHAT TO CONSIDER	WHY IT'S IMPORTANT
Are the attachments and pontics placed consistent with your treatment goals? If using attachments, are you comfortable bonding attachments that are placed on crowns/veneers?	Attachments can aid in the delivery of forces to move teeth, and in cases with missing teeth or extractions, pontics may be used as an esthetic option.

NOTE

For a complete discussion on attachments, refer to the Attachment Protocol found on the Invisalign Clinical Education Center at *www.invisaligncec.com.*

How to Evaluate (Attachments)

Review the attachments. Are the attachments placed consistent with your treatment goals? Unless you give specific instructions on the treatment form, Align will automatically place attachments for certain movements.

If anterior intrusion is performed during ClinCheck, attachments should be placed on the adjacent teeth to help with retention of the Aligner as an intrusive force is being applied anteriorly *(Fig.* ❶*)*. For extrusions, attachments should be placed directly on the tooth requiring the extrusion *(Fig.* ❷*)*. (Absolute

❶ *Buccal view of attachments on the bicuspids required for anterior intrusion.*

extrusion is an unpredictable movement even with attachments.) If a tooth that requires rotation is round in shape such as a lower bicuspid or cuspid, an attachment should be placed directly on the tooth (*Fig.* ❸).

Do you feel comfortable with bonding attachments that are placed on crowns/veneers? Check to ensure that you will be able to bond attachments in such cases. If you are not comfortable, please request that they not be placed on these teeth.

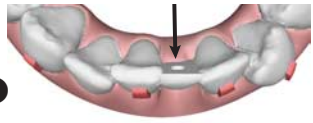
❷ *Anterior view of attachment on the left lateral incisor placed for absolute extrusion. (Attachments are placed horizontally to facilitate extrusive movements.)*
Note: Absolute extrusion is an unpredictable movement.

❸ *Example of a bicuspid rotation.*

How to Evaluate (Pontics)

Review the pontic space(s), denoted by the retention dimple on the lingual side *(Fig.* ❹*)*.

Confirm that any pontics needed are the right size, shape and location.



❹

ANALYSIS STEPS

Step 1. To display attachments, click the "Attachment" button in the "Show/Hide" section.

Step 2. View staging. Click the "Play" button in the "Staging Bar" to evaluate timing of movements.

5. Overcorrection

Overcorrection is the planning of tooth movement beyond ideal to anticipate Aligner lag or tooth bounce back. With your explicit instructions that anticipate those needs, Align will manufacture special overcorrection Aligners. (Stages shown in white on the Staging Bar reflect overcorrection.) However, trying to predict before treatment begins, which teeth may need overcorrection, is difficult and unreliable. Therefore, it is recommended that overcorrection Aligners, as part of Refinement, be requested only once the patient has reached the last Aligner.

WHAT TO CONSIDER	WHY IT'S IMPORTANT
Once the patient has reached the final Aligner during treatment, are the teeth fully aligned as shown on ClinCheck? Does the last Aligner still fit snugly around all of the teeth?	In certain situations the final position shown on ClinCheck is not achieved once the patient has reached the last Aligner due to a variety of factors. Additional Aligners can be requested to achieve the final position. In situations in which the last Aligner still fits snugly, no PVS impression is necessary.

How to Evaluate

Once the patient has reached the last Aligner, evaluate clinically if additional alignment is required *(Figs.* ❶ ❷*)*. If the last Aligner still fits accurately, then Refinement Aligners can be requested without an impression by submitting appropriate photographs and instructions indicating the exact tooth and

❶ *Initial clinical position.*

❷ *Final position in Clincheck showing ideal alignment.*

movement required *(Figs.* ❸ ❹*)*. If the last Aligner does not fit and/or the clinical final position appears off by more than 3 Clincheck stages, then new PVS impressions should be taken for Refinement Aligners. Continued monitoring of interproximal contacts is recommended.

❸ *Final clinical position after wearing the last Aligner. Notice the incomplete alignment of the lower right central incisor requiring additional distal rotation.*

❹ *Example of additional virtual distal-in rotation beyond ideal (overcorrection) requested in Refinement in order to achieve ideal clinical alignment.*

ANALYSIS STEPS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually at the final position. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Review Steps in Detail

Part 2. Steps to Reviewing ClinCheck in Detail

In this section, specific examples of important clinical considerations are presented based on view within the 5 Basic Steps framework. They are accompanied by a rationale and detailed steps to perform an analysis. (Tabs separate each section.)

1. Final Position
   - Anterior
   - Anterior Overjet
   - Occlusal
   - Buccal
   - Posterior (Lingual)
2. Interproximal Reduction
3. Staging
4. Attachments & Pontics
5. Overcorrection

The format of this section is described below.

What to Consider
Illustrations and descriptions focus your attention on key points to consider by view.

Why It's Important

Steps for Analysis
A recommended course of action is presented using detailed step-by-step instructions that explain how to use the software to complete your analysis. Icons indicate what to look for.

Final Position

Anterior View

WHAT TO CONSIDER

Anterior Crown Tips

View the crown tips of the teeth.

WHY IT'S IMPORTANT

This has an effect on the esthetics of the case. Given that esthetic alignment is very subjective, personal preferences should be communicated. The appearance of a black triangle may be due to the improper crown tip of the teeth or due to papillary insufficiency from previously overlapped teeth. Pre-existing black triangles should be addressed, if desired. Otherwise, due to the gingival simulation in ClinCheck, it is best to resolve the appearance of new black triangles at Refinement.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Anterior View" from the "Predefined Views" drop down menu.

Step 2. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 3. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 4. View the model at approximately 200%. Click the "Zoom" button under "Navigation". To change model size, drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

Anterior View

WHAT TO CONSIDER

Arch Symmetry

Consider the canine symmetry and posterior arch form symmetry.

WHY IT'S IMPORTANT

Symmetry affects occlusion, as well as esthetics when the patient smiles or talks. Check symmetry for occlusion and to prevent the unesthetic appearance of a tooth appearing out of alignment as a patient is talking or smiling.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

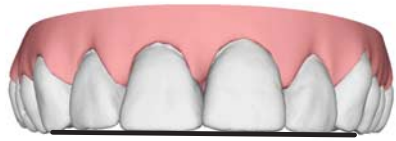
Step 3. Visually examine the arch from the canine back towards the second molar and consider the in and out positions and torque relationships of the teeth. Consider their relationship to one another.

Anterior View

WHAT TO CONSIDER

Esthetic Leveling-Upper

View the esthetic leveling of the upper arch. Consider if any worn incisal edges will be equilibrated or restored.



WHY IT'S IMPORTANT

Clinicians have preferences with upper leveling. Some like the upper lateral incisors slightly gingival to the central incisors, while others prefer them level. Chipped or worn down incisors will make a difference in how the technician will be able to align the teeth. Gingival line esthetics should also be considered.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 3a. Level the edge of the incisors. To perform your analysis, orient the model so that the anterior teeth are perpendicular to your line of sight.

Step 3b. Optional. Select the "Move" tool under "Navigation" and drag the teeth to the bottom of the screen and use as a reference line.

Step 3c. Optional. Select the "Grid Tab"; check the "Show Grid" box to display. Place the cursor over the grid; right click on one of the grid lines to display the "Axis" tool. Select and highlight one of the "Wheels" to move the grid in the desired direction.

Anterior View

WHAT TO CONSIDER

Esthetic Leveling-Lower

View the esthetic leveling of the lower arch. Consider if any worn incisal edges will be equilibrated or restored.

WHY IT'S IMPORTANT

The lower incisors in select patients can be worn down. This will make a difference in how the technician will be able to align the teeth.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 3a. Level the edge of the incisors. To perform your analysis, orient the model so that the anterior teeth are perpendicular to your line of sight.

Step 3b. Optional. Select the "Move" tool under "Navigation" and drag the teeth to the top of the screen and use as a reference line.

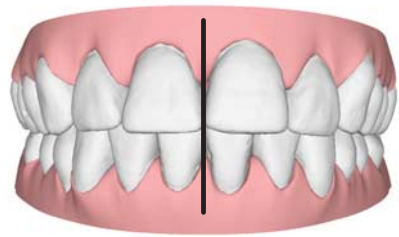
Step 3c. Optional. Select the "Grid Tab"; check the "Show Grid" box to display. Place the cursor over the grid; right click on one of the grid lines to display the "Axis" tool. Select and highlight one of the "Wheels" to move the grid in the desired direction.

Anterior View

WHAT TO CONSIDER

Midline Correction

Consider the final alignment of the upper and lower midlines.



WHY IT'S IMPORTANT

If the midline is not corrected in ClinCheck it will not be corrected in the patient's case. Aligned midlines have esthetic benefits. If the midline was not corrected, it may be due to biological limitations or the technician needing additional instructions such as "allow unilateral IPR".

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the initial stage of ClinCheck. Click the "Go to Beginning" button in the "Staging Bar".

Step 2. Orient the model so that you're looking perpendicular to the correct esthetic midline of the patient.

Step 3. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar". Examine the arches together to view the midline correction, if any. Assess the direction.

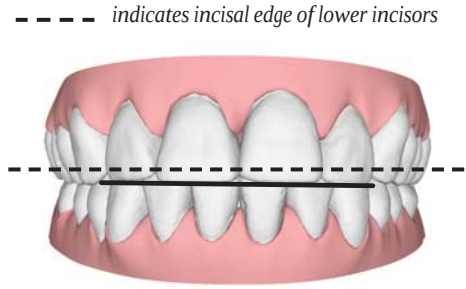
Step 4. View staging. Click the "Play" button in the "Staging Bar" to evaluate what was done (*i.e.* IPR, how are teeth shifting).

Anterior View

WHAT TO CONSIDER

Overbite Relationship

Consider if the overbite relationship is satisfactory.



WHY IT'S IMPORTANT

Deep overbites will have an effect on overjet by preventing A/P correction or retraction of upper incisors. Deep overbites can also limit the ability to procline lower incisors in the resolution of crowding and therefore IPR may be needed. Deep overbites may remain in ClinCheck if treatment goals are limited, or if excessive intrusion is required. Additional information or auxiliary treatment may be necessary to further correct a deep overbite. On the other hand, in open bite cases, sufficient positive overbite may not be attained if excessive extrusion is required.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button ⏭ in the "Staging Bar".

Step 2. Determine the amount of overbite you have (A normal overbite is approxImately 2 mm). View both arches together.

Step 3. Look at how the overbite correction was accomplished with upper/lower intrusion. Toggle between initial and final stages to analyze. Click the "Go to End" ⏭ or "Go to Beginning" ⏮ buttons in the "Staging Bar".

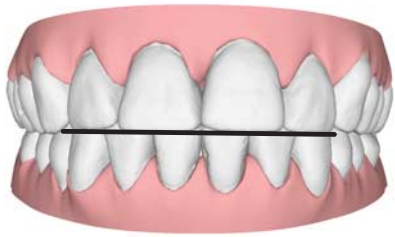
Step 4. Finally, determine if you need more intrusion in one arch or other.

Anterior View

WHAT TO CONSIDER

Overbite Resolution

Consider how the overbite relationship was resolved.



WHY IT'S IMPORTANT

Excessive intrusion of the upper arch could compromise the patient's smile line and can be less predictable than smaller amounts of intrusion. Esthetics and intrusion permitting, distributing intrusion between both arches may be one way to improve treatment predictability.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Look at how the overbite correction was accomplished. Toggle between initial and final stages to analyze. Click the "Go to End" ⏭ or "Go to Beginning" ⏮ buttons in the "Staging Bar".

Step 2. Evaluate how the overbite was resolved by assessing which arch was intruded—upper and/or lower arch—then consider how much per arch. View staging. Click the "Play" button ▶ in the "Staging Bar" to evaluate what was done.

Anterior View

WHAT TO CONSIDER

Torque Symmetry of Posteriors

Consider the torque symmetry of the posterior teeth.

WHY IT'S IMPORTANT

Torque symmetry of posterior teeth is important for esthetics when the patient smiles and for the symmetry of the occlusion.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 3. Visually examine the arch from canine back towards the second molar and consider the in and out positions and torque relationships of the teeth. Consider their relationship to one another.

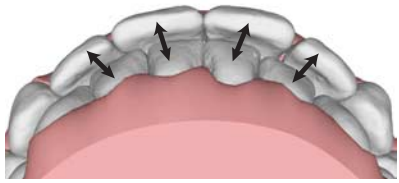
Step 4. View the arches together to evaluate the occlusion aspects.

Anterior Overjet View

WHAT TO CONSIDER

Overjet View

Consider amount of overjet.



WHY IT'S IMPORTANT

Excessive overjet can limit the ability for anterior contacts/coupling. Excessive overjet may be caused because there's a lower incisor extraction, excessive lower IPR or upper teeth may have too much torque (flared out). It may also be due to an A/P discrepancy (i.e. Class II). In some cases, thick lingual marginal ridges on the upper incisors or deep bite can give the appearance of excess overjet.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Anterior Overjet" from the "Predefined Views" drop down menu.

Step 2. View the model at approximately 200%. Click the "Zoom" button under "Navigation" and drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

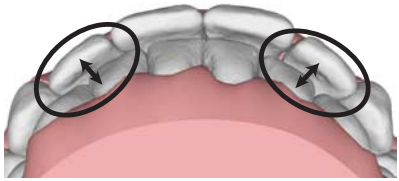
Step 3. Consider how much overjet correction was done and how it was done. (Was upper distalization done? Was IPR done?) Toggle between initial and final stages to analyze. Click the "Go to End" or "Go to Beginning" buttons in the "Staging Bar".

Anterior Overjet View

WHAT TO CONSIDER

Overjet Symmetry

Consider the symmetry of the overjet.



WHY IT'S IMPORTANT

Symmetry improves treatment outcome esthetics. One reason for an asymmetrical space or overjet may be that unilateral IPR was done on one side and not on the other to help center the midline. Another reason may be due to skeletal asymmetry. Sometimes marginal ridge adjustment may also be needed to achieve overjet symmetry.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the model at approximately 200%. Click the "Zoom" button under "Navigation" and drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

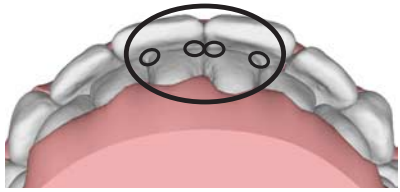
Step 2. Consider how much overjet correction was done and how it was done. (Was upper distalization done? Was IPR done?) Toggle between initial and final stages to analyze. Click the "Go to End" or "Go to Beginning" buttons in the "Staging Bar".

Anterior Overjet View

WHAT TO CONSIDER

Upper Arch Alignment

Review the alignment of the upper and lower arch.



WHY IT'S IMPORTANT

Amounts of rotation and in and out correction may need revision depending on your preference and existing contacts/ anterior coupling. Sometimes marginal ridge adjustment may also be needed to achieve overjet symmetry.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View the model at approximately 200%. Click the "Zoom" button under "Navigation". To change the model size, drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

Step 3. Evaluate the final position of teeth in relation to the other arch.

Step 4. Then consider if it is possible to make modifications based on the interarch contacts of the teeth.

Occlusal View

WHAT TO CONSIDER

Anterior, Posterior Tooth Alignment

Consider the alignment of the anterior and posterior teeth one arch at a time.

WHY IT'S IMPORTANT

Your professional preferences can be incorporated into the arch form and final esthetic positions of the teeth.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. Select the "Superimposition" Tab; check the "Enable" box to display.

Step 3. Compare the initial to final stage. Click the "Go to End" button ⏭ in the "Staging Bar" to show teeth in the final stage.

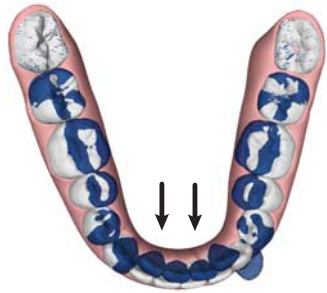
Step 4. Repeat for "Mandibular Occlusal" view.

Occlusal View

WHAT TO CONSIDER

Proclination

Consider the amount of proclination that was performed by examining one arch at a time.



WHY IT'S IMPORTANT

Based on your treatment plan for the resolution of crowding, and the relative importance you placed on proclination in its resolution, you may want to review if the amount of proclination is adequate to avoid creating adverse periodontal condition. (If too much crowding exists, you may need to go back and request IPR, expansion, extraction, or distalization for resolution.)

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. Use the superimposition tool, to consider the amount of proclination.

Step 3. Select the "Superimposition" Tab; check the "Enable" box to display.

Step 4. Compare the initial to final stage. Click the "Go to End" button ⏭ in the "Staging Bar" to show teeth in the final stage.

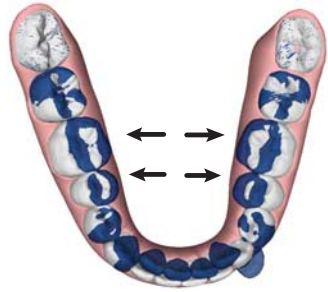
Step 5. Repeat for "Mandibular Occlusal" view.

Occlusal View

WHAT TO CONSIDER

Dental Expansion

Consider the amount of dental expansion that was performed by examining one arch at a time.



WHY IT'S IMPORTANT

Based on your treatment plan for the resolution of crowding, and the relative importance you placed for expansion in the resolution of crowding, it is up you to prescribe a safe amount of dental expansion to avoid generating an undesirable periodontal condition and to avoid unstable tipping of the posterior teeth.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. Use the superimposition tool, to consider the amount of expansion.

Step 3a. Select the "Superimposition" Tab; check the "Enable" box to display.

Step 3b. Optional. Select the "Grid" Tab; check the "Show Grid" box to display.

Step 4. Compare the initial to final stage. Click the "Go to End" button ⏭ in the "Staging Bar" to show teeth in the final stage.

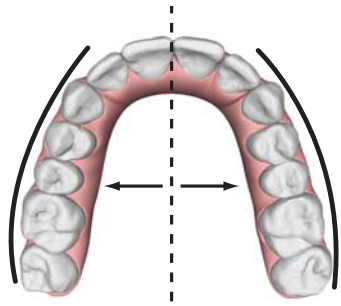
Step 5. Repeat for "Mandibular Occlusal" view.

Occlusal View

WHAT TO CONSIDER

Arch Symmetry

Consider the symmetry of the arches and potential sources of asymmetry one arch at a time.



WHY IT'S IMPORTANT

Symmetry in treatment should be optimized for occlusion and esthetics when possible. Crossbites, by definition, will often result in an asymmetrical arch.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Determine if the arch is symmetrical or asymmetrical (if there are any crossbites) in the **initial** stage of ClinCheck. Click the "Go to Beginning" button in the "Staging Bar".

Step 2. Determine if the arch is symmetrical, or if symmetry was preserved where possible in the **final** stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 3. Evaluate how the changes came about (*i.e.* due to asymmetrical expansion, change in arch form, etc.). Toggle between initial and final stages to analyze. It is also possible to use the superimposition tool and/or grid to do this.

Step 4. Click the "Play" button in the "Staging Bar" to evaluate what was done when.

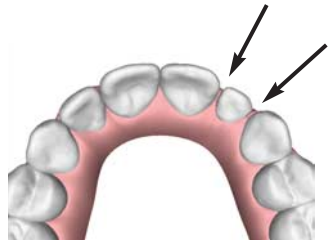
Step 5. Repeat for other arch.

Occlusal View

WHAT TO CONSIDER

Residual Spaces

Consider if residual spaces have been left in the most desirable location. For restorations, confirm that spaces are the right size.



WHY IT'S IMPORTANT

Proper dimensions will optimize the final esthetic result after the restorative work is completed. Spaces may be left if there is a tooth size discrepancy and the doctor made no mention as to how to address it.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. For residual spaces for restorations, evaluate the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View the model at a high resolution. Make sure the "High" button is selected next to "Detail" in the "View" tab.

Step 3. View the model at approximately 100% (normal size). Click the "Zoom" button under "Navigation". To change the model size, drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

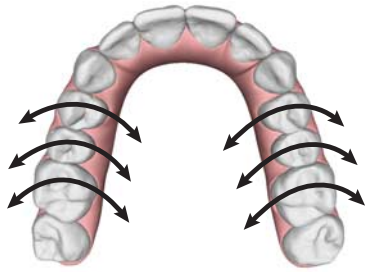
Step 4. Consider if you have remaining spaces, and if a tooth size discrepancy exists. For a different perspective, select "Anterior Overjet" from the "Predefined Views" drop down menu.

Occlusal View

WHAT TO CONSIDER

Posterior Torque Symmetry

Consider the torque symmetry of the posterior teeth.



WHY IT'S IMPORTANT

Symmetry will optimize the final esthetic and occlusal result.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 3. Visually scan the arch going back around the arch towards the second molar and consider the in and out positions and torque relationships of the teeth. Consider their relationships among each other and in relationship to one another.

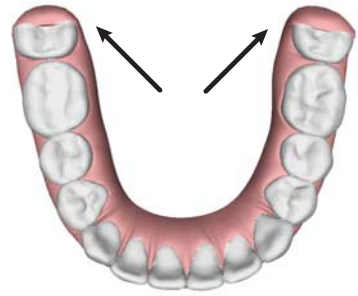
Step 4. View the arches together to evaluate the occlusion aspects.

Occlusal View

WHAT TO CONSIDER

Terminal Molars

Check the terminal molars for the amount of tooth present.



WHY IT'S IMPORTANT

If the impression is distorted only in the distal area of the terminal molar, sometimes rather than requesting a new impression from a doctor, the technician will trim off the distorted area. As a result, the tooth will appear trimmed in ClinCheck. Since the mesial half of the tooth is still present in the model, the Aligner will be built to cover a portion of the tooth to help prevent supra-eruption of the terminal molar.

Note: A new impression will be needed for new Aligners to fully cover the terminal molar if any of the following is part of your treatment plan: Large A/P changes, bicuspid extraction, posterior space closure, molar expansion or posterior crossbite correction.

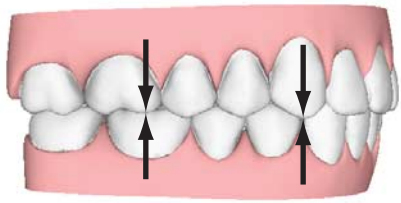
RECOMMENDED STEPS FOR ANALYSIS

Step 1. Closely review each stage. Click the "Step Forward" button in the "Staging Bar".

Buccal View

WHAT TO CONSIDER

Molar and Canine Relationships



WHY IT'S IMPORTANT

If the molar/canine relationship is not fully Class I, consider additional means to accomplish your treatment goals or changes to your treatment plan. For example, further distalization may not be possible due to a lack of overjet, deep bite or tooth size discrepancy.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the arches together. Select "Right Buccal" from the "Predefined Views" drop down menu.

Step 2. Consider the molar and canine relationships. Toggle between initial and final stages to analyze. Click the "Go to End" ⏭ or "Go to Beginning" ⏮ buttons in the "Staging Bar".

Step 3. View the arches together. Select "Left Buccal" from the "Predefined Views" drop down menu.

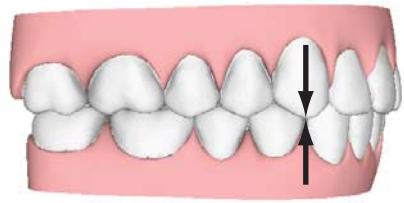
Step 4. Consider the molar and canine relationships. Toggle between initial and final stages to analyze.

Buccal View

WHAT TO CONSIDER

Canine Relationship Only

Consider the canine relationship only. The molar relationship has been maintained or not changed.



WHY IT'S IMPORTANT

If the canine relationship is not a Class I you may consider either posterior IPR 3-6 (to achieve a Class I canine while maintaining the molar relationship) or selective upper or lower bicuspid extractions to achieve a Class I canine.

Note: Bicuspid extraction cases may require sectional fixed appliances for optimal results.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Check the Reproximation Form for any assigned reproximation.

Step 2. View the arches together. Select "Right Buccal" from the "Predefined Views" drop down menu.

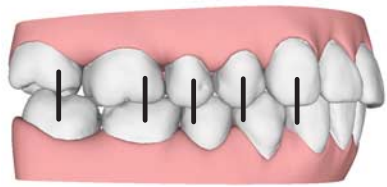
Step 3. Consider the canine relationship. Toggle between initial and final stages to analyze. Click the "Go to End" ⏭ or "Go to Beginning" ⏮ buttons in the "Staging Bar".

Step 4. View the arches together. Select "Left Buccal" from the "Predefined Views" drop down menu.

Step 5. Consider the canine relationships. Toggle between initial and final stages to analyze.

Buccal View

Buccal Interdigitation



WHY IT'S IMPORTANT

This is affected by the A/P classification, torque, alignment of the posterior teeth, as well as the correction of the patient's occlusion based on your treatment goals.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the arches together. Select "Right Buccal" from the "Predefined Views" drop down menu.

Step 2. View the final stage of ClinCheck. Click the "Go to End" button ⏭ in the "Staging Bar".

Step 3. View the model at no more than 100% (normal size) in order to avoid seeing spaces that are not actually present. Click the "Zoom" button 🔍 under "Navigation" and drag the mouse upwards to decrease model size.

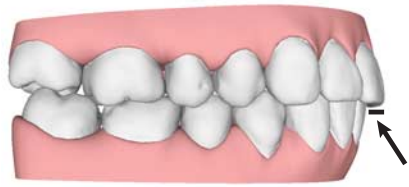
Step 4. Repeat for other side. View the arches together. Select "Left Buccal" from the "Predefined Views" drop down menu.

Buccal View

WHAT TO CONSIDER

Overjet

Consider the overjet relationship in relation to your treatment goals.



WHY IT'S IMPORTANT

Overjet affects the esthetics and function of the case. Overjet can be reduced by retracting the uppers and/or advancing the lowers, provided there is adequate interproximal space and periodontal support, respectively. Overjet can be increased by retracting the lower anterior teeth and/or advancing the upper anterior teeth. IPR can also be used to create space for anterior retraction; or restorations can be used to fill in space created from advancing teeth forward.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the arches together. Select "Right Buccal" from the "Predefined Views" drop down menu.

Step 2. To view the final overjet, view the final stage of ClinCheck. Click the "Go to End" button ⏭ in the "Staging Bar".

Step 3. View if and how overjet resolution was done. Toggle between initial and final stages to analyze. Click the "Go to End" ⏭ or "Go to Beginning" ⏮ buttons in the "Staging Bar".

Step 4. Repeat for other side. View the arches together. Select "Left Buccal" from the "Predefined Views" drop down menu.

Buccal View

WHAT TO CONSIDER

Anterior Torque

Consider the torque of the anterior teeth (incisors) one arch at a time. Keep in mind the position of the dental roots relative to the maxillary bone.

WHY IT'S IMPORTANT

Anterior torque impacts the esthetics of the case and the overjet relationship. It also impacts the appearance of the anterior teeth.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. View each arch individually at the final position. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Buccal View

WHAT TO CONSIDER

Curve of Spee

If the Curve of Spee is being leveled, is the amount of anterior incisor intrusion compatible with your treatment goals?

WHY IT'S IMPORTANT

Leveling the Curve of Spee with Aligners is done by anterior intrusion. Intrusion affects the leveling of the arches, which in turn affects the overbite and the occlusion of the case. If the full amount of anterior intrusion is not attained clinically and the upper incisors are being retracted, anterior interference and posterior open bite may be introduced.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Compare the first and last stage from the right and left buccal and lower anterior views. Toggle between initial and final stages to analyze. Click the "Go to End" or "Go to Beginning" buttons in the "Staging Bar".

Step 2. View each arch individually at the final position. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

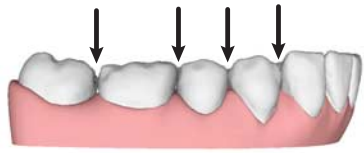
Step 3. Reduce the amount of incisor intrusion if needed.

Buccal View

WHAT TO CONSIDER

Marginal Ridge Height Relationship

Consider the marginal ridge height relationship of the posterior teeth adjacent to one another. Perform this check one arch at a time.



WHY IT'S IMPORTANT

The relationship affects the buccal posterior interdigitation of the case as well as the overall posterior occlusion of the case.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Consider the marginal ridge heights. View the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

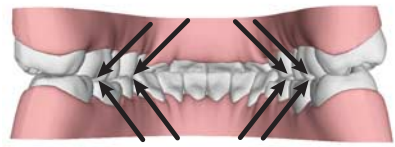
Step 2. View each arch individually at the final position. Click the "Upper Arch" and "Lower Arch" buttons in the "Show/Hide" section.

Step 3. View the arches together to monitor the overall occlusion.

Posterior (Lingual) View

WHAT TO CONSIDER

Posterior Occlusion



WHY IT'S IMPORTANT

The buccal-lingual interdigitation of the teeth determines the patient's occlusion. Also check for any crossbite correction you may have requested.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Posterior" from the "Predefined Views" drop down menu.

Step 2. View arches together at the final stage of ClinCheck. Click the "Go to End" button ⏭ in the "Staging Bar".

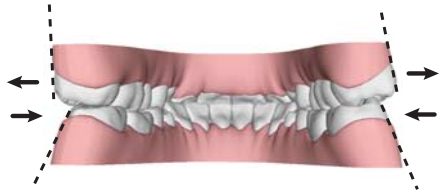
Step 3. Look at where the upper lingual cusps lie in the lower central grooves, as well as view the buccal overjet.

Posterior (Lingual) View

WHAT TO CONSIDER

Buccal Movements

Consider the amount of buccal-lingual movement and torque of the posterior teeth.



WHY IT'S IMPORTANT

Remember that Aligners are not indicated for skeletal crossbite correction. Short or partially captured molars may be difficult to control with Aligners. Adding attachments for retention may help in such instances.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View arches together at the final stage of ClinCheck. Click the "Go to End" button in the "Staging Bar".

Step 2. Review how the teeth interdigitate with each other. View each side of the model separately at approximately 200%. Click the "Zoom" button under "Navigation" and drag the mouse downward to increase model size; drag the mouse upwards to decrease model size.

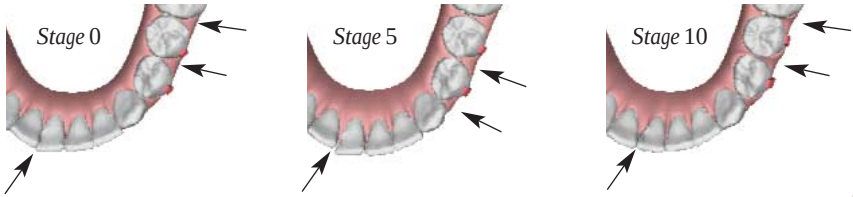
Interproximal Reduction

Interproximal Reduction

WHAT TO CONSIDER

Interproximal Clearance

Confirm that clinically there is interproximal clearance for all teeth.



WHY IT'S IMPORTANT

Friction between adjacent teeth can prevent desired tooth movements from occurring. Adequate interproximal space from stage to stage helps to prevent this problem and can be checked by monitoring contacts clinically and administering IPR as needed.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View staging in entirety. Click the "Play" button in the "Staging Bar" to evaluate what was done .

Step 2. View model at a high resolution. Make sure the "High" button is selected next to "Detail" in the "View" tab.

Step 3. Closely review each stage to check for clearance between teeth as they pass each other. Click the "Step Forward" button in the "Staging Bar".

Step 4. Check the IPR amounts if this is the means to be used to obtain adequate clearance.

Interproximal Reduction

WHAT TO CONSIDER

Accessible IPR

Ensure that tooth surfaces requiring IPR are clinically accessible, based on the stage IPR is prescribed.

WHY IT'S IMPORTANT

Adequate interproximal access ensures that any needed IPR can be performed accurately without affecting non-IPR tooth surfaces on adjacent teeth.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Select "Maxillary Occlusal" from the "Predefined Views" drop down menu.

Step 2. View staging in entirety. Click the "Play" button ▶ in the "Staging Bar" to evaluate what was done.

Step 3. Closely review each stage. Click the "Step Forward" ⏩ button in the "Staging Bar".

Step 4. Refer to the IPR schedule to ensure the timing of IPR is clinically feasible.

Step 5. Repeat for "Mandibular Occlusal" view.

Staging

Staging

WHAT TO CONSIDER

Movement Predictability

Confirm when less predictable movements, such as extrusion and rotation of round teeth, are occurring.

WHY IT'S IMPORTANT

Best results are achieved when less predictable movements are actively monitored and kept on track. It is suggested that if less predictable movements are sought, that doctors:
1) place attachments as needed,
2) consider staging movements towards the end of treatment, and
3) plan the use of auxiliaries, if necessary.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View staging in entirety. Click the "Play" button in the "Staging Bar" to evaluate what was done.

Step 2. Closely review each stage. Click the "Step Forward" button in the "Staging Bar".

Step 3. Monitor the rotation/extrusion to ensure that large rotations/extrusions in ClinCheck are occurring towards the end of treatment.

Staging

WHAT TO CONSIDER

Timing of Treatment

For dual arch treatment, determine whether you want the treatment to start at the same time or end at the same time. (Interarch interferences may limit this.)

Arches start at same time.

Arches end at same time.

WHY IT'S IMPORTANT

Your professional preferences can be incorporated into the timing of treatment. For example, if Refinement is needed, ending treatment at the same time will allow both arches to be submitted simultaneously, thus avoiding an additional Refinement charge.

Note: If treatment does not end at the same time, one arch will finish earlier than the other. Therefore a retainer is required for the earlier arch while waiting for the later arch to complete.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Review the total number of stages for each arch.

Step 2. Examine the relationship of each arch to the other. View staging in entirety. Click the "Play" button ▶ in the "Staging Bar".

Step 3. Request that treatment of both arches ends at the same time, if desired.

Attachments & Pontics

Attachments

WHAT TO CONSIDER

Location, Type, and Purpose of Attachment

Ellipsoid Attachment

Rectangular Attachment

WHY IT'S IMPORTANT

Based on the types of movements being achieved and your personal preferences, add, remove or modify any attachments as needed.

(For more information about the current types and uses of attachments, see the Attachment Protocol on *www.invisaligncec.com.*)

RECOMMENDED STEPS FOR ANALYSIS

Step 1. To display attachments, click the "Attachment" button in the "Show/Hide" section.

Step 2. Review the attachments on the ClinCheck model at the initial and final stages. Click the "Go to End" or "Go to Beginning" buttons in the "Staging Bar".

Step 3. Note when the attachments appear and disappear. View staging in entirety. Click the "Play" button in the "Staging Bar".

Attachments

WHAT TO CONSIDER

Bonding Attachments to Restorations

Identify attachments that may be difficult to bond to teeth that contain restorations. Decide if you want to have attachments on those teeth.

WHY IT'S IMPORTANT

Bonding to amalgam, porcelain, and/or composite can be much more challenging than bonding to natural tooth structure.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Review the attachments on the ClinCheck model at the initial and final stages. Click the "Go to End" ⏭ or "Go to Beginning" ⏮ buttons in the "Staging Bar".

Step 2. Note when the attachments appear and disappear. View staging in entirety. Click the "Play" button ▶ in the "Staging Bar".

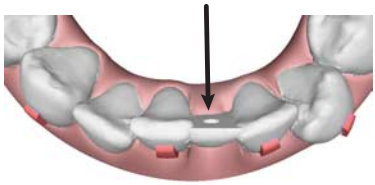
Pontics

WHAT TO CONSIDER

Placement of Pontics

Confirm that spaces for any pontics needed are present (as represented by the "virtual tooth").

Pontics are identified by a "retention dimple".



WHY IT'S IMPORTANT

Pontics are used as an esthetic option to address cases with missing teeth or extractions. Pontics, shown as virtual teeth, are based on your request. The space you see in the ClinCheck is what you will get in the Aligner. Pontic spaces should be added or removed from ClinCheck prior to accepting the case for Aligner manufacture.

Note: In ClinCheck, pontics are displayed as half a tooth with a retention dimple.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. View arch that has pontic(s).

Step 2. View staging in entirety. Click the "Play" button ▶ in the "Staging Bar".

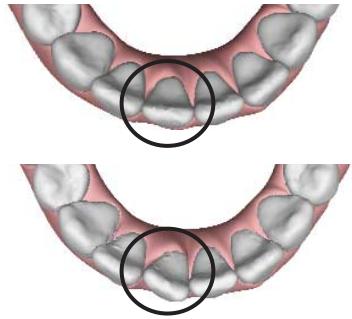
Overcorrection

Overcorrection

WHAT TO CONSIDER

Staging of Overcorrection

If specific overcorrection was requested at the time of treatment plan, review the overcorrected stages.



WHY IT'S IMPORTANT

Overcorrection is less predictable with the initial treatment Aligners, therefore it is suggested to request overcorrection as part of Refinement, when the specific movements are most likely to be identified.

Note: At time of ordering overcorrection, the teeth, amount, and direction of desired movement must be specified.

RECOMMENDED STEPS FOR ANALYSIS

Step 1. Review the overcorrection stages. Check the "Overcorrection" box in the "View" tab to display overcorrection stages (white section in "Staging Bar").

Step 2. Closely review each stage. Click the "Step Forward" button in the "Staging Bar".

Section 3.
Communicating with Align through ClinCheck

Communicating with Align through ClinCheck

Align communicates with you through treatment comments sent with each ClinCheck. Prior to beginning any ClinCheck evaluation, it is important to read these comments from Align for special information.

In turn, your communication back to Align is also important. Outlined here are some communication guidelines that will help you get the set-ups you want in your modified ClinCheck. These principals can also be applied to the treatment planning process when filling out the special instruction fields of the treatment planning form (Prescription and Diagnosis Form) before the ClinCheck file is even created.

There are many different ways to approach the same problem, yet individual preferences reign. Therefore, stating instructions explicitly enables the technician to tailor ClinCheck to reflect your specific preferences.

- Be specific when identifying teeth that require modification.
- Be specific in the amount (in mm or degrees) and direction (mesial, distal, buccal/facial/labial, lingual/palatal, incisal, gingival) of desired movement.
- Be explicit in your request—avoid leaving room for interpretation.
- When possible, explain to your technician how to correct the situation that needs modification and reference the relevant view.
- Avoid imprecise words and phrases like “make better”, “align more”, “straighten”, “a lot”, “a little” and “slightly”.
- Itemize or number your requests when making more than one.

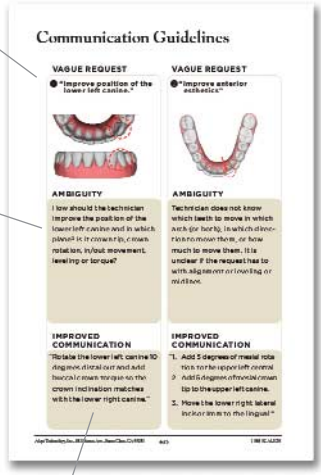
Communicating with Align through ClinCheck

The format of the Communication Guidelines section is described below:

Vague Request (Original Request)
These are examples of common requests that, because of their generality, make it difficult for the technician to interpret your meaning.

Ambiguity (Communication Challenge)
This paragraph explains how imprecise language in modification requests may be misinterpreted. For example, a request may point out a problem without offering a solution. Or there may be multiple methods for the technician to accomplish your request, forcing them to pick a solution, which may be inconsistent with your treatment goals.

Improved Communication (Suggested Request)
These are alternate examples of reworded modification requests that provide greater specificity and allow less room for misinterpretation.

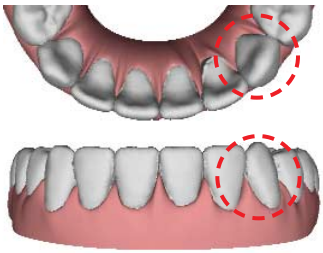


Better communication will help streamline your overall process and improve turnaround time.

Communication Guidelines

VAGUE REQUEST

❶ "Improve position of the lower left canine."



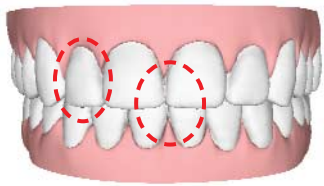
How should the technician improve the position of the lower left canine and in which plane? Is it crown tip, crown rotation, in and out movement, leveling or torque?

IMPROVED COMMUNICATION

"Rotate the lower left canine 10 degrees distal out and add buccal crown torque so the crown inclination matches with the lower right canine."

VAGUE REQUEST

❷ "Improve anterior esthetics."



AMBIGUITY

Technician does not know which teeth to move in which arch, in which direction to move them, or how much to move them. It is unclear if the request has to do with alignment, leveling or midlines.

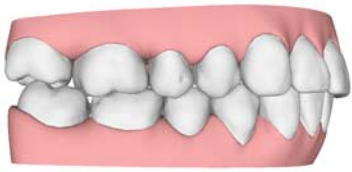
IMPROVED COMMUNICATION

"1. Intrude upper right lateral 1mm to match upper left lateral.
2. Shift lower midline to right 1mm by IPR."

Communication Guidelines

VAGUE REQUEST

❸ "Please do not distalize the right side."



AMBIGUITY

The technician may have distalized the right side to shift the upper midline, to reduce overjet, to improve the A/P relationship, or to resolve crowding. If the distalization is removed, then one of the above may be compromised. Please review the original treatment goals. The treatment goals may need to be changed.

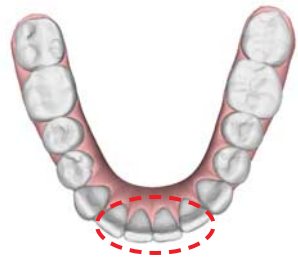
IMPROVED COMMUNICATION

Example 1. "Please do not distalize the upper right side; as a result, I will accept the midline compromise."

Example 2. "Please do not distalize the upper right side, reduce overjet with upper IPR."

VAGUE REQUEST

❹ "Overcorrect incisors."



The image shows virtual overcorrection based on the Improved Communication.

AMBIGUITY

Upper or lower incisors?
All of them or some of them?
How much and in which direction?

IMPROVED COMMUNICATION

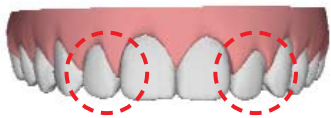
"1. Overcorrect LL2 by 10 degrees mesial-in.

2. Overcorrect LR2 by 5 degrees mesial-out."

Note: The image shows virtual overcorrection based on the Improved Communication.

VAGUE REQUEST

❺ "Improve alignment of maxillary anterior teeth especially UR2."



AMBIGUITY

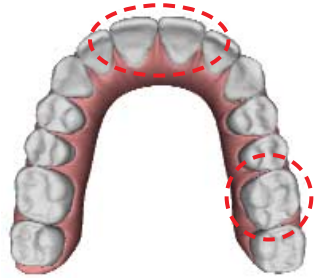
The technician knows to move the UR2, but has no instruction regarding which other teeth to move, or not move. The technician also lacks instruction as to how or how much to move the teeth, and in which direction.

IMPROVED COMMUNICATION

"1. Add 5 degrees of mesial crown tip to the UR2.
2. Intrude the UR2 and the UL2 by 0.5mm."

VAGUE REQUEST

❻ "UL6 rotated. UL1, UR1 poorly aligned."



AMBIGUITY

The problem is stated but there is no proposed solution. The technician can derotate the UL6, but how much? The statement that the upper incisors are poorly aligned is vague. Is the reference to the rotations, in and out movements, tips, or torques? This request leaves too much interpretation to the technician.

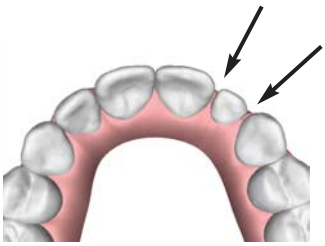
IMPROVED COMMUNICATION

"1. Rotate UR1 and UR 2 distal-in approximately 5 degrees.
2. Derotate UL6 mesial-out until the lingual cusp is directly centered over lower molar central groove."

Communication Guidelines

VAGUE REQUEST

❼ "Leave space for restoration."



AMBIGUITY

The technician does not know where to leave the space for the restoration nor how much space to leave.

IMPROVED COMMUNICATION

"Leave 1mm of space mesial and distal to the upper left lateral incisor for post orthodontic restoration."

VAGUE REQUEST

❽ "Too much overjet."

AMBIGUITY

The problem is stated but there is no proposed solution. There are many possible solutions to reduce the overjet, either by adding or increasing upper IPR, distalizing upper, or removing or reducing the lower IPR, or by proclining the lower incisors more.

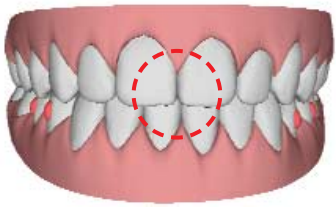
IMPROVED COMMUNICATION

Example 1. "Reduce overjet by increasing upper IPR until upper and lower teeth are in contact."

Example 2. "Reduce lower IPR until anterior teeth are in contact."

VAGUE REQUEST

❾ “Adjust the midline.”



AMBIGUITY

How should the technician adjust the midline?
Which midline should be adjusted, the upper or lower?
Is unilateral IPR allowed? If so, how much?

IMPROVED COMMUNICATION

Example 1. “Use unilateral IPR distal to the upper left 3, 4 and 5 to shift the upper midline to the left about 1 mm.”

Example 2. “Add 0.5mm IPR between UL1 and UL2 to improve upper midline to the left.”

VAGUE REQUEST

❿ “Align incisors better. I will equilibrate the worn incisal edges.”

AMBIGUITY

Which teeth should the technician move? Which teeth are getting equilibration and on which surface?
This information will make a difference on how the technician can align the teeth.

IMPROVED COMMUNICATION

“1. I will equilibrate the distal incisal edge of the LL1, so please level mesial incisal edge with the LR1.

2. I will also equilibrate the incisal edge of the LR2, so please level mesial edge with the LR1.”

Appendix

Glossary

This glossary is intended to be used as a tool for the dental professional as they learn about the Invisalign® treatment modality. It is not designed to be an all-inclusive orthodontic glossary, but to serve as a reference to commonly used Invisalign terms.

Terms denoted with a (*) refer to either an Invisalign specific term, or a definition that differs slightly from the accepted orthodontic definition.

Absolute Extrusion True vertical movement along the long axis of the tooth.

Anchorage Resistance to displacement. The Invisalign system allows for intra-arch anchorage by isolating selected teeth to be moved.

Angle's Classification A classification system based on the relationship of the permanent maxillary first molars and occlusion cuspids to the lower permanent teeth.

Angulation Mesial-distal movement of a tooth around the center of rotation.

Ankylosis Abnormal immobility, union or fusion. May occur between two bones at their articulation (*i.e.*, TMJ) or between teeth and the alveolar bone. Dental ankylosis prevents both eruption and orthodontic movement.

Anterior open bite No vertical overlap exists between maxillary and mandibular anterior teeth.

A/P Discrepancy Anterior Posterior Discrepancy. Also known as Sagittal Discrepancy. An evaluation of the anterior-posterior position of the jaws, and /or teeth made from a profile view.

Arch Length Deficiency Difference between the available and required space within an arch to align the teeth.

*Attachments Composite forms bonded onto facial or lingual surfaces of teeth using a forming template to help achieve certain types of tooth movement with the Invisalign system.

Bilateral Denoting both sides.

Biomechanics Application of physical principals such as force or resistance as it relates to biological systems.

Bodily Translation The movement of a tooth where the crown and root of the tooth move the same distance in the same direction at the same time.

Bolton Analysis A method to evaluate tooth-size discrepancies (mesio-distal crown width) between the upper and lower arches.

Buccal Crossbite A crossbite due to buccal displacement of the affected tooth

or group of teeth from their ideal position relative to their antagonists.

Center of Rotation The point about which a tooth rotates.

Centric Relation (CR) At Align Technology, CR is defined as the position of the teeth when the mandibular condyles are against the temporo-mandibular disc in the anterior and superior most portion of the glenoid fossa.

Centric The definition used by Align Technology: CO is the position of the teeth when the teeth are in occlusion (CO) their maximum intercuspal position, *i.e.* the best fit of the teeth.

Cephalometrics The scientific measurement of the bones of the cranium and face, utilizing a fixed reproducible position for lateral radiographic exposure of the skull and facial bones. Used for the evaluation of facial growth and development, including soft tissue profile.

Class I The mesiobuccal cusp of the upper first molar lies in the buccal groove of the lower first molar.The upper canine lies distal to the lower canine.

Class II The mesiobuccal cusp of the upper first molar lies mesial to the buccal groove of the lower first molar. The upper canine lies mesial to the lower canine.

Class II Division 1 Class II with increased overjet.

Class II Division 2 Class II with retroclined upper central incisors.

Class III The mesiobuccal cusp of the upper first molar lies distal to the buccal groove of the lower first molar. The upper canine lies distal to the contact point between the lower canine and first premolar.

*ClinCheck® A computerized depiction of the patient's tooth movement from initial to final position, sent to you via the Internet and easily viewed using Align Technology's exclusive ClinCheck software. This program allows you to visually review the projected movement as well as the final set up in three dimensions. ClinCheck also gives you the opportunity to request modifications in the treatment plan until you are satisfied with the movement staging and final outcome.

Couple Two parallel forces of equal magnitude acting in opposite directions and separated by a distance. Couples result in pure rotational movement about the center of resistance regardless of where the couple is applied on the object.

CR/CO Discrepancy When the CR bite position and the CO bite position are not coincendent.

CR/CO Shift A deflection of the mandible in an anterior, posterior and / or lateral direction to centric occlusion, as a result of a premature contact occurring when the mandible is in centric relation.

Crossbite An abnormal relationship of one or more teeth to one or more teeth of the opposing arch, in the buccolingual or labiolingual direction. May be Anterior, Buccal, Lingual, Palatal, Posterior, Functional.

Curve of Spee Curvature of the mandibular occlusal plane, from the buccal view. Ideally it should be flat to slightly concave.

Deep Bite Excessive overbite.

Distalization The movement of teeth in the distal direction.

Edge to edge occlusion An occlusion in which the anterior or posterior teeth of both jaws meet along their incisal or buccal cuspal edges. Often associated with a Class III occlusal relationship.

Expansion Widening of the dental arches.

Extrusion A translational type of tooth movement parallel to the long axis of the tooth in the direction of the occlusal plane.

Finishing *See* Refinement.

Force The actions of one body against another—push or pull, it has both magnitude and direction.

Headfilm A common term for cephalometric radiograph. In orthodontics, lateral and frontal head films are common.

Inclination The buccal-lingual movement of a tooth around the center of rotation.

*Interproximal Interference Excessive "virtual" interproximal contacts between adjacent teeth. Clinically can result in stalled or lack of movement of teeth. May require additional interproximal reproximation.

Intrusion A translational type of tooth movement parallel to the long axis of the tooth in an apical direction.

IPR (Interproximal reduction) Interproximal reduction of enamel. Also known as reproximation, slenderizing, stripping, Air-Rotor Stripping (ARS), or recontouring. Lateral relating to the one side or the other.

Limited Treatment Orthodontic treatment with a limited treatment objective, not involving the entire dentition. Typically addressing the patient's chief concerns or objectives.

Lingual Crossbite A crossbite mainly due to lingual displacement of the affected

mandibular tooth or group of teeth from their ideal position relative to their antagonists.

Malocclusion Any deviation from the normal or ideal occlusion.

*Mid-Course Correction The resubmission of a case when the clinical results have deviated from the approved course of treatment to the point that the teeth no longer fully adapt to the Aligner. A mid-course correction is also required if the patient undergoes significant dental work such that the Aligners no longer fit. New PVS impressions and instructions regarding treatment are required. The patient should be instructed to wear the latest, best fitting Aligner to hold progress until the new Aligners arrive.

Moment A force that does not pass through the center of resistance will not produce solely linear movement and will result in some rotational movement. This rotational movement is called a moment of the force.

*Occlusal Interference Excessive "virtual" contacts between upper and lower teeth. Often referred to clinically as premature or excessive contacts. May require occlusal equilibration.

Open Bite Form of malocclusion that may be inherited, developmental, or acquired.

Overbite Vertical overlap. The distance between the upper and lower incisal edges when the patient is in maximum-intercuspation.

Overcorrection Tooth movement beyond the ideal, final position to compensate for potential dental relapse.

Overjet The horizontal distance between upper and lower incisal edges along the occlusal plane.

Palmer Notation Numbering System The standard numbering system used by orthodontists in the United States. The mouth is divided into four quadrants. Numbers 1 through 8 identify each tooth within the quadrant, with 1 designating centrals moving distally and third molars being "8's". When charting, the numbers sit inside an L-shaped symbol to identify the quadrant they belong to—as you look into the patient's mouth. Primary teeth (20) follow the same format but are represented with letters "A" through "E" in each quadrant.

Posterior Open Bite No vertical contact is exhibited between maxillary and mandibular posterior teeth.

Proclination Inclination of the crown forward.

Protraction Anterior (mesial) movement of teeth, usually referring to bodily movement.

Protrusion The state of being anteriorly positioned.

PVS Polyvinylsiloxane impression material.

*Refinement The term used by Align Technology to describe when additional Aligners—beyond the last stage—are required to get the patient closer to the desired treatment goal as established at the start of treatment. Completed Refinement order forms are required.

Relapse A partial or full return of malocclusion following orthodontic treatment.

Relative Extrusion Used to describe the appearance of vertical correction by crown inclination (torque).

Reproximation *See* IPR.

Retention Holding of corrected occlusion after orthodontic treatment.

Retraction Posterior (lingual) or distal movement, usually referring to the bodily movement.

Retroclination Lingual inclination or tipping of crown backward.

Rotation Spinning a tooth around the vertical axis.

Tipping *See* Angulation.

*TREAT™ Refers to the internal software used at Align Technology to create "virtual" set-ups of cases.

TMJ Temporomandibular Joint.

Tooth-Size Discrepancy *See* Bolton Analysis.

Torque *See* Inclination. Usually refers to root movement more than crown movement.

Translation *See* Bodily Translation.

Transverse Discrepancy *See* Crossbite.

Universal Numbering System Permanent teeth are numbered 1 to 32, starting with the upper right third molar, working around to the upper left third molar, then dropping down to the lower left third molar and working around to the lower right third molar. The 20 primary teeth are lettered, using capital letters A through T, following the same methodology as for the permanent teeth, starting with the upper right second primary molar and ending with the lower right second molar.

*VIP Stands for "Virtual Invisalign Practice." This is the name of the program that allows doctors to manage their Invisalign practices online. Within VIP doctors can: view all aspects of patient's cases, including ClinCheck; order marketing materials; start a new patient using online treatment planning forms; review Invisalign "how-to" tutorials; and more.

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Credits

Align Technology, Inc. would like to thank the following clinicians who contributed to and reviewed this Guide.

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