Invisalign G7 & Weekly Aligner Changes

Introduction

Weekly aligner changes are recommended for all Invisalign treatments (with default staging protocol) for Invisalign Full, Invisalign Teen and Invisalign Assist products. The decision to prescribe weekly aligner changes is at the doctor's discretion. Monitor tooth movements such as rotations, extrusions, and significant root movements, particularly blue and black movements in the Tooth Movement Assessment (TMA). Depending on the patient response to treatment, particularly older adults, consider longer periods between aligner changes.

The Power of Innovation

Learnings on the way to Invisalign G7
A Biomechanical Approach to Aligner Treatment

The Paradigm… displacement-driven or force-driven?

Does the tooth move because its shape matches the aligner? … it is the force that moves the teeth.

Foundation of Biomechanics

Tooth Movement

Force System

Appliance Design

Foundation of Biomechanics

Force System

Biological System

Tooth Movement

Enticing the physiology of the patient to respond

Are accelerators necessary?
A force on the crown of the tooth causes it to tip.

Apply a counter-moment to control the movement of the root with respect to the crown.
The proportion of the moment to the force controls the type of tooth movement.

M/F ratio

Smith and Burstone in “Mechanics of Tooth Movement” (AJODO, 1984)

SmartForce® Features

The Smart Patient

Tooth Number

Improving Control of Tooth Movement

Lingual Root Torque

The aligner is NOT the shape of the tooth
Movement is a continuum

The aligner shape is changed to produce the center of rotation of the tooth as determined by the ClinCheck® software.

Attachments  | SmartForce Features

Optimized Extrusion Attachments

Optimized Attachments
A change in the shape of the tooth
The Active Surface of the Attachment

The **active surface** is the surface to which the aligner applies force. The aligner is **activated** to engage this surface.

Activation

Activation is a change in the shape of the aligner so it applies force to the active surface of the attachment or tooth surface.

The greater the interference the higher the force.

Root Control: Angulation (2nd order)

Two forces with different magnitudes
Invisalign G7 & Weekly Aligner Changes

Webinar

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Treatment of Open Bite

Extrusion of the anteriors as a unit; equal force on the anteriors by aligner activation

Reaction forces are delivered to the posteriors

Treatment of Deep Bite

Improving Intrusion

Pressure area applies a force to counter the unwanted lingual force from the aligner. The resultant force is directed along the long axis of the tooth

Treatment of Deep Bite

Intrusion of the anteriors as a unit

Reaction forces are delivered to the posteriors; bicuspid extruded to level curve of Spee if necessary

Optimized bite ramps
Invisalign G7 & Weekly Aligner Changes

Invisalign G6

SmartStage™ technology with aligner activations

Invisalign G7

Aligner material provides gentle, more constant forces to improve control of tooth movements.

Attachments and features engineered to deliver the force systems necessary to achieve predictable tooth movements.

SmartStage

An advanced algorithm that determines the optimal path of tooth movement and the shape of the aligner at every stage of Invisalign treatment.

The Power of Innovation: Invisalign circa 2016

SmartTrack

Low constant force

Excellent thermoforming

Returns to its original shape
SmartForce Features

SmartForce features are designed to control the movement of the root with respect to the crown and control the moving teeth versus the anchorage teeth.

SmartStage Technology

The optimal path of tooth movement is determined by the progression of movements in the aligner.
The shape of the aligner at each stage is determined by aligner activations.

Invisalign G7

Features Better Finishing

1. Upper Lateral Control
2. Single Mesio-distal Root Control
3. SmartStage for prevention of Posterior Open Bite
Invisalign G7 Innovations with SmartStage Technology

What's New

Invisalign G7 Features
Enhanced Upper Lateral Control

Optimized Upper Lateral Control
Optimized Attachment

Root Control

Original upper lateral multi-plane attachment was applicable for:

Extrusion tip rotation

Attachments to support rotation coupled with vertical movements for upper laterals:
- Optimized Multiplane attachment for rotation with extrusion
- Optimized Multiplane attachment for rotation with intrusion or minimal vertical movement
Invisalign G7 Features

Enhanced Upper Lateral Control

Optimized Support attachment

Attachments to support intrusion of centrals or canines
• New Optimized Support attachments deliver better tracking of upper laterals when adjacent teeth intrude

Invisalign G7 Features

Optimized Root Control

Mesial distal root control with a single attachment paired with SmartStage technology

Application
• Upper and lower premolars and canines

Premolars and canines with SmartStage technology and an activated attachment to apply the force system
Invisalign G7 & Weekly Aligner Changes

Webinar

Invisalign G7
Prevention of Posterior Open Bite

- New default protocols to avoid premature anterior contacts
- New feature set for posterior open bite prevention

Invisalign G7
New Default Protocols to Avoid Premature Anterior Contacts

- Set default overjet at 0.5mm
- Improved inter-incisal angle
- Optimized support attachment on lateral for central and canine intrusion

Invisalign G7
Prevention of Posterior Open Bite

- New feature set to avoid posterior tipping during incisor retraction
  - Designed to control angulation of posterior teeth and inclination of anterior teeth
  - Optimized anchorage attachments for incisor retraction on upper posterior teeth with SmartStage activations to posterior and anterior dentition
Weekly Aligner Change

A Lot Can Happen in 7 Days

Weekly Aligner Changes

Clinically proven to deliver predictable tooth movement

SmartTrack Material + SmartTrack Technology + SmartForce Features
Why Weekly Aligner Changes?

- Patients want shorter treatment times
  - Current patients want to get to their ideal smile sooner
  - Potential patients are often hesitant to commit due to the length of treatment
- Many doctors are trying different approaches to shorten treatment time
- Weekly aligner changes, now recommended by Align Technology, is a straightforward approach to reduce treatment time up to 50% compared with biweekly aligner changes

*Weekly aligner changes are recommended for all Invisalign treatments - with default staging protocol - for Invisalign Full, Invisalign Teen and Invisalign Assist products. The decision to prescribe weekly aligner changes is at the doctor’s discretion.

Monitor tooth movements such as rotations, extrusions, and significant root movements; particularly blue and black movements in the Tooth Movement Assessment (TMA).

Depending on the patient response to treatment, particularly mature adults, consider longer periods between aligner changes.

Weekly Aligner Changes

The Recommendation

- Weekly aligner changes are recommended for all Invisalign treatments - with default staging protocol - for Invisalign Full, Invisalign Teen and Invisalign Assist products
- The decision to prescribe weekly aligner changes is at the doctor’s discretion
- Monitor tooth movements such as rotations, extrusions, and significant root movements; particularly blue and black movements in the Tooth Movement Assessment (TMA)
- Depending on the patient response to treatment, particularly mature adults, consider longer periods between aligner changes

The Case for Weekly Aligner Changes

- Weekly aligner changes may reduce treatment time up to 50% compared to two-week changes, with no difference in predictability or secondary order rates
- Supported by an analysis evaluating overall clinical outcome (planned versus achieved) for cases with weekly changes compared to cases with two-week changes
- More than 200 in-progress cases included in the analysis across a broad range of case complexity including crowding, overbite, overjet, and arch expansion
The Case for Weekly Aligner Changes

- Tooth velocities are still well within the safe range as defined in the literature (up to 1 mm a month)
- Prescribed at the doctor’s discretion, weekly aligner changes simply involve instructing the patient to change aligners every week rather than every two weeks
- No staging or velocity modifications in treatment planning are required

Summary

- Invisalign innovations are based on fundamental principles of biomechanics of tooth movement... G7 included
  - Upper lateral control, root control, posterior open bite prevention
- The Invisalign system uses specialized SmartTrack material, SmartForce features and SmartStage technology for excellent control of tooth movement, which together enables weekly aligner changes
- Doctors are empowered to achieve excellent predictable treatment outcomes with this advanced Invisalign system

To receive your CE certificate for this program, please complete the 2 minute survey at the following link:
http://www.learn.invisalign.com/g7Webinar
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