Assistants and Hygienists

Orthodontic Training & Workshop

Basic & Intermediate

Combined Course

Comprehensive Orthodontic Treatment

Susan Coffey, RDA

AOS Associate Instructor

AMERICAN ORTHODONTIC SOCIETY

CREATING SMILES THAT MAKE A DIFFERENCE

SUSAN COFFEY

CONSULTING, LLC

SUSAN COFFEY, RDA

CONTACT INFORMATION:

Email: scoffeyortho@gmail.com

Phone: 469-766-8193

SUSAN COFFEY CONSULTING, LLC

Orthodontic Training & Workshop for Assistants and Hygienists

*THIS **NEW & COMBINED** COURSE IS THE MOST CONTENT RICH CLASS YOU WILL FIND. YOU OWE IT TO YOURSELF AND YOUR PRACTICE TO EMPOWER YOUR ENTIRE TEAM!*

This course is for dental assistants and hygienists which is a unique 2 1/2-day course, that will elevate your staff's orthodontic knowledge in Phase I (early treatment), Phase II (Class I and Class II), bracketing, wire placement and diagnostic records, mirror photography, understanding the wire series, MDA with retraction and retention.

Students do not need prior knowledge of orthodontic concepts.

Available in: Dallas, TX

Managing Orthodontics in the General Dental Practice

More Information:
tabwilliams61@gmail.com

Williams *GP* Orthodontic Seminars

A one day seminar covering management of orthodontics in the general practice designed for dental office managers, treatment and insurance coordinators along with any other members of the dental business office team who deal with integrating orthodontics into a general dental practice.

LEAD BY

Teresa Berry Williams
Office Manager for Williams Dental & Orthodontics

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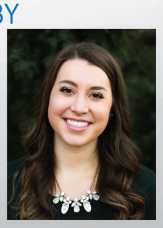


McKenzie Bledsoe
Co-Office Manager for Williams Dental & Orthodontics

This seminar has been structured to answer the most common questions posed by students from the AOS Basic and Intermediate Classes concerning topics such as:

Fees • Insurance Claims and Coding • Financing
Treatment Planning • Appointment Scheduling • Collections
Forms and Letters • Dialog for Appointments
Case Presentations • Scripts • Informed Consent

These staff courses will provide your entire team the opportunity to be trained in the same material covered in Dr. Williams' classes, allowing them to seamlessly integrate into your ortho practice as a team. These two courses runs concurrently with the last session of Dr. Brad Williams' Comprehensive Courses.

DR. BRAD WILLIAMS,

INSTRUCTOR of BASIC & INTERMEDIATE COURSES for GP and Pediatric Dentists

Dr. Brad Williams is a 1982 Oklahoma University College of Dentistry graduate. He has practiced general dentistry for 36+ years and has been practicing gp orthodontics for 35+ years. He first joined the AOS in 1983. In 2004, he began to modify his technique from Tip Edge to Straight Wire. He incorporated treatment techniques using the Straight Wire System, lecturing and teaching with the late Dr. David Jackson for five years. He is a Diplomate and past board member of the AOS. Dr. Williams practices in Skiatook, Oklahoma, where his family has resided for over 70 years.

For information on any of these courses visit: www.williams*GP*orthodontics.com

Order of Contents

Orthodontic Training & Workshop for Assistants– Combined Course

Course Guidelines

Overview

Course Guidelines

Overview of this Course

- Understanding orthodontic records and mirror photography.
- Understanding Phase I and Phase II treatment
- Gaining basic knowledge in orthodontic movements through a series of exercises on an orthodontic typodont.
- Understanding the concept of what you are doing is important. Doing it will come with practice. Do not get frustrated, I promise you will get it.

Non-Disclosure Agreement

- Please sign and return the form this morning to me.
- Understand that I and my team have worked for the last 13 years to revise this course and exercises.
- You have paid to own what I hope will be a manual you will refer back to for years to come.
- Please don't share these materials without my expressed written permission. This includes associates and assistants, corporate doctors sharing within their respective corporations, etc.

Ground Rule for Sundays, Lunchtime and Breaks

- The breaks during Fridays and Saturdays are for you to stretch, get food or drinks, go to the restroom, take care of personal or office matters by phone and speak with the vendors as your needs direct.
- These breaks are for the instructor too.
- Respect the instructor and other classroom participants; be sensitive to their learning experience.

Your Course Responsibilities

- Please silence your cell phones and take conversations with your neighbors outside the classroom
- Have all the tools & supplies recommended to you for class every day. If unsure about anything on the list or the schedule, ask Susan or Kristi.
- Do the exercises even if they seem repetitious and simple. Until you start cases in your office, these exercises are the only practice at cutting, bending, inserting and ligating wires that you will get.

My Philosophy as a Teacher:

- There are no stupid questions and I encourage class discussion and interaction.
- I want you get as excited about orthodontics as I am.

Please DO NOT record lectures or any of the videos that are presented during this course.

Videos

- The material and videos that are presented in class are documented in a step-by-step manner in your course notebook.

As an Instructor and RDA, I am committed to teach you basic/intermediate concepts in orthodontics and the predictable system of treatment.

If you have questions, concerns or need my help, you may reach me at:

scoffeyortho@gmail.com or Cell– 469.766.8193

www.williams***GP***orthodontics.com

Susan Coffey, RDA

Starting Orthodontics & Understanding It

Terminology, Classification & Cephalometrics

- Wisdom in general dentistry is knowing when to treat and when to refer.
- You do not have to nor want to treat every case that enters your office.
- A good relationship and friendship with a specialist is a must. Just like any other specialty.

An Interesting Admission:

Contemporary Orthodontics

Fourth Edition

Excerpt from Page 164;

"The complexity of the treatment that would be required [for orthodontics] affects treatment planning especially in the context of who should do the treatment. In orthodontics as in all areas of dentistry, it makes sense that the less complex cases would be selected for treatment in general or family practice, while the more complex cases would be referred to a specialist. The only difference in orthodontics is that traditionally the family practitioner has referred a larger number of orthodontic cases. In family practice, an important issue is how you rationally select patients for treatment or referral."

William R. Proffit, DDS, PhD

Kenan Professor and Chairman

Department of Orthodontics

University of North Carolina

How Do We Start??

Patient's Dentition Will Start As…
- Phase I (Mixed Only)
- Phase II

Patient's Molars Will Start As…
- Class I
- Class II
- Class III

What Is The Difference ?

Phase I

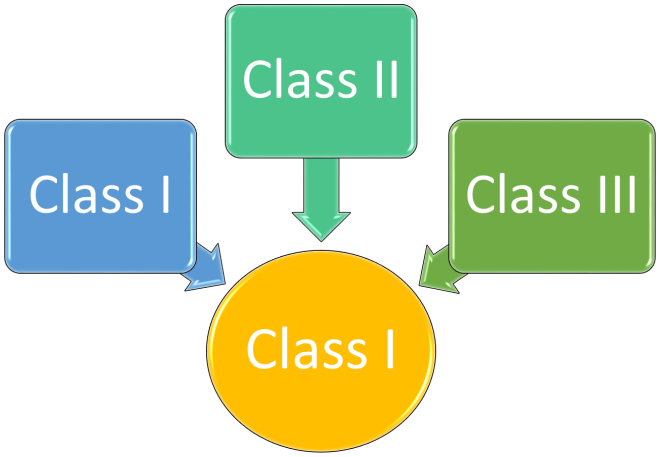
Look @ 7 yrs old – ish Can Start if Needed

Finish Treatment with Baby Teeth **or** Transition into Phase II

Phase II

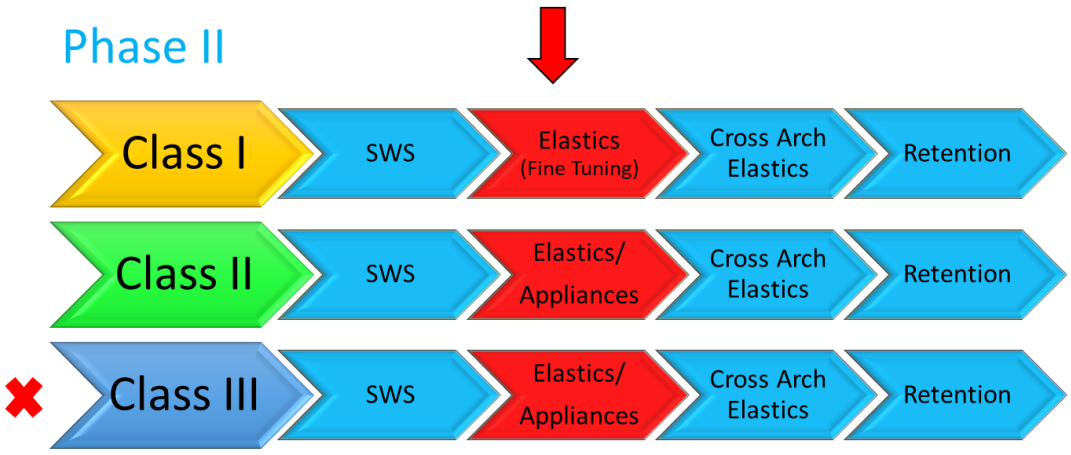
Can Start with Baby Teeth but will…

Finish with ALL Adult Teeth in a Class I Bite



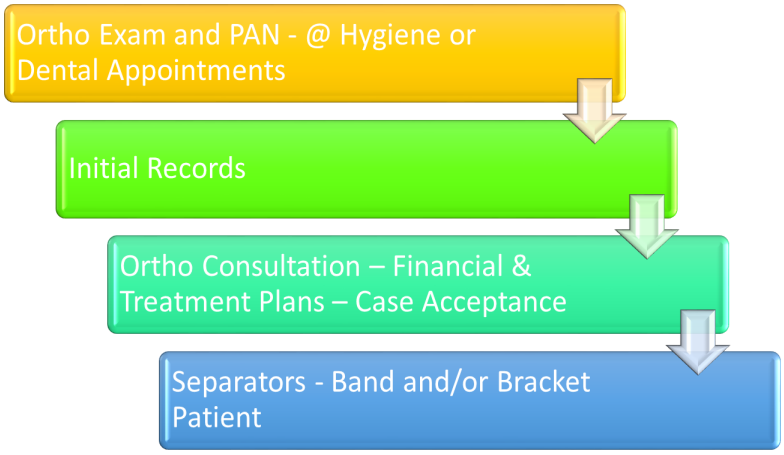
This is the GOAL of ORTHO

How We Get There…

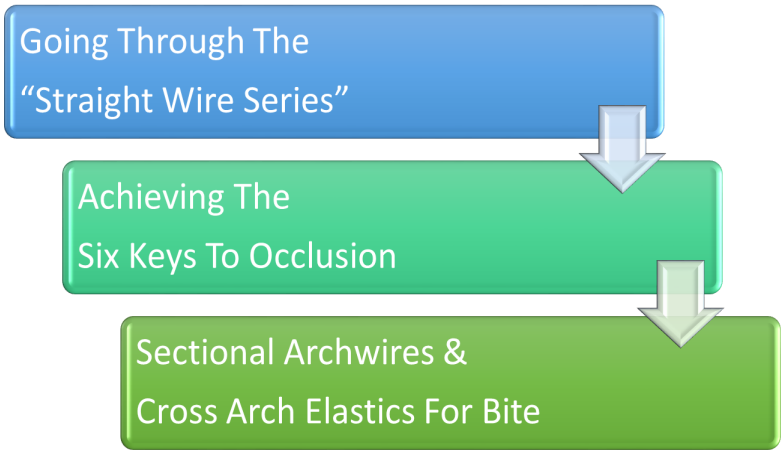


~ Going Through The Process ~

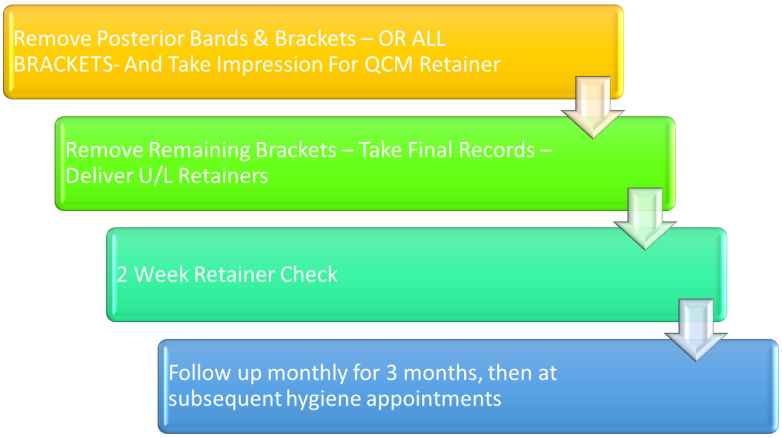
In the Beginning….



Starting The Process….



The End Is In Sight…..



The Essence of Orthodontics

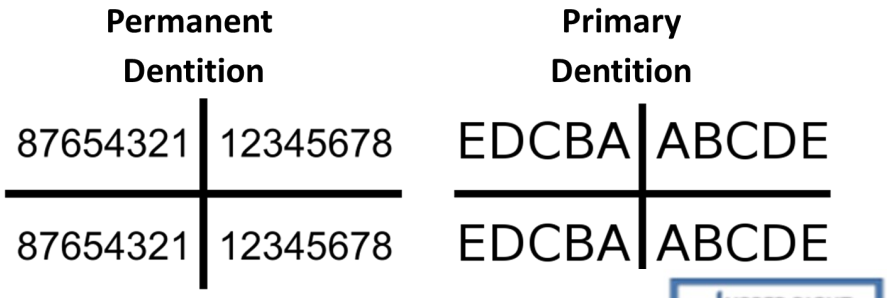
Terminology & Classifications

- Terminology
- Six Keys To Occlusion
- Dental Classification-Molar Relationship
- Putting It All Together

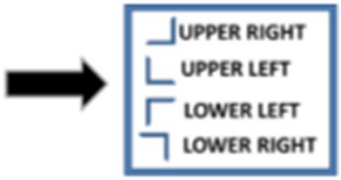
Terminology

- Anterior — Front of Mouth
- Posterior — Back of Mouth
- Mesial — Nearest the Midline
- Distal — Farthest from the Midline
- Labial — Next to the Lips
- Lingual — Next the Tongue
- Buccal — Next to the Cheek
- Facial — Towards the Cheek/Lips (Face)

Palmer System



The Palmer notation consists of a symbol designating in which quadrant the tooth is found and a number indicating the position from the midline.



Goals of Treatment: To Establish the Six Keys of Occlusion per Dr. Laurence Andrews

I. Molar relationship: The distal surface of the disto-buccal cusp of the upper first permanent molar occludes with the mesial surface of the mesio-buccal cusp of the lower second permanent molar.
II. Crown angulation (mesio-distal tip): The gingival portion of each crown is distal to the incisal portion and varied with each tooth type.
III. Crown inclination (labio-lingual, bucco-lingual): Anterior teeth (incisors) are at a sufficient angulation to prevent overeruption
Upper posterior teeth – lingual tip is constant and similar from 3–5 and increased in the molars
Lower posterior teeth – lingual tip increases progressively from the canines to the molar
IV. No rotations
V. No spaces
VI. Flat occlusal planes

This is straight out of the textbook; next slide I have simplified them…

- **Key I**– Molar Relationship
- **Key II**– Crown Inclination: The Mesio-Distal "Tip"
- **Key III**– Crown Inclination: The Labio-Lingual or Bucco-Lingual "Torque"
- **Key IV**– No Rotations
- **Key V**– Tight Contacts - No Spaces
- **Key VI**– Flat Curve of Spee - Flat Occlusal Plane

KEY I: **MOLAR RELATIONSHIP**

- Class I Molars

KEY II: **CROWN ANGULATION** (Mesio-Distal "Tip")

- Roots are tipped more distal than the crowns

KEY III: **CROWN INCLINATION** (Lingual or Buccal "Torque")

- Anterior teeth have lingual root torque
- Canines are relatively straight up and down
- Posterior teeth have buccal root torque

KEY IV: **NO ROTATIONS**

- No crooked teeth

KEY V: **TIGHT CONTACTS**

- No spacing.
- Tooth-sized discrepancies need to be corrected (build ups/crowns/ etc)

KEY VI: **OCCLUSAL PLANE**

- Flat curve of spee

Achieve these SIX goals and the orthodontic case is complete !!

Compromising Treatment Can Exist !!

- Understand there is a possibility that deficiencies can occur. Bolton discrepancies (tooth -size differences) are very common or the need for caps, build ups, crowns, etc. All these can result in compromises that need to take place to create the best possible occlusion.

- Successful ortho treatment involves many disciplines, not of which are always in our control. Compromise treatment is acceptable when patient cooperation or genetics de- mand it. Compromise treatment should not be accepted when treatment limitations do not exist.

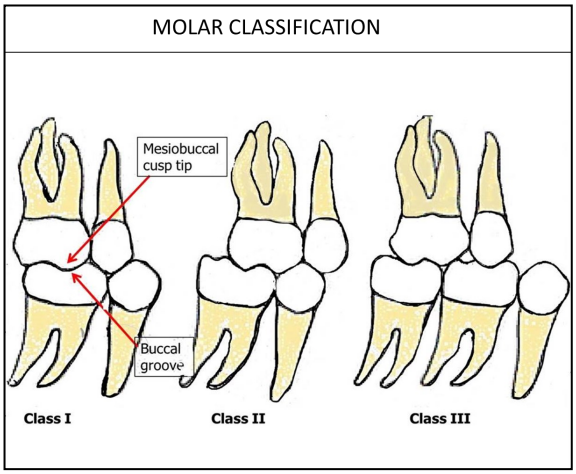
- Achieving the final desired occlusion is the purpose of attending to the six keys to "normal" occlusion.

Dental Classification & Relationship

Model Analysis, Cephalometric Interpretation and Orthodontic Diagnosis

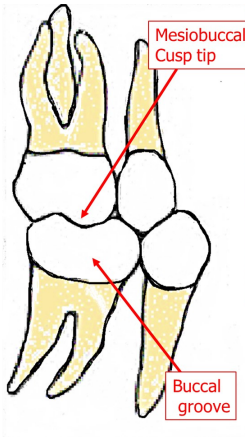
- We use the photos and the models to gather the following information used in our orthodontic diagnosis.

Dental Classification Molar Relationship

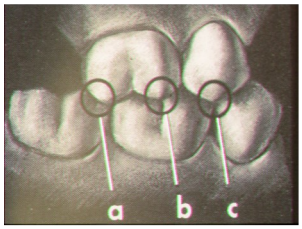


Class I - Molar Relationship:

- When the disto-marginal ridge of the maxillary first molar is touching the mesio-marginal ridge of the mandibular second molar **AND**
- The mesial cusp of the maxillary first molar is in the buccal groove of the mandibular first molar, one truly has a stable Class I molar relationship.



Note how the pre-molars are fully intercuspated and the midline is usually correct.

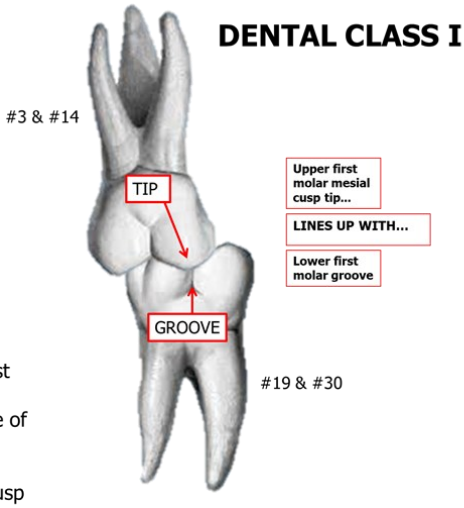


Ideal Dental Class I

a. The disto-marginal ridge of the upper 1st molar touches the mesio-marginal ridge of the lower 2nd molar.

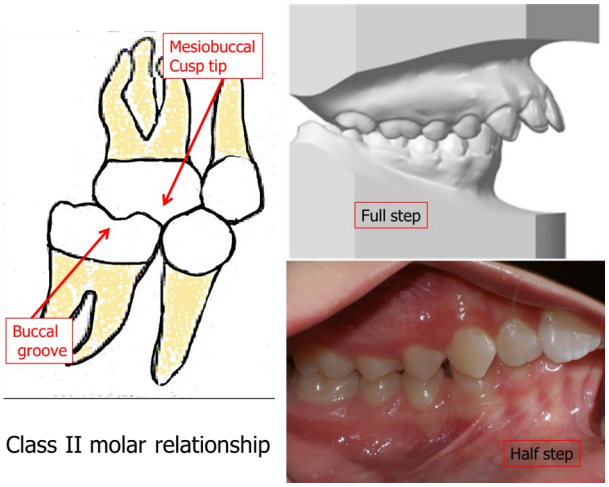
b. The mesiobuccal cusp of the upper 1st molar occludes in the buccal groove of the lower 1st molar.

c. The buccal cusp of the upper 2nd premolar occludes between the lower 1st molar and lower 2nd premolar.

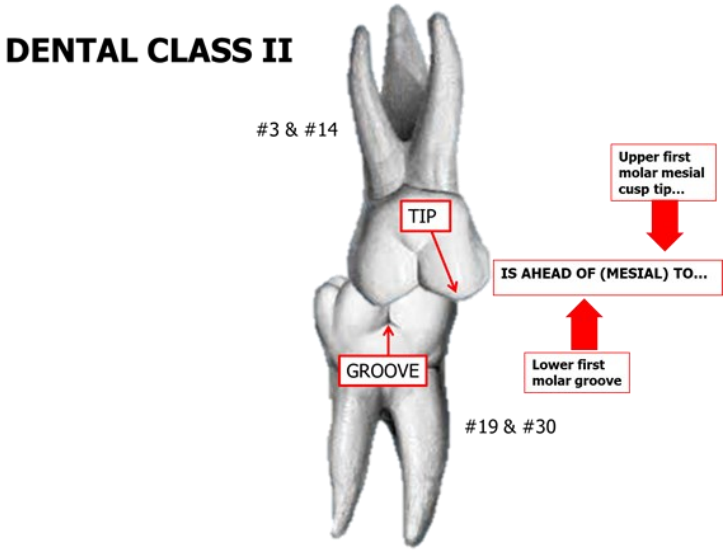


Class II - Molar Relationship

- When the disto-marginal ridge of the maxillary first molar as well as mesio-buccal cusp is mesial to the position described. Note the premolars will not be fully intercuspated **and** the midline will be off. This usually creates an "overjet"**.**

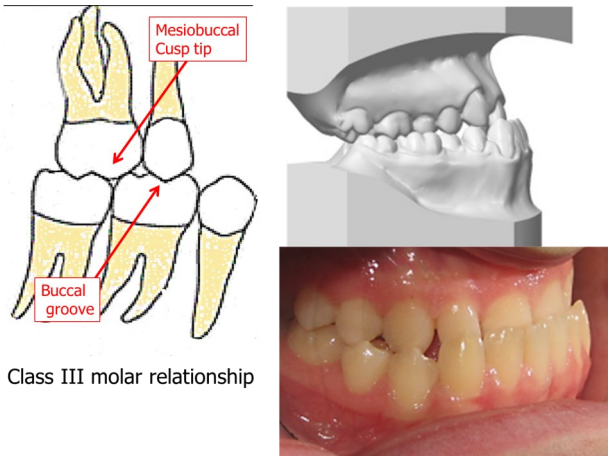


Class II molar relationship

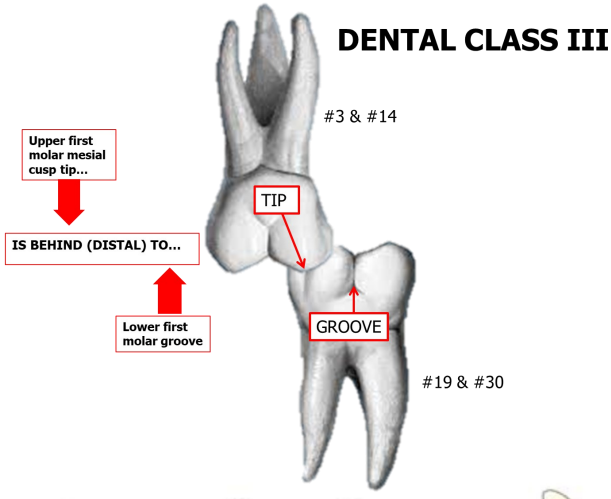


Class III - Molar Relationship

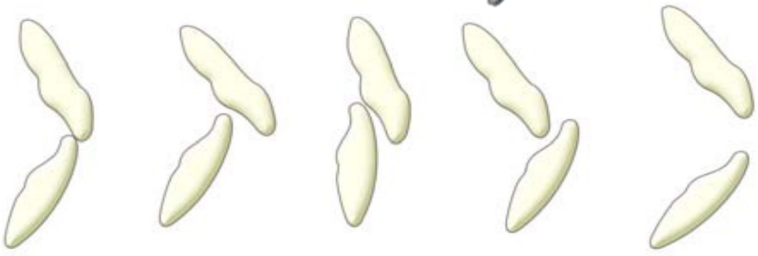
- When the disto-marginal ridge of the maxillary first molar as well as mesio-buccal cusp is distal to the position described.
- Note the premolars again will not be intercuspated fully and the midline most likely will be off.
- The anterior teeth will most likely be in an "end-on-end" relationship or the upper anteriors will lie lingually to the lower anteriors - "underbite".



Class III molar relationship



Anterior Teeth Relationship



Normal Class II Div I Class II Div II Class III Anterior Open Bite

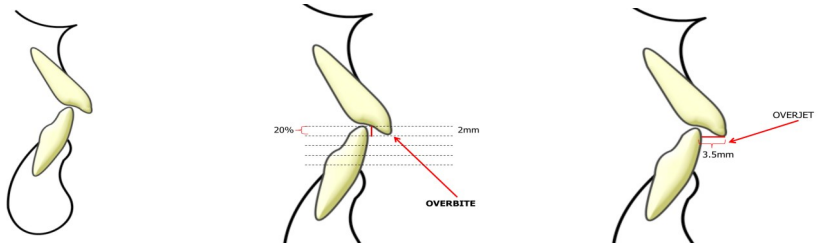
Incisal Overbite

- can be measured in millimeters, the amount of vertical overlap of the upper anterior teeth to the lower anterior teeth. **Percentages** are also used to describe the over-bite. For example, if the lower teeth cannot be seen when the patient bites down, that would be *at least* a 100% over -bite.

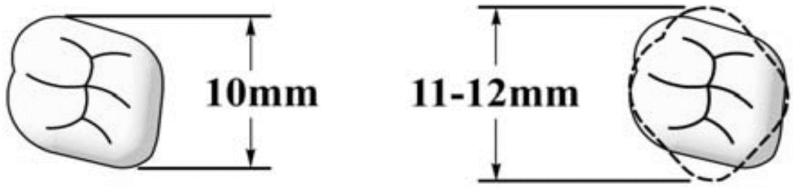
*Dr. Williams refers to OB in percentage. The % of the mandibular incisor that is draped by the maxillary incisor.

Incisal Overjet

- is measured in millimeters from the facial surface of the lower anteriors to the tip of the upper anteriors. If the upper teeth are anterior to lower teeth, the measurement is positive. If lower teeth are anterior to the upper teeth, the measurement is negative.

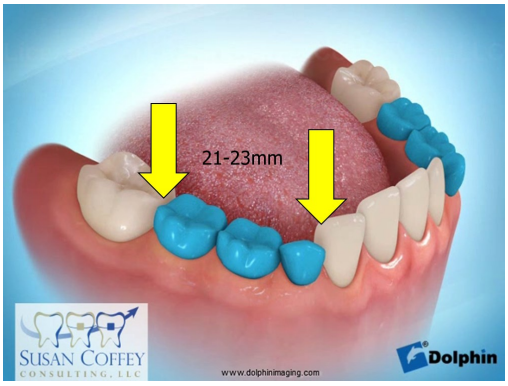


Rotated Upper First Molars



- The importance of this in diagnosis is that you can gain 1-2 mm per side in arch length, to alleviate crowding in the arch simply by rotating the upper 1st molars.
- When the molars are in the right occlusion bilaterally, everything else should fall in line: Proper premolar intercuspation, proper overbite and overjet, proper midlines.

The 21-23mm Rule– Phase I Treatment



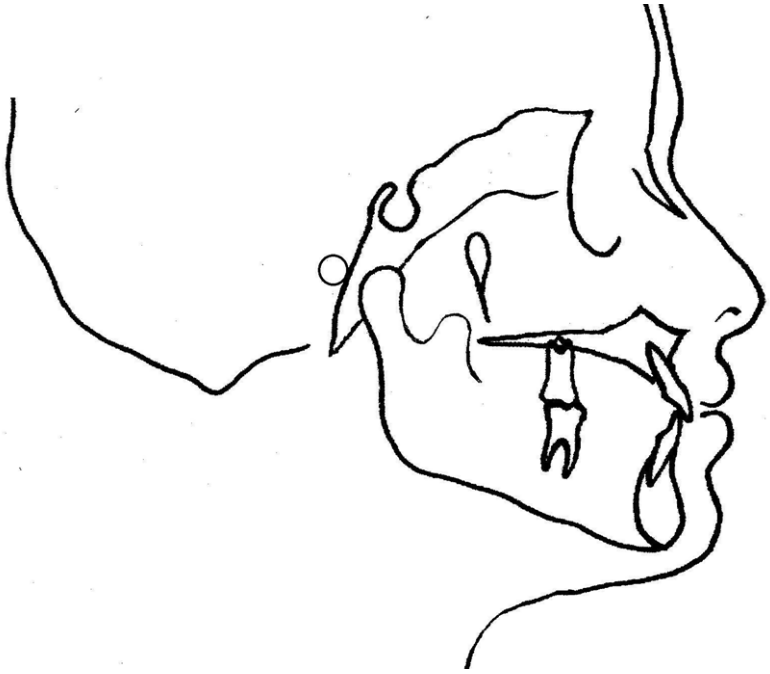
- In an average Caucasian study, 21 mm is necessary to accommodate the permanent cuspid, 1st and 2nd premolars in the mandibular arch. The 23 mm is necessary to accommodate the same teeth in the upper arch.

- In mixed dentitions, measure from the **distal** of the **lateral** to the **mesial** of the **1st molar** to determine if there is adequate space for the adult teeth. For larger teeth, 23mm may be required in the lower arch while 25 mm in the upper. This will vary among patients and races.

Obtaining Space - May not look as intimidating now, after breaking it down.

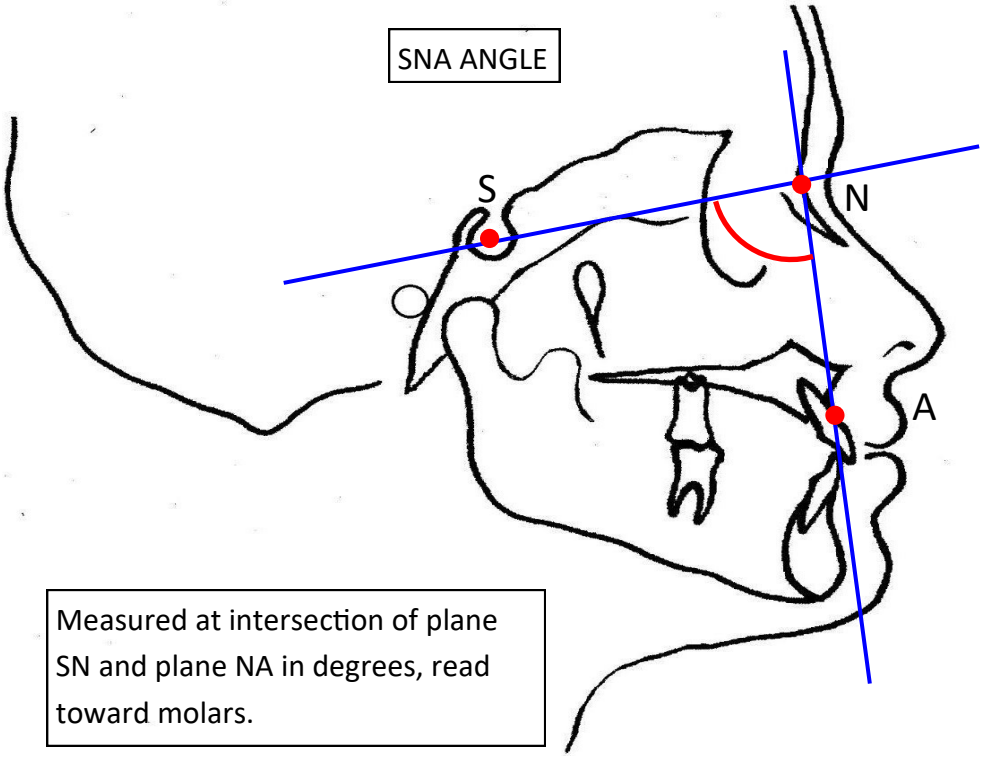
- Rotated Molars = 2-4mm
- Maintain "E" Space = 8mm
- Straight Wire Series (SWS) = 4mm

Introduction to Cephalometrics



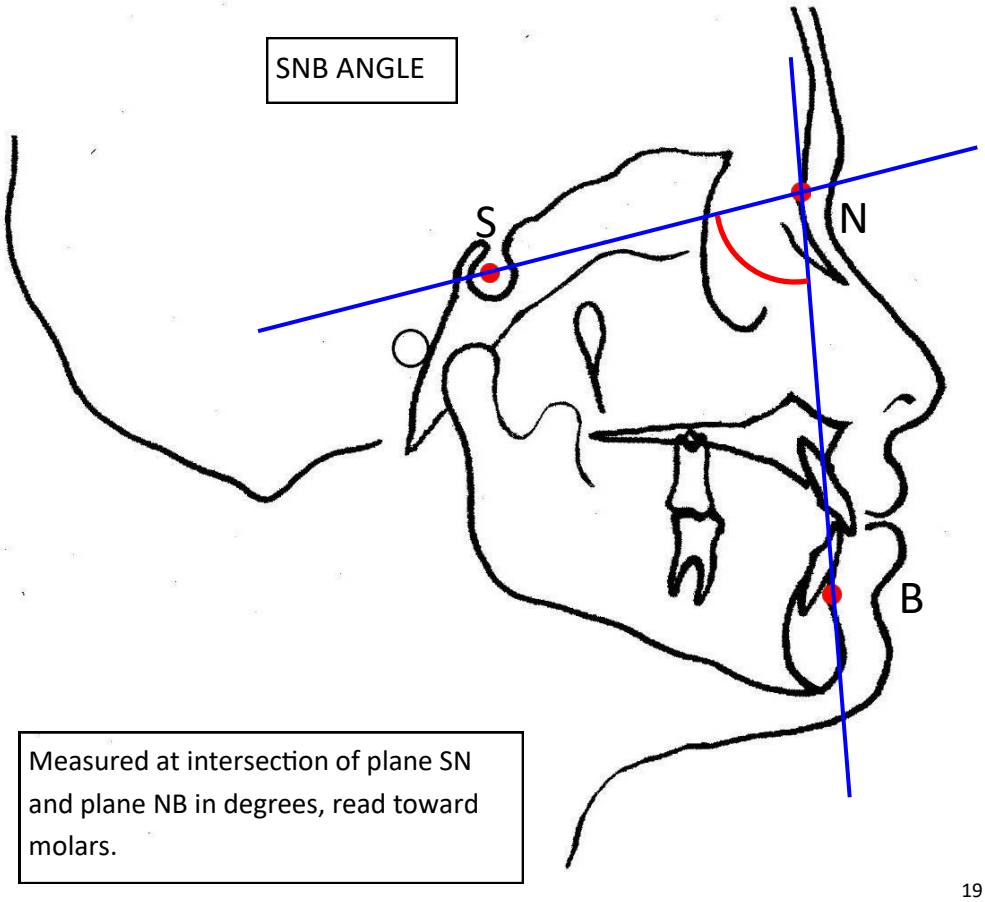
CEPH POINTS, PLANES & ANGLES

SNA ANGLE



Measured at intersection of plane SN and plane NA in degrees, read toward molars.

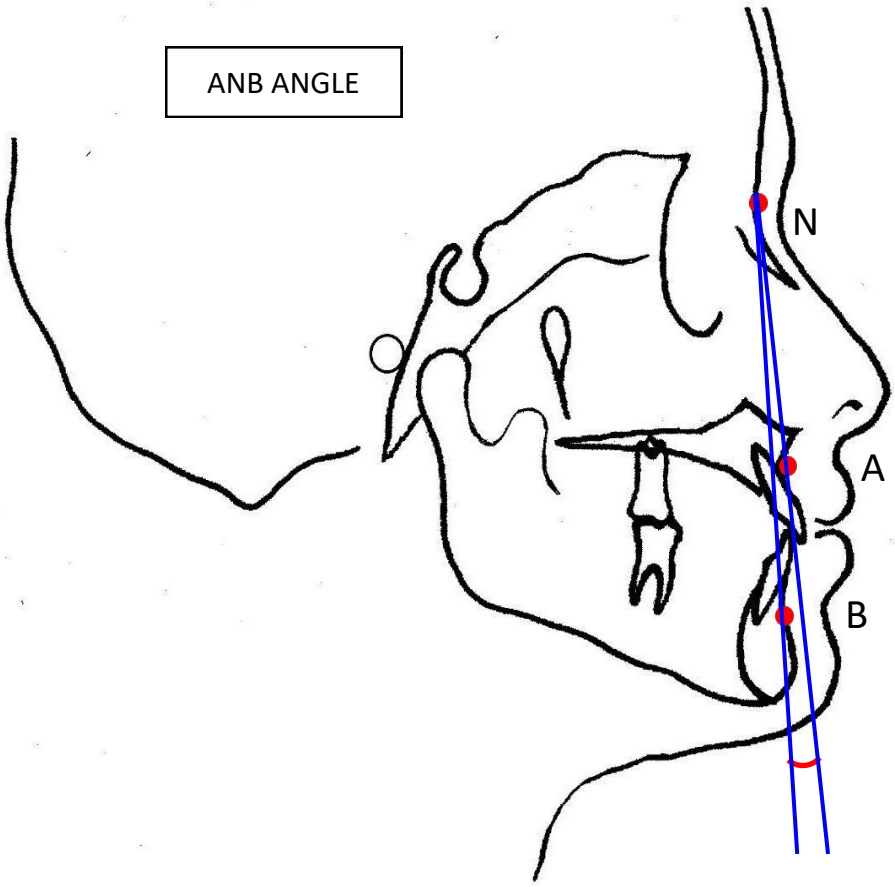
SNB ANGLE



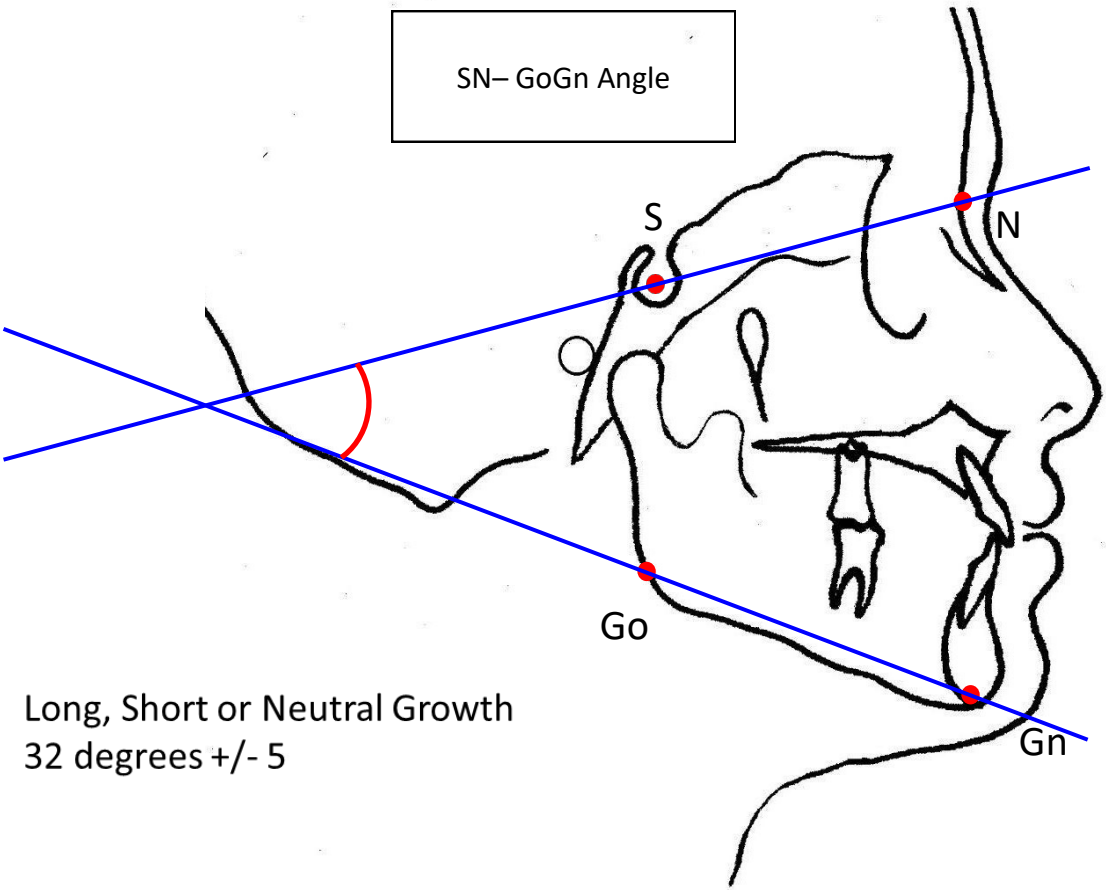
Measured at intersection of plane SN and plane NB in degrees, read toward molars.

ANB ANGLE

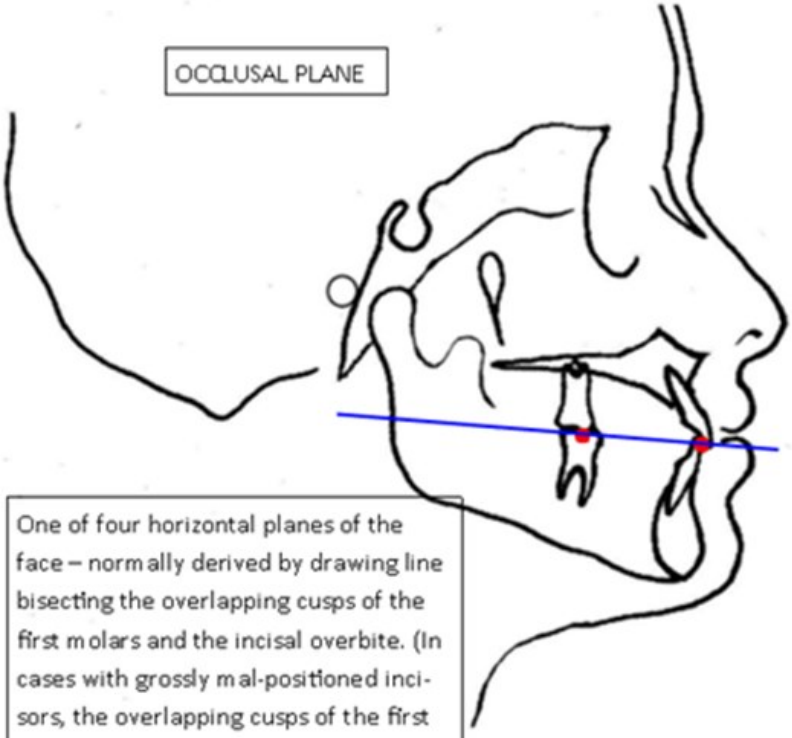
Determines: Skeletal I, II or III
Norm: 2 degrees +/- 2



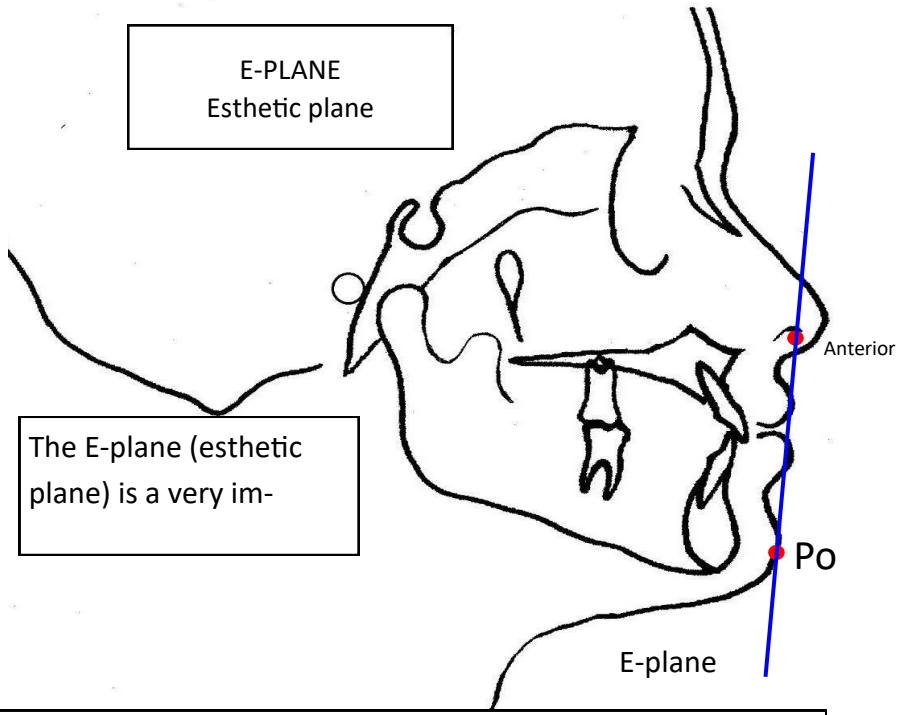
SN– GoGn Angle



Determines: Long, Short or Neutral Growth
Norm: 32 degrees +/- 5



One of four horizontal planes of the face – normally derived by drawing line bisecting the overlapping cusps of the first molars and the incisal overbite. (In cases with grossly mal-positioned incisors, the overlapping cusps of the first premolars are substituted for the incisal overbite.)

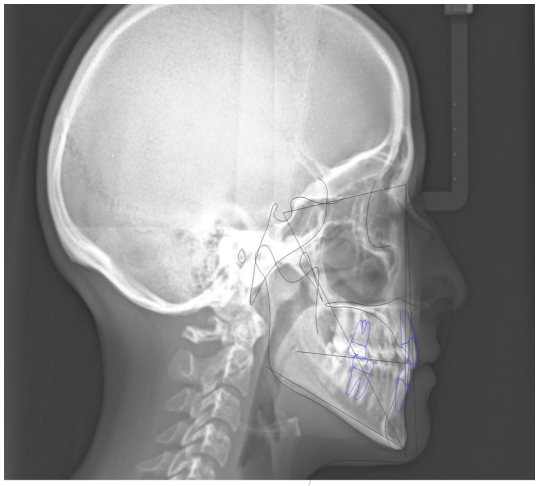


The E-plane (esthetic plane) is a very im-

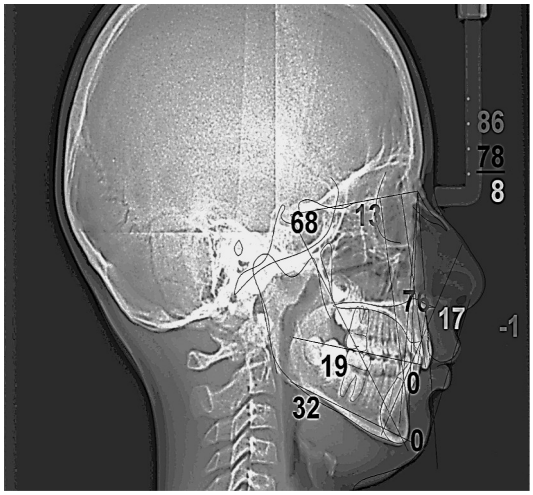
A line is drawn from the anterior Nares to Soft Tissue Pogonion. Upper and Lower Lips are measured as positive, anterior to the line, 0 on the line and negative, posterior to the line. The normal E-plane is 0 to +2 mm to the up-

Skeletal Classification

ANB & WITS



Skeletal Class I **(ANB = +2.9°; WITS = -0.7 mm)**

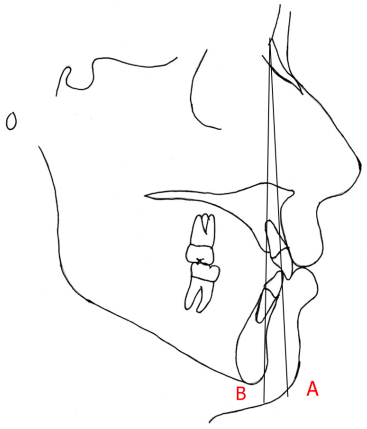


Skeletal Class II **(ANB = +8°; WITS = 1.0 mm)**

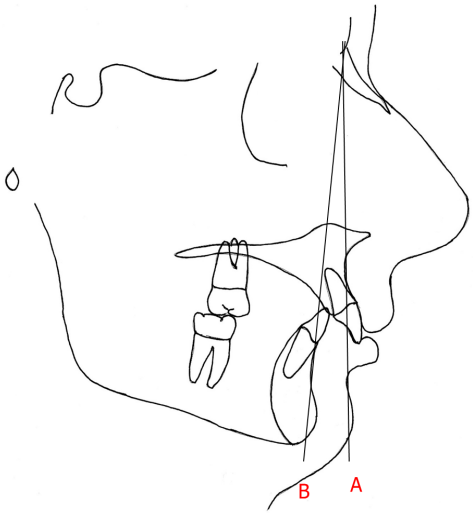
Skeletal Class III **(ANB = -3.8°; WITS = -8.0 mm)**

ANB

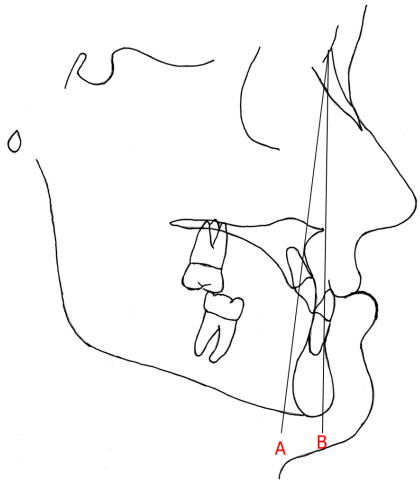
An angle created by the difference of SNA and SNB. This angle is a growth indicator as to the maxilla and mandible and their relationship to the cranial base.



Class I
0 – 4 degrees



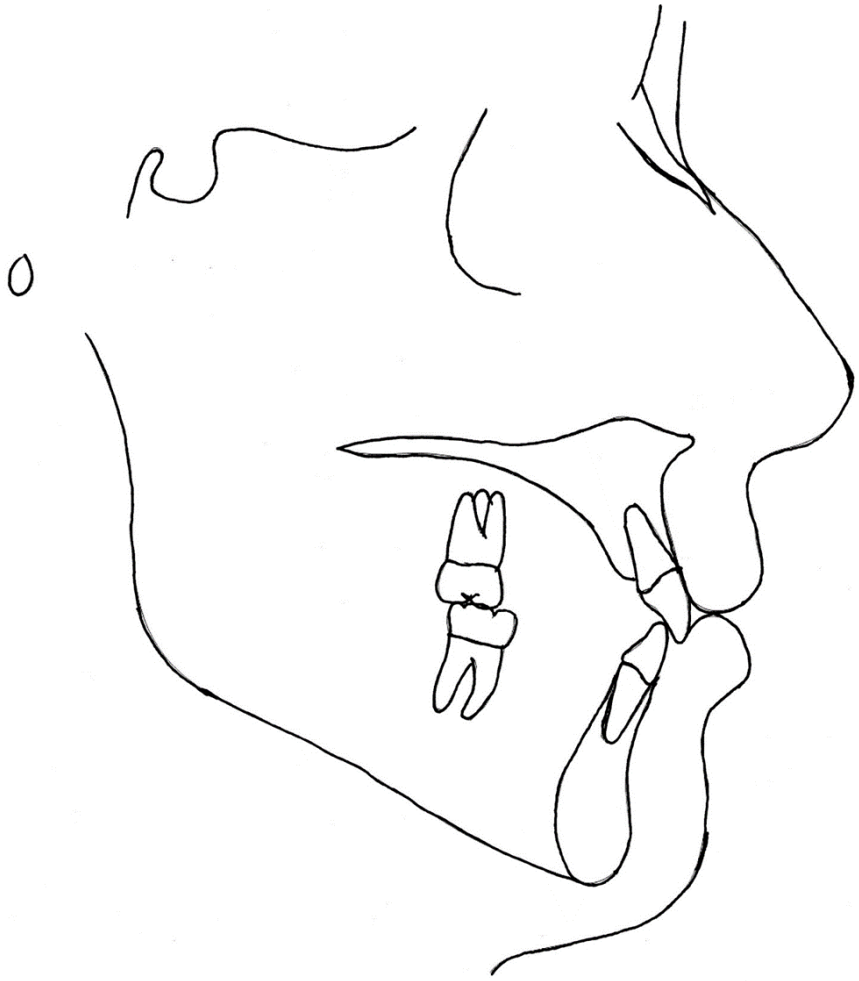
Class II
5 degrees
or more



Class III
Less than 0 degrees

Skeletal Growth Patterns

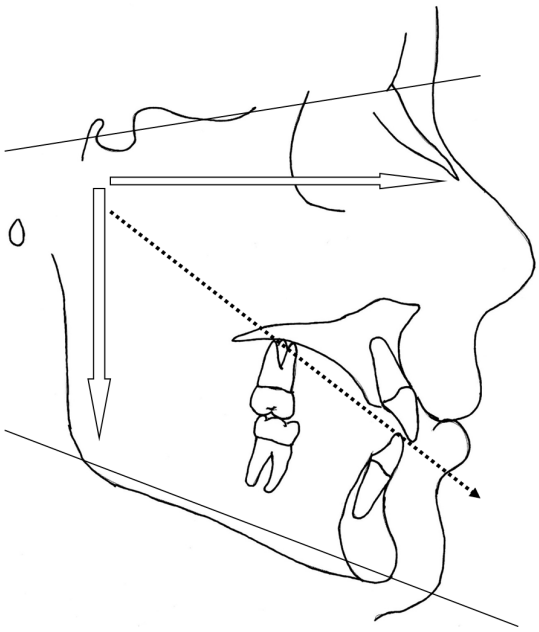
▪ Mesocephalic	Balanced growth	"neutral growth"
▪ Brachycepahic	Forward growth	"counter-clockwise growth"
▪ Dolicocephalic	Downward growth	"clockwise growth"



The growth pattern of the patient is very important, as any force in orthodontics causes the posterior teeth to erupt, opening the bite.

- In the following slides, the three growth patterns are considered.
- In the first slide, a neutral or mesocephalic growth pattern is shown. Increasing the vertical dimension, that is, opening the bite, is usually not an issue.
- In the second slide, the face exhibits a counter-clockwise or brachycephalic growth pattern and increasing the vertical, that is, opening the bite, is often advantageous.
- In the third slide however, the face exhibits a clockwise or dolicocephalic growth pattern and any vertical increase is usually contra-indicated. Open bites are extremely difficult to correct.

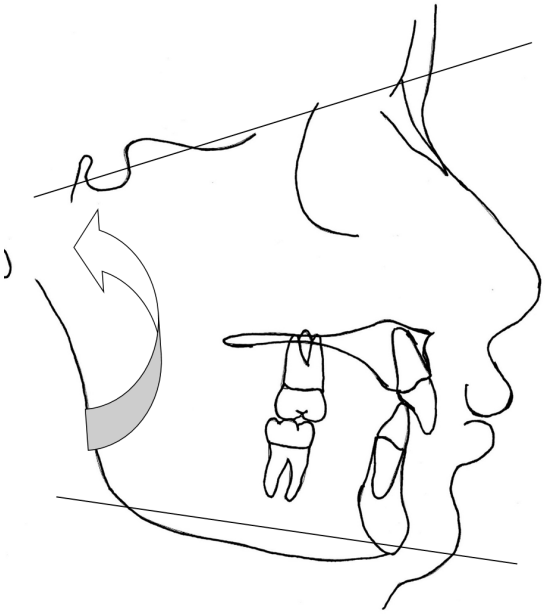
GoGn to SN



Mesocephalic GoGn-SN

Normal Growth Angle

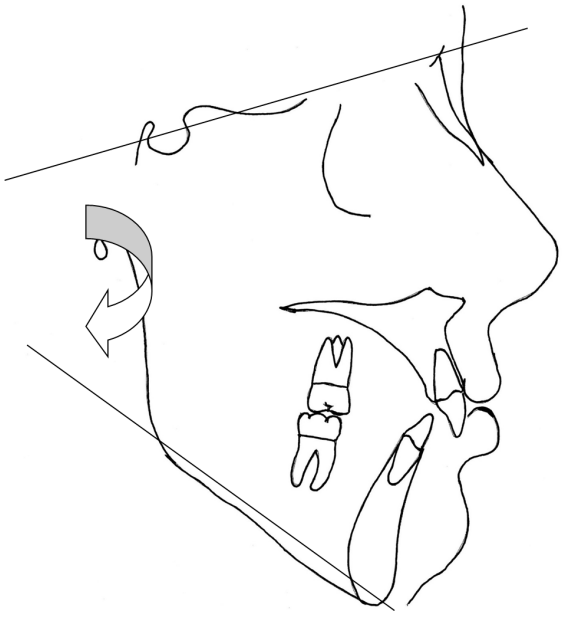
32 +/- 5 degrees



Brachycephalic GoGn-SN

Closed Angle Horizontal Growth
Counter clockwise growth

< 27 degrees



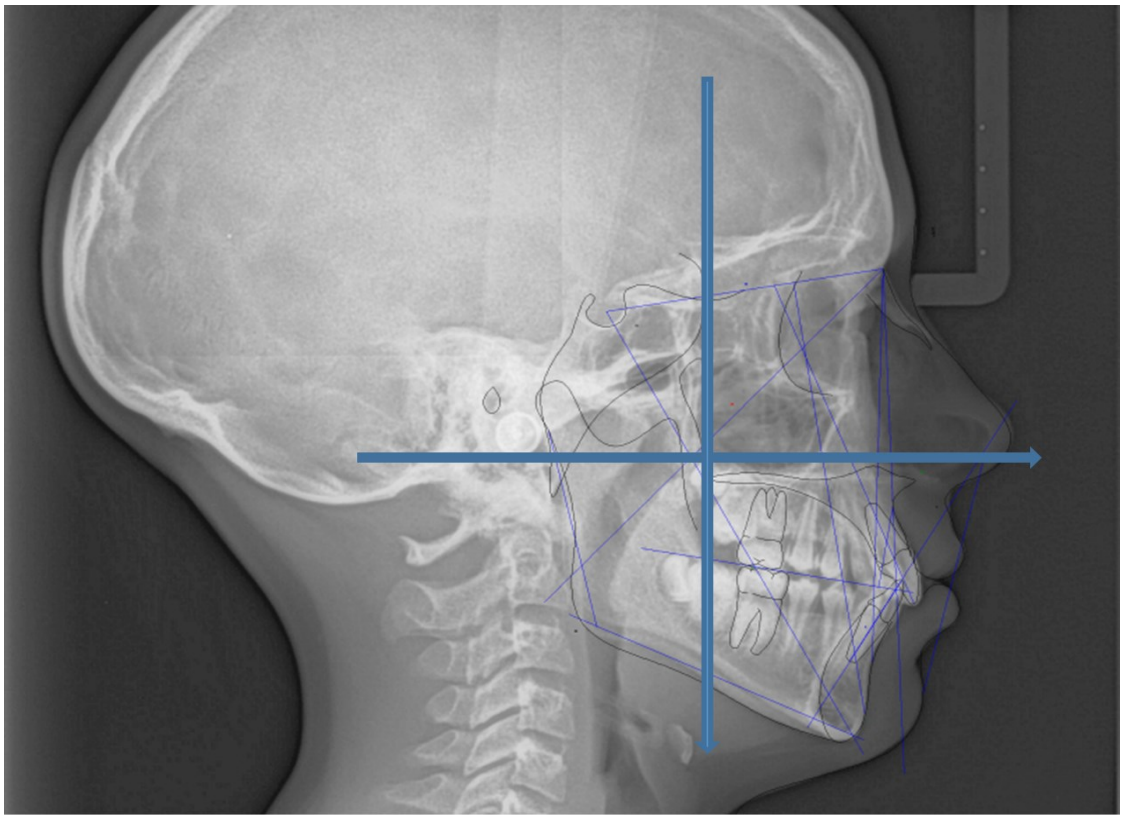
Dolicocephalic GoGn-Sn

Open angle Vertical Growth

Clockwise Growth

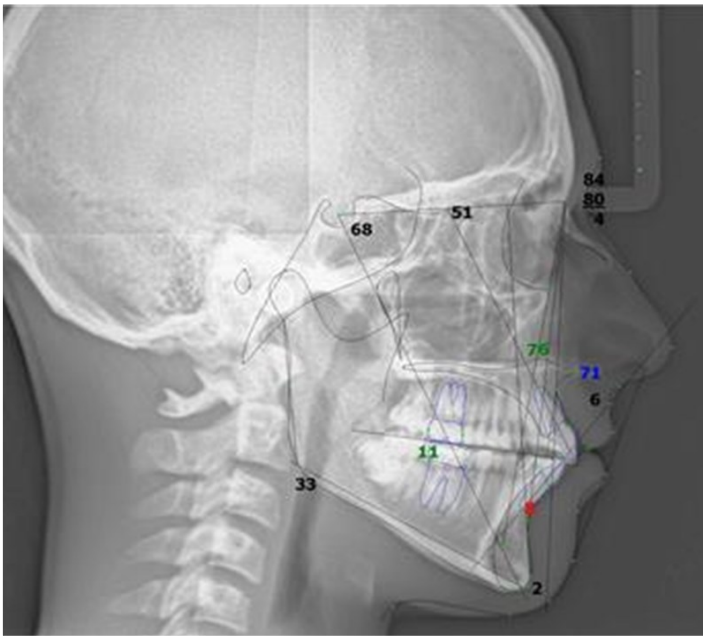
> 37 degrees

Neutral – Mesocephalic – GoGn = 33°



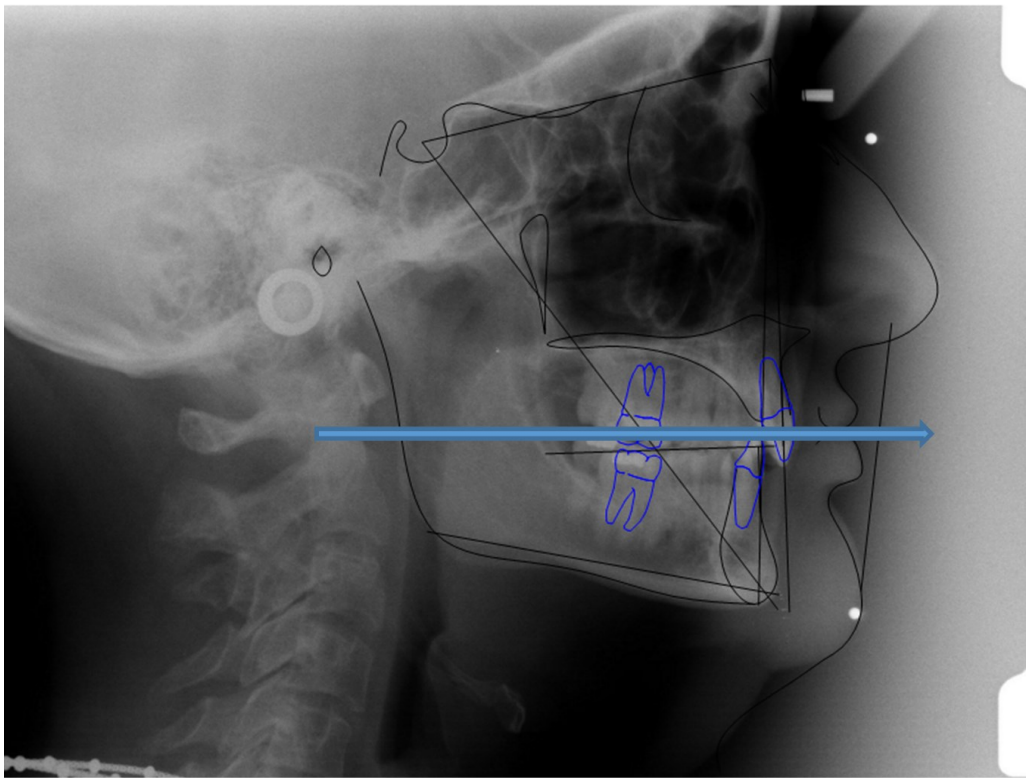
Neutral Face

Mesocephalic or Neutral Growth



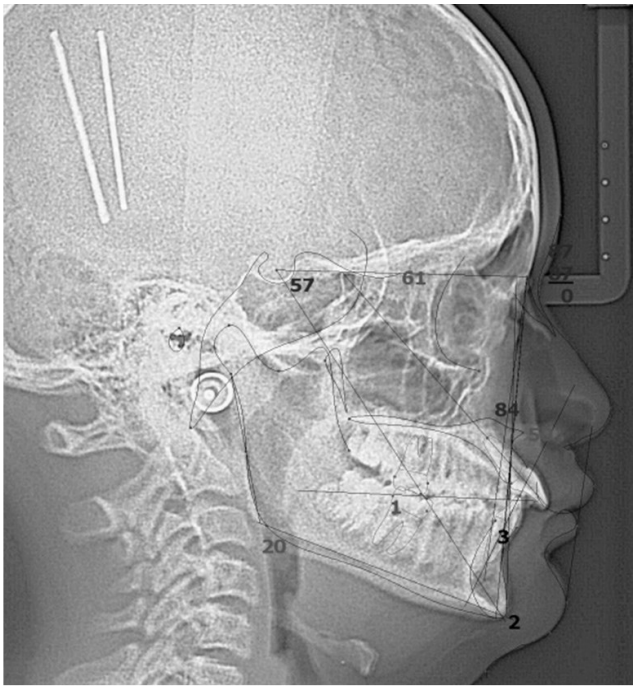
GoGn = 33 degrees

Short - Brachycephalic – GoGn = 20°



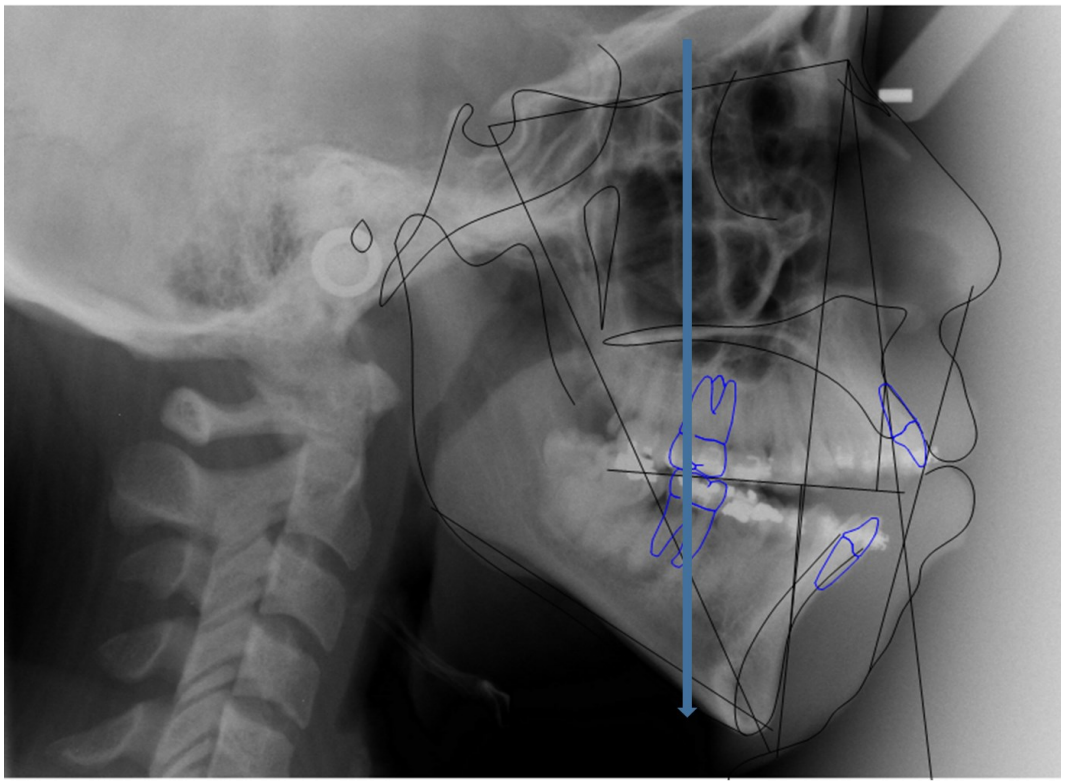
Short Face

Brachycephalic- Forward Growth



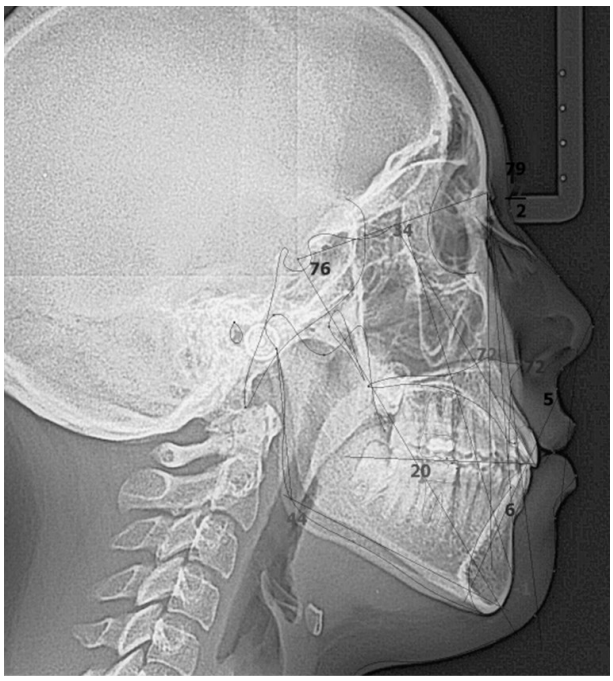
GoGn = 20 degrees

Long – Dolicocephalic – GoGn = 44°



Long Face

Dolicocephalic- Downward Growth

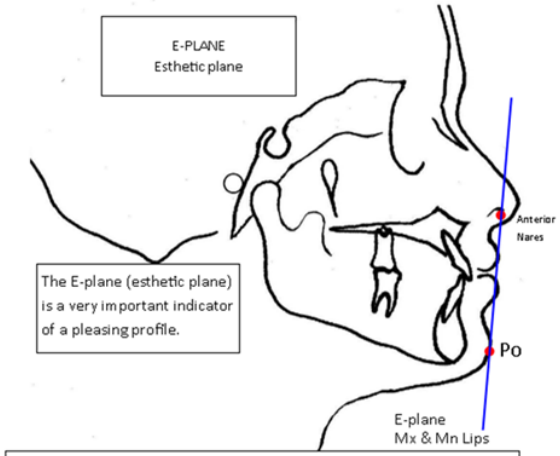


GoGn = 44 degrees

Soft Tissue Profile Analysis (Modified Esthetic Plane)

Modified E-Plane

- Lips should fall on or slightly in front of line for a pleasing profile.
- Treatment should avoid bringing the lips forward in patients with convex (procumbent) profiles as this will worsen their convex appearance, too full.
- Patients with retruded lips or flat profiles should avoid premolar extractions, as this will worsen the concave appearance.
- Clinical studies have documented that the convexity of the profile will lessen with age. This is true of all individuals, male and female, regardless of treatment.
- Finishing cases somewhat full is not a concern, as the patient's profile will continue to flatten with age.

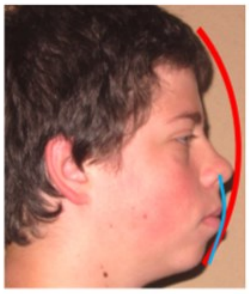


A line is drawn from the anterior Nares to Soft Tissue Pogonion. Upper and Lower Lips are measured as positive, anterior to the line, 0 on the line and negative, posterior to the line. The normal E-plane is 0 to +2 mm to the upper and the lower lips. Balanced lips indicate a pleasing profile.

Normal E Plane – Balanced Lips

Concave

Straight

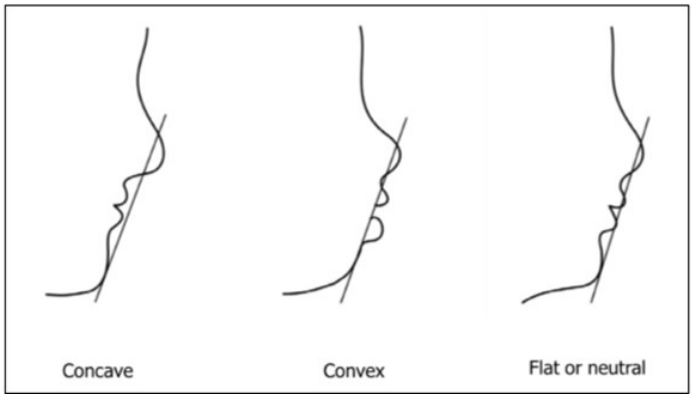


Convex

Convex E Plane- Full Lips

In this context, facial profile is referring to the lower half of the face, from the nose to the chin, not the entire face, forehead to chin.

Not this. **This.**



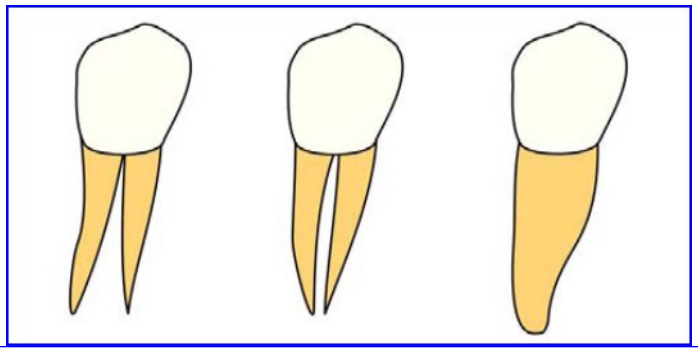
Concave E Plane- Flat Lips

Cephalometric Diagnosis Summary

- Profile tells us if lips balanced, concave, neutral, or convex.
- ANB tell us if they are in normal limits of orthodontic treatment or if the skeletal problems are too great to treat with ortho alone.
- WITS confirms our concerns about normal limits.
- Check GoGn, Y-axis, and to determine if the patient is a clockwise, counter-clockwise, or neutral grower and whether they fall within growth parameters that are within acceptable limits.
- These simple assessments define the “box” cases fall within. We use this information to help decide if we treat or refer.

When to start treatment?

- Lower canines are a good indicator as to when to begin orthodontic treatment in late adolescence.
- As the root begins to close, it is a good time to bracket and band the teeth.
- All of the permanent teeth (other than wisdom teeth) should be fully erupted into the dental arches within two years of this signal.



The cuspid on the left is a bit premature as the root is still open. Completion of the case may be delayed.

The cuspid in the center is closing and ideal treatment time.

The cuspid on the right is closed and treatment is of course acceptable.

Definitions of Cephalometric Landmarks (courtesy of AAO Website)

Anterior Nasal Spine (ANS) The Median, sharp, bony process of the maxilla at the lower margin of the anterior nasal opening. It is considered by many as a separation of the upper face from the lower face.

Esthetic Plane (E plane) A plane extending from a point on the nose to the forward point of the soft tissue chin (soft tissue Pogonion). The outer margins of the lips are measured to this plane, to indicate too much lip support, too little lip support, or norm positions of the lips. A more accurate method of establishing the position of the E-plane is to find Steiner's "S" point, which is approximately equal to the anterior border of the nares (nasal opening). The lips are considered to be in norm relation when they touch or are parallel to the E- plane.

Facial Height The distance in millimeters from the Nasion to anterior nasal spine to pogonion on a lateral head film. In general, the ratio of the upper face height to the lower face height (UF/LF) is 50%/50% in young girls and boys. Later in young adulthood, males increase their lower face height so the ratio is closer to 45%/55%.

Gnathion (GN) The lowest point of the median plane in the lower border of the chin. It is a point on bony border palpated from below and naturally lies posterior to the tegumental border of the chin. In cephalometrics it is the midpoint between the most anterior and the most inferior points of the bony chin.

Gonion (Go) The lowest, posterior-most, and most outward point of the angle of the mandible. It is obtained by bisecting the angle formed by tangents of the lower and the posterior borders of the mandible. When both angles appear on the profile roentgenogram, the point midway between the right and left side is used.

Menton (M) The lowest point from which face heights are measured. It is the most inferior point of the bony chin, and lies posterior and inferior to Gnathion.

Nasion (N) The middle point of the fronto-nasal suture. The point at the root of the nose intersected by the median sagittal plane. The root of the nose corresponds to the fronto-nasal suture, but it is not always the lowest point of the forsum of the nose.

Nasion to Point A (NA) A cephalometric plane used to determine the relative prognathism of the maxillary denture base; also to which is compared the axis of the maxillary central incisor.

Nasion to Point B (NB) A cephalometric plane used to determine the relative prognathism of the mandibular denture base. Also to which is compared the axis of the mandibular central incisor.

Nasion to Point D (ND) A cephalometric plane used to determine the relative prognathism of the mandible without regard to the chin- button.

Occlusal Plane (Ocd Pl) The occlusal plane of the teeth. A line drawn between points representing one half of the incisor overbite and one half of the cusp height of the last occluding molar.

Orbitale (O) The lowest point on the margin of the orbit. Since this point varies from person to person, even in the same subject, the orbital point in orthodontic measurement is usually accepted as the point on the lower margin of the orbit directly below the pupil when the eye is open and the patient is looking straight ahead.

Pogonion (P) The most anterior, prominent point of the chin.

Point A (A) A measuring point taken at the innermost curvature from the maxillary anterior nasal spine to the crest of the maxillary alveolar process; the most depressed area of bone between the anterior nasal spine and the labial crest of the alveolus at the most labially inclined maxillary central incisor.

Sella-Gnathion plane (Same as Y-axis of growth) Used to orient the balance vertical and horizontal growth seen in an individual. A measurement if 65 degrees +/- 5 indicates a neutral growth pattern. A greater measurement indicates a clockwise growth pattern and a lesser measurement indicates a counter-clockwise growth pattern. (Y-axis is also measured as it passes through the Frankfort horizontal. A neutral growth pattern is indicated by 59 degrees +/-5.)

Point B (B) A measuring point on the anterior profile curvature from the mandibular anthropometric landmark, pogonion, to the crest of the alveolar process; the most depressed area of bone between pogonion and the labial crest of bone at the most labially inclined mandibular central incisor.

Point D (D) A measuring point located in the center of the mandibular symphysis in an antero-posterior relationship.

Porion (P) The midpoint on the upper edge of the external auditory meatus. As a cephalometric landmark, it is located by means of the metal rods of the cephalometer, or by a point directly ten millimeters distal to the most superior point on the head of the bony condyle.

Posterior Nasal Spine (PNS) Process formed by uniting projected ends of the posterior borders of the palatine process of the palatal bones.

Pterygomaxillary (Ptm) The point where the pterygoid process of the sphenoid bone and the pterygoid process of the maxilla form the pterygomaxillary fissure; the anterior border of the greater wing of the sphenoid bone and the posterior border of the maxilla. The lowest point of the opening is used in cephalometrics. (Theoretically, a point located on the posterior-superior aspect of thepterygomaxillary fissure is the point of center of growth of the face and skull. This is termed Ricketts point (Pt).

Sella-Nasion Plane (SN) A plane used in cephalometrics to describe mid-sagittal anterior cranial base, to, which is, related the most anterior borders of the maxillary and mandibular alveolar bases (SNA and SNB).

Sella-Nasion A Point (SNA or Subspinale) Antero- posterior relationship of the maxillary basal arch to the anterior cranial base. This shows the degree of maxillary prognathism

Sella-Nasion B Point (SNB or Supramentale) Shows the anterior limit of the mandibular basal arch in relation to the anterior cranial base.

Sella Tursica A cephalometric point, commonly called Sella, is located in the middle of the outline of the hypophyseal fossa as seen in the lateral head film; the geometric center of the pituitary fossa of the sphenoid bone; serves as a posterior landmark for Sella-Nasion plane.

SL Measurement SL measurement is a growth indicator and is located by drawing a line perpendicular to Sella Nasion line through pogonion. The length is measured on the SN line in millimeters from Sella point to the intersection of the pogonion perpendicular line. Neutral growth will be 51 mm +/- 5. Less indicated a vertical growth pattem and more indicates a horizontal growth pattern.

SNA-SNB (ANB) The angle formed by Sella-NasionA point (subspinale) and Sella-Nasion B point (supramentale). It indicates antero-posterior relationship of maxillary and mandibular basal arches to the anterior cranialbase.

WITS Analysis Conceived primarily as a way to overcome the limitations of ANB as an indicator of jaw discrepancy. It is based on projections of points A and B to the occlusal plane, along which the linear difference between these points is measured. (WITS appraisal was named by Dr. Alex Jacobsen after his alma mater, Witwatersrand University, South Africa, where he popularized it, in assessing anterior-posterior jaw comparisons.

Y-Axis A line connecting the geometric center of the Sella Tursica with the Gnathion. This is the vector of downward and forward growth of the face beneath the cranium. There are two Y-axis angles in Cephalometrics; one formed by the intersection of the S-N and Y- axis, and the other that is formed by the intersection of F-H and Y-axis. It is the latter that is most commonly used in cephalometric analysis.

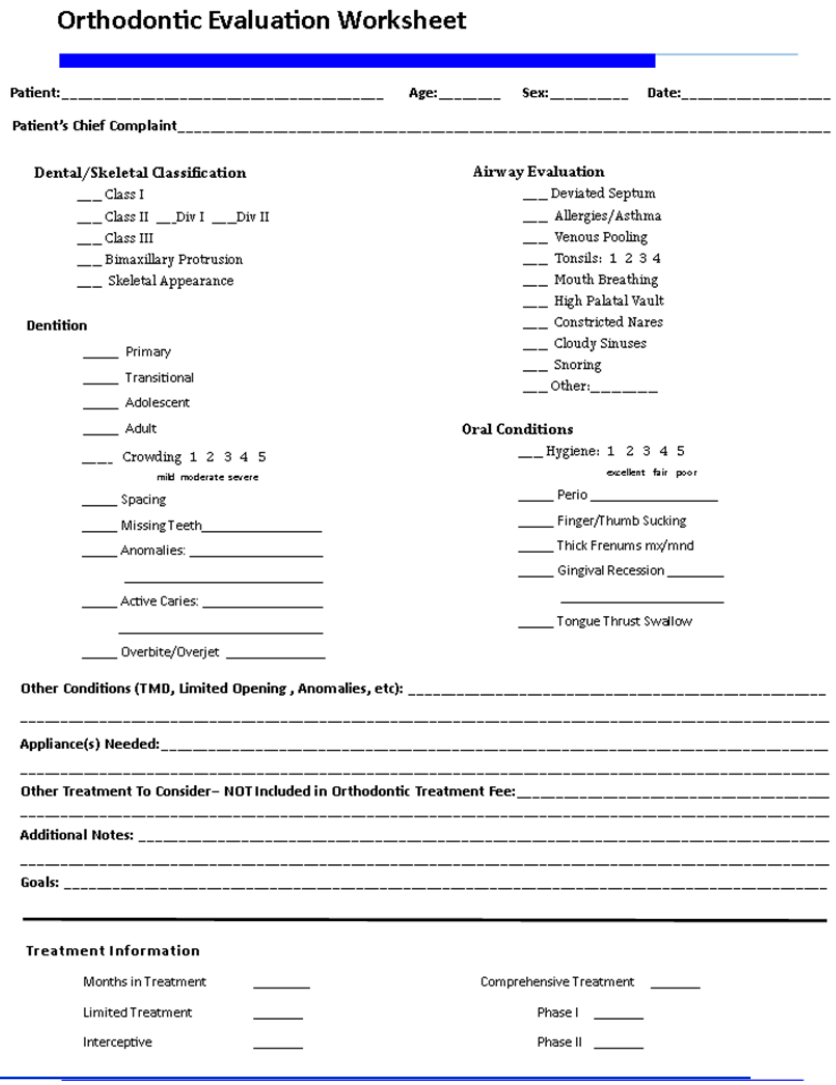
Ortho Consultation & Standard of Care Records

Ortho Consultation

Free Orthodontic Consultation

- New patient? Then follow your office procedures (new patient forms, medical history, etc….)
- Need a current PANOGRAPH for doctor review (Dr. Williams' criteria is within 6 months or had any major dental work done)
- Fill out Orthodontic Evaluation Worksheet
- Exam Setup:
    - Orthodontic Evaluation Worksheet
    - Mirror
    - Explorer
    - Anything else the doctor wants for examination (floss for midline and profile exam, ruler for overjet, etc)

Orthodontic Evaluation Worksheet



Orthodontic Evaluation Worksheet

Patient:_____ **Age:**_____ **Sex:**_____ **Date:**_____

Patient's Chief Complaint_____

Dental/Skeletal Classification

___ Class I
___ Class II ___Div I ___Div II
___ Class III
___ Bimaxillary Protrusion
___ Skeletal Appearance

Dentition

____ Primary
____ Transitional
____ Adolescent
____ Adult
___ Crowding 1 2 3 4 5
mild moderate severe
____ Spacing
____ Missing Teeth_____
____ Anomalies: _____
_____
____ Active Caries: _____
_____
____ Overbite/Overjet _____

Airway Evaluation

___ Deviated Septum
___ Allergies/Asthma
___ Venous Pooling
___ Tonsils: 1 2 3 4
___ Mouth Breathing
___ High Palatal Vault
___ Constricted Nares
___ Cloudy Sinuses
___ Snoring
___ Other:_____

Oral Conditions

___ Hygiene: 1 2 3 4 5
excellent fair poor
____ Perio _____
____ Finger/Thumb Sucking
____ Thick Frenums mx/mnd
____ Gingival Recession _____
_____
____ Tongue Thrust Swallow

Other Conditions (TMD, Limited Opening , Anomalies, etc): _____
_____
Appliance(s) Needed:_____
_____
Other Treatment To Consider– NOT Included in Orthodontic Treatment Fee:_____
_____
Additional Notes: _____
_____
Goals: _____

Treatment Information

Months in Treatment _____
Limited Treatment _____
Interceptive _____

Comprehensive Treatment _____
Phase I _____
Phase II _____

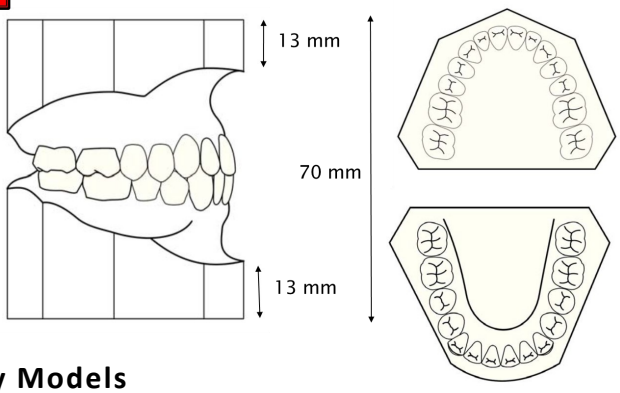
Standard of Care Records

- The records and stuff you need to properly diagnose, treatment plan and/or refer a case, and CYA!
- For your doctor to decide about whether to treat or refer, a diagnosis is required.
- And in order to make a diagnosis, your doctor must have a data base.
- **ORTHODONTIC RECORDS FILL THE DATABASE**

Records

- It is imperative quality records are taken by the practitioner.
- Records which we deem acceptable in general dentistry may not be in orthodontics.
- The following records are considered "Standard of Care" in orthodontics:
    1. Quality Orthodontic Study Models
    2. Quality Cephalograph
    3. Quality Panolipse or FMX
    4. Quality seven series or bitewings
    5. Quality Photos (8-9)

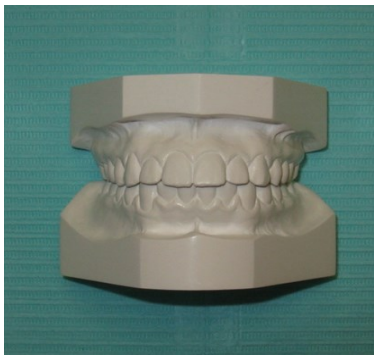
1 Proper Study Models



Impressions for Study Models

Study Models

- GOOD impressions yield GOOD models
- Polished models are best for presentation

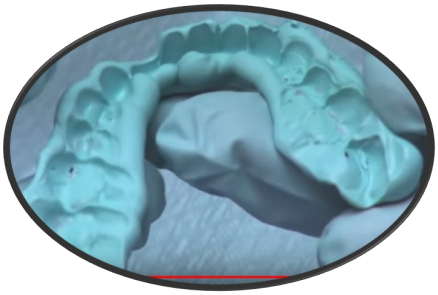


Centric Occlusion Wax Bite

- No coverage on anterior teeth, you must see the patient fully bite down
- Place wax at or distal of the upper cuspids
- Wax bite or blue bite





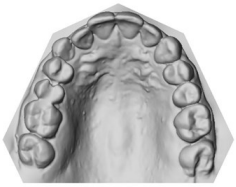
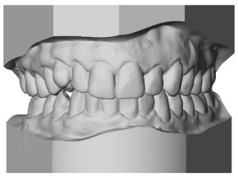
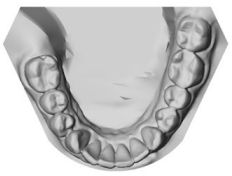


Most labs today are requiring blue bite arch forms instead of wax. Wax can deform or even melt in transit.

Digital Models

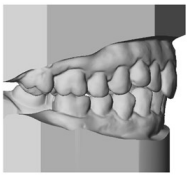
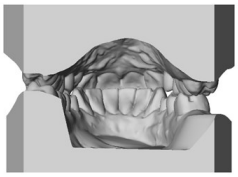
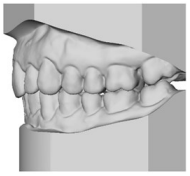
- ICAT

Johns Dental Lab

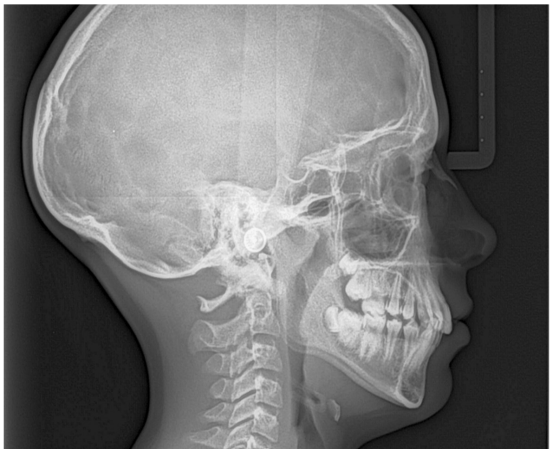




DR. BRADFORD WILLIAMS

Patient ID: J10829
Name: BRIAN MERRICK
Birth date: 10/6/1975
Series: MERRICK, BRIAN (9/12/2017)

2 LATERAL CEPHALOGRAM



CEPH –Level to Horizon

GOOD

BAD

- No jewelry–(ask if they have a tongue ring or hair extensions – these have metal in them)
- Teeth MUST be touching, but not clenched
- Lips MUST be closed (relaxed, natural)
- Occlusal plane must be parallel to the floor
- Ear pegs must be at the upper most point in the ear canal (almost like you could lift the patient off the floor)
- After processing the ceph, you must be able to see all the soft tissue in the profile (forehead, nose, lips, chin)
- If you do not take your own Cephs, you will still need to verify the radiograph is of good quality so the doctor can trace and diagnose the case accurately.

3 PANORAMIC RADIOGRAPH

PAN or FMX

- Taken at Consultation – check time frame
- No jewelry – yes, ask if they have a tongue ring or hair extensions – these have metal in them.
- Flat Occlusal Plane
- Do not cut off the chin bone
- No Frowns or Smiles

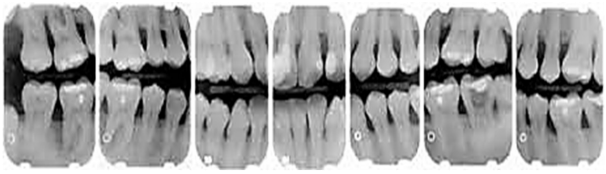
GOOD

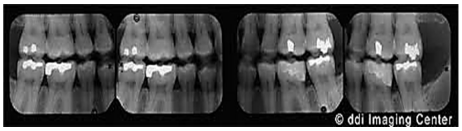
PAN

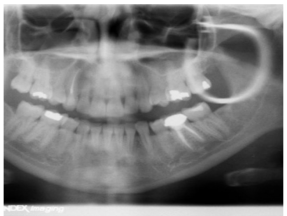
FROWN

BAD

4 QUALITY SEVEN SERIES OR BITEWINGS





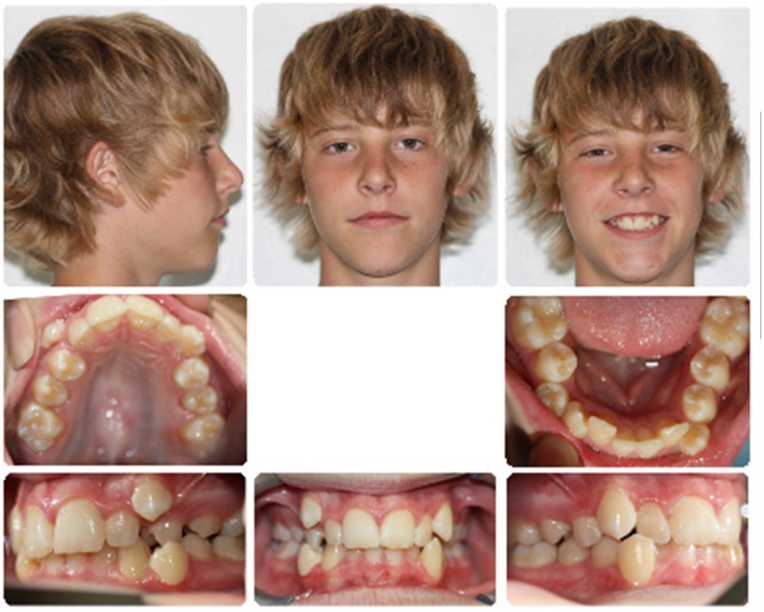


SMILE

Other Radiographs

- 7-Series or Bitewings
    - Standard of care
- Transcranial
    - For treating or following TMD or TMJ
    - CYA

5 QUALITY CLINICAL PHOTOGRAPHS



Suggested Additional Records– Not Standard of Care:

- Quality Transcranial Radiograph or Tomogram of TMJ
- TMJ Examination
- Airway evaluation (Tonsils and Adenoids)

Forms necessary to have within your patient record:

- ***Traced*** Cephalogram with an analysis
- Diagnosis
- Treatment Plan
- Consent to Treat and Information Forms (Signed)
- Signed Financial Arrangements
- Standard of Care Records
    - Ideally these records are taken initially and post-treatment.
    - We are judged according to the records we take.
    - Good records lead to thorough diagnosis and treatment planning, and in turn to good orthodontic care.

Chairside Analysis- Doctor or Assistant?

You may elect to have your assistants make these observations prior to your first contact with the patient:

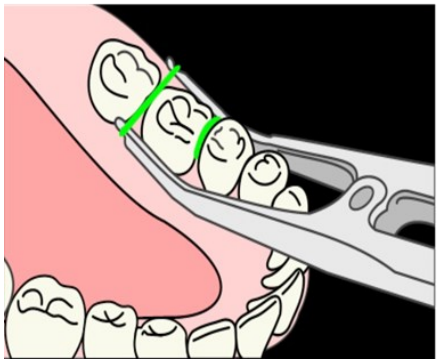
(Most doctors will want to do this themselves at the Consultation appointment)

- Review patient medical history
- Check tonsils (scale of 0-4)
- Verify if any allergies or sinus conditions
- Check midline with floss
- Measure maximum opening (upper incisal to lower incisal edge)
- Measure lateral movement – to both left and right sides
- Check for deflection/deviation when opening and closing
- Note any popping or clicking of TMJ (ask pt if there is any discomfort or locking of jaws)
- Anything else the doctor may want the assistant to look for.

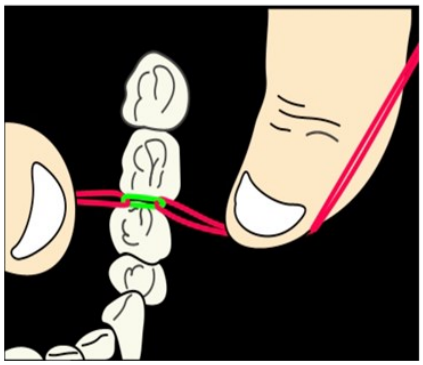
Starting Treatment

- Discuss instructions and care for separators
    - No flossing where separators are placed
    - No chewing gum
    - Banding appointment could be scheduled in 1-2 weeks depending on how tight the contacts are
- Take additional pictures (occlusal only) indicating placement of separators

Getting Started: Placing Separators

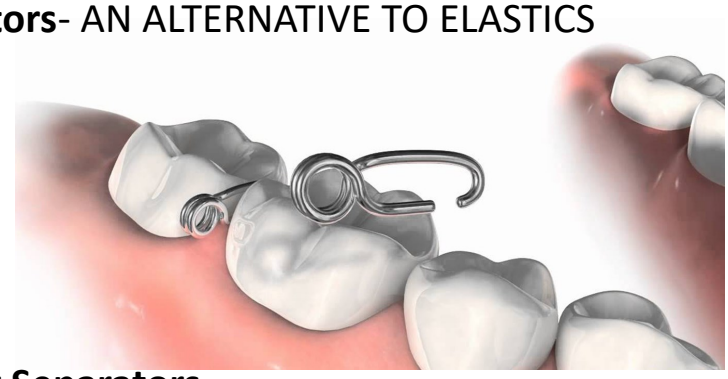


Placing a separator with a separator placement instrument. A good trick is to lubricate the separator with topical. It allows the separator to slide between the teeth and numbs at the same time to ease the slight discomfort created by this procedure.



Another way to place the separator is to thread two pieces of floss in the separator, and "floss" the separator into place.

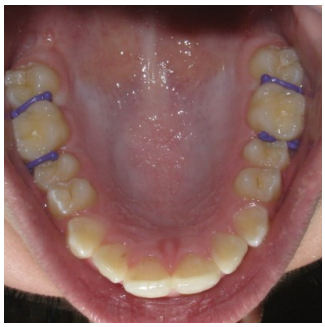
Metal Separators- AN ALTERNATIVE TO ELASTICS



Guidelines for Separators

- Separators should be placed about 48 hours prior to banding in children, ie: Phase I
- Should place at least 3 days in advance in adolescents
- Can take up to 5-7 days for patients with extremely tight contacts
- Band first molars at 1st appointment and place separators to band the second molars at the next appointment, if fully erupted

Photos for Separators & Initial End-on-End Anterior



Orthodontic Treatment Flow Sheet

Start Filling This Form Out At Consultation

Patient:_____ Age:_____ Date:_____

1st Contact– Phone/Office

Appointment # 1: Consultation (complimentary)

____ Consultation with Adult Patient/Minor Patient WITH Parent or Guardian with Doctor & TC
____ Complete Orthodontic Consultation Worksheet (give to doctor for tx planning after workup)
____ General Dental Tx Plan Generated PRN
____ Schedule Work-up (to decide to treat or refer)

Appointment #2: Diagnostic Work-up (Initial Records)

____ Chairside Analysis
____ Study Models
____ Panoramic Radiograph
____ Four Bitewings Radiographs
____ Diagnosis Worksheet (to be completed by doctor)
____Digital Photos (9)
____ Centric Occlusion Blue Bite
____ Cephalometric Radiograph
____ TMJ Screening (Pain or Popping)
____ Collect Records Fee
____ Schedule Case Presentation

Appointment #3: Case Presentation

____ Review Treatment Plan with Adult Patient/Parent or Guardian– treat or refer
____ Sign Contract & Consent Form
____ Schedule Band Spacer Appointment

Appointment # 4: Placement of Band Separators

____ Collect Total Amount of Ortho Fees Remaining
____ Placement of Separators for 1st Molar Bands

Appointment # 5: Band & Bracket

____ Impression for Appliance, if needed Type of Appliance Used: _____
____ Brackets Used (Manufacturer & Prescription):_____
____ 1st Molars Bands Used (Manufacturer & Size):_____ UR____ UL____ LR____ LL___
____ Initial Wire Placed: Size_____
____ Separators placed for 2nd molar bands, if present
____ OHI – Brushing Instructions
____ Ortho Care Package – New Patient Kit
____ Home Fluoride/Sonicare Dispensed

Appointment #6 Band 2nd Molars, if available

____ 2nd Molar Bands (Manufacturer & Size):_____ UR____ UL____ LR____ LL___

Completed Case: Final Records and Deliver Retainers

____ Chairside Analysis
____ Study Models
____ Panolipse Radiograph
____ Four Bitewings Radiographs
____ Upper Retainer Delivered
____ Fluoride Treatment
____ Digital Photos (9)
____ Centric Occlusion Blue Bite
____ Cephalometric Radiograph
____ TMJ Screening (Pain or Popping)
____ Bonded Lower 3x3 - Lower Retainer Delivered
____ Retainer & Post Care Instructions

Date Treatment Completed: _____

Camera Information & Mirror Photography

Camera Information & Settings

There are too many choices out there to talk specifically about one camera. So these are general guidelines that may help get started.

Dental camera we like is from Rick Spaulding. Contact him at Rick@rickspaulding.com.

Camera Choices

CliniPix 123-EZ


Canon Digital Wireless T6i


Canon 70D


Canon Digital Rebel T6


NIKON D3100

Flash Options

- Ring flash
- Wireless Ring Light
    - May not be available on all models
    - Can be fussy
    - Can eat up battery life
    - Positive – no cords/wires
- Fixed point flash with or without diffusers
    - Easy to use with 1 staff member
    - Use 1 handed
    - Point & Shoot

Direct Connect or Removable Memory Card

- Direct Connect
  - Most newer cameras can connect directly to the computer using a USB cable
  - This ties up the camera until the files are downloaded
- Removable Memory Card
  - Can have multiple cards or
  - Each employee can have a card
  - Remove the card to upload the files
  - Frees up the camera for continued use
- Wi-Fi Memory Cards
  - Becoming more popular
- PROS:
  - Sends the pictures directly to a folder on your computer from the camera
  - Saves time from transferring/uploading pictures manually
- CONS:
  - You must have internet connection
  - May be slow, depending on the number of users on the internet
  - Depends on the number of cards in use at one time

Settings

ISO Setting:

- Determines the sensitivity of the image sensor to light
- The lower the number the less sensitive to light and the finer the grain in the image
- ISO 100 is viewed as normal

➡ F-Stop:

- This determines the amount of light that passes through the lens
  - The larger the number the small the hole – the smaller the range to focus (narrow depth of field)
  - The smaller the number the larger the hole – the larger the range to focus (larger depth of field)

➡ Point and Shoot Cameras:

- Use the 'Flower' or Macro setting
- F5.6 for facial pictures
- F8 for intraoral pictures
- Do not turn the camera from landscape to portrait. Take all pictures in the same format

Settings, continued

DSLR Cameras:

- Use “M” and 60-100 shutter speed
- F5 for facial pictures
- F25 - F32 for intraoral pictures
- Do not turn the camera from landscape to portrait. Take all pictures in the same format.

Misc Settings:

- If available, WHITE BALANCE should be Automatic
- If using a light box, patient should be 18 – 24 inches from the light
- If available, turn off digital zoom

Focus Options

- Definition of Focus (Merriam-Webster)
  - A point at which rays (as of light, heat, or sound) converge or from which they diverge or appear to diverge; specifically :the point where the geometrical lines or their prolongations conforming to the rays diverging from or converging toward another point intersect and give rise to an image after reflection by a mirror or refraction by a lens or optical system
- Automatic – Auto Focus – AF
  - Most common
- Manual Focus – MF
- Depth of Field: (Merriam-Webster) What are you focusing on?
  - The range of distances of the object in front of an image-forming device (such as a camera lens) measured along the axis of the device throughout which the image has acceptable sharpness
- Pearls:
  - Do not use any dental chair lights for extra lighting
  - Do not turn the camera from landscape to portrait. Take all pictures in the same format.
  - There must be contrast to for the AF to work properly
  - The upper/lower occlusal pictures make the AF function poorly
    - Focus on the teeth and get a green focus box and then move the camera to center your shot - without letting go of the button and losing the green focus box.

Clean Camera

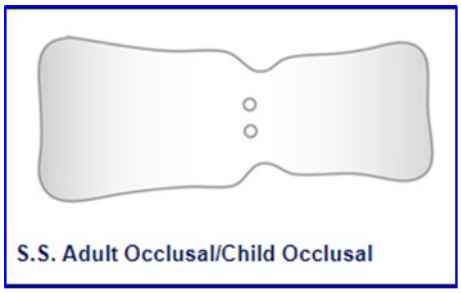
- Ideally, there should be 2 staff members assisting in pictures – at least for the intraoral pictures
  - One staff member will take the pictures – no gloves
  - Ones staff member will hold the mirrors and retractors - gloves

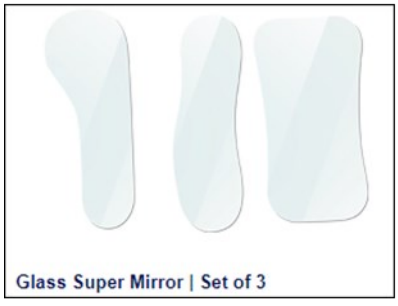
Clean Camera, continued

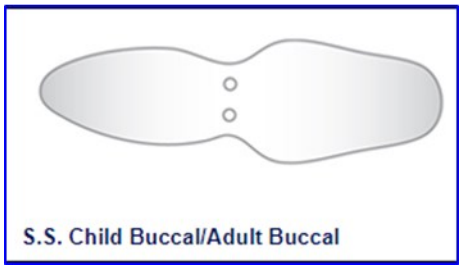
- In a real situation, only 1 staff member is available for all the pictures
  - Have the patient help assist when possible by holding the retractors and mirrors
  - One staff member will take the pictures using 1 GLOVED hand and 1 UN-GLOVED hand
  - Never use the camera using a gloved hand
  - The gloved hand is for helping the patient take pictures or holding the patient's lips back, the retractors or the mirrors.
  - Never take pictures with an UN-GLOVED hand in the picture, even if it is the patient's fingers/hand

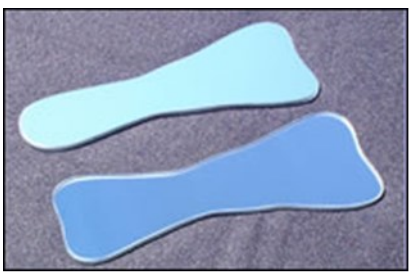
Mirrors

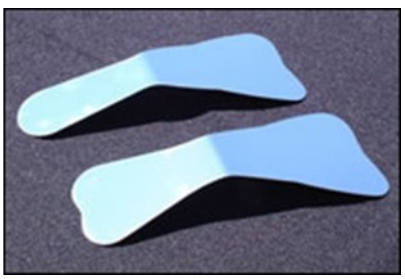
- There are a variety of mirrors to choose from
  - Flat vs Angled
  - Stainless Steel vs Glass
  - Pedo vs Adult or Combo
- Be aware that mirrors are fragile and can scratch easily. Scratches can cause the AF to focus on the surface of the mirror (the scratch or scratches) instead of the patient.
- Follow the manufacture's sterilization protocol.
  - Some may be autoclavable
  - Some may require heat sterilization
  - Others may require cold sterilization only
- To help with fogging
  - Place mirrors in a alginate bowl with warm water
  - Use a heating pad to store the mirrors
  - Keep a small crock pot of warm water available





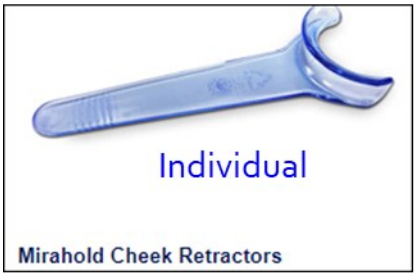






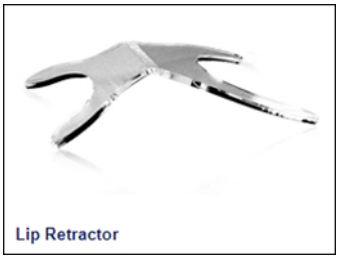
Cheek - Lip Retractors

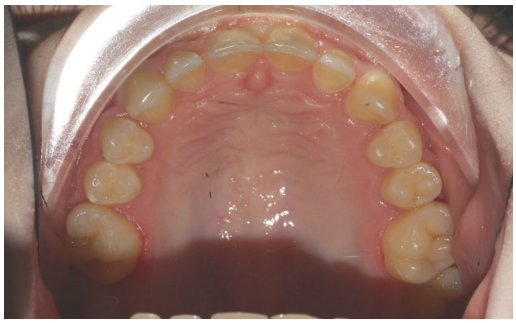
- **Cheek Retractors for Mirror Photography**
  - Must fully retract lips away from teeth
  - Make sure the correct size is being used to accomplish this
  - Patients can hold the individual retractors
    - Multiple Sizes
    - Single or Double Ended
  - Assistants will place the connected retractors
    - Multiple Sizes



- **Cheek Retractors for Bracketing Teeth**
  - 2 sizes for Adults or Pedo
  - Can be used to bracket entire arches upper & lower, 5-5
  - Tab on the outside by the cheek to pull back towards the ear for more room

- **Lip Retractors for Mirror Photography**
  - Used instead of gloved fingers to retract
  - Used to retract the lips and cheeks around the entire arch, not just the anterior portion
  - Better pictures for Initial or Final Records





Upload Pictures

- Assign a staff member to be responsible for the uploading of all pictures.
- This can be a time-consuming job depending on how often pictures are taken in your office.

Must have some sort of system or software to manage all the photos and time points for each patient.

- Dolphin Imaging System works great for this
  - Allows you to create timepoints
  - Manipulate pictures
  - Create a case presentation and print professional layout of the photos
- File folders on your server with the patient's name and a folder for each timepoint under that
  - Can do minor manipulation with pictures using programs like Paint or Windows Photo
  - More difficult to create a case presentation or print a layout of the photos
- If you can manipulate using software
  - Pictures should be taken a little further away
  - You want the ability to be able to rotate or zoom in or out on your pictures
  - After editing, pictures should fill up the screen (no lips, nose, fingers, eyelashes, etc)
- If you cannot manipulate photos
  - Pictures need to be taken ZOOMED in
  - Pictures need to be taken STRAIGHT, no rotations can be made
  - Almost perfect since alterations cannot be made

Mirror Photography

Initial Records

Facial Pictures are taken in front of a blue/gray screen

- Frontal Facial – No smile
- Frontal Facial – NATURAL smile
- Profile–Teeth together, lips closed, occlusal plane level
- Cheek retractor
  - Regular bite
  - **End-on-end**
- Upper Occlusal
- Lower Occlusal
- Left-side bite
- Right-side bite

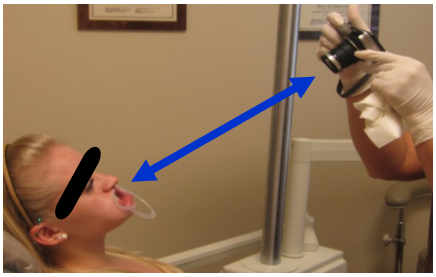
- Make sure you can see the patient's ear and eyelash on the profile picture
- No glasses or hats on—take them off

Facial Pictures

Profile No Smile Smile

Cheek Retractor Pictures

- Use appropriate size retractor to fully expose teeth and gums
- Do not get too close to take the picture about 10-14 inches is ideal
- Patient should be able to fully bite down comfortably WITH their lips rolled out
- Should be able to see the first molar hooks on both sides
- Patient should pull their tongue back – don't want their tongue peeking through the occlusion
- Picture should be taken at teeth level otherwise patient will appear to have an overbite/overjet
- If patient is wearing anterior elastics, take this picture last (this will save time, so patient is not taking off or putting on elastics multiple times)

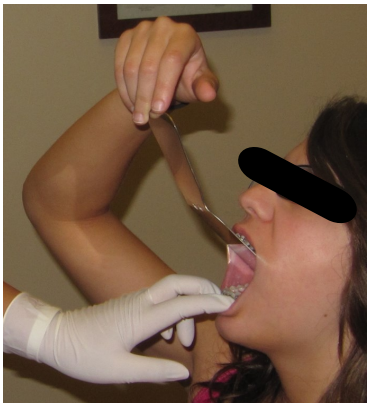


Upper Occlusal

- Patient should open as wide as possible
- Patient needs to relax cheeks/lips
- Insert mirror side-to-side, one corner at a time
- Rest mirror completely on lower arch
- Make sure all upper teeth are seen, including LAST molars
- Hold upper lip back to expose anterior teeth at the canines, without gloves/fingers covering the teeth
- Use retractors instead of fingers for better retraction
- Do NOT cut off anterior brackets
- Ask patient to relax their tongue
- Chin up for more light, if there are issues focusing
- Lower patient chair, if necessary

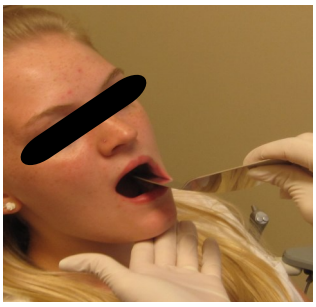
Lower Occlusal

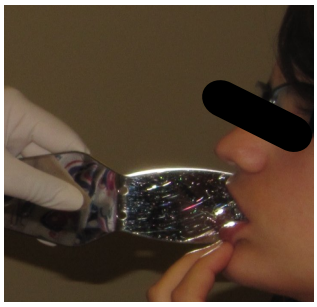
- Raise the chair up, if needed (this will save your back)
- Patient should open as wide as possible
- Patient needs to relax cheeks/lips
- Insert mirror side-to-side, one corner at a time
- Rest edge of mirror distal of last lower molars and on the upper anteriors
- Make sure all lower teeth are seen, including any erupting molars
- Hold lower lip back to expose anterior teeth at the canines, without gloves/fingers covering the teeth
- Use retractors instead of fingers for better retraction
- Do NOT cut off anterior brackets
- Ask patient to pull their tongue back (behind mirror if possible)



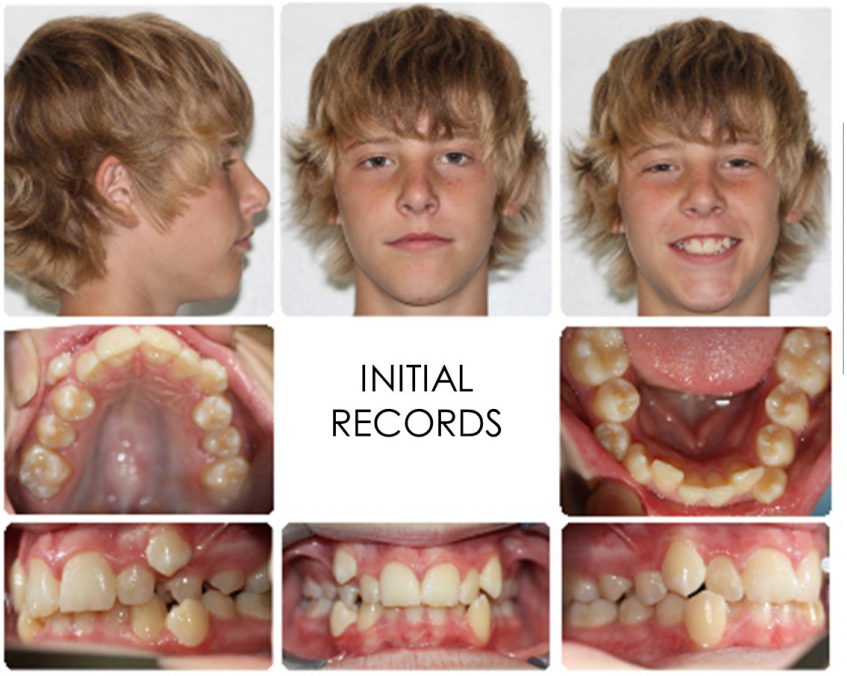
Buccal - Left / Right Side

- Have patient open wide to insert the mirror at an ANGLE
- Position mirror in the vestibule as far back as possible
- Make sure you are NOT resting on the jawbone
- Ask patient to relax cheeks/lips, this will make it more comfortable
- Pull the most distal part of the mirror outward
- Swing the anterior part of the mirror outward as well, while maintaining the distal hold (if you release the distal hold during this picture, it will feel like the mirror is stabbing the jawbone)
- Ask patient to bite down on their back teeth and pull their tongue back





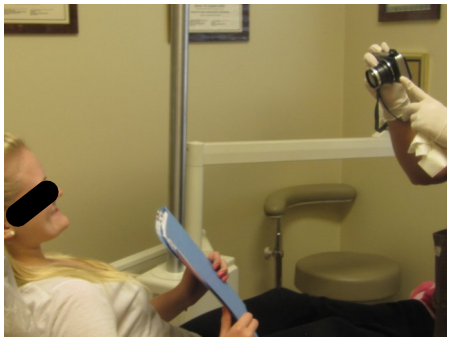
Initial Records



End-on-End

Appointment Pictures

- In Chair, Identification only
  - NATURAL smile
  - Profile
- Cheek retractor
  - Regular bite
- Upper Occlusal
- Lower Occlusal
- Left-side bite



Final Records

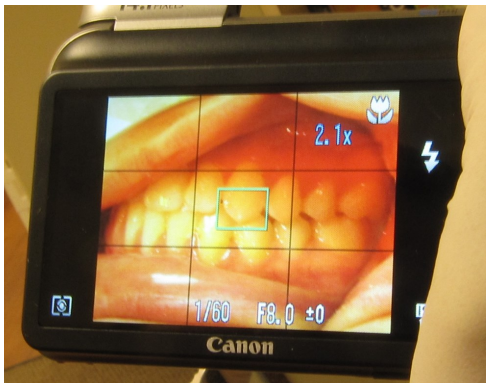
Facial Pictures are taken in front of a blue/gray screen

- Frontal Facial – No smile
- Frontal Facial – NATURAL smile
- Profile Teeth together, lips closed, occlusal plane level
- Cheek retractor - 2x (with & without retainer)
  - Regular bite
- Upper Occlusal – 2x (with & without retainer)
- Lower Occlusal - 2x (with & without retainer)
- Left-side bite - 2x (with & without retainer)
- Right-side bite – 2x (with & without retainer)

Final Records - Retainer Pictures

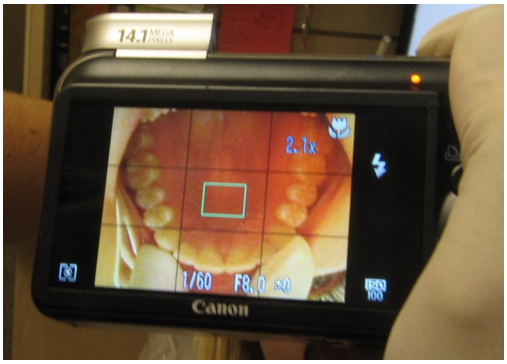
Let's Look at What You Will See

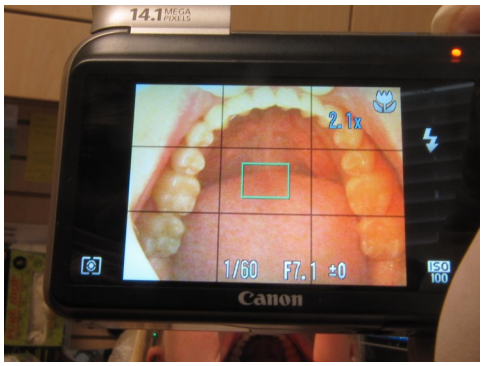
- Occlusal Plane must be level, in center of screen
- Your mirrors should always be parallel to the teeth AS WELL AS the camera parallel to the mirrors. You do not want the patient to APPEAR to have an overbite/ overjet or open bite



Camera Settings

- Use Grid- if available
- Center the arch
- Green box- means it is in focus





Photography Pearls

- Be consistent with the order in which you take photos
- It will save time for whomever is "loading" all the pictures for the day. Consistency is the key.
- Make sure you have a solid background on initial/final facial pictures
- Make sure you can see the patient's ear and eyelash on the profile picture
- No glasses or hats on - take them off
- Do not use the dental chair light for any pictures
- Cheek retractors will go in the mouth more easily when they are wet
- Be careful not to hit brackets when placing the mirrors in the mouth. This will scratch the mirrors or knock off a bracket, not to mention, startle the patient
- Always pay attention to the angle of your mirrors and camera. You do not want the patient to APPEAR to have an overbite/overjet or open bite
- Your mirrors should always be parallel to the teeth AS WELL AS the camera parallel to the mirrors
- Place mirrors in an alginate bowl with warm water or heating pad to prevent fogging

General Camera Settings

These work best with a point and shoot camera. However, start with these setting or refer back in this section on other settings that may help.

Mirror Photography
Quick Reference Instructions

Using: Clinipix Cannon PowerShots

PATIENT PHOTOS

- Dial MUST stay on AV for all photos
- Flash ON for ALL pictures
- Must have the FLOWER ON (Macro) for ALL pictures
  (Press left side of dial to select)
- Facial Photos: F-Stop at 5.6
  (Move dial in a circular motion to change)
- Intraoral Photos: F-Stop at 8.0
  (Move dial in a circular motion to change)

DO NOT CHANGE ANYTHING ELSE !!!

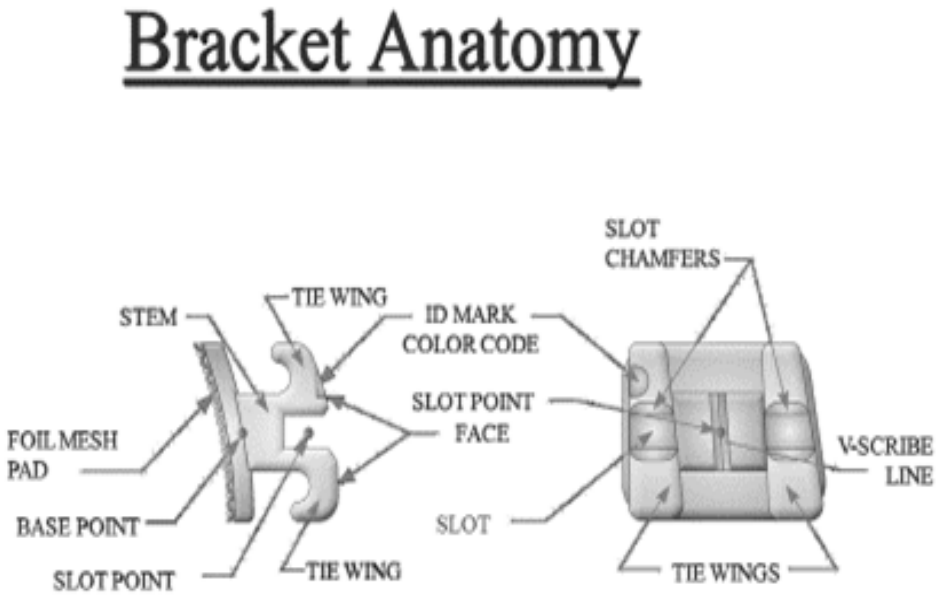
ORDER OF PICTURES

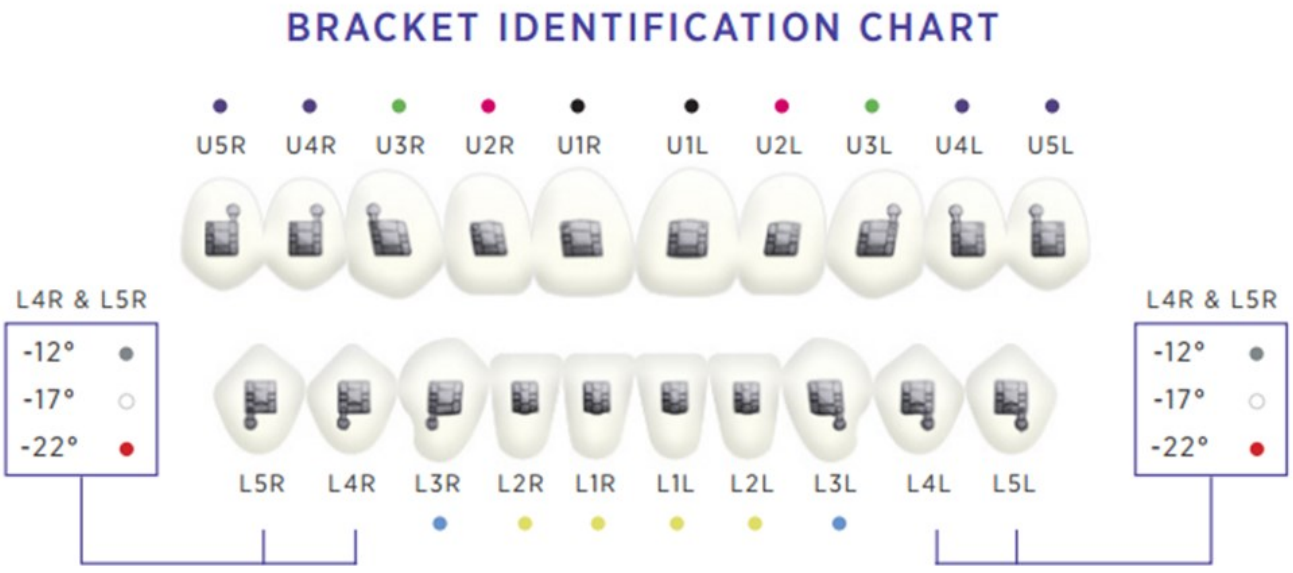
- Front Facial - Smiling, in chair
- Profile Facial - No smile, in chair
- Cheek Retractors - Biting down, Intraoral
- Upper Occlusal, Intraoral
- Lower Occlusal, Intraoral
- Patient's LEFT side Intraoral
- Patient's RIGHT side Intraoral

Straight Wire Series
Bands & Brackets

Straight Wire Mechanics

Anatomy of a Bracket





Twin Tie Wings:

Horizon Mini Twin

- Full-radius low-profile design
- Color coded ID marks
- Rhomboid design parallels tooth angulation
- 80 gauge foil mesh pattern for stronger bond
- One piece metal injected molded
- Individual mesial distal widths provide optimal rotation control
- Smooth, rounded edges for patient comfort
- Precise in/out alignment
- Compound contoured / torque-in-base

Porcelain:

Nova Clear Sapphire

- Single crystal sapphire material for a crystal clear appearance
- Highly polished surface reduces friction in sliding mechanics
- Compound contoured base to fit tooth properly
- Twin tie wing designed for easy ligation
- Removeable color coded identification
- Low profile and smooth, rounded edges for patient comfort
- Crunch grip mechanical lock base for optimal bond strength

Self-Ligating:

Nustar SLB

- Smooth surfaces and low profile design
- Metal injection molded stainless steel construction
- Click fit locking door to secure archwire
- Exacting tollerances in the low friction four wall design
- Rhomboid shape helps to place bracket accurately
- Comfort hooks are available on cuspids and bicuspids
- Beveled archwire slots enhance sliding mechanics
- Compound contoured base design precisely fits tooth
- 80 gauge mesh base improves bond strength

Molar Brackets:

Fluted Buccal Tubes

First Molar Bracket

Second Molar Bracket

- Positioning recesses assure a firm grip during bonding
- Buccal indent for accurate placement
- 25% smaller than standard single tubes
- Low Profile design and smooth contours
- Funneled opening helps giude the wire into the tube
- Compound controured base to maximize the perfect fit

1st Molar Bands:

Buccal

- Convertible Bracket Slot with Hook

Lingual

- Lingual Sheath
- Lingual Cleats

2nd Molar Bands:

- Must have a Buccal Slot with Hook
- Optional to have lingual attachments - with or without Seating Lugs or Cleats

Understanding Banding Molars

- Similar to Seating Stainless Steel Crowns
- Use Crimping Plier and/or Crown & Bridge Scissors, if necessary
- Band Height - difficult to measure, just make sure there is clearance, and the band is level
- If using Hooks or Lingual Cleats, these need to be prepped prior to cementing
- Honestly, just get them on. As long as there is equal tooth structure all around the tooth and the patient is not hitting metal. All is good.

Understanding Bracket Placement

- **Most Important things to look at:**
    - **Bracket Height** (where it sits between the incisal edge and the gumline) – good news, this is done by using the Bracket Height Instrument.
        - Look for “Stair-Stepping” brackets towards the distal. Visually there will be less and less cusp tip going distal.
    - **Mesial-Distal** (where it sits between the mesial and distal of the tooth) – this is done by eye-balling it. Use the incisal edge view to look up or down the tooth. Check to make sure there is the same amount of tooth structure mesial of the bracket as there is distal of the bracket.

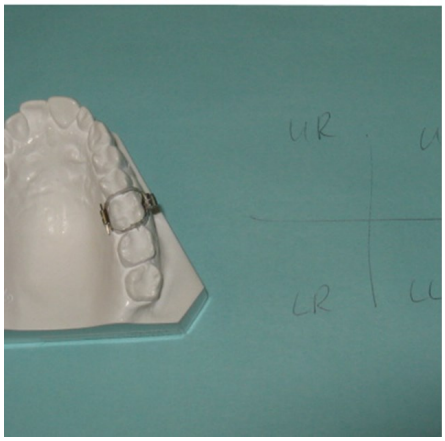
Bracket & Banding Techniques

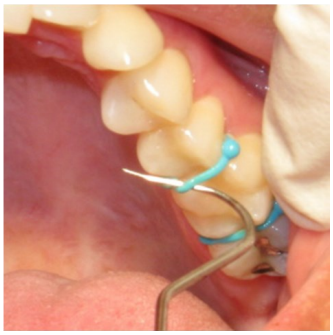
- Most methods are very TECHNIQUE SENSITIVE
- Know YOUR produce and its procedures
- Brackets & Bands CAN be placed on porcelain or crowns using Silane & Porcelain Etch
- Glass Ionomer adhesive is best to use. It allows for a little moisture. Ultra Band Lok by Ortho Arch is great to use.

Straight Wire Mechanics

Banding & Bracketing Techniques

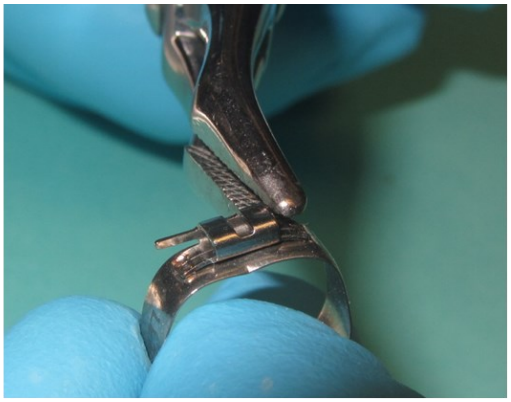
Banding Techniques





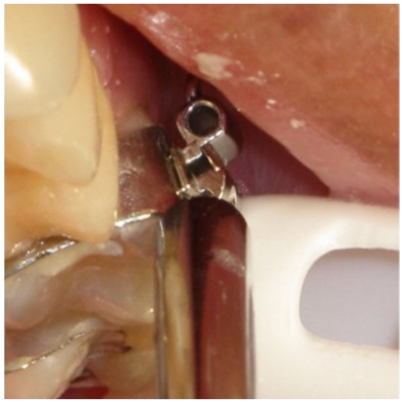
Fitting The Bands

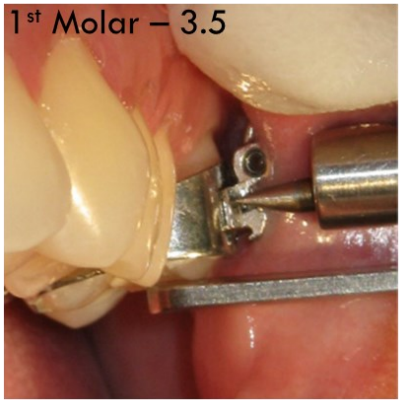
Preparing The Bands

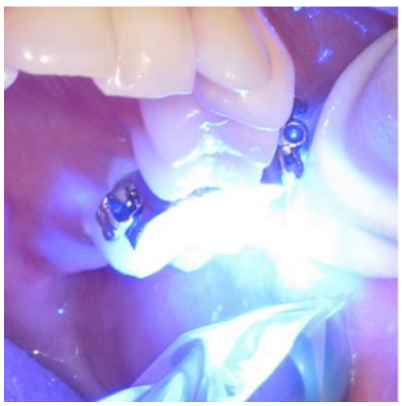


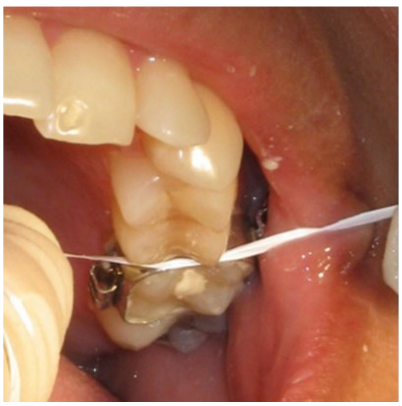
Seating The Bands

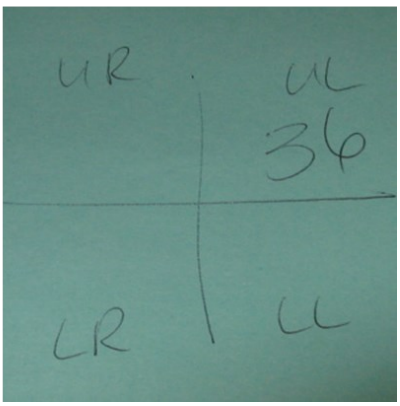
Seating The Bands



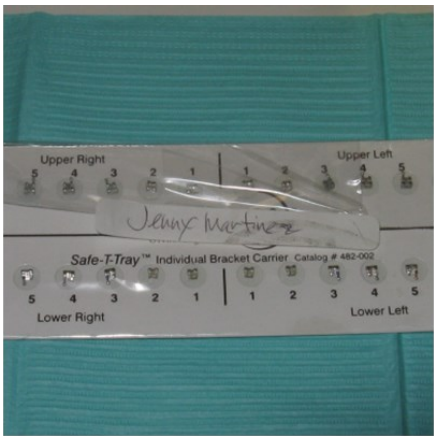




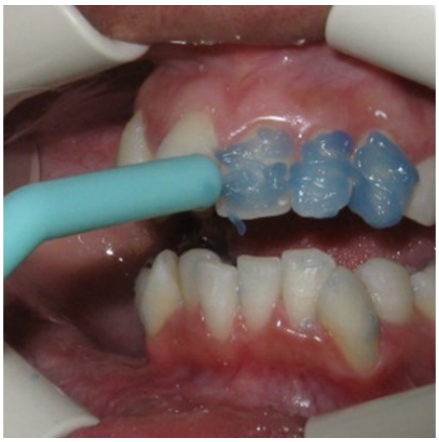




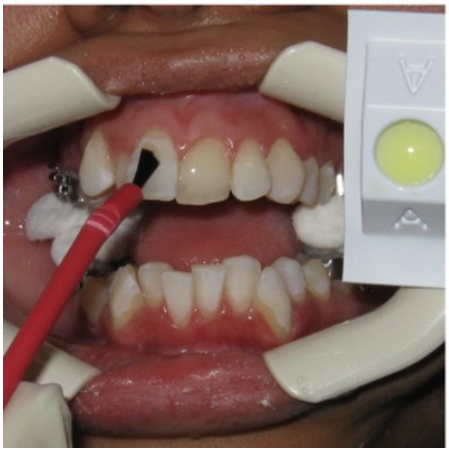
Bracketing Techniques



Prepping The Patient

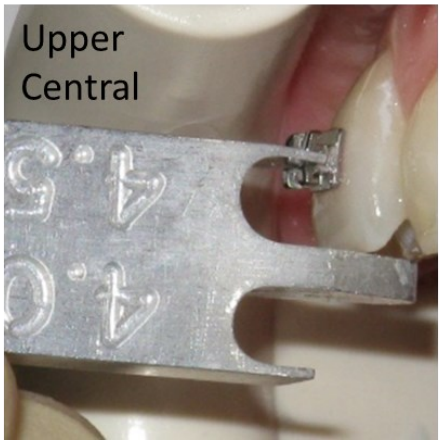


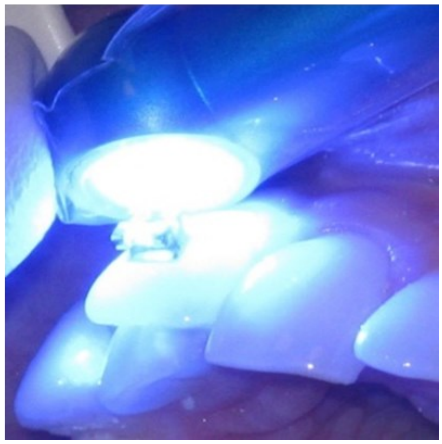
Prepping The Patient

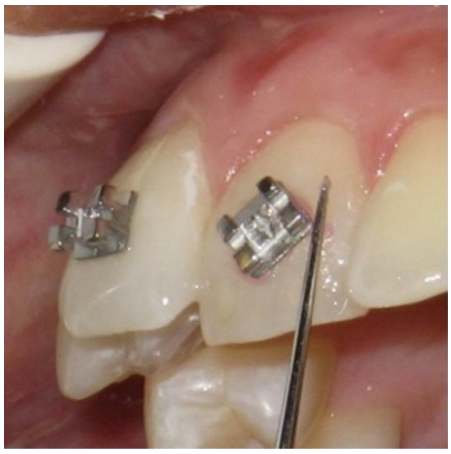


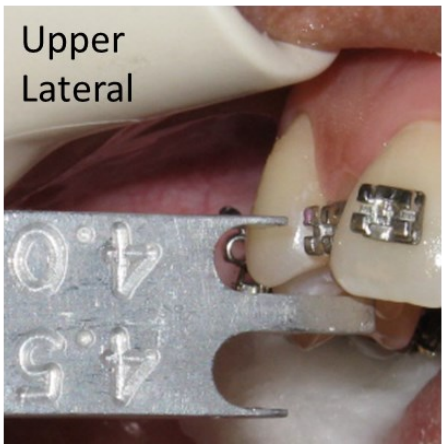
Positioning The Bracket

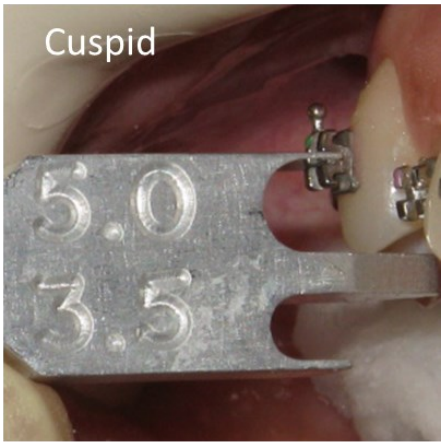
Positioning The Bracket - Upper

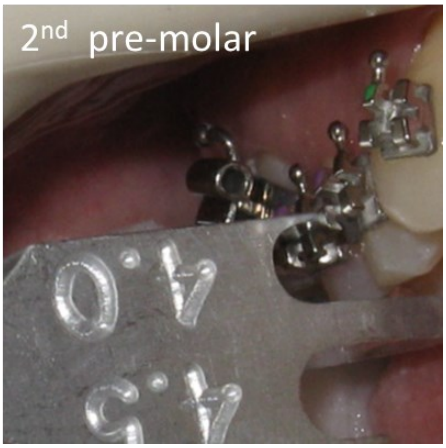




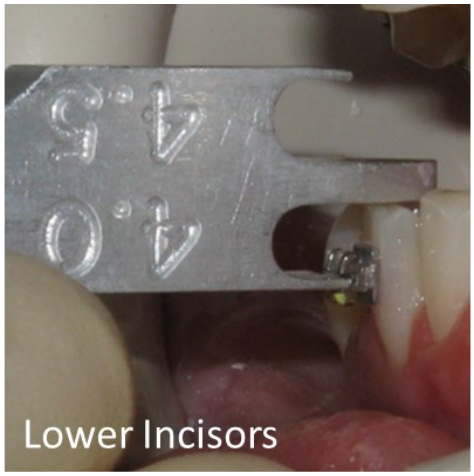


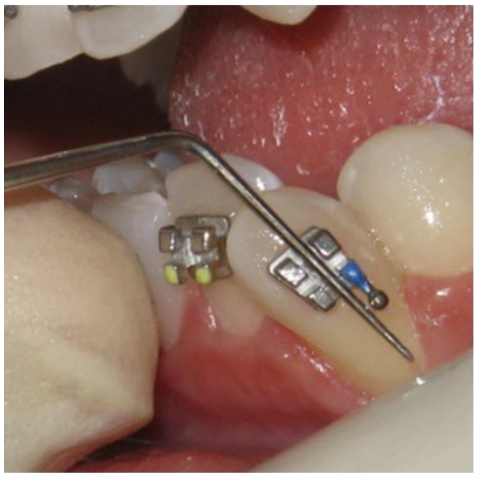


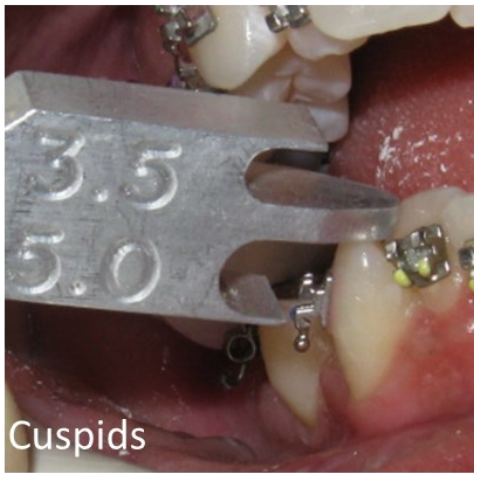




Positioning The Bracket - Lower

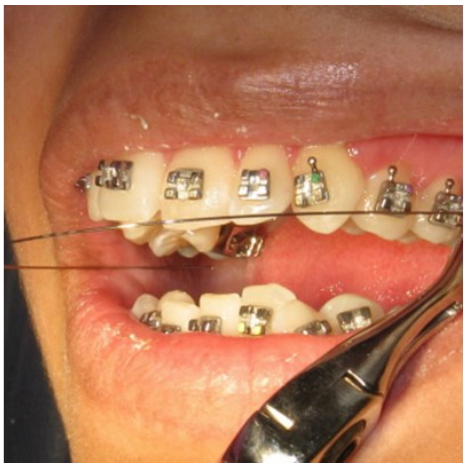


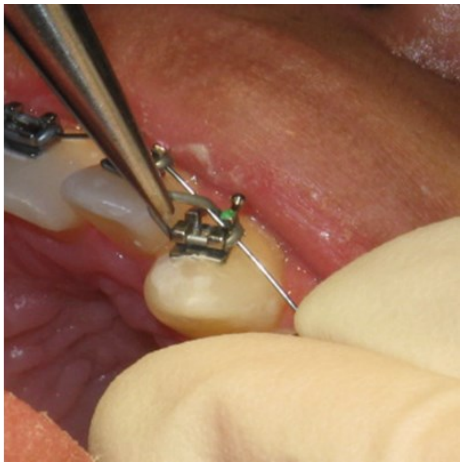


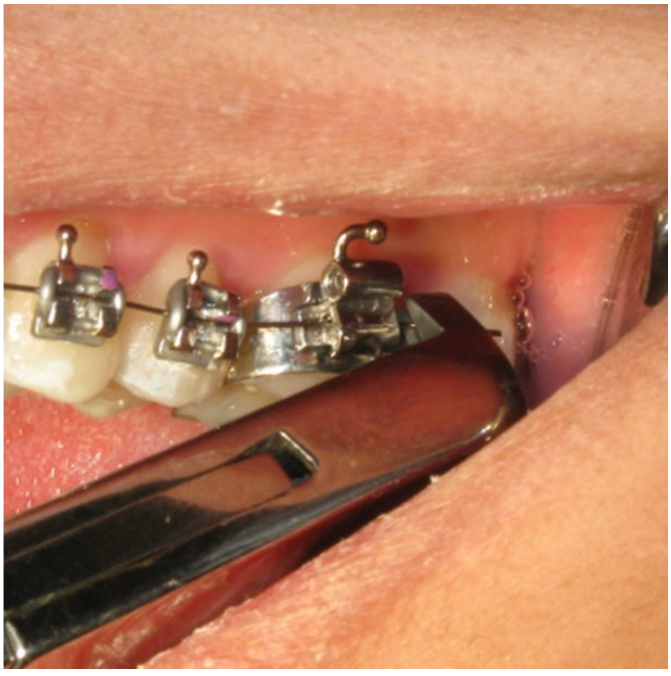


Bracket Clean-Up

Wire Placement







Composite Pads - Build Ups—For Bracket Interference ONLY

Composite Pads - Build Ups

Ligation Methods

Ligation Methods

- Glide Ties
- Metal Ligature Wires
- Power Chains

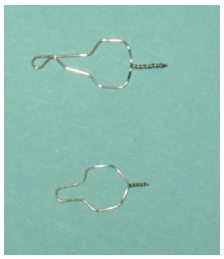
Glide Ties

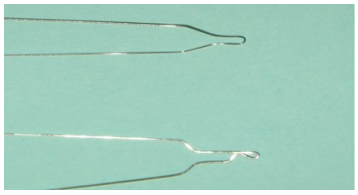
Also known as:

- Donuts “Ds”
- Alastics
- O’s
- Safe-T-Ties

Can be placed:

- Around 2, 3 or 4 tie-wings
- Figure 8
- Looped around hooks to secure appliances
- Threaded through a wire to catch a bracket
- “Bruised” or stretched if needed





Metal Ligature Wires

Regular & K-Ties

Comes in 2 types:

- Shorties (already cut and twisted)
- Long (2 legs and opened at one end)

Comes in 2 sizes:

- .010 Stainless Steel
- .012 Stainless Steel

Power Chains

Comes in 3 lengths

- Short**
- Continuous*
- Long

Used to:

- Close spaces
- Rotate teeth
- Hold appliances in place

Misc Methods

- Floss
- Elastic Thread

These are great for pulling a tooth to the wire when the wire cannot reach the tooth.

Phase I Wire Series

Phase I

Interceptive, Mixed Dentition, Early Treatment

UTILITY ARCHWIRES (UAW)

'WIRE SERIES'

POSTERIOR portion on all UAW wires are

.016 x .016 Stainless Steel

ANTERIOR portion of each UAW wire is available in…

.016 Nitinol

.016 x .016 Stainless Steel

.018 Nitinol

.016 x .016 Nitinol

(Sizes 28, 34, 38)

Included in UAW Kit

Care of Braces & Chart Completion

Care of Braces & Chart Completion

Eating with Braces

- Eat, Eat, Eat & Chew, Chew, Chew
- Equal to a sore muscle, work (chew) through it
- It's a must to eat, immediately after an orthodontic appointment is a great time to eat
- If a patient "babies" their teeth, they will be more sore and will be sore longer
- Let's talk food (Do not provide a list of foods)
    - Chips
    - Apples or other hard fruit
    - Ribs or Fried Chicken (Things with Bones)
    - Nuts (SMALL Amounts)
    - Candy (Hard or Sticky)
    - Popcorn
    - Pizza
    - Gum
        - YES…patients can chew gum
        - MUST…be sugarless
- Chewing on pens or fingernails
- Ask patient if they have questions about any particular food?

Some doctors and/or office have different philosophies regarding these choices. These are suggested options that are currently been used in some practices.

Brushing & Flossing

- Braces take away a third of gum stimulation (which is what keeps gums healthy)
    - Brushing, Flossing, Eating
- Brush every time you eat (eat….get the food off….simple)
- The "danger zone" is the area between the brackets and the gum line
- Rotate the toothbrush head to a 45° angle to clean the danger zone
- Brush every tooth individually in a circular motion
- Push the bristles under wire, between brackets
- Using floss threaders, floss every day (ok..at least a couple of times a week)
- Take-home fluoride

Emergencies (or the LACK of)

There are SOME true emergencies in orthodontics, but typically they are situations that can be talked through on the phone

- Wax
- "Pig tail" Wire Poke (use a pencil eraser to push wire)
- Warm Saltwater Rinses
    - Helps to heal any irritations
    - Helps to toughen up cheeks and gums
- Sugarless Gum
- Pain Reliever (Tylenol, Advil, etc)
- Brace Relief Gel (numbing gel)

Patient Care Kit for New Patients

Chart Completion- Review, Review, Review

- Who…...worked on the patient
  - Your initials
  - Doctor
  - Both
- What…..was done at this appointment
  - Change wire
  - Re-bracket (how many loose brackets)
  - PC or Elastics
  - Note everything done, you will not remember it all
- When……will the patient return (N.V)
  - 4-6 weeks (when)
  - 30 minutes…….2 hours (how long)
  - Ortho Check……Bracketing (what it's for)
  - Appointment……Doctor time or assistant time?
- (Sometimes) Why
  - Write down the doctor's thought process and why he is doing what he is doing (ie: holding space for implant or closing space)

Pearls

- Track loose brackets & how often it occurs
- Track POH & how often it occurs
- Track and account for "No Shows" or last minute cancellations
- These are great visuals when reviewing the chart for non-compliant patients or treatment running past estimated completion time
- All charting should be as consistent as possible
- Go back and review the treatment plan, if needed

Charting Examples

- 4/23/20 Upper/Lower 16x22/SS PC 6-6
  Class II E (2 light / side) N.V. 4-6 wks, 30 mins
- 4/23/20 Upper .014/NT with RW UL 2&4
  Lower .020/SS with OCS LL3 N.V. 4-6 wks, 30 mins
- 4/23/20 Upper/Lower 18x25/SS AC/RC, BRT, PC 6-6
- N.V. 4-6 wks, 1 hour, Repo UL4 & LL4
- 4/23/20 UAW 16x16/SS Size 34 (U) Size 28 (L)
- N.V. 6 wks, 15 mins, evaluate teeth eruption
- 4/23/20 Bracket Upper/Lower 5-5 Chg D POH/OHI N.V. 3 wks, 15 mins, eval OH
- 4/23/20 Repo UL1 & LL1 .018/NT Fig. 8 Elastics N.V. 4-6 wks, 30 mins, U/L .020/SS

Phase II Wire Series & Bracket Height Chart

Phase II

Full Dentition, Full Treatment

STRAIGHT WIRE SERIES

.012 Nitinol

.014 Nitinol

.016 Nitinol (Optional)

.018 Nitinol

.020 Stainless Steel

Round Wires

.016 x .022 Nitinol

.016 x .022 Stainless Steel

.018 x .025 Stainless Steel

Rectangular Wire

Orthodontic Straight Wire Series & Bracket Height Positioning

Orthodontic Straight Wire Series

Size	Shape	Type
.012	Round	Nitinol
.014	Round	Nitinol
.016	Round	Nitinol
.018	Round	Nitinol
.020	Round	Stainless Steel
.016 x .022	Rectangular	Nitinol
.016 x .022	Rectangular	Stainless Steel
.018 x .025	Rectangular	Stainless Steel

Bracket Height Positioning

Tooth	UPPER	LOWER
Centrals	4.5	4
Laterals	4	4
Cuspid	5	5
1st Premolar	4.5	4.5
2nd Premolar	4	4
1st Molar	3.5	3.5
2nd Molar	3	3

Williams
Basic Straight Wire Series

Straight Wire Series

SWS refers to the arch wires used throughout an orthodontic case;

- the types of metal alloy those arch wires are made
- the sizes and shapes used
- the sequence in which those wires are placed.

When it comes to straight wire orthodontics, the wire is not the star of the show. It is all about the bracket!

The Bracket is programmed, it has a Rx – fill up the bracket slot with wire – and….

Straight teeth!!

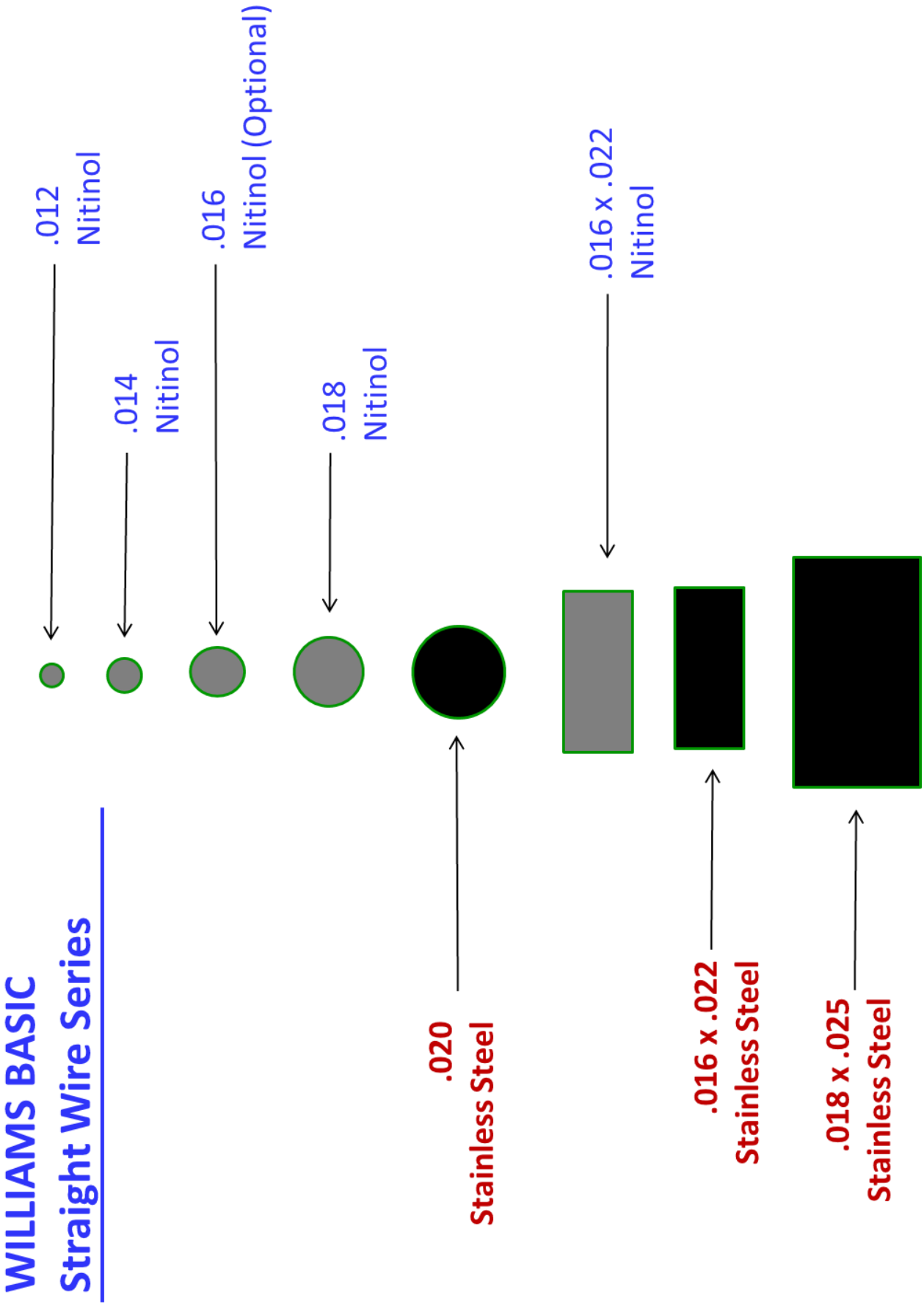
- 1st(In/Out), 2nd(Tip), 3rd (Torque) order tooth movements are programmed into the bracket slot (Rx)
- Archwire (AW) series begins with light, flexible round wires…
- Progress through a series of larger round wires…
- Increase to rectangular wires…
- Finish in a large rectangular archwire – 3rd order

NOTE: Wires are not always changed at every appointment

Wire Materials

In the Williams SWS, just two alloys:

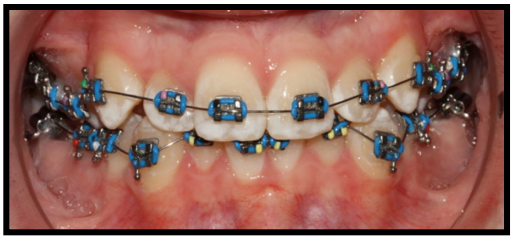
- **Nitinol (NiTi)–** memory and flexibility
- **Stainless Steel (SS)–** still the mainstream wire, slippery, bendable and strong

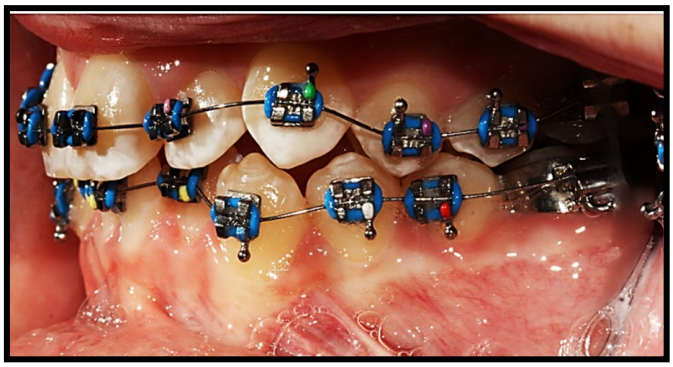


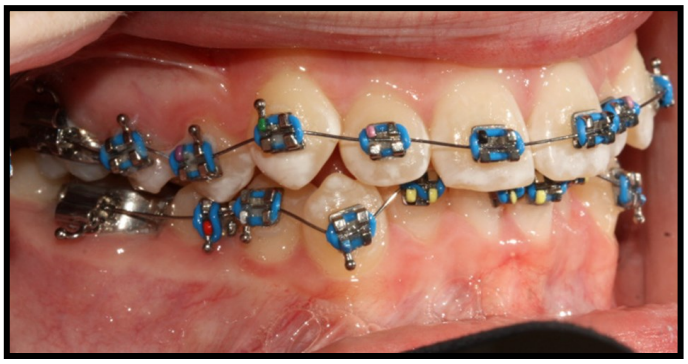
Williams SWS: Step-by-Step and Wire-by-Wire

.012 Nitinol

- Light wire
- Low force
- Acquaints patient to orthodontics
- No post-op pain
- Gets the periodontal ligaments stirred up
- Placed at initial bracketing appointment
- Can be used to rotate teeth

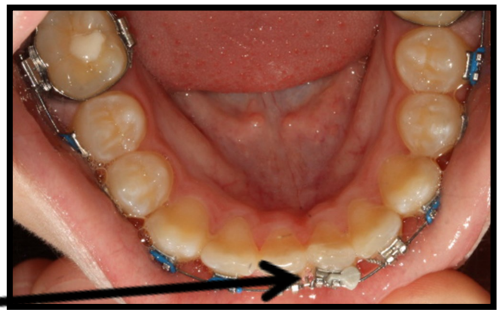






.014 Nitinol

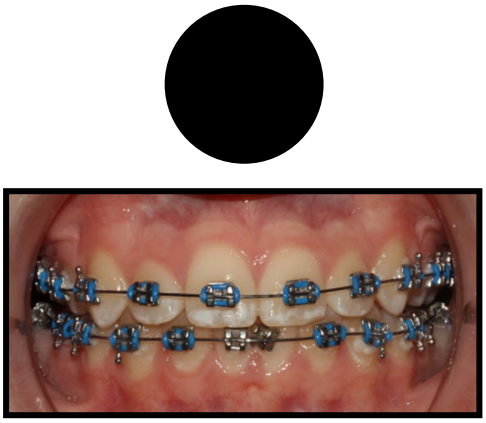
- Placed after the .012/NT has been in 1-4 weeks
- Slightly heavier force
- Still very light, low pain
- Placed when 2nd molars are banded
- Rotation Wedges are ideal with this wire
- Remains until rotations are gone



Rotation wedges

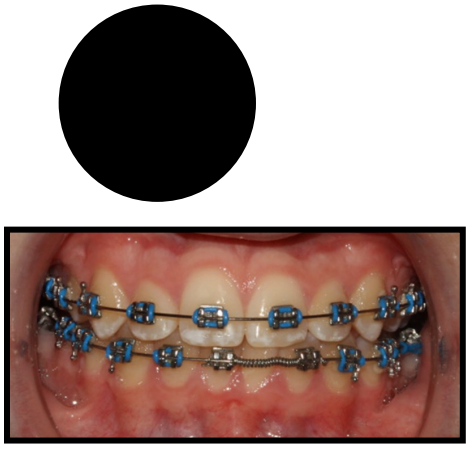
.018 Nitinol

- Placed after the .014/NT wire when rotations are out
- Twice as much force as the .014
- Great wire to figure 8 with glide ties
- Arch begins to really develop
- 1st and 2nd order moments of force begin
- Remains 1-2 months
- Great wire to return to after re-bracketing teeth



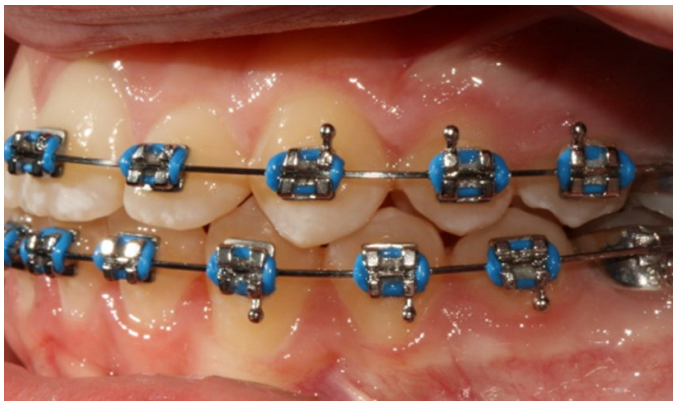
.020 Stainless Steel

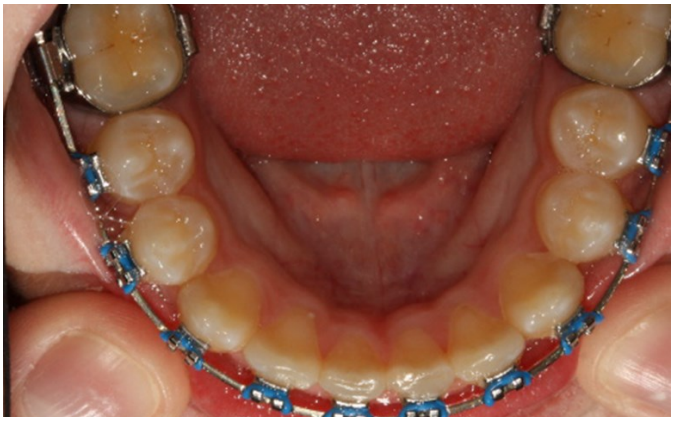
- Placed after the .018/NT wire
- First SS archwire
- Open bites with Accentuated/Reverse Curves (AC/RC) placed in the wire
- Open space with Open Coil Spring (OCS) - Nitinol
- Hold space with passive OCS or rubber tubing
- Correct cross bites with step-in/step-out bends
- Remains until you have accomplished what you wanted to do with the wire.



.016 x .022 Nitinol

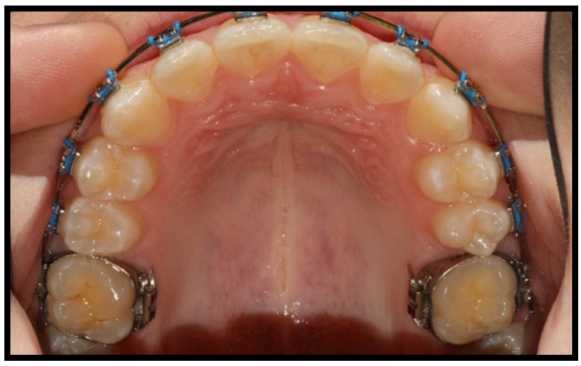
- First rectangular archwire
- Also, a great wire to place after re-bracketing teeth
- Lines up the molars
- Usually left in for 4-6 weeks

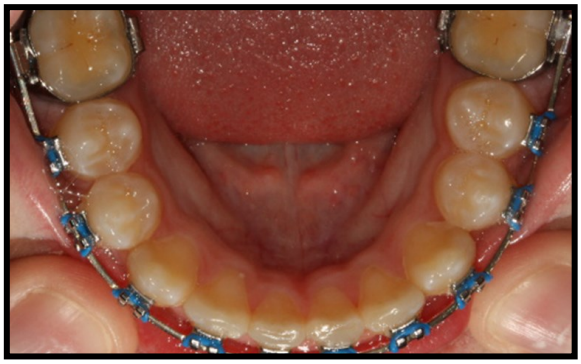




.016 x .022 Stainless Steel

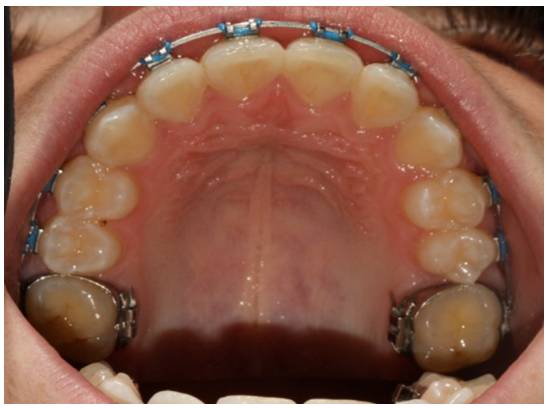
- Continues to develop arch
- Great wire for AC/RC
- Elastic wear is started in SS rectangular wires
- Power Chain (PC) is started in SS rectangular wires
- Great wire for retraction of premolars in a Class II dentition after removal of an MDA
- Great wire for 2nd order bends
- Remains 1-3 months or until it has done what you want it to do





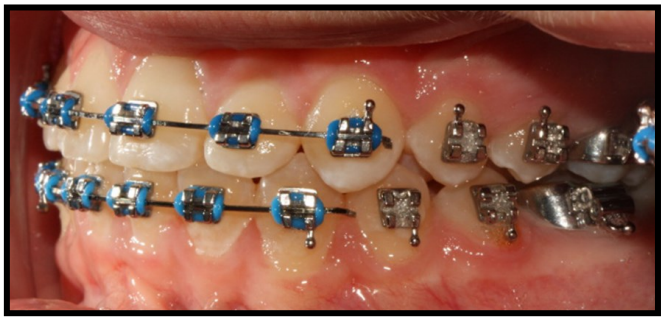
.018 x .025 Stainless Steel

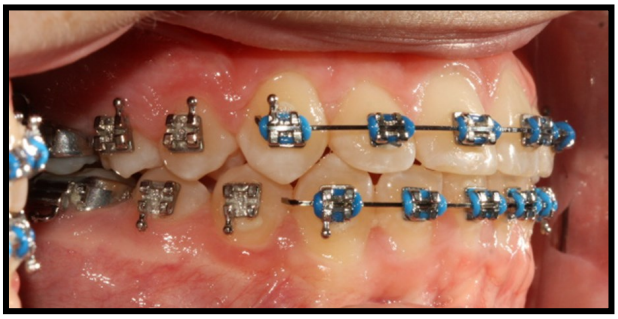
- Finishing wire
- Final development of arch
- Maximum 3rd order moments of force
- Left in for 3 months for periodontal ligaments to tighten
- Sectionals to finish case are made from this wire, if needed

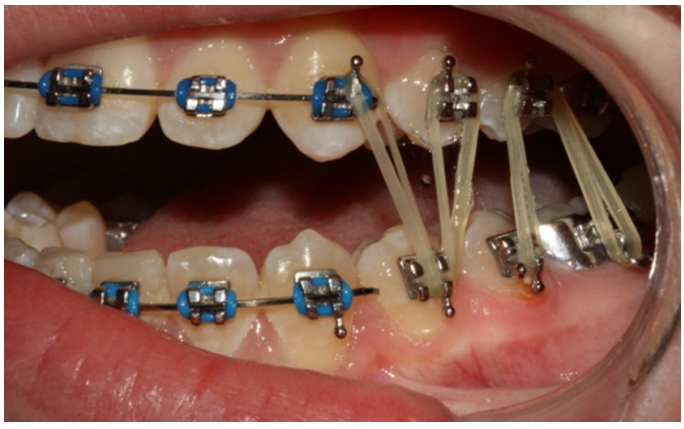


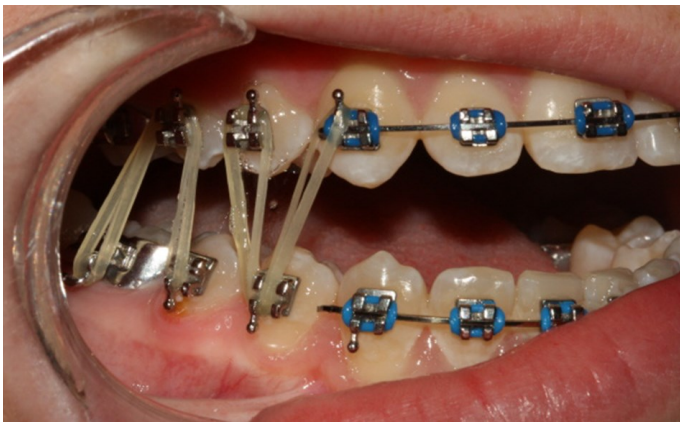
.018 x .025 Stainless Steel Sectionals

- Placed from cuspid to cuspid on both arches
- Cross-arch elastics are worn to:
    - Sock-in premolars
    - Attain buccal root torque on premolars
    - “V’s/TeePees” 3-4-4/5-5-6 (begin at upper 3)
    - Wear 4-6 weeks









Remove Posterior Bands/Brackets

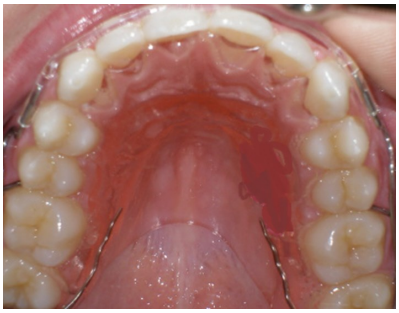
- Remove posterior bands & brackets (all 4s-7s)
- Remove sectional archwires
- Leave brackets on 3-3 for both arches
- Impress for retainers
- Replace sectionals
- Leave on until retainer returns from the lab

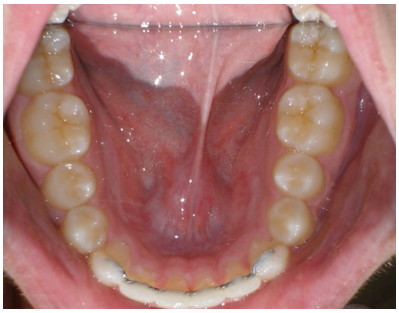
Final Records/Deliver Retainers

- Remove anterior brackets
- Take all final x-rays and study models
- Deliver upper retainer (QCM acrylic retainer)
- Sometimes a upper bonded lingual is needed due to a diastema or incisor rotations/lapping, using .010 x .022 Bond-a-Braid wire.
- Deliver/Make lower bonded retainer, using .010 x .022 Bond-a-braid wire

Case Complete

- Check in two weeks to tighten retainer
- Check every 6 months at cleaning appointments





Another Option...

Strip Case Final Records/Deliver Retainers

- Remove all bands & brackets
- Take all final x-rays and study models
- Sometimes an upper bonded lingual is needed due to a diastema or incisor rotations/lapping, using .010 x .022 Bond-a-Braid wire.
- Deliver upper vacuum form
- Deliver/Make lower bonded retainer (.010 x .022 Bond-a-braid wire)
- May serve as interim retainer until lab fabricated retainer is delivered

Case Complete

- Check in two weeks to tighten retainer
- Check every 6 months at cleaning appointments

Diagnostic Forms & Letters

Orthodontic Evaluation Worksheet

Patient:_____ **Age:**_____ **Sex:**_____ **Date:**_____

Patient's Chief Complaint _____

*Dental/Skeletal Classification

_____ Class I

_____ Class II ____Div I _____Div II

_____ Class III

_____ Bimaxillary Protrusion

_____ Skeletal Appearance

***Dentition**

_____ Primary

_____ Mixed/Transitional

_____ Adolescent

_____ Adult

_____ Crowding 1 2 3 4 5
mild moderate severe

_____ Spacing

_____ Missing Teeth_____

_____ Anomalies: _____

_____

_____ Active Caries: _____

_____

_____ Overbite/Overjet _____

Airway Evaluation

_____ Deviated Septum

_____ Allergies/Asthma

_____ Venous Pooling

_____ Tonsils: 1 2 3 4

_____ Mouth Breathing

_____ High Palatal Vault

_____ Constricted Nares

_____ Cloudy Sinuses

_____ Snoring

_____ Other:_____

Oral Conditions

_____ Hygiene: 1 2 3 4 5
excellent fair poor

_____ Perio _____

_____ Finger/Thumb Sucking

_____ Thick Frenums mx/mnd

_____ Gingival Recession _____

_____

_____ Tongue Thrust Swallow

_____

Other Conditions (TMD, Limited Opening, Anomalies, etc): _____

_____

***Appliance(s) Needed:** _____

***Other Treatment to Consider– NOT included in Orthodontic Treatment Fee:** _____

_____

Additional Notes: _____

Goals: _____

***Treatment Information**

Months in Treatment _____

Limited Treatment _____ Phase I _____ A ____ B____

Comprehensive Treatment _____ Phase II _____ 1__ 2__ 3__ 4__ Ext __

Orthodontic Treatment Flow Sheet

Start Filling This Form Out At Consultation

Patient:_____ Age:_____ Date:_____

1st Contact– Phone/Office

Appointment # 1: Consultation (complimentary)

____ Consultation with Adult Patient/Minor Patient WITH Parent or Guardian with Doctor & TC
____ Complete Orthodontic Consultation Worksheet (give to doctor for tx planning after workup)
____ General Dental Tx Plan Generated PRN
____ Schedule Work-up (to decide to treat or refer)

Appointment #2: Diagnostic Work-up (Initial Records)

____ Chairside Analysis
____ Study Models
____ Panoramic Radiograph
____ Four Bitewings Radiographs
____ Diagnosis Worksheet (to be completed by doctor)
____Digital Photos (9)
____ Centric Occlusion Blue Bite
____ Cephalometric Radiograph
____ TMJ Screening (Pain or Popping)
____ Collect Records Fee
____ Schedule Case Presentation

Appointment #3: Case Presentation

____ Review Treatment Plan with Adult Patient/Parent or Guardian– treat or refer
____ Sign Contract & Consent Form
____ Schedule Band Spacer Appointment

Appointment # 4: Placement of Band Separators

____ Collect Total Amount of Ortho Fees Remaining
____ Placement of Separators for 1st Molar Bands

Appointment # 5: Band & Bracket

____ Impression for Appliance, if needed Type of Appliance Used: _____
____ Brackets Used (Manufacturer & Prescription):_____
____ 1st Molars Bands Used (Manufacturer & Size):_____ UR____ UL____ LR____ LL___
____ Initial Wire Placed: Size_____
____ Separators placed for 2nd molar bands, if present
____ OHI – Brushing Instructions
____ Ortho Care Package – New Patient Kit
____ Home Fluoride/Sonicare Dispensed

Appointment #6 Band 2nd Molars, if available

____ 2nd Molar Bands (Manufacturer & Size):_____ UR____ UL____ LR____ LL___

Completed Case: Final Records and Deliver Retainers

____ Chairside Analysis
____ Study Models
____ Panolipse Radiograph
____ Four Bitewings Radiographs
____ Upper Retainer Delivered
____ Fluoride Treatment
____ Digital Photos (9)
____ Centric Occlusion Blue Bite
____ Cephalometric Radiograph
____ TMJ Screening (Pain or Popping)
____ Bonded Lower 3x3 - Lower Retainer Delivered
____ Retainer & Post Care Instructions

Date Treatment Completed: _____

Phase I Treatment Plan

Treatment Plan A: Mixed Dentition- Utility Archwires

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
Sagittal/Transverse Appliances, if needed (Determined by the Sim Analysis)	-
.018 NT Prefab UAW (badly malposed teeth)	1-2 months
.016 x .016 NT Prefab UAW (Minor malposed)	1-2 months
.016 x .016 SS Prefab UAW (Tip - backs; Toe - ins; Advance)	6 months
FRLA	Until Phase II (Until premolars erupting)
Total Months in Treatment	**12-14 months**

Phase I Treatment Plan

Treatment Plan B: Mixed Dentition- Utility Archwires

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
Sagittal/Transverse Appliances, if needed (Determined by the Sim Analysis & Ceph Analysis)	-
.018 NT Prefab UAW (badly malposed teeth)	1-2 months
.016 x .016 NT Prefab UAW (Minor malposed)	1-2 months
.016 x .016 SS Prefab UAW (Tip-backs; Toe-ins; Advance)	6 months
.019 x .025 SS UAW with Twin Force Reposturing or Reverse Face Mask w/ RPE/Hyrax w/ Hooks	6-12 months
FRLA	Until Phase II (Until premolars are erupting)
Total Months in Treatment	**12-18 months**

Phase II Treatment Plan

SWS Treatment Plan 1: Class I

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
.012 (.014) Nitinol	1 -2 months (Comp. Pads)
.014 Nitinol (RW)	1- 4 months or until rotations are out
018 Nitinol	1 month
020 Stainless Steel (AC/RC CB, if needed) (Step-ins/outs; OCS/stops)	1 – 4 months or until bite open and/or:
.016 x .022 Nitinol (Take Pan and rebracket any teeth if needed)	1month
.016 x .022 Stainless Steel	1month
.018 x .025 Stainless Steel	3 months
Cross arch elastics and sectionals Cross arch elastics and sectionals	2wks – 1 month
Remove posterior bands/brackets –impress for retainers	2wks – 1 month
Remove sectionals – QCM/Bonded lower 3x3	2 wks –1 month
Check in one week, retention forever	-
Total Months in Treatment	**14-18 months**

Phase II Treatment Plan

SWS Treatment Plan 2: Class II

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
.012 (.014) Nitinol	1 -2 months (Comp. Pads)
.014 Nitinol (RW)	1- 4 months or until rotations are out
.018 Nitinol	1 month
.020 Stainless Steel (AC/RC CB, if needed)	1 – 4 months or until bite open and/or: (Step-ins/outs; OCS/stops)
.016 x .022 Nitinol (Take Pan and rebracket any teeth if needed)	1month
.016 x .022 Stainless Steel	1month
MDA/.018 x .025 Stainles	Until over distalized 6-8mm
Retract Premolars on .016 x .022 Stainless Steel (AC-BRT)	2-3 months (Until premolars fully intercuspated)
Retract Canines on .016 x .022 Stainless Steel (AC-BRT)	2-3 months
Retract Anterior Teeth with .018 x .025 posted SS (AC-BRT)	2-3 months
.018 x .025 Stainless Steel	3 months
Cross arch elastics and sectionals	2wks – 1 month (Until premolars fully intercuspated)
Remove posterior bands/brackets –impress for retainers	2wks – 1 month
Remove sectionals – QCM/Bonded lower 3x3	2 wks –1 month
Check in one week, retention forever	-
Total Months in Treatment	**24 months**

Phase II Treatment Plan

SWS Treatment Plan 3: Class III and some Class I

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
.012 (.014) Nitinol	1 -2 months (Comp. Pads)
.014 Nitinol (RW)	1- 4 months or until rotations are out
.018 Nitinol	1 month
.020 Stainless Steel (AC/RC CB, if needed)	1 – 4 months or until bite open and/or: (Step-ins/outs; OCS/stops)
.016 x .022 Nitinol (Take Pan and rebracket any teeth if needed)	1 month
.016 x .022 Stainless Steel	1 month
.018 x .025 Stainless/Lower MDA	Until over distalized 4mm
Retract Premolars on .016 x .022 Stainless Steel (AC-BRT)	2-3 months
Retract Canines on .016 x .022 Stainless Steel (AC-BRT)	2-3 months
Retract Anterior Teeth with .018 x .025 posted SS (AC-BRT)	2-3 months
Upper MDA (if needed)/.018 x .025 Stainless Steel	Until over distalized 4mm
Retract Premolars on .016 x .022 Stainless Steel (AC-BRT)	2-3 months
Retract Canines on .016 x .022 Stainless Steel (AC-BRT)	2-3 months
.018 x .025 SS/posted .018 x .025 SS power chain or spring	2-3 months
Cross arch elastics and sectionals	2wks – 1 month (Until premolars fully intercuspated)
Remove posterior bands/brackets –impress for retainers	2wks – 1 month
Remove sectionals – QCM/Bonded lower 3x3	2wks – 1 month
Check in one week, retention forever	-
Total Months in Treatment	**36 months**

Phase II Treatment Plan

SWS Treatment Plan 4: Class I, II & III

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
LOWER	
CD Distalizer Initially (EZ distalizer)	2 – 6 months (Until over distalize 6mm)
Remove CD Distalizer, and bracket lower teeth	
.012 (.014) Nitinol	1 -2 months (Comp. Pads)
.014 Nitinol (RW)	1- 4 months or until rotations are out
.018 Nitinol	1 month
.020 Stainless Steel (AC/RC CB, if needed)	1 – 4 months or until bite open and/or: (Step-ins/outs; OCS/stops)
.016 x .022 Nitinol (Take Pan and rebracket any teeth if needed)	1 month
.016 x .022 SS	2-3 months
.18 x .25 SS/posted .18 x .25 SS power chain or springs	2 – 3 months

Phase II Treatment Plan

SWS Treatment Plan 4: Class I, II & III, cont.

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
UPPER	
Bracket/band all upper teeth and follow Williams wire series at same time as placement of lower CD Distalizer	
.014 Nitinol (RW) (Upper)	1-4 months or until rotations are out
.018 Nitinol (U/L)	1 month
.020 Stainless Steel AC/RC CB	1 – 4 months (or until bite open and/or Step-ins/outs; OCS/stops)
.016 x .022 Nitinol (Take Pan and rebracket any teeth if needed)	1 month
.016 x .022 Stainless Steel	1 month
MDA/.018 x .025 Stainless Steel (Upper - If necessary)	2 – 6 months (Until Over distalize 6 mm)
Retract Premolars on .016 x.022 SS (AC-BRT)	1 month
Retract Canines on .016 x .022 SS (AC-BRT)	1 month
.18 x .25 SS/posted .18 x .25 SS power chain or springs) (AC-BRT)	1 month
(If MDA not necessary, .018 x .025 SS)	3 months
Cross arch elastics and sectionals	2 wks – 1 month (Until premolars fully intercuspated)
Remove posterior bands/brackets –impress for retainers	2 wks-1 month
Remove sectionals – QCM/Bonded lower 3x3	2 wks-1 month
Check in one week, retention forever	
Total Months in Treatment	**4 years**

Extraction Orthodontics

SWS Treatment for Extraction Case:

Patient Name: _____ DOB: _____ Date: _____

Treatment	Treatment Length
Full Standard of Care Records	-
.012 (.014) Nitinol	1 -2 months (Comp. Pads)
.014 Nitinol (RW)	1- 4 months or until rotations are out
.018 Nitinol	1 month
.020 Stainless Steel (AC/RC CB, if needed)	1 – 4 months or until bite open and/or: (Step-ins/outs; OCS/stops)
.016 x .022 Nitinol (Take Pan and rebracket any teeth if needed)	1 month
.016 x .022 Stainless Steel (Power Chain/Closing Springs 6-6) Class II and /or Class III Elastics (as needed) (AC/RC if needed)	Until Space Closed
.018 x .025 Stainless Steel (Power Chain) Class II and /or Class III Elastics (as needed) (AC/RC if needed)	3 months
Cross arch elastics and sectionals	2 wks-1 month (Until premolars fully intercuspated)
Remove posterior bands/brackets –impress for retainers	2 wks-1 month
Remove sectionals – QCM/Bonded lower 3x3	2 wks-1 month
Check in one week, retention forever	-
Total Months in Treatment	**24-30 months**

Airway Evaluation Letter

Example Letter

Date:

Patient:

Age:

RE: Airway Evaluation

Dear Doctor,

After completing a clinical and cephalometric evaluation of my orthodontic patient, I suspect a problem with the nasal airway. The patient appears to have poor lip seal with a well-established mouth breathing habit. It is my opinion that continued mouth breathing can adversely affect the muscle activity of the face and jaws. As you are aware, muscle function influences facial bone growth, movement of the mandible, and temporomandibular joint function. Normal nasal respiration must be established in order to normalize muscle activity, and eventually, establish normal growth, development, and occlusion.

The patient has been referred to your office for an evaluation of the naso-pharyngeal and oro-pharyngeal airway, as there appears to be evidence of naso-respiratory distress.

Please find enclosed a copy of the patient's cephalogram to assist you with your examination. I have noted where the naso-pharyngeal appears constricted on the cephalogram in the area of the adenoid tissue.

I look forward to receiving your opinion and recommendations regarding the airway concerns and the changes in proper growth and development.

Doctor Name

Miscellaneous Forms

Separators

Spacers

- Separators are small circular-shaped rings that are placed BETWEEN YOUR TEETH about 2-3 days before you get your braces.

- At first, it will feel TIGHT like something is stuck in your teeth (because there is). This feeling usually goes away by the time you leave the office and you will feel fine. However, everything in orthodontics is DELAYED. So after a few hours or the next day is when you will notice some tenderness.

- Your teeth may be sensitive for a few days. It is suggested to take an over-the-counter pain reliever prior to your appointment to relieve any discomfort. CHEW THROUGH IT. Please continue to chew and eat, if you baby your teeth, they will be more sore and the soreness will last longer. If needed, warm salt water rinses always help.

- Please DO NOT EAT STICKY or CHEWY FOODS, this includes CHEWING GUM. Doing so may pull your separators out which will cause the spaces to close. The processes will have to start over again.

- CHECK your separators daily, if you should lose any, please call us so we may replace them for you.

- These separators will create a small space between your teeth so that we can fit your bands in an easy and comfortable manner. Bands are similar to a ring placed on your finger, there are many sizes and we will find the best fit for you.

If you have any questions or concerns, please do not hesitate to CALL US. We understand this is a new process and want to make it as easy for you as possible.

First Day With Your Braces!!!

Congratulations

You have started the first steps towards your healthiest, most beautiful smile. You have also started the biggest adjustment period with braces.

In the first few days, there could be:

- **Mild soreness** or tooth discomfort – this usually starts later that same day or the next day
- **Tissue irritation** from the brackets, wires, appliances, or anything else that has been placed
- Patients will **start adapting** to the soreness or discomfort that comes with moving teeth during this period

To help reduce the soreness – after ALL orthodontic appointments:

- **Chew sugarless gum**
- **Eat, Eat, Eat** !!! – chew your food where it is the most sore
- Take **pain reliever** BEFORE the soreness starts – once it starts to hurt, it's too late
- **Eating immediately after orthodontic appointments** will help, since you are not sore until later that day or the next
- **Do not baby your teeth** - you will be more sore and sore longer than necessary

Before leaving the office after orthodontic appointments:

- **CHECK the ENDS of the WIRE** – using your cheeks, tongue or fingers, make sure nothing is poking or catching on your cheeks or gums
- **HOMEWORK** – Make sure you understand what is expected of you until your next appointment
    - ◊ Wearing Rubber Bands/Elastics
    - ◊ Working on Better Hygiene
    - ◊ Warm Salt Water Rinses
- **SUPPLIES -** make sure you have enough supplies to last until your next ortho appointment
    - ◊ Rubber bands/elastics
    - ◊ Dental wax
    - ◊ Special toothpaste or mouthwashes to improve hygiene
- **MAKE YOUR NEXT APPOINTMENT**
    - ◊ Ensures your appointment are kept every 4-6 – scheduling longer than that could prolong treatment
    - ◊ Our schedules are booked 4-6 weeks in advance so appointments fill up quickly

Emergencies **With Your New Braces**

- There are not a lot of emergencies with braces
- Anything that breaks and comes out of your mouth – SAVE IT – put it in a baggie and bring to your next appointment
- Broken brackets are NOT an emergency – call and let the office know you have loose brackets
- Anything that prevents you from eating and talking OR is making you bleed – is NOT normal, please contact the office

Sports or Music **With Your New Braces**

- If you play a musical instrument, there will be a learning curve until you adjust to your new braces. You may need extra wax until then.
- If you play a sport, you will most likely need a mouth guard, you CANNOT use regular mouth guards bought at the store.
- Special mouth guards specifically for braces are what is needed. Please ask the office for more information about these mouth guards.
- If there is a severe sports injury involving your teeth, contact the office immediately

Hygiene **With Your New Braces**

- You Eat……..You Brush – get the food off
- Brush 3x a day
- Brush for a full 2 minutes
- Don't forget to brush your gums – they are just as important
- Floss, using floss threaders to make it easier
- Use mouthwash with fluoride, especially before bed

Eating **With Your New Braces**

- When in doubt break, tear and/or cut food into small pieces and chew on your back teeth
- Avoid biting into hard foods
- Stay away from sticky or hard foods
- It's a learning curve – you will have to eat differently

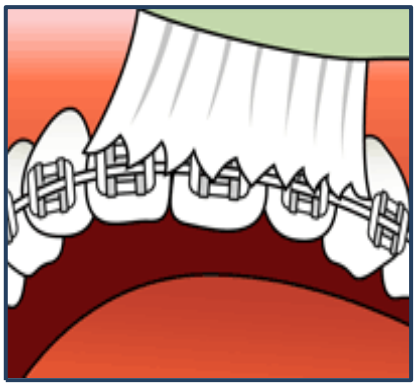
Habits **With Your New Braces**

- Do not bite your fingernails – great time to break this habit
- Do not chew on straws, pens or pen caps
- Do not open screw-top containers with your teeth, like water bottles

Remember: Any soreness you feel from the braces *is just the crookedness leaving your smile!*

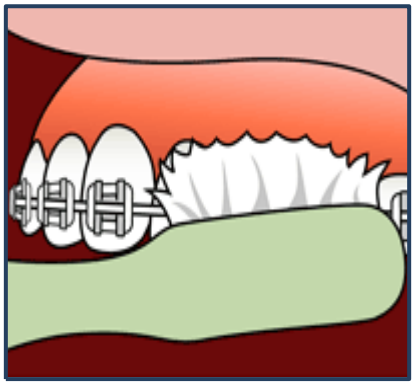
Brushing & Flossing with Braces

Brushing



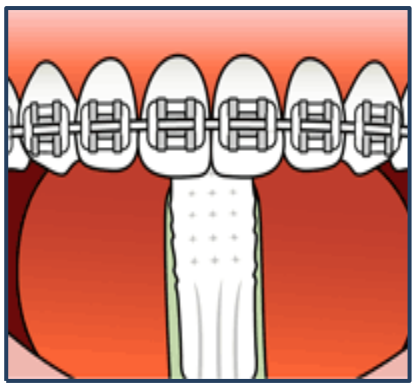
Step 1

Using a dry brush with a small amount of tooth-paste place bristles where gums and teeth meet.



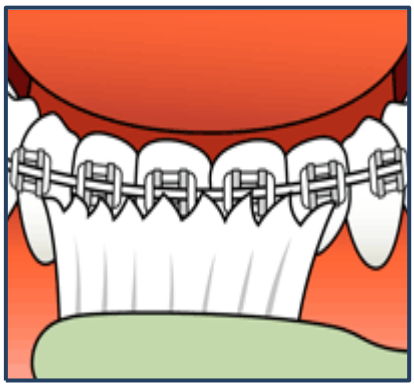
Step 2

For 10 seconds on each tooth use circular, vi-brating motions around the gum lines.



Step 3

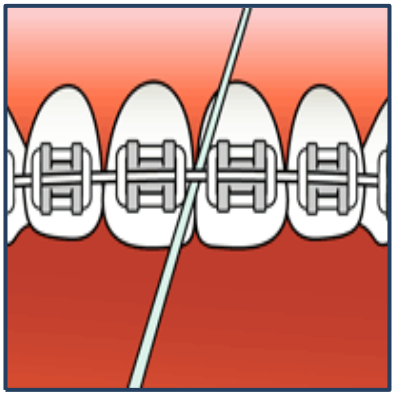
Every tooth of both arches should be brushed slowly.



Step 4

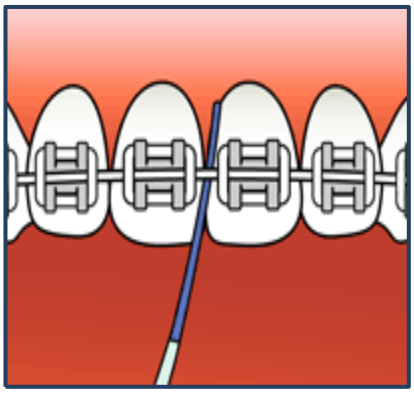
Brush the lower teeth from gum line up and the upper teeth from the gum line down. Brush the roof of your mouth and your tongue too!

Flossing



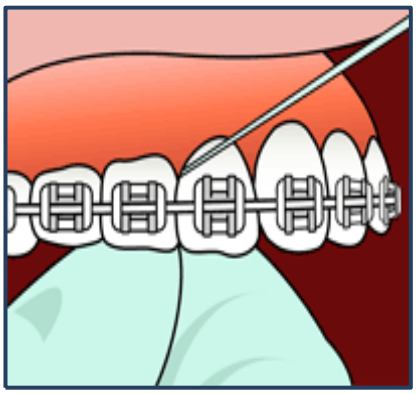
Step 1

Carefully thread unwaxed floss between braces and wire. You may find a floss threader helpful.



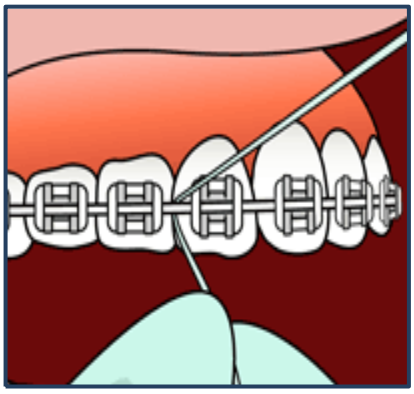
Step 2

Carefully floss around the braces..



Step 3

Carefully floss around the gum areas.



Step 4

Carefully floss each tooth.

Elastic Wear

Rubber Bands

- Elastics WORK ON YOUR BITE. This means how your upper teeth and lower teeth fit together. The better they fit together the more STABLE your bite will be.

- Teeth could be a LITTLE SENSITIVE at first. The best way to work through the sensitivity is to WEAR THE ELASTICS continually. Continually starting over will lead only to more discomfort.

- Wearing your elastics consistently will KEEP YOUR TREATMENT PROGRESSING consistently. If you DO NOT WEAR them, your treatment will be compromised! It will TAKE LONGER to finish your case.

- Elastics are 100% YOUR RESPONSIBILITY, how long you have to wear them depends on you and you alone.

- **INSTRUCTIONS FOR BEST RESULTS:**
  - ◊ Wear them 24/7 – all day, every day
  - ◊ EXCEPT when you are eating
  - ◊ CHANGE them 3-4 times a day. Put new ones on, the old ones stretch out
  - ◊ If you lose or run out, stop by and pick up more – DO NOT GO WITHOUT
  - ◊ Give yourself EXTRA TIME during the day to put them on until you are comfortable taking them on and off.

- TAKE A PICTURE with a cell phone, if possible. We will INSTRUCT AND SHOW you how to put the elastics on and take them off before you leave the office.

- DO NOT GET FRUSTRATED, you will do this all day, every day. Eventually, putting them on will become second nature.

If you have any questions or concerns, please do not hesitate to CALL US. We understand this is a new process and want to make it as easy for you as possible.

Retention

Retainer Information & Instructions For Wear

- There are several different types of retainers. Some may be removable others will be fixed (glued in). Removable retainers are 100% YOUR RESPONSIBILITY for wearing them according to the instructions. These are usually upper retainers but can also be made for the lower. Fixed (permanent) retainers are usually on the lower arch, but can be placed on the upper as well.

- The first few days you may notice EXCESS SALIVA (extra spit) and an ALTERATION OF YOUR SPEECH PATTERN (you may talk funny). This should go away in a few days.

CARING FOR RETAINERS:

- Bring your retainers to all orthodontic and hygiene appointments.
- Brush your retainers when you brush your teeth.
- Denture cleaner is a great way to clean retainers by soaking them
- Do not soak your retainers in mouthwash, the alcohol will dry it out and make it brittle
- Keep your retainers and retainer cases up and away from pets – they like to eat them.
- Always store your retainers in the case we provide you.
- Do not put them in pockets, backpacks, purses, etc. – they will get broken.
- Do not leave them in a hot place or in the sun – they can warp and will no longer fit properly.
- Retainers are specifically made from RECENT IMPRESSIONS of your teeth –these are typically destroyed during the making of retainers and are no longer useable.
- If YOUR RETAINER BREAKS, you lose it, etc. contact the office immediately to schedule an appointment, a new impression will need to be made, so a new retainer can be made. Understanding, this impression is of your teeth in their current position. For this reason, it is important to make an appointment immediately.

INSTRUCTIONS FOR BEST RESULTS:

- Retainers are to be WORN 24/7 the first 6 WEEKS, at a minimum.
- NOT WEARING RETAINERS may cause your teeth to return to their original position before your braces. This may happen in a few weeks to several years, everyone is different.
- After 6 WEEKS, wear them ONLY AT NIGHT.
- To continue to prevent your teeth from moving - wear them at night FOREVER.

If you have any questions or concerns, please do not hesitate to CALL US. We understand this is a new process and want to make it as easy for you as possible.

Notice of Poor Cooperation

Completed Treatment vs. Incomplete Treatment

There is an obligation to make every effort to achieve ideal results for each and every orthodontic patient. However, this responsibility requires that you are informed when **poor and inconsistent cooperation will result in:**

- Extended treatment time
- Poor quality results
- Added treatment expenses
- Early termination of treatment

There is no doubt, the most important factor in achieving good results is **consistent cooperation**. The key word is consistent.

Poor and Inconsistent Cooperation could be (check all that apply):

Broken or last minute cancellations

Number of broken appointments:

_____

_____

Comments

_____

Broken, loose, or missing bands/brackets – may result in extra fees

Number of bands/brackets:

_____

_____

Comments

_____

Not wearing rubber bands as directed – stalled or incomplete treatment

Instructions regarding rubber band wear:

_____

_____

Comments

_____

Not wearing removable appliance as directed – stalled or incomplete treatment

Instructions regarding appliance wear:

_____

_____

Comments

_____

THIS MUST BE A TEAM APPROACH:

As much as possible, check with your child to be certain that the requested treatment is being adhered to

If you have any questions or concerns as to what your child should be doing, please contact the office

IF INCONSISTENT OR POOR COOPERATION CONTINUES:

- If your child will simply not cooperate OR
- You feel it is not realistic for you to closely monitor your child's inconsistent cooperation
- A discussion will need to take place to decide to stop treatment and remove braces
- At this point, we are ____ months behind in progress
- If you decide treatment should continue, please be aware that additional fees of $_____ per month will begin as of _____ (date)

Please contact the office as soon as possible to discuss this important situation.

With consistent effort, I'm confident that we can resolve this issue.

_____ _____

Patient/ Parent or Guardian Signature Date

_____ _____

Doctor Date

Request for Early Removal of Braces

Incomplete Treatment

The orthodontic treatment, that was originally diagnosed, has not been completed as planned. Understand that possible complications may arise with early termination of treatment that may include but are not limited to:

- Relapse of progress already completed
- Shifting of teeth
- Jaw and/or joint problems

There is a choice to have retainers made to maintain the teeth where they are currently OR retainers can be declined. If retainers are made, they must be worn indefinitely in order to maintain the teeth in their present position.

Understanding the above information, I hereby request that braces be removed on the below mentioned patient as soon as convenient.

_____ _____

Patient /Parent or Guardian Signature Date

_____ _____

Doctor Signature Date

Consent to Remove Braces

Completed Treatment

Orthodontic Treatment has been completed as planned, and understanding that, bands and brackets may be removed at this time. Patient satisfaction is extremely important to us.

Once impressions are made, I understand the importance of follow up appointments to deliver retainers and maintenance appointments. I also understand retainers must be worn indefinitely in order to maintain the teeth in their present position. I understand that I am to wear the retainers 24/7 for a minimum of 6 weeks after braces are removed and nightly thereafter. Forever. Get it. Got it. Good.

As I am pleased with the outcome of treatment, I am giving permission to proceed with removing all orthodontic appliances and impressing for retainers.

_____ _____

Patient/ Parent or Guardian Signature Date

_____ _____

Doctor Signature Date

Records Release Authorization

Transferring a Patient's Orthodontic Records

At times a patient may need to relocate in the middle of orthodontic treatment. When this occurs, it is highly advantageous for the transfer to be as prompt and convenient as possible.

One of the most important concerns is the identification of a general dentist or an orthodontist who will accept the patient and successfully complete the treatment.

It is necessary that your records be transferred to assure that the receiving doctor is knowledgeable of your orthodontic conditions, orthodontic treatment goals, current treatment plan and related financial arrangements.

To facilitate the transfer of all your orthodontic records, it is necessary that you obtain permission to do so.

I authorize _____(Current Treating Doctor)_____ to release all orthodontic records of, _____(Patient's Name)_____, for the purpose of continuing orthodontic treatment by another general dentist or orthodontist that will be chosen by the patient/parent or guardian.

_____ _____

Patient/Parent or Guardian Signature Date

Transfer Information– Orthodontic Treatment

Patient Treatment Information

The following treatment information should be forwarded to the new treating doctor, information should include, but not limited to:

Patient Information

Patient's Name_____ Sex_____ Age_____ DOB_____

New Address_____

Former address_____

Home Telephone_____ Work_____ Cell_____

Email_____

Treatment Information

Type of orthodontic case: Class I_____ Class II – Div 1_____ Class II – Div 2_____ Class III_____

Treatment Record – Patient has been treated or is being treated by the following:

Fixed Functional_____ Banded/Bracketed_____ Other _____

Original estimated length of treatment_____ Estimated months to completion_____

Patient's attitude toward treatment (optional)

_____Excellent, cooperative

_____Fairly good, cooperative after urging

_____Poor, seldom shows compliance

Fees already charges

Diagnostic workup and treatment plan	_____
Starting Fee	_____
Monthly payment schedule	_____
Total fee quoted for treatment	_____
Amount returned to patient/parents	_____

Payment record of family (optional)

_____Excellent, up to date _____Slow, pays eventually _____Poor, usually behind in payments

Special notes about patient: _____

_____

Records being forwarded

_____Cephalogram

_____Panograph

_____Photographs

_____Treatment Plan

_____Study Models

_____Other Information

COMPANIES & EXHIBITORS

American Orthodontic Society
11884 Greenville Avenue, Suite 112
Dallas, TX 75243
Phone (800)-448-1601/ 972-234-4000
Fax (800)-871-9924/ 972-234-4290
E-Mail aos@orthodontics.com
Web www.orthodontics.com

Dolphin Imaging & Management Solutions
9200 Eton Avenue
Chatsworth, CA 91311
Phone: (818) 435-1348
Phone: (800) 548-7241
E-mail: sales@dolphinimaging.com
Web:www.dolphinimaging.com

Johns Dental Laboratories
423 South 13th Street
Terre Haute, IN 47808
Phone: (800)-457-0504/ 812-232-6026
Fax: (812)-234-4464
E-Mail: labinfo@johnsdental.com
Web:www.johnsdental.com

Ortho Arch Co.
1107 Tower Road
Schaumburg, IL 60173
Phone: (800) 423-3527
Fax: (847) 885-2596
E-mail: sales@orthoarch.com
Web:www.orthoarch.com

Henry Schein Orthodontics (Ortho Organizers)
Phone: (800)-547-2000
Web: www.henryschein.com

TP Orthodontics, Inc.
100 Center Plaza
LaPorte, IN 46350
Phone: (800) -348-8856 / 219-785-2591
Fax: (219)-324-3019
Web:www.tporth.com

Brad Williams, DDS
Williams *GP* Ortho Seminars
Doctor Courses - Continuing Education
Phone: (918) 645-1928
E-mail: bwilliamsortho@gmail.com
Web: www.williamsGPorthodontics.com

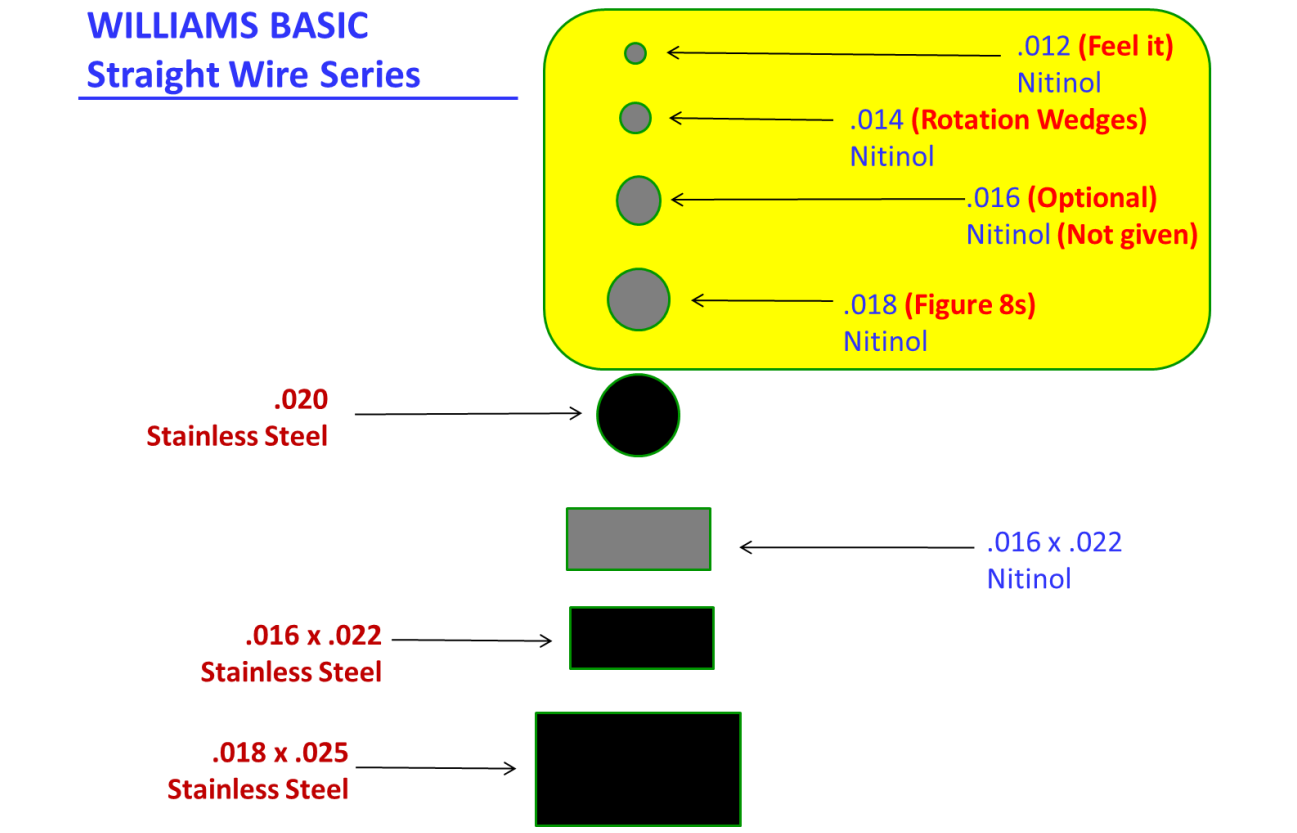
Susan Coffey, RDA
Susan Coffey Consulting, LLC
Assistant Courses - Continuing Education
5250 Hwy 78, Suite 750-476
Sachse, TX 75048
Phone (469)-766-8193
E-Mail scoffeyortho@gmail.com

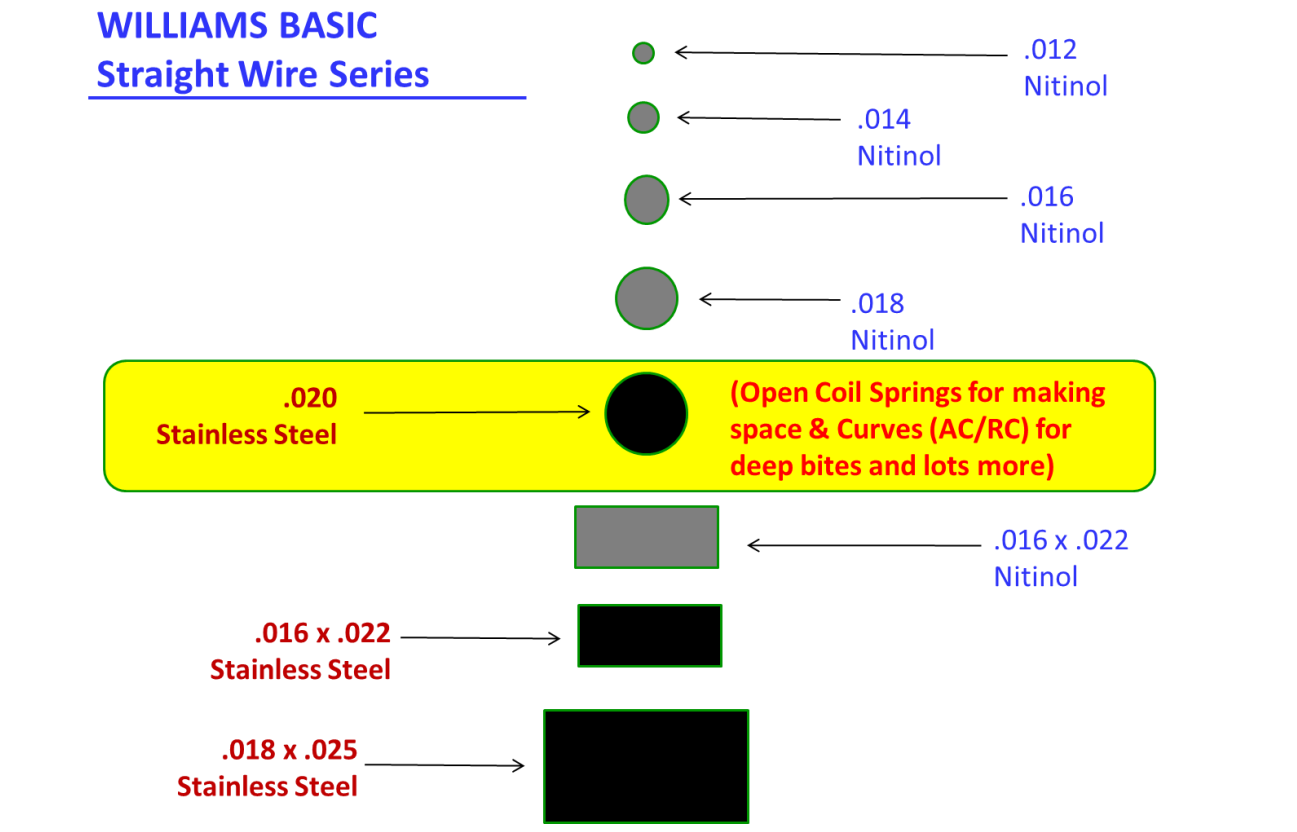
Teresa Berry Williams, FAADOM
McKenzie Bledsoe, FAADOM
Williams *GP* Ortho Seminars
Management Course - Continuing Education
Phone: (918) 607-9146
E-mail: tabwilliams61@gmail.com
Web: www.williamsGPorthodontics.com

Jameson Dental Coaching & Dental Marketing
9636 N May Ave, Ste 279
Oklahoma City, OK 73120
Phone: (877) 369-5559
Email: nate@jmsn.com
Web: www.jmsn.com

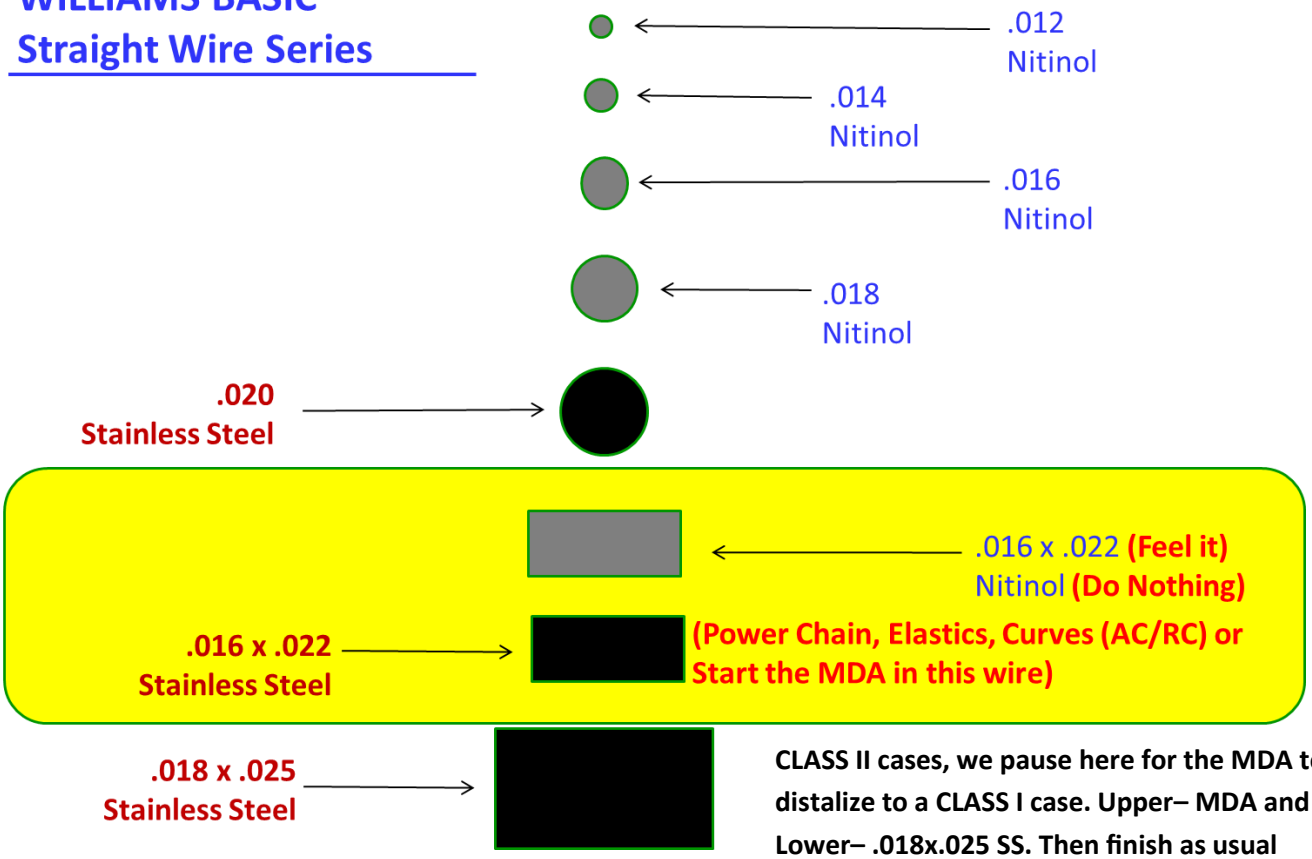
Hands-On Exercises Explained

Wire Exercises Explained





WILLIAMS BASIC
Straight Wire Series



CLASS II cases, we pause here for the MDA to distalize to a CLASS I case. Upper– MDA and Lower– .018x.025 SS. Then finish as usual

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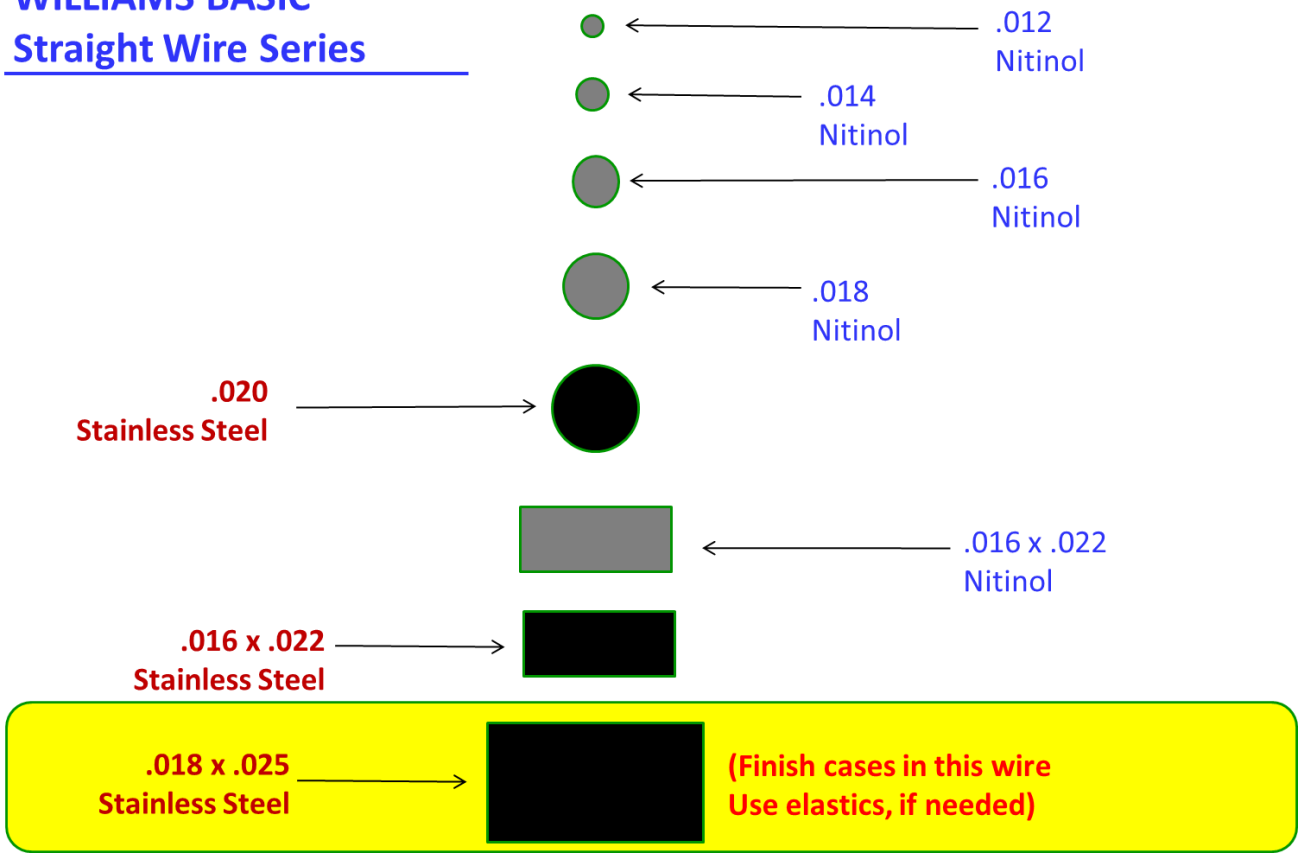
WILLIAMS BASIC
Straight Wire Series

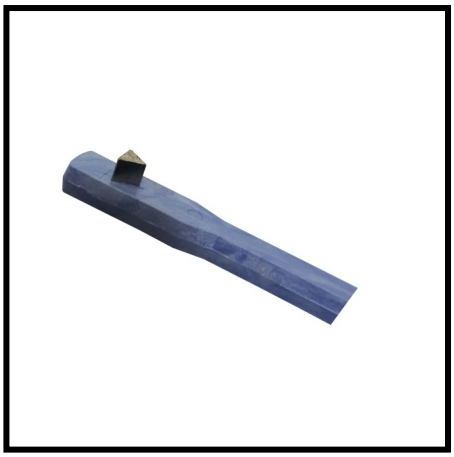


Instrument Identification List & Supplies

Anatomical Teeth

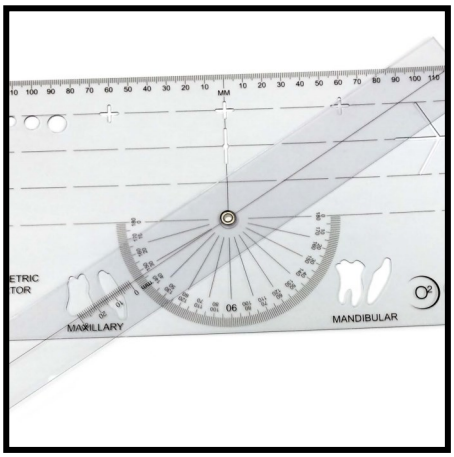
Angled Utility Arch Plier

Arch Markers



Band Biter

Band Pusher/Scaler

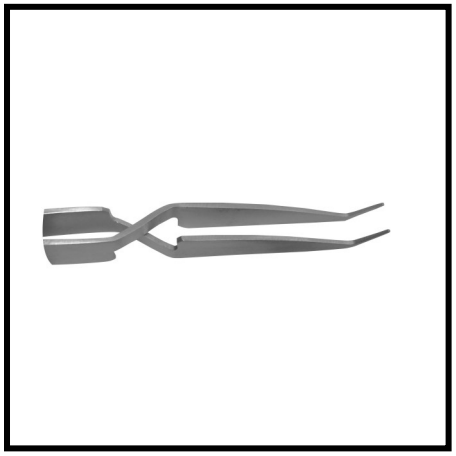


Ceph Protractor

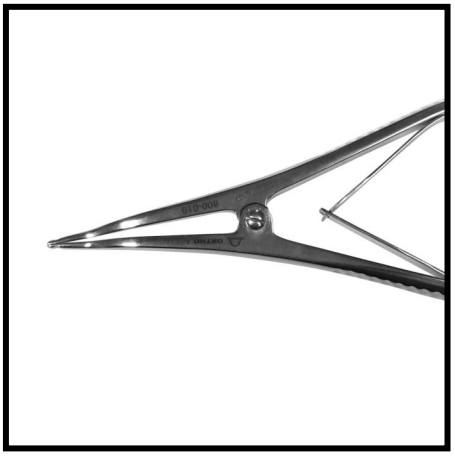
Clear Articulated Typodont

Cinch Back/Distal Bender

Cotton Tweezers/Slot Aligner



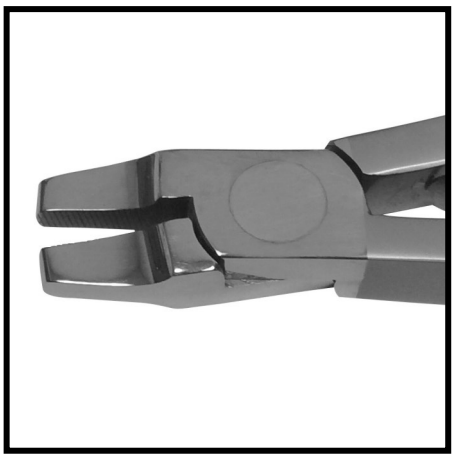
Deluxe Bracket Placer/Slot Aligner



Deluxe Elastic Separating Plier

Distal End Cutter

Double Ended Elastic Remover

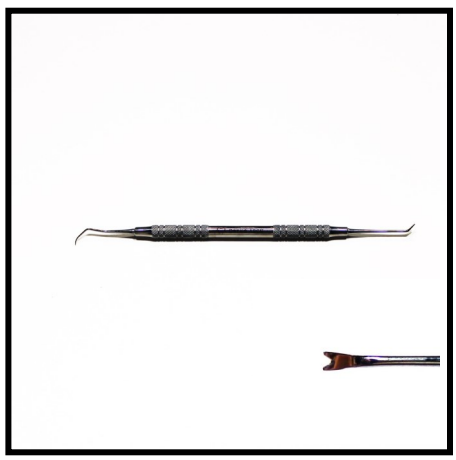


Goodman Torquing Plier

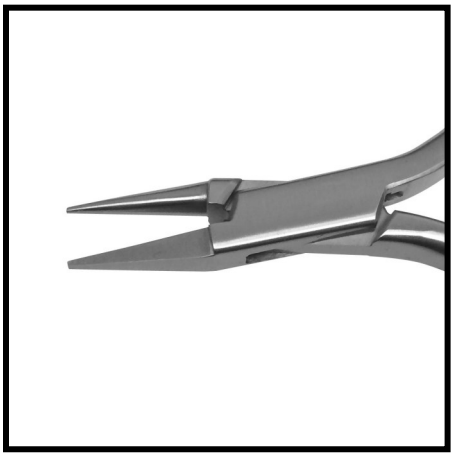
Heavy Duty Wire Cutter

Hollow Chop Plier

Jarabak Plier



Ligature Director/Remover

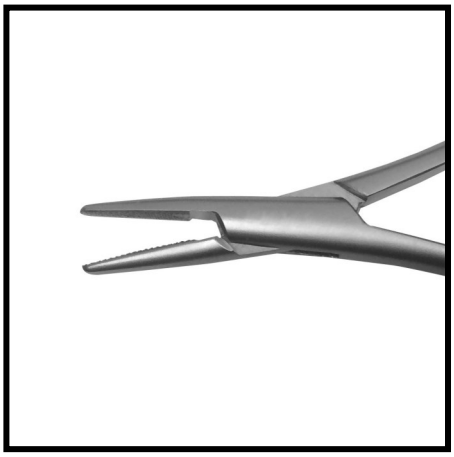


Light Wire Plier (Long Bird Beak)

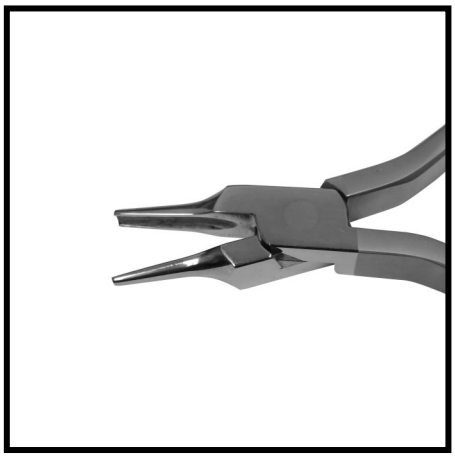
Lingual Arch Forming Plier

Loop Tie Back Plier

Mathieu Needle Holder
Hook Tip



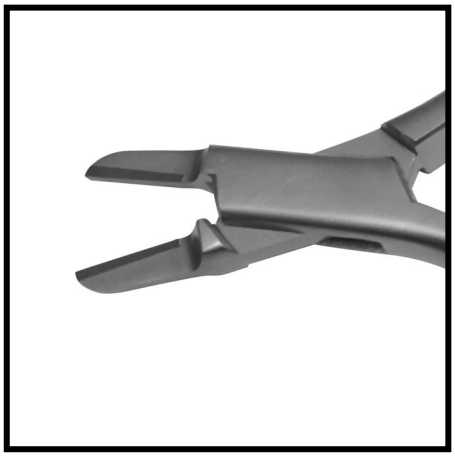
Mathieu Needle Holder
Regular Tip



Optical Plier (Occulist)

Pin & Ligature Cutter

Posterior Band Remover



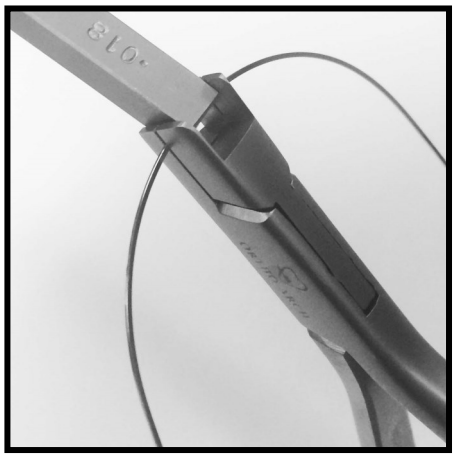
Ribbon Tweed Arch Forming Plier (2)

Step Plier– 3/4mm
Step Plier– 3mm

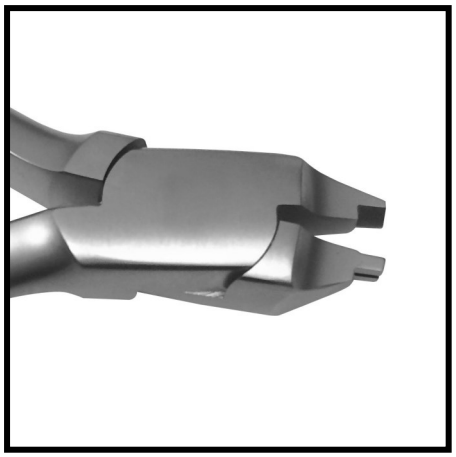
Swivel Head Bracket Gauge

Three Prong Clasp Plier
(NPE Adjusting Plier)

Three Prong Plier

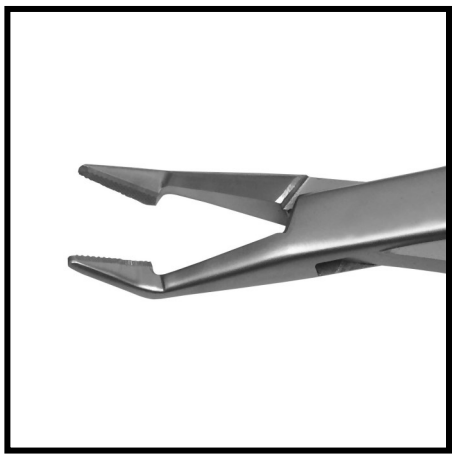


Torquing Plier Set w/ Key



Ultimate Hook Crimping Plier

V-Bend Stop Plier



Weingardt Plier

Demonstration

Separators- Understanding Placement

Separator Demonstration

Understanding Placement

Purpose:

- To show different techniques placing separators
- To show different types of separators

Instruments & Materials Needed to Place Separators in Office:

- Brass or Niti Separating Wire
- Elastic Separating Plier
- Floss
- Jarabak Plier
- Safety Knob Separators

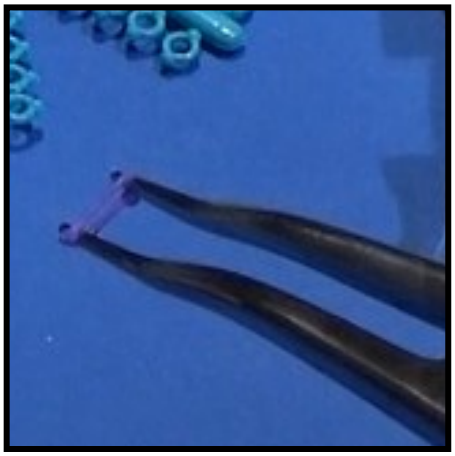
Directions:

1. Prior to banding, separators must be placed for space to seat molar bands.
2. Using Elastic Separating Plier, pull a separator from the wheel.
3. Lubricate the separator with spit (not yours!) or fluoride to help seat the separator.
4. To remove separators, use an elastic remover for the Safety Knobs and a Jarabak Plier for the Metal Springs.

Note:

- Careful to not stab the patient with the plier, it will happen.
- Elastic separators can be left in 1-2 weeks, Metal Springs are left in for 2-3 days.
- Instruct patient to not floss in these areas and to notify the office if any come out.
- **If a separator is missing when the patient returns, verify that it has come out and has not gone sub- gingival.**

Instruments & Materials.



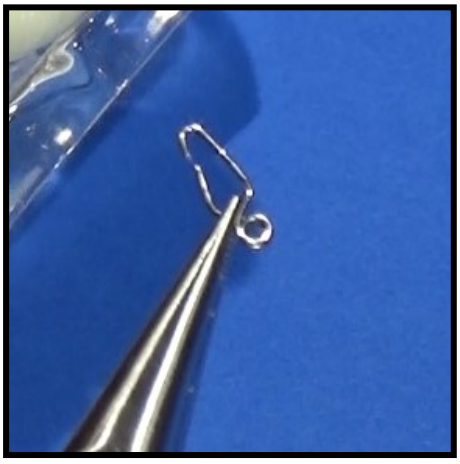
Safety Knob Separator.

Placing a Safety Knob Separator.

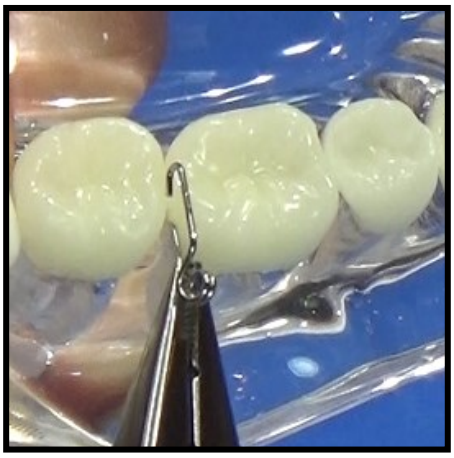
Two Safety Knob Separators placed to band 1st molar.

Using floss to place Safety Knob Separator. To remove, use Elastic Remover.

Jarabak Plier used to place Metal Separators.



Metal Separating Spring.



Inserting Metal Separating Spring.

Insert plier into helix remove the separator.

Exercise 1

Banding & Bracketing

Using the Clear Typodont

Banding & Bracketing

Using the Clear Typodont

Purpose:

- Become familiar with bands & brackets and how they are placed
- Prepare the typodont for the remainder of the exercises for this course and the Level 2 course

Instruments & Materials Needed (Prior to Start of Class):

- Band Pusher/Scaler
- Band Seater/Bite Stick
- Clear Typodont – Specifically from **Ortho Arch**– this has been the model used to size all bands, brackets and appliances that will be used for **ALL** Dr. Williams' courses
- Cotton Tweezers/Slot Aligner
- Deluxe Bracket Placer/Slot Aligner
- Distal End Cutter
- Elastic Remover
- Posterior Band Remover
- Swivel Head Bracket Height Gauge

Materials Provided:

- Straightwire Mini Twin Brackets
- Bands for 1st & 2nd molars with Dr. Williams' prescription
- Super Glue Gel
- Accelerator Spray
- Mechanical Pencil

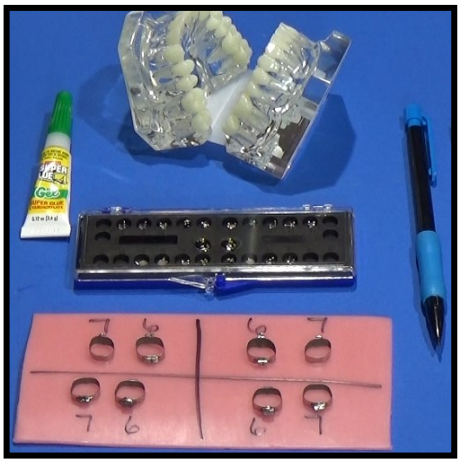
Directions:

1. Correct bracket placement is the key to successful orthodontics. Brackets are routinely placed using the following measurements. There can be adjustments made, as needed. Patients that have shorter or longer than 'normal' clinical crowns may need adjustments. For this exercise, place the brackets following the measurements below. Be aware of the molar bands, first molar band slots cannot be positioned gingivally more than 3.5mm. This is why the measurements below are a good standard to use. Make sure the bracket gauge is parallel to the incisal edge of the tooth and the same angle is used on each tooth.

Upper Centrals	**4.5 mm**
Upper Laterals	**4.0 mm**
Lower Incisors	**4.0 mm**
Cuspids	**5.0 mm**
First Premolars	**4.5 mm**
Second Premolars	**4.0 mm**
First Molars	**3.5 mm**
Second Molars	**3.0 mm**

Note: Remove the molars, seat and glue the bands, LET THEM DRY, then place them back in the typodont.

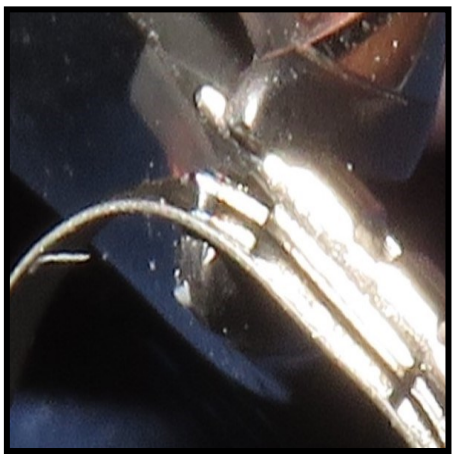
New typodont to band & bracket.



Instruments & materials.

Angulation of gauge is important.

Cleats are sticking out on bands when they arrive.



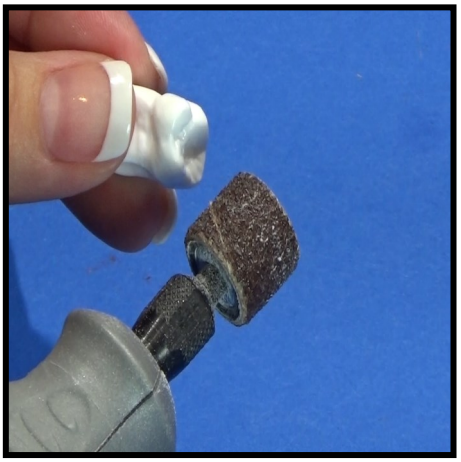
Using a Weingardt plier, push the cleats in toward the band.

This is what it will look like once the cleat is pushed in for patient comfort.

Using a Weingardt Plier, pull the gingival hook out buccally.

This is what the band will look like after making all the adjustments.

Another angle to see the cleats and the hook with the adjustments.

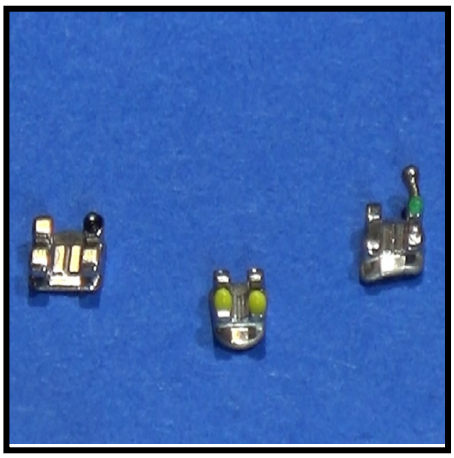


If needed, adjust the molars to fit the bands using the Dremmel tool.

Use a small amount of glue inside the band to seat.

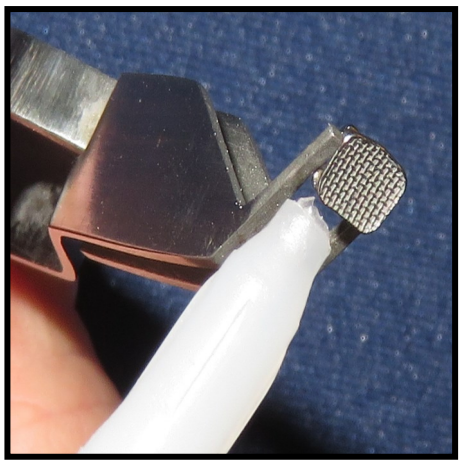
Use the Band Pusher instrument to help seat the bands.

Brackets are laid out in quadrants like the Palmer system-UL UR LL LR.



Mini Twin Brackets.

Brackets will be placed on upper and lower arches 5-5.



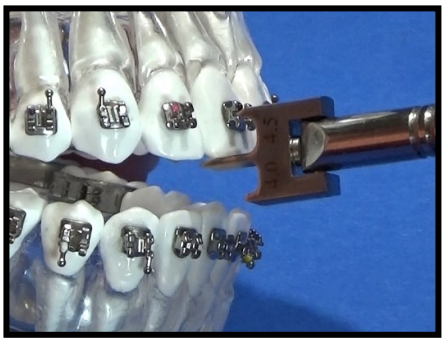
Use a SMALL amount of glue to seat brackets.

Press firmly against the teeth to seat the brackets.

Pay attention to the long axis of the tooth.

Look for the same amount of tooth structure mesial & distal of brackets.

Great view to look for the long axis of the tooth, especially on patients.



Using a bracket height gauge, make sure the tip is in the wire slot.

Measure the length of the arch and cut the wire prior to placement.

Upper Centrals	**4.5 mm**
Upper Laterals	**4.0 mm**
Lower Incisors	**4.0 mm**
Cuspids	**5.0 mm**
First Premolars	**4.5 mm**
Second Premolars	**4.0 mm**
First Molars	**3.5 mm**
Second Molars	**3.0 mm**

Exercise 2

Nitanium Palatal Expander (NPE)

Palatal Expansion

Nitanium Palatal Expander (NPE)

Palatal Expansion

Purpose:

- Achieve lateral arch development
- Ability to rotate maxillary molars
- Attain good arch form in Phase I or Phase II treatment

Instruments & Materials Needed (Prior to Start of Class):

- Flexi-Ruler
- Mathieu Plier– Hook Tip & Wide Tip
- Three Prong Clasp Plier
- Three Prong Plier
- Weingardt Plier

Materials Provided:

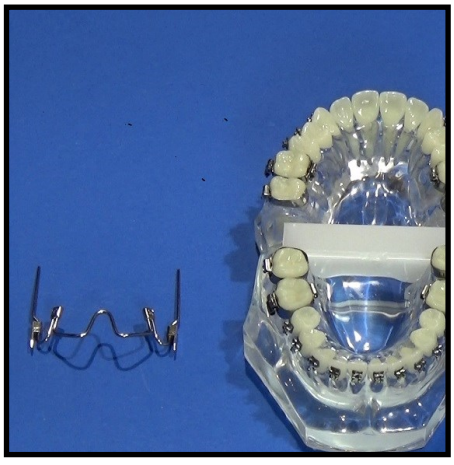
- Nitanium Palatal Expander (NPE)
- Glide –Ties
- Refrigerant Spray

Note:

- If the patient has a narrow palatal arch AND rotated molars, the power arms would need to be adapted lingually so they will not touch the lingual of the premolars or cuspids. As the palate expands AND the molars de-rotate, this creates a pendulum effect on the power arms and could create a reverse (scissor) cross bite. By using a three-prong plier, adapt the power arms closer to the premolars and cuspids as the molars de-rotate. Check these patients regularly to monitor the molars and the patient's bite.
- If no expansion is desired in the premolar and/or cuspid areas, these arms may be completely removed or shorten as needed by using a heavy duty wire cutter.

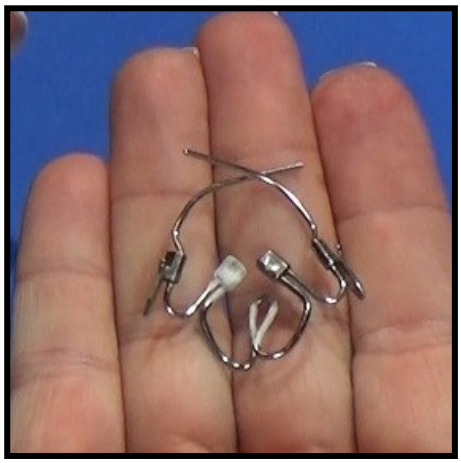
Directions:

Nitanium Palatal Expander (NPE) Kit

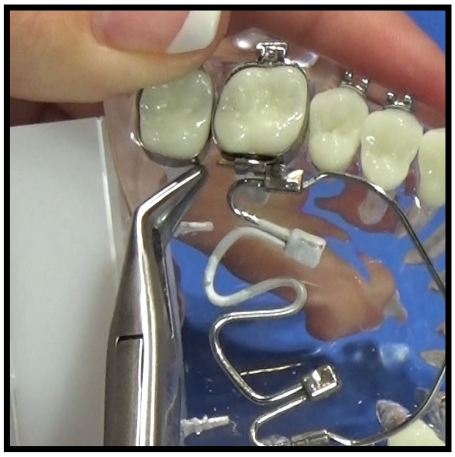


Materials Provided: NPE and refrigerant spray.

Measure lingual to lingual of the 1st molars. Add ~4mm for the size needed.



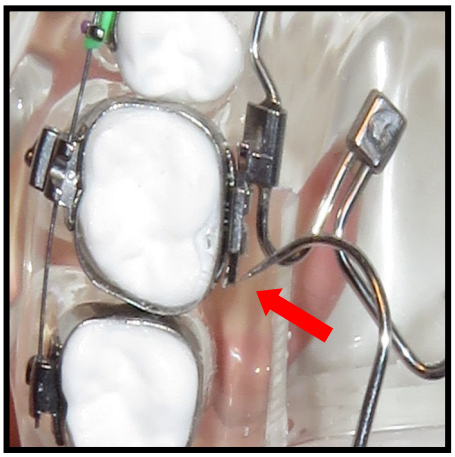
Using ice water allows easier placement in a constricted palate.



Using the Weingardt plier, insert one side of the NPE in the lingual sheath

Opening the Weingardt plier to grab the mesial NPE hook and the very ….

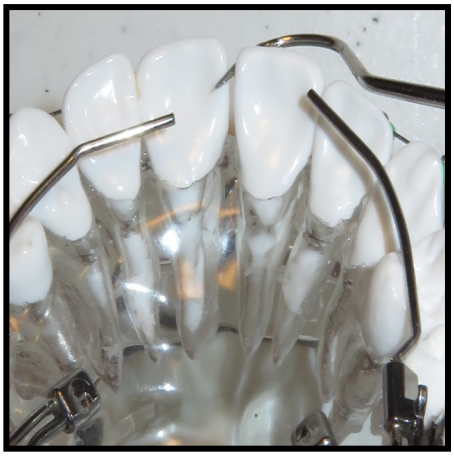
Distal edge of the lingual sheath—squeeze together—NPE will fully seat.



Make sure the distal leg of the NPE is sticking out of the lingual sheath.

Using the Weingardt plier, insert the opposite side of the NPE…….

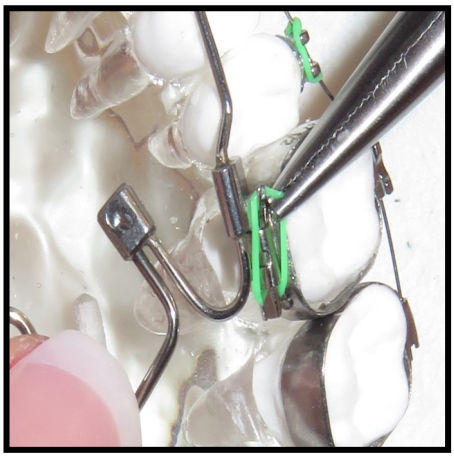
This will allow you to incorporate the entire arch, if needed.



The pressure of the NPE is already making space between the centrals.

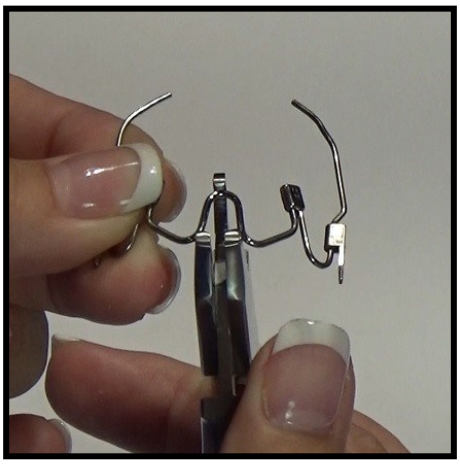
NPE inserted and adapted.

Tie in the NPE using glide-ties. Hook the distal leg of the NPE.



Stretch the glide-tie to the mesial hook on the NPE.

Completed NPE.



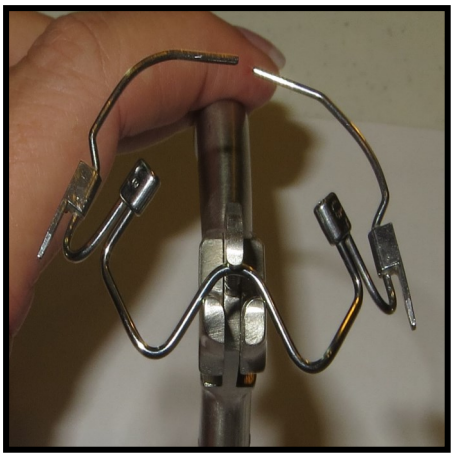
If extra expansion is needed, the NPE can be adjusted to expand more.

Three Prong Clasp Plier—View 1.

Three Prong Clasp Plier—View 2.

Three Prong Clasp Plier—View 3.

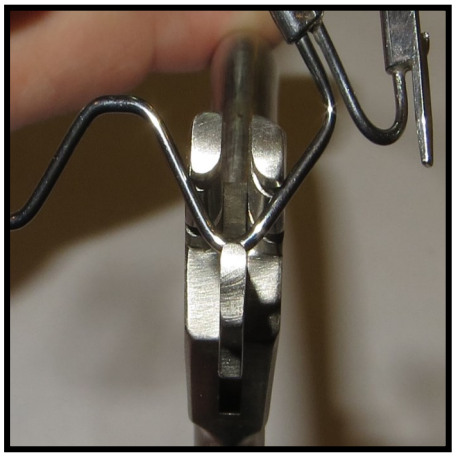
1st bend is made in the center which will widen the NPE.



When this is done, the arms become flared out.

Shown is expansion from original width, with flared arms.

2nd bends will be done on the 2 sides to align the arms again.



Make sure this is done on each side.

Shown is expansion from original width, with arms realigned.

Shown is the amount of expansion achieved.

Re-insert the NPE and tie in, same as before. spray may be needed again.

Exercise 3

Utility Archwires (UAW) for Mixed Dentition

Pre-Fabricated & Incorporating Elastics

Utility Archwires for Mixed Dentition (UAW)

Pre-Fabricated

Purpose:

- Treat patients with mixed dentition - Phase I or Early/Transitioning into Phase II
- Align the anterior teeth
- Advance the anterior teeth, if needed
- Close space in the anteriors
- Rotate the maxillary molars, if needed (TOE-IN)
- Open the bite by intruding the anterior teeth, if needed (TIP BACKS)

Instruments & Materials Needed (Prior to Start of Class):

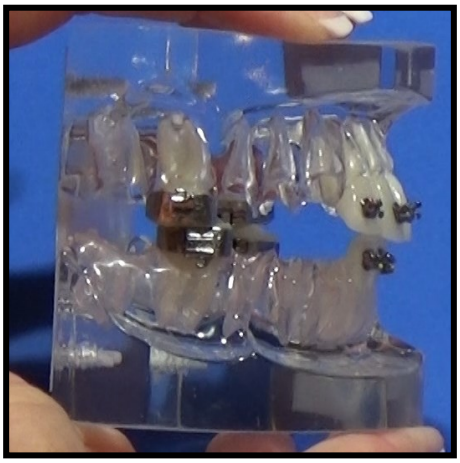
- Angled Utility Arch Plier
- Distal End Cutter
- Elastic Remover- Explorer
- Heavy Duty Wire Cutter
- Mathieu Plier- Hook Tip & Wide Tip
- Weingardt Plier
- Flexi-Ruler
- Arch Markers

Materials Provided:

- .018 Nitinol Upper Pre-Fabricated Utility Archwire
- .016 x .016 Stainless Steel Lower Pre-Fabricated Utility Archwire
- Glide-Ties

Directions:

The prefabricated utility archwire (UAW) comes in kit with different wires sizes and multiple anterior sizes for each wire ranging from **28mm - 42mm.** This UAW comes assembled using 3 sections, an anterior portion and 2 distal portions. **The anterior section is what changes with your wire size and anterior sizes. The distal sections are all .016x.016/Stainless Steel.** These distal legs slide like a trombone onto the anterior section (this is another sizing option for each patient).

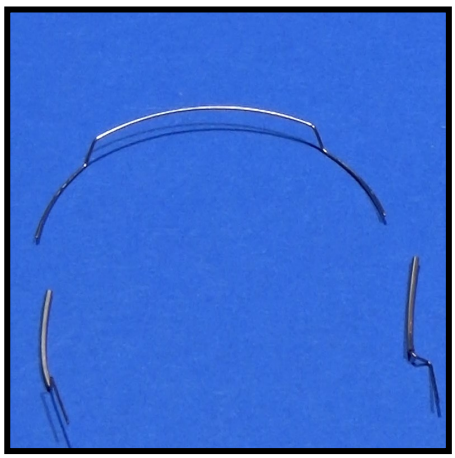


In this exercise, remove 2nd molars and all 3's, 4's & 5's. For Phase I Tx.

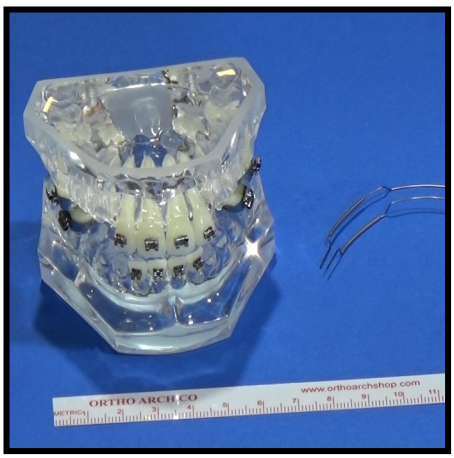
Another view of the typodont prepared for Phase I Tx.

Utility Arch Wire Kit (UAW)

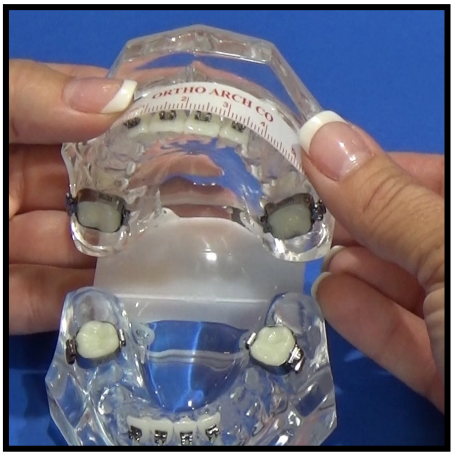
UAW is prefabricated and comes in multiple sizes for the anterior teeth.



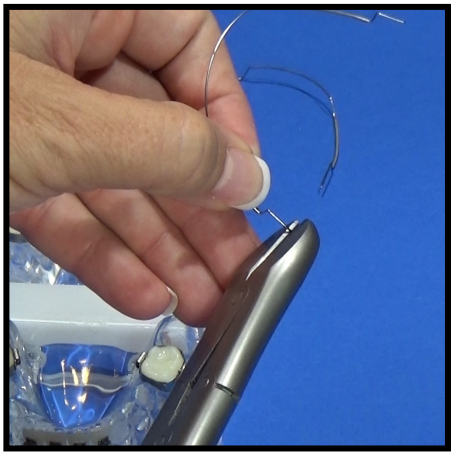
UAW steps up/down to bypass any baby teeth still present. It separates into 3 sections.



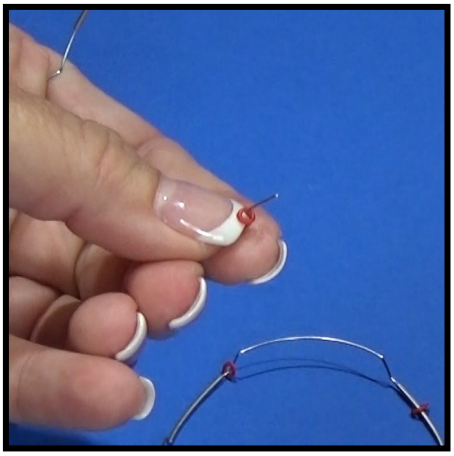
Use a flexible ruler to measure along the arch form to size the UAW.



Measure distal to each lateral for the approximate size needed.

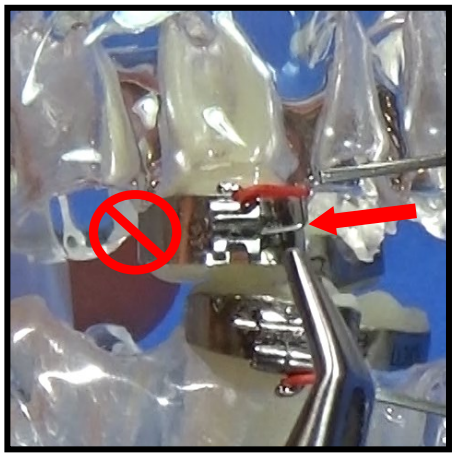


Using the Heavy Duty Wire Cutter, always cut half of the distal legs off first.

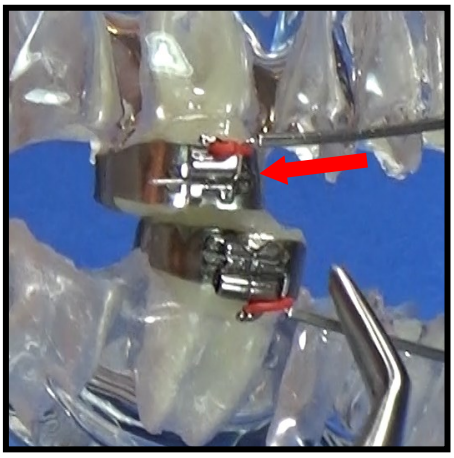


Using a bright color, slide glide-ties on each leg prior to insertion.

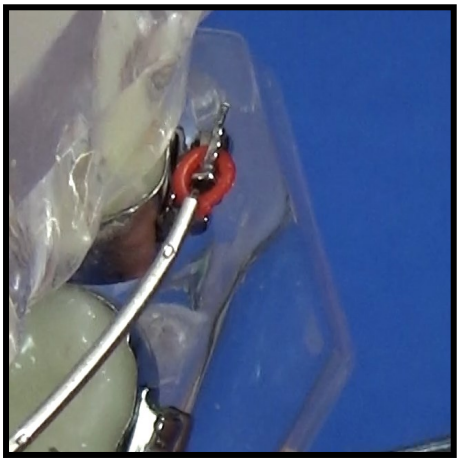
Insert the wire into the wire slot on each 1st molar.



INCORRECT-NOT FLUSH. Very important to make sure the wire is flush with the mesial tube.



CORRECT– FLUSH. Using a Matthieu plier, hook the glide-ties over the 1st molar hooks only.

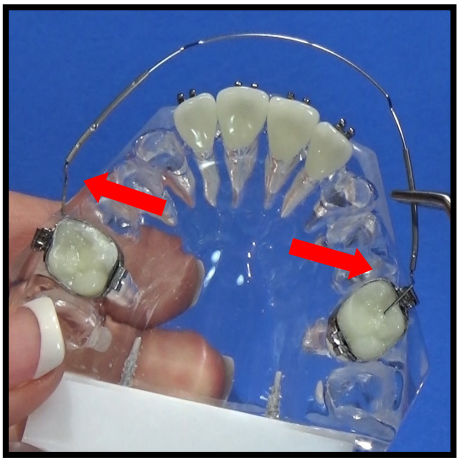


These glide ties will make sure the wire will not pull out.

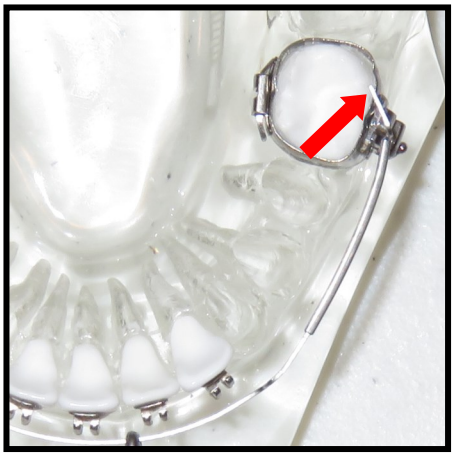
Using glide-ties, tie in each wire.

Completed UAW Typodont.

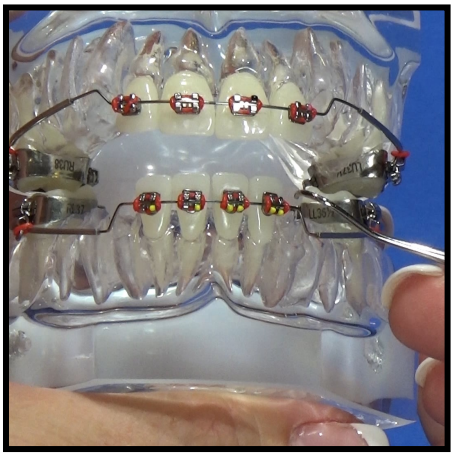
TOE IN BENDS—USED ON ROTATED MOLARS



TOE IN BENDS will rotate 1st molars, notice the 'pigeon toed'…..

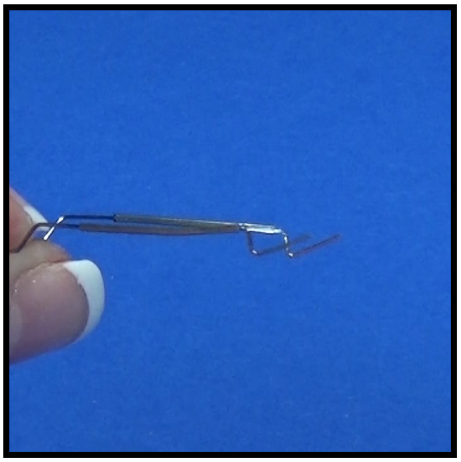


distal legs on the typodont, this can be more challenging to seat the wire.

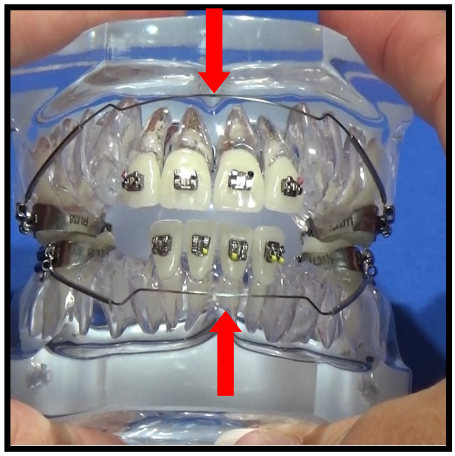


Completed UAW Typodont.

TIP BACK BENDS - USED TO OPEN DEEP BITES

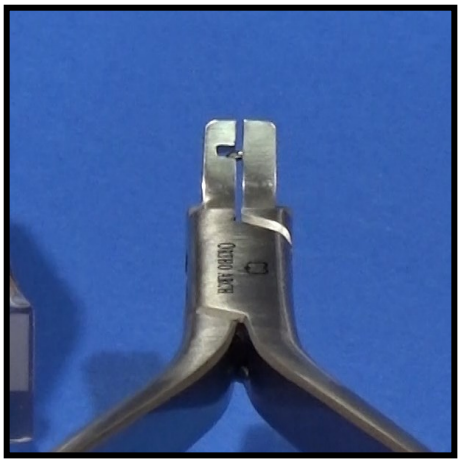


TIP BACK BENDS will open bites with deep anterior bites. Make sure the bends are equal at ~45° angle.



When placed, wires should be in the vestibule, pull wires into brackets to engage & tie in.

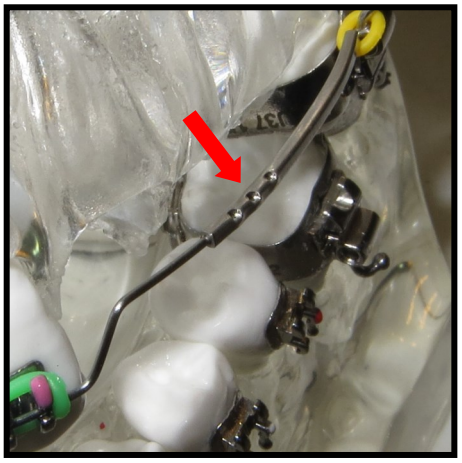
Do this on both arches and this will cause intrusion to open the bite.



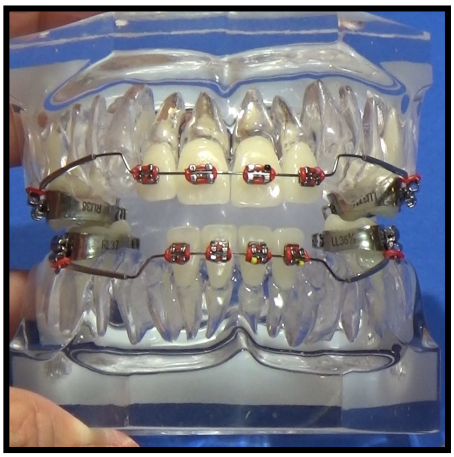
ALL WIRES MUST BE CRIMPED, using the UAW Plier.

Insert wire into the trough on plier and pull away from the gums, this….

Gives some advancement PRIOR to crimping. Squeeze tightly to crimp.

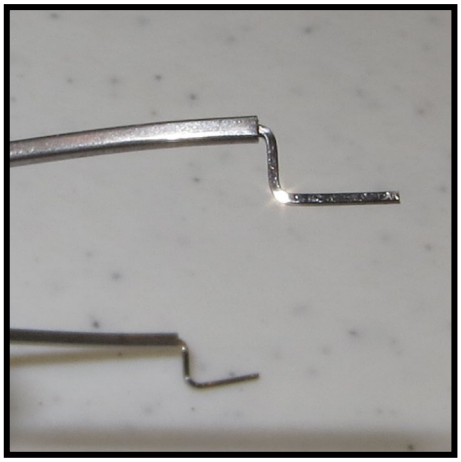


Crimp 2-3 times to ensure wire is now one solid unit.

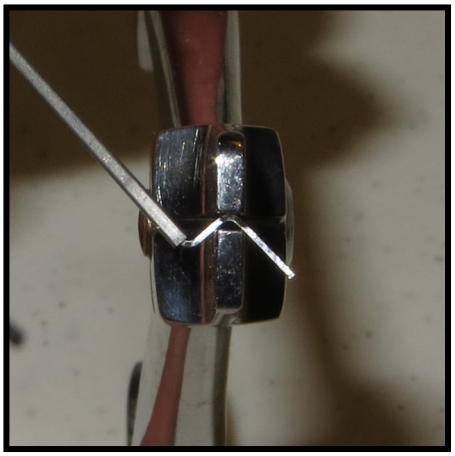


Completed UAW Typodont.

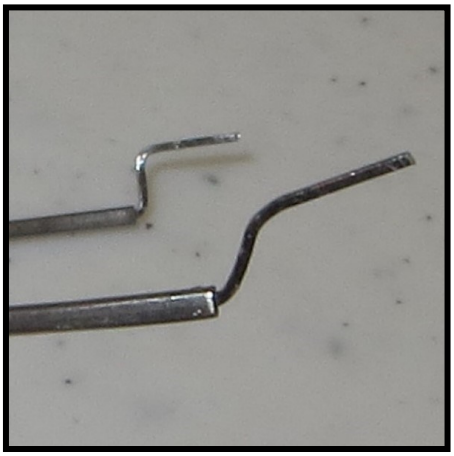
ADVANCEMENT



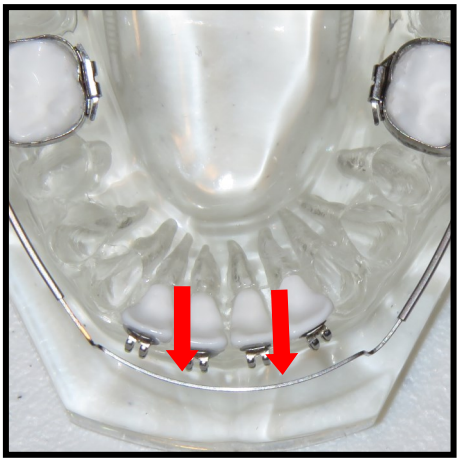
ADVANCEMENT after wires have already been crimped.



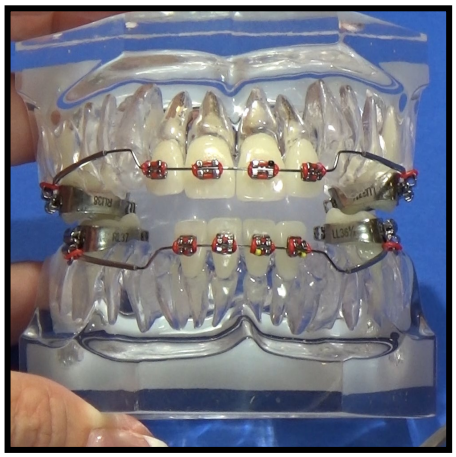
Use a flat-on-flat plier to lengthen the wire from a 90° angle to...



Approximately a 45° angle.

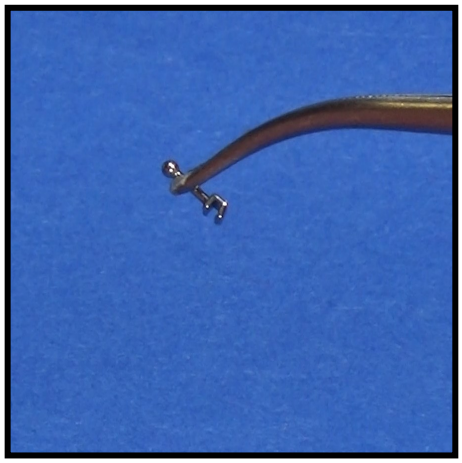


This creates advancement in the wire, gently engage the wire & tie in.

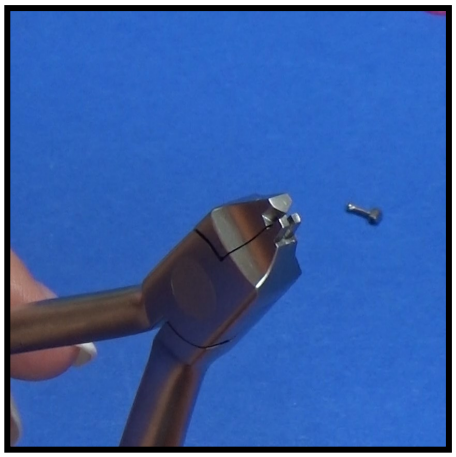


Completed UAW Typodont.

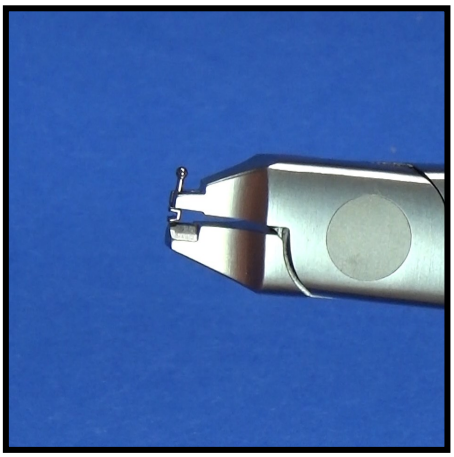
INCORPORATING ELASTICS



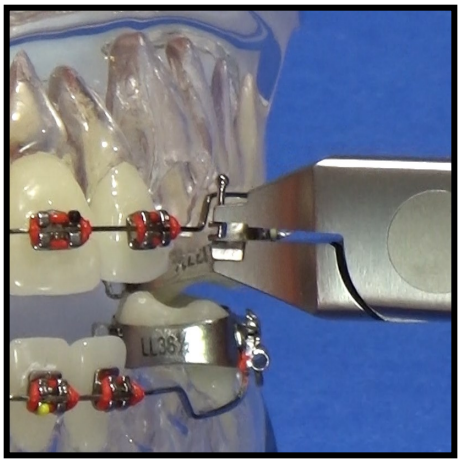
Use crimpable hooks on rectangular wires to incorporate elastics.



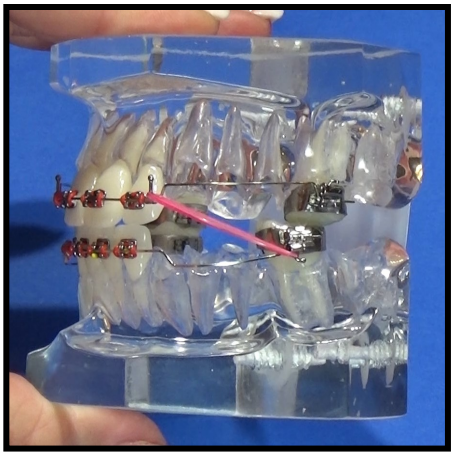
Use the Ultimate Crimping Plier to crimp the hooks on the wire. This can be done intraorally.



Gently pick up the hook with the open side facing out to crimp on the wire.



Crimp distal to the laterals and squeeze tightly to ensure the hook will not move.



This is showing a Class II elastic from the hook to the lower 1st molars.

Completed Exercise.

Exercise 4

Fixed Removable Lingual Arch (FRLA)

Pre-Fabricated

Fixed Removable Lingual Arch (FRLA)

Pre-Fabricated

Purpose:

- Maintain the space obtained in Phase I treatment
- Prevents the molars from moving mesially when the deciduous teeth exfoliate
- Prevents incisors from moving lingually causing loss of arch length
- Can be used for anchorage for certain appliance, if needed
- If Phase II treatment is needed, increases the possibility of the patient returning to your practice

Instruments & Materials Needed (Prior to Start of Class):

- Band Pusher/Scaler
- Hollow Chop Plier
- Mathieu Plier– Hook Tip & Wide Tip
- Pin & Ligature Cutter
- Three Prong Plier
- Weingardt Plier

Materials Provided:

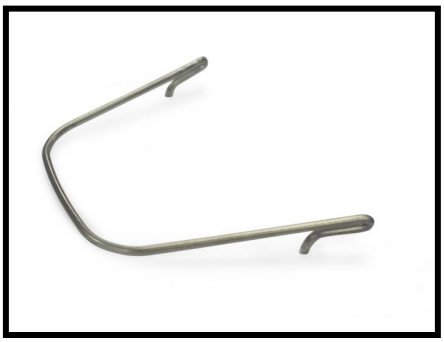
- Pre-Fabricated Lingual Arch
- .012 Long Ligature Wire

NOTES:

- A FRLA can be used on the upper arch, if needed, for anchorage when retracting teeth after the MDA.
- If using the FRLA for short term use, using glide-ties is acceptable. Otherwise, metal ligature ties is the appropriate method since the appliance may stay in long term.

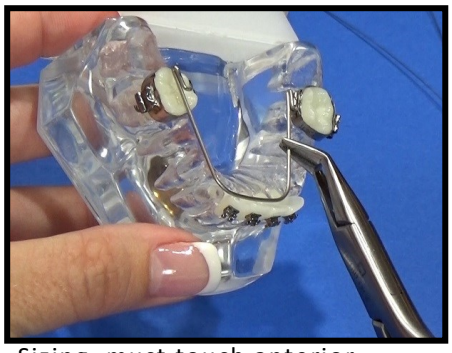
Directions:

Fixed Removable Lingual Arch (FRLA) Kit

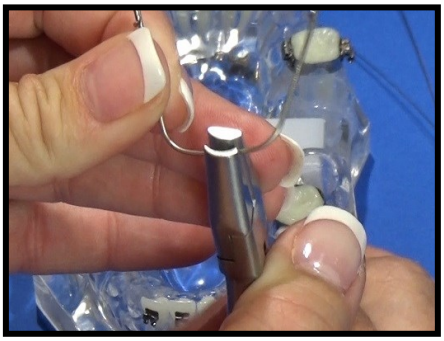


Prefab FRLAs come in 4 sizes 1-4. Used as retainers or for anchorage.

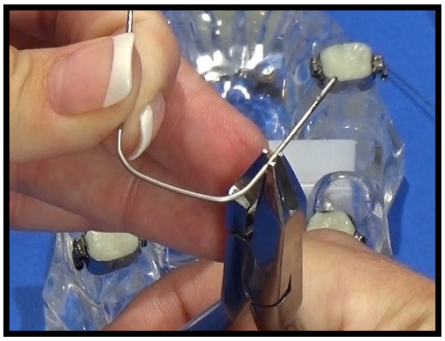
When used as retainers, prior to insertion, heat treat the corners.



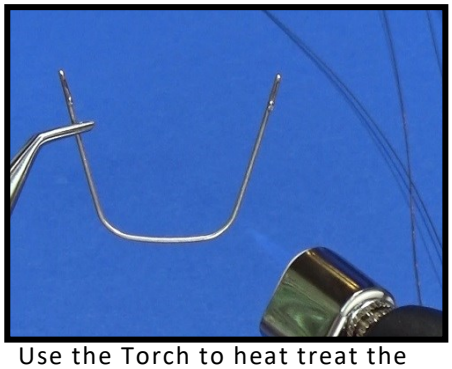
Sizing, must touch anterior teeth & hook is mesial of 1st molar sheaths.



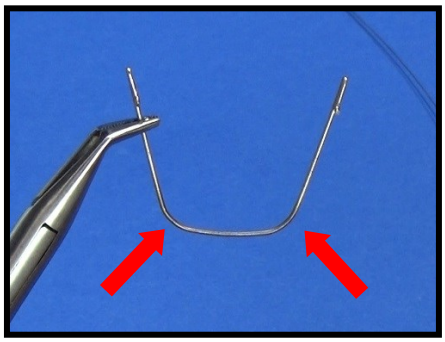
If adjustments are needed, use the Hollow Chop Plier to form the anterior portion.



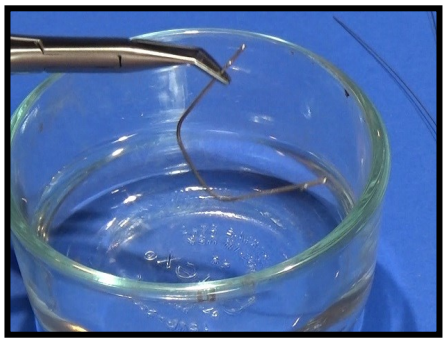
The Three Prong Plier can also be used to make adjustments.



Use the Torch to heat treat the anterior portion.



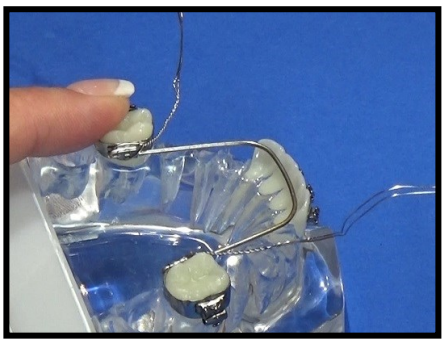
Once heat treated, it will have a ‘straw’ color appearance.



Quench the FRLA is water to set.

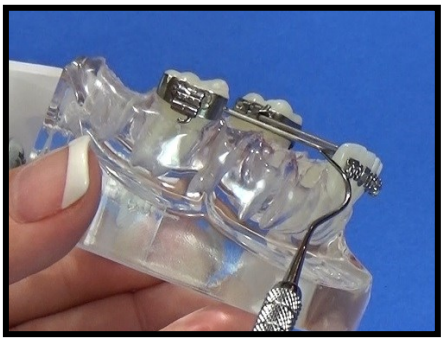
Squeeze appliance into place, FRLA should stick out distal of sheath.

Insert opposite side in the same manner.



Use Metal ligatures to tie the distal cleat & the mesial FRLA hook. Twist firmly until it is snug against the band.

Clip, then tuck Using the Band Pusher, push the ‘pigtail’ where it is not poking.



Notice the position of the anterior portion of the FRLA. Should be more gingival than occlusal.

Shown is the FRLA tied in using metal ligatures.

Exercise 5a

.012 and .014 Nitinol Archwires

Rotation Wedges (RW)

.012/.014 Nitinol Archwires

Rotation Wedges

Purpose:

- .012 Nitinol is first wire placed in Phase II Treatment
- Welcoming patient to orthodontics
- .014 Nitinol is second wire placed and is the ideal wire for use with Rotation Wedges (RW)
- De-rotating Teeth
- Minor mesial-distal movement
- Light force wires, which acquaints the patient with initial tooth movement

Instruments & Material Needed (Prior to Start of Class):

- Band Pusher/ Scaler
- Distal End Cutter
- Elastic Remover - Explorer
- Heavy Duty Wire Cutter
- Ligature Remover/Director
- Mathieu Plier- Hook Tip or Wide Tip
- Pin and ligature cutter
- Weingardt Plier

Materials Provided:

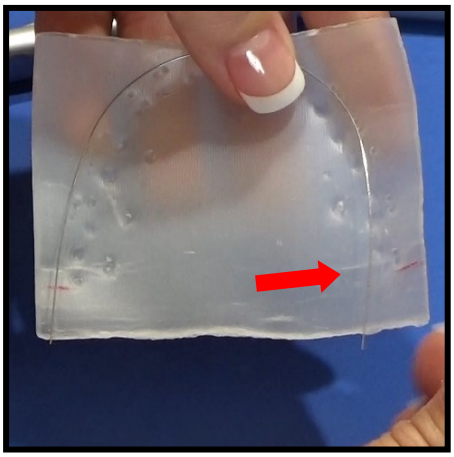
- .012 Nitinol UPPER archwire
- .014 Nitinol LOWER archwire
- Beeswax
- Glide-Ties
- .010 Shorty Ligature Wires
- Rotation Wedges

NOTE: Rotation wedges work on light flexible archwires, like .012, .014 and .018 Nitinol, as the distortion and the memory of the archwires achieve ideal rotation.

Directions:

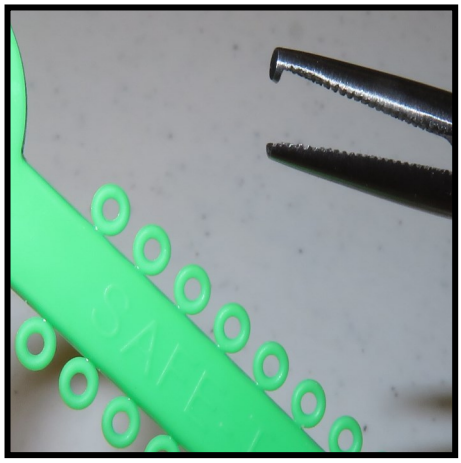
.012/NT (UPPER): First wire used in Phase II Treatment.

May use beeswax to create an impression to size your first wire.

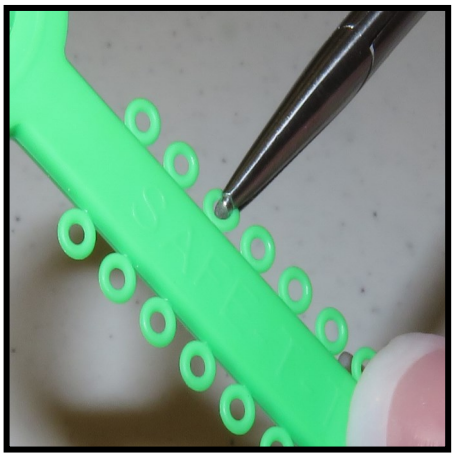


Mark distal of the molars and cut with a Heavy Duty Wire Cutter.

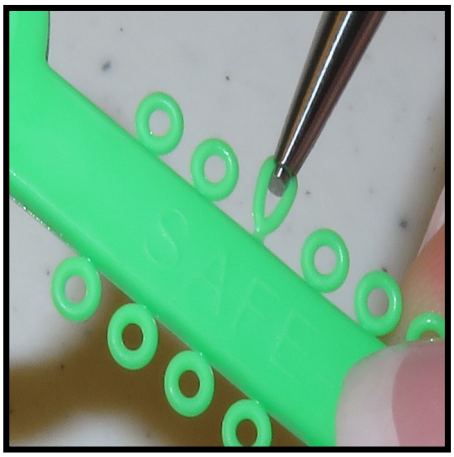
.012/NT - UPPER



Using the Hook Tip Matthieu,



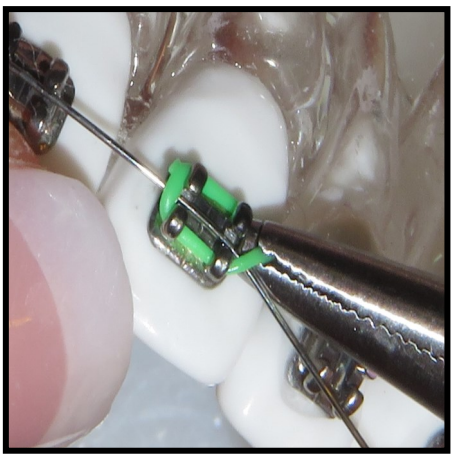
Grab the edge of the glide-tie only. This will make room in the center.



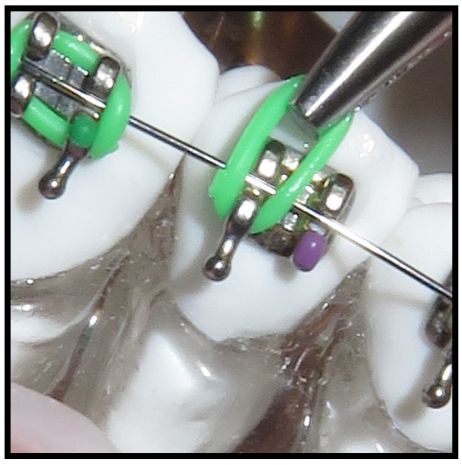
Before clicking the Mathieu closed, pull on the glide-tie.

Use your finger or fingernail to start at any tie wing.

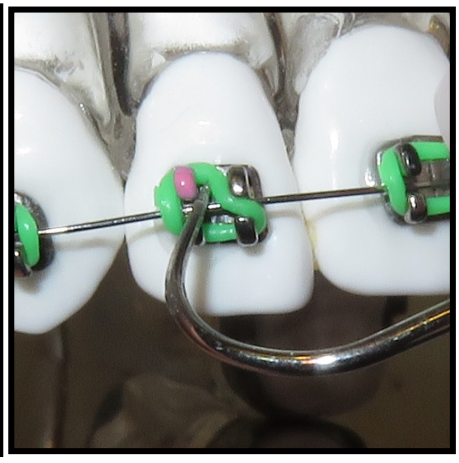
Stretch the tie down or up to the opposite tie wing, then over to the...



3rd tie wing, then ROLL the plier up and over to the 4th tie wing.



TIP: when there is a power arm on a bracket, use that first.



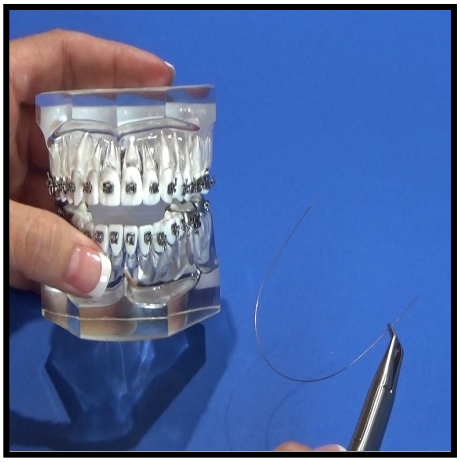
This happens often, go back and use an explorer to get it over the 4th tie wing.

Use the Distal End Cutter to cut any excess wire.

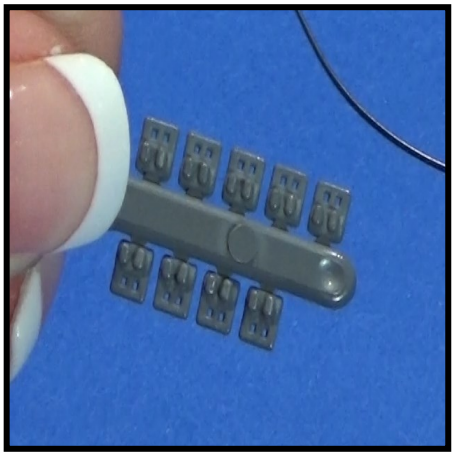
Slide the plier mesially until it is flush against the distal of the

Then clip the extra wire. Make sure you come out with the wire.

.014/NT - LOWER



.014/NT (LOWER): Best wire to use for Rotation Wedges (RW).



Rotation wedges are used to de -rotate teeth.

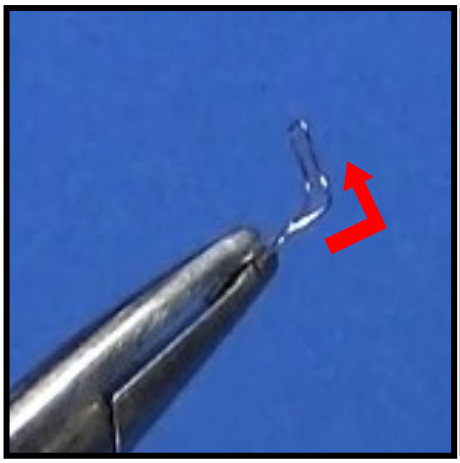
Using a Matthieu, hold in the 'valley' of the rotation wedge.

Place a rotation wedge on distal of LL1.

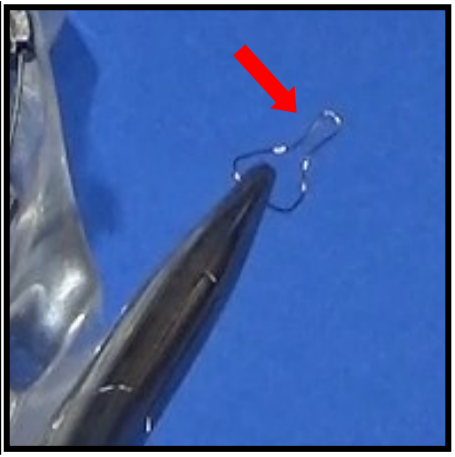
Place a rotation wedge on the distal of LL5.

Insert the .014 Nitinol wire in the lower arch using a Weingardt Plier.

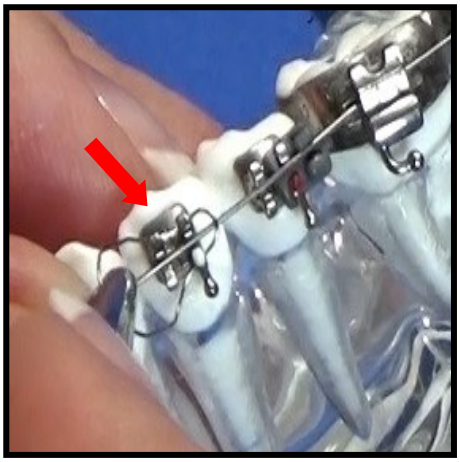
Great storage for the Shorty Twist Ties and Rotation Wedges (RW).



Make sure to grab the pigtail, then bend the tie at a 90° angle.



Then squeeze the end of the shorty tie together with your fingers.

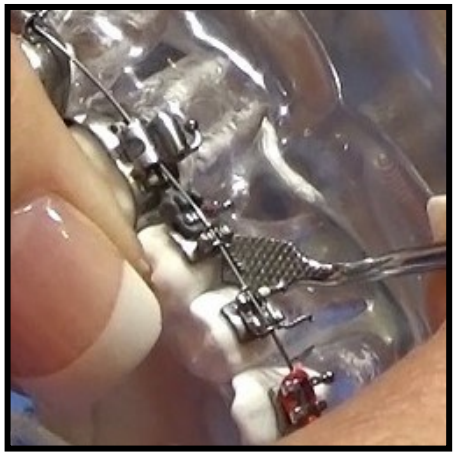


Using your shorty ties, tie in the adjacent teeth, except on molar bands. Tie the entire bracket.

Only **tie in the opposite tie wings** of the rotation wedge, **not the** entire bracket.

Again, tie in the adjacent teeth to the rotation wedge on LL1 and tie in the mesial tie wings only on LL1.

With the Pin & Ligature Cutter, clip the pigtails of all the shorty ties.



With the Band/Pusher Scaler, tuck the pigtails under the wire. Cut any distal ends that are long.

Completed exercise with an UPPER .012 Nitinol & LOWER .014 Nitinol archwire with Rotation Wedges (RW).

Exercise 5b

.018 Nitinol Archwires

Leveling the Curve of Spee with Figure 8's

.018 Nitinol Archwires

Leveling the Curve of Spee with Figure 8's

Purpose:

- Continues to level, align, and rotate the teeth
- Begins to open the bite
- Starts to get a good arch form
- Understanding how to figure 8

Instruments & Material Needed (Prior to Start of Class):

- Distal End Cutter
- Elastic Remover
- Heavy Duty Wire Cutter
- Pin & Ligature Cutter
- Mathieu Plier– Hook Tip & Wide Tip
- Weingardt Plier

Materials Provided:

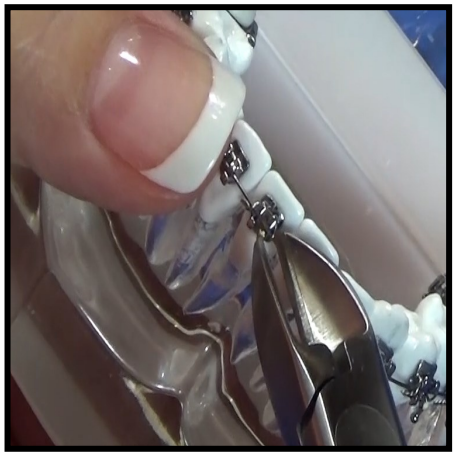
- .018 Nitinol Archwires
- Glide-Ties

Directions:

REMOVING GLIDE TIES AND METAL TIES

Typodont from previous exercise.

Use an Explorer to remove the glide ties by inserting it by the tie wings.



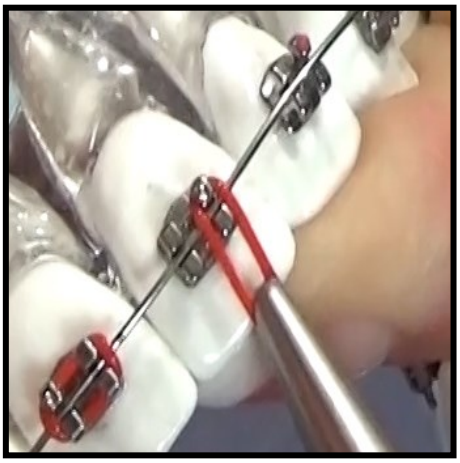
Use a Pin & Ligature Cutter to cut the metal ties at the corner of the wire and the bracket.

Instead of cutting the metal ties, untuck the 'pigtails' and untwist them to loosen and remove.

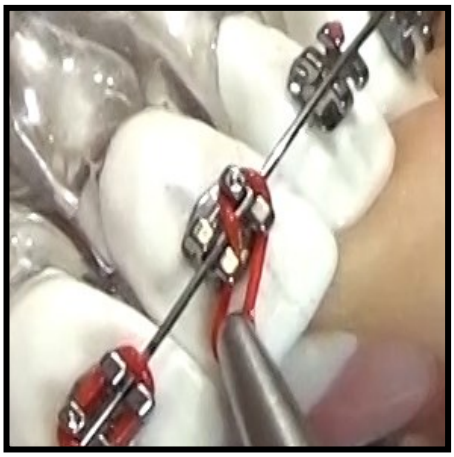
Remove the wires, then remove the Rotation Wedges by using a Flat Tip Matthieu Plier

Using an Explorer can be used to remove Rotation Wedges as well. Similar to removing ties.

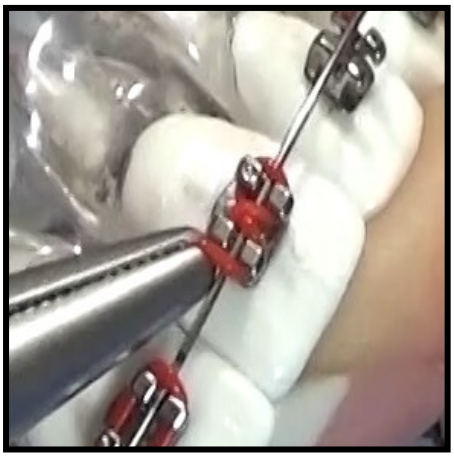
.018/NT WITH FIGURE 8's



Use your finger or fingernail and start at any tie wing.

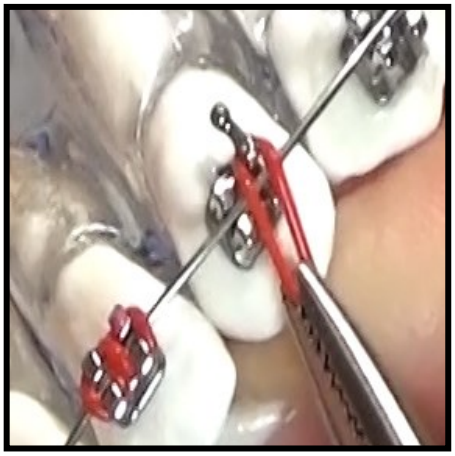


SWING SIDEWAYS to catch the opposite 2 tie wings at the same time.

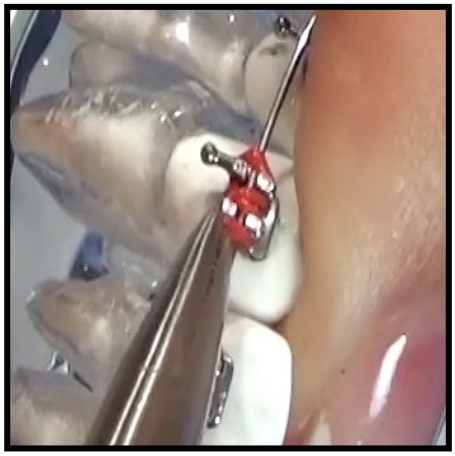


ROLL the plier up and over to catch the 4th tie wing.

Make sure it is fully engaged on the 4th tie wing.



TIP: when there is a power arm on the bracket, use that first.



Following the same steps.

Using the Distal End Cutter, cut flush to the distal of the molars.

Check & verify that the cut wire is not left in the patient's mouth.

Upper arch tied in with Figure 8s.

Exercise 6

.020 Stainless Steel Archwires*

A. **Open Coil Spring (OCS)**

Opening Space

B. **Accentuated Curves & Reverse Curves (AC/RC)**

Opening Deep Bites

* The .020 Stainless Steel Archwires are part of the Williams Straight Wire Series. If none of the above conditions apply, place wire as is.

.020 Stainless Steel Archwires

A. Open Coil Spring (OCS)

Purpose:

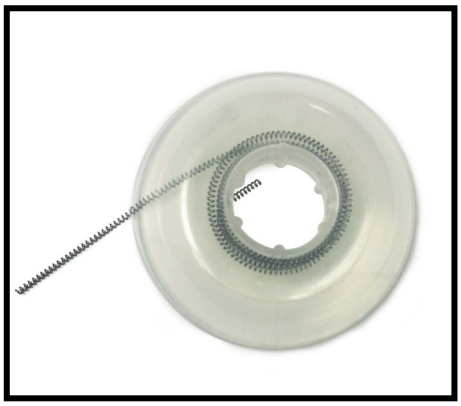
- Opens space for blocked out teeth—ACTIVE
- Holds space for an erupting tooth—PASSIVE
- Can be used unilateral or bilateral
- Understanding the use of the V-Stop Plier

Instruments & Materials Needed (Prior to Start of Class):

- Arch Markers
- Band Pusher/Scaler
- Distal End Cutter
- Elastic Remover - Explorer
- Heavy Duty Wire Cutter
- Ligature Remover/Director
- Mathieu Plier– Hook Tip & Wide Tip
- Pin and Ligature Cutter
- Weingardt plier
- “V” Band Stop Plier

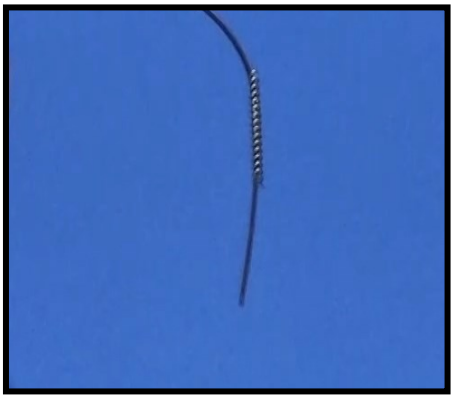
Materials Provided:

- .020 Stainless Steel Archwires
- Open Coil Spring – Nitinol (.010 x .030 Lumen)
- .010 Shorty Ligature Wires
- Ultimate Crimpable Stops
- Glide Ties

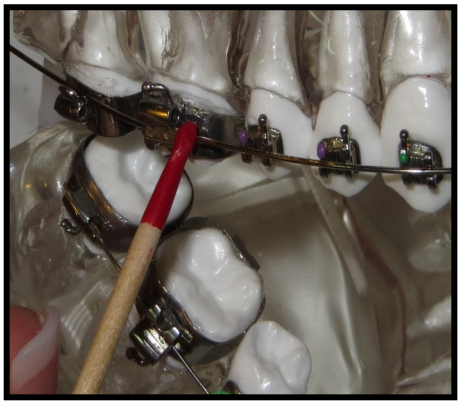


Open Coil Spring—Nitinol .010 x .030.

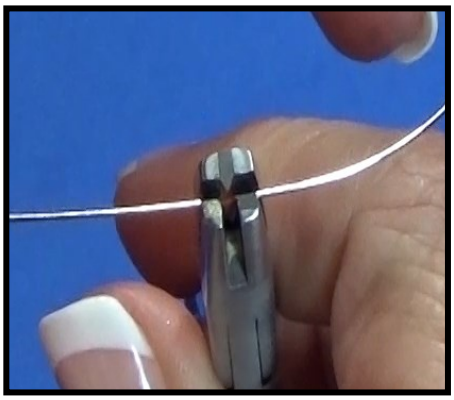
To measure for an ACTIVE spring, measure the space + 1 bracket width.



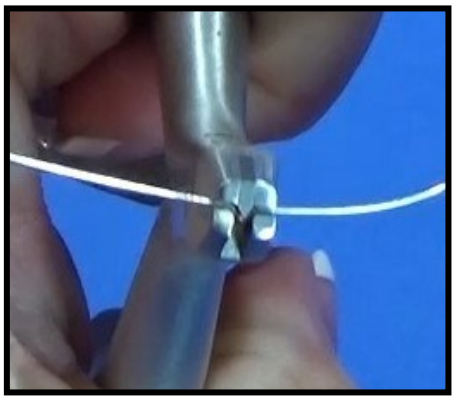
Slide the spring on the wire.



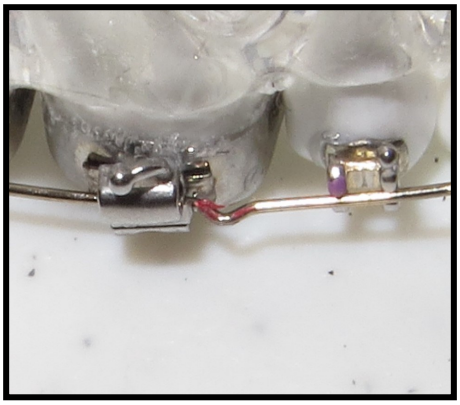
Make a mark on the wire mesial to the 1st molar tube.



Using a “V”-Stop plier, place the point of the plier on the red mark.



Squeeze tightly to create the V-Stop in the wire.

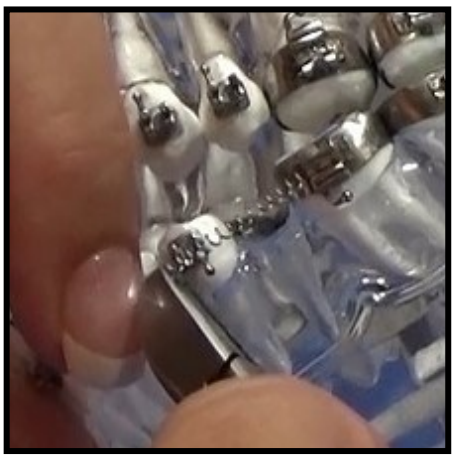


Insert the wire and make sure the stop is flush with the 1st molar.

With the OCS on the wire, metal tie the most posterior bracket first, UL3.

Pull the OCS back to engage & tie in the UL1.

UL1 & UL3 tied in with shorty ties. **ACTIVE** Open Coil Spring—Nitinol .010 x .030.



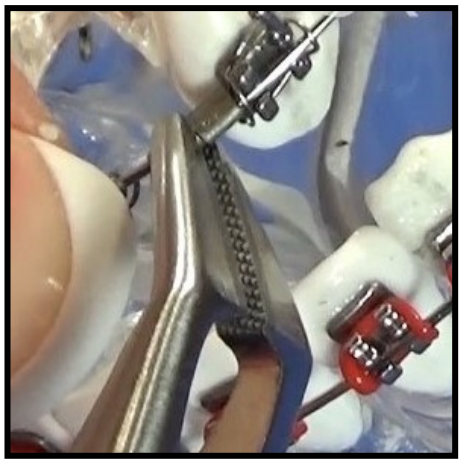
Again, measure for an **ACTIVE** OCS with the space + 1 bracket width.

Slide the spring on the wire. Using a shorty tie, ligate the 4s (1st premolars).

Follow-up visit: to reactivate OCS, crimpable stops can be added.

Using a Weingardt Plier, flatten the crimpable stop onto the wire.

The OCS is now **ACTIVE** again.



Multiple crimpable spacers can be used to continue to activate OCS.

The OCS is now **ACTIVE** once again using multiple crimpable stops.

Completed exercise with an upper unilateral OCS with a “V” stop and a bilateral OCS on the lower.

.020 Stainless Steel Archwires

B. Accentuated Curves & Reverse Curves (AC/RC)

Purpose:

- Continues to level and align
- Flattens out Curve of Spee
- Opens bite
- Ability to intrude anterior teeth with or without flaring
- Obtains arch symmetry

Instruments & Materials Needed (Prior to Start of Class):

- Distal End Bender
- Distal End Cutter
- Heavy Duty Wire Cutter
- Hollow Chop Plier
- Mathieu Plier– Hook Tip & Wide Tip
- Weingardt Plier
- "V" Band Stop Plier

Materials Provided:

- .020 Stainless Steel Archwires
- Glide Ties

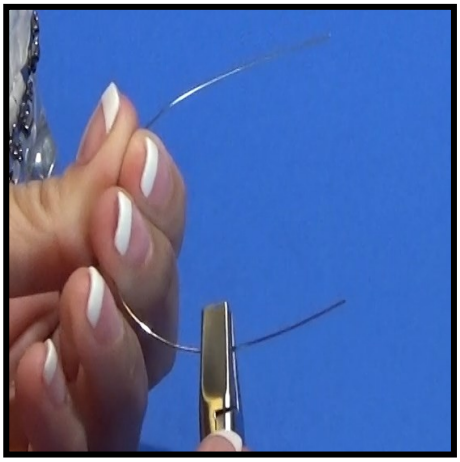
NOTE: This method to open bites should **never be reversed** to close a bite. The method used to close an open bite is with anterior box elastics.

Directions:

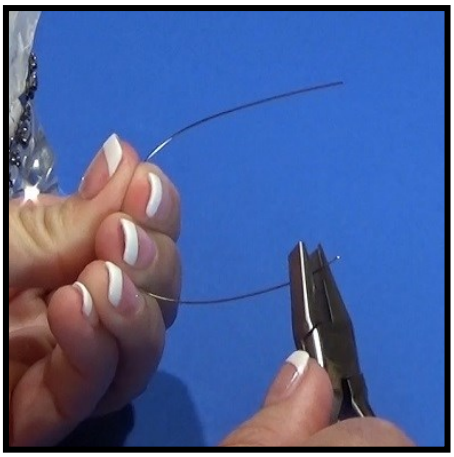
Use the Hollow Chop Plier to sweep curves in stainless steel wires.

Distal End Bender is used to create true intrusion in wires with AC/RC.

Slip this over the distal end of the wire to create 90° bend.

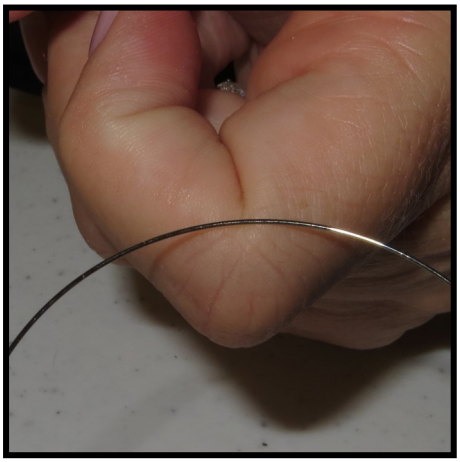


Start at the canine area and curve down to the premolars.

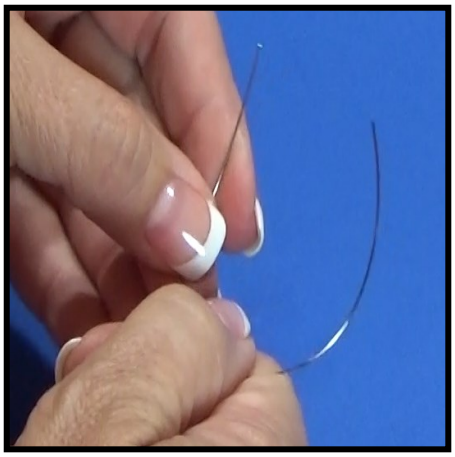


Gently sweep the plier from the canines towards the end of the wire to create a smooth curve.

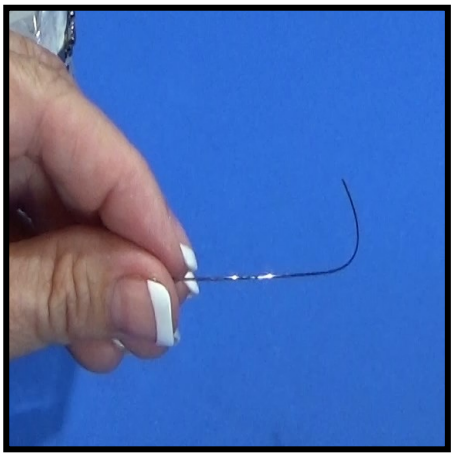
Repeat for the other side. Make sure the curves are balanced and equal.



Find the midline mark on the wire.

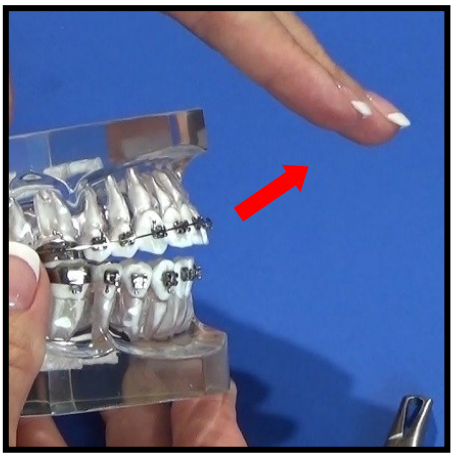


Hold firmly with one hand while using your fingers or nails to sweep a curve in the wire. Starting at the canine area.



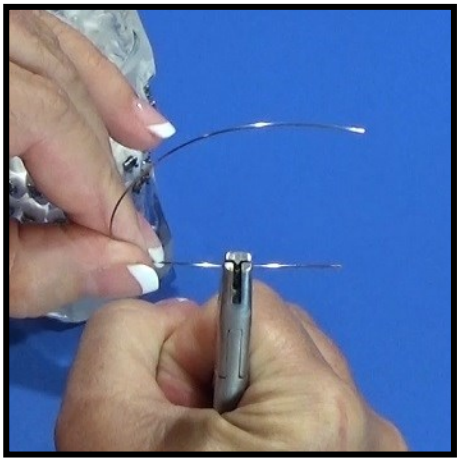
Bends must be equal to one another or the arch may become canted.

Insert the upper wire and notice the wire curving towards the vestibule.

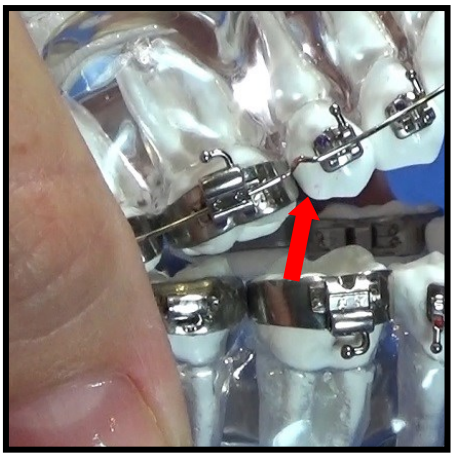


When the wire is engaged and NOTHING else is done, this curve may cause FLARING of the anterior teeth.

To STOP FLARING of the anterior teeth a STOP must be created. Make a mark DISTAL to the 2nd premolars.



Use the V Stop Plier on the mark just made.



This creates a STOP to prevent the wire from sliding FORWARD creating FLARING.

Another way to STOP the wire from sliding forward is to place a bend distal of the molars using a Distal End Bender.

Leave EXTRA wire to create a 90° bend to STOP the anterior teeth from flaring.

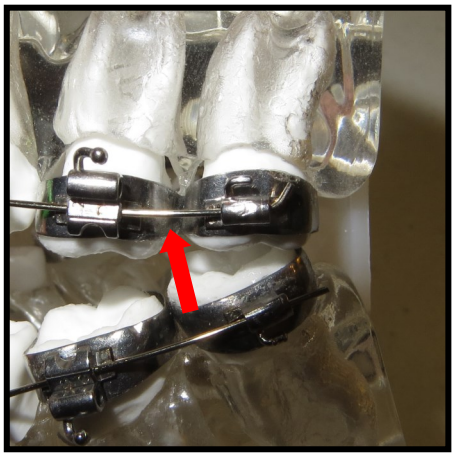
Wire is prevented from sliding forward with this bend in the wire.

These STOPS will cause true intrusion WITHOUT FLARING.

IMPORTANT the wires must always go to the vestibule. Top is a **MEDIUM CURVE,** lower wire is a **HEFTY CURVE.**

Tie in the wires using Glide Ties.

If a DISTAL END BEND was used to stop flaring an additional step must be taken when REMOVING the wire.



To remove the wire, it must be cut between the molars.

After removing the ties, use the Distal End Cutter to cut the wire between the molars.

The distal segment will have to be removed distally.

Exercise 7

.016 x .022 Nitinol Archwires*

Level & Align Arches

* At this point in the wire series, it is a good idea to take a pano to check root positioning. If any repositioning needs to occur, this is the optimal wire to use for bracket repositioning.

.016 x .022 Nitinol Archwires

Level & Align Arches

Purpose:

- Continues the leveling process
- Continues to flatten out the curve of Spee
- Obtains arch symmetry

Instruments & Materials Needed (Prior to Start of Class):

- Distal End Cutter
- Heavy Duty Wire Cutter
- Mathieu Plier—Hook Tip or Wide Tip
- Weingardt Plier

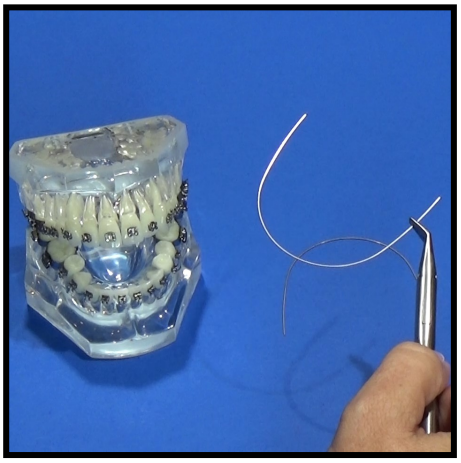
Materials Provided:

- .016 x .022 Nitinol Archwires
- Glide-Ties

Note:

- This step in the wire series can be skipped if the patient is in an .020 Stainless Steel with curves and/or bends that have been placed in that stainless steel wire. If these curves and/or bends need to be duplicated in the next wire, proceed to the .016 x .022 Stainless Steel archwire, if possible.

Directions:



A nitinol wire is extremely flexible and can be used after rebracketing.

Tie the wire in as usual using glide-ties or metal ligatures.

Completed typodont.

Exercise 8

.016 x .022 Stainless Steel Archwires*

- **Power Chain (PC) - Short**
  - Closing Space
- **AC/RC with Buccal Root Torque (BRT)**
  - Opening Deep Bites

* The .016 x .022 Stainless Steel Archwires are part of the Williams Straight Wire Series. If none of the above conditions apply, place wire as is.

.016 x .022 Stainless Steel Archwires

AC/RC with Buccal Root Torque (BRT) & Power Chain

Purpose:

- Continues to level and align
- Flattens out Curve of Spee
- Opens bite
- Obtains arch symmetry
- Proper angulation
- Proper inclination

Instruments & Materials Needed (Prior to Start of Class):

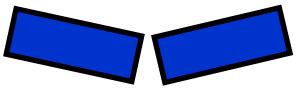
- Distal End Cutter
- Heavy Duty Wire Cutter
- Hollow Chop Plier
- Mathieu Plier– Hook Tip & Wide Tip
- Ribbon Arch Plier (2)
- Weingardt Plier

Materials Provided:

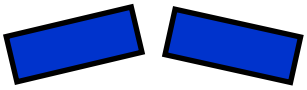
- .016 x .022 Stainless Steel Archwires
- Power Chain (Short) - Full Arch

NOTE:

- Remove the lingual root torque created by the compensating curve with the Ribbon Pliers. This is accomplished by holding the wire with one plier in the cuspid region, grasping the distal end of the wire with the other plier, and twisting the wire 180°. You can see if you have taken out the lingual crown torque by holding the wire at the distal end with one Ribbon Arch Plier and looking at the angle of the wire.



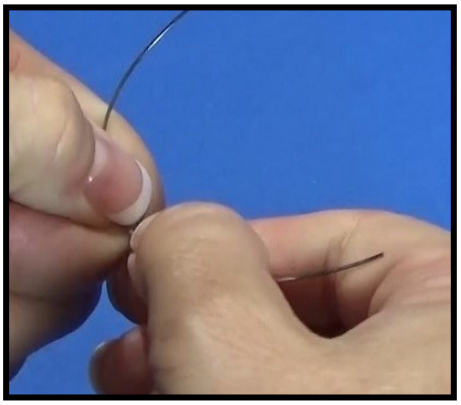
Archwire after AC (Lingual Root



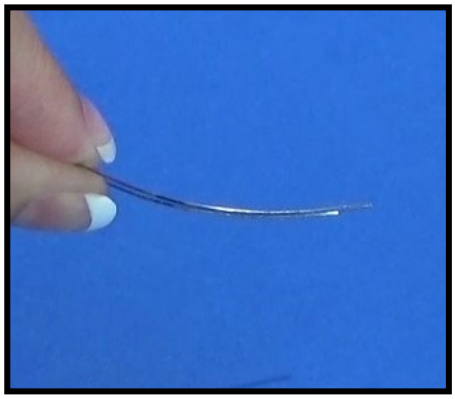
Archwire after De-Torquing

- This method to open bites should **never be reversed** to close a bite. The method used to close an open bite is with anterior box elastics.

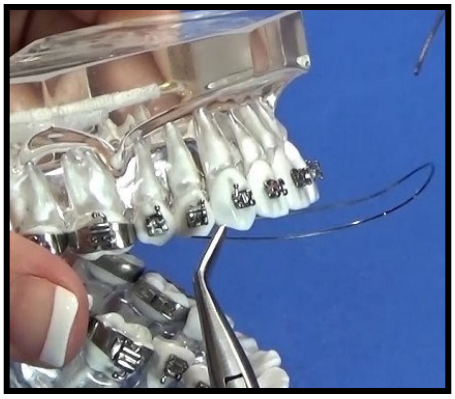
Directions:



Find the midline mark & add AC/RC using your fingers or Hollow Chop.

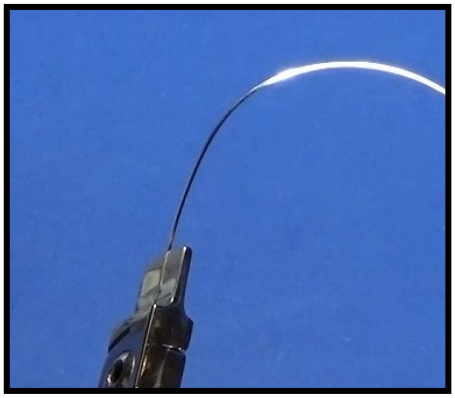


Make sure the curves are equal.

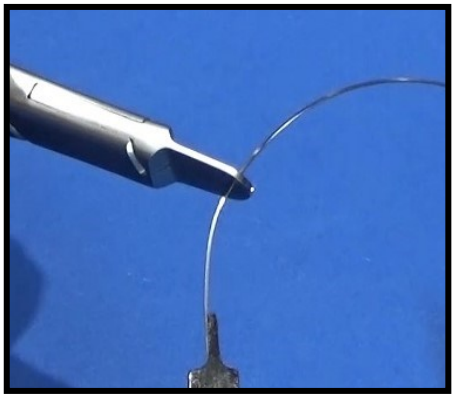


Place the archwire through the wire slots on the molar bands.

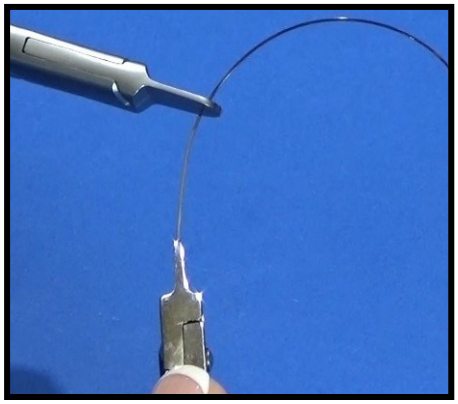
The Ribbon Arch Pliers will be used to add Buccal Root Torque (BRT).



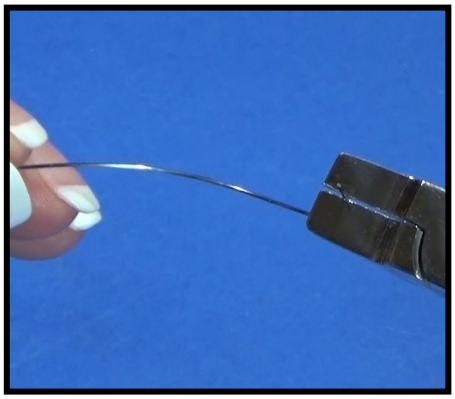
Using one of the Ribbon Arch Pliers, grab the end of the arch-wire.



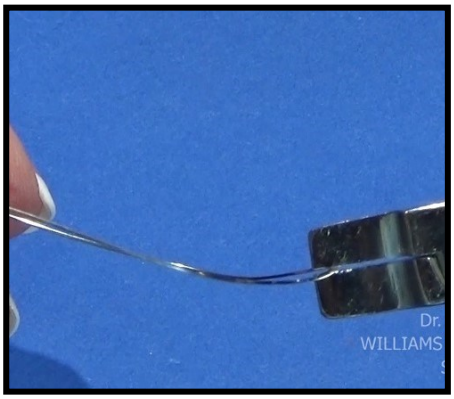
Using the second Ribbon Arch Plier, grab at the canine area.



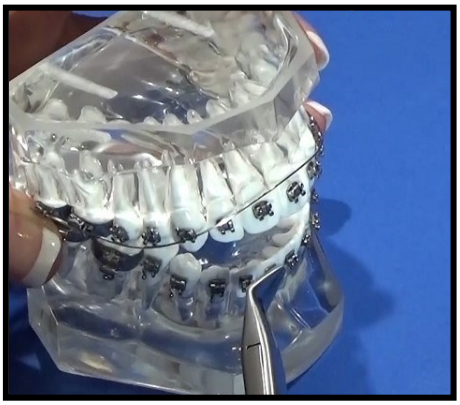
With a death grip on the pliers, twist the distal leg towards the cheek.



Holding the torqued leg, it is easily seen that the wire is bent buccally.



Holding the anterior portion, the lingual root torque can be seen.



Make sure all curves go toward the vestibules.

Complete exercise using power chain to stop any flaring and closing any spaces.

Completed exercise.

Phase II– Treatment Plan I (for Class I cases)

- Continue with the .018 x.025 Stainless Steel archwire with power chains (PC) for 2-3 months
- Cross Arch Elastics and Sectionals are made from the .018 x .025 Stainless Steel wire, Leave for 1 month
- Then start the removal process

Phase II—Treatment Plan II (for Class II cases)

- Continue to the .018 x .025 in the lower arch
- Distalization—MDA on the upper with Class II elastics
- Continue the Treatment (SWS) per Treatment Plan II until patient is a Class I dentition. The removal process is now the same as a Class I

Preparing & Placing the MDA

On The UPPER Arch - This Can Also Be Used On The Lower Arch

The MDA

- Can be used on both arches towards the end of treatment
- Comes in Sizes 1-9
- Sizes 4 & 5 are the most common (start there)
- Lots of Little Details – Let's break it down into 3 Sections:
    - Preparing the Patient
    - Preparing the Appliance
    - Placing the Appliance

Preparing The Patient

- Place the .018x.025/SS arch wire on the opposing arch using Glide Ties or Power Chain
- Size the appliance by using a wax pattern taken on the patient – Marking the midline & mesial to buccal tubes on 1st molars (6s)
- Remove the brackets on the 2nd Premolars (5s)
- Place sectional wires using the existing .016x.022/SS from the 6s-7s (both sides) – Molars will track back together

Preparing The Appliance

- Bend the distal legs buccally – they are tipped in
- Smooth the distal ends – could be burs from production
- Squeeze the omega loop legs together
- Bend the omega loops away from the tissue – buccal
- Make offset bends at the cuspids – make the mark mesial
- Cut 5-6mm springs (.010 x .045/Nitinol) for each side to distalize

Placing The Appliance

- Use Vasoline to hold the springs in place
- Place LONG ligatures around the 1st premolar (4s) brackets ("cat whiskers")
- Insert the MDA and tie the LONG ligatures to the hooks on the MDA – Cinching it into place
- Tie-in the laterals (2s) with shorty ties around the entire bracket
- Power Chain (PC) mesial 2-2
- Activate the MDA using the Omega Loops by opening the legs and compressing the springs
- Elastic wear 24/7 - 2 Medium per side - Stress the importance
- Appoint MDA patients every 3 weeks to monitor progress

Straightwire Series

Reviewing the Case

Class I- Before the Finish

Class II- Before Distilization

Review:

- Through the prior exercises, we have progressed through a straightwire series of archwires and we have employed the straight-wire appliance to level the arches, remove the Curve of Spee, correct rotations, open the bite, correct limited cross bites, open up space for blocked out teeth, achieved mesiodistal tip, labiolingual torque, and attain a broad arch form. We have progressed toward the six keys of occlusion.

- The final archwire in the straight-wire series in Class I mal-occlusions is the .018 x .025 stainless steel archwire. This archwire is left in the arch for 2-3 months to let the periodontal ligaments of the teeth settle in.

- Prior to placing this archwire, it is a good practice to take a panographic radiograph to check root inclinations and in turn bracket positioning.

- If a root is not in an acceptable inclination, the bracket is not positioned properly. Remove the bracket, and then reposition the bracket associated with the tooth, place a .018 nitinol or .016 x .022 nitinol for a month, and then progress back up to the .018 x .025 stainless steel.

- Again, the wire series is as follows for a Class I:
  - .012 nitinol
  - .014 nitinol
  - .018 nitinol
  - .020 stainless steel (AC/RC – TB)
  - .016 x .022 nitinol
  - .016 x .022 stainless steel
  - .018 x .025 stainless steel

- ***In a Dental Class I malocclusion, after the .018 x .025 stainless steel archwire, you would Skip to Exercise 14 (Cross Arch Elastics and Sectionals) and Exercise 15 (Bond-A-Braid).***
- The case should be finished.

- ***However in a Class II Dental malocclusion, you would progress with the next sequence of exercises.***
- ***The following exercise is to correct the Dental Class II mal-occlusion and attain the***

Exercise 9

Multi Distalizing Arch (MDA)-Stainless Steel

Molar Distalizing Appliance

Multi Distalizing Arch (MDA)

Molar Distalizing Appliance

Purpose:

- Distalize maxillary molars bilaterally or unilaterally
- Distalize mandibular molars bilaterally or unilaterally
- Can be used to move the maxillary or mandibular teeth forward (with no elastics)

Instruments & Materials Needed (Prior to Start of Class):

- Arch Markers
- Band Pusher/Scaler
- Distal End Cutter
- Elastic Remover/Explorer
- Heavy Duty Wire Cutter
- Ligature Remover/Director
- Light Wire Plier (Long Bird Beak)
- Mathieu Plier– Hook Tip & Wide Tip
- Optical Plier (Occulist)
- Pin and Ligature Cutter
- Step Plier—3/4mm
- Weingardt plier

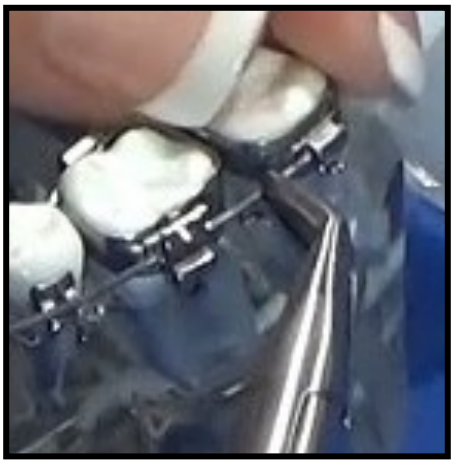
Materials Provided:

- .016 x .022 Stainless Steel UPPER Archwire (Sectionals for 6s and 7s)
- .018 x .025 Stainless Steel LOWER Archwire
- MDA Appliance
- Power Chain (Short) - Full Arch
- .010 Prefabricated Ligature Wire
- .012 Long Ligature Wires
- Open Coil Springs (OCS) Nitinol - .010 x .045 lumen
- 1/4” Light Elastics
- Glide Ties

Directions:

LOWER ARCH

Measure and cut the LOWER .018 x .025 Stainless Steel archwire.



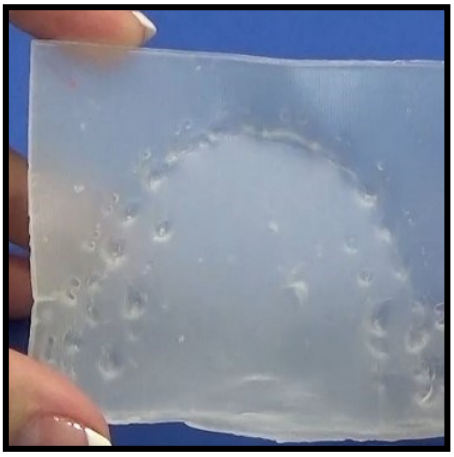
Insert the archwire through the molar tubes.

Tie in the lower archwire using glide ties or a power chain. Glide ties are shown.

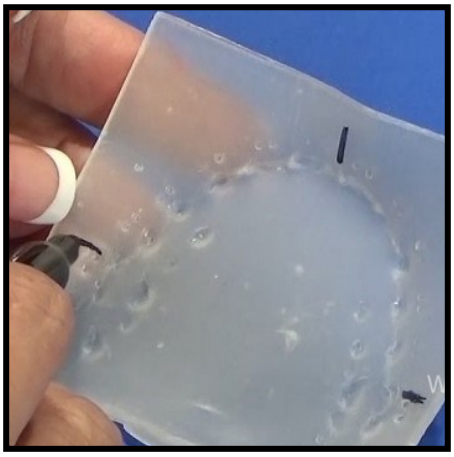
Lower arch completed for anchorage during the use of the upper MDA.

This illustration depicts how the lower arch becomes important for anchorage when elastics are used.

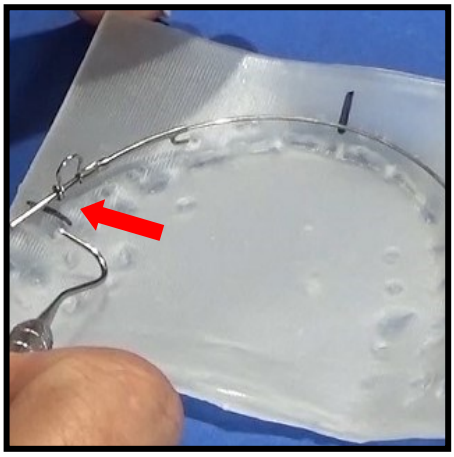
UPPER ARCH



Make a wax pattern of the upper arch. Make sure you can see the edges of the brackets and bands.

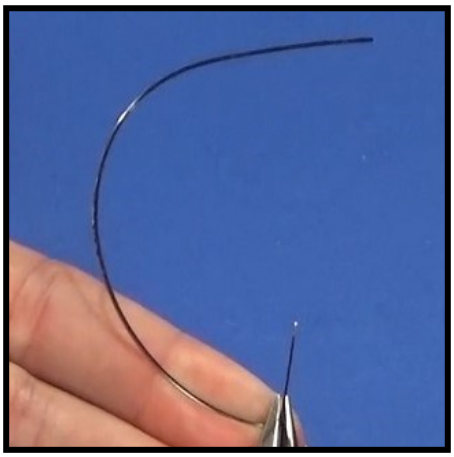


Mark the midline. Mark the mesial to the 1st molar tubes.



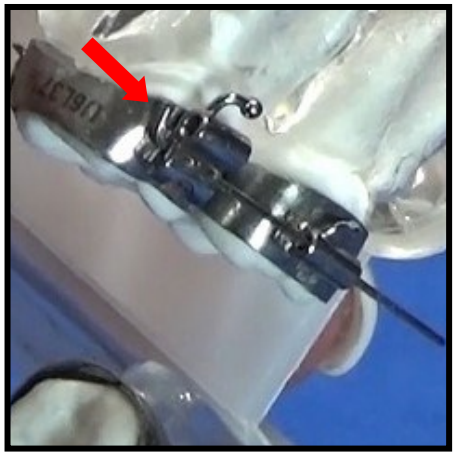
When sizing the MDA, match up the midline marks and the distal of the omega is mesial to the molar marks.

In the upper arch, remove the 2nd premolar teeth on the typodont. On the patient, only remove the brackets.



Make a 90° bend mesial to the 1st molar band.

After the bend, cut the wire leaving ~2-3mm tab, then insert into molars.



Make sure the mesial tab is going towards the gingival.

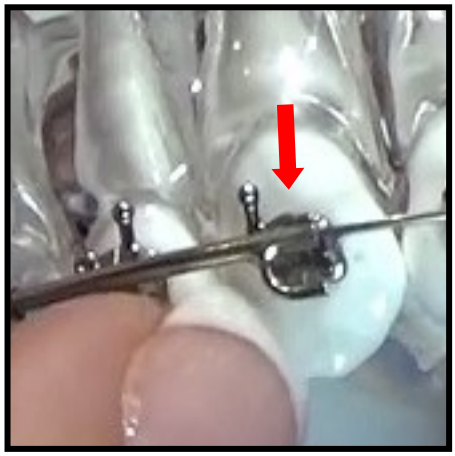
One option is to place a glide tie around the 1st molar bracket.

This will hold the sectional wire in place during the MDA.

On the other side, the other option is shown. Distal cut the excess wire, leaving ~2-3mm of wire.

Using the Distal End Bender, twist until a 90° bend is created.

This creates a stop so the wire cannot slip out.

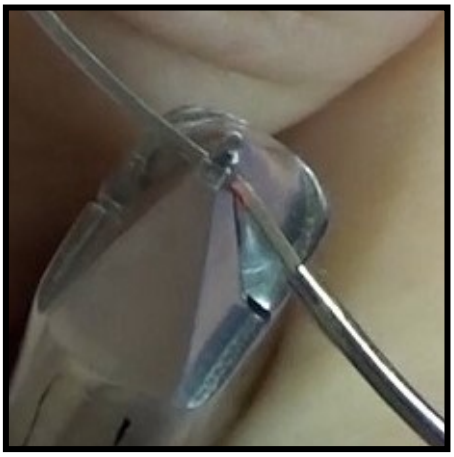


When sizing the MDA, it is very common for the MDA hook to fall at the canine bracket, if erupted.

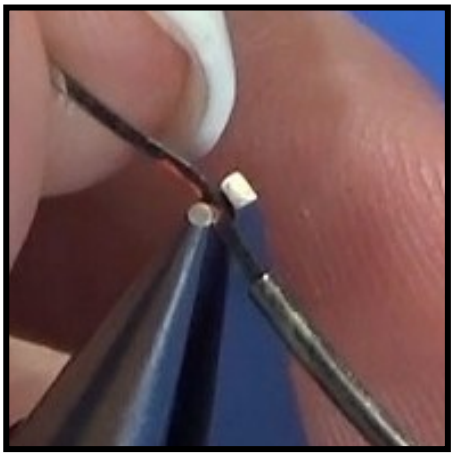
Using an Arch Marker, on the left & right sides, mark in the middle of the lateral and canine brackets.

Place the Light Wire Plier (Bird Beak) on the mark and pull the distal leg out buccally.

Keep pushing the distal leg out to a 45° angle

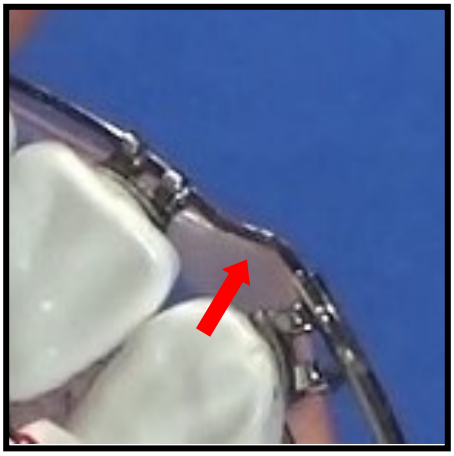


Shown is the distal leg pushed out.

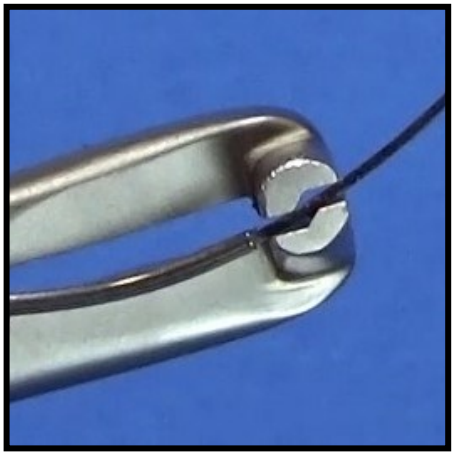


Flip you plier over to the distal leg portion, then push the distal leg back into alignment

Photo showing the bend towards the lingual.



These bends have a crease "step " in the wire to bypass the canine bracket.



Another way to create a step in the wire is to use a Step Plier.

This creates the same bend with one movement.

This is the bend created stepping away from the canine bracket.

Cut two 5-6mm sections of Open Coil Spring (OCS) that will be used to activate the MDA.

Slide the OCS on each end of the MDA that will be inserted into the buccal tubes.

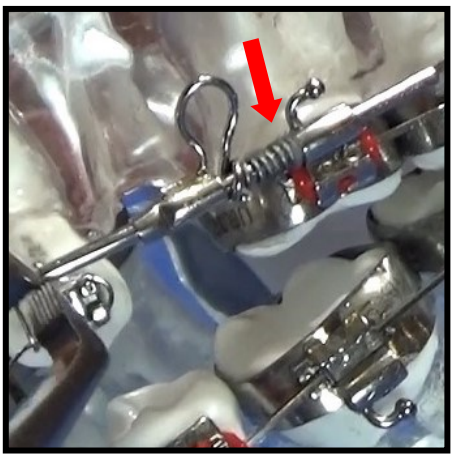
In the patient's mouth, it is recommended to use a tacky agent to keep the wires from falling off.

Place the .012 Long Ligature Wires on each 1st premolar and twist a few times by hand.

Ligature wires on each 1st premolar, leaving the legs apart like 'cat whiskers" so the MDA can be placed.

Insert the MDA into the buccal tubes, make sure the springs stay on during insertion.

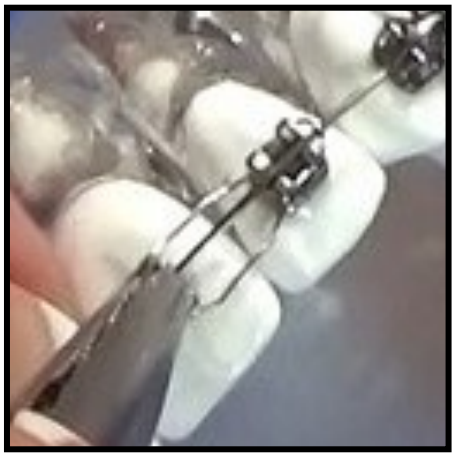
The spring will slowly compress as the wire is inserted.



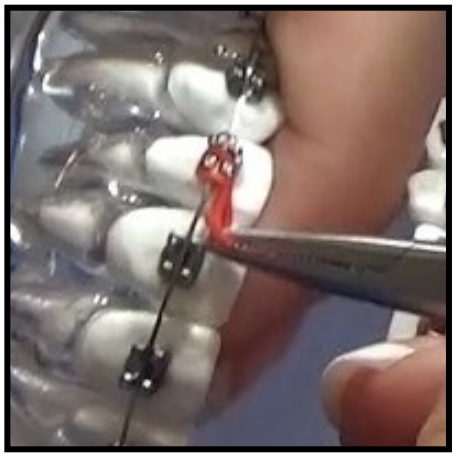
This is what the OCS should look like when compressed. This is considered an active spring.

Using the long ligature wire 'cat whiskers' cinch back the MDA by tying the wires around the MDA hook.

Using a hook-tip Mathieu Plier, tighten the long ligatures creating a pig-tail to clip & tuck.



Place a shorty tie on the laterals to make sure they do not rotate when a power chain is placed.



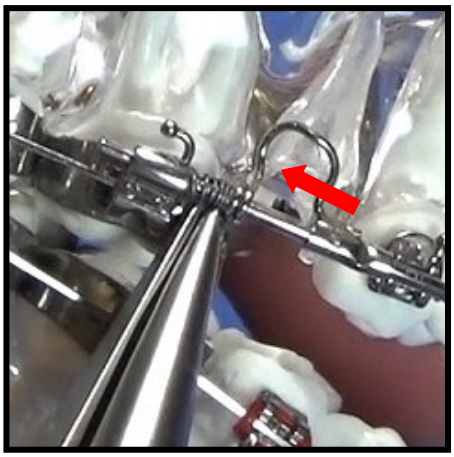
Place a Power Chain (PC) 2-2, mesial-mesial, to prevent rotation and keep the 4 anterior teeth together.

Again, end on the mesial tie wings and add a glide tie to the distal tie wings.

Activate the MDA using a Weingardt Plier and compressing the omega loop to slide the distal leg back.

The Open Coil Spring (OCS) should look like a closed coil spring and be completely compressed.

Another way to active the MDA is to use an Occulist Plier by inserting the half moon side into the omega.



Again, the OCS should look completely compressed.

Patients are instructed to wear Class II light elastics, three on each side until they return.

Follow up appointments are made every three weeks. Activate the MDA again, change the PC and give the patient more elastics.

The patient should start creating space in the premolar region which is distalizing the molars.

Exercise 10

Post MDA - SS - .016 x .022 Nitinol

Aligning 2nd Premolars

Post MDA - SS - .016 x .022 Nitinol

Aligning 2nd Premolars

Purpose:

- Level and align after initial removal of MDA to prepare for the .016 x .022 stainless steel
- Improve angulations of teeth
- Continue to hold Class I molars using Class II elastics

Instruments & Material Needed (Prior to Start of Class):

- Distal End Cutter
- Elastic Remover/Explorer
- Heavy Duty Wire Cutter
- Mathieu Plier– Hook Tip or Wide Tip
- Pin and Ligature Cutter
- Weingardt Plier

Materials Provided:

- .016 x .022 Nitinol Archwires
- Glide Ties
- 1/4" Medium Elastics

Directions:

REMOVING THE MDA

Remove the MDA once over-distalization has occurred. This means almost Class III molars.

Remove the Power Chain (PC) from the anterior teeth.

Clip and remove the shorty ties from the upper laterals.

Clip and remove the “cat whiskers” from the MDA hook.

Remove the MDA.

Make sure the springs are removed with the MDA.

Remove the glide tie from the 1st molar.

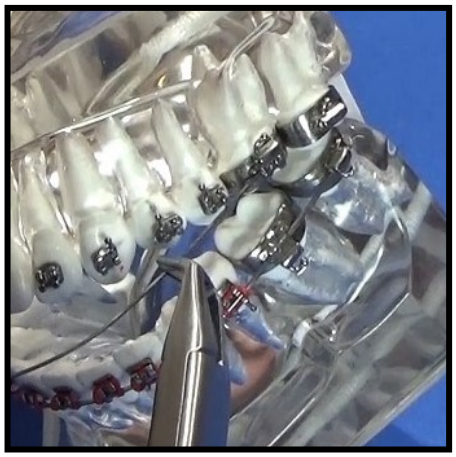
Remove the sectional wire from the molars.

On the side the distal end bend was made, cut between the molars with the Distal End Cutter.

Remove the partial wires from the molars by pushing it out distally and pulling it out mesially.

Replace the 2nd premolars. On the patient, rebracket the 2nd molars.

COMPLETING THE EXERCISE



Insert the upper .016 x .022 Nitinol archwire.

Tie the archwire in with glide ties. You may opt to figure 8, if needed.

Typodont with .016 x .022 Nitinol completely tied with glide ties. No power chain used at this appointment.

Patients are instructed to continue to wear Class II medium elastics. Only 1 per side at this appointment.

Completed typodont with Class II elastics, 1 per side.

Exercise 11

Post MDA SS – .016 x .022 Stainless Steel

Retracting Premolars & Canines

Post MDA SS – .016 x .022 Stainless Steel

Retracting Premolars & Canines

Purpose:

- Continue to level and align after removal of MDA
- Close spaces in the posterior teeth– 1st and 2nd premolars
- Proper angulations & inclination of teeth
- Proper arch form
- Continue to hold Class I molars using Class II elastics

Instruments & Material Needed (Prior to Start of Class):

- Cotton Tweezers/Slot Aligner
- Distal End Cutter
- Elastic Remover/Explorer
- Heavy Duty Wire Cutter
- Hollow Chop Plier
- Mathieu Plier– Hook Tip or Wide Tip
- Pin and Ligature Cutter
- Ribbon Arch Pliers (2)
- Ultimate Hook Crimping Plier
- Weingardt Plier

Materials Provided:

- .016 x .022 Stainless Steel Archwire– Upper
- Glide Ties
- Power Chain
- Constant Force Nitanium Closing Springs
- Crimpable Hooks
- Crimpable Stops
- Lingual Buttons—Curved
- Super Glue
- Accelerator Spray

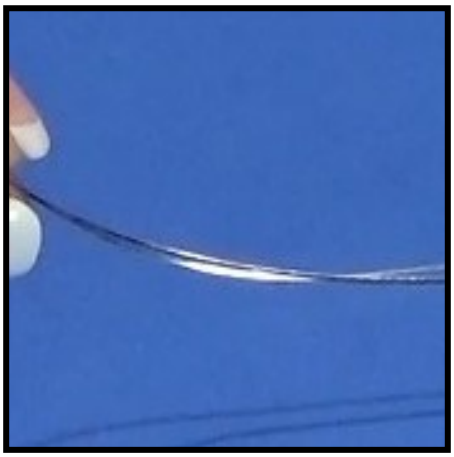
Directions:

Lingual buttons can be used on extreme distalization cases, seat on the premolars

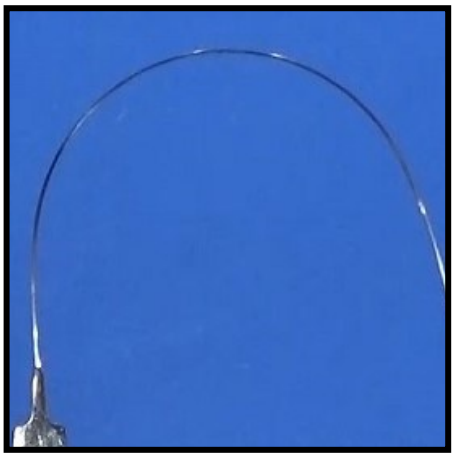
Placement should not interfere with the occlusion.

Using an explorer, clean of any excess super glue. Let buttons dry while placing archwire.

Sweep curves into the upper archwire using your fingers or a Hollow Chop Plier.



Make sure the curves are equal and balance.



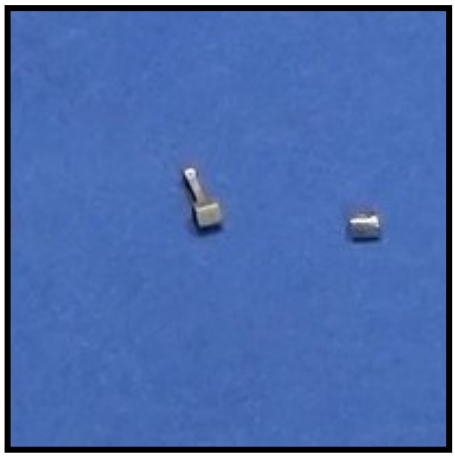
Using a Ribbon Arch Plier, grab the distal end of the archwire.

Using the 2nd Ribbon Arch Plier, grab at the canine area.

Twist the distal plier towards the cheek creating buccal root torque.

Insert the wire into the molar tubes.

Make sure the curve goes into the vestibule.



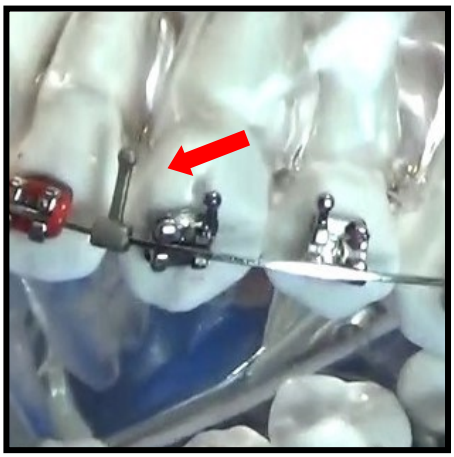
Pictured are crimpable hooks and crimpable stops.

Ultimate Crimping Plier.

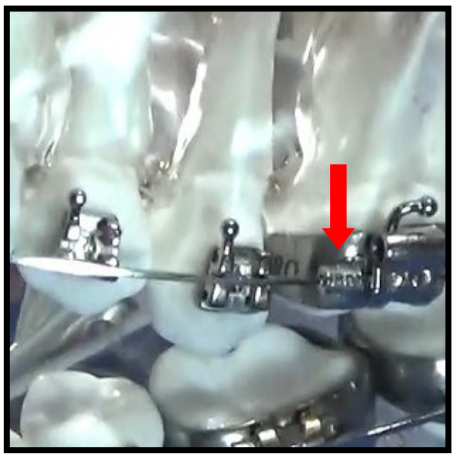
Crimp the hook onto the rectangular wire, close to the laterals.

Using the Weingardt, crimp the stop on the wire.

Squeeze the stop on the wire as close to the 1st molar as possible.



Pictured is the hook on the rectangular wire.



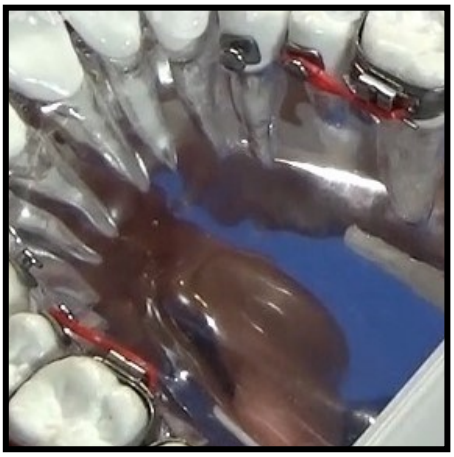
Pictured is the stop on the rectangular wire.

Repeat on the opposite side.

On both sides, place a 2-unit power chain around the 1st molars and on the distal tie wings of the 2nd premolars.

Pull the distal cleats out and away from the bands on the lingual side.

Place a 2-unit power chain around the cleat and the button. Retracting both sides of the arch.



Repeat on the opposite side.

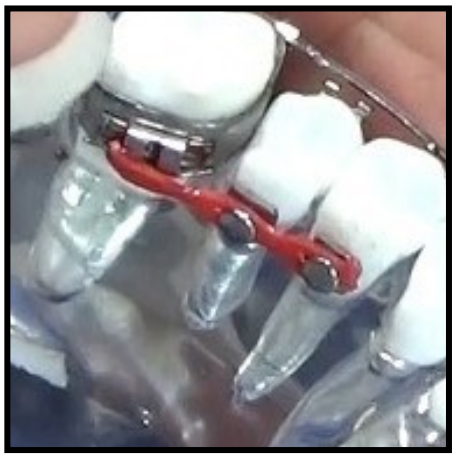
Completed upper arch.

Instruct patient to continue to wear Class II elastics. This time, from the hook just placed, not the canine.

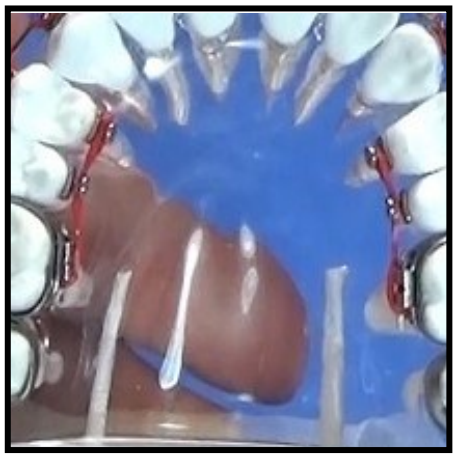
Repeat on opposite side.

At next appointment, remove upper power chains.

Remove lingual power chains.

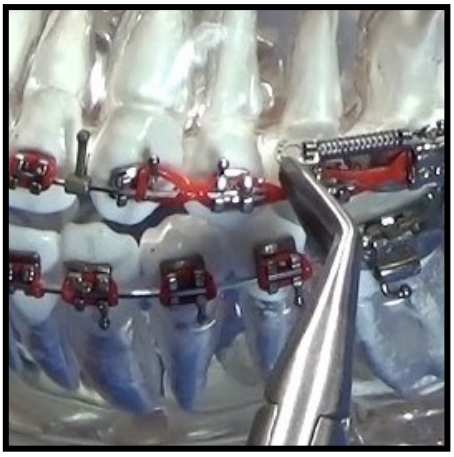


Once the 2nd premolars are touching the molars, start retracting the 1st premolars, buccally & lingually.



Repeat on opposite side.

Instruct patient to continue to wear Class II elastics, wearing the elastics to the hook, not the canines.



Another option to help retract is a Closed Coil Spring.

Place one hook over the hook on the 1st molar.

Stretch the spring to the hook on the canine.

Place a glide tie over the hook and around the bracket to help hold the spring on the hook.

Again, instruct the patient to continue to wear Class II elastics to the hook.

Exercise 12

Post MDA SS - .018 x .025 Stainless Steel

Retracting Anterior Teeth

Post MDA SS - .018 x .025 Stainless Steel

Retracting Anterior Teeth

Purpose:

- To close the space between the centrals, laterals and canines
- Increase labial crown torque
- Proper angulations and torque of teeth
- Continue to hold Class I molars using Class II elastics

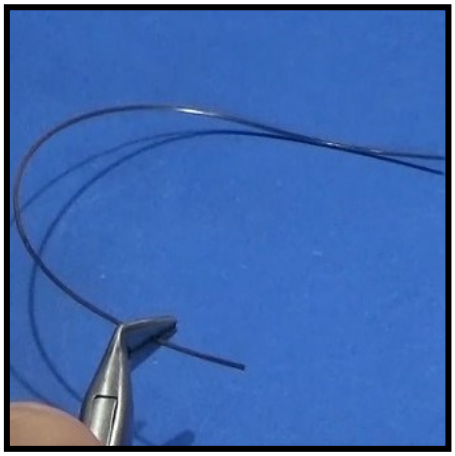
Instruments & Material Needed (Prior to Start of Class):

- Distal End Cutter
- Elastic Remover/Explorer
- Heavy Duty Wire Cutter
- Mathieu Plier– Hook Tip or Wide Tip
- Optical Plier
- Pin and Ligature Cutter
- Ultimate Hook Crimping Plier
- Weingardt Plier

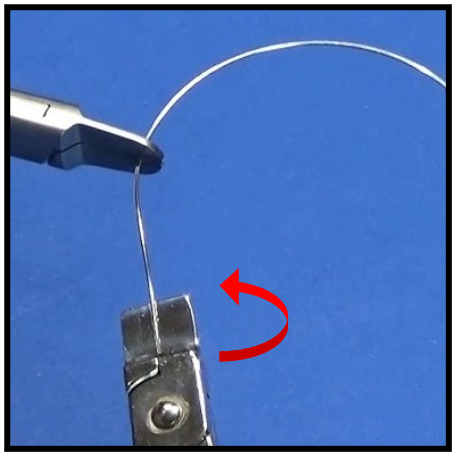
Materials Provided:

- .018 x .025 Stainless Steel Archwire– Upper
- Glide Ties
- Power Chain
- Constant Force Nitanium Closing Springs
- Crimpable Hooks

Directions:



Once again, sweep curves into the .018 x .025 stainless steel and make sure they are equal.

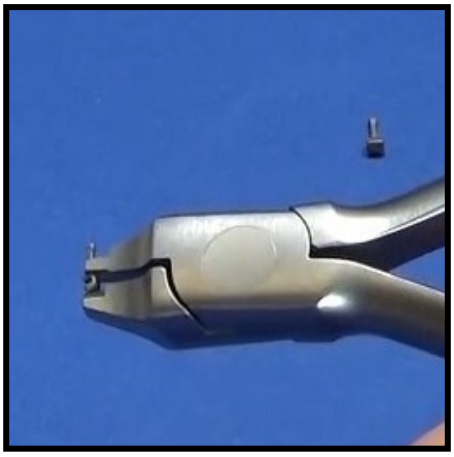


Again, use the Ribbon Arch Pliers and twist to detorque the distal ends creating buccal root torque.

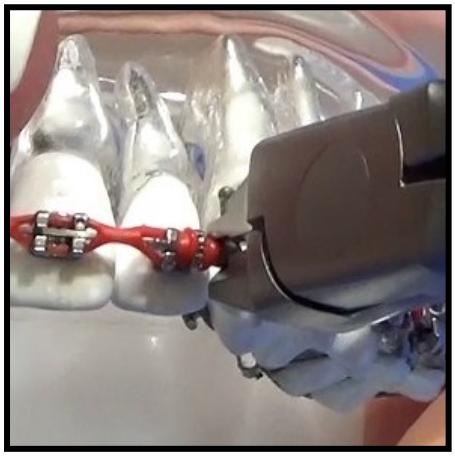
Insert the wires, into the molars.

Make sure the curves are going into the vestibule.

Use a power chain to keep the anterior teeth together, only going mesial to mesial.



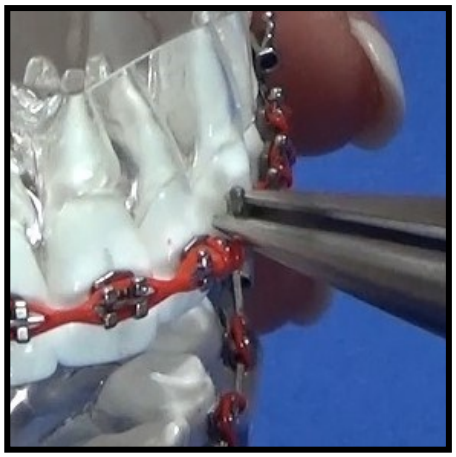
Using the Ultimate Crimping Plier, crimp the stops on the wire.



Crimp hooks distal to the laterals.

Repeat on the opposite side.

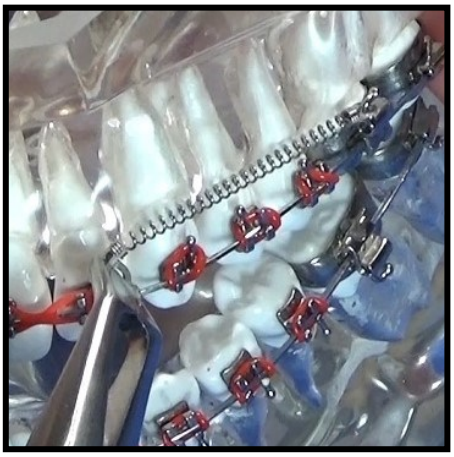
Pictured is the Occulist Plier.



Use the Occulist Plier to bend the hook mesial.

For patient comfort, the hook may be bent towards the tooth as well.

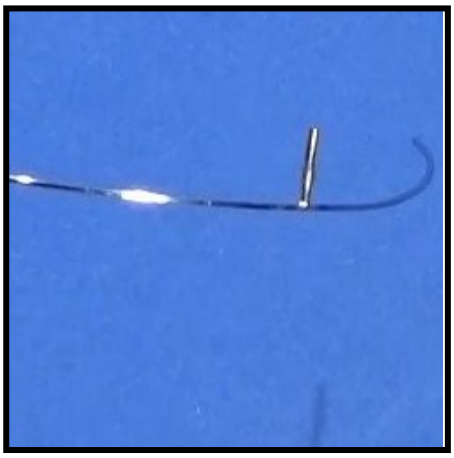
Repeat on opposite side.



Place the Constant Force Nitanium Closing Springs on the 1st molar hooks.

Stretch the spring to the anterior hooks.

Again, continue the Class II elastic wear, 1 per side.



Another option: Use a .018 x .025 Stainless Steel Posted Archwire instead of crimpable hooks.

Another option: Use Pletcher Springs instead of Closed Coil Springs.

Exercise 13

Elastic Strategies

A. Class II
B. Class III
C. Midline
D. Posterior Box, Posterior Triangle, Inter Arch for Scissor Bite
E. Anterior Box

Elastic Strategies

A through E

Purpose:

- Minor leveling and rotation
- Minor intrusion and extrusion
- Minor labial-lingual movement
- Correct slight Class II & Class III occlusions
- Correct slight midline discrepancies
- Closing Anterior Open Bites

Instruments & Material Needed (Prior to Start of Class):

- Band Pusher/Scaler
- Elastic Remover - Explorer
- Mathieu Plier - Hook Tip or Wide Tip
- Pin & Ligature Cutter
- Ultimate Crimping Plier
- Weingardt Plier

Materials Provided:

- .018 x .025 Stainless Steel Archwires
- Glide Ties
- Crimpable Hooks
- Kobayashi Hooks - K-Ties
- 1/4" Light Elastics
- 1/4" Medium Elastics

NOTE: Single glide ties or power chains can be used during elastics. Light or Medium elastics may be used depending on the patient and/or the amount of movement needed.

Directions:

1. Place the .018 x .025 stainless steel archwires in the typodont.

A. CLASS II

Insert the .018 x .025/SS arch-wires, place elastics from the UPPER canines to the LOWER 1st or 2nd molars.

May use the bag to draw where the elastics are to be worn or have patient take picture with their cell phone.

B. CLASS III

Class III elastics are worn to pull a Class III bite to a Class I bite

Place elastics from the LOWER canines to the UPPER 1st or 2nd molars.

C. MIDLINE

Elastics are placed diagonally depending on the bite—an U3 to L3.

To enhance the pull, a Class II and Class III can be placed on each side.

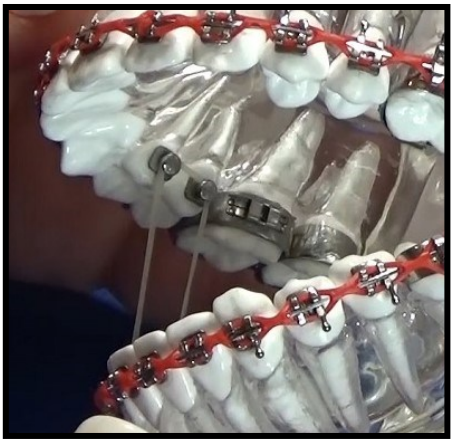
The upper arch is pulling to the patient's left, lower arch to the right.

D. POSTERIOR

Posterior Box elastics can be worn with one box or multiple boxes to close down the premolars.

Triangles can even been worn to help close a bite.

Triangles can become an **Inverted 'V'** for a stronger force to help close a bite.



Interarch elastics can help with premolars in crossbite. Start from the lingual buttons….

...and continue the elastics to the buccal hooks.

This can be done on the 1st molars as well.

E. ANTERIOR BOX

Place K-ties on all the 1s towards the midlines.

Elastics are always worn at the midline to the canines to close an openbite.

Crimpable hooks may be used at the midlines instead of K-ties.

Exercise 14

.018 x .025 Stainless Steel

Cross Arch Elastics & Sectionals

.018 x .025 Stainless Steel

Cross Arch Elastics & Sectionals

Purpose:

- To fully intercuspate the posterior teeth
- To fully “sock-in” the posterior teeth as well as the cuspid rise

Instruments & Material Needed (Prior to Start of Class):

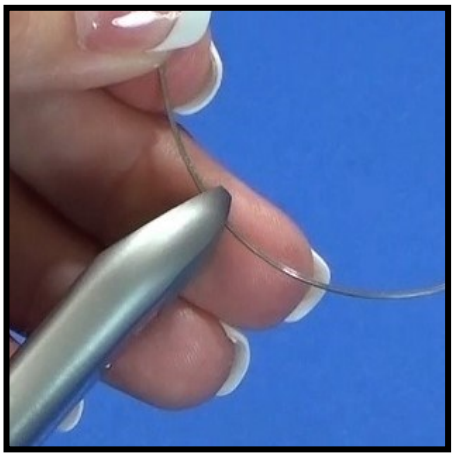
- Arch Markers
- Band Pusher/Scaler
- Distal End Cutter
- Elastic Remover/Explorer
- Heavy Duty Wire Cutter
- Light Wire Plier (Long Bird Beak)
- Mathieu Plier - Hook Tip & Wide Tip
- Pin and Ligature Cutter
- Weingardt Plier

Materials Provided:

- .018 x .025 Stainless Steel Archwires
- Glide Ties
- .010 Prefabricated Ligature Wire
- Power Chain (Short)
- 1/4” Light Elastics

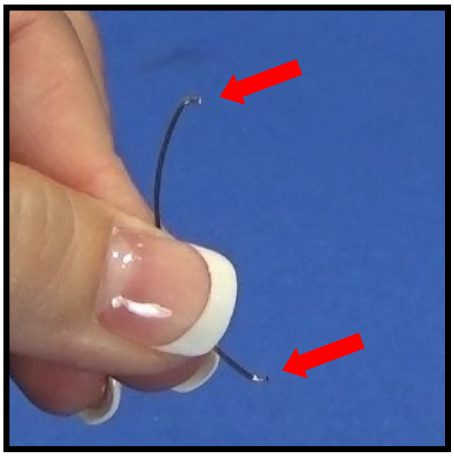
Directions:

Mark distal to all the canines, leaving enough room to make a 90° bend.



Using Heavy Duty Wire Cutter, cut at the marks just made.

Using, the square end of the Light Wire Plier, make a 90° bend TOWARDS the tooth.



After making both cuts and bends this is what the sectional wires should look like.

Tie the wires in with glide ties or PC. If using PC, place a metal ligature tie around the entire canine brackets.

Take one elastic and hook to the LOWER 6s, around the UPPER 5s and back down to the LOWER 5s - “TP”.

Take another elastic and hook to the UPPER 4s, around the LOWER 4s and back up to the UPPER 3s—”V”.

Do this on both sides - “TP and Vs”. This will “sock-in” the premolars for a better occlusion.

These elastics will make it difficult to open for the patient. They must be worn 24/7, except when eating.

Exercise 15

Bond-A-Braid

Retention- Lower Lingual

Bond-A-Braid

Retention- Lower Lingual

Purpose:

- Permanent retention of lower anterior teeth, bonded from cuspid to cuspid, individually to each tooth
- To help maintain results achieved during treatment

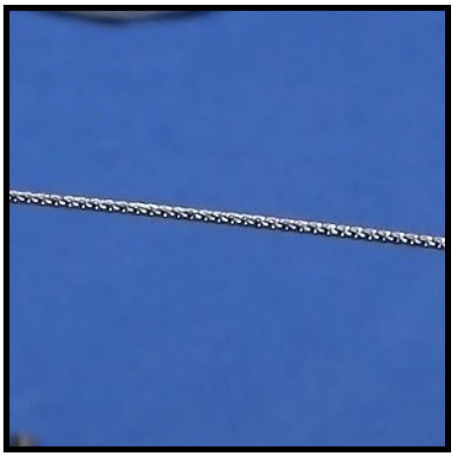
Instruments & Material Needed (Prior to Start of Class):

- Band Pusher/Scaler
- Cotton Plier
- Elastic Remover/Explorer
- Hollow Chop Plier
- Pin and Ligature Cutter
- Three Prong Plier
- Weingardt Plier

Materials Provided:

- Bond-A-Braid
- Super Glue
- Floss—5 Strands
- Acceleratory Spray

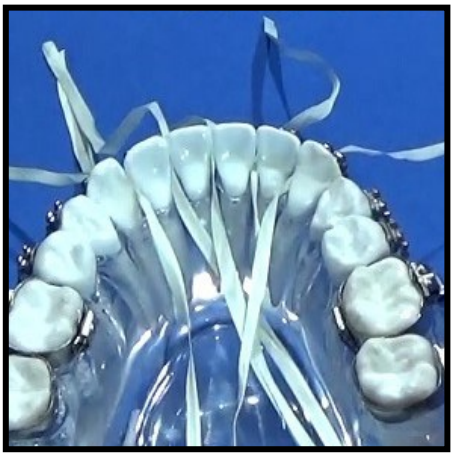
Directions:



Bond-A-Braid, flat, braided retainer wire.

Measure from canine to canine. Cut longer in case offset bends are needed for cuspid offsets.

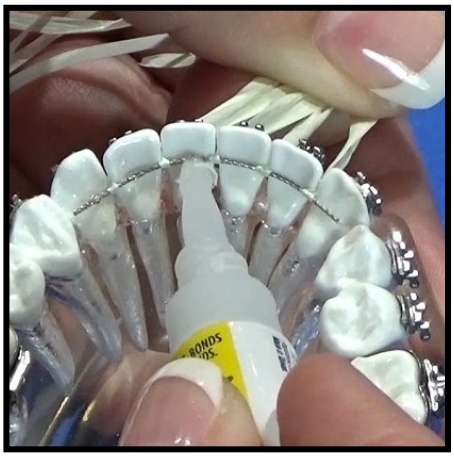
Adapt the wire to the lower six anterior teeth.



Once the wire is prepared, place five strands of floss between the contacts.

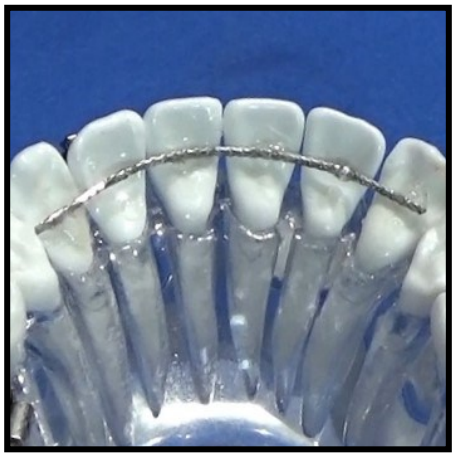
Place the wire using Cotton Pliers, then thread the floss back through the contacts again, holding the wire.

Pull tightly on the floss making the wire flush against the tooth and position accordingly.



Place a dot of super glue on EACH tooth to hold in place.

Once dry, floss your way out and make sure there is no glue between the contact - above and below the wire.



Completed Exercise.