RECORDS AND TREATMENT OBJECTIVES

Doctor: Dr. Rob Veis
Patient: Michael Smith
Age: 11 years 8 months

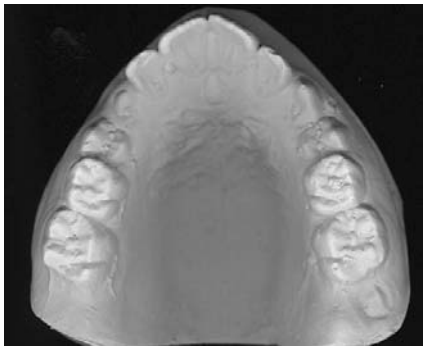
Treatment Objective:

- Improve the upper and lower arch form.
- Correct the dental deep bite.
- Align the upper and lower anteriors.
- Improve esthetics.

Type of Appliance Design Preferred:
Fixed / Removable

Model Evaluation:

- Dentition: Mixed Dentition
- Arch Analysis:
  Schwarz Analysis:
  -1.5mm. at the upper first bicuspids
  -1.2mm. at the upper first molars
  -1.8mm. at the lower first bicuspids
  -1.6mm. at the lower first molars
  Korkhaus Measurement:
  -1.2mm.
- Dental Vertical: Deep Bite
- Molar Classification:
  Right molars: Class II
  Left molars: Class II
- Crossbites: None



NOTE: Model images are for visual evaluation only.
They are not actual size.

RECORDS AND TREATMENT OBJECTIVES

(continued)

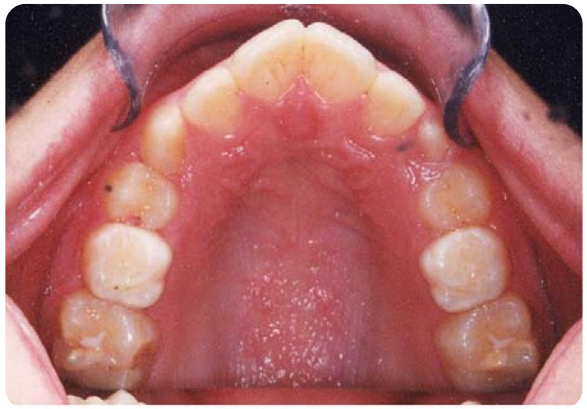
CEPHALOMETRIC SUMMARY:

- Michael's cephalometric evaluation indicates a skeletal Class I with a tendency towards a skeletal Class II. He also has a skeletal open bite tendency and a counter-clockwise growth direction.
- His upper and lower incisal angles are within the normal range. The upper is currently 109º (vs. an ideal of 110º to 113º, according to the Sassouni Plus Analysis) and the lower is 95º (vs. an ideal of 110º to 113º, according to the Sassouni Plus Analysis).

OBSERVATIONS AND CONCERNS:

- Evaluation of the models indicates the need for significant arch width development (see Schwarz Analysis above). Therefore, initial Phase 1 appliances will be designed to improve the upper and lower arch width in preparation for possible Class II correction with Functional appliances during Phase 2 treatment. Ideal alignments will require full fixed straightwire appliances. We have assumed this will also be a part of Michael's overall treatment plan.
- Based upon the above factors, we offer the following for your consideration:



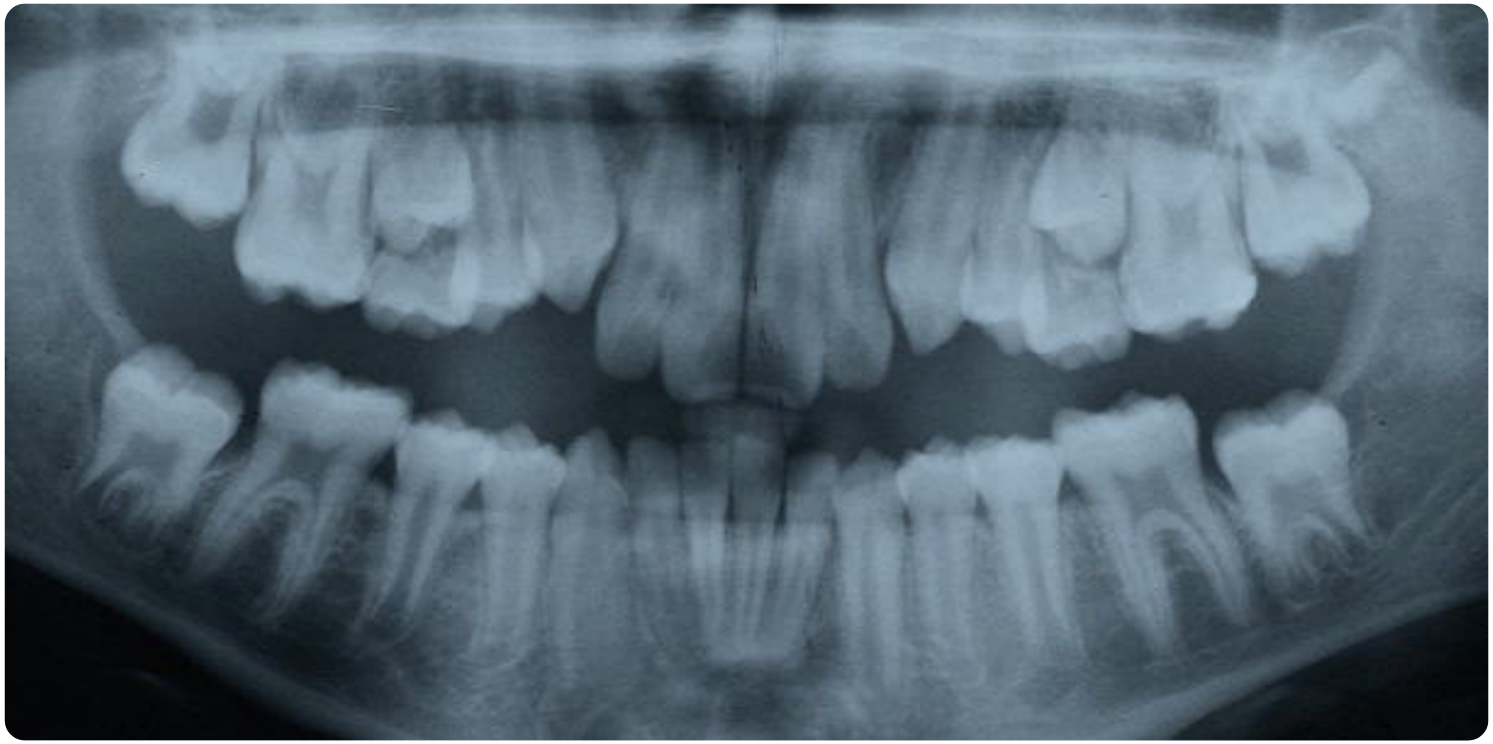



Dr. Rob Veis

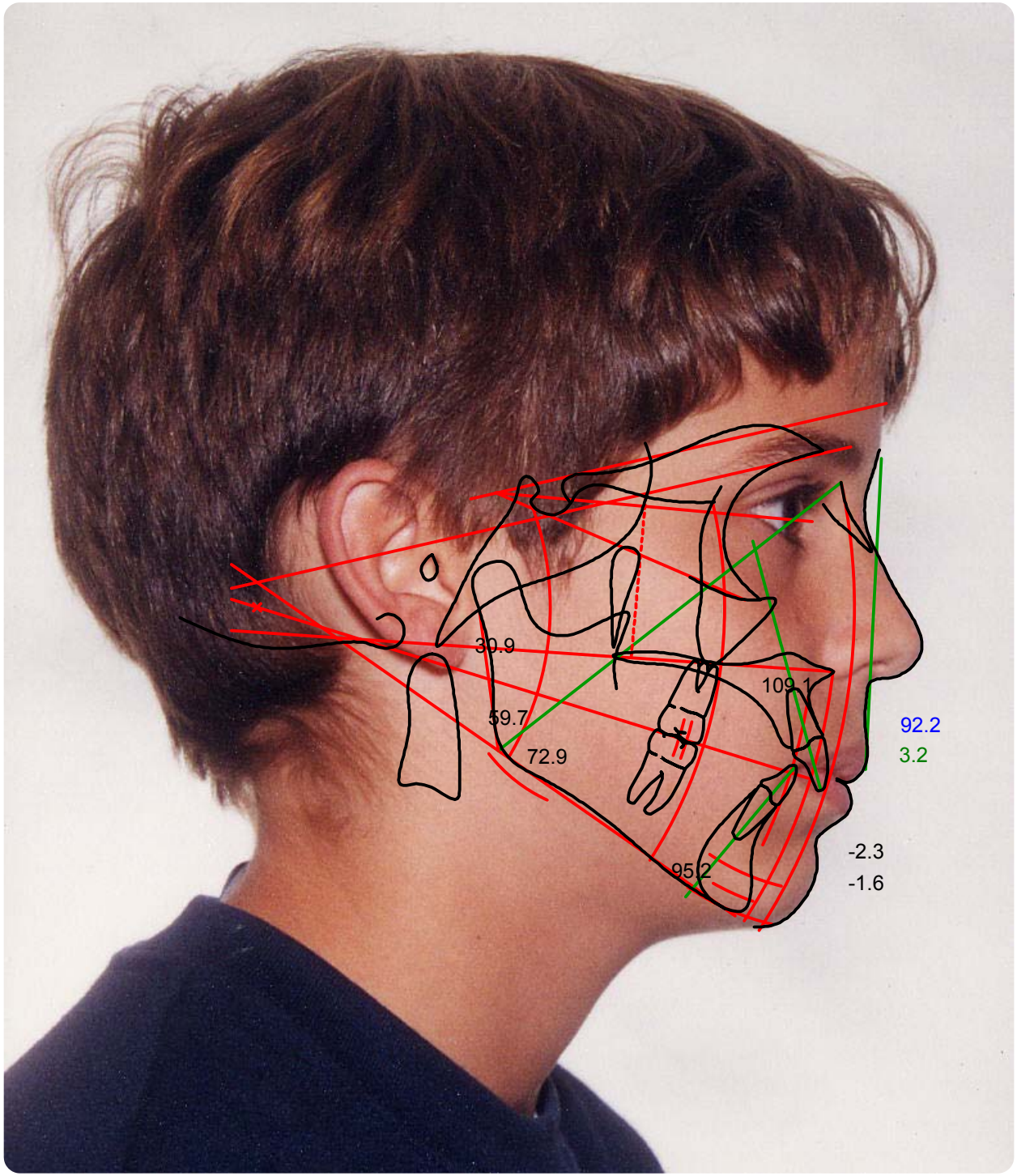
Patient : Michael Smith
Age : 11 years, 8 months



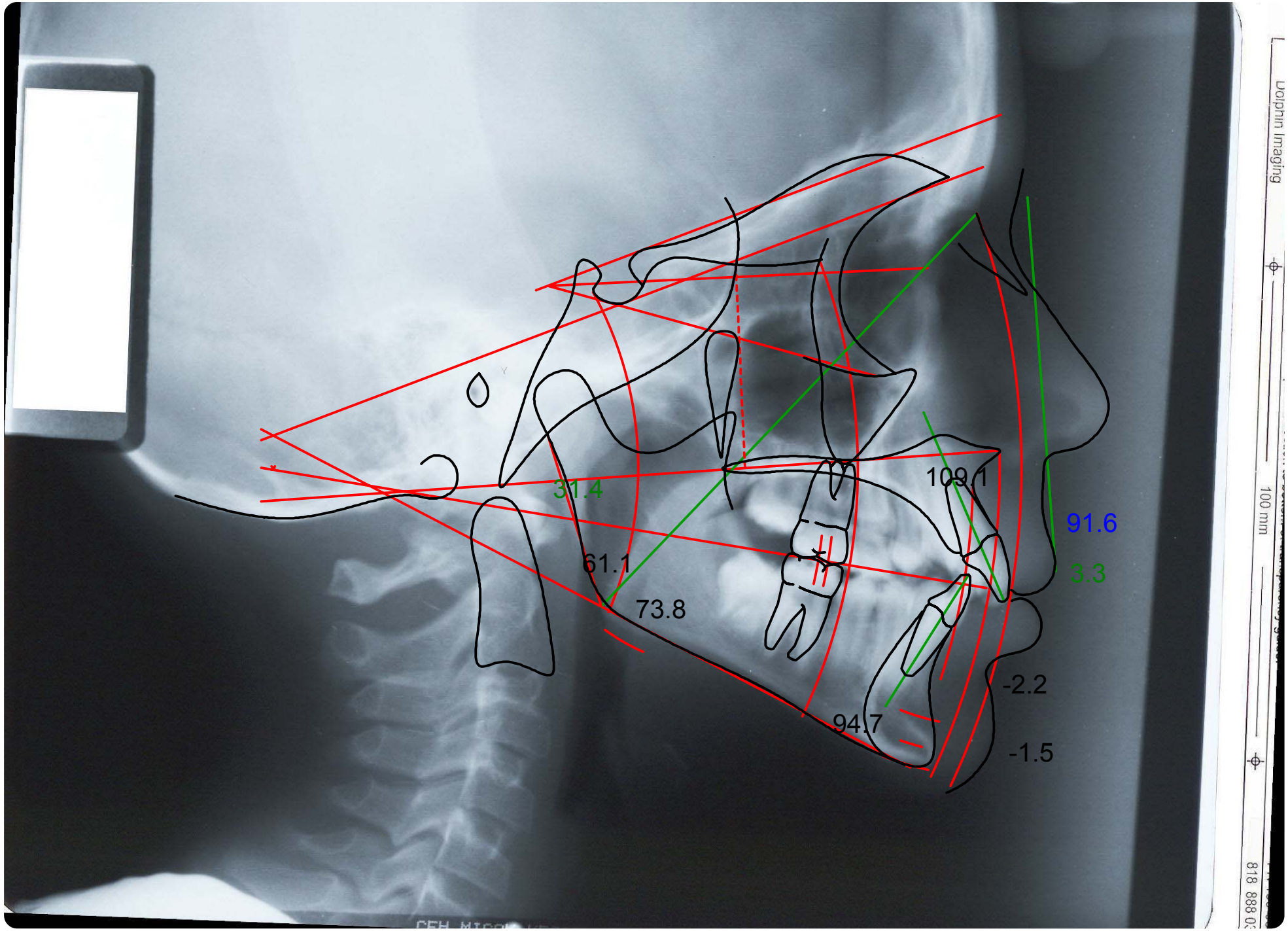

Doctor : Dr. Rob Veis
Patient : Michael Smith



Doctor : Dr. Rob Veis
Patient : Michael Smith



[Sassouni Plus/SML Diagnostics] Report
Doctor : Dr. Rob Veis
Patient : Michael Smith Age : 11 years, 8 months Sex : Male Timepoint : Initial

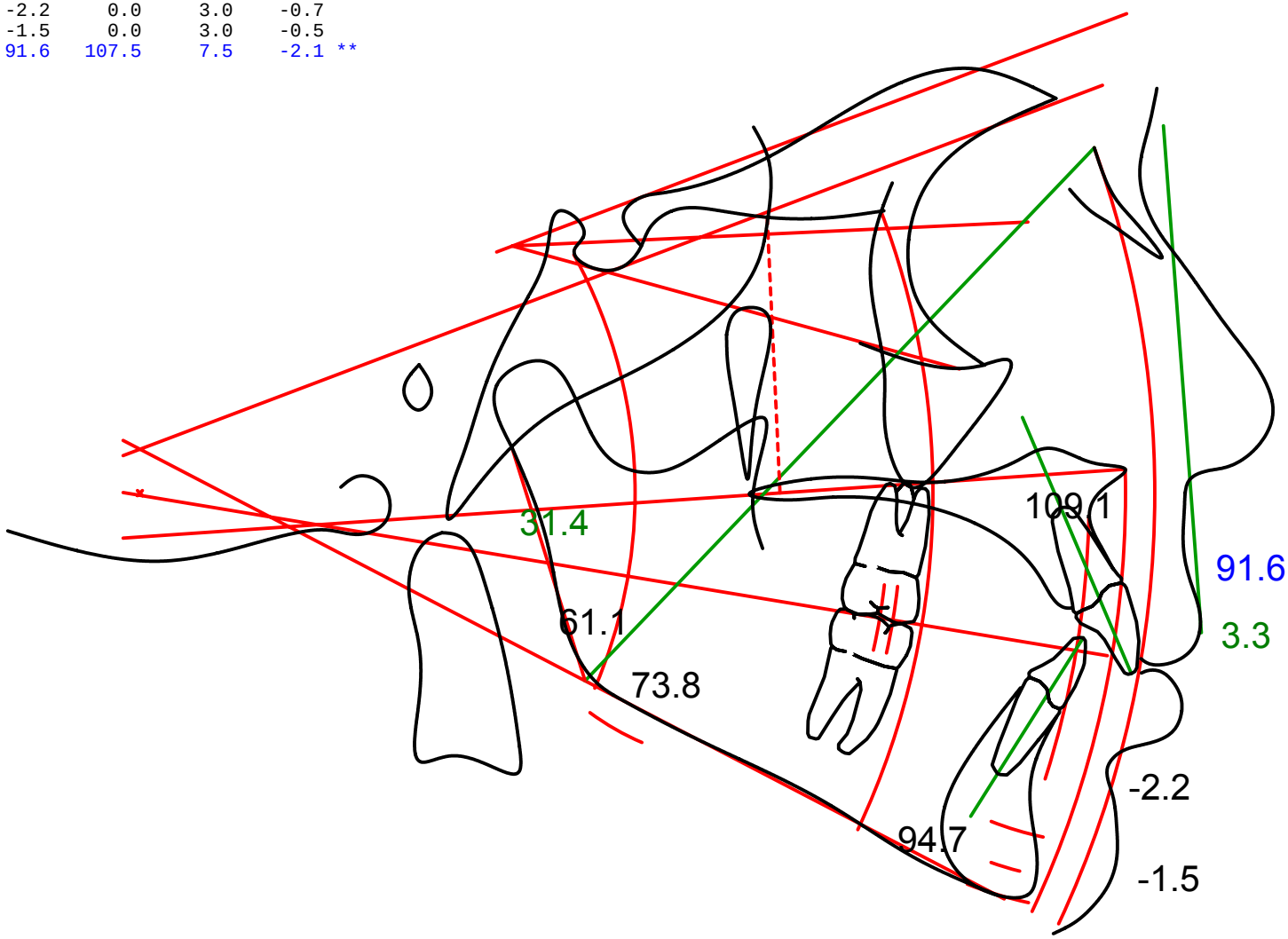


NOTE: This information is suggestive only. Any diagnosis and prescription should be the decision and sole responsibility of the doctor using this material.

[Sassouni Plus/SML Diagnostics] Report
Doctor : Dr. Rob Veis
Patient : Michael Smith Age : 11 years, 8 months Sex : Male Timepoint : Initial

	Value	Norm	Std Dev	Dev Norm
Upper Incisor to Palatal Plane (°)	109.1	111.5	1.5	-1.6 *
Lower Incisor to Mandibular Plane (°)	94.7	95.0	5.0	-0.1
Upper Gonial Angle (°)	61.1	53.5	1.5	5.1 *****
Lower Gonial Angle (°)	73.8	72.5	2.5	0.5
Upper Incisor to ANS Arc	3.3	2.0	2.0	0.6
B to A Point Arc	-2.2	0.0	3.0	-0.7
Pogonion to ANS Arc	-1.5	0.0	3.0	-0.5
Upper Lip Angle (ULA)	91.6	107.5	7.5	-2.1 **

SUMMARY ANALYSIS
- Sassouni Bottomline -
Skeletal A-P: Class I with class II tendency
Skeletal Vertical Pattern: Open Bite
Upper Incisor Position: Protruded
Lower Incisor Angulation: Normal
Growth Direction: Counterclockwise
Maxilla Length: Normal
Maxilla Position: Posterior
Permanent Molar Position: Anterior
Primary Molar Position: Anterior
Mandible Length: Short - Anteriorly
Mandible Position: Posterior
Upper Lip Angle: Flat
Upper Incisor Angulation: Low
P to B Vertical: Normal



Colors indicate deviations from the norm as follows:
Black: a deviation less than or equal to 1.
Green: a deviation greater than 1 and less than or equal to 2.
Blue: a deviation of greater than 2 and less than or equal to 3.
Red: a deviation of greater than 3.
NOTE: This information is suggestive only. Any diagnosis and prescription should be the decision and sole responsibility of the doctor using this material.

[General Report/SML Diagnostics] Report
Doctor : Dr. Rob Veis
Patient : Michael Smith Age : 11 years, 8 months Sex : Male Timepoint : Initial

	Value	Norm	Std Dev	Dev Norm	
SKELETAL					
Upper Facial Height	41.6	45.0	1.0	-3.4	***
Lower Facial Height	58.4	55.0	1.0	3.4	***
Palate to Mandibular Plane Angle	31.4	25.0	6.0	1.1	*
Gonial Angle	134.9	125.2	6.7	1.4	*
Interincisal Angle	124.7	130.0	5.0	-1.1	*
Upper Incisor to Palatal Plane (°)	109.1	111.5	1.5	-1.6	*
Lower Incisor to Mandibular Plane (°)	94.7	95.0	5.0	-0.1	
Upper Incisal Protrusion	9.6	5.0	2.0	2.3	**
Lower Incisal Protrusion	1.7	2.0	1.0	-0.3	
DENTAL					
Overjet (mm)	8.0	2.5	2.5	2.2	**
Overbite (mm)	4.1	2.5	2.0	0.8	

SUMMARY ANALYSIS
- Skeletal A-P: Class I with class II tendency
- Skeletal Class II (Wits)
- Skeletal Class II (ANB)
- Class II Molar Relationship
- Maxilla Length: Normal
- Maxilla Position: Posterior
- Mandible Length: Short - Anteriorly
- Mandible Position: Posterior
- Upper Incisor Position: Protruded
- Upper Incisor Angulation: Low
- Lower Incisor Angulation: Normal
- Growth Direction: Counterclockwise
- Excessive Overjet
- Facial Pattern: Mild Vertical

Colors indicate deviations from the norm as follows:
Black: a deviation less than or equal to 1.
Green: a deviation greater than 1 and less than or equal to 2.
Blue: a deviation of greater than 2 and less than or equal to 3.
Red: a deviation of greater than 3.
NOTE: This information is suggestive only. Any diagnosis and prescription should be the decision and sole responsibility of the doctor using this material.

SUGGESTED TREATMENT

PHASE 1: Objectives:

- Develop the upper and lower arches laterally.
- Improve the vertical dimension.
- Begin upper and lower anterior alignments.

Proposed appliances: (illustrated in the following section)
Upper: Schwarz with anterior bite plane and lap springs
Lower: Schwarz with lap springs

PHASE 2: Objectives: **(after successful completion of Phase 1 objectives and evaluation of current progress models)**

- Correct the skeletal and dental Class II.
- Continue vertical dimension improvements ***– IF NEEDED***

IMPORTANT NOTE: The Twin Block appliance would be preferred for the Class II correction due to its comfort and high acceptance level by patients in general. However, successful use to the Twin Block requires that:

1. the first and second primary molar are present and will be stable for at least 6 months, or;
2. the first and second bicuspids are *fully erupted* into the arch.

Since the Twin Block inclines support in the premolar area it is important that points #1 or #2 above are met. If the premolar area is in transition a Bionator is recommend instead of the Twin Block since the Bionator does not require premolar stability for proper function and comfort.

Proposed appliances: (illustrated in the following section)
Twin Block

PLEASE NOTE: *Current* working models (no more than 2-3 weeks old) will be required for appliance fabrication when you are ready to proceed as outlined.

SUGGESTED TREATMENT

PHASE 3: Objectives: **(after successful completion of Phase 2 objectives and evaluation of current progress models)**

- Maintain Phase 2 corrections.
- Level, align, rotate.
- Idealize the incisal angles.
- Idealize the overbite and overjet.
- Finish.

Proposed appliances: **(illustrated in the following section)**
Upper: Rick-A-Nator
Upper and Lower: Full Arch Fixed Straight Wire Bracketing to level, align, rotate and finish

NOTE: You may find it beneficial to use a Rick-A-Nator to stabilize the mandibular position as you progress through L.A.R. mechanics. This will be assumed for this report.

PHASE 4: Objectives: **(after successful completion of Phase 3 objectives and evaluation of current progress models)**

- Retention.

Proposed appliances:
Final retention can be accomplished in several ways depending upon the degree of fine tuning required. The options are:

- Spring Retainer Hawleys - (if any slight anterior corrections are needed)
- Standard Hawley appliances
  NOTE: The upper Hawley can be the "Open Palate" design if desired.
- EZ Bond Retainers - (if a fixed approach is preferred)
- Invisible Retainers
- Wrap Around Retainers with Labial Acrylic Support*
  * This appliance consists of a Wrap-Around labial archwire that attaches to the lingual acrylic at the distal of the posterior-most tooth in the arch. This design if often preferred when final alignments achieved during active treatment are ideal and a removable approach is preferred. Design details and modifications are outlined in the Retention Phase portion of this report.

PLEASE NOTE: *Current* working models (no more than 2-3 weeks old) will be required for appliance fabrication when you are ready to proceed as outlined.

SUGGESTED TREATMENT

IMPORTANT NOTE: Once you have completed this case as desired and no other corrections are deemed necessary it is important that you stress the need for long-term retention. To obtain the ***optimum*** final retention we recommend the following:

- Upper: A "wrap around" Hawley Retainer (i.e. Wrap Around Retainer with Labial Acrylic Support) with no wires crossing the occlusal surface. In fact, several Clinicians have recommended delivering two upper appliances at the final visit. Then, in case one appliance is damaged or lost, a second appliance is immediately available. This will eliminate the common problem of needing to retreat the upper arch since typically a patient will wait to inform you of the lost appliance. Then, by the time they return to your office for the needed impression, some unwanted movements may have occurred.
- Lower: A fixed bonded lingual retainer extending from first bicuspid to first bicuspid. The preferred wire for this purpose is a rigid, solid, round wire that is bonded to each of the anterior teeth. Of course, when placing a bonded lingual retainer you want to inform the patient of the need for superior hygiene, using at least an electric toothbrush and floss threaders.

PLEASE NOTE: ***Current*** **working models (no more than 2-3 weeks old) will be required for appliance fabrication when you are ready to proceed as outlined.**

ADJUSTMENTS AND SEQUENCING

This section of the report outlines in detail:
1) **the various appliance Designs.**
2) **the Components used in the suggested appliances.**
3) **how to make the appropriate Adjustments of the components.**
4) **and a recommended Sequence for treating your patient through the suggested phases.**

The "Appliance Adjustment Video", produced by Space Maintainers Laboratory, very clearly demonstrates the most effective means for adjusting the various Components used in a wide variety of appliances. If you feel that you need assistance in this area, the Video can be obtained from *Success Essentials*, the product division of Space Maintainers Lab

IMPORTANT NOTE:

Success with removable appliance therapy requires a well made appliance that is properly adjusted, and well cared-for by the patient. It is important that the patient agrees to wear the appliance as directed, hopefully full time. **The greatest motivator to assure patient compliance is results**. Understanding the component designs, the proper adjustments to maintain maximum retention, and the proper adjustments of the active components of each appliance is essential. The following is a list of the components and their important adjustments for this case. Please feel free to call us if you have any specific questions after reviewing this material.

ALSO: When using Removable Appliance Therapy it is important that you explain the **10 Hour Force Theory** to your patient:

"To initiate tooth movement it is necessary that the appropriate force is placed on the tooth and that this force remains active for at least 10 continuous hours before the tooth begins to move. If this force is thereafter removed for in excess of one hour, the osteoclastic and osteoblastic changes that have begun to occur to allow for tooth movement return to zero. Therefore, ten more hours of continuous wear is needed to restart movement. The patient needs to know that virtually continuous appliance wear is necessary to progress smoothly through treatment. Appliances may be removed while eating, however, they should be placed back in the mouth within one hour so that treatment can continue uninterrupted." Part-time wear will greatly increase treatment time and result in frustration for you and your patient.

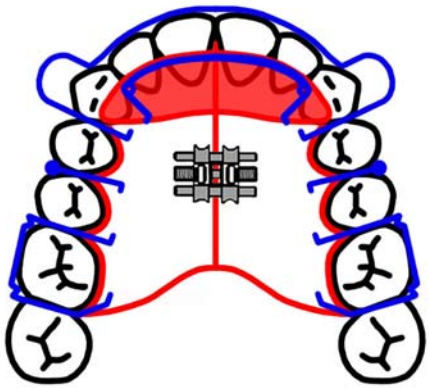
APPLIANCE DESIGNS AND LIST OF COMPONENTS

PHASE 1 Appliance: DESIGN

Upper: Schwarz with anterior bite plane and lap springs

The appliance consists of the following:

1. Midline expansion screw to develop the lateral arch width.
2. Indicated clasp retention:
   a) Adams clasps on #3 and #14
   b) Ball Clasps between the premolars
3. Lingual anterior lap springs.
4. Lingual anterior bite plane to hold the bite open so that the vertical dimension can improve. Proper full time wear should allow for vertical improvement.
5. Labial Arch wire.



ADJUSTMENTS AND SEQUENCING

COMPONENTS

Upper: Schwarz with anterior bite plane and lap springs

Adams Clasps:

The Adams clasps should be checked for proper retention at the initial appliance delivery visit and routinely checked and adjusted at each subsequent visit. It is essential that the arrow points of the Adams clasps are in firm contact with the mesial and distal buccal undercut of the clasped teeth and the mesial and distal crossover wires are tightly contoured to the mesial and distal marginal ridges to reduce occlusal interference's. Any adjustments should be made with Universal Bird Beak Pliers, rather than Three-Prong Pliers, as illustrated in the Appliance Adjustment Video. NOTE: Remind the patient to be careful when removing the appliance by gently placing their fingers on the buccal bridge wire connecting the mesial and distal arrow points and carefully rocking the appliance loose. Aggressive appliance removal can compromise retention and lead to clasp failure.

Ball Clasps:

The Ball clasp gains retention by contacting the tooth at the buccal undercut similar to the Adams Clasp. When used interproximal to two teeth in tight contact, the clasps gains retention by being tucked into the buccal interproximal embrasure.

Midline Expansion Screws:

The recommended adjustment of the midline expansion screw is 1/4 turn every five to seven days. A General Rule is: once every five days in the mixed dentition and once every seven days in the permanent dentition. An arrow is placed in the acrylic or on the body of the expansion screw to clearly indicate the direction that the expansion screw key is to be pushed for activation. Be sure to carefully show your patient the proper method of adjustment if you wish to have them make periodic adjustments during their treatment.

In situations where appreciable lateral arch width increase is needed on an upper arch it is recommended to relieve the tissue side of the appliance just above the expansion screw to avoid sore spots and to allow the palate to drop in slightly as the arch develops laterally.

Lingual Lap Springs:

Lingual Lap Springs are typically adjusted with finger pressure when easily accessible as demonstrated in the Appliance Adjustment Video. Never place a plier or make adjustments directly at the helical coils. The recommended load of the spring is to advance it 1.5mm to 2.0mm from it rest, or in-mouth, position. NOTE: If you find, due to the lingual incline of the tooth or teeth to be moved, that the spring rides up the lingual incline and tends to unseat the appliance, it

COMPONENTS (continued)

is recommended that you place a small composite button on the lingual surface of the contacting tooth just incisal to the contact point of the spring. This will not only enhance the tooth movement, but it will also increase the overall appliance retention. CAUTION: Do not overload a spring that contacts a tooth with a composite button as excessively heavy forces can cause unwanted extrusion.

Anterior Bite Plane:

The anterior bite plane is used to open the vertical dimension, allow the posterior teeth to erupt, provide clearance to correct teeth in a locked lingual crossbite, and take pressure off of the anteriors in severely closed bite cases. When used to permit vertical development via passive eruptions it is essential that the appliance be worn 22 hours per day; it should only be removed during meals and for oral hygiene.

When an anterior bite plane is used on the appliance check to see that the lower cuspids, and/or the incisors, are in contact with the upper bite plane in a balanced fashion. This will add efficiency to the appliance function as it helps combat the phenomenon of the front edge of the appliance lifting away from the anteriors when the appliance is activated. This effect is experienced when an expansion screw is opened faster than the teeth or bones can keep up or if insufficient pressure is being applied by the anterior section of the plate to move the teeth. The same effect can occur if the patient turns the expansion screws at regular intervals but fails to wear the appliance for an adequate amount of time each day.

Hawley Labial Archwire:

The Labial archwire can be used as a passive "guide" or stop to which you move the anteriors when activating anterior lingual springs or screws of any kind. If you need to advance the archwire labially to provide additional room to round out anteriors you need to carefully open the bilateral loops in the cuspid region. This should be done carefully with a gently squeeze using a 139 Bird Beak plier placed on the radius of the "U" loop. Opening the loops will deflect the labial archwire in a gingival direction, therefore compensating bends need to be placed in the wire bilaterally at the 90^{o} bend where the adjustable "U" loop transitions to the labial bow portion that lays across the incisors. Adjust at this point until the labial portion of the wire is at midpoint of the labial surface of the incisors.

If you find it necessary to activate the labial archwire in order to slightly retract the anteriors, the recommended procedure is to place the round beak of the 139 Plier in the "U" loop portion of the Hawley wire are gently roll the loops closed. This will, of course, deflect the labial portion of the wire incisally requiring a compensating bend to move the archwire gingivally so that it is again positioned midpoint on the labial surface of the incisors.

ADJUSTMENTS AND SEQUENCING

SEQUENCING

Upper: Schwarz with anterior bite plane and lap springs

1) Appliance Delivery Visit:

a) Insert the appliance and check for fit, retention, and comfort.
b) Check to see that the anterior bite plane is in a balanced contact with the lower anteriors and they hit the bite plane at a right angle.
c) Instruct the patient on how to adjust the expansion screw and give them a copy of the Passport to a Healthy Smile if appropriate; however, **do not** begin adjusting the expansion screw at the initial visit. Allow the patient one week to get comfortable with the appliance before activating the expansion screw.
d) Instruct the patient on how to care for the appliance and, if appropriate, give them a copy of the Patient Instructions included in this report.

2) Second Visit: (one week after delivery)

a) Check the appliance for signs of improper or harsh care, i.e. bent clasps or acrylic fracture.
b) Ask the patient if they are comfortable with the appliance, check for sore spots, and adjust the appliance as necessary.
c) Check the retention of the appliance and adjust as needed. A retentive appliance is essential for patient comfort and motivation. Patients are greatly motivated to continually wear their appliance if they see that movements are occurring on a timely basis.
d) Begin adjustment of the expansion screw at the rate of 1/4 turn every five or seven days as dictated by the patients age.
e) As the expansion screw is opened it is necessary to periodically adjust the labial bow so that it is approximately 1mm away from the anteriors. If the expansion screw is opened and the labial bow is not opened periodically, it will retract the anteriors and possibly cause unwanted lingual tipping.

3) Subsequent Visits: (at two to four week intervals as schedule allows)

a) Check the appliance condition and retention.
b) Check the amount of expansion that has been achieved since the previous visit. This can be done by measuring the opening between the two halves of the appliance with a Boley Gauge. Every 1/4 turn of the expansion screw equals 1/4mm of expansion; therefore, if the patient was instructed to adjust the screw 4 times between appointments you should be able to easily measure a 1mm increase in the opening between the two halves of the appliance.
c) Begin lap spring adjustments if discernible space is available. Adjust the anterior lap

SEQUENCING: (continued)

springs by placing a uniform 1.5mm to 2.0mm load in the springs. Remember to consider the use of composite buttons on lingual most incisors to act as a slight undercuts. They should be placed just incisal to the contact point of the springs. This will help to keep the springs from riding up the lingual inclines as well as aid in retention.

d) As the maxillary arch width increases it will be necessary to adjust the palatal acrylic. This is necessary because, as the palate widens, the vault of the palate drops and sometimes impinges on the acrylic. It is therefore recommended to relieve the acrylic in this area approximately one millimeter every two to three months. If this area is not relieved, then appliance retention and comfort will be a problem, resulting in inadequate wearing time by the patient.

e) It is recommend to overexpand by approximately 2mm to 3mm and allow for a relapse that occurs in all cases. As you approach the desired amount of expansion be certain to inform the patient so that they are aware of the need for the slight overdevelopment and be assured that they will not overadjust the appliance beyond the 2mm to 3mm margin.

f) When you have reached the desired amount of development and anterior corrections be sure to have the patient continue to wear the appliance until a follow-up appliance is delivered, if necessary.

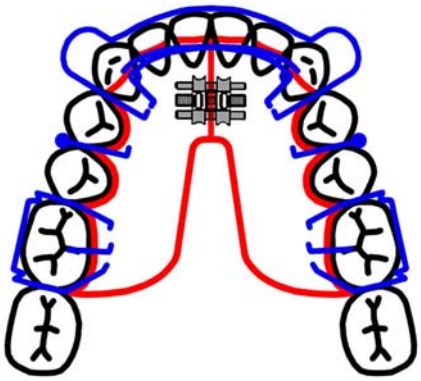
APPLIANCE DESIGNS AND LIST OF COMPONENTS

PHASE 1 Appliance: DESIGN

Lower: Schwarz with Lap Springs

The appliance consists of the following:

1. Midline expansion screw to develop the lateral arch width.
2. Indicated clasp retention:
   a) Adams clasps on #19 and #30.
   b) Ball Clasps between the premolars.
3. Lingual anterior lap springs.
4. Labial bow from distal of cuspid to distal of cuspid.



ADJUSTMENTS AND SEQUENCING

COMPONENTS

Lower: Schwarz with Lap Springs

Adams Clasps:

The Adams clasps should be checked for proper retention at the initial appliance delivery visit and routinely checked and adjusted at each subsequent visit. It is essential that the arrow points of the Adams clasps are in firm contact with the mesial and distal buccal undercut of the clasped teeth and the mesial and distal crossover wires are tightly contoured to the mesial and distal marginal ridges to reduce occlusal interferences. Any adjustments should be made with Universal Bird Beak Pliers, rather than Three-Prong Pliers, as illustrated in the Appliance Adjustment Video. NOTE: Remind the patient to be careful when removing the appliance by gently placing their fingers on the buccal bridge wire connecting the mesial and distal arrow points and carefully rocking the appliance loose. Aggressive appliance removal can compromise retention and lead to clasp failure.

Ball Clasps:

The Ball clasp gains retention by contacting the tooth at the buccal undercut similar to the Adams Clasp. When used interproximal to two teeth in tight contact, the clasps gains retention by being tucked into the buccal interproximal embrasure.

Lingual Lap Springs:

Lingual Lap Springs are typically adjusted with finger pressure when easily accessible as demonstrated in the Appliance Adjustment Video. Never place a plier or make adjustments directly at the helical coils. The recommended load of the spring is to advance it 1.5mm to 2.0mm from it rest, or in-mouth, position. NOTE: If you find, due to the lingual incline of the tooth or teeth to be moved, that the spring rides up the lingual incline and tends to unseat the appliance, it is recommended that you place a small composite button on the lingual surface of the contacting tooth just incisal to the contact point of the spring. This will not only enhance the tooth movement, but it will also increase the overall appliance retention. CAUTION: Do not overload a spring that contacts a tooth with a composite button as excessively heavy forces can cause unwanted extrusion.

Midline Expansion Screws:

The recommended adjustment of the midline expansion screw is 1/4 turn every five to seven days. A General Rule is: once every five days in the mixed dentition and once every seven days in the permanent dentition. An arrow is placed in the acrylic or on the body of the expansion screw to clearly indicate the direction that the expansion screw key is to be pushed for activation. Be sure to carefully show your patient the proper method of adjustment if you wish to have them make periodic adjustments during their treatment.

COMPONENTS (continued)

Hawley Labial Archwire:

The Labial archwire can be used as a passive "guide" or stop to which you move the anteriors when activating anterior lingual springs or screws of any kind. If you need to advance the archwire labially to provide additional room to round out anteriors you need to carefully open the bilateral loops in the cuspid region. This should be done carefully with a gently squeeze using a 139 Bird Beak plier placed on the radius of the "U" loop. Opening the loops will deflect the labial archwire in a gingival direction, therefore compensating bends need to be placed in the wire bilaterally at the 90^{o} bend where the adjustable "U" loop transitions to the labial bow portion that lays across the incisors. Adjust at this point until the labial portion of the wire is at midpoint of the labial surface of the incisors.

If you find it necessary to activate the labial archwire in order to slightly retract the anteriors, the recommended procedure is to place the round beak of the 139 Plier in the "U" loop portion of the Hawley wire are gently roll the loops closed. This will, of course, deflect the labial portion of the wire incisally requiring a compensating bend to move the archwire gingivally so that it is again positioned midpoint on the labial surface of the incisors.

ADJUSTMENTS AND SEQUENCING

SEQUENCING

Lower: Schwarz with Lap Springs

1) Appliance Delivery Visit:

a) Insert the appliance and check for fit, retention, and comfort.
b) Instruct the patient on how to adjust the expansion screw and give them a copy of the *Passport to a Healthy Smile* if appropriate; however, **do not** begin adjusting the expansion screw at the initial visit. Allow the patient one week to get comfortable with the appliance before activating the expansion screw.
c) Instruct the patient on how to care for the appliance and, if appropriate, give them a copy of the Patient Instructions included in this report.

2) Second Visit: (one week after delivery)

a) Check the appliance for signs of improper or harsh care, i.e. bent clasps or acrylic fracture.
b) Ask the patient if they are comfortable with the appliance, check for sore spots, and adjust the appliance as necessary.
c) Check the retention of the appliance and adjust as needed. A retentive appliance is essential for patient comfort and motivation. Patients are greatly motivated to continually wear their appliance if they see that movements are occurring on a timely basis.
d) Begin adjustment of the expansion screw at the rate of 1/4 turn every five or seven days as dictated by the patients age.
e) As the expansion screw is opened it is necessary to periodically adjust the labial bow so that it is approximately 1mm away from the anteriors. If the expansion screw is opened and the labial bow is not opened periodically, it will retract the anteriors and possibly cause unwanted lingual tipping.

3) Subsequent Visits: (at two to four week intervals as schedule allows)

a) Check the appliance condition and retention.
b) Check the amount of expansion that has been achieved since the previous visit. This can be done by measuring the opening between the two halves of the appliance with a Boley Gauge. Every 1/4 turn of the expansion screw equals 1/4mm of expansion; therefore, if the patient was instructed to adjust the screw 4 times between appointments you should be able to easily measure a 1mm increase in the opening between the two halves of the appliance.
c) Begin adjustment of the anterior lap springs by placing a uniform 1.5mm to 2.0mm load in the springs. Remember to consider the use of composite buttons on lingual most incisors to act as a slight undercuts. They should be placed just incisal to the contact point of the

SEQUENCING: (continued)

springs. This will help to keep the springs from riding up the lingual inclines as well as aid in retention.

d) It is recommend to overexpand by approximately 2mm to 3mm and allow for a relapse that occurs in all cases. As you approach the desired amount of expansion be certain to inform the patient so that they are aware of the need for the slight overdevelopment and to be assured that they will not overadjust the appliance beyond the 2mm to 3mm margin.
e) Continue spring activation until the incisors are aligned.
f) When active treatment is completed, use the appliance to hold the corrections until the the next Phase of treatment is ready for implementation.

APPLIANCE DESIGNS AND LIST OF COMPONENTS

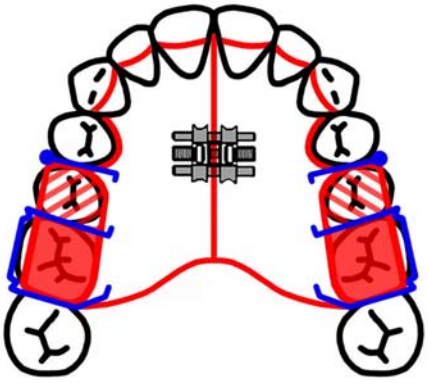
PHASE 2 Appliances: DESIGN

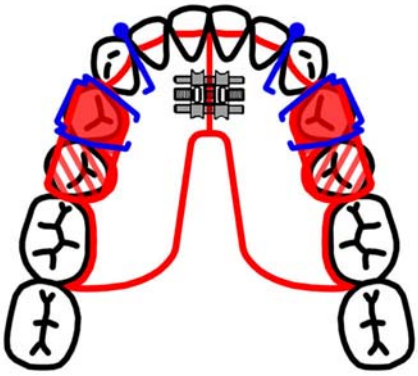
Modified Twin Block Appliances for Class II correction

The appliances consist of the following:

1. Indicated clasp retention:
   a) Adams clasps on #3, #14, #21, and #28.
   b) Ball clasps as indicated.
2. Upper and lower midline expansion screws.
3. Posterior occlusal 70° inclines.

NOTE: Successful use of Twin Block appliances requires an accurate Construction Bite for proper appliance fabrication. **Please see the information in the reference section of this report entitled *The Construction Bite - benefits and procedures*.**





ADJUSTMENTS AND SEQUENCING

COMPONENTS

Modified Twin Block Appliances for Class II correction

Adams Clasps:

The Adams clasps should be checked for proper retention at the initial appliance delivery visit and routinely checked and adjusted at each subsequent visit. It is essential that the arrow points of the Adams clasps are in firm contact with the mesial and distal buccal undercut of the clasped teeth and the mesial and distal crossover wires are tightly contoured to the mesial and distal marginal ridges to reduce occlusal interference's. Any adjustments should be made with Universal Bird Beak Pliers, rather than Three-Prong Pliers, as illustrated in the Appliance Adjustment Video. NOTE: Remind the patient to be careful when removing the appliance by gently placing their fingers on the buccal bridge wire connecting the mesial and distal arrow points and carefully rocking the appliance loose. Aggressive appliance removal can compromise retention and lead to clasp failure.

Ball Clasps:

The Ball clasp gains retention by contacting the tooth at the buccal undercut similar to the Adams Clasp. When used interproximal to two teeth in tight contact, the clasps gains retention by being tucked into the buccal interproximal embrasure.

Posterior Twin Block Inclines

The Upper Bite Block:

Typically covers the 2nd bicuspid, the 1st molar, and the 2nd molar if present. The block is angled 70^{o} from the mesial of the 2nd bicuspid and interlocks with the lower bite block.

The Lower Bite Block:

Typically covers the 1st bicuspid and 2nd bicuspid, or the 1st primary and 2nd primary molar. The block is angled 70^{o} from the middle or distal third of the 2nd bicuspid or 2nd primary molar and interlocks with the upper bite block. The individual bite blocks must be 5mm to 6mm thick. If the upper bite block is not initially at least 5mm to 6mm thick when it is trimmed, it will not be able to maintain adequate interlocking of the wedges in order to obtain the anteroposterior corrections desired.

To Correct a Deep Overbite:

To correct an overbite the upper bite block must be trimmed to allow for the eruption of the lower first molars. Initially trim 1 to 2mm from the upper bite block to allow the lower first molars to passively erupt. (see The Practice Building Bulletin entitled *The Twin Block Appliance* included in the Reference Section of this report) Removing excess acrylic may encourage a lateral tongue thrust or a posturing habit which would slow down the eruption of the lower molars.

COMPONENTS: (continued)

Midline Expansion Screws:

The recommended adjustment of the midline expansion screw is 1/4 turn every five to seven days. A General Rule is: once every five days in the mixed dentition and once every seven days in the permanent dentition. An arrow is placed in the acrylic or on the body of the expansion screw to clearly indicate the direction that the expansion screw key is to be pushed for activation. Be sure to carefully show your patient the proper method of adjustment if you wish to have them make periodic adjustments during their treatment.

In situations where appreciable lateral arch width increase is needed on an upper arch it is recommended to relieve the tissue side of the appliance just above the expansion screw to avoid sore spots and to allow the palate to drop in slightly as the arch develops laterally.

ADJUSTMENTS AND SEQUENCING

SEQUENCING

Modified Twin Block Appliances for Class II correction

1) Appliance Delivery Visit:

a) Insert the appliances and check for fit, retention, and comfort.
b) Check to see that the 70^{o} inclines interlock properly at the desired reposition that you have indicated by your carefully taken Construction Bite. When the patient occludes and the inclined planes advance the mandible, this new protrusive mandibular position must be comfortable for them. This is especially important since these appliances should be worn full time, including while eating. Exceptions are made for swimming and contact sports.
c) Confirm that the facial appearance is improved when the patient wears the Twin Blocks. Stress this to the patient, since everyone wants to improve their appearance and this is an important factor in motivating the necessary full time wear.
d) Instruct the patient on how to adjust the expansion screws and give them a copy of the *Passport to a Healthy Smile* if appropriate; however, **do not** begin adjusting the expansion screws at the initial visit. Allow the patient one week to get comfortable with the appliances before activating the expansion screws.
e) Instruct the patient on how to care for the appliances and, if appropriate, give them a copy of the Patient Instructions included in this report.

2) Second Visit: (one week after delivery)

a) Check the appliances for signs of improper or harsh care, i.e. bent clasps or acrylic fracture.
b) Ask the patient if the appliances are comfortable, if they are comfortable biting forward in the protrusive position, and if they are eating with the appliances in place.
c) If the patient is having problems posturing forward comfortably, consider reducing the amount of forward positioning by carefully trimming the anterior incline of the upper bite block. This will allow for the mandible to retrude slightly.
d) If arch development is required, instruct the patient how to activate the expansion screws. The standard adjustment is 1/4 turn every five or seven days as dictated by the patients age. Continue adjustments until the desired development is achieved.
e) If vertical development is desired, begin trimming the occlusal surface of the upper bite block. Trim only 1 to 2mm occlusal-distally to allow the lower molars to erupt to correct the deep bite. Do not trim the incline portion of the bite block.

3) Subsequent Visits: (at two to four week intervals as schedule allows)

a) Check the appliance condition and retention.

ADJUSTMENTS AND SEQUENCING

SEQUENCING: (continued)

b) If expansion screw adjustments are being done, measure the opening with a Boley Gauge to verify proper adjustments. As you approach the desired amount of expansion be certain to inform the patient so that the appliance is not overadjusted.
c) If anterior recurved or lap springs are present on the appliances they can be activated as space is available until the desired alignment is achieved
d) Continue trimming the occlusal surface of the upper bite block. Be sure that there is no more than 1 to 2mm clearance between the occlusal surface and the lower molars so as not to induce a lateral tongue thrust habit.
e) As you proceed through the periodic trimming of the upper bite blocks to allow for lower molar eruption, it is important to maintain an adequate interlocking of the wedge on the inclines to allow for the correction of the overjet by the advancement of the mandible. This is illustrated in the Practice Building Bulletin on The Twin Block Appliance and the *Manual of Appliance Therapy*.

4) End of Active Phase of Twin Block Therapy:

a) The active phase is completed when the incisors are end-to-end and the upper and lower first molars are in occlusion.
b) There will typically be an open bite in the premolar area at this point due to the bite blocks. This will be corrected in the Support Phase or with continued orthodontic therapy as required.

5) Support Phase: (to maintain the corrected incisor and molar position while the bicuspids erupt into proper occlusion)

Options available:

a) If continued active therapy is not to be pursued immediately:
Place a C-Type 3 Retainer (see the Practice Building Bulletin on the Twin Block Appliance). A carefully taken wax Construction Bite representing the **exact AP and Vertical position** that you want maintained by the appliance is essential. If a lateral tongue posture or thrust habit develops, wire tongue loops can be added to the appliance.
b) If further active treatment, especially with fixed bracketing, is to be undertaken immediately after Twin Block Therapy:
Place a Rick-A-Nator to maintain the AP and Vertical correction achieved by the Twin Block while you proceed with your fixed leveling and aligning. Provide an accurate wax Construction Bite as indicated above if you want the lab to provide the incline on the anterior acrylic.

ADJUSTMENTS AND SEQUENCING

SEQUENCING: (continued)

c) If you find that you need additional vertical development at the completion of Twin Block therapy we would recommend using a Rick-A-Nator 2 or a Spahl Split Vertical Appliance in order to actively erupt the first molars and bicuspids. Both appliances include posterior pads to provide vertical support in the posterior region. These pads help to protect the TMJ during vertical mechanics by preventing the vertical elastic forces from compressing the condyle up into the fossa.

Average Treatment Time for Twin Block Therapy:

Active Phase: average time is 6 to 9 months to achieve full reduction of overjet to a normal incisor relationship and to correct the molar relationship

Support Phase: average time is 3 to 6 months for the bicuspids to erupt into occlusion while supporting the corrected mandibular position.

APPLIANCE DESIGNS AND LIST OF COMPONENTS

PHASE 3 Appliance: DESIGN

Rick-A-Nator I (with Wilson 3D® lingual sheaths)

The appliance consists of the following:

1. Molar bands with:
   a) Wilson 3D® lingual sheaths.
   b) Straight wire buccal tubes.
2. An .040 lingual wire**
   NOTE: If you prefer, the lingual wire can be soldered to the bands. This results in a stronger appliance, but makes any needed adjustments more difficult.
3. Occlusal rests placed on the first bicuspids**
4. An Anterior Bite Plane**
   NOTE: The bite plane can be fabricated in one of two ways here at the laboratory:
   1. As a **flat plane** so that you can add the incisal ramp chairside with Self-Curing Acrylic or Light-Cured Triad. Typically, the anterior bite plane is left flat for the first month to ensure patient compliance. After the first month, the flat plane is converted to an anterior repositioning splint, *if needed*, by the addition of an incisal ramp chairside.
   2. As a finished **incisal ramp** provided that you include a specific Construction Bite along with your working models. This is effective if the amount of reset is minimal (4mm or less) or if you are transitioning to the Rick-A-Nator from a previous functional appliance.

** **PLEASE NOTE YOUR PREFERENCE WHEN ORDERING THIS APPLIANCE**

ADJUSTMENTS AND SEQUENCING

COMPONENTS

Rick-A-Nator I (with Wilson 3D® lingual sheaths)

Molar Bands:

Space Maintainers Laboratory can provide bands for the molars if the teeth to be banded are well defined and adequately erupted. The entire clinical crown should ideally be exposed with the distal of the tooth well defined and visible. If there is a tissue flap over the distal aspect of the molar it will require "guess work" on our part. We are generally quite successful in banding marginally erupted teeth but unfortunately we cannot guarantee the fit in these instances.

If the teeth are not sufficiently erupted it is best for you to provide preformed bands that you have fit chairside prior to taking the impression. When preformed bands are used, we prefer to have the model sent to us with the bands **NOT** poured up in place. We find it best to seat your preformed bands on the model here in the lab. This allows you to easily pour up the model without worrying about the bands moving out of position. Simply tape your pre-fit bands to the lab slip and we will take extreme care to see that they are properly seated on your working model.

Straight Wire Buccal Tubes:

Straight wire buccal tubes are added to the molar bands when appropriate for use with full arch fixed mechanics. Our standard size for the archwire slot is .022". Please indicate your preference if you wish a different sized buccal tubes.

Wilson 3D® Lingual Tubes:

The Wilson 3D® lingual tube consists of twin vertical tubes that are welded to the lingual of the molar bands. They are designed with a wide base, which provides stability for solid anchorage and better control of rotation, torquing, and tipping when needed. The twin tube permits a friction-lock security of the appliance, with no free-play or movement, and also eliminates the necessity for any extension lock. The tubes allow you to easily remove and replace the lingual archwire components without needing to remove the molar bands themselves. This system is extremely useful when you find it necessary to use a variety of lingual modules at different times during active treatment.

Technical information regarding insertion, removal, and adjustments of the Wilson 3D® modules is available from the laboratory on request.

ADJUSTMENTS AND SEQUENCING

COMPONENTS: (continued)

The Rick-A-Nator Anterior Bite Plane:

The anterior bite plane on the Rick-A-Nator can be finished in the lab in a variety of ways. The original literature covering Rick-A-Nator fabrication suggested that the laboratory complete a flat anterior bite plane. This was to allow the patient to function against the flat plane for one month to ensure compliance before building in any mandibular repositioning. Thereafter, if needed, the inclined portion that maintains the repositioned mandible was to be completed chairside with self-curing acrylic or Triad light-cure. An alternative is for the laboratory to complete the inclined portion here in the lab. In order for us to do this, we will need an accurate Construction Bite that clearly indicates the finished vertical and AP position for the mandible that you desire in the finished appliance. Please be sure to clearly indicate on your Rx slip which method you would like us to follow.

Technique for the Chairside Addition of the Incline Plane:

1. Remove the appliance.
2. Roughen the acrylic bite plane with an acrylic bur.
3. Coat the surface with liquid monomer.
4. Mix liquid monomer and powder to a doughy consistency.
5. Add the acrylic to the bite plane.
6. Insert the Rick-A-Nator.
7. Have the patient bite in the predetermined position (ideal overjet and overbite)
8. All the acrylic to reach an initial set.
9. Remove the appliance from the mouth and place it in a water pressure pot for 10 minutes.
10. Remove and trim excess acrylic so as to provide a smooth inclined ramp.
11. High shine or glaze the finished ramp.
12. Reinsert the Rick-A-Nator and check that you have achieved the desired new position.

ADJUSTMENTS AND SEQUENCING

SEQUENCING

Rick-A-Nator I (with Wilson 3D® lingual tubes)

1) Appliance Delivery Visit: (after placement of elastic or brass separators)

IF BANDS ARE NOT ALREADY SEATED AS PART OF PREVIOUS PHASE OF TREATMENT

a) Remove all separators and pumice all teeth to be banded, using a non-flavored flour of pumice and water. NOTE: If you have used elastic separators and suspect that an elastic has become lodged sub-gingivally, x-ray the area in question since the elastics can be detected due to their being radiopaque.

b) Seat the bands first with firm finger pressure to verify their fit. The band should initially seat about halfway. Then, use a large serrated Band Seater to seat the tightest contact first. Continue to seat the opposite contact. Next, continue applying pressure on the lingual and buccal edges until the band is seated.

Final seating into proper position may require that you use a plastic bite stick with a serrated tip. Place the serrated tip carefully on the bands edge and have the patient gently bite the band into place, moving the bite stick around the bands edge as required. Do not use the bite stick on the buccal tubes or the lingual attachments as it may cause them to distort.

NOTE: The ideal position for the seated band is achieved when you have the buccal tube (archwire slot) in the middle third of the buccal surface - occlusal/gingivally. The lower edge of the band should fit approximately 1mm under the free gingival margin and the occlusal edge should clear the bite.

c) After all the bands are seated, check the buccal tube clearances by having the patient close into maximum intercuspation. Adjust if needed.

d) Remove all bands carefully with a band remover or a Howe plier being careful not to distort the bands.

e) Dry the bands thoroughly and cover the ends of the buccal tubes with soft wax to keep them free of excess cement.

f) Isolate the teeth to be banded with cotton rolls and dry thoroughly.

g) Mix the band cement according to the manufacturer's specifications.

h) Fill the bands with sufficient cement to cover all inside surfaces.

i) Seat the bands first with finger pressure, then use the Plugger or Band Seater. Remove any excess cement from the occlusal surfaces so that you can see the marginal ridges clearly.

ADJUSTMENTS AND SEQUENCING

SEQUENCING: (continued)

j) Allow the cement to set completely, then remove any excess with a sharp scaler.
k) Insert the Wilson 3D® lingual with the anterior Rick-A-Nator acrylic component and check for proper contact with the lower anteriors. If you requested to have the lab complete the inclined portion of the Rick-A-Nator, verify that the patient is closing properly into the bite plane in the finished position that you have indicated in your Construction Bite.
l) Inform the patient of the need for exceptional hygiene while wearing the Rick-A-Nator. The use of a Water-Pik is recommended in order for the patient to keep the tissue clean under the anterior acrylic pad.

2) Subsequent Visits: (at approximately four week intervals as scheduling allows)

a) Check the appliance for fit and that it continues to position the mandible properly.
b) Check hygiene and remind the patient of the need to continually keep the appliance clean.
c) Continue with active treatment until posteriors are settled in to maximum intercuspation.

APPLIANCE DESIGNS AND LIST OF COMPONENTS

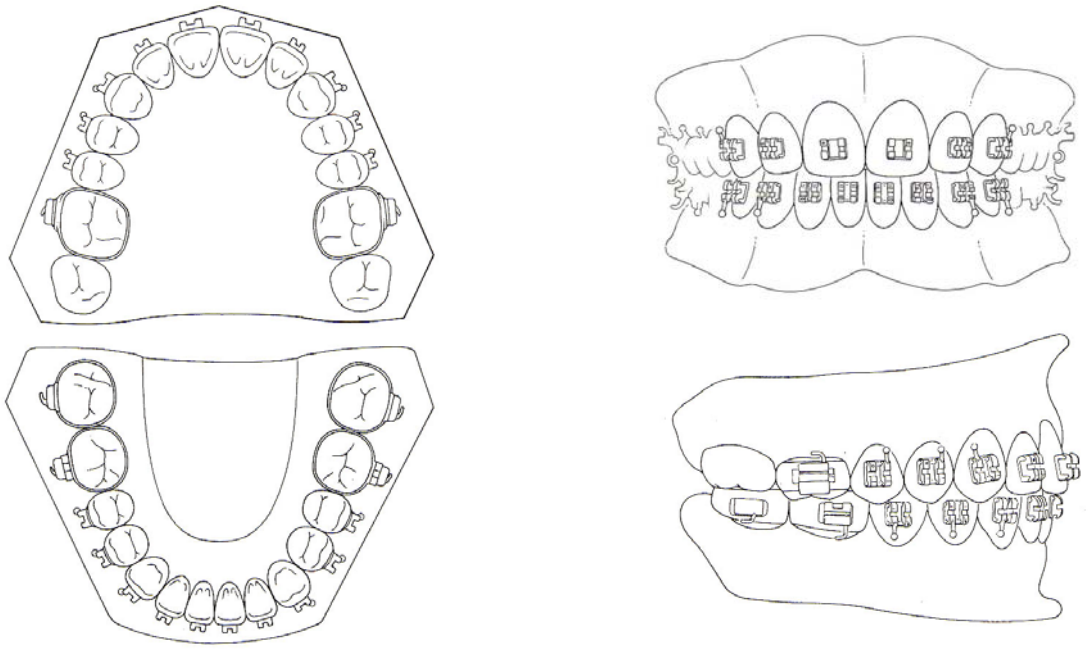
PHASE 3 Appliance: DESIGN

Full Arch Fixed Straight Wire Appliances:

The appliances consist of the following:

1. Upper and lower molar bands.
   a) the first molars are typically always banded with the appropriate straight wire buccal tubes. Bands provide superior strength over bonded buccal tubes on the first molars. Debonding of buccal tubes from occlusal forces can be a time consuming nuisance.
   b) the second molars, if present and accessible, are typically banded as well. If desired, direct-bond straight wire buccal tubes can be placed on the second molars instead of bands if enough of the buccal surface is exposed to allow for adequate bonding of the molar pads.
   NOTE: Lingual attachments can also be placed on the molar bands (i.e. Wilson 3D® vertical sheaths or horizontal sheaths) if placement of lingual arch-type (i.e. Wilson 3D® Modular Orthodontic systems, Rick-A-Nator, etc) appliances is required to achieve ideal orthodontic results.
2. Direct bond brackets for all existing bicuspids, cuspids, and incisors.
3. Archwire Series.

Idealized maxillary and mandibular bracket and band position



ADJUSTMENTS AND SEQUENCING

Full Arch Fixed Straight Wire Appliances: COMPONENTS

NOTE: The archwires of choice during treatment may be modified as per your individual preference. Various Clinicians recommend specific sequencing of wire depending upon the type of correction that is desired. Most of the common series are included in the chart below.

Type of Archwire / Size / Shape	Typical Usage
Stainless Steel Wires	
■ .0175 Twist Flex Wire	Leveling
■ .014 Round Wire	Leveling
■ .016 Round Wire	Initial Working
■ .018 Round Wire	Working
■ .020 Round Wire	Working
■ .018 x .025 Rectangular Wire	Working / Finishing
Nitanium Wires	
■ .014 Round Wire	Leveling
■ .016 Round Wire	Leveling
■ .018 Round Wire	Leveling / Working
■ .020 Round Wire	Working
■ .018 x .025 Rectangular Wire	Working / Finishing
Thermo Wires	
■ .016 Round Wire	Leveling
■ .018 Round Wire	Leveling / Working
■ .018 x .025 Rectangular Wire	Working / Finishing
CNA Wires	
■ .016 Round Wire	Leveling
■ .018 Round Wire	Leveling / Working
■ .020 Round Wire	Working / Finishing
■ .018 x .025 Rectangular Wire	Working / Finishing
Tri-Force Nitanium Wires	
■ .020 x .020 Rectangular Wire – Non-Dimpled	Leveling / Working / Finishing
■ .018 x .025 Rectangular Wire – Non-Dimpled	Leveling / Working / Finishing
■ .018 Round Wire – Dimpled	Leveling / Working / Finishing
■ .020 x .020 Round Wire – Dimpled	Leveling / Working / Finishing

COMPONENTS (continued)

Molar Bands:

Space Maintainers Laboratory can provide bands for the molars if the teeth to be banded are well defined and adequately erupted. The entire clinical crown should ideally be exposed with the distal of the tooth well defined and visible. If there is a tissue flap over the distal aspect of the molar it will require "guess work" on our part. We are generally quite successful in banding marginally erupted teeth but unfortunately we cannot guarantee the fit in these instances.

If the teeth are not sufficiently erupted it is best for you to provide preformed bands that you have fit chairside prior to taking the impression. When preformed bands are used, we prefer to have the model sent to us with the bands **NOT** poured up in place. We find it best to seat your preformed bands on the model here in the lab. This allows you to easily pour up the model without worrying about the bands moving out of position. Simply tape your pre-fit bands to the lab slip and we will take extreme care to see that they are properly seated on your working model.

Direct Bond Brackets:

Space Maintainers Laboratory can provide you with direct bond brackets with .018 or .022 slots on a case-by-case basis if you prefer. A transfer tray can also be provided, if desired, should you wish to use the indirect technique for multiple bracket placements.

Labial Archwires:

Space Maintainers Laboratory can provide you, if you prefer, with a variety of preformed ideal archwires on a case-by-case basis. The Utility Arch, because of its design and adjustments that depend on exact bracket and buccal tube placement, should be adapted chairside. We can, however, provide you with the basic wire if needed.

Types of Archwires:

- **Stainless Steel Wires**
  Resilient wire with high spring properties. Accepts very intricate bends without fracturing.

- **Nitanium (NiTi) Wires**
  This is a super elastic wire that resists permanent deformation. Excellent for leveling, aligning, correcting rotations, and torque control.

- **Thermo Wires**
  Thermally activated, these wires exert a continuous force as they move back to their original shape. Made of special nickel titanium for maximum spring and memory, while minimizing fractures.

COMPONENTS (continued)

- **CNA Wires**
  The CNA archwire is a nickel-free titanium molybdenum wire that functions well for all straight wire applications. It is a lower friction wire with high spring-back properties but has the flexibility that makes it ideal for both alignment and finishing.

- **Tri-Force Nitanium Wires**
  Tri-Force archwires offer deferential force where needed. The anterior portion of the archwire exhibits light forces; the mid or bicuspid area generates graduated forces back towards the posterior, and the posterior region relates the highest amount of force.

Bracket Placement:

The following are generally accepted bracket positions measured from the incisal edge/cusp tip to the center of the bracket slot/tube. These distances can be altered based on the amount of tooth surface exposed or your specific treatment objectives.

Maxillary Arch		**Mandibular Arch**	
Centrals	4.0mm	Centrals	4.0mm
Laterals	4.0mm	Laterals	4.0mm
Cuspids	5.0mm	Cuspids	5.0mm
Bicuspids	4.5mm	Bicuspids	4.5mm
1st Molars	4.0mm	1st Molars	4.0mm

ADJUSTMENTS AND SEQUENCING

SEQUENCING

Full Arch Fixed Straight Wire Appliances:

IMPORTANT NOTE: Application and time-line of this sequencing depends upon patient response and **should only be initiated after completion of a hands-on fixed straight wire seminar series.**

The Time Line offered here is considered to be an effective and successful approach to follow in sequencing through leveling, aligning, rotating, vertical corrections, midline establishment, and final finishing. In addition, a "typical" arch wire option chart is included at the end of this section for your consideration. NOTE: The various situations that you may find at this Phase in your treatment are sequentially considered for you to select and employ as needed.

NOTE: Individual treatment plans should, of course, be modified as deemed necessary based on the treatment objectives outlined in the Suggested Treatment section of this report.

Use appropriate *Leveling Wires* to level and align brackets, correct rotations, and eliminate anterior crowding

1) Initial Visit:

A) Place bands and brackets on full upper and lower arches.

B) Place initial **correlated** (further information on correlating the archwires can be found in the "Reference" section of this report) leveling wires to level and align the brackets and teeth. Correlating the arch wires to the specific arches, and to each other, is important in order to develop a balanced arch form with good interdigitation.

1) the first wires can be either .0175 Twist Flex Stainless, .014 Round Stainless, .014 NiTi, .016 NiTi, .018 NiTi, .016 Thermo, or .016 CNA (used for approximately 2 to 3 months).

a) the .0175 wire is typically used sectionally from second bicuspid to second bicuspid to initially help level and align the brackets if *minor rotations* are needed. It provides very light, gentle forces and is therefore a very comfortable initial wire for the patient. Not to be used for severe rotations and not to be used with any power mechanics (i.e. power chain, elastics, or open coil spring).

b) the .014 NiTi and .016 Thermo are typically placed in cases with *severe rotations* because it provides light, gentle forces. No power mechanics should be used with these wires.

SEQUENCING (continued)

c) the .016 NiTi, .018 NiTi, .018 Thermo or .016 CNA are typically placed in cases with *minor rotations* when the wire extends back to and includes the molars. No power mechanics should be placed on the NiTi wire as it does not have sufficient stiffness.
Rotations must be eliminated early in treatment to prevent relapse.
Note: for minor rotations - tie in with Power "O" Elastics.
for severe rotations - tie in with Stainless Steel ligature wire.

2) Second Visit: (maximum of two weeks after initial visit)

A) Check bands and brackets to be certain that all are secure.
B) Check hygiene and remind the patient of the need for proper brushing, etc.
C) Observe the arches and note progress.
D) Check the integrity of the ligature ties, especially if you are using elastic ligatures. Some find it beneficial to replace the elastic ligature ties on a fairly regular basis.

3) Subsequent Visits: (at four week intervals as schedule allows)

A) Observe arches and note progress.
B) If you began treatment with an .014 or .016 wire and further leveling is necessary, transition from the lighter wire to the .018 NiTi wire:
The .018 NiTi wire can be left in for multiple appointments as it works continuously and slowly to level and align the brackets with very minimal discomfort (used for approximately 2 to 3 months).
C) If spaces need to be opened or closed with mesial or distal mechanics in order to successfully complete initial leveling:
1) Place a correlated a working wire temporarily.
a) used with elastics to move teeth bodily mesially or distally.
b) used with open coil springs to create space between incisors or bicuspids if needed. When using open coil spring, measure the distance between the two brackets on the teeth to be moved and cut the coil 2mm longer than this distance. If you add more than 2mm the archwire can possibly bow out and cause unwanted rotations.
NOTE: Attempting mesial or distal movements on wires smaller than .018 in diameter can possibly cause uncontrolled rotations or tipping because the smaller wires tend to bow or buckle when the forces are applied.
D) After achieving the openings, continue archwire sequencing to complete the rotations and aligning.

SEQUENCING (continued)

At the Completion of *Leveling* Mechanics: (assess the vertical and determine amount of bite opening that may be needed)

A) To maintain the Class II correction, add the incisal ramp (on the Rick-A-Nator) lingual to the upper anteriors or have the lab fabricate the incisal ramp to your Construction Bite.

B) If the vertical needs to be opened; i.e. to open a *dental* deep bite.

1) with the Rick-A-Nator in place, utilize an .018 X .025 rectangular wire on the upper arch, a segmental wire on the lower anteriors, no archwire on the lower posteriors and use posterior vertical 1/8" (3 1/2 oz) elastics to erupt the posterior dentition.

At the completion of space creation and/or vertical corrections:

A) If midline correction is required: (to be done before closing <u>all</u> spaces)

1) Place a working wire on the arch needing correction

a) utilize chain elastic and/or coil spring to move teeth along the working wire. When correcting midlines it is essential to create an anchorage unit so that the force generated will only move the teeth in the direction that you desire. The simplest way to create an anchorage unit is to use a long ligature tie and undertie ("figure 8") as many teeth as necessary to create stable anchorage.

B) If retraction of the anterior segments is required:

1) To retract the upper anterior segments, use working wires with Class II elastics and power chain.

a) The Class II elastics run from the upper cuspids to the lower first molars. Be sure that the lower arch is well supported with at least an .018 wire.

b) The power chain runs from upper cuspid to upper cuspid. They should be attached to the mesial tie wings of the cuspids to prevent rotation of the cuspids.

2) To retract the lower anterior segments, use working wires with Class III elastics and power chain

a) The Class III elastics run from the lower cuspids to the upper first molars. Be sure that the upper arch is well supported with at least an .018 wire.

b) The power chain runs from lower cuspid to lower cuspid. They should be attached to the mesial tie wings of the cuspids to prevent rotation of the cuspids.

C) To close final spaces (after establishing Class I cuspids, and ideal overbite and overjet)

1) use working wires with power chain or Class I elastics as required.

a) when using power chain, consider placing a slight rocking chair curve in the archwire to compensate for the elastic force, otherwise the bite may close. The power chain can be placed from cuspid to cuspid, bicuspid to bicuspid, or molar to molar.

b) when using Class I elastics (3/8" 6oz.), they are from the cuspid hooks to the hooks on the first molar bands.

SEQUENCING (continued)

Final Finishing: (Final leveling and maximizing torque and tip)

A) Use .018 X .025 Rectangular (NiTi, Stainless, CNA, Thermal or Tri-Force) wires.
   1) if placing power chain from molar to molar, use the TMA wire and place slight curves in the wires to compensate for detorquing forces.
   2) to settle-in the bite, place triangular 1/4" 8oz. elastics from the upper cuspids and first bicuspids to the lower first bicuspids. These elastics are usually used for 3 to 6 months at the end of treatment.

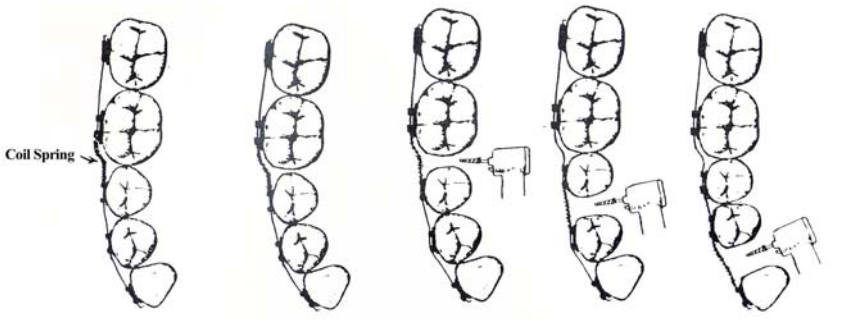
B) Take impressions with the archwires removed for the fabrication of Retention appliances.

SEQUENCING (continued)

NOTE: If you find that you will need Air Rotor Slenderizing (A.R.S.) mechanics to treat the case: (we recommend this approach only after you have completely reviewed the A.R.S. Manual)

A) Initially determine the <u>total amount of arch length required</u> to align the arches.
   1) if significant space is needed: i.e., if second and first bicuspids will both need to be reduced and then distalized:
      a) place an Essix Retainer from cuspid to cuspid.
      b) place sectional working wires from the cuspids distally through the molar tubes.
      c) proceed with sequential distalizing mechanics as outlined and illustrated in the A.R.S. Manual (available from Success Essentials).
      d) once the bicuspids are properly distalized, ligate all posteriors together with steel ligature wire to achieve maximum anchorage.
      e) proceed with final anterior retractions and/or rotations with full labial archwires as outlined in the A.R.S. Manual.
   2) if minimal space is needed: i.e., if only the mesial of the first bicuspids need to be reduced:
      a) place a full arch length working wire from molar to molar.
      b) ligate the posteriors together with steel ligature wire.
      c) proceed with the necessary sequential retractions and rotations.

B) At the completion of all alignments and after having retained the corrections for an appropriate amount of time, prepare the case for the Retainers of choice.



GENERAL A.R.S. ADJUSTMENT PROTOCOL

APPLIANCE DESIGNS AND LIST OF COMPONENTS

PHASE 4 Appliances: DESIGN

Retention:

Retention Options: depending upon the degree of fine-tuning required. They would be as follows:

1) **Upper and Lower Spring Retainer Hawleys - (if slight anterior corrections are needed)**
   - See appliance #1065 and #1333 on page 11-7 in the textbook, *Principles of Appliance Therapy for Adults and Children*
2) **Upper and Lower Standard Hawley Retainers**
   - See appliance #1161 and #1162 in the textbook, *Principles of Appliance Therapy for Adults and Children*
3) **Upper and Lower EZ Bond Lingual Retainers - (if a fixed approach is preferred)**
   - See appliance #2212 on page 11-11 in the textbook, *Principles of Appliance Therapy for Adults and Children*
4) **Upper and Lower Invisible Retainers**
   - See appliance #1116 on page 11-9 in the textbook, *Principles of Appliance Therapy for Adults and Children*
5) **Upper and Lower Wrap Around Retainers with Labial Acrylic Support**
   - See appliance #1169A on page 11-6 in the textbook, *Principles of Appliance Therapy for Adults and Children*

IMPORTANT NOTE: It is a good idea, and a wonderful service to your patient, to ask if they are involved in any sports activities, including jogging, skating, or bicycling. If so, suggest that they obtain a custom Mouthguard to protect their teeth, their jaw, and your work. The benefits of a quality custom Mouthguard cannot be overemphasized. Refer to our Manual of Intact Mouthguards for further information regarding the benefits of this service to your patient and your practice.

ADJUSTMENTS AND SEQUENCING

COMPONENTS

Retention - Options:

Spring Retainer Hawley:

The Spring Retainer Hawley is used in correcting minor rotations of the anterior teeth. Before fabrication of the Spring Retainer, it is essential that space is available to accommodate the teeth needing correction. This appliance is NOT designed to gain any arch width or length, or move teeth mesially or distally, but some space can be gained by doing some light interproximal recontouring cuspid to cuspid if enamel thickness and integrity allows. Adequate vertical dimension is also required. Be certain that these conditions are met before beginning this phase of treatment. In fabricating this appliance, the rotated teeth are set up on the model in the corrected alignment. When worn, the spring action of the labial and lingual wire and acrylic components gently align the teeth. No adjustments are necessary except to check that the labial and lingual acrylic on the incisors are in close proximity to one another. They should be separated only by the labial/lingual width of the incisors when the appliance is out of the mouth for inspection. A well cared for Spring Retainer can be used as a final retainer if desired.

Hawley Retainers:

Standard Hawley Retainers typically utilize a labial wire from cuspid to cuspid with posterior clasps, and/or, rests. Occlusal clearances present at the completion of treatment may require slight design modifications as regards wire placement and clasp design. If you have a preferred design be sure to indicate your desires when ordering the appliances.

The "Open Palate" Modification:

The Open Palate Hawley Retainer utilizes a standard labial wire from cuspid to cuspid with posterior clasps; however, the area over the hard palate is left free of acrylic. This allows for natural proprioception of the tongue against the rugae, thereby leaving speech unaffected. Also, there is no danger of the patient developing a deviate swallowing pattern as the tongue never loses contact with the hard palate. The ribbon of acrylic that is contacting the lingual of the anteriors is re-enforced with Kevlar in order to reduce the possibility of fracture. See page 11-1 in the *Manual of Appliance Therapy for Adults and Children*. **Note:** If you prefer this design, please be sure to indicateyour preference clearly on your Rx.

EZ Bond Lingual Retainers:

EZ Bond Lingual Retainers are preferred if:

a) significant anterior rotations were required to complete treatment.

COMPONENTS: (continued)

b) your patient does not wish to wear removable appliances due to difficulty in speaking.
c) your patient does not wish to deal with the degree of care required to maintain removable retainers.
d) compliance in wearing removable retainers is doubtful.

Description: This is a lingual bonded multi-strand wire retainer with standardized "spots" of bonding material. Due to a custom-made transfer tray with "escape channels", excess bonding material is allowed to escape instead of flowing interdentally or over the complete lingual surface of the teeth.

Retainers consisting of multi-strand wire can play a valuable role following active orthodontic treatment and have clear advantages over removable retainers. Until advent of the EZ Bond Retainer no completely satisfactory or standardized method for bonding a wire to the lingual surfaces of the anterior teeth existed. The most usual method was to position the retainer wire on the etched and dried tooth surface and apply an arbitrary quantity of composite. Neither the position nor the quantity of bonding material could be accurately controlled, so prolonged finishing procedures were often necessary to remove excess composite or to add extra material to deficient areas. The chair-time required to place such a retainer was, therefore, rather unpredictable and appearance of the finished result was compromised.

The following "Sequencing" section of this report includes a description of the technique for bonding of the EZ Bond Retainer so that you can be assured of consistent results, giving precise control over the quantity and position of the bonding material.

Invisible Retainers:

The Invisible Retainer is formed from a thin sheet of clear acrylic that is vacuum formed to the occlusal and incisal surfaces of the entire arch. The completed appliance typically extends over buccal and lingual surfaces and is finished just short of the gingival margins on the buccal and labial surface. The lingual is finished at least 5mm up onto the tissue from the gingival margins. If you have a preferred finish line please mark it clearly on the working model. Due to the thinness of the acrylic material used for this appliance it is rather fragile. Explain this to the patient to be certain that they treat their appliance with extreme care. It is not to be worn while eating and must be kept in its retainer box when not in the mouth.

COMPONENTS: (continued)

Modified Begg Retainers:

The Modified Begg Retainer consists of lingual acrylic and a Wrap Around labial wire that is attached to the lingual acrylic at the distal of the posterior-most tooth in the arch. This design eliminates any wire crossing the occlusion and therefore allows for comfortable interdigitation. The original design has been modified by the addition of a band of clear acrylic that tightly conforms to the labial and interproximal surfaces of the incisors. This prohibits movement, and particularly rotation, of the incisors and most importantly adds stability to the labial wire.

ADJUSTMENTS AND SEQUENCING

SEQUENCING

Retention - Options:

Spring Retainer Hawleys:

1) **Retainer Delivery Visit:**
   a) Do not remove the previous phase appliances until the Spring Retainers are ready for delivery. This will guard against any relapse that may adversely affect initial seating of the Spring Retainers.
   b) If any interproximal reductions are needed between the incisors it should be done at this time. Do not perform any anticipated interproximal reductions before the appliance delivery as you may experience some unwanted space closures before you can seat the appliance.
   c) Check the appliance for proper fit and comfort. Show the patient how the lingual and labial clear acrylic components are initially separated and remind them of the need for full-time wear so that the incisors will settle into the desired alignment.
2) **Subsequent Visits: (at four-week intervals)**
   a) Check for appliance fit, comfort, and condition
   b) Continue until teeth are adequately aligned and retained in final position for two to four months.

Approximate treatment time:
4 to 6 months

Hawley Retainers:

1) **Retainer Delivery Visit:**
   a) Keep the previous Phase appliances in place until the Retainers are ready for delivery.
   b) Instruct the patient of the need for full time wear initially after completion of their orthodontic therapy. The recommended duration of Retainer wear in an adult dentition case after orthodontic therapy varies. Some recommend up to three years of virtually full-time wear. * Transition from full time wear to nighttime wear can be undertaken when the appliance fits comfortably, and is not excessively tight, after being out of the mouth during the daytime.
   c) In cases of adult therapy, inform the patient that they essentially may need to wear the retainers as long as they want their teeth to remain straight.

ADJUSTMENTS AND SEQUENCING

SEQUENCING: (continued)

2) Subsequent Visits: (initially after four weeks, then as desired or necessary)

a) Check the appliance fit, comfort, and condition.
b) Reinforce the need for full time wear as discussed during delivery visit.

* The only way that retention can be successful is for the patient to have been treated first to a normally balanced occlusion. To expect little or no post-treatment relapse, the orthodontic result must include:

1. Teeth kept within the alveolar trough.
2. The mandibular arch leveled.
3. Proper interincisal angle.
4. Balanced occlusal stops.
5. Wisdom teeth or second molars resolved.

A comprehensive retention program can make all the difference in the world to the final result the patient can receive.

EZ Bond Lingual Retainers:

Prior to the "Retainer Delivery Visit."

a) Take an "accurate" impression of the arch(es) needing the appliance. This requires:
   1) thoroughly clean the teeth with an appropriate prophy paste.
   2) if the anteriors are still bracketed, carefully block our any excessive undercuts gingival to the archwire with soft wax in order to prevent distortion of the impression when it is withdrawn.
   3) although the retainer will only be placed on the lingual surface of the anterior teeth, be certain that the impression includes the incisal edges as well as a portion of the labial surfaces (2mm to 3mm).
   4) pour the impression immediately in stone and check for accuracy after the stone sets.

PLEASE NOTE THE FOLLOWING CAUTION: VERY IMPORTANT!!

The completed EZ Bond wire and transfer tray is purposely returned to your office on the model. Be certain to handle the transfer tray very carefully so as not to flex it excessively. If the tray is flexed too much the wire can come loose from the tray and it may prove time consuming to re-insert the wire properly. If you have any problems in this area please give us a call at any time.

ADJUSTMENTS AND SEQUENCING

SEQUENCING: (continued)

1) Retainer Delivery Visit

a) Keep the previous Phase appliance(s) in place until the EZ Bond Retainers are ready for delivery.*
b) Prepare the lingual surfaces of the teeth to be bonded in the usual manner using non-flavored pumice.
c) Bonding material is then mixed, and using a composite syringe, injected into the transfer tray perforations. Over or underfilling must be avoided. You should find that it is quite easy to fill the perforations with the appropriate amount of composite due to their standardized size.
d) The transfer tray should then be placed on the teeth and gentle pressure applied until the material is set. The transfer tray perforations permit any excess bonding material to harmlessly escape rather than being squeezed interproximally or gingivally. It is very important that this overflow of bonding material be removed with a large round bur before peeling off the transfer tray.
e) Remove the transfer tray by placing the thumb and index finger of one hand over the transfer tray covering all the teeth except two (1 cuspid and 1 lateral). Then, with the other hand carefully peel off the transfer tray one tooth at a time. Removal of the transfer tray reveals a perfectly adapted lingual retainer attached to the teeth by highly effective studs of bonding material of uniform thickness and shape at the predetermined locations.
f) The overflow of excess material can be rounded off using a round bur or any other suitable finishing stone.
g) Inform patient of the need for good hygiene. Learning to use a floss threader properly will be essential for their long-term oral health. An Oxycare 3000 WaterPik or similar device is also recommended for patients with any fixed retainer.

2) Subsequent Visits: (initially after four weeks, then as desired or necessary)

a) Check the appliance retention, comfort, and condition.
b) Reinforce the need for good oral hygiene.
c) Remind the patient to contact the office immediately if any bonding comes loose.

* A detailed technique sheet for proper placement of the EZ Bond Retainer is available if needed. Just call the lab at1-800-423-3270 if you wish to have a copy.

SEQUENCING: (continued)

Invisible Retainers:

NOTE - The Invisible Retainer is extremely esthetic, however, it is relatively fragile. Remakes are generally needed every six months.

1) Retainer Delivery Visit:

a) Keep the previous Phase appliances in place until the Retainers are ready for delivery.
b) Instruct the patient of the need for full time wear initially after completion of their orthodontic therapy. The recommended duration of Retainer wear in an adult dentition case after orthodontic therapy varies. Some recommend up to three years of virtually full-time wear. * Transition from full time wear to nighttime wear can be undertaken when the appliance fits comfortably, and is not excessively tight, after being out of the mouth during the daytime.
c) Inform the adult patient that they essentially may need to wear the retainers as long as they want their teeth to remain straight.

2) Subsequent Visits: (initially after four weeks, then as desired or necessary)

a) Check the appliance fit, comfort, and condition.
b) Reinforce the need for full time wear as discussed during delivery visit.
c) Remind your patient of the relatively fragile nature of this appliance. It is the most esthetic removable appliance available and yet the most prone to fracture if handled roughly. The Retainers should ALWAYS be in their retainer box when not being worn during meals, etc.

Modified Begg Retainers:

1) Retainer Delivery Visit:

a) Keep the previous Phase appliances in place until the Retainers are ready for delivery.
b) Instruct the patient of the need for full time wear initially after completion of their orthodontic therapy. The recommended duration of Retainer wear in an adult dentition case after orthodontic therapy varies. Some recommend up to three years of virtually full-time wear. * Transition from full time wear to nighttime wear can be undertaken when the appliance fits comfortably, and is not excessively tight, after being out of the mouth during the daytime.
c) Many feel that in cases of adult therapy, it is best to inform the patient that they essentially may need to wear the retainers as long as they want their teeth to remain straight.
d) Insert the Retainer carefully, stressing to the patient the need to be especially careful when handling the appliance. Although the clear acrylic on the labial of the incisors adds stability to the overall appliance, the labial wire can be distorted if handled roughly.

SEQUENCING: (continued)

2) Subsequent Visits: (initially after four weeks, then as desired or necessary)

a) Check the appliance fit, comfort, and condition.
b) Reinforce the need for full time wear as discussed during delivery visit.
c) Verify that the patient is handling the appliance carefully. Any minor distortions of the archwire can be easily corrected chairside. If the labial acrylic has been bent away from the incisors it can be tightened by carefully closing the adjustment loops in the cuspid region.

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OFFICE EMAIL ADDRESS

AGE

OFFICE PHONE NUMBER

MICHAEL SMITH

DESIGN NOTE: The suggested appliance design(s) are based upon an evaluation provided by SML Diagnostics. Any diagnosis, prescription or treatment is the decision and sole responsibility of the doctor using this material.

ADDITIONAL SERVICES*

- ☐ RETURN DUPLICATE SET OF MODELS
- ☐ APPLIANCE INSURANCE

DUE DATE – MUST BE A MINIMUM OF ONE DAY PRIOR TO YOUR PATIENT'S APPOINTMENT

- ☐ EMERGENCY SERVICE FOR APPLIANCES* (24 to 48 Hrs. Processing)
- ☐ PATIENT WILL BE APPOINTED AFTER APPLIANCE ARRIVES

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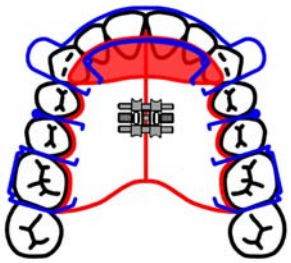
- ☐ Orthodontic Diagnostic Service
- ☐ Digital Study Models with IPR Analysis

** FEES APPLY*

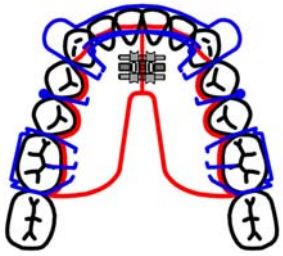
Upper: Schwarz with anterior bite plane and lap springs

The appliance consists of the following:
1. Midline expansion screw to develop the lateral arch width.
2. Indicated clasp retention:
   a) Adams clasps on #3 and #14.
   b) Ball Clasps between the premolars.
3. Lingual anterior lap springs.
4. Lingual anterior bite plane.
5. Labial Arch wire.



Lower: Schwarz with Lap Springs

The appliance consists of the following:
1. Midline expansion screw to develop the lateral arch width.
2. Indicated clasp retention:
   a) Adams clasps on #19 and #30.
   b) Ball Clasps between the premolars.
3. Lingual anterior lap springs.
4. Labial bow from distal of cuspid to distal of cuspid.



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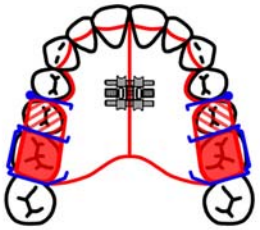
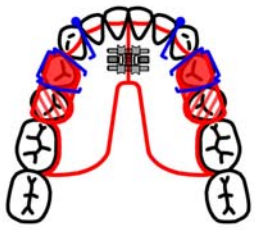
*** FEES APPLY**

Modified Twin Block Appliances for Class II correction
The appliances consist of the following:
1. Indicated clasp retention:
   a) Adams clasps on #3, #14, #21, and #28.
   b) Ball clasps as indicated.
2. Upper and lower midline expansion screws.
3. Posterior occlusal 70° inclines.

NOTE: Successful use of Twin Block appliances requires an accurate Construction Bite for proper appliance fabrication.





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*** FEES APPLY**

PLEASE NOTE YOUR PREFERENCE WHEN ORDERING THIS APPLIANCE BY CHECKING THE APPROPRIATE BOXES

Rick-A-Nator I (with Wilson 3D® lingual sheaths)

1. Molar band – **OPTIONS**
   - ☐ Straight wire buccal tubes.
2. An .040 lingual wire – **OPTIONS**
   - ☐ Soldered lingual wire – as shown
     This results in a stronger appliance, but makes any needed adjustments more difficult.
   - ☐ Wilson 3D® lingual sheaths* – **RECOMMENDED**
     *Allows for removal of the appliance.
3. Occlusal rests placed on the first bicuspids – **OPTIONS**
   - ☐ Yes
   - ☐ No
4. An Anterior Bite Plane – **OPTIONS**
   - ☐ Flat Plane
   - ☐ Incisal Ramp

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- ☐ **PACKAGING** - Sturdy cardboard box (provided upon request) is required. Fill box completely with packing material. Wrap models carefully and individually.

ECONOMIC CONSIDERATIONS

The Orthodontic Diagnostic Service Fee: $249.99

NOTE: No further Second Opinion "evaluation / diagnostic" fees will be charged if this case is sent in for re-evaluation. However, if a cephalometric tracing or study model fabrication is requested at a later date (for re-evaluation purposes), our standard service fees will apply.

LAB FEES:

PHASE 1:

Upper:	Schwarz with anterior bite plane and lap springs	$126.20
Lower:	Schwarz with Lap Springs	$115.20

PHASE 2:

Twin Block	$251.40

PHASE 3:

Upper:	Rick-A-Nator (includes Wilson 3D® lingual sheaths and buccal tubes)	$120.40

NOTE: The indicated straightwire bracketing prices *include* a set of standard stainless steel archwires. If you prefer archwires other than stainless steel, please refer to the additional archwires that are available below.

Upper and Lower: Full Arch Fixed Straight Wire Bracketing (includes 20 brackets, 2 molar bands, and 5 stainless steel wires per arch)	$145.50
Optional Bondable Buccal Tubes for the molars	$ 11.50 each

Additional Archwires:

Nitanium Wires – Super Elastic	$ 5.95 (each) $ 19.95 (pack of 10)
Thermo Wires – Thermally Activated	$ 4.95 (each) $ 24.50 (pack of 10)
CNA Wires – Nickel-Free Titanium Molybdenum	$ 10.95 (each) $ 16.50 (pack of 5)
Tri-Force Nitanium Wires – Differential Force – Non Dimpled	$ 10.95 (each) $ 44.50 (pack of 10)
Tri-Force Nitanium Wires – Differential Force – Dimpled	$ 14.00 (each) $ 47.50 (pack of 10)

NOTE: Any modifications or design changes may affect the appliance fee. Prices are subject to change without notice.

<u>PLEASE NOTE:</u> *Current* working models (no more than 2-3 weeks old) will be required for appliance fabrication when you are ready to proceed as outlined.

ECONOMIC CONSIDERATIONS

PHASE 4 – Retention – Options:

Spring Retainers:	$ 87.50 per arch
Hawley Retainers:	$ 66.25 per arch
EZ Bond Lingual Retainers:	$ 62.00 per arch
Invisible Retainers:	$ 39.00 per arch
Wrap Around Retainers with Labial Acrylic Support:	$ 76.50 per arch
Intact™ Mouthguard **	$ 70.40 – $127.75

**** IMPORTANT NOTE:** It is a good idea, and a wonderful service to your patient, to ask if they are involved in any sports activities, including jogging, skating, tennis, or bicycling. If so, suggest that they obtain a custom Mouthguard to protect their teeth, their jaw, and your work. The importance and benefits of a custom Mouthguard cannot be overemphasized. Their purpose, in order of importance, is:

1. To protect against Concussion.
2. To protect against Neck Injury.
3. To protect the teeth from Fracture.

Refer to our ***Manual of Intact Mouthguards*** for further information regarding the benefits of this service to your patient and your practice.

NOTE: Any modifications or design changes may affect the appliance fee. Prices are subject to change without notice.

PLEASE NOTE: ***Current*** **working models (no more than 2-3 weeks old) will be required for appliance fabrication when you are ready to proceed as outlined.**

ECONOMIC CONSIDERATIONS

GENERAL FORMULA FOR DETERMINING FEES TO YOUR PATIENT:

Setting all of the fees associated with orthodontic therapy is not always easy. Certainly your fees should be determined by you, and only you! However, because many doctors have asked us for help, we recommend the following guidelines.

Records and Diagnostic Fees:
This fee should include taking of diagnostic casts, necessary x-rays, utilization of an outside consultation service and the time spent to evaluate the case thoroughly until you have created a comprehensive treatment plan.

For example:
Why should you charge to diagnose a case? Experience has found that charging for a patient's initial diagnostic workup is entirely appropriate. First, when a patient is willing to pay for your time, he or she is demonstrating their commitment to the treatment plan you spend time developing. Second, if you charge for the time you have personally taken to evaluate and diagnose the patient's case, you will not feel rushed to produce a treatment plan for a patient who has no obligation to follow through. Third, if the patient decided to proceed with treatment, the costs associated with the initial diagnostic workup can be applied (credited) to the overall treatment plan. Simply put, your time is valuable. A patient deserves a thorough diagnosis, and you deserve his or her commitment. By charging for the initial diagnosis, both you and your patient benefit.

Appliance and Office Visit Fees:
First determine the number and cost of the appliances that will be necessary to complete the active treatment phase. Multiply this number by 3 to 5 times to establish a base line fee. Then determine the approximate treatment time and multiply this number by $50 to $100 per month. Next add the cost of one (1) extra appliance. Inevitably, your patient may lose an appliance or you will need to re-make the appliance with a small change in design at least once. The last step is to add on the cost for final retainers. Some doctors multiply this fee by 2 to 3 times. We recommend just adding on the cost of the appliances.

For example:
Phase 1 treatment only consisting of Upper and Lower Schwarz appliances is $230.40 each (lab fee). Multiply this by four (4), which would equal **$921.60**. Then add approximately $75 per month for six (6) months, which would equal **$450.00**. Next add the cost of one (1) extra appliance, which would cost **$115.20**. Lastly, add the cost of Upper and Lower final retainers, which would cost approximately **$132.50** each (lab fee). Therefore, the total cost of treatment in this example would be $**1619.30**.

ECONOMIC CONSIDERATIONS

TREATMENT TIME CALCULATIONS:

Below are listed the **generally accepted treatment times** for the various appliances and techniques currently in use, assuming ideal patient cooperation. Treatment time, especially with removable appliance therapy, can vary greatly depending upon the cooperation level of the patient. Obviously, full time wear will greatly expedite treatment, as indicated by the following *10 Hour Force Theory*. In fact, when using Removable Appliance Therapy, it is important that you explain the following **10 Hour Force Theory** to your patient:

> "To initiate tooth movement it is necessary that the appropriate force is placed on the tooth and that this force remains active for at least 10 continuous hours before the tooth begins to move. If this force is thereafter removed for in excess of one hour, the osteoclastic and osteoblastic changes that have begun to occur to allow for tooth movement return to zero. Therefore, ten more hours of continuous wear is necessary in order to restart movement. The patient needs to know that virtually continuous appliance wear is necessary to progress smoothly through treatment. Appliances may be removed while eating, however, they should be placed back in the mouth within one hour so that treatment can continue uninterrupted. Part-time wear will greatly increase treatment time and result in frustration for you and your patient."

1) Minor Tooth Guidance Appliances - i.e., Modified Hawleys with finger springs:

You can conservatively expect 1mm movement per month on individual teeth being repositioned with finger springs or expansion screws, assuming that adequate space is available. When multiple springs are placed on a removable appliance it is suggested that no more than two springs be adjusted at any one time, otherwise appliance retention may be compromised. Therefore, as an example, if you have two teeth needing to be moved a total of 3mm distance, treatment time should take approximately 3 months, since both teeth can be moved simultaneously. If, on the other hand, you have three or more teeth needing movement, calculate the total amount of movement needed in millimeters, and base your calculations on moving only two teeth at a time. Once the first two teeth are positioned, maintain them by deactivating the springs or by relining the appliance around these teeth, and continue with movement on the remaining teeth.

2) Schwarz Appliances - for lateral arch development:

Typically, you can expect to achieve a minimum of 1mm per month of lateral arch development on any given removable appliance using midline expansion screws. The recommended adjustment of the midline expansion screw is 1/4 turn every five to seven days The General Rule is: adjust

TREATMENT TIME CALCULATIONS: (continued)

the expansion screw once every five days in the mixed dentition, or once every seven days in the permanent dentition. (a 1/4 turn of the expansion screw turnbuckle provides 1/4mm of expansion).

If your case needs lateral development in order to provide room for subsequent anterior alignments with finger springs, first calculate how many weeks or months you will need to gain the necessary arch width, and then add in the number of weeks or months needed to align the anteriors with finger springs as outlined above.

3) Sagittal Appliances - for arch length gain:

For Sagittal I Appliances - (to distalize the buccal segments / with second molars removed): Typically, the adjustment sequence is one 90-degree (i.e. 1/4) turn of the expansion screws every four days, therefore in little over a month, you can expect 2mm of expansion. Multiply this by the number of millimeters of movement needed to gain the required space that you have determined by your arch length analysis.

For Sagittal II Appliances - (to develop the anteriors labially - for correction of crowding or lingual inclination of the anteriors, or to open the premaxillary sutures):
Typically, the adjustment sequence is one 90-degree turn of the expansion screws every four days, with average treatment times running approximately 6 to 7 months, depending upon the severity of the correction needed. Generally speaking, response is slower with a Sagittal II appliance when compared to a Sagittal I appliance where the second molars have been removed.

4) Functional Appliances: such as the Twin Block Appliance, Bionators, or Orthopedic Correctors:

Average Treatment Times:

Active Phase: average time is 6 to 9 months to achieve full reduction of the overjet to a normal incisor relationship, and to correct the molar relationship

Support Phase: average time is 3 to 6 months for the bicuspids to erupt into occlusion while supporting the corrected mandibular position.

TREATMENT TIME CALCULATIONS: (continued)

5) Final Retainers: (post-ortho)

The projected wear time for final retainers can vary greatly depending on a number of factors. Ideally, in order to expect little or no post-treatment relapse, the final orthodontic result must include, at minimum:

1. Teeth kept within the alveolar trough.
2. The mandibular arch leveled.
3. Proper interincisal angle.
4. Balanced occlusal stops.
5. Wisdom teeth or second molars resolved.

Typically, Retainers should be worn full time for at least 4 to 6 months after completion of active therapy. After 6 months, the patient can be instructed to wear the Retainer only at night Many Practitioners who monitor their patients indefinitely will thereafter instruct their patients to wear their Retainers at least one night a week (say on Sunday nights) from then on. This will insure that the beautiful results achieved will remain stable.

ECONOMIC CONSIDERATIONS

BASIC SUPPLY LIST

For your convenience the following supplies are available through *Success Essentials*, the products division of Space Maintainers Laboratory. Simply check the items that you wish to obtain and call or fax -in your order. If you would like to receive a copy of our latest full color catalog with all our useful tools and supplies, call 800.423.3270 to speak to a *Success Essentials* product specialist

To order: Phone 800.423.3270 Fax 818.407.5445

ITEM:	Order #:	Price:
For Accurate Working Models:		
☐ SML Brand Alginate – 1 lb.	100-099	$ 5.49
☐ Mixing bowl	100-120	$ 2.95
☐ Spatula	100-110	$ 3.95
☐ Impression Trays, Sizes 1– 6, 60 trays 5 of each size	550-540	$ 48.50
☐ Impression Tray Tree	100-100	$ 49.95
☐ Dental Stone		
Removable Appliances:		
☐ Acrylic Burs (set of four (4) below):	490-200	$ 32.50
Flame Shaped Carbide Barrel Shaped Carbide		
Fissure Carbide Round Head Carbide		
☐ Stiff Brush Wheels – box of 12	490-311	$ 8.50
– for removing occlusal bite planes		
☐ 139 Bird Beak Pliers	210-139	$ 59.95
– for spring and clasp adjustment		
☐ Three Prong Pliers	210-200	$ 59.95
– for labial arch wire adjustment		
☐ Wire Cutting Pliers	210-380	$ 35.95
☐ Expansion Screw Adjustment Key (bag of 10)	410-010	$ 4.50
• **Acrylic Repair Kits**		
☐ Acrylic Curing Pressure Pot	110-200	$ 169.00
☐ Pink Acrylic	600-100	$ 24.50
☐ Clear Acrylic	600-200	$ 24.50
☐ Boley gauge or diagnostic caliper	200-457	$ 39.95
☐ Articulating Paper – for Bite Plane adjustments		
• **Bite Registration (Construction Bite) Devices**		
☐ Perfect Bites 2mm (12 each)	330-022	$ 17.50
☐ Perfect Bites 4mm (12 each)	330-023	$ 17.50
☐ Base Plate Wax		
☐ Aqua-Form – 1 lb.	340-010	$ 29.50

To order: Phone 800.423.3270 Fax 818.407.5445

ITEM:	Order #:	Price:
Fixed Appliances:		
☐ Upper Set of Brackets with DB buccal tubes and set of 5 arch wires	420-309	$ 69.75
☐ Lower Set of Brackets with BD buccal tubes and set of 5 arch wires	420-310	$ 69.75
• **Cheek Retractors & Tongue Blocks**		
☐ Adult – 2 per pack	800-801	$ 15.50
☐ Pedo – 2 per pack	800-802	$ 15.50
☐ 1 Adult, 1 pedo	800-803	$ 15.50
☐ Pedo, 25 ea.	800-810	$ 17.50
☐ Adult, 25 ea.	800-811	$ 17.50
• **Adhesives, Cements & Etch**		
☐ Etchant – 12 gram kit, with 25 disposable tips	320-400	$ 13.00
☐ Glass Ionomer 15 grams powder/15cc liquid	320-600	$ 24.50
☐ Glass Ionomer 50 grams powder/55cc liquid	320-630	$ 49.50
☐ 1-Step Bracket Adhesive, 700 Bonds	320-701	$ 69.50
☐ 1-Step Bracket Adhesive, 40 Bonds	320-500	$ 24.50
• **Hand Tools and Instruments**		
☐ Interproximal Stripping Tool with 10 blades	230-201	$ 36.50
☐ Bracket Placement Tool	220-319	$ 17.50
☐ Direct Bond Bracket Removing Pliers	220-312	$ 59.95
☐ Band Seater with Scaler	220-309	$ 16.90
☐ Band Seating Tool	220-308	$ 15.50
☐ Molar Band Removing Pliers	220-105	$ 59.95
☐ Ligature Tie Placement Forceps	230-219	$ 34.95
☐ Distal End Cutter	220-205	$ 65.95
☐ Pin and Ligature Cutter	220-106	$ 59.95
• **Elastomerics**		
☐ Donut Separating Plier	220-407	$ 45.95
☐ Donut Separators – 160 pieces	320-352	$ 6.50
☐ Brass separators – .020, 100 pieces	320-370	$ 18.50
☐ Elastomeric Arch Ties 1008 pieces (call for colors)		$ 17.50
☐ Chain Elastics – 15’ roll (call for colors)		$ 17.95
• **Patient Convenience and Comfort**		
☐ Brace Relief – Patient Pack – 12 kits	800-610	$ 23.50
☐ Clean N Fresh Appliance Cleanser	800-550	$ 4.95

Information and Informed Consent Document

PATIENT'S NAME_____

Dear _____
(Patient or Parent's Name)

We ask you to read the following to share with you some facts about orthodontic treatment which, like any medical or dental treatment, includes some limitations. This information is routinely supplied to anyone considering orthodontic treatment in our office.

Informed consent is a requirement facing all medical and dental practitioners. It is the responsibility of my staff and myself to provide each patient with enough information so that the patient has an understanding of the extent of the problem, benefits of treatment, risks of treatment, treatment alternatives and consequences if no treatment is performed.

Orthodontics is an elective procedure, therefore we want you to read the following information and ask my staff or me any questions. After you are completely satisfied with our explanations, consent to treatment by signing this "Informed Consent Document". This is standard procedure in our office.

The purpose of this document is to inform the patient and/or parents of what they may expect during orthodontic treatment to point out the potential risks or problems that may be encountered before or after treatment. Some facts, which must be considered, include:

1. PATIENT COOPERATION

As a rule, excellent orthodontic results can be achieved with informed and cooperative patients. Patient cooperation is one of the most important factors in determining whether treatment is completed on time. The key to successful treatment is a joint effort by the patient, parents, orthodontic practitioner and the staff working together. To help achieve the most successful results, the patient must do the following:

a) Keep regularly scheduled appointments.
b) Practice good oral hygiene including brushing, flossing, etc.
c) Wear orthodontic appliances as indicated.
d) Wear elastics if necessary.
e) Eat proper foods so as not to dislodge the braces (brackets, bands).
f) Wear retainers after braces are removed.

Failure to adhere to instructions can lengthen the treatment time and can adversely affect the quality of the treatment results. In extreme circumstances, it could be necessary to discontinue orthodontic treatment.

2. CAVITIES, SWOLLEN GUMS, WHITE SPOTS

Orthodontic appliances do not cause cavities or swollen gums, but because of their presence, food particles and dental plaque are retained and the potential for problems is increased. Cavities, swollen gums and white spots (decalcification) can result from lack of brushing and flossing and poor oral hygiene, and need not occur if good oral hygiene procedures are closely followed. The permanent white lines (decalcification) that are sometimes visible around the area of the brackets signal the early stage of a cavity. Sugary foods and between meal snacks should be eliminated.

If a bracket or band becomes loose the patient must return to the office as soon as possible, otherwise the possibility for a cavity exists. Missed appointments could result in tooth damage due to undetected loose bands.

In addition to regular monthly visits for orthodontic work, we suggest that orthodontic patients see their dentist at least twice a year for periodic examination and cleaning.

3. LOSS OF TOOTH VITALITY

Loss of tooth vitality (nerve within the tooth dies) can occur with or without orthodontic treatment, as it is usually related to a previous injury to the tooth and may even be a result of a large cavity or large filling in a tooth. The tooth usually discolors and requires root canal treatment in order to maintain the health of the tooth.

4. ROOT RESORPTION

Progressive shortening of the roots of certain teeth may occur in some individuals with or without orthodontic treatment. This is a negative side effect that occurs rarely with fixed appliances or braces. Root shortening (root resorption) can be caused by trauma, injury, excessive forces, impaction of teeth, prolonged treatment and hormonal imbalances. Certain patients seem more predisposed to root resorption than others. No one seems to know exactly why nor can one predict for certain when it will occur. Slight root resorption usually presents no problems for patients who have normal root length and healthy gums and bone. If the patient has advanced gum disease with resultant loss of supporting bone, then root resorption could cause the tooth to be lost sooner.

5. UNFAVORABLE GROWTH

In the case of younger patients, the treatment plan will be determined on the anticipated amount and direction of facial growth. On occasion, the facial growth does not occur as predicted and it may be necessary to recommend a change in treatment objectives and procedures. Abnormal growth is a biological process and is beyond the dentist's control. Growth patterns can be adversely affected by finger, thumb or tongue habits. Persistent mouth breathing (abnormal breathing pattern) may cause facial growth to occur in a more vertical direction. My philosophy is to treat problems early and non-surgically. Only in extreme cases will jaw surgery be necessary to correct the problem.

6. JAW JOINT PROBLEMS (TMJ)

Some patients experience jaw joint (temporomandibular joint) problems prior to, during and after orthodontic treatment. Usually multiple factors cause this condition. Some of the signs and symptoms of jaw joint (TMJ) dysfunction include clicking, popping, limited mobility, and in severe cases, pain and locking of the jaw.

Many people experience these symptoms independent of orthodontic treatment and some are even referred for orthodontic therapy to correct these conditions. Occasionally, a patient may experience some of these symptoms during the movement of the teeth in orthodontic treatment, but hopefully they will subside after treatment is completed.

However, jaw joint problems are not all 'bite" related, as tension appears to play a role in the frequency and severity of jaw joint pain. The problems are more common in females and seem to get worse with age. In many cases, muscle spasms are the cause of pain. The emotional state of the person predisposed to this problem is a factor and the symptoms may fluctuate with the emotional state of the individual.

During the records appointment, we attempt to determine the seriousness of the jaw joint problem and then try to minimize the signs and symptoms throughout the treatment. In some cases functional orthopedic appliances such as an expansion appliance, lower jaw advancement appliance (Twin Block, Rick-A-Nator), Anterior Sagittal Appliance, etc. are helpful in preventing or treating these problems.

7. ENAMEL REDUCTION

Reshaping the teeth before, during or after treatment may be recommended to provide room for alignment, improved appearances and stability. This reduction of the outer layers of enamel seldom presents a problem with enamel integrity or causes any increase in the number of cavities.

8. TOOTH SIZE DISCREPANCY

If after orthodontic treatment minor spacing occurs between the teeth because of small or abnormal tooth size, bonding (white filling material) may be suggested to fill in the spaces. This improves the esthetics and stability of the case.

9. TREATMENT TIME

The treatment time can vary with the difficulty of the problem, cooperation of the patient, and individual response to the orthodontic treatment. Lack of facial growth, poor cooperation with elastics or appliance wear, poor oral hygiene, broken appliances or missed appointments are all important factors which could lengthen treatment time and affect the quality of the results.

The normal treatment time with braces is about 24 to 30 months. However, this can vary considerably in some cases. This time period does not include Phase 1" treatment or the "Orthopedic Phase" (where the orthopedic appliances are utilized while some of the primary or "baby teeth" are still present).

10. DISCONTINUANCE OF TREATMENT

Treatment will be discontinued for lack of patient cooperation, including poor oral hygiene, broken appointments, lack of wear time of appliance or elastics and in cases where, to continue the treatment, would unfavorably influence the dental health of the patient. Prior to the discontinuance of treatment, the patient or parent will be thoroughly informed of the reasons and hopefully will agree.

11. RELAPSE

Relapse has been described as a movement or shifting of the teeth back to their original position after the braces have been removed. It is probable that all patients may experience at least some movement of the teeth once the braces have been removed. In the late teens or early twenties, some patients may notice slight crowding of the lower front teeth. This is particularly evident if their teeth were extremely crowded prior to treatment. This minor relapse can occur even with good cooperation throughout the active and retention phases of treatment.

The problem of late crowding of the lower teeth occurs in many people with or without orthodontic treatment. Some reasons for crowding include the eruption of the wisdom teeth, the growth pattern of the jaws, or the muscle balance of the lips and tongue. Muscle balance plays an important role in the stability of the case. There must be a balance of the muscles of the lips and cheeks outside and the tongue inside.

Muscle instability can occur with patients with allergies involving swollen adenoids and tonsils who must therefore breathe through their mouths. If the patient has a persistent tongue thrust swallowing habit, there will be a greater chance of relapse. Habits such as nail biting, thumb sucking, tongue thrusting, and mouth breathing can cause teeth to become crowded.

To minimize relapse, it is important to eliminate habits as well as wear the retaining devices as directed. Failure to wear retainers may result in undesirable tooth movement for which we cannot assume responsibility. It is important for patients to keep their appointments during the retention stage and to wear their retainers at all times, except while engaged in contact sports or cleaning the appliance.

12. OUR TREATMENT GOAL – THE BEST TREATMENT POSSIBLE

Our treatment objective is to always obtain the best treatment results possible. However, orthodontics is not a perfect science and in dealing with problems of growth and development, genetics, stress, and patient cooperation, achieving an optimal result is not always possible. No guarantees can be given as to the orthodontic finished result, as the retention and results depend too much upon patient cooperation and other factors beyond the dentist's control.

13. PROPOSED TREATMENT PLAN

a) Active Treatment Plan

Phase 1

Phase 2

Phase 3

Phase 4

Phase 5

b) Retention Phase

Dr. _____ has thoroughly explained to me the proposed treatment plan, the alternatives of treatment, and the consequences if no treatment is done. I concur that I have been involved in the formation of the proposed treatment plan and that I am in agreement with the plan as described above.

14. QUALIFICATIONS

I acknowledge that Dr. _____ is not an orthodontist, but rather a general dentist who has taken numerous post graduate courses in orthodontics.

Dr. _____attempts to stay abreast of all the newer techniques in all phases of dentistry including orthodontics, orthopedics and TMJ, in an effort to provide the best possible treatment to his/her patients.

15. PERMISSION TO USE PHOTOGRAPHS & X-RAYS

I consent to the taking of photographs and x-rays before, during and after orthodontic treatment as they are a necessary part of the diagnostic procedure and record keeping. I further give permission for the use of these photographs, x-rays and records to be used for the purpose of research, education or publication in professional journals.

16. UNDERSTANDING INFORMATION AND INFORMED CONSENT DOCUMENT

We have attempted to explain some of the many potential problems that could arise as a result of orthodontic treatment. It would be impossible here or anywhere else to mention all the possible problems that could arise with orthodontic treatment or any other medical or dental treatment. Treatment of human biologic conditions will never reach a state of perfection despite technological advances. We will make every effort to cooperate with you during your treatment and keep you fully informed as to the progress of orthodontic treatment.

I_____, (Patient or Parent) certify that this **Information and Informed Consent Document**, outlining the general treatment considerations and the potential problems of orthodontic treatment, was presented to me and that I have read and understand the contents. I also understand that there could be other potential risks or problems not listed in this document that could arise. I further understand that, like other healing arts, the practice of orthodontics is not an exact science and therefore cannot be guaranteed.

17. I,_____, (Patient or Parent) hereby acknowledge that I have been informed to my satisfaction of all the treatment considerations, including benefits of treatment, risks of treatment, risks of non treatment, and the proposed orthodontic treatment plan and that I now consent to treatment.

REVIEWED AT FINAL CONSULTATION APPOINTMENT

_____ _____

Dentist **Date**

_____ _____

Patient or Parent **Date**

SIGNED AT TIME TREATMENT STARTS

_____ _____

Dentist **Date**

_____ _____

Patient or Parent **Date**

PATIENT INSTRUCTIONS

CARE OF YOUR *REMOVABLE* APPLIANCE:

Your appliance has been custom made, and like a precision instrument it requires special care.

Wearing of the appliance:

If your Doctor instructs you to wear the appliance(s) at all times, i.e., 24 hours a day even when eating, be sure to clean and brush the appliance gently after every meal.

If you are instructed to wear your appliance(s) full time - except when eating, be sure to place the appliance(s) in the retainer box provided and keep it in a safe place.

Cleaning:

If you are wearing your appliance(s) full time, brush the appliance(s) each time you brush your teeth as well as after every meal and before sleep at night. Soak the appliance daily in "Clean N Fresh" Retainer Cleaner for at least 15 minutes. You may use your toothbrush and toothpaste to carefully scrub the plastic while holding it in the palm of your hand. Be careful not to bend any wires. Rinse the appliance in warm, **NOT hot, water**.

Speaking with your Appliance in place:

Speaking clearly with your appliance in place may seem difficult when your appliance is new. After a bit of practice, you will soon overcome this and will hardly know the appliance is in place. Practice and wearing the appliance exactly as prescribed will speed up this process. The increased saliva flow that you initially experience will subside within a couple of days.

Eating with your Appliance in place:

If you have been instructed to eat with your appliance in place, it would be a good idea to stick to soft foods such as eggs, cereals, and soups for the first few days. Avoid chewy meat, gum, candy, or anything hard such as crusty bread, hard candy, or ice.

Soreness:

You may experience some soreness during the first few days of wearing a new appliance. This is normal and should go away within the first week. If it should persist or if soreness develops later in your treatment, call the Doctor for an immediate appointment.

Breakage and Lost Appliances:

If your appliance breaks, or if you lose it, call the office immediately. Do not attempt to fix or wear a broken appliance. Save all the pieces and bring them with you to your appointment. It is important that your appliance be repaired or replaced as quickly as possible so that your treatment proceeds smoothly.

PATIENT INSTRUCTIONS

CARE OF YOUR *FIXED* APPLIANCE:

In order to help achieve the most successful results, please note the following:

Keep regularly scheduled appointments:

Periodic, regularly scheduled, monitoring of progress is essential when being treated with fixed appliances. If for some reason you are unable to make a scheduled appointment, please notify the office as soon as possible, and be sure to reschedule immediately.

Cleanliness:

Good oral hygiene is absolutely essential! Be sure to follow cleaning instructions very carefully. Orthodontic appliance do not cause cavities or swollen gums, but because of their presence, food particles and dental plaque are retained and the potential for problems increases. Cavities, swollen gums, and white spots on your teeth can result from lack of brushing and flossing. Sugary foods and between meal snacks should be avoided.

Speaking with your Appliance in place:

Speaking clearly with your appliance in place may seem difficult when your appliance is first placed. However, this problem should subside very quickly. Also, you may experience increased saliva flow for a short period of time. If any of the brackets or wires tend to irritate your tongue, cheeks, or lips, notify the Doctor immediately so that this can be remedied.

Eating with your Appliance in place:

After initial appliance placement, and possibly after periodic adjustments, you may experience tenderness around your teeth. It would be a good idea to stick to soft foods such as eggs, cereals, and soups for the first few days until the discomfort subsides.. Avoid chewy meat, gum, candy, or anything hard such as crusty bread, hard candy, or ice.

Soreness:

You may experience some soreness during the first few days of wearing a new appliance. This is normal and should go away within the first week. If it should persist or if soreness develops later in your treatment, call the Doctor for an immediate appointment.

Loose Appliances:

If your appliance becomes loose, or if a bracket comes off of any tooth, call the office immediately. It is important that your appliance be recemented as quickly as possible so that your treatment proceeds smoothly.

REFERENCES

Witzig, Spahl: The Clinical Management of Basic Orthopedic Appliances Vol I, Chicago, Year Book Medical Publishers, Inc., 1987

Witzig, Spahl: The Clinical Management of Basic Orthopedic Appliances Vol III, Chicago, Year Book Medical Publishers, Inc., 1991

Moyers, Robert: Handbook of Orthodontics, Year Book Medical Publishers, Inc., 1980

Veis, Christian: Principles of Appliance Therapy for Adults and Children, L.A., Space Maintainers Laboratory, Appliance Therapy Group, 2002

Veis, Salzer, Christian: The Manual of Appliance Therapy for Adults and Children., L.A., Space Maintainers Laboratory, 1995

Profit, W.: Contemporary Orthodontics, St. Louis, C.V. Mosby, 1986

Veis, Rob: The Mixed Dentition Analysis: Practice Building Bulletin, Vol. II Number 7, Chatsworth, Space Maintainers Laboratory, 1995

Veis, Rob: The Schwarz Model Analysis: Practice Building Bulletin, Vol. II, Number 8, Chatsworth, Space Maintainers Laboratory, 1996

Nanda & Burstone: Retention and Stability in Orthodontics, Philadelphia, W.B. Saunders Co. 1993

Viazis, Anthony D.: Atlas of Orthodontics, Principles and Clinical Applications, Philadelphia, W.B. Saunders Company, 1993

Viazis, Anthony D.: Atlas of Advanced Orthodontics, A Guide to Clinical Efficiency, Philadelphia, W.B. Saunders Company, 1998

Gerber, Jay: The Functional Orthodontist, Banded Block, October/November/December 1999 pgs 16-20

Clark, William J.: Twin Block Functional Therapy, London, Mosby-Wolfe, 1995

Sheridan, Jack: Air-Rotor Stripping, Raintree Essix, Inc., Metairie, LA 1988

Sheridan, Jack: Air-Rotor Stripping with the Essix Anterior Anchor, J. Clin. Orthod. 30:381,82, 1996

Rondeau, Brock: The Rick-A-Nator Appliance, The Functional Orthodontist, Vol 7, Number 4, pgs 4-12, 1990

REFERENCES

Olmos, Steve: Institute for Advanced TMJ Studies, Mini-Residency Diagnosis and Treatment TM Disorder, pages 37-77

Philippe, Julien: Treatment of Deep Bite with Bonded Biteplanes, J. Clin. Orthod. 30:396,97, 1996

Brehm, Waldemar: The Fixed Functional Jaw Orthopedics in the Mixed Dentition, Straight Wire Seminars, Inc. Notebook, pages 170-172, 1993

McNamara, James: Orthodontic and Orthopedic Treatment in the Mixed Dentition, Ann Arbor, Needham Press, 1993

McNamara, James and Brudon William: Orthodontics and Dentofacial Orthopedics, Needham Press, Inc, 2001

Bennett, J.C. and McLaughlin, R.P.: Orthodontic Treatment Mechanics and the Preadjusted Appliance, London, Wolfe Publishing, 1993

Wilson, Robert C. and William L.: Enhanced Orthodontics (Wilson 3D Mechanotherapy Manual) Denver, Co., 1987

Williams, J.I., and Sim, J.M.: A New Fixed Mandibular Expansion Appliance..., Journal of General Orthodontics, Volume 4, Number 3: 18-23, 1993

Sheridan, J.J., McFall, J., and Layfield, L.L.: Force-Amplified Retention for Corrected Anterior Open Bites, Journal of Clinical Orthodontics, Volume XXXI, Number 12: 817-820, 1997

Gerber, Jay W: TMD Warning Sign: Cephalometrics, The Functional Orthodontist, Vol 11, Number 2, pgs 13-19, 1994

Spahl, Terrance: The Han Appliance, The Functional Orthodontist, Vol 12, Number 5, pgs 12-18, 1995

Sim, Joseph, and Gallela, Steve: Part I - The Controlled Arch System: A New Method of Straightwire Mechanics, Journal of General Orthodontics, Vol 10, Number 4, 1999

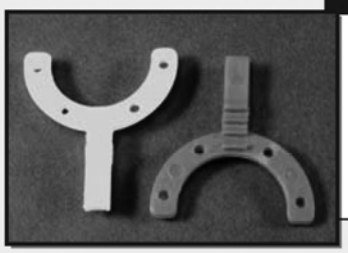
Sim, Joseph, and Gallela, Steve: Part II - The Controlled Arch System: A New Method of Straightwire Mechanics, Journal of General Orthodontics, Vol 11, Number 1, 2000

Graber, Rakosi, Petrovic: Dentofacial Orthopedics with Functional Appliances, The C.V. Mosby Company, 1985

THE CONSTRUCTION BITE

SUCCESS ESSENTIALS®
SPACE MAINTAINERS LABORATORY

PER-FECT BITE CONSTRUCTION BITES
2MM & 4MM VERTICAL OPENINGS

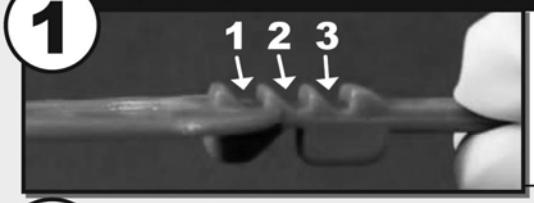


Proper Construction Bites - Less Chair Time

When prescribing a functional repositioning appliance or any appliance with an occlusal bite plane, it is essential to take a proper bite registration. A 3-point construction bite is the best way to capture the relationship of the maxilla to the mandible. Obtaining an accurate bite is not only essential but will save valuable chair time when delivering the appliance.

SECTION - I. FUNCTIONAL AND REPOSITIONING BITES

1



1. Select either the 2mm (blue) or the 4mm (white) Per-Fect Bite, depending on the prescribed appliance. Utilizing the 3 slots on the bite fork, place the patient's upper anterior centrals in the proper slot:

Slot - #1 protruded, #2 edge-edge, #3 retruded

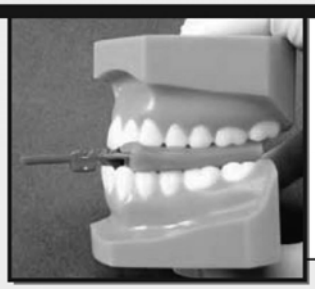
2

2. Next, while holding the Per-Fect Bite in place with the upper centrals in the desired notch gently guide the patient's mandible into the large notch, making sure that the midlines are lined up. Have the patient practice closing into the desired position 4 to 5 times; this will help the patient locate this position at a later stage when you add the bite registration material. **NOTE: crooked anteriors may require you to make the notch "wider" with a carbide bur so that the patient can seat completely into the bite without shifting their midline when closing.**

3

**3. Soften a sheet of base plate wax in a hot water bath at 160Þ. Wrap each arm of the Per-Fect Bite with the softened wax. Then, place the Per-Fect Bite back into the patient's mouth while the wax is still soft (if necessary, resoften the wax). When the patient is fully closed back to the desired position, press the extruded wax from between the posterior teeth onto the buccal segment. After this is done, cool the wax with air syringe. Note: Wax may be substituted with blue mousse or poly vinyl if desired.

4



**4. Next, remove the bite from the patient's mouth and chill it in cool water. Then, recheck the completed Per-Fect Bite in the patient's mouth and on an accurate working model (see the Practice Bulletin – Accurate Alginate Impressions) before sending them to the laboratory for appliance fabrication.

Continued on reverse side

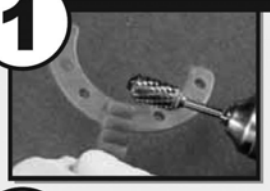
THE CONSTRUCTION BITE

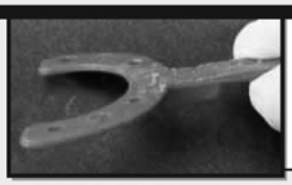
SUCCESS ESSENTIALS®
SPACE MAINTAINERS LABORATORY
A Member of The Appliance Therapy Group

PER-FECT BITE CONSTRUCTION BITES 2MM & 4MM VERTICAL OPENINGS

SECTION - II. CENTRIC AND VERTICAL RELATION CONSTRUCTION BITES

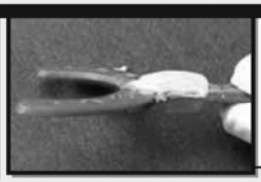
1





1. In order to obtain a proper centric or vertical relation bite, you must first modify the Per-Fect Bite by removing the 3 notches. This is easily done with a laboratory acrylic carbide bur.

2



2. Next, mix a small amount of acrylic and place a small "strip" on the area where you removed the three notches. Be sure to wet the plastic with liquid monomer first, in order for the acrylic to bond to the Per-Fect Bite.

3

3. While the acrylic is still soft, place the Per-Fect Bite in the mouth WITH THE LARGE SINGLE NOTCH UP so that the upper centrals engage the notch. Have the patient bite into centric occlusion or centric relation so their lower anteriors index into the acrylic strip. Once this is done, dip the Per-Fect Bite into a hot water bath in order to fully cure the acrylic.

**After this, follow steps 3 and 4 under Section I, Functional and Repositioning Bites.

Note: As with all construction bites, be sure that when the patient is biting into the Per-Fect Bite that the midline is lined up.

Note: The vertical and AP position as provided by the Per-Fect Bite can always be modified by grinding a custom notch on the Per-Fect Bite.

Tools and supplies necessary for taking a proper construction bite

Entire Construction Bite Kit $315.00
Save 20%

Includes:

- Per-Fect Bites, 2mm, pack 12 each $14.50
- Per-Fect Bites, 4mm, pack 12 each $14.50
- Hot Water Bath $305.95
- Base Plate Wax $6.50
- Lab Knife $10.00
- Carbide Barrel Bur $10.95
- Acrylic $26.95
- Dapen Dish
- Disposable Spatula

To order the tools necessary to take an accurate construction bite call

800-423-3270 or visit **www.ApplianceTherapy.com**

THE CONSTRUCTION BITE
benefits and procedures

A carefully taken Construction Bite is essential in order for the lab to correctly fabricate any appliance requiring occlusal coverage. This includes Bruxism Splints, TMJ Splints, Functional Appliances, and any appliance needing occlusal coverage.

PROBLEM: When the lab receives a set of models without a Construction Bite, the models are carefully hand-articulated in maximum intercuspation on a hinge-axis articulator, or with the centric wax wafer bite if one is provided. When the bite is then opened on the articulator quite often the mandibular model "drops-away from" the maxillary model on a different trajectory than it does in reality when the patient opens naturally. This difference invariably results in a finished occlusal bite plane that does not uniformly contact the opposing dentition when the appliance is placed. In fact, any prematurities that exist are generally found at the posterior-most teeth on the arch, leaving the teeth further anterior usually out of occlusal contact altogether.

SOLUTION: Spend the **few minutes** necessary to carefully take an accurate Construction Bite as described below. The few minutes that it takes will save valuable time and frustration when delivering the completed appliance. These steps should be performed **after** you have taken and poured up **accurate working models**, free of large bubbles on the occlusal surfaces.

NOTE: All steps are important, but Step 7 is Critical

1) First, determine the amount of vertical and/or anterior-posterior repositioning that you want to achieve with the appliance. For example:

a) Bruxism Splints - (if just vertical opening is desired)
Be sure that the Construction Bite taken has at minimum 1.5mm to 2mm of thickness at the posterior-most-teeth in the arch. This is essential for strength.

b) T.M.J. Splints - (if vertical and anterior-posterior corrections are needed)
Ideally use transcranial imagery to determine the amount of repositioning needed as it may be different bilaterally. This will require taking a facebow transfer and using a fully adjustable articulator. Arbitrary vertical and anterior-posterior repositioning may prove effective in many cases but may require periodic adjustments.

c) Crossbite Cases:
Be sure that the Construction Bite gives a sufficient, but not an excessive, amount of vertical opening to allow for crossbite clearance. (Remember the minimum opening rule of 1.5mm at the posterior-most-teeth in the arch)

d) Functional Appliances:
Precise AP and Vertical positions are critical, depending upon the treatment goals desired.

THE CONSTRUCTION BITE

(continued)

2) Utilize a "Bite Stick", without any wax applied, to initially place the mandible in the desired position. Commonly used "Bite Sticks" are: the Per-Fect Bite, the George Gauge, or even a notched golf tee if used properly. (see attached Technical Bulletin as well as the enclosed Per-Fect Bite instructions)

For Example: When using the Per-Fect Bite, use the appropriate notches on the 2mm or 4mm Per-Fect Bite that gives you the desired position. **If the standard Bites do not provide an acceptable position simply create your own notch on the long upper portion of the Bite that has only one notch initially. With a small tapered bur you can create your own custom notch that will place the mandible in the precise position that you desire.**

3) Once you have used your chosen Bite Stick procedure to position the mandible where you want it, have the patient practice closing into the bite several (at least 5) times. THIS IS VERY IMPORTANT: Check to see that the patient is closing without deviating the mandible to the right or the left. It is helpful to have the patient look into a mirror as they practice so that they clearly understand your instructions and perform them properly. Also, it is important that the patient is sitting up naturally rather than reclined in the dental chair.

4) After your patient is proficient at properly closing into the appropriate notches on the Bite Stick it is helpful to have them sit with the Bite Stick in place for several minutes before applying the wax to the forks. This is especially important for Construction Bites used for the fabrication of TMJ or Functional appliance patients. If the repositioning is excessive the patient may immediately experience uncomfortable muscle tension. If so, you may find it necessary to further adjust the notches and repeat Steps 2 and 3.

5) After careful completion of Steps 1 through 4, it is appropriate to now place the wax on the forks. Carefully place sufficient wax to cover as many teeth as possible per quadrant, **covering the entire occlusal surface back to at least the first permanent molars**, then soften the wax in a water bath set at 140^{o} F. This is **absolutely essential**, because if a patient closes into hard wax it can cause a slight dislocation of the condyle in the glenoid fossa in an inferior direction. If such a bite is used to relate two models to one another in the laboratory during appliance construction, the resulting appliance will come back with acrylic that is too thick posteriorly. This will result in the posterior most molars being in contact with the acrylic while the bicuspids are open and out of occlusion with the acrylic.

6) After the wax has cooled, then and only then, remove the Bite Stick from the mouth and chill the bite in cold water. After chilling the wax, replace the Construction Bite **in the patients mouth** to check that it accurately represents the precise vertical and/or anterior

THE CONSTRUCTION BITE

(continued)

posterior correction that you desire. Also, check to see that the patient has not deviated the mandible to the right or left. **(This is commonly overlooked)**
NOTE: THE NEXT STEP IS CRITICAL!!!

7) After rechecking the Construction Bite in the patients mouth, carefully place the Construction Bite on their accurate working models. Be sure that the models fit easily, yet snugly, into the Bite. The more teeth covered with wax the better (see Step 5), because this is an easy means to check for model distortion. **IMPORTANT - If your models do not seat firmly into the bite due to stone bubbles on the occlusal surfaces or interproximally, carefully remove the majority of the bubbles, but be careful not to remove any stone that represents enamel. Then, if necessary, relieve the wax bite carefully in the area adjacent to the bubble rather than attempt to chip the bubble off of the model entirely. Remember, if you remove the bubble from the model and inadvertently remove any extra stone that represents enamel, the finished occlusal acrylic will not seat positively on the teeth and the result will be an appliance that rocks in the mouth. This is unfortunately a common problem, and one that is very difficult to correct chairside.**

PLEASE REMEMBER: THE MODELS MUST SEAT FIRMLY INTO THE CONSTRUCTION BITE AND THEY MUST NOT ROCK ANTERIOR-POSTERIORLY OR FROM SIDE TO SIDE.

8) When sending your accurate models and precise Construction Bite to the laboratory please do the following:

a) Place the Construction Bite in a plastic bag and wrap it separately from the models.
b) Wrap the models individually and secure the wrapping material around each model with rubber bands.
c) Place the models in the bottom of the shipping box and then place the Construction Bite on top of the models.
d) Include a carefully completed Rx along with detailed information as to how you want the occlusal surface finished (i.e. Flat Plane, Light Indexing, Cuspid rise, etc.)

BITE REGISTRATION PROCEDURE FOR CLASS II TWIN BLOCKS

The Per-fect Bite, or a George Gauge, is designed to record a protrusive bite for the construction of Twin Blocks. The blue Per-fect Bite gauge registers 2mm vertical clearance between the incisal edges of the upper and lower incisors, which is an appropriate interincisal clearance for bite registration in most Class II division 1 malocclusions; however, the key to a successful Twin Block is proper thickness of the posterior blocks themselves (5mm to 6mm).

The incisal portion of the bite gauge has three incisal grooves on one side that are designed to be positioned on the incisal edge of the upper incisor and a single groove on the opposing side that engages the incisal edge of the lower incisor. The appropriate groove in the bite gauge for bite registration is selected depending on the ease with which the patient can posture the mandible forward.

In Class II division 1 malocclusions a protrusive bite is registered to reduce the overjet and the distal occlusion on average by 5mm to 10mm, depending on the freedom of movement in protrusive function. The length of the patient's protrusive path is determined by recording the overjet in centric occlusion, then recording the change when the patient postures their mandible forward into a comfortable fully protrusive position. Typically, the repositioning of the mandible should not exceed 70% of the protrusive path.

In the growing child with an overjet of up to 10mm, provided the patient can posture forward comfortably, the bite may be taken edge-to-edge on the incisors with a 2mm interincisal clearance. This allows an overjet of up to 10mm to be corrected with the initial set of appliances. Larger overjets invariably require partial correction, followed by readaption of the appliance, or chairside addition to the upper inclines, after the initial correction is completed. However, it is more common today to correct large overjet in steps, i.e., initially advance the mandible only 6mm to 8mm, and then later reactivate the appliance by adding to the upper incline. This approach is usually more comfortable for the patient.

IMPORTANT: Always consider the molar relationship as well as the incisor positions when taking your bite registration. The molars should line up in a Class I, or super Class I, relationship when the patient is placed in the bite registration. For example: if you begin Twin Block therapy and the patient has flared upper incisors, when you place the patient in an incisal edge-to-edge relationship in the Per-fect Bite or George Gauge, you will find that the mandible may be excessively translated forward into possibly a Class III relationship. Taking this into consideration may result in your having to modify the bite gauge so that the proper molar relationship is achieved in the bite registration.

It is also very important to open the bite slightly beyond the clearance of the free-way space to encourage the patient to close into the appliance rather than allow the mandible to drop out of contact into rest position, which is one of the disadvantages of making the blocks too thin. **As a general rule,** the thickness of the blocks should be 5mm to 6mm thick. Sometimes in the case of

BITE REGISTRATION PROCEDURE FOR CLASS II TWIN BLOCKS

(continued)

mouthbreathers, the blocks should be 7mm thick. This will prohibit the mandible from dropping back distally when the patient is sleeping.

In Class II division 2 malocclusions the mandibular advancement is limited as this malocclusion is normally associated with a mild Class II skeletal relationship with a horizontal growth pattern and a well-developed chin. If this is the case with your patient, it is important not to overcorrect the mandibular position as this would result is a "dished in" or Class III profile.

The easiest way to register the construction bite in this situation is to first record an edge-to-edge incisor relationship with a bite gauge that will give you 2mm clearance between the upper and lower incisors when the patient occludes into the bite gauge. The handle is then cut off the bite gauge before softening the wax so that the patient can now close edge-to-edge with the incisors in contact.

IMPORTANT: Before sending your models to the lab, place the completed Construction Bite on the models and verify that you have achieved the exact vertical and anterior position that you want in your finished appliance.

INDIRECT BONDING



The Benefits of Indirect Bonding:

- Improved accuracy in bracket placement.
    - Ideal bracket placement is obviously much easier to accomplish on the working model rather than intraorally.
- Decreased chairtime needed to place all brackets.
    - Significantly reduces stress for the Doctor and the staff.
- Much happier patients.
    - Less chairtime reduces patient stress and discomfort caused by lengthy cheek retraction.

Lab Requirements:

Successful indirect bracketing requires the following:

1. Accurate impressions taken with rigid, well-fitting trays. The use of an astringent solution is preferred in order to achieve a bubble-free model
2. Models that are poured immediately using a high quality, vacuum-mixed stone
3. Models that are checked for accuracy and carefully de-bubbled prior to shipment.
4. The desired bracketing height position for your specific patient.
   <u>Note:</u> The preferred method is to accurately mark each tooth with a soft lead pencil, indicating the *precise* horizontal slot placement and the long axis of the tooth. If you chose not to follow this procedure it is helpful if you include a panorex film of the patient to aid us in determining the long-axis. We have included several common bracket placement options at the end of this section for your information.

Bonding Protocol:

1. Do not trial fit the indirect trays onto the models or the patient. The brackets have been carefully cleaned at the lab and you want to avoid contamination.
2. Be sure that the patient has thoroughly brushed and rinsed.
3. Do not use pumice with fluoride to clean the teeth.
4. Etch each tooth for 15 to 60 seconds using 38% phosphoric acid etching gel.
5. Remove the gel with vacuum suction.
6. Rinse each tooth and dry with clean, warm air to assure that the teeth are completely dried. This is extremely important for successful bonding. If the tongue or saliva contacts a tooth at any time after the etch gel is removed, the tooth should be re-etched for 15 seconds.

INDIRECT BONDING

(continued)

7. Place primer or sealant on the acid etched area of the tooth and cure as suggested in the manufacturers instructions. Hint: Many prefer to begin with the lower arch as this tends to reduce the possibility of moisture contamination. When bonding to porcelain be sure to use a porcelain primer according to the manufacturers instructions.
8. Place a small amount of dual cure bonding material on the bonding base of each bracket. On your first case or two this may present a challenge, either too much or not enough bonding material may be used. But practice makes perfect!
9. Insert each sectional tray by "rolling" it onto the arch. Several techniques are proposed; however, the objective is to place the bracket directly against the tooth at the desired final vertical position. You want to be careful not to simply push the tray down vertically over the teeth. This will tend to rub the bonding agent off of the bonding pad as the bracket slides gingivally across the tooth surface. The preferred technique is to hold the transfer tray between your thumb and forefinger on the buccal side; one finger on the occlusal, the other on the gingival edge. Then, approach the teeth from the occlusal, hooking the lingual portion of the tray against the lingual of the teeth, and before seating completely, simply "pull" the buccal side of the tray slightly away from the teeth until the occlusal portion of the tray seats against the teeth. Once you have reached this point, simply roll the buccal of the tray up against the buccal surface of the teeth. This will aid in uniformly dispersing the bonding material across the base of the bracket and assure a good contact with the buccal surface of the tooth.
10. When using dual cure material, a Dual Tray system is often preferred. (i.e. the transfer tray consists of a thin, flexible inner layer that holds the bracket, over which a hard outer layer has been pressure molded).

    If you are using a Light Cure System then a single tray system is usually the technique of choice. When using the single tray use an instrument to positively seat each bracket firmly against the tooth while to apply your curing light. (A Plasma Light or the Chromolux High Speed Curing light is recommended as they significantly reduce cure time, down to as light as 10 seconds per tooth).
11. To fully cure the bonding agent it is best to cure each tooth from the mesial, the distal, from the gingival and also from the lingual aspect prior to removing the flexible tray. When using the Dual Tray system, remove the hard outer tray prior to completing this curing sequence.
12. Once all curing is completed remove the flexible tray by peeling from the lingual toward the labial.
13. Cure any areas that possibly did not get enough light exposure when the tray was in place.
14. Finally, use dental floss between all teeth to be sure that no bonding material has been cured interproximally.
15. Insert and ligate your archwire of choice.

INDIRECT BONDING

Bracket Height Prescriptions

Gerber Prescription: **NOTE: Bracket position is determined by the length of the clinical crown of the maxillary and mandibular lateral incisors. i.e. when the clinical crown is 8mm, place brackets of laterals at 4mm from the incisal edge to the horizontal slot; then proceed as indicated below:**

U1	**U2**	**U3**	**U4**	**U5**	**U6**	**U7**
4mm	4mm	5mm	4.5mm	4mm	3.5mm	3.0mm

L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**
4mm	4mm	5mm	4.5mm	4mm	3.5mm	3.0mm

Rondeau Prescription:

U1	**U2**	**U3**	**U4**	**U5**	**U6**	**U7**
4mm	4mm	5mm	4.5mm	4.5mm	4mm	

L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**
4mm	4mm	5mm	4.5mm	4.5mm	4mm	

Witzig Prescription:

U1	**U2**	**U3**	**U4**	**U5**	**U6**	**U7**
4mm	4mm	5mm	4.5mm	4mm	3.5mm	

L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**
4mm	4mm	5mm	4.5mm	4mm	3.5mm	

Bio-Efficient Prescription: (for Delta Force or Viazis Brackets)

	U1	**U2**	**U3**	**U4**	**U5**	**U6**	**U7**
+1.0mm	6.0mm	5.5mm	6.0mm	5.5mm	5.0mm	4.0mm	2.0mm
+0.5mm	5.5mm	5.0mm	5.5mm	5.0mm	4.5mm	3.5mm	2.0mm
Average	5.0mm	4.5mm	5.0mm	4.5mm	4.0mm	3.0mm	2.0mm
-0.5mm	4.5mm	4.0mm	4.5mm	4.0mm	3.5mm	2.5mm	2.0mm
-1.0mm	4.0mm	3.5mm	4.0mm	3.5mm	3.0mm	2.0mm	2.0mm

	L1	**L2**	**L3**	**L4**	**L5**	**L6**	**L7**
+1.0mm	5.0mm	5.0mm	5.5mm	5.0mm	4.5mm	3.5mm	3.5mm
+0.5mm	4.5mm	4.5mm	5.0mm	4.5mm	4.0mm	3.0mm	3.0mm
Average	4.0mm	4.0mm	4.5mm	4.0mm	3.5mm	2.5mm	2.5mm
-0.5mm	3.5mm	3.5mm	4.0mm	3.5mm	3.0mm	2.0mm	2.0mm
-1.0mm	3.0mm	3.0mm	3.5mm	3.0mm	2.5mm	2.0mm	2.0mm

REFERENCES

ARCH WIRE SELECTION

Preformed arch wires are available in a variety of materials, sizes, and arch forms.
As an example, wires can be ordered in the following:

1. Materials:
   - Stainless steel
   - Standard and heat activated Nickel Titanium (NiTi)
   - Graduated force heat-activated NiTi with 80 grams of force at the incisors and gradually increasing to 320 grams of force at the molars
   - TMA (titanium molybdenum alloy)
2. Sizes:
   - range from .014mm to .022mm in round, braided, square, and rectangular wire
3. Forms: (with separate wires for the upper and lower arches)
   - Tapered
   - Square
   - Ovoid

It is therefore important that you select the appropriate wire for your patient in order to achieve desired results with the minimum of time and expense combined with maximum patient comfort.

Selecting the Proper Arch wire form:

Prior to the introduction of "straight-wire" brackets archwires were individually customized for each patients arch size and form. With the advent of the straight-wire brackets, preformed archwires became popular and the types available continue to be modified. The question arises, *which* wire should I use?

Extensive overview of reported clinical observations and research papers makes it clear that, because of the extensive variations in human arch form, there does not seem to be any single arch form that can be used in all orthodontic cases. Research suggests that when a patients original arch form is modified significantly (when it violates the patient's genetic potential) there is a strong tendency for the arch form to return to its original shape after appliances are removed.

Appreciating this information is essential when you choose the arch wire form for your patient since most manufacturers of preformed archwires supply them in up to three arch forms as suggested above. This adds efficiency to the system in that it greatly reduces the need to individually customize each wire to your specific patient.

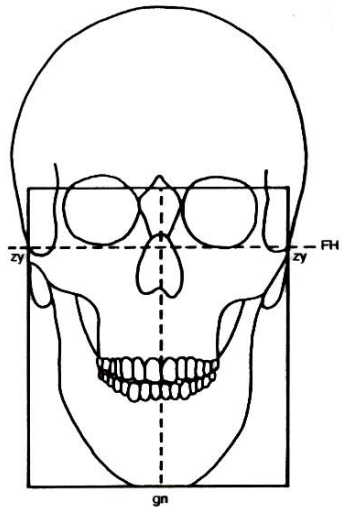
Essentially, based on the patients facial type (Leptoprosopic, Mesoprosopic, Euryprosopic)* you can select arch wires with a Tapered arch form, a "squared" arch form, or and Ovoid arch form. Add to this the fact that within these three arch forms there are separate wires for the upper and lower arch. Once you have selected the appropriate archwires you may still find it necessary to correlate to the arches and to each other. Arch form modifications are easy to place in preformed stainless steel wire, but difficult if not impossible to place in some of the preformed NiTi wires.

REFERENCES

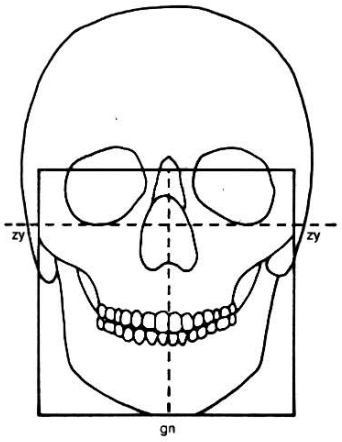
Leptoprosopic: This type of individual, when viewed frontally, exhibits a long narrow facial outline with greater predominance of vertical dimension with less influence seen in the lateral dimensions. Correspondingly, the dental arches tend to be longer anteroposteriorly and more narrow.

Mesoprosopic: This is the average type of individual whose facial outline follows a generally parabolic pattern. The dental arches tend to develop to a nicely shaped geometric Roman arch form.

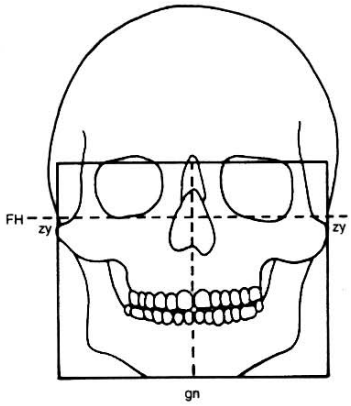
Euryprosopic: This type of facial pattern is more dominant in the lateral dimensions than in the vertical dimensions and appears as a more square and stocky facial outline. The dental arches tend to be shorter anteroposteriorly but more square or widened out laterally.



LEPTOPROSOPIC



MESPROSOPIC



EURYPROSOPIC

REFERENCES

Choosing the Arch wire Type:

Review of Supplier literature makes it obvious that there are a wide variety of wires available today, with innovations being offered on a regular basis. As outlined above, wires are available in a variety of materials.

Traditional stainless steel wire usage requires sequencing through a series of wires beginning with as small as a very light multi-strand wires (.014 to .017) progressing through .016 through .018 round wires, .020 round wires, and finishing with rectangular wires (typically .018 X .025 or .020 X .025). With the advent of heat activated NiTi and bio-efficient wires it is possible, in selected cases, to substitute the NiTi wires in place of several stainless wires. A typical substitution chart is as follows:

SUBSTITUION CHART

Standard Stainless Wires	Substitute with:
.014 Multistrand	.016 Nickel Titanium Heat Activated
.0175 Multistrand	
.014 Round (stainless)	
.016 Round (stainless)	.0195 X .025 Nickel Titanium Heat Activated
.018 Round (stainless)	
.020 Round (stainless)	
.0195 X .025 Rectangular (stainless)	**Do not substitute, finish with:** .0195 X .025 Rectangular (stainless)

REFERENCES

Care needs to be taken when substituting heat activated NiTi type wires. In certain scenarios, the flexibility of the NiTi wire is a detriment and the use of stainless steel wire is often recommended. These scenarios where stainless wire is suggested include:

1. In cases with severe malalignment of the teeth. Multistrand stainless wire is suggested in this situation in that it tends to reduce the overall force levels and provides for less discomfort during initial tooth movement.
2. When using open coil spring to gain space along the arch. Open coil spring should not be used unless .018 or .020 round stainless wire is in place.
3. When using lacebacks for cuspid retraction in crowded extraction cases.
4. When in the final stages of leveling and overbite control. Typically the use of .020 round or rectangular stainless wire is the best choice.
5. When torque control is needed.
6. When space closure and overjet reduction is required.

Recommendation: When carefully selected, the substitution of heat activated wire can dramatically improve the efficiency of orthodontic treatment. This substitution, however, is only beneficial for initial tooth alignments. Ideal finishing typically requires the use of stainless steel wires.

Correlating the Arch wire:

After using the initial light wires to achieve sufficient leveling and aligning of the teeth, it is time to place the .016 or greater sized wires to begin to create arch symmetry as you continue leveling and aligning. The .016 or greater wires should only be placed when they can be “flexed”, not bent, into the brackets. At this point is recommended that the wires being individually correlated to the arches and to each other. In other words, you want to be careful not to place a preformed arch wire that is excessively broad for the arch in question.

Correlating the arches can be easily accomplished in the following manner. First, create a template of the upper arch with base plate wax. This is done by having the patient closing into a warmed piece of double thickness of base plate wax, having premarked the bony midline on the wax. The occlusal two tie wings of all the maxillary brackets are recorded in the wax by using your fingers to push the wax into the tie wings. Then chill and remove the wax. You now should have a very useable template of the maxillary arch size, molar to molar. Now, with the midline on the preformed wire aligned with the midline mark on the wax, use your fingers to change the over all arch size of the wire to match that of the patient’s as recorded in the wax imprint of the occlusal tie wings. Change only the size of the wire, being very careful to maintain the original symmetry of the chosen manufacturer’s arch form.

Once the upper arch has been correlated to the template, then correlate the lower arch wire to the upper arch wire. This is simply done by adapting the lower arch so that it lies within the upper arch form, lying uniformly within the upper arch contour with a 3mm space between the wires.