Anterior Deprogrammer Fabrication Technique

Safety glasses should be worn for all lab procedures as well as gloves when handling acrylics. Items featured in this technique are found on the last page.

This technique will outline procedures for fabricating an anterior deprogrammer both directly in the mouth and indirectly in the lab.

The MiniSTAR segment of the technique is the same for both procedures.

1 Prepare the model by defining the anatomical contours with a lab knife and fill voids with a quick setting stone. Block-out moderate undercuts using Model Bloc, Great Lakes Compound 101 or a light cure gel.

2 Isofolan can be used in place of a separating medium to provide just enough relief to alleviate the discomfort of a tight-fitting splint. Place a sheet of Isofolan spacer material on the pressure chamber and secure it with the clamping frame.

3 Position the model in the pellets so that the gingival margins are level with the rim of the cup. Over-fill the cup with pellets. Remove pellets with a brush bridging straight over from the edge of the cup to the gingival margin. Make sure there are no pellets on the rim of the cup.

4 Enter the heating time of 25 seconds into the MiniSTAR or Biostar and swing the heating element over the pressure chamber to initiate the heating cycle.

5 Once the heating cycle is complete, remove the heating element and swing the chamber over the model. Lock the chamber in place by turning the locking handle toward the front of the machine to activate the pressure and the cooling cycle.

6 At the end of the cooling phase, evacuate the air pressure from the chamber and unlock the chamber by turning the locking handle toward the back of the machine. Slide the clamping frame to the left to release the material and swing the chamber back to its open position.

7 Lift the formed Isofolan from the model with clamping frame. Trim the excess material at the pellet junction. Place the Isofolan spacer back on the model.

8 Typically, a piece of 1.5mm splint Biocryl material is used to fabricate an anterior deprogrammer. Remove the protective coating from both sides of the material.

9 Place the material on the pressure chamber and secure it with the clamping frame.

10 Enter the heating time of 50 seconds into the MiniSTAR or Biostar and swing the heating element over the pressure chamber to initiate the heating cycle.

11 Once the heating cycle is complete, remove the heating element and swing the chamber over the model. Lock the chamber in place by turning the locking handle toward the front of the machine to activate the pressure and the cooling cycle.

12 At the end of the cooling phase, evacuate the air pressure from the chamber and unlock the chamber by turning the locking handle toward the back of the machine. Slide the clamping frame to the left to release the material and swing the chamber back to its open position. Remove the matrix from the machine and shake off excess pellets. Do not remove the model from the matrix.

13 Trim excess material away at the gingival margin.

14 With a lab knife, remove the splint Biocryl from the model. Peel away and discard the Isofolan spacer.

15 Using the model, place a trim-line halfway down the labial surface of the anterior teeth and at the gingival margin of the labial surface of the posterior teeth. Place the trim-line at the gingival margin of the lingual side.

16 With a carbide taper bur in a lab handpiece, trim the Biocryl to the reference lines. Place the matrix back on the model and check the reference lines. Repeat the trimming procedure until the desired height is achieved.

17 Finish the edges with a Dimo Pro wheel in a lab handpiece. The Dimo Pro wheel will eliminate any excess flash and leave a smooth edge.

Direct Technique

18 For the direct technique, try the Biocryl matrix on the patient to make sure it's comfortable.

19 With 50 micron aluminum oxide, air-abraide the anterior section from the first pre-molar to the first pre-molar where the bite plane will be formed.

20 Apply a light cure bonding agent to the anterior section. Place in the ProCure oven and cure it according to the instructions for the bonding agent.

21 Light-cure rope material is used to form the bite plane. With fingers, mold the light cure material to the basic flat plane form from first pre-molar to first pre-molar. Make sure there is enough material so that the six lower anterior teeth make contact. The bonding agent can be used to smooth the bite plane to reduce trimming time.

22 Prepare a Whale Tail with a thin layer of petroleum jelly. This will be used to form the flat plane. Place the appliance into the patient's mouth and slide the Whale Tail across the bite plane.

23 Ask the patient to close very lightly into the bite plane so that the lower six anterior teeth just come in contact with the bite plane.

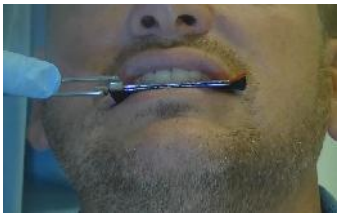
24 Use a light cure gun to cure the bite plane. The light cure gun will not cure it fully, but it will keep it from distorting. Finish curing the bite plane in the ProCure oven.

25 With a pencil, mark where the lower anteriors made contact with the bite plane.

26 The goal is to trim the bite plane as flat as possible. The position of the bur creates the angle of the bite plane. Using a carbide taper bur in a handpiece, hold the handpiece in a way that allows the flattest plane possible. Starting in the pre-molar region, trim the bite plane down to just the point where the pencil marks are eliminated.

27 Insert the appliance in the patient's mouth. Use blue or black articulating paper to check the contacts. With the articulating paper between the lower anterior teeth and the appliance, ask the patient to tap several times to mark the contacts. Check contacts in the left and right posterior segments as well. Remove the appliance and check the contacts to confirm that all the anterior teeth are hitting the flat plane.

28 If all anterior teeth are not contacting the bite plane, lightly trim marks and repeat the process until all anterior teeth are in contact. Remove any posterior interferences to ensure that there is no posterior contact when the anterior teeth are touching the flat plane.



29 Once all the anterior contacts are visible, choose a different color articulating paper to mark excursive movements. With the articulating paper between the lower anterior teeth and the appliance, ask the patient to slide left and back, then right and back, then forward and back. Repeat the process for both the left and right posterior segments.

30 After excursive movements are marked, use the black or blue articulating paper to mark the centric contacts.

31 Remove the appliance. Check to ensure contact of the centrals and laterals on the bite plane in the protrusive movement. There should be clean lines on the canines for both the left and right excursive movements. Make sure there are no contacts in the posterior during excursive movement.

32 Continue trimming and finishing the appliance. Go to Step 59.

Indirect Technique

33 Mount maxillary and mandibular models on a SAM 3 articulator.

34 Open the incisal pin on the articulator to 5mm to accommodate the thickness of the anterior deprogrammer.

35 Remove enough pellets to submerge the mounted model as deep as possible into the pellet cup with the heel of the model facing the material. Build up with pellets towards the gingival margin and cover the palate with pellets as well. Remove pellets from the cup's rim.

36 Form and trim the Isofolan spacer layer as previously shown and place the spacer back on the model.

37 Form a piece of the 1.5mm splint Biocryl as previously shown. At the end of the cooling cycle, remove the model with the formed Biocryl and remove excess pellets from the plastic.

38 Without removing the material from the model, cutout template along the pellet/model reference using a ¾ inch lightning disc with a standard mandrel in a lab handpiece.

39 Place mounted model back onto the articulator and check for posterior interference with articulating paper.

40 Remove any interferences with a carbide taper bur in a lab handpiece.

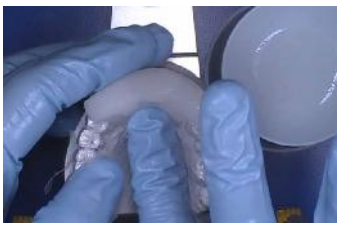
41 Air-abraide the anterior section from first pre-molar to first pre-molar where the bite plane will be formed.

42 On the lower model, place blockout material on the labial and lingual surfaces of the anterior teeth just below the incisal edge. This will prevent the cold cure acrylic from slumping over the lower anterior teeth.

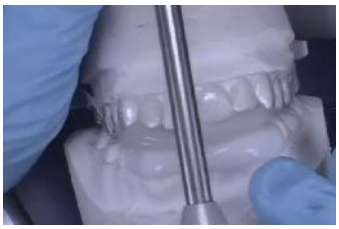
43 Apply separating medium to the anterior segment of the lower model.

44 Apply small amount of monomer to the anterior segment of the Biocryl on the upper model.

45 We will use Great Lakes Biocryl Ice to build the anterior bite plane. Measure 10cc of polymer and 5cc of monomer. In a Resimix cup, add monomer and slowly add polymer. Mix thoroughly with spatula. Remove crystallized resin from the rim of the cup. The resin should be a dough-like consistency.

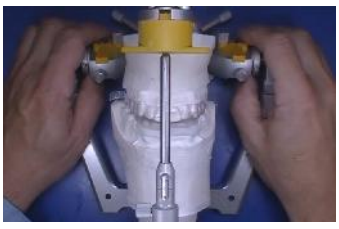


46 Remove resin with a spatula, add a few drops of monomer and finger-form it into a rope. Form it onto the Biocryl to cover the six anterior teeth.



47 Place the upper member of the articulator onto the lower member and with centric hubs locked, index the lower anterior teeth into the resin. Use a little monomer on your finger to continue to shape the bite plane.

48 To ensure a clear, hard appliance, place the articulator into a heated pressure pot for 15 minutes. Pressure pot temperature should be approximately 120º F and the pressure regulated at 20 psi. At the end of the curing cycle, release the pressure from the pot and remove the articulator.



49 Remove the upper member of the articulator by releasing the locking hubs.

50 With a pencil, mark where the lower anteriors made contact with the bite plane.

51 Using the same procedures as previously outlined, trim the bite plane as flat as possible just to the point where the marks are eliminated.

52 Place the upper member of the articulator onto the lower member and with centric hubs locked, use blue or black articulating paper to mark the anterior contacts.

53 Once all the anterior contacts are visible, choose a different color articulating paper to mark excursive movements. Release the centric locks. Insert red articulating paper and move the upper member left, right, and forward to mark the excursive contacts.

54 Remove the upper member and check the contacts. Eliminate the marks until all the anterior teeth are in contact during excursive movements.

55 Repeat this process until there is contact of the centrals and laterals on the bite plane in the protrusive movement. There should be clean lines on the canines for both the left and right excursive movements. Make sure there are no contacts in the posterior during excursive movement.

56 Using a ¾ inch lightning disc in a lab handpiece, trim halfway down the labial surface from first pre-molar to first pre-molar.

57 With a lab knife, gently remove the appliance from the model.

58 Discard the Isofolan spacer.

The following trimming and finishing procedures are the same for both the direct and indirect techniques.

59 With a carbide taper bur in a lab handpiece, trim the appliance halfway down the labial surface of the anterior teeth and at the gingival margin of the labial and lingual surface of the posterior teeth.

60 Finish the edges with a Dimo Pro wheel in a lab handpiece. The Dimo Pro wheel will eliminate any excess flash and leave a smooth edge.

61 Use a micro-etcher or sandpaper in a sandpaper mandrel to smooth trimmed surfaces.

62 Apply a thin layer of PalaSeal to the outside surface of the appliance. Place appliance on the model and cure it in the ProCure oven for 1 minute.

63 Smooth acrylic using a medium-grade pumice with a wet rag wheel on a low speed lathe. Do not over pumice as this could alter the contacts.

64 Apply Tripoli polish with a 4-inch loose muslin buff on a low speed lathe.

65 Finish the acrylic using Fabulustre polish on a separate 4-inch loose muslin buff on low speed. Clean the appliance with liquid dish soap and a soft brush.

66 The appliances are now finished. For the direct technique, place the appliance back in the patient's mouth and re-check centric contacts and the excursive movements.

67 For the indirect technique, place the splint back onto the mounted model. On the articulator, re-check centric contacts and the excursive movements.

Finished Anterior Deprogrammer

Items featured in technique:

235-010	Astro Spec Safety Glasses (reg./blue)
235-062	N-Dex Non-latex Gloves (Med)
017-001	MiniSTAR S® Scan
010-095	Lead Pellets
050-003	SAM III Articulator
050-023	SAM Mounting Plates
215-009	Mounting Stone
190-015	Model Bloc
190-100	Great Lakes Compound 101
190-120	Bluephase Curing Lights (190-110, 190-130)
190-030	ProCure Light Cure Oven
030-002	Isofolan
080-006	Micro Torch
080-009	Gas refill
170-005	Lab Knife
175-034	Separator
075-007	Separator Brushes
021-026	1.5 Splint Biocryl Disks
030-002	Isofolan
047-001	Biocryl ICE Acrylic Resin
150-025	Lab Handpiece
086-043	Dimo PRO Grinding & Finishing Wheels
085-009	Carbide Taper Bur
085-022	Sandpaper Mandrel
060-007	Sandpaper Roll
086-027	3/4" Lightning Disk
085-019	Standard Mandrels
056-006	Occlusal Adjustment Tape
260-018	Hygienic No. 3 Wax
165-005	Wax Spatulas (165-004, 165-007)
175-025	Resimix cups (175-026, 175-027)
225-040	GLO Pressure Pot
160-006	Palaseal Light Curing Sealant
230-003	Medium Pumice
086-003	Plastic Rag Wheel
180-002	Lathe with Quick Chuck
180-016	Quick-Chuck Threaded Mandrel
110-014	Splash pan Light-right side
105-060	Handler Portavac
105-061	Handler Portavac Replacement Filters
086-002	Muslin Buffs
230-007	Tripoli
230-008	Fabulustre

GREAT LAKES ORTHODONTICS

800.828.7626 (US & Canada)
716.871.1161 (Worldwide)
716.871.0550 (Fax)
E-Mail: info@greatlakesortho.com
Website: www.greatlakesortho.com