Many clinicians incorrectly associate air–rotor stripping (ARS) with the reduction of interproximal enamel in the mandibular incisor region. Interproximal reduction of the mandibular incisors, with a metal finishing strip, normally removes 1mm to 2mm of proximal enamel. Air–rotor stripping, on the other hand, can create 4mm to 8mm of arch space by reducing interdental enamel in the buccal segments.

The air–rotor stripping technique utilizes a high-speed air turbine handpiece to reduce proximal enamel surfaces and contour enamel walls to resemble their original morphology. The Viazis technique, with its reduced friction, is a rapid way to distally drive the buccal segment teeth and create space to resolve anterior crowding.
Technique steps in the ARS procedure

Separators are placed between the first and second molars.

Air-rotor stripping is performed on the mesial surface of the second molar and the distal surface of the first molar prior to the placement of a palatal arch from 7 to 7.

Brackets are bonded to all the teeth with the exception of severely rotated incisors. A 0.020x0.020 thermal nickel titanium archwire quickly allows the clinician to achieve rapid alignment (within one to two months) due to the revolutionary design of the bracket and the ability to ligate individual teeth with various ligation techniques.

Once the 0.020x0.020 thermal nickel titanium archwire is able to freely slide through the buccal segments, it is advisable to move to a 0.019x0.025 SS archwire. This archwire is more
efficient for sliding mechanics due to the reduced frictional properties of stainless steel. The SS archwire also maintains the correct arch form because of the rigid nature of the steel.

A compressed coil spring is placed between the first molar and second premolar (which is anchored to the other teeth). I recommend the use of a nickel titanium coil spring as this provides a light continuous force. The compressed coil spring creates space between the 6 and the 5 to establish an open field, which is ready for ARS.

Space is created via a combination of pushing and pulling. The teeth are pushed distally by the action of compression 1.5 times the length of the distance between the brackets. To boost anchorage, I recommend under-tying the teeth using a 0.010 ligature wire. An elastomeric chain is applied from the molar tube of the lingual arch to the distal of the first molar. This will help to distalize the first molar.

By the next appointment, four weeks later, the coil spring should have opened the space so that the interproximal surfaces are clearly visible. To prevent damage of gingival papillae during ARS, I suggest the placement of a brass wire between the tissue and the air-rotor stripping bur.

The proximal enamel walls are then reduced with a 699L fissure bur. After this reduction, enamel is polished and contoured using a 135EF stiletto-shaped ultra-fine diamond finishing bur.

The clinician continues to perform the ARS procedure on additional contact points at every subsequent visit. It is best to work from the posterior teeth toward the anterior teeth. To improve posterior anchorage, teeth that have been stripped should be under-tied with a 0.010 ligature wire. This will ensure that the posterior teeth do not drift mesially. The space created by ARS is accumulated mesial of the canines, ready for the alignment of the crowded anterior teeth.

**Ligation techniques of the Viazis bracket during the ARS procedure**

A normal triangular ligature tie is placed to slide a tooth. I recommend the use of a metal ligature over-tie on the side of the bracket adjacent to the coil spring. This limits the rotation of teeth under the action of the coil spring, but allows efficient sliding in a distal direction.

The tooth anchored distal to the open contact point is ligated with an inverted V so that it will not slide. A metal ligature wire should be over-tied on the mesial aspect of this tooth to prohibit any rotation as the coil spring exerts its force and opens the contact point ready for air-rotor stripping.

**Use of the Sheridan interdental space-measuring gauge**

The Sheridan space gauge enables the clinician to:

- measure naturally occurring generalized spacing
- measure and chart the amount of enamel that may be removed during stripping procedures
- aid in the establishment of parallel proximal walls during enamel reduction
- tuck the loose end of ligatures, and
- obtain indications of the severity of periodontal pocket depths

After enamel has been removed from the first interproximal site, the Sheridan gauge is used to measure the amount of enamel reduction and compare it to the amount of enamel that has been planned.
for removal. The cylinder, corresponding to the amount of enamel reduction, should slide between the enamel walls until firm contact with the interdental tissue is clearly evident.

If the cylinder gets stuck on the enamel walls, the clinician should continue with the stripping procedure until the appropriate section of the instrument can freely slide between the walls. This will help to establish parallel proximal walls when the interproximal space is subsequently closed.

Conclusion

Six millimeters to eight millimeters of crowding often necessitates the extraction of teeth or excessive expansion with associated stability problems. The air-rotor stripping technique allows space to be created quickly to resolve anterior crowding. There is no need to extract teeth, excessively expand the arch, or procline the incisors.

Occasionally an opposing arch may need ARS to improve the intercuspation. Some clinicians are afraid to perform ARS because they feel that reduction of interproximal enamel may lead to the damage of teeth or periodontal problems. Clinical evidence and scientific research have clearly shown that the ARS procedure does not have any deleterious affects on enamel, alveolar bone or interproximal tissue.

Dr. Derek Mahony is a specialist orthodontist who has spoken to thousands of practitioners about the benefits of interceptive orthodontic treatment. After completing his dental degree at the University of Sydney, Mahony completed his master’s degree in orthodontics at the Eastman Dental Hospital, Institute of Dental Surgery, London. He also received a diploma in orthodontics at the Royal College of Surgeons, Edinburgh. Additionally, Dr. Mahony passed the Royal College of Dentists in Canada postgraduate examination in the field of orthodontics.

Dr. Mahony has passed examinations leading to a postgraduate qualification in Dentofacial Orthopaedics from the Royal College of Physicians and Surgeons in Glasgow. He has also attained his membership-in-orthodontics qualification from the Royal College of Surgeons, England. He has three practices in Australia.

What’s your experience with air-rotor stripping? Comment on this article at Orthotown.com/magazine.aspx.
GAINING SPACE with Air Rotor Stripping

by Daniel Grob, DDS, MS, Editorial Director, Orthotown Magazine

The article “Air-Rotor Stripping Made Easy: How to Use the Viazis Bracket System,” by Dr. Derek Mahony, well explains the technique, first advocated by Dr. John Sheridan. This technique is for gaining space in the posterior segment that can be utilized in that area or with sequential distalization, and be made available for the anterior teeth.

Most recently, Dr. Randol Womak refined the procedure for the anterior teeth, reportedly making it comfortable for the patients, easy on the operator, and all while still achieving the desired results.

Other reports in the literature have shown the risks to be minimal.

Personally, I utilize these techniques in my practice on an almost daily basis.

A particularly valuable indication is for distalization of anterior teeth to relieve crowding or reduce protrusion in the adult clear-aligner patient.

While not advocating sloppy or incomplete orthodontics, there are patients in the adult population who do not wish to go through the steps and personal involvement required to distalize molars to achieve the “desired Class I occlusal result.” An edge-to-edge occlusion is created with cuspid guidance to protect the dentition.

In these situations, spacers are placed one week prior to aligner delivery and the prescribed amount of interproximal reduction is performed at first aligner delivery.

First, mechanics allow for distalization of the second bicuspid, then the first bicuspid and cuspid, with en masse retraction of the following four incisors.

All of these techniques are valuable tools for the busy and successful clinician.