

THE TALON® SPLINT

A Proven Hard-Soft Splint Technique, Updated for the Digital Workflow

Practice Building Bulletin | Space Maintainers Laboratory *Rob Veis, D.D.S.*

Why This Bulletin

Occlusal splints remain one of the most frequently prescribed appliances in general practice. They are used for bruxism and parafunctional activity, for protection of the dentition and existing restorations, for stabilization, for orthodontic retention, and as part of the management of selected patients with temporomandibular disorders.

The technology available to dentists has changed dramatically. Intraoral scanning, digital design, milling and additive manufacturing have all changed how appliances are captured and produced.

What has not changed is what makes a splint successful. It must:

- fit accurately
- remain securely retained
- be comfortable enough that the patient actually wears it
- deliver the occlusal relationship the doctor prescribed
- allow the doctor to adjust that occlusion precisely

The Talon® Splint continues to meet all five requirements, and the digital workflow has made it easier to fabricate, not obsolete.

The Talon® Concept

Talon® refers to the resilient thermoplastic material that forms the retentive, tooth-contacting portion of the appliance. A hard methyl methacrylate acrylic component is bonded to that resilient base to form the functional and occlusal portion.

The result is a hard-soft appliance with two properties that are usually in tension with one another:

A resilient internal surface that adapts intimately to the dentition, retains without gripping, and tolerates minor variations in tooth contour and position.

A hard external occlusal surface that can be equilibrated, indexed, repaired, relined or modified chairside with conventional acrylic technique.

That combination is the entire point of the technique. With a fully rigid splint, comfort and retention are frequently traded against one another. Tighten the fit and you gain retention but risk pressure points and difficult seating. Loosen it and the appliance seats easily but sits loose in the mouth.

With the Talon design, comfort does not come at the expense of adjustability, and adjustability does not come at the expense of comfort.

The Practical Advantage: It Seats

In my experience, the single greatest day-to-day benefit of the Talon technique is simply that the appliance seats.

A completely rigid splint concentrates any discrepancy — in tooth position, in an undercut, in contour, in fabrication — into a single pressure point. The doctor then works backward from the symptom: mark the internal surface, relieve, reseal, mark again. That is chair time spent getting the appliance onto the teeth before any occlusal work has begun.

The resilient Talon lining absorbs those minor variations. The appliance seats fully without applying unwanted orthodontic-type force to individual teeth, and it stays retained once seated. Because retention comes from intimate adaptation rather than mechanical grip, bulky extensions and added retentive elements are generally unnecessary — which is one reason patients describe these appliances as less intrusive than they expected.

Modern Records: Digital Scanning Is Preferred

An accurate alginate impression, correctly taken and correctly poured, still produces an acceptable working model. That technique has not stopped working.

But when a quality intraoral scanner is available, a digital scan is now the preferred method of capturing the arches.

Scanning removes an entire category of variables that have nothing to do with the splint itself: impression distortion, voids and bubbles, pulls, inadequate material coverage, dimensional change during transport, and the inaccuracies introduced when the model is poured.

The principle underneath both methods are unchanged:

The splint can only be as accurate as the records from which it is fabricated.

The Construction Bite Is Still Essential

This is the section worth reading twice.

Digital scanning changed how we capture the teeth. It did nothing to communicate the relationship between the upper and lower jaws, and it did nothing to tell the laboratory where you want the mandible positioned.

Without a construction bite, the laboratory has to make that decision for you.

In practice, what usually happens is this: the case is articulated in centric occlusion, then arbitrarily opened until there is enough interocclusal space to accommodate the prescribed thickness of the splint.

Why that produces a second molar interference

When models are simply opened on an articulator, they rotate around the articulator's hinge. That hinge sits posterior to the dentition, so the amount of separation created is not uniform along the arch — the anterior segment opens more than the posterior segment. The splint is then fabricated to that geometry.

Clinically, the patient closes on their own arc, around their own condylar position. The two arcs do not match. The appliance is thicker posteriorly relative to the patient's true closing path than the articulation predicted, and the appliance contacts first in the posterior — very commonly in the second molar region.

The doctor then spends significant chair time adjusting the appliance down to something that will let the anterior teeth reach the desired contact.

This is not a fabrication error. The laboratory built exactly what the articulated relationship described. The problem is that the articulated relationship was not the patient's relationship.

The solution

Send a construction bite that captures the exact vertical and anteroposterior relationship in which you want the appliance fabricated.

A good construction bite:

- establishes the vertical dimension you want
- establishes the anteroposterior mandibular position you want
- allows the laboratory to articulate the case in that relationship
- eliminates the arbitrary opening step entirely

- reduces or removes posterior premature contact at delivery
- makes the delivery appointment short and predictable

The construction bite *is* the appliance

This is the point most worth internalizing, and it changes how the bite should be taken.

The laboratory will build the appliance to the bite you send. Not to an approximation of it, and not to a corrected version of it. The construction bite is the instruction, and the finished appliance will reproduce the vertical dimension, the anteroposterior position and the arc of closure that bite describes.

Which means the bite deserves to be evaluated clinically before it leaves the office — not simply taken and shipped.

Once the construction bite is in place, look at it in the patient's mouth and ask a single question:

Is this how I want my appliance to fit?

If the bite were the appliance, would the patient be in the position you intend? Is the vertical where you want it? Is the mandible positioned anteroposteriorly where you want it? Does the patient close into it comfortably and repeatably?

If the answer to any of those is no, the time to correct it is now, in the chair, with the patient in front of you. Correcting it at delivery means grinding a finished appliance toward a position it was never built for — and the appliance will resist you, because it was fabricated faithfully to the record you provided.

Take the bite, then evaluate the bite. Whatever it does, the appliance will do.

This applies equally in a fully digital workflow. A digital case still needs an accurate interarch record. Scanning improves the quality of the record; it does not replace the occlusal decision behind it.

If you are taking a digital scan, take a digital construction bite and send it along with the digital model. The record and the scan travel together, exactly as an impression and a bite registration always have. If you are not yet comfortable capturing a construction bite digitally, we will send you a step-by-step description that walks you through it.

The laboratory should never be asked to determine the therapeutic mandibular position. That is a clinical decision, and it belongs to the treating doctor.

What to Send the Laboratory

1. Accurate digital scans of both arches. Full arch, including the most distal teeth in occlusion. Conventional impressions and poured models remain acceptable when scanning is not available.

2. An accurate construction bite reproducing the exact vertical and anteroposterior relationship desired in the finished appliance.

3. A clear laboratory prescription stating the appliance design and the occlusal scheme you want — including anterior guidance, canine guidance, indexing, ramps, rises, coverage, thickness, and any other design characteristics specific to the case.

The more completely the prescription describes the intended result, the less interpretation the laboratory has to supply.

Everything can now be sent digitally

The prescription, the construction bite and the models can all be submitted to us digitally. That eliminates a physical shipment entirely — nothing to package, nothing to mail, nothing lost or delayed in transit. It is faster for you and faster for us.

We keep your digital records

Once a case is submitted digitally, we retain the records. If a splint is ever lost, broken, or — as happens more often than anyone would like — eaten by the family dog, we already have everything needed to fabricate a replacement. There is no need to bring the patient back for a new scan, unless the dentition has changed since the original records were taken.

For the patient, that means a faster, less disruptive replacement. For the practice, it means one less appointment spent recapturing records you have already paid to capture once.

Delivery

When the laboratory receives accurate records and an accurate construction bite, delivery should be uneventful. The appliance should seat fully and comfortably without excessive force.

At delivery, verify:

- complete seating
- retention
- patient comfort
- the intended centric contacts
- anterior and canine guidance as prescribed

- freedom from unwanted posterior and lateral interferences

Some occlusal refinement is normal and appropriate. Extensive grinding is not and should not be accepted as routine.

If you find yourself doing substantial posterior adjustment — particularly around the second molars — the first question to ask is not whether the appliance was made correctly. It is whether the case was articulated in the same relationship that exists in the patient's mouth.

That question almost always leads back to the construction bite.

Comfort and Compliance

An appliance can be biomechanically ideal and still fail, because the patient stops wearing it.

Splint therapy is frequently long-term therapy. Nightly wear over months or years is a high bar for patient tolerance, and comfort is not a secondary consideration — it is the variable that determines whether the treatment plan is ever actually executed.

The resilient Talon surface retains the appliance without the sensation of squeezing the teeth, and the intimate adaptation allows a design with less bulk. Patients tend to accommodate faster and complain less. Over the course of long-term therapy, that is a meaningful clinical advantage.

Clinical Applications

The Talon technique adapts to a range of designs depending on diagnosis and treatment objectives:

- bruxism and parafunctional habit appliances
- protective occlusal splints
- stabilization appliances
- selected temporomandibular disorder appliances
- orthodontic stabilization
- other specialized occlusal appliance designs

The diagnosis determines the design. Talon is the material and fabrication technique that allows that design to be delivered with excellent retention and patient comfort.

The Question of Cost

Let me address this directly, because it is the honest objection.

A Talon® splint costs more than a conventional lab-processed acrylic splint and more than a vacuum-formed dual laminate. The price difference is real, and I am not going to pretend otherwise.

But the price of the appliance is not the price of the treatment. The price of the treatment includes your chair time — and that is your single most valuable and least recoverable resource.

So, the fair question is not whether the Talon costs more. It does. The fair question is: **what does the less expensive splint cost you at the delivery appointment?**

What the material actually saves you

Two things happen at delivery because of the Talon material, and the second follows from the first.

First, there is no internal adjustment.

With a hard acrylic splint, the appliance frequently does not go completely to place on the first try. Something prevents full seating — an undercut, a contour, a slight variation in tooth position — or the appliance binds interproximally and is painful for the patient.

So, before you can evaluate anything, you have to work on the inside of the appliance. Mark the tissue side, relieve the tight area, reseal, mark again, and repeat until the appliance is both fully seated and comfortable. That is chair time spent before you have touched the occlusion at all, and it produces nothing.

The resilient Talon surface gives sufficiently to seat around those contact points. The appliance goes to place fully and comfortably on the first try, which means there is essentially no internal adjustment to perform.

And if it does not seat, stop.

This is worth knowing before it happens to you. With a rigid acrylic appliance, relieving the inside of the appliance is normal technique — you expect to do it, so you keep working until the appliance goes to place.

With a Talon, that instinct will cost you. The material already accommodates the ordinary variation. So, if you seat a Talon and still find yourself needing to adjust it internally, that is a red flag: the discrepancy is not a minor one, and it almost always means the records were inaccurate — a distorted working model or an inadequate scan.

Grinding will not rescue that appliance. It was fabricated to records that did not represent the patient, and it is not going to fit properly no matter how much time you spend on it.

The right response is to stop, take new records, and have the case remade. That decision costs you a few minutes. Continuing to adjust costs for you the rest of the appointment and still does not produce an appliance you want to deliver.

Second, because the appliance is properly seated, the occlusal adjustment is minimal.

This is the more valuable of the two, and it is easy to overlook.

If an appliance is not seating all the way, it will hit high. The occlusal surface is not in the position the laboratory built it to occupy, so the relationship with the opposing arch is simply wrong — and it makes no sense to begin adjusting the occlusion, because you are adjusting an appliance that is not where it is supposed to be. Grind it down, it settles further, and the contacts change again.

When the appliance seats fully and comfortably, that circular problem never begins. The occlusal surface is exactly where it was designed to be, so the occlusion you are checking is the real occlusion. The adjustments needed to establish appropriate contact with the opposing arch should be minimal and are frequently unnecessary.

This holds with or without a construction bite — and it is particularly true when you send one.

The construction bite and the Talon material solve two different problems. The construction bite ensures the appliance is *designed* to the relationship you want. The resilient material ensures the appliance arrives at that design in the patient's mouth.

You get the benefit of the material on every case, including cases where no construction bite was sent. When the two are combined, delivery becomes genuinely uneventful.

Run the arithmetic

Published benchmarks put dentist production somewhere around 475 to 575 dollars per hour, with strong practices well above that. Call it 500 dollars an hour to be conservative.

At that rate:

- Ten minutes of chair time is roughly **\$83**
- Fifteen minutes is roughly **\$125**
- Thirty minutes is roughly **\$250** — gone, on a single appointment

Now set that against the appliance itself.

The entire price difference between a Talon and any other splint we manufacture is erased by fewer than fifteen minutes of chair time. Against our conventional acrylic splints, fewer than ten.

Ten minutes of seating and occlusal adjustment is not a difficult delivery. It is an ordinary one. Fifteen to thirty minutes is common when an appliance does not seat cleanly.

Which means that on a great many cases, the less expensive appliance is the more expensive appliance — and you pay the difference in the operatory, out of your own production, rather than on the laboratory invoice.

And that is before counting the reappointments, the remakes, and the patients who never fully accommodate to an appliance that was uncomfortable from the first day.

Penny wise, pound foolish

I want to be fair about this. The less expensive appliances we make are not poor appliances. They have real indications, and we manufacture them for that reason.

But when you are doing therapeutic splint work where seating accuracy and occlusal precision matter, saving a modest amount on the appliance and paying it back several times over in chair time is not economy. It is the textbook definition of penny wise and pound foolish.

I have spent my career on a single principle: **the best care for the patient, delivered in the most economical way, while the dentist makes a good living doing it.** Those three objectives are not in conflict. An appliance that seats accurately, requires minimal adjustment, and that the patient will actually wear is better for the patient *and* better for the practice.

The Talon costs more on the invoice. It frequently costs less by the time the patient leaves the delivery appointment, and far less over a full course of therapy.

That is not an argument for spending more. It is an argument for spending accurately.

A Proven Technique in a Digital Era

Dentistry continues to move rapidly toward digital scanning, digital design, advanced polymers, milling and additive manufacturing. Those technologies have genuinely expanded what laboratories and clinicians can accomplish, and Space Maintainers Laboratory uses them daily.

But newer does not automatically mean better for every application.

The Talon Splint is a good example of a technique that has lasted because its underlying concept is sound. Today we combine that proven hard-soft design with more accurate digital records and a modern laboratory workflow. The result is an appliance that is:

Comfortable. Retentive. Adjustable. Predictable.

After many years of working with virtually every type of splint design, I still consider the Talon technique to be one of the best available methods for fabricating an occlusal splint.

The technology around it has changed.

The reasons it works have not.

Rob Veis, D.D.S. *Space Maintainers Laboratory Appliance Therapy for Today's Dental Practice*

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