

TORQUING SPRING PREVENTS RELAPSE

Eight Steps for Using the GTS

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One of the more difficult challenges we, as orthodontic practitioners, have to face is post-treatment relapse.

We have all seen the type of relapse depicted in Fig. 1. Unfortunately, that is what the patient sees as well. I suspect if a small amount of relapse would occur in a first or second bicuspid and we offered to retreat it, the patient would decline. However, if relapse occurs in an anterior tooth almost every patient would want it retreated.

We, as practitioners then go through the invisalign type of appliances, spring aligners, etc. followed by permanent retention to correct the problem. We hope the bonded lingual will stay in place for many years.

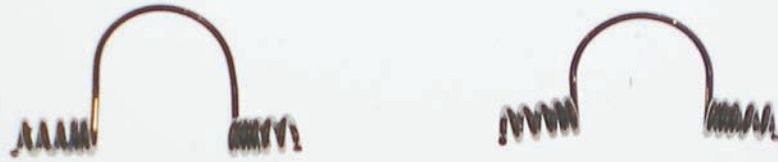
After seeing my share of the type of relapse, it is my contention that

the root must be positioned under the clinical crown. If this is accomplished prior to de-bonding and held in position for a period of time, this type of relapse may be minimized or eliminated altogether.

With this in mind, I developed the Goodman Torquing Spring (GTS) as seen in Fig. 2. As you can see, the GTS comes in two sizes. Why two sizes? Since teeth are morphologically different, there will indeed be a difference in the distance from the bracket to either the incisal edge or the gingival margin of the tooth.

The lumen of the GTS is designed to fit a myriad of arch wire sizes: 16x22, 16x25, 17x17, 17x25, stainless wire or TMA type wire. *(The spring does work on 18x25 nitinol wire, just not quite as efficiently.)* The GTS may be positioned anywhere on the wire to create

Fig. 2



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Fig. 3

either labial root torque (Fig. 3) or lingual root torque (Fig. 4). The GTS may be positioned in the horizontal plane of the wire for a full expression of torque, 125-150 gms of force (Fig. 5) or at 45 degrees to the horizontal plane of the wire for a partial expression of torque, 75-90 gms of force (Fig. 6).

The following directives will explain in detail how best to use the GTS:



Fig. 4

Fig. 5

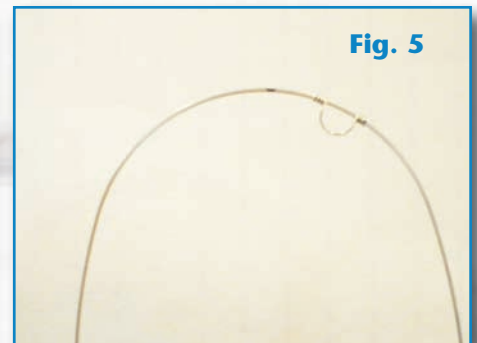


Fig. 6

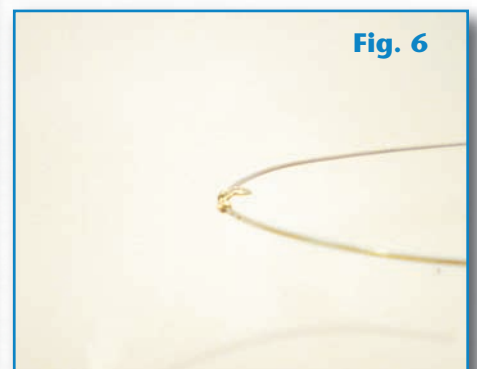




Fig. 7

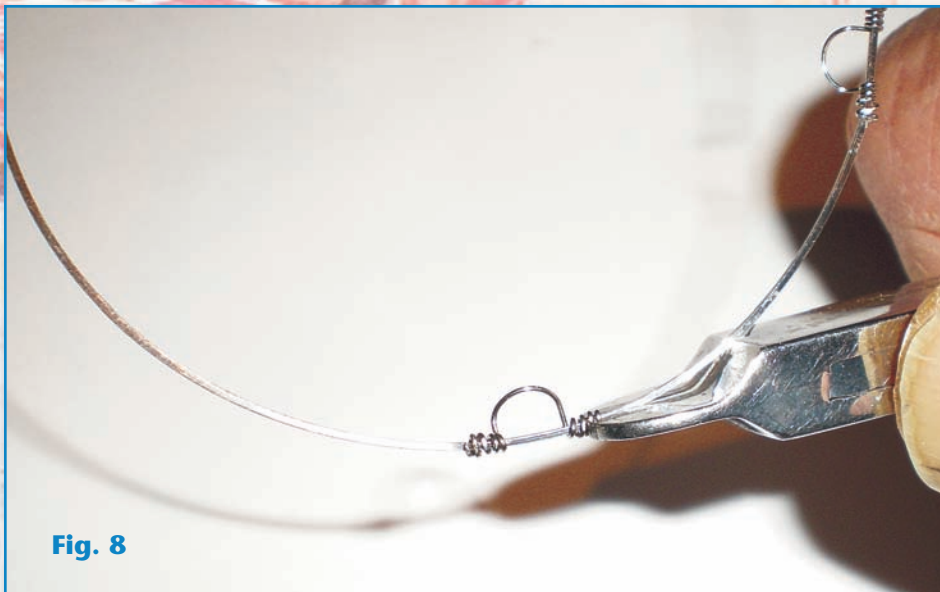


Fig. 8



Fig. 9

“Make sure that the 1-2 winds closest to the loop are not crimped. If they are crimped, the action of the GTS will be diminished.”

- 1 Choose the wire of desired size based on slot size and alignment. Place the wire into the bracket slots and mark the wire mesial and distal to the tooth or teeth to be torqued.
- 2 Remove the arch wire and slide the GTS onto the wire on the marks previously made in the horizontal plane of the wire. (refer to Fig.5)
- 3 Using a carbide tipped 142 (square beaked plier with edges slightly rounded also know as the Tweed ribbon arch plier) crimp the GTS on the mesial and distal sides of the loop (Fig. 8). Make sure that the 1-2 winds closest to the loop are not crimped. If they are crimped, the action of the ETS will be diminished. If you find that the inter-bracket distance is too small, slide the spring off of the wire, cut the last two winds off the spring then crimp it into place.
- 4 Place the wire back into the bracket slots making sure the curved portion of the GTS is touching the incisal or gingival portion of the tooth (Fig.7). The GTS will then be positioned either above or below the bracket. Above the bracket in the maxillary dentition and below the bracket in the mandibular dentition equates to lingual root torque. Below the bracket in the maxillary dentition and above the bracket in the mandibular dentition equates to labial root torque (Fig.9).
- 5 When torquing an incisor you must ligate the six anterior teeth together with .010 ligature wire. When torquing a cuspid you must ligate 1st bicuspid to 1st bicuspid prior to placing the arch wire with the GTS attached. This will hold the crown of the tooth to be



Fig. 10



Fig. 11



Fig. 12

torqued firmly into place while the root is moving.

6 Cinch the wire back placing and tying the wire into place. This will prevent the GTS from moving the archwire forward and diminishing the force of the GTS. If using stainless steel wire and are torquing more than one tooth in the same arch, follow the protocol at the end of the article.*

7 See the patient at 4-5 week intervals. If you creating labial root torque for a previously lingually positioned lateral incisor for example, palpate the labial cortical plate until you feel a slight protrusion of the cortical plate over the root of the tooth. Once that is palpated, hold that position for 2-3 weeks longer. At that 2-3 week visit remove the GTS and wire, replace just the o-rings and dismiss the patient for 2 weeks to see if the root position has held. If it has, finish the case as you normally would.

8 If you have created lingual root torque for example on the central incisors in a class II division II malocclusion the best way to check progress is with a follow up cephalogram (Fig. 11 & 12).

**NOTE: Because stainless steel wire is being utilized, the following applies: If you are creating lingual root torque, narrow the wire slightly to prevent expansion as a reaction to the force of the GTS. If you are creating labial root torque expand the wire slightly to counteract the narrowing effect of the GTS. Once again this modification in the wire would be necessary if you are utilizing more than one spring on the archwire.*

Here's hoping the GTS will create more stability in the retention phase of your cases and less retention headaches for you. Because we all strive to do the very best orthodontics for our patients, the GTS should be a wonderful asset to your armamentarium.

For more information or questions please contact the developer of the GTS, Dr. Phil Goodman at (937) 424-2505 or pmarshallg@live.com.