

Pros and Cons of .022 Versus .018 Slot Braces



Are you a .022 or .018 kind of orthodontist? Townies discuss.

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gekkeg

Member Since: 10/21/08
Post: 1 of 6

I would like to see a discussion of this topic because I am working in an office that has an inventory of .022 braces due to the previous doctor's preference.

I was trained (Loma Linda) in Bioprogressive .018 and am used to lighter forces and archwires, higher torqued incisors and less torqued cuspids prescription versus Roth.

I realize you can get used to either and vary the wire size to affect your outcome, but I worry about excessive force and discomfort using the larger wires necessary in .022 for torque as I like it.

Opinion based on experience is appreciated. ■ Gary

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firm

Member Since: 08/08/05
Post: 2 of 6

I have used both but prefer .018 slots. The .022 slot is more forgiving but I have fewer inventories with the .018 slot. My molar tubes are still .022. ■

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vraj

Member Since: 02/25/09
Post: 3 of 6

.022

Pros:

- Better leveling without resorting to curves
- More convenient for sliding mechanics
- Less wire deformation (19x25SS) during space closure

Cons:

I have not really had any issues with it

.018

Pros:

- Earlier (better?) torque expression
- Less inventory of wire sizes
- Potentially less discomfort due to relatively smaller wire size

Cons:

- Leveling can be challenging
- Wires may deform easier
- Sliding mechanics are more difficult (16x22 may get distorted, 17x25 may bind too much) ■

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charlestonbraces

Member Since: 06/05/09
Post: 4 of 6

I'm sure it has been measured before, but regarding forces, wouldn't a 17/25SS in an 18 produce a similar force to an 18/25 or 19/25SS in a 22? I am assuming that the 17 in an 18 slot will have the smaller slop/angle than the 19 in a 22 slot, and thus have a similar force given the smaller thickness wire. ■



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vraj

Member Since: 02/25/09
Post: 5 of 6

It might be a function of how the wire is loaded i.e., bending vs. torsion. In torsion (third order), the wire-bracket slop/play, wire material, method of ligation, edge bevel, etc., would

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determine the magnitude of the torquing moment. Thus, with 17x25 SS in the .018 slot, the play/slop is lower (compared to 19x25 SS in the .022 slot), hence allowing for better torque delivery (and decreased loss of torque).

However, in bending (i.e., first and second order) absolute wire stiffness is probably more of a factor than wire-bracket slop.

Between full-sized wires in the two systems, the absolute stiffness would increase with increasing cross-section (19x25 SS being stiffer than 17x25 SS), thus implying a greater force for the same deflection (for example a 1mm step in 17x25 SS vs. 19x25 SS). This is clinically manifested by the ease of leveling using 19x25 SS in a .022 slot when compared to 17x25 SS in the .018 slot. ■

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drjamesnoble

Member Since: 10/20/11

Post: 6 of 6

The only advantage I see in .022 is more archwire selection in extremely complicated cases. Otherwise, I love an .018 slot. Here are some of the reasons:

- Lighter forces
- Finishing bends on a lighter wire (you can't effectively bend a 19x25 or 21x25 wire, you can on a 17x25 (which is tough), 16x22 or my favorite wire 16x16 which is a lot of fun to bend
- Can more effectively use closing loops in cases where it's difficult to close space
- Less inventory of wires
- Can get into a full dimension wire, or 17x25NiTi or steel to maximize prescription. Less slop in slot. Sometimes I let a 17x25 NiTi cook for months, especially in cases

where the lateral root is initially lingual or the canine is impacted, getting in a full dimension wire gives you more root control. In a good number of cases I get into 17x25SS, few .022 users get into 21x25SS.

- In surgery cases, can more easily get into a full dimension wire, 17x25SS, to better stabilize the case.
- My initial leveling and aligning is fine. No one has ever been able to demonstrate reduced binding or friction in initial wires with .018 vs .022. Self-ligating guys keep talking about light forces on teeth and to me it's a contra-indication unless they're .018 slot – why should the forces be light only on initial wire? The force of a 19x25ss or 21x25 is quite heavy compared to a 17x25 or 16x22SS.
- I slide on a 16x22SS vs. a 19x25. Takes me less time to get into a 16x22SS. I can put reverse curves in a 16x22SS easier than a 19x25.

Just a few reasons why it's not even a debate in my mind. ■ James Noble

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