

## Torquemeter – a simplified chair side device.

Archana Yadav<sup>1</sup>, Rakesh Kontham<sup>1</sup>, Shweta Bhat<sup>1</sup>

<sup>1</sup>Department of Orthodontics and Dentofacial Orthopedics, Nair Hospital Dental College, Mumbai.

### Corresponding Author

Archana Yadav

E-mail ID: archana.y0711@gmail.com

### Abstract

Torque enables an accurate control of the axial inclinations of teeth in a labio-lingual direction and thus, harmonise the individual tooth position relationships desirable for finished case. It is difficult to measure precisely the individual root torque incorporated in the wire without the costly and rather tedious armamentarium available in the market. Hence, an effort has been made through this clinical innovation to present a cost effective and chairside techniques to gauge the degrees of incorporated torque in the arch wire accurately.

**Keywords :** Orthodontic brackets, Torque, Bucco-lingual inclination, Bracket slot, Torquemeter

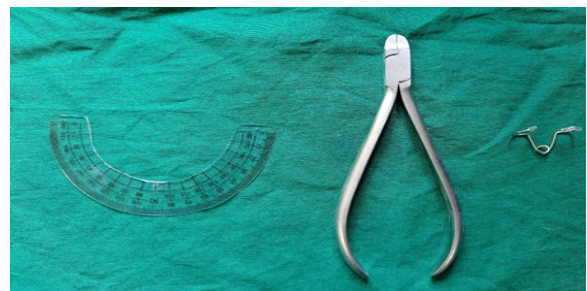
Torque in Orthodontics can be either clinical or biomechanical. Clinical torque refers to the Andrews third key, while biomechanical torque is the torsion of the rectangular wire in the bracket slot<sup>(1)</sup>. Correct torque in the anterior teeth is responsible for good esthetics, correct anterior guidance, overjet and overbite. Inadequate anterior torque shortens the arch length and in posterior teeth leads to narrow smile and occlusal interferences<sup>(2)</sup>. According to Sondhi and Damon the clinician has to incorporate or reduce torque depending on the patient malocclusion, periodontal characteristics, inter and intra-arch variables and class correction biomechanics<sup>(3)</sup>.

The devices currently available are complicated and cumbersome to use in a clinical situation<sup>(4,5)</sup>. This paper aims to introduce a novel, inexpensive and simple chairside torque measuring device for quantifying the torque incorporated in the arch wire.

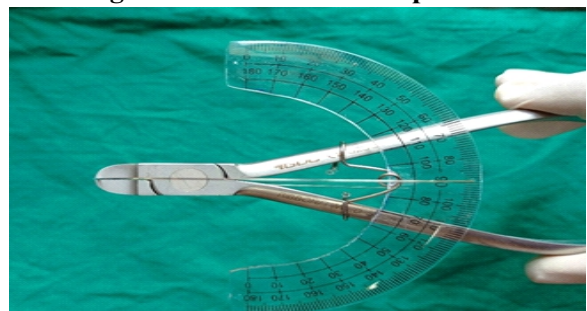
The device consists of a geometric protractor which is attached to a Tweed's Ribbon arch plier with the help of a removable spring which is clasped on to the handles of the plier (Figure 1).

The spring allows slight opening of the plier beak to place and to hold the wire securely (Figure 2).

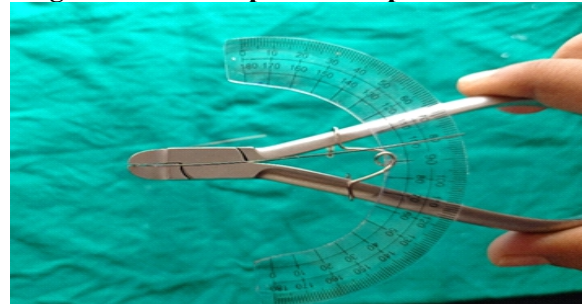
The torque in the wire can be directly measured along the protractor as the ends of the wire are deflected up or down depending on the torque incorporated (Figure 3).



**Figure -1 : Individual components**



**Figure 2 :Neutral position of plain archwire**



**Figure - 3 : Measurement after torque incorporated in arch wire**

The innovative device is accurate, reliable, and consumes less time for measurement of torque incorporated in the wire. All the components of the device can be individually disinfected for every patient.

**Source of support :** Nil

**Conflict of interest :** Nil

### References

1. Rauch DE. Torque and its application to orthodontics. Am J Orthod 1959; 45:817- 830.
2. O'Higgins EA, Kirschen RH, Lee R. The Influence of Maxillary incisor inclination on arch length. Br J Orthod 1999; 26: 97-102.
3. Damon D. JCO interviews J Clin Orthodont 2012; 46(11): 667-668.
4. Rose LA. Plier Set for Making Torqueing bends in Orthodontic Arch Wires: US Patent 4043364 A; 23 August 1977.
5. Measuring the torque on the terminal ends of arch wire. Changsiripun C, Suwankomonkul S J Clin Orthodont 2018;52(6-7):2018.