

Orthodontic Force Measurement Using Portable Digital Weight Measuring Gauge

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Abstract: Precise application of orthodontic forces is one of the most important aspects for successful orthodontic treatment. Orthodontic dynamometer for measuring orthodontic forces often leads to visual errors and takes more valuable chair side time. In this article, we advocated the use portable digital weight measuring gauge for orthodontic force measurement to avoid the demerits of orthodontic dynamometer.

Key Word: orthodontic force, dynamometer, orthodontic treatment

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A successful orthodontic treatment outcome depends on the precise application of force. Orthodontic dynamometer is an essential tool for measuring orthodontic force of various intraoral and extra oral appliances like elastics used in headgear and protraction headgear, intraoral elastics etc.¹

The orthodontic dynamometer* [A] available in the market is calibrated in ounces as the unit of force measurement but, grams has been the routine unit of measurement. Prior to force application the orthodontist has to often convert grams into ounces or vice versa (1ounce=28.35grams). This could potentially prolong the chair-side time and lead to errors. Orthodontic dynamometer comes as a gauge with 16 line markings with a double marking in every 4th marking to facilitate counting. Counting these markings can give rise to visual errors due to the closely packed lines.



Figure-A

A portable weight measuring gauge is a digital gauge [B] which is routinely used to measure the weight of baggage or other household goods. The gauge can measure from 5 grams to 50 kgs of weight. This could be incorporated into orthodontic practice as both the dynamometer and the gauge work on the same principle.

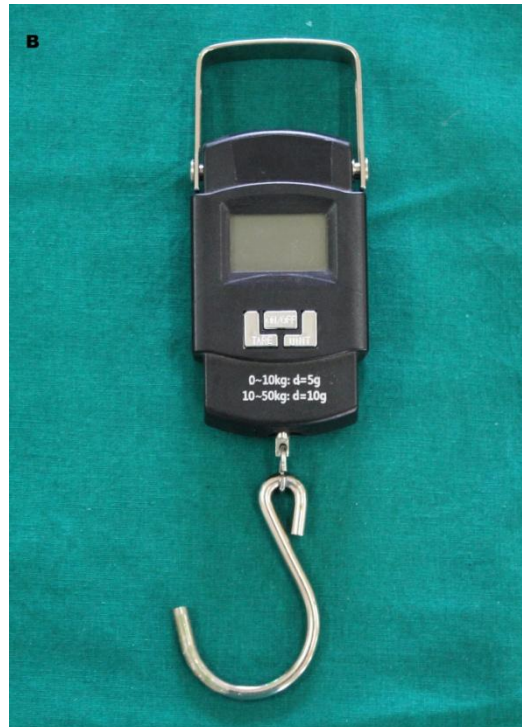


Figure-B

Prior to its use for orthodontic force measurement, the bigger hook was replaced with a 20 gauge SS wire** which was bent like a hook at the end to engage elastics or wire [C]. The readings were checked several times for reliability and reproducibility with both the instruments showing similar values [D]. This digital weight measuring gauge shows four different measuring units i.e. kilogram, pound, ounce and jin. Therefore, with the mere click of a button any of the four units could be measured [E].



Figure-C



Figure-D



Figure-E

Thus, the use of the portable weight measuring gauge can save valuable chair side time for orthodontists and reduce errors in force measurement.

*ODG-503 INVECTA™ 16 oz.1-39, www.dentsplygac.com

**LEOWIRE, LEONE S.p.A. via P.a Quaracchi, 50, 50019, Sesto, Italy; www.leone.it

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