

# Glossary

<b>Activation Range</b>	The distance a spring can be stretched, or the angle an archwire can be bent, without permanent deformation; the useful working range of a spring or archwire.
<b>Angulation</b>	The tilt of the long axis of a tooth in a mesial or distal direction.
<b>Anterior</b>	The section of the dental arch that includes teeth mesial to the posterior, thus the cuspids and incisors.
<b>Austenite</b>	The high temperature phase of Nickel Titanium wire. In its austenitic phase, NiTi is stiff and elastic and will immediately return to shape after bending. (See Superelastic.)
<b>Austenite-finish temperature, <math>A_f</math></b>	Temperature at which the metallurgical transformation of a shape memory wire from its low temperature phase to its high temperature phase is complete. (ADA)
<b>Austenite-start temperature, <math>A_s</math></b>	Temperature at which the metallurgical transformation of a shape memory wire begins.
<b>Bicuspid</b>	A premolar tooth; a tooth with two cusps or pointed portions of the tooth. (ADA)
<b>Buccal</b>	The outer region of the arch against the cheek, usually referenced in the distal region.
<b>Central Incisor</b>	Teeth adjacent to, and on either side of, the midline.
<b>Compression (as in springs)</b>	Open coil springs, wound such that there are spaces between helixes. In use, the coils are compressed and produce forces outward to create space.
<b>Curve of Spee</b>	The curvature of the occlusal plane of the teeth, in the mesial/distal direction.
<b>Cuspid</b>	Having to do with the pointed portion of the tooth, generally referring to the tooth posterior to lateral incisor. Canine.
<b>Deformation</b>	Misshapen, usually in reference to the angle or percentage that wire does not return to its original shape after being bent; permanent bend set.
<b>Distal</b>	Referring to the direction away from the median line of the mouth, or to the back of the arch.
<b>Distalizing (as in springs)</b>	A spring made up of both open and closed coil sections. Generally used to move molars in the distal direction (toward the back of the mouth) to create space for crowded anterior segments or in preparation for fixed orthodontic treatment.
<b>Elasticity</b>	The apparent ease with which a wire can be deflected without incurring permanent deformation.
<b>Extension (as in springs)</b>	Closed coil springs, such that the helixes are wound tightly together. In use, the coils can retain space or, when extended, produce forces to close space.
<b>Extrusion</b>	Movement of the tooth along its long axis toward the occlusal plane.
<b>Friction - Dynamic</b>	The force needed to maintain steady motion when two objects are in contact with one another.
<b>Friction - Static</b>	The force needed to initiate movement, from rest, between two objects that are in contact with one another.
<b>Inclination (Torque)</b>	The tilt or tip of the tooth in a buccolingual or faciolingual direction.
<b>Intrusion</b>	Movement of the tooth along its long axis back into the bone.
<b>Labial</b>	Referring to the lips, or in the direction toward the lips.
<b>Lateral incisor</b>	Teeth posterior to the centrals and anterior to the cuspid teeth.
<b>Leveling</b>	Initial phase of treatment with the purpose of aligning the teeth in the same plane.
<b>Lingual</b>	Referring to the tooth surface adjacent to the tongue.
<b>Mandibular</b>	Lower jaw reference.
<b>Martensite</b>	The low temperature phase of Nickel Titanium wire. In its martensitic phase, NiTi is soft and bends easily. The wire will stay in this state until exposed to heat above its Transformation Temperature Range (TTR). Martensitic wires are responsive to chilling, as they become even softer and more easily bent.
<b>Maxillary</b>	Upper jaw reference.
<b>Mesial</b>	Referring to the direction toward the median line of the mouth, or toward the front of the arch.

<b>Molar</b>	Teeth posterior to the premolars (bicuspid).
<b>Occlusal</b>	The chewing surface of the posterior teeth, or contact points of opposing (maxillary and mandibular) teeth.
<b>Posterior</b>	The section of the dental arch that includes teeth distal to the anterior, thus the premolar (bicuspid) and molar teeth.
<b>Premolar</b>	Bicuspid.
<b>Proclination</b>	The labial inclination of an incisor tooth.
<b>Resiliency</b>	A material's ability to resist permanent deformation when bent; often referred to as its springback ability.
<b>Shape Memory</b>	A characteristic of particular materials, such as Nickel Titanium, that allow the pre-formed material to return to shape by heating the wire through its TTR (transformation temperature range). For example, when martensitic wires are ligated in a maloccluded arch, the body temperature of the patient causes the wire to begin to return to its pre-formed shape; this is the wire's shape memory characteristic.
<b>Stress Induced Martensite</b>	The spontaneous phase change from Austenite to Martensite as stress is applied to the material at a temperature above Af. Stress induced Martensite immediately reverts to Austenite as stress is removed, unless permanent deformation has been introduced into the material.
<b>Superelasticity</b>	A characteristic of certain materials, such as Nickel Titanium, that allows it to recover from bends and deformations without taking a permanent set while in the Austenitic phase. This occurs due to the immediate formation of stress-induced martensite on loading and the immediate reversion to Austenite upon unloading.
<b>Tensile Strength</b>	When stretched, the maximum force a wire can withstand without breaking.
<b>Thermal</b>	Term used for martensitic wire, as it is responsive to heat-activation. See Martensite.
<b>Tipping</b>	Applying force to the tooth such that the tooth turns or rotates either mesial-distally or buccal-lingually.
<b>Torque</b>	Intentional engagement of a wire in torsion to change the inclination of the tooth; also refers to an angled section of an archwire which generates the same result.
<b>Transformation Temperature Range (TTR)</b>	For shape memory alloys, such as Nickel Titanium, a change of phase occurs, such as from martensite to austenite, in a specific temperature range. The TTR is adjustable by several means to produce desired characteristics.
<b>Uprighting</b>	Tipping in the mesial-distal direction.