

Which Teeth Establish Function? — At a Glance

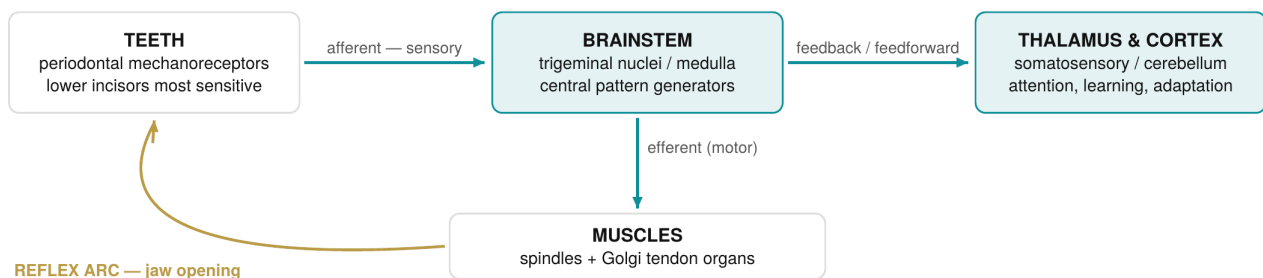
It's about the bite. Prof. Riaz Yar, Specialist in Prosthodontics

The Answer: Incisors and First Molars

The upper and lower incisors and the first permanent molars. They erupt first, so function is learned around them — the incisors set anterior guidance, the first molars set the posterior stops and the vertical dimension. The **lower incisors are the most periodontally sensitive teeth in the mouth**, and that sensitivity is protective: they detect contact at very low force and trigger the jaw-opening reflex before the load becomes damaging and they also provide that information to the muscles allowing for the required force generation — soft food — less force. Restore them casually and you are editing the reference the whole system was calibrated against.

TOOTH GROUP	WHAT IT ESTABLISHES	WHY IT MATTERS CLINICALLY
Lower incisors	The sensory reference. Highest periodontal sensitivity; incising and food holding.	Hold forces under about 1 N sit exactly where periodontal afferents are most sensitive; anaesthetise them and force control degrades. ^{1,2}
Upper incisors	Anterior and protrusive guidance, lip support, speech contact targets.	Change their position or angle and you change guidance, phonetics and appearance at once.
First molars	First posterior stops, vertical dimension, the grinding platform.	The reference for occlusal vertical dimension. Lose or over-restore them and the whole envelope shifts.
Canines & premolars	Cornerstone and equilibrium of the arch — tearing, lateral guidance, crushing.	Canines carry excursive guidance; the premolar region is where chewing efficiency is won or lost.

The Loop That Makes It Work



Learned, Not Hardwired

Chewing and swallowing are learned rhythmic behaviours, in the same family as walking and breathing. They are driven by central pattern generators in the brainstem and medulla, shaped continuously by sensory input from the periodontal ligament, muscle spindles, the TMJ (capsule) and the soft tissues.³ Familiar food runs on autopilot; unfamiliar food recruits the higher centres, which is attention and feedforward learning. That plasticity is why patients adapt — and it is not a licence to give them something to adapt to.

Evidence (via PubMed). 1. Trulsson & Johansson. Exp Brain Res 1996;107:486–496. <https://doi.org/10.1007/BF00230428> • 2. Trulsson & Johansson. Prog Neurobiol 1996;49:267–284. [https://doi.org/10.1016/s0301-0082\(96\)00016-0](https://doi.org/10.1016/s0301-0082(96)00016-0) • 3. Morquette et al. Prog Neurobiol 2012;96:340–355. <https://doi.org/10.1016/j.pneurobio.2012.01.011> • Full neuroanatomy discussion and further reading: Chapter 2, *Practical Procedures in Occlusion*.

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