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Tooth Preparation Guidelines

Tooth Preparation Guidelines

For many years, tooth preparation for metal supported ceramics was as varied as the clinician who performed them. Metal can be case into any configuration imaginable including sharp angles and tips. It is also strong enough to be polished to a thin edge to accommodate a knife edge margin preparation.

All-ceramic restorations require a totally different mindset when preparing a tooth. Whether the crown is made by press technology or by CAD/CAM technology, the guidelines are still the same.

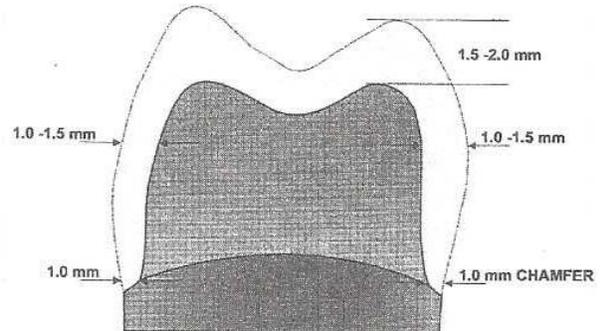
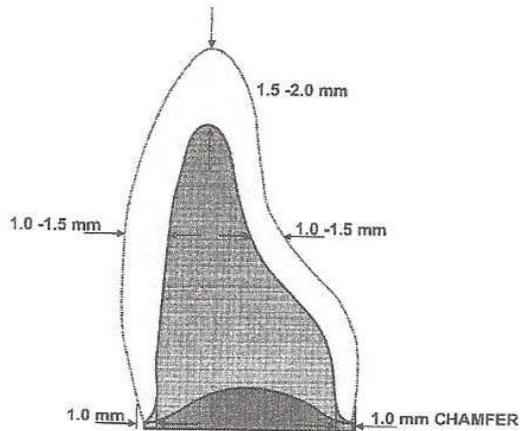
1. First and foremost requirement is a smooth preparation. Remember, ceramic crowns are a type of glass and any sharp angles or corners create stress points that can lead to fractures.
2. Uniform reduction is necessary for optimal strength and esthetics. Once again, thin areas compromise strength and esthetics.

Remember:

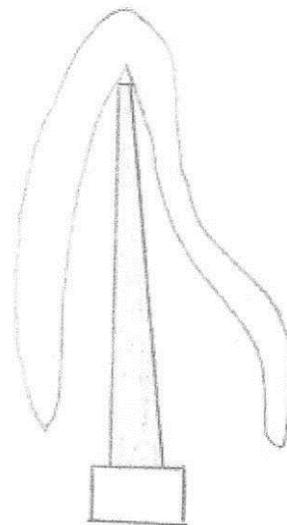
- Uniform reduction results in optimum ceramic strength
- Adequate reduction leads to better esthetics
- Smooth edges result in lower stress
- Lower stress decreases potential for fracture
- Ceramic restorations require a passive fit
- Scanners read smooth preparations more accurately

Guidelines:

- Uniform, circumferential, tooth reduction of 1.0-1.5mm
- Circumferential chamfer margin
- Occlusal reduction of 1.5-2.0mm
- Rounded line angles
- Reduce lingual of anteriors with football diamond to create concave lingual



Another very important point to understand is how crowns are milled with CAD/CAM. The preparation needs to be smooth for an accurate scan, but also so the milling burs can reach every area. The burs used are 1mm in diameter at the tip. If the preparation is left with a sharp incisal edge or sharp line angles on the axial wall, or even sharp irregularities on the margin, the burr will not be able to reach into those areas leaving a crown that will not seat completely.



We hope these guidelines will help you.