

INNOVATION THROUGH TECHNOLOGY & EXPERIENCE

NOVEMBER 2021

Making smiles for you
Since 1982

IMPLANTS

ZIRCONIA

Translucency
vs.
Strength

SCANNING
TIPS

CHECK US OUT
ON INSTAGRAM
dentalceramicofic

*"Thanks for all the work
you send our way!"*

Dental Ceramics
of Iowa City
901 Orchard Street
Iowa City, IA 52246
319-338-1188

Winter is practically here, where did the year go?

Zirconia Translucency vs Strength

The location of a restoration, and the biting force, is critical to determining the required strength level of a zirconia material. Most fractures occur to molars and pre-molars, as a result of the high stress they endure in the back of the mouth. To avoid fractures, the occlusal thickness must be adjusted to compensate for the strength of the selected zirconia material.

If a zirconia restoration with a flexural strength of 1100 MPa needs to withstand a force of 400 Newtons, which is the typical force a second molar receives, then the minimum occlusal thickness needs to be 0.6mm. In short, the preparation design must accommodate the strength of zirconia used. Therefore, 0.6mm occlusal reductions for posterior zirconia crowns is the minimal clearance to ensure your zirconia crown will not fracture. The 1100 MPa material is one of the strongest zirconia's out there and works well in the posterior region and for bridges; this is our typical full zirconia crown material. It does tend to be a little on the bright side. We recommend for posteriors you pick a shade darker.

The more translucent zirconia (around 750 MPA) works well for anterior restorations. It is more translucent and blends better with the dentition. Layered zirconia is always another option; we typically try to leave a full zirconia occlusal or lingual surface to provide as much strength as possible and only layer the facial surface for a highly esthetic crown. This is a good option when you need the strength and esthetics, with occlusal clearance being minimal!

Scanning Ideas For Fit to Partial Crowns.

Building crowns under an existing partial has always been tricky. We can now make CAD/CAM crowns under existing RPD frameworks from iTero, Trios or other scans. If you have a tooth that fits the rest(s) and clasp(s) ideally that you are replacing, get a pre-prep scan and send it to us as a separate study model. Then scan your prep like usual and we will merge the two scans together to make an accurate fitting crown. If the tooth is not in good shape, then mock up the proper anatomy in composite first, and then scan. If you don't have a scanner there is always the blue mousse matrix technique. Check out our website for more information on this technique. www.dentalceramicsic.com