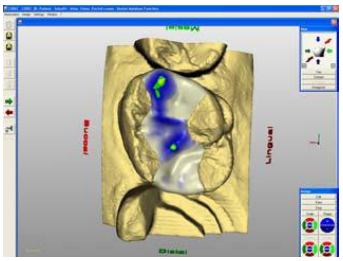
Cerec CAD-CAM Restorations

What is Cerec? Cerec is a computer-aided method for creating ceramic restorations in a single visit. It involves the use of prefabricated ceramic blocks, an optical impression, computer-assisted design, computer-assisted milling and an adhesive cementation technique.

What are the advantages of Cerec? Cerec allows us to produce biocompatible, non-metallic and natural looking ceramic restorations. These are of superior quality and durability than direct tooth coloured composite resin restorations. Cerec restorations are typically done in a single visit, hence only the one application of local anaesthetic. Often they can be more conservative of tooth structure than traditional crowns. Their properties enable us to restore much of the original strength lost to the tooth during the decay process and subsequent filling. The ceramic, Vita Mark II blocks have a similar abrasion resistance and co-efficient of thermal expansion to enamel, hence it does not cause increased wear to opposing teeth or cause cracks due to flexing.

Old amalgam filling



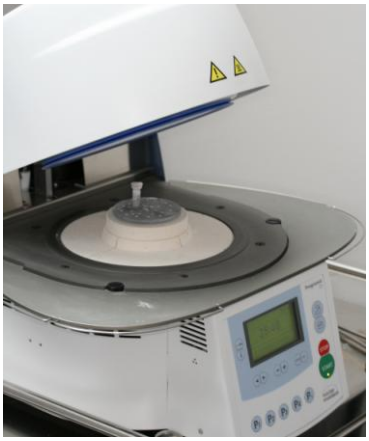
Computer design (similar case)

Milling machine

Final ceramic restoration

Exciting new material expands Cerec applications to include crowns. During the last 12 months we have introduced a new ceramic block made by Ivoclar called **e.max®.** This material undergoes a crystallization process during a 25 minute firing in a furnace at 840°C. After cooling the ceramic is three times stronger than our previous Vita Mark II blocks and is sufficiently strong to be used for crowns in all but the heaviest of bites. The firing step also

allows us to customize the crown with various stains and glazes to produce a more life-like final result. This now means that in many cases we are able to prepare and fit a crown in just one extended session, eliminating the inconvenience of multiple appointments, whilst still producing a strong crown.



Research

B.Reiss et al 2001. Largest study of over 1000 restorations in service over 10 years.

- 90 % successfully in service at 10 years which compares favourably with gold inlays.
- Size of restoration did not affect the durability.
- Bonding increased the survival rate. These days all Cerec restorations are bonded with the latest in ceramic bonding systems.

Otto and De Niscor 2002. Of 15 failures of 187 inlays:

- 6 required only simple repairs
- 6 required new Cerecs
- 3 required crowns
- No teeth lost.

Useful Website Links

www.cereconline.com/ecomaXL/index.php?site=Cerec_PatientInfo
www.cerec.net/forum/index.php?act=portal&site=5
www.dentist.com.au/article.lasso?id=16
www.ceramicsystems.co.uk/PatientInformation/tabid/5979/Default.aspx
www.ivoclarvivadent.com/content/products/detail.aspx?id=mcr_t1_1682923291&product=IPS+e.max+System+technicians