Fuji II™ LC Core Material

George E. Kirtley, DDS
Private Practice
Indianapolis, Indiana
Phone: 317.841.1111
Fax: 317.841.3394
Email:
gekirtdds@aol.com

Core build-up procedures are an integral part of everyday restorative practice. Core build-up materials historically have involved the use of pins/amalgams, amalgam fillings mixed with glass ionomer cements, and a variety of composite core pastes. Each has had its applications, and has likely worked well in the hands of an operator accustomed to its respective procedural techniques.

The design of GC Fuji II™ LC Core Material, light-curable glass ionomer cement, is consistent with this history (Figure 1). The Fuji II™ LC Core Material features compatibility, strong chemical bonding to tooth structure, high strength and durability[1] excellent fluoride release, excellent radiopacity for diagnostic purposes, and a blue shade to easily distinguish the material from tooth structure.

A typical application would be for the restoration or core build-up of a tooth that has suffered significant loss of coronal tooth structure. In the case shown here, a tooth required significant build-up to provide a suitable foundation for the placement of a crown. Figure 2 shows a preoperative view with a Cavit® (3M ESPE) temporary previously placed by the patient's endodontist.

Procedure

The following procedure can be used in the build-up of a tooth for crown placement:

1. Eradicate decay.
2. Clean, dry, and isolate the tooth. As always, use of a rubber dam is preferred as the ideal means of isolation. In significant breakdown conditions, a matrix band is indicated to provide for core build-up (Figure 3). Apply GC Cavity Conditioner to the cavity for 10 seconds and rinse the area thoroughly with water and dry without desiccating. In the author's experience, the application of the GC Cavity Conditioner improves the adhesive strength of the Fuji II™ LC Core material.
3. Dispense powder and liquid. According to the manufacturer, the standard powder-to-liquid ratio is 3.6 g/1 g. This consistency can be delivered with one level spoonful of powder and two drops of the liquid.
4. The specified amounts of powder and liquid are placed onto a mixing pad and mixed in two separate increments. The first increment is mixed for approximately 10 seconds and the second increment is added and mixed for an additional 10 to 15 seconds, with the total mixing time not to exceed 20 to 25 seconds.
5. A C-R® Syringe (Centrix, Inc.) can be used for easy placement of the mixed material. The mixture is placed into the syringe tip and deposited into the area for build-up (Figure 4). Fuji II™ LC Core Material is mixed to a flowable consistency. The syringe tip should be slightly angled and worked in a back-and-forth motion, forcing the flowable material into the syringe tip. Once filled, a rubber stopper should be placed into the open end of the tip. The filled syringe tip can then be placed into the syringe. The material is now ready for delivery to the designated and prepared areas.
6. If the area to be built up is large or deep (ie, exceeding 2 mm in depth), incremental light-curing should be implemented after each application. According to the manufacturer, the material should be light-cured for 20 seconds per every 1 mm of depth (Figure 5).
7. After light-curing, contour as necessary with a diamond bur under water spray.

Summary

The necessity of a core build-up usually indicates a tooth or teeth with a fairly traumatic history. Often, these teeth have been significantly altered through aggressive restorative dentistry, or have been endodontically treated. Preparation design many times requires subgingival invasion, particularly in the interproximal areas. The use of GC Fuji II™ LC Core Material, with its bluish color, provides for a nice contrast to natural tooth structure, thereby making the separation of restorative material and natural tooth easy to see—especially in these difficult-to-view areas (Figure 6). Its fluoride content and release, along with its strength and ability to be light-cured, play an important part in the dentist's armamentarium when patients require core build-up procedures—especially under cast and metal-ceramic restorations.

Reference

1. GC America,Inc.: *Fuji II™LC Core Material* [product insert]. Alsip, IL: GC America, Inc., 2001.

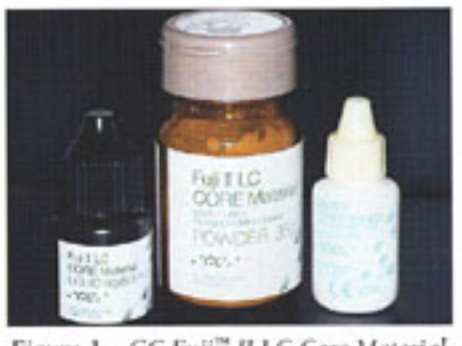

Figure 1—GC Fuji™ II LC Core Material.

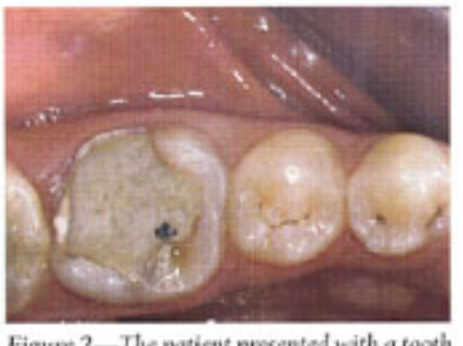

Figure 2—The patient presented with a tooth (shown with a temporary in place) that needed build-up for permanent crown placement.

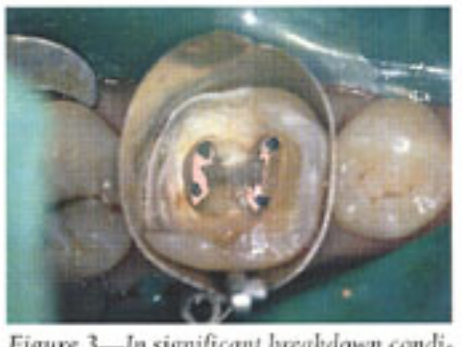

Figure 3—In significant breakdown conditions, a matrix band is indicated to provide for core build-up.

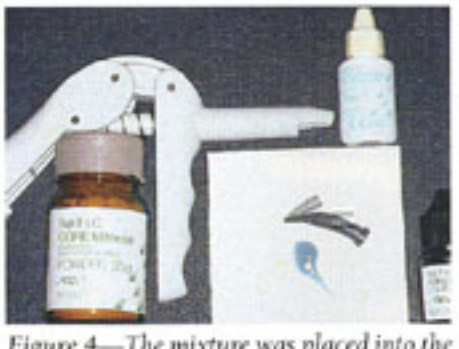

Figure 4—The mixture was placed into the syringe tip and deposited into the area for build-up.

Figure 5—If the area to be built up is large or deep (ie, exceeding 2 mm in depth), incremental curing should be implemented after each application.

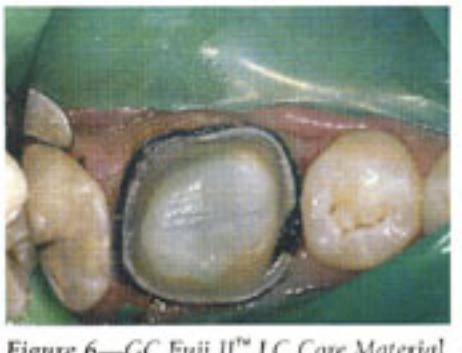

Figure 6—GC Fuji II™ LC Core Material, with its bluish color, provides for a nice contrast to natural tooth structure.