Clinical Tips: Demi™ Ultra and C.U.R.E™ Technology: (Curing Uniformity & Reduced Energy) what this brings versus competition?

By Kerr

C.U.R.E.™ Technology

1. COLLIMATION: collimated light is light with rays are parallel, and therefore will spread slowly as it propagates. The word is related to «collinear» and implies light that does not disperse with distance. A better collimation translates in more curing power and a less sensitivity to tip positioning.

2. DEPTH OF CURE: according to the JADA, %57 of all composite restorations are insufficiently cured (Fan et al, 2002). Demi Ultra, compared to other lights, guarantees, in addition to an optimal curing uniformity, the best depth of cure.

C.U.R.E.™ Technology

1. TIP TEMPERATURE: an increase of °5.5C can cause irreversible damages to pulp.

Thanks to its proprietary C.U.R.E. technology, Demi Ultra is able to maintain low temperatures avoiding any tissue damage.

Universal curing? Seems to be a compromise.

Light and quality of cure.

The photopolymerization process of dimethacrylate-based dental resins is a reaction triggered by free radicals, which are generated by irradiation of a light-sensitive initiator and open the double bond of methacrylate groups (C=C), generating a chain reaction.

The depth of cure can settle by playing on light intensity (or irradiance), wavelength and concentration and/or type of light initiators.

Curing Lights with violet LED to cure alternative photoinitiators provide non-uniform beam irra-

dance that leads to non-uniform cure. The power is distributed inefficiently and additional energy is needed to cure in depth. This unnecessary energy increases the heat and the risk of pulpal damages.

A non-uniform beam also penalizes the irradiance when increasing the tip distance as can be seen in the graph.

In dental composites, the most commonly used photoinitiator system is a combination of camphorquinone and tertiary amines (CQ/Amine). Other materials are blends of CQ and other photoinitiators.

DON’T CHANGE BATTERIES, CHANGE CURING LIGHTS!

The Kerr Demi™ Ultra LED Ultracapacitor Curing Light System represents the latest technological advancement in dental curing from the Kerr Demi brand. It is the first curing light to free dentists from both batteries and cords, while offering the unmatched performance and reliability of a Demetron curing light.

The Demi Ultra is powered by the revolutionary U40-™ Ultracapacitor – exclusive technology that re-energizes to full power in just 40 seconds, for incomparable convenience. Proprietary C.U.R.E. Technology™ allows the Demi Ultra to rapidly deliver a uniform depth of cure with industry leading low temperatures, and the Easy Suite feature set combines simple and intuitive operation with worry-free cleaning.

A new after sales service gives you the peace of mind to know your investment and budget are protected from the hassles of unexpected repair expenses.

Demi Ultra is a quantum leap in curing light technology!

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Order information:

Demi™ Ultra LED Ultracapacitor Curing Light System

Item nr 35644
Contains: 1 x handpiece, 1 x 8 mm light attachment, 1 x charging dock with radiometer, 1 x power supply, 1 x protective light shield, 1 x hardness disk kit, 1 x 5 pack disposable barrier bag, 1 x IFU

Accessories

Item nr 35665 – Demi Ultra LED Light Attachment 8mm
Item nr 35666 – Demi Ultra Charging dock with built-in radiometer
Item nr 35667 – Demi Ultra Handpiece
Item nr 35668 – Demi Ultra Light Shield
Item nr 35815 – Demi Ultra Power Supply
Item nr 35837 – Disposable Hardness Disk Kit (pack of 1)
Item nr 21042 – Optics Maintenance Kit
Item nr PEDEMIULTRA100 – Demi Ultra Barrier Bag (pack of 100)

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NO BATTERY, NO CORD, NO EQUAL

✓ REVOLUTIONARY U40-™ ULTRACAPACITOR
✓ PROPRIETARY C.U.R.E.™ TECHNOLOGY
✓ EASY SUITE FEATURE SET
✓ AFTER SALES SERVICE

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Effect of Light Emissivity Angle on Power Delivery Curve

As the angle decreased from perpendicular, there’s a significant drop in intensity which results in a slight decrease in depth of cure. Demi Ultra, thanks to its 90° angle makes easy the access to the posterior area and the curing phase more comfortable for the patient.
Moreover recent works reports that single diode blue LED light achieve similar degrees of polymerization than broadband (multiple diode) LED and halogen lights, just increasing the curing time when curing clear and white composite shades.

Light guide tip positioning!

The adequate positioning of the light guide tip/attachment can significantly affect the energy received by the RBC, and thereby the quality of its polymerization.

The light should be stabilized during the irradiation procedure.

As the irradiance decreases with the increase of the distance between tip and restoration, the position of the light guide should be perpendicular to the tooth and positioned on the proxim-ity of the tooth surface being restored.

Intensity and depth of cure decreases as the position of the light moves from the perpendicular.

It will be necessary to increase the cure time and/or cure from multiple directions if optimum positioning cannot be obtained.

The European University College hosts its official graduation ceremony

By European University College

The European University College (EUC), held its official graduation ceremony on February 22nd at the Fairmont the Palm Jumeirah in Dubai.

45 dental specialists were graduated during the event and earned their Master Degree certificates in Orthodontics and Pediatric Dentistry, Diploma in Advanced Education in General Dentistry, and High Diploma in Oral Implantology. A total of 55 guests of honor attended the ceremony including: Dr. Aisha Sultan, President of the Emirates Dental Association and Head of the Dental Department at the UAE Ministry of Health, Dr. Amer Shu- rif, Managing Director of the Education division of DHC; Dr. Leila Al Hahashi, Head of Pediatric Dentistry Unit at the Dubai Health Authority, Dr. Khaled Al Maqbool, Head of Pediatric Dentistry Unit at the Abu Dhabi Health Authority, and Dr. Hasna Al Saeed, Head of the Orthodontics Unit at the Dubai Health Authority.

The EUC is the first postgraduate dental institution to offer international training programs in the UAE and MENA Region. EUC’s international and “Western-trained” faculty come from reputed Universities and Research Centers based in the USA, Sweden, England, France, and the UAE. Staff selection criteria is based upon their prowess as teachers, clinicians, and researchers are all well known worldwide.

Since the launch of the EUC, the university has run an extensive range of postgraduate programs across a wide range of dental specialties. These high quality educational programs include the latest research and use innovative approaches to learning. There are currently international residents from Asia, Europe and the Middle East. The students have to meet rigorous theoretical, clinical and research requirements in order to meet international educational requirements and patient care standards.

Professor Donald Ferguson, Dean of the EUC, expressed: “I am very proud and happy to see young professionals achieve the goals of academic and clinical education, and successfully present and defend a Master degree thesis, and assemble records that thoughtfully explain the forensics of patient care. They behave ethically, act responsibly and eye the world with standards of excellence.”

The EUC has been instrumental in enhancing the clinical capacity of its graduates. The university offers state-of-the-art services, latest trends and treatment philosophies, and uniquely handles highly complicated dental cases within the UAE.

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