

THE DENTAL ADVISOR™

Improving Patient Care Through Research & Education



LED Curing Lights – Evolving at the Speed of Light

Light-curing units were introduced into the dental profession in the early 1980s and have since become an essential component of dental operatory armamentarium. Today, curing lights are utilized in nearly all direct and indirect restorations, and they may be found in most dental facilities throughout the world. While the desired outcome of curing lights has remained the same (to polymerize restorations and resin cements), the units have evolved over the past 30 years. Clinicians may choose a curing light with merely “the basics” or one with technological advantages. Not all options are mandatory for the curing process, and costs will vary depending upon the quality and added features. Ultimately, the choice should be based upon the needs of the dental practice and the parameters of the curing light.

In this issue of THE DENTAL ADVISOR, Drs. Marie Fluent and Brent Kolb report on the characteristics of LED light-curing units, and address common questions. Products rated highly by our consultants are recommended.

April 2012

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RATINGS:

Excellent + + + + +
Very Good + + + +
Good + + +

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From the Desk of Dr. Bunek, Editor-in-Chief



As a practicing Dentist, I rely on my equipment to work effectively, efficiently, and consistently. With light curing units being one the most used devices in dental offices today, ergonomics play an important role. Ideally, the curing light I reach for most often will be cordless, provide a lightweight balanced grip, buttons for activation within easy reach, and have intuitive programs that match the restorative materials being used.

With the increase in popularity of Bulk Fill Composites, factors such as depth of cure, intensity of light, and speed of cure have become critical factors. However, there is concern that the higher heat output can be harmful to the pulp. To address this issue, our Biomaterials Research Center looked at the heat produced by multiple High-intensity LED Light-curing units <http://www.dentaladvisor.com/publications/translating-the-science/high-intensity-led-light-curing-units-the-heat-they-produce.pdf>.

It is important to note that even the best curing lights on the market can indirectly contribute to the poor performance of a final restoration. If the resin material being used is insufficiently cured, the long-term success of the material is compromised. Unfortunately, once placed in vivo and cured, there is no way to test the resin to see if it is fully polymerized because even an inadequately cured resin will provide a hard top surface. What really matters is the extent of the cure at the bottom surface of the composite. Therefore, it is imperative to not only use a light curing unit that has proven to be clinically superior but more so to follow proper light curing guidelines to ensure a sufficient cure. The key is proper technique during polymerization outweighs all other factors.

LED Curing Lights – Evolving at the Speed of Light

Desirable Properties: LED curing lights

Compatible with
variety of initiators
(3rd-generation)

1

Light tip 8-10 mm in
diameter and probe long
enough (> 7cm) to reach
posterior surfaces

2

Battery holds a charge
for several hours of use -
extra battery provided

3

Good ergonomics –
portable, lightweight, and
easily accessible controls

4

Digital readout clearly
displayed and sensor to
indicate low battery

5

Stable docking
station/stand

6

Built-in radiometer

7

Easy to disinfect with
autoclavable light tip
or protective barrier

8

Questions and Answers

What are the basic requirements for a LED curing light?

Q&A

Dr. Kolb

A basic light-curing unit has a broad tip (8 to 10 mm in diameter) such that an entire restoration may be cured without having to move the wand. The tip is long enough to reach posterior surfaces (7 cm or longer), is compatible with all types of composites and resin-modified glass ionomers (compatible with a variety of initiators) and produces minimal heat. LED curing lights are the standard for most clinicians today. They are easy to use; compact; lightweight; cordless; and have long lasting, rechargeable batteries. Some of the more powerful LED lights can even save time with cure times in the 3-5 second range. Of course, you should always consult the manufacturer's recommendations for appropriate cure times and be certain the dental materials you are using are compatible with your light.

Tell us about the new high-intensity lights that provide a much shorter curing time.

Dr. Kolb

The reason LED lights provide a shorter curing time is due to their ability to focus more intense light at peak wavelengths. The older quartz-tungsten-halogen (QTH) lights have a much broader spectrum, emitting continuous radiation from 390-510 nm. Most modern materials, however, use camphorquinone (CQ) as the photo-initiator, which has an absorption range of 425-490 nm. Thus contemporary LEDs emit more radiation in that range and are more efficient. This means a shorter curing time for the clinician. **FlashMax P3** (CMS Dental), for example, is a high-intensity light with an output of 5,000 6,000 mW/cm².

Why is “minimal heat” a desired quality? How much is too much?

Dr. Fluent

Higher temperatures can cause pulpal irritation and may affect patient comfort and tooth vitality. Too much heat is generated if a finger cannot be comfortably held 2-3 mm from a curing light tip for 10 seconds. This is more of an issue as higher intensity lights become available. Some of the less expensive lights heat up quickly and can easily traumatize soft and hard oral tissues. For some specifics on average temperature changes in the tooth pulp as well as on soft tissues, please go online to read Translating the Science, No. 4, September, 2009: High-intensity LED Light-curing Units - The Heat They Produce. (<http://www.dentaladvisor.com/publications/translating-the-science/high-intensity-led-light-curing-units-the-heat-they-produce.pdf>)

“Too much heat is generated if a finger cannot be comfortably held 2-3 mm from a curing light tip for 10 seconds.”

Explain the importance of the battery in a light-curing unit.

Dr. Fluent

The ideal dental curing light is portable and battery operated. Batteries should be rechargeable, hold their charge for several hours of use, and have no “memory.” Lithium-ion or lithium-polymer batteries are now considered the battery of choice. The **Demi Plus** (Kerr Corp.) has a lithium-ion battery can yield 300, 10-second cures with a single charge. Additionally, an ideal curing-light should have a sensor to indicate a low battery charge and an extra battery should be provided.

Explain the ergonomics of a dental curing light.

Dr. Kolb

LED curing lights come in a variety of handheld options. From the smallest, most slim “pen grip” lights to the larger, yet still comfortable “pistol grip” lights, there is bound to be a light that’s right for you. Many consultants who prefer a pen-grip light have rated **FUSION** (DentLight, Inc.) highly due to its light weight and easy accessibility to hard to reach areas. Consultants that prefer a pistol-grip light have recommended the **Bluephase G2** (Ivoclar Vivadent) light, finding it more comfortable due to the balanced weight distribution. A newer light on the market, **Demi Plus** (Kerr Corp.), is a hybrid between a pen-style and a pistol-grip light, allowing the operator multiple holding options. Popular ergonomic features are: ability to access all teeth (without straining your body), a tip that swivels, the shape of the handle, and position of on/off buttons.

What are some new features that clinicians may see in curing lights?

Dr. Kolb

Since dentistry is becoming a resin world, more and more lights are offering multiple curing time features. A lot of dental cements now have a “tack cure” phase, where they need to be exposed to LED light for 1 second for optimal cleanup. In addition, some clinicians like to “tack cure” their veneers for easier cement cleanup of resin cements. Therefore, some lights now have multiple time options of 1, 3, 5, 10, or 20 seconds. **Paradigm** and **Elipar S10** (3M ESPE) actually have a setting for 120 seconds when curing an entire arch without having to repress the on/off button. One drawback of LED lights is that amount of heat they produce at the tip. Older LED lights had fans that cooled them and others simply shut off when they “overheated.” Many newer LED lights now have metal heat sinks that draw the heat away from the tip. This additional weight actually makes the instrument feel more balanced in your hand.

“A lot of dental cements now have a ‘tack cure’ phase, where they need to be exposed to LED light for 1 second for optimal cleanup.”

Dr. Fluent

Some new units generate light energy at more than one wavelength. This is a nice feature since not all dental materials use CQ (470 nm) as their photo initiators. So if the light can still boast a fast cure time (less than 20 seconds) and cure other photo initiators in the low to mid nm range in addition to CQ, then it is a win-win.

How important is a built-in radiometer?

Dr. Kolb

Not a high priority, but it is important to note that LED lights typically have reduced light output with prolonged use. Therefore, it is essential to implement a system for periodically evaluating the performance of your LED lights with a radiometer. Radiometers (if not included with your light) can be purchased separately and are inexpensive. Consult the manufacturer's recommendations for appropriate light output for your light.

Explain how one determines polymerization times for specific dental materials and curing lights.

Dr. Fluent

With composites, the type, shade, translucency and depth of composite are determining factors. Typical curing times with a LED light may vary from 10 to 20 seconds for a 2 mm thick restoration. Bulk fill composites are more translucent and may allow 4 or more mm increments to be cured within 20 seconds. Also, high-intensity lights allow for much shorter curing times (3 seconds for a 2 mm increment). However, it is recommended to consult the manufacturer's instructions of both the dental materials and the curing light for specific curing times.

What safety instructions must be followed in the use of dental curing lights?

Dr. Fluent

Eye protection is required for all clinicians and the patient to prevent irradiation to the eyes. Appropriate protection may include the use of shields, coverings, or eyewear to remove blue light. Avoid exposure of soft tissues (lip, tongue, cheek or gingiva) as high temperatures may cause tissue irritation or damage. It is recommended to consult manufacturer's instructions for specific safety instructions.

How is a dental curing light disinfected?

Dr. Fluent

It is recommended that clinicians consult the manufacturer for disinfection instructions of their curing light. The light tip should be autoclavable or have a protective barrier applied. *FlashMax P3* (CMS Dental) includes disposable removable covers and tips that are adjustable. The body of the curing unit should be easy to disinfect using an intermediate level surface disinfectant, while being resistant to discoloration and staining from the disinfectant used. Some light-curing units (*Elipar S10*, 3M ESPE) are seamless, vent-free and made of stainless steel for easy disinfection.

What is one of the most common errors when using a curing light?

Failure to cure the material thoroughly. As long as you are not overheating the tooth, you cannot over-cure a restoration, but you can certainly under-cure a restoration. For optimal results, the tip should be perpendicular to the surface being cured and within 1 mm (but not touching) that surface. For each degree from perpendicular and each mm away from the restoration, curing efficiency decreases significantly. So, when in doubt, cure it again.

Keep in mind that composites that are not fully cured may exhibit:



- Decreased Physical Properties
- Increased Post-op Sensitivity
- Decreased Bond Strength
- Excessive Wear
- Marginal Leakage

Clinical Tips

- Minimize heat by having the assistant direct a stream of air or a high-volume vacuum over the tooth crown during light curing.
- To increase the battery life of a LED light with lithium-ion battery, place the light back on the charging base after every use.
- Minimize direct exposure to light sources by use of effective “blue-blocking” eyeglasses or shields for the clinician and the patient.
- Determine the loss of beam intensity with distance by holding the light guide at different distances from a dental curing radiometer. Curing potential of a restorative material is dependent on total energy received. Determine power at tip end, multiply that by the recommended exposure duration – the product is the light energy intensity delivered. When moving the tip away, measure that power level and divide it into the light energy intensity calculated above. The result will be the exposure duration needed to account for power loss with increasing distance.
- Evaluate heat dissipation of a light-curing unit by applying the longest sequence of typical exposure durations used in practice and determine if the unit shuts off or if heat greatly decreases during that time.
- Periodically evaluate the output of a light-curing unit with a radiometer to detect changes in intensity.
- Clean dust from battery contact regularly.

LED Light-curing Units

Product	Company	Weight, oz	Light Intensity, mW/cm ²	Spectra Wavelength, nm	Rating
3M ESPE Elipar S10 LED Curing Light	3M ESPE	8.8	1250	430-480	97%
Allegro LED	Den-Mat Holdings, LLC	12	1610	452	95%
bluephase G2	Ivoclar Vivadent	9	1200	380-515	98%
Celalux 2	VOCO America	5.6	1000, 1500 with optional power light guide	420-490	93%
Coltolux LED	Coltene/Whaledent	2.2	979	465	95%
D-LUX	Diadent Group International		1600		ce
Demi Plus LED Light Curing System	Kerr Corporation		1330	450-470	96%
FlashMax P3	CMS Dental	4.2	5000	450-470	86%
FUSION	DentLight	3.9	2000	385-490	93%
i-Light	DENT'N Co.	8.1	1900	380-490	86%
Paradigm LED	3M ESPE		1200	430-480	ce
radii plus	SDI (North America) Inc.	6.2	1500	460	93%
the CURE	Spring Health Products	1.5	1379	458	96%

About the Authors



Marie T. Fluent, DDS

is a graduate of the University of Michigan, School of Dentistry. She has enjoyed more than 20 years of dental practice in Virginia, Maryland and Michigan and is currently

in private practice in the greater Ann Arbor community. Dr. Fluent is an Adjunct Clinical Lecturer for the University of Michigan and a faculty member and a clinical instructor in the Dental Assisting Program at Washtenaw Community College. Dr. Fluent is an assistant editor for THE DENTAL ADVISOR and lectures and presents hands-on workshops, on the topics of dental materials and infection control in the dental office.



Brent Kolb, DDS

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Mathematics. Dr. Kolb is a 2003 graduate of The Ohio State University College of Dentistry. In June 2004, he completed one year of advanced training in general dentistry at The University of Michigan. Dr. Kolb is a proud member of The Michigan Dental Association, the American Dental Association, the Academy of General Dentistry and the American Academy of Cosmetic Dentistry. He has been with THE DENTAL ADVISOR since 2007 as an Assistant Editor and contributing author.

GrandioSO

VOCO America, Inc.

(888) 658-2584 | www.vocoamerica.com

Description

GrandioSO is a light-curing, radiopaque nano-hybrid composite. It is indicated for Class I-V restorations, cosmetic restorations, splinting of loose teeth, repairing veneers, restoration of primary teeth, core build-ups, and composite inlays.

GrandioSO is available in shades A1, A2, A3, VC A3.25, A3.5, A4, VC A5, B1, B2, B3, C2, D3 OA1, OA2, OA3.5, and Bleach (BL) in syringes and single dose capsules. The composite is compatible with all light-cured bonding agents. Curing times vary with shade selection. The kit evaluated contains 80, 0.25 g caps, 16 each in shades A1, A2, A3, A3.5 and B1; shade guide; product literature; manufacturer instructions; and MSDS. **GrandioSO** was evaluated by 31 consultants in 1054 uses. It received a 96% clinical rating.

Suggested Retail Cost

80-count 0.25g Caps Kit	\$258.00
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5-count 4g Syringes	\$258.00
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Product Features

GrandioSO composite is easy to dispense and place. It has a viscosity that is heavy enough to be packable and is suitable for both anterior and posterior restorations. Shade matching and final esthetics are very good. The opacity of the cured composite is beneficial for masking stained dentin, yet blends well with the surrounding enamel. Shade A3.25 was useful for the cases in which a patient's shade was between A3 and A3.5. The quality of the final polish was rated excellent. Fifty-five percent of consultants reported that **GrandioSO** was better than their current universal resin composite and 35% reported that it was equivalent. Eighty-one percent would switch to **GrandioSO** and 90% would recommend it. ■

MatrixTemp

Advantage Dental Products, Inc.

(800) 388-6319, (248) 391-1625 | www.advantagedentalinc.com

Description

MatrixTemp is a self-cured resin composite designed for the fabrication of temporary crowns and bridges. It is a 1:1 cartridge system and fits the standard dispensing gun. **MatrixTemp** has a working time of 30-40 seconds and a setting time of approximately 5 minutes from start of mix. After 90 seconds it can be removed from the mouth; an additional three minutes is required for full set. It is available in three shades (A1/B1, A2 and A3) and is fluorescent. Suggested matrix materials are thermoplastic "buttons" or polysiloxane or alginate impression material. The manufacturer claims it has an extended rubber phase that allows removal from undercuts, low polymerization shrinkage, and excellent polishability. The kit contains one 50-mL cartridge with 10 mixing tips. **MatrixTemp** was evaluated by 21 consultants in 443 uses. It received an 83% clinical rating.

Suggested Retail Cost

\$89.95/Kit

Product Features

Consultants reported that **MatrixTemp** was strong and had a good shade match. The high viscosity of the material makes it difficult to extrude through the mixing tip, and firm pressure must be placed on the matrix to ensure complete seating over the teeth. The rubbery phase allows easy removal from the prepared teeth, but residual material sticks to the adjacent teeth. Fit of the temporary restoration and strength were rated good. The sticky oxygen-inhibited layer must be removed before cementation. Twenty-four percent of consultants reported that the **MatrixTemp** was better than

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Consultants' Comments

- "Easy to dispense and place."
- "Good radiopacity."
- "The material has an excellent, non-sticky consistency."
- "Heavy viscosity packs and sculpts well."
- "Good shade match and final esthetics."
- "I prefer a more translucent body shade."
- "The unit-dose capsule has a wide tip."
- "Make the packaging sturdier."

+++ 1/2

Consultants' Comments

- "Good resistance to fracture."
- "Easy to remove from undercuts during rubbery phase – didn't lock on teeth."
- "Difficult to dispense – viscous and sticky."
- "Polished surface lacks shine."
- "I would like more shades."
- "Provide illustrated instructions."

their current provisional material and 10% reported it was equivalent. Twenty-nine percent would switch to the **MatrixTemp** and 38% would recommend it.

Clinical Tips

- Before cementation, wipe the oxygen-inhibited layer off the surface with alcohol.
- MatrixTemp** is intended for short-term (30 days) temporization. ■

ET 3000 Composite Manipulation Instrument

+++ 1/2

Brasseler USA

(800) 841-4522 | www.brasselerusa.com

Description

The **ET 3000 Composite Manipulation Instrument** is lightweight, cordless and rechargeable. It utilizes a variety of removable instrument tips with an oscillating motion which is designed to enhance the placement and manipulation of composite materials, sealants and resin cements. The recommended uses for the **ET 3000** include all classes of composite resin restorations and the agitation of pit and fissure sealants to facilitate complete flow into pits/fissures with minimal air entrapment. The manufacturer states that the lithium-ion battery contained in the **ET 3000** can be charged over 500 times before it is exhausted. The battery is not replaceable; when it is exhausted, the **ET 3000** will no longer function. It can be run continuously, for several hours, on a fully charged battery. The **ET 3000** can be wiped with disinfectant, and the tips can be autoclaved. The system includes **ET 3000**, charging cradle, AC adapter, TINC1 Tip, storage case, and manufacturer's instructions. TIN tips are sold separately. **ET 3000** was evaluated by 11 consultants in 210 uses. It received an 83% clinical rating.

Suggested Retail Cost

Complete Starter Kit: \$549.00

Equipment Features

Consultants found that the **ET 3000** was useful during the placement of pit and fissure sealants. The motion of the tip created movement of the sealant into grooves while eliminating bubbles in the material. Consultants were able to adapt composite to cavosurface margins and define anatomy using the instrument. A light touch must be used during composite placement to prevent the tip from burrowing too deeply into the material. Composite did not stick to the instrument tips. The position of the control is inconvenient and the unit is fairly loud when in operation. Thirty-six percent of consultants reported that the **ET 3000** was better than their current composite placement instrument and 27% reported it was equivalent. Twenty-seven percent would switch to the **ET 3000** and 46% would recommend it.



Consultants' Comments

"It did a very nice job in eliminating voids and adapting the composite to the cavosurface margins."

"Composite doesn't stick to instrument."

"I was able to define anatomy with different tips."

"Somewhat cumbersome due to size."

"Many of the tips did not seem useful."

"Would be better if the user could control the frequency/speed of the movement."

Clinical Tips

- Works well for placement of high-viscosity composites.
- Hand wipe and autoclave the tips; do not place tips in an ultrasonic cleaner. ■

Uni-Grip 360

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DENTSPLY Rinn

(800) 323-0970 | www.rinncorp.com

Description

Uni-Grip 360 is a disposable, universal holder for digital x-ray sensors. **Uni-Grip 360** has four adhesive-backed arms that wrap securely around the sensor, and a bite-tab that can be slid and rotated for positioning bitewing and anterior and posterior periapical images. The **Uni-Grip 360** bite-tab can rotate anywhere on the base and can be reinserted if it becomes separated from the base. It is designed to extend past the edge of the base for a wide range of positioning options. **Uni-Grip 360** may be used with the autoclavable Uni-Grip AR positioning arm and ring, available separately. Each box contains 50 **Uni-Grip 360** disposable holders and 50 universal sensor barriers. **Uni-Grip 360** was evaluated by 26 consultants in 697 uses. It received a 90% clinical rating.

Suggested Retail Cost

Box of 100 with sensor covers (includes autoclavable arm and ring) \$125.99

Box of 50 with sensor covers (no arm and ring) \$ 59.99

Product Features

Nearly all of the consultants liked the use of **Uni-Grip 360** for smaller mouths. It wraps tightly to the sensor, minimizing the bulk that many other holders have. Because it is placed on the sensor once and then oriented for different areas of the

Consultants' Comments

"Awesome for posterior x-rays in patients with small mouths."

"I liked that a full-mouth series could be taken with just one sensor holder and ring."

"You can adjust the tab up and down, especially on the anteriors - reduced cone-cutting the incisal edges."

"Add a notch or dimple to lock the bite tab into place."

mouth, it can significantly reduce the time necessary to take a full-mouth series of x-rays. Some consultants thought the design could be improved by shortening the bite-tab and making the plastic barrier larger. Thirty-eight percent of consultants reported that **Uni-Grip 360** was better than their current digital x-ray sensor holder and 27% reported it was equivalent. Sixty-two percent would switch to **Uni-Grip 360** and 69% would recommend it.

Clinical Tip

- When using **Uni-Grip 360** for posterior periapicals, slide tab as far down as possible. ■

FlashMax P3

CMS Dental
(800) 392-1171 | www.cmsdental.com

Description

FlashMax P3 is a high-intensity LED curing light for the polymerization of dental materials. The light output is significantly higher than most other lights at 5,000-6,000 mW/cm². **FlashMax P3** features time selections of 1 or 3 seconds and three program modes with corresponding lights to indicate program settings. It also features a temperature safety cut off and battery power saving mode. The light must be used with the disposable covers and tips included. The cover is a rigid sleeve that accepts either a 4 mm or an 8 mm curing tip. The tip snaps into the sleeve and can be moved 15° in the longitudinal direction. **FlashMax P3** requires two hours for recharging and a full charge lasts for approximately 500 seconds of use. The unit evaluated included the **FlashMax P3**, docking station/charger, power supply, 20 disposable covers, and 10 each of the 8 mm and 4 mm disposable tips. **FlashMax P3** was evaluated by 16 consultants in 642 uses. **FlashMax P3** received an 86% clinical rating.

Suggested Retail Cost \$ 1,295.00

Equipment Features

Handpiece Design/Ergonomics/Accessibility

FlashMax P3 is an angled, pen-style curing light that is very lightweight. The light can be held comfortably; buttons on both the trigger position and the topside of the unit allow for alternate hand positioning. The activation buttons could be more raised, and users would like a definite distinction between the one-second and three-second buttons. Since the tip does not swivel, the entire unit must be rotated to align over the tooth.

Curing Time

The high output of **FlashMax P3** allows a very fast cure, which was the most appreciated feature of this light, according to the consultants who evaluated it. Many consultants "bench tested" **FlashMax P3** with their composite before using it on patients, but they would like to see more independent studies that show complete curing in this short period of time.

Patient Comfort

Some heat is generated even during a short curing cycle, and consultants noted the importance of keeping the light off of the soft tissue to prevent discomfort or injury to the patient.

LUV Nitrile

Cranberry USA
(888) 811-6839, (707) 553-6190 | www.cranberryusa.com

Description

LUV Nitrile powder-free exam gloves are formulated with NuSoft™ formulation for softness and comfort. They are coated with lanolin and vitamin E to minimize dry skin irritation. **LUV Nitrile** gloves come in a tangerine color with a light tangerine-mint scent and are packaged in a 200-count Space Saver Pack to maximize storage space and efficiency. The available sizes are XS, S, M and L. **LUV Nitrile** gloves were evaluated by 37 consultants in 2082 uses. These gloves received a 93% clinical rating.

Suggested Retail Cost \$17.95/200-count box

Product Features

Most consultants reported that **LUV Nitrile** were easy to put on and had an excellent fit. The gloves feel light and thin, providing a very good tactile sense. The gloves feel soft on the skin, although some consultants reported that a residue was left on

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Consultants' Comments

- "Saves time. Even our patients noticed."
- "Seems to cure materials very well."
- "Light is intense enough to cure through zirconia crowns."
- "Quiet during use, but the beeps are loud."
- "Inability to rotate the tip hindered access."
- "Disposable tips are not necessary."

Versatility

FlashMax P3 effectively cured all of the restorative materials used during the evaluation period. This light is too intense for "tack curing" of resin cements (comments from manufacturer: special tacking tip available), and the heat prevented some consultants from using it to cure Class V restorations. The speed makes it ideal for use on pediatric patients.

Docking Station/Battery

The docking station provides a stable base for charging and storage of **FlashMax P3**. The magnetic grip in the dock grabs the light and holds it upright. Initial charging time is two hours, and the battery held its charge between uses.

Disinfection/Disposable Tips

The disposable sleeves and tips rated poorly; consultants found them to be hard to place, bulky, and wasteful. A light guide that could be wiped with disinfectant or covered by a barrier would be preferred.

Summary

62% of consultants found **FlashMax P3** to be equivalent to or better than their current LED light-curing unit. 31% would switch to **FlashMax P3**, and 56% would recommend it to a colleague.

Clinical Tips

- Because the curing time is so short, position the light tip exactly where needed before activation.
- Use the recommended curing times to prevent overheating the tooth. ■

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Consultants' Comments

- "Gloves were easy to put on."
- "Excellent tactile sense and fit – soft to my skin."
- "The fit and size were better than other gloves - no pressure on my hands or fingers."
- "I loved the color and scent."
- "Staff would prefer a selection of colors."



their hands. Most consultants liked the color and scent, but some consultants would prefer a selection of colors. Forty-six percent of consultants reported that the **LUV Nitrile Powder Free Exam Gloves** were better than their current exam gloves and 32% reported they were equivalent. Sixty-eight percent would switch to the **LUV Nitrile Powder Free Exam Gloves** and 81% would recommend them. ■



LabPro

DentalEZ

(866) DTE-INFO, (610) 725-8004
www.dentalez.com

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Description

LabPro is a lightweight and compact, brushless laboratory handpiece system. It is available with foot or knee control and has a speed range of 1,000-50,000 rpm with a maximum torque of 8.7 Ncm. It features a brushless micro-motor and a dust-proof mechanism that blows the dust away from the working area. The system evaluated included the foot control unit, handpiece, handpiece stand, power cord, spanner wrench, L-spanner wrench, operator's manual, and product literature. **LabPro** was evaluated by three dental offices and three dental laboratories with 15 consultants in 3325 uses. It received a 93% clinical rating.

Equipment Features

Consultants reported that **LabPro** had smooth operation with noteworthy balance and torque. Operation of the foot control is sensitive - a small shift in the left/right lever produces a dramatic increase in speed. It is necessary to tap the control to disengage the motor when finished. The unit is so quiet that consultants reported that sometimes it was inadvertently left running. The optional knee control unit offers a digital display of speed, but the foot control unit does not. Forty-seven percent of consultants reported that the **LabPro** was better than their current laboratory handpiece and 47% reported it was equivalent. Seventy-three percent would switch to the **LabPro** and 80% would recommend it. ■

Consultants' Comments

"Very quiet operation – no vibration."

"Easy to adjust speed."

"This is by far the smoothest lab handpiece I have ever used."

"No control box on the bench top - saves space."

"Great balance and torque."

"I prefer a 'gas pedal' style foot control over the left/right lever."

Harmony Anterior and Posterior Trays

Ho Dental Company

(702) 430-9847, (866) 430-3718 | www.hodentalcompany.com

Description

Harmony Anterior and Posterior Trays are biodegradable, dual-arch impression trays that are derived from corn starch. The **Harmony Anterior Tray** comes with alignment sticks that attach to the tray for recording both vertical and horizontal facial planes. It can be used without the alignment sticks for single units; use of the alignment sticks is recommended for multiple units. The **Harmony Posterior Tray** has a 2.6 mm stainless steel bar across the back for rigidity. The Intro Pack contains 10 **Harmony Anterior** and 10 **Harmony Posterior Trays** as well as anterior alignment sticks. **Harmony Anterior and Posterior Trays** were evaluated by 37 consultants in 550 uses. They received a 93% clinical rating.

Suggested Retail Cost

\$19.95/Intro Pack

Product Features

Harmony Anterior and Posterior Trays are rigid, strong and stable in the mouth. The fit of both the anterior and posterior trays was excellent. Consultants appreciated the biodegradable feature of the trays. The posterior trays have adequate width, and the thin metal bar prevents impingement in the retromolar areas. Some consultants found the alignment sticks useful, while others found them difficult to stabilize. Fifty-four percent of consultants reported that the **Harmony Anterior and Posterior Trays** were better than their current impression trays and 27% reported they were equivalent. Sixty-eight percent would switch to the **Harmony Anterior and Posterior Trays** and 81% would recommend them.

Clinical Tip

- Practice placing the alignment sticks in an anterior tray. ■

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Consultants' Comments

"Biodegradable material is a welcome addition to the products we use."

"The trays are rigid and strong - the metal in the posterior tray prevented flexing."

"Fit well in patients' mouths."

"The midline finder is an excellent feature for anterior esthetic cases."

"The anterior trays were somewhat large, requiring the use of more impression material."

Tapmaster



Tapmaster Incorporated

(800) 791-8117 | www.tapmaster.ca

Description

Tapmaster is a hands-free faucet controller. **Tapmaster** offers either foot- or knee-activation options and uses water pressure in existing water lines as the method of activation. The product is convenient and easily installed and is reported by the manufacturer to provide water and energy savings. Because **Tapmaster** operates entirely by water pressure, there is no need for electricity or batteries to function. **Model 1750** - kick pedal activator - was evaluated. It features a stainless steel kick plate that activates momentarily when kicked or pressed horizontally and locks on when pressed on the upper angled face for continuous flow or manual override operation. The unit consists of two in-line flow control valves, pilot/actuator valve, kick plate, 6 feet of control tubing, accessories/hardware for installation, and installation instructions. **Tapmaster Model 1750** was evaluated by seven consultants in 1550 uses. It received an 86% clinical rating.

Suggested Retail Cost

\$345.00

Product Features

Consultants reported that **Tapmaster Model 1750** was easy to use and had smooth operation. Most consultants believe hands-free faucet controls save money and contribute to improved infection control. At the beginning of the work day, the water faucet is turned on to the desired flow. A simple toe tap then turns the water on and off. No leaks or water hammer were observed. Some consultants would like a wider kick plate to make activating/deactivating easier. Twenty-nine percent of consultants reported that the **Tapmaster Model 1750** was better than their current hands-free faucet controller and 57% reported it was equivalent. All consultants who evaluated the **Tapmaster Model 1750** would switch to it and recommend it.

Clinical Tips

- Keep the water faucet in the “on” position all day.
- A wrench is available to adjust the sensitivity of the kick plate. ■



Consultants' Comments

“Easy to use, smooth operation, minimal noise.”

“Probably will have cost savings due to less water use.”

“Less wiping of handles, and no re-gloving.”

“Activating/deactivating continuous flow is not so easy. Kick plate is a bit short in length.”

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