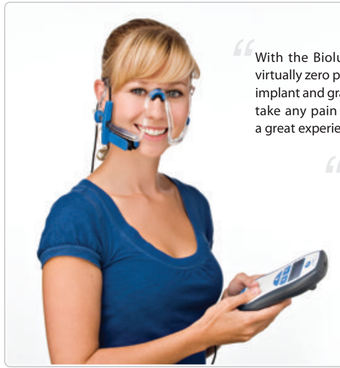


"With the Biolux OsseoPulse™ treatment I had virtually zero pain after the extensive extraction, implant and grafting procedure... I didn't need to take any pain relievers after the second day... a great experience."

"The penetrating warmth and sense of well-being that followed every session with the Biolux leaves me convinced of the role it played in the accelerated healing I enjoyed with its use."

OsseoPulse™ Bone Regeneration System is a clinically proven light treatment that speeds up the post-surgical healing process.

- **OsseoPulse™ uses light to stimulate tissues to heal at the cellular level.**
  It is non-invasive and easy to use.
- **With OsseoPulse™ you can get back to your normal activities much sooner.**
  Patients have reported that post-surgical discomfort is markedly reduced.
- **Its very light-weight, hands-free design is simple to use and is operated automatically.**
  Easily worn like a pair of glasses. It produces a warm, pleasant sensation.
- **OsseoPulse™ was designed for daily home treatments lasting only 20 minutes.**
  During your treatment you can read or continue to watch your favorite TV program.

PATIENTS REPORT:
Decreased need for medications
Decreased post-operative swelling
Decreased post-operative discomfort

DOCTORS REPORT:
Faster implant loading
Faster treatment and healing
Less potential for complications

"I have been utilizing the Biolux photbiomodulation therapy for the past three years and have documented close to 100 patients. For any case where there has been minimal stability of the dental implant at time of placement, utilizing the Osseopulse has almost guaranteed the integration of the dental implant and within a much shortened healing time. Patients, in turn, have reported a more favourable post-operative healing response with the device. Dentists who are involved with dental implants should be looking for any way possible to aid the natural healing process and ensure long term success of the treatment. The Osseopulse by Biolux will provide that."
- Ira Schecter DDS, Toronto, Ontario, Canada

"Faster healing of socket grafts with less pain, faster integration of dental implants, better treatment and service to my patients. Treating my patients with the OsseoPulse™ is now the standard of care in my practice."
- Sorin Boeriu DDS, Kitchener, Ontario, Canada

Clinical Benefits

- Shorten treatment times
- Earlier loading
- Minimize early failures due to loss of stability
- Directly accelerate regenerative process of bone
- Treat single or multiple sites with use of additional treatment array

Practice Management Benefits

- Increase your productivity
- Differentiate your implant practice
- Shorter treatment times can lead to increased case acceptance
- Compatible with your existing implant and grafting systems

For more information about OsseoPulse™, please visit our website www.bioluxresearch.com

BIOLUX
Accelerating Regeneration

Biolux Research Ltd
825 Powell St, Suite 230
Vancouver, BC, Canada, V6A 1H7

Phone +1 604.669.0674
Fax +1 604.608.5558

bioluxresearch.com

Canadian Medical Device Licence Information:

Licence Number: 76771
Licence Name: OsseoPulse System (Extra-Oral Phototherapy Device)
Device Class: 2
Components for this Licence:
- Controller Device ID 531614
- Headset Assembly Device ID 531615
- Power Supply Device ID 531616

ISO 13485:2003 FM 542554 IEC 60601 0086

CE Mark Information
Certificate Number: CE 542872
Classification: 2a

Distributed by:

Accelerate implant stability.
Load implants sooner.

OsseoPulse™
Extra-Oral Phototherapy Device

reddot design award
honourable mention 2010

BIOLUX
Accelerating Regeneration

Introducing the OsseoPulse™ Bone Regeneration System

Biolux's proven light treatment technology harnesses and accelerates the natural regenerative ability of osteoblasts and other cells involved in osseointegration.

- The treatment, following either of two clinically proven protocols, virtually eliminates implant instability in the early weeks after placement.
- A daily 21-day treatment, completed by the patient at home, demonstrates a decrease in time to load by an average of 58%[1].
- One pre-operative, in-office treatment and a daily 20-minute treatment completed by the patient at home reports no loss of implant stability[2].

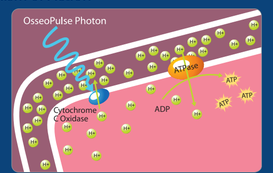
OsseoPulse™ treatment delivers energy directly to the wound and osteotomy to accelerate early wound healing and bone regeneration

- Cellular studies have shown that OsseoPulse™ treatment increases fibroblast and osteoblast proliferation compared to controls[3,4].
- OsseoPulse™ technology targets energetic photons to the traumatized and ischemic surgical site which is converted to chemical energy (ATP) in the mitochondria.

How Biolux Technology Works

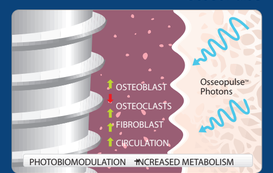
Mitochondrial Mechanism of Action

Wounded cells have decreased blood and nutrient supply leading to decreased "burning" (1), Proton pumping (2) and ATP production (3)

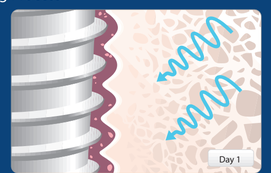


OsseoPulse™ photons stimulate Cytochrome c Oxidase to pump Protons-> Increased proton concentration ->Increased ATP production

OsseoPulse™ Implant Healing Process



The energy contained in OsseoPulse™ light is absorbed by the cell and converted to chemical energy (ATP)[5]



This increased ATP energy can be quickly used for healing tissues and bone around the implant, allowing for a shorter healing period

Typical Implant Healing Process

Implant/ Osteotomy wound

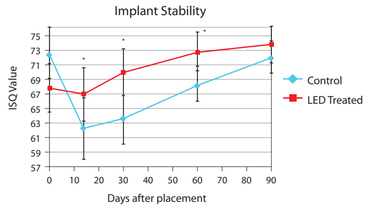
Typical tissue response with osteoclastic activity after placement causing implants to lose stability

OsseoPulse™ eliminates post-operative loss of implant stability most implants experience

Proven Clinical Results

Accelerated Implant Stability After LED Photobiomodulation.

Brawn P, Kwong-Hing A, Boeriu S and Clokie CM
J Dent Res 87(Spec Iss B):2021, 2008



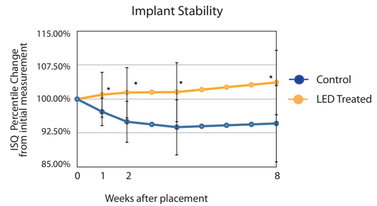
ISQ = Implant Stability Quotient

35 patients had 63 dental implants placed in either the maxilla or mandible. 23 patients had an OsseoPulse™ LED device (Biolux Reseasrch Ltd., Canada) positioned over the surgical site and utilized on a daily basis of 20 mW/cm2 for 20 min at a wavelength of 620±2 nm for 21 days.

All implants were tested for primary stability with an Osstell Mentor RFA device (Osstell AB, Sweden) at the time of implant placement, and at 14, 30, 60 and 90 days. Patients treated with the LED device demonstrated significantly ($p<0.05$) improved dental implant stability at day 14, 30 and 60.

The Effect of light emitting diode (LED) on the healing of endosseous intraoral implants.

Ghuloom M.
MS thesis. University of Toronto, Toronto, 2012. Print.



ISQ = Implant Stability Quotient

72 patients received 76 dental implants by a single operator. The treatment group (n=29) applied LED delivered by OsseoPulse™ device preoperatively for 20 minutes on the day of surgery, and for additional 10 daily sessions of 20 minutes each postoperatively starting the day of surgery.

There was a continuous decrease in ISQ value in the control group over the first 4 weeks following implant placement. This was followed by an increase at 8 weeks post-operatively. This ISQ decrease was not seen in the treatment group.

reddot design award
honourable mention 2010

The OsseoPulse™ AR300 Bone Regeneration System

- Comfortable headset, lightweight, low profile
- Soft nose and earpieces for individual comfort
- Flexible headset and array positioning to fit range of patients
- As easy to wear as glasses
- Handsfree operation during treatment
- Cable management incorporated into headset
- Supports up to 4 arrays for complex treatment plans

- Unique design for implant patients
- Warm, pleasant sensation during treatment
- Flexible positioning of treatment array anywhere on mouth
- Does not cover mouth or eyes - allows normal function

- Array floats to provide minimal contact pressure on contour of face

- Treatment array for 3 or 4 adjacent teeth
- Visible 620±2 nm (red) wavelength LED array
- Extra-oral, smooth design for skin contact
- Does not require eye protection

- Adjustable and easy to fit patient and treatment area
- Simple positioning with 3 screws by the dentist

1 Brawn P, Kwong-Hing A, Boeriu S and Clokie CM. Accelerated Implant Stability After LED Photobiomodulation. J Dent Res 87(Spec Iss B):2021, 2008
2 Ghuloom M. The Effect of light emitting diode (LED) on the healing of endosseous intraoral implants. MS thesis. University of Toronto, Toronto, 2012. Print.
3 Khadra M and Brawn P. Determining Optimal Dose of Light Emitting Diode Phototherapy for Proliferation of Human Oral Fibroblasts Biolux Research White Paper
4 Khadra M, Kasem N, and Brawn P. Phototherapy Promotes Attachment and Subsequent Proliferation of Human Osteoblast-Like Cells. J Dent Res 87(Spec Iss B):3308, 2008
5 JT Eells et al. Mitochondrial Signal Transduction in Accelerated Wound and Retinal Healing by Near-Infrared Light Therapy Mitochondrion 2004; 4:559–567