

SMARTLUX

HIGH INTENSITY PHOTOTHERAPY DEVICE



MEDMIX

Total Medical Solution
Company

MEDMIX CO.,LTD

Total Medical Solution Company

INTRODUCTION

HISTORY

GLOBAL CHAIN

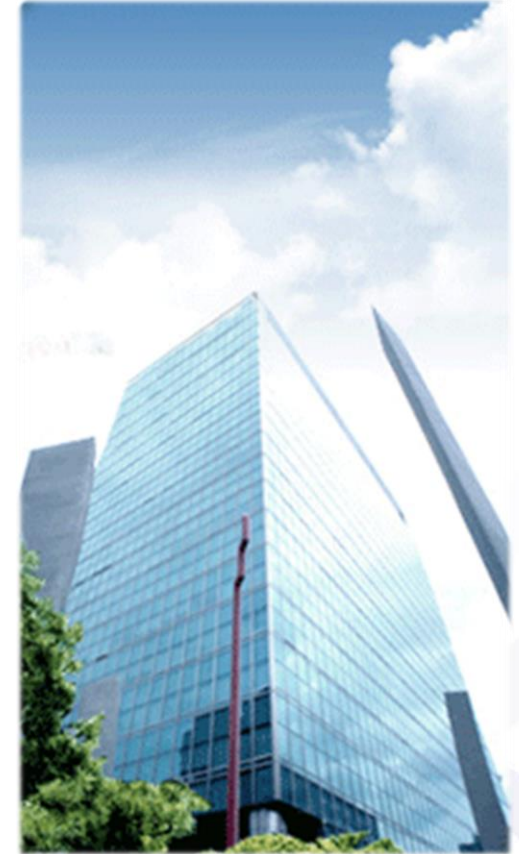
MEDIA



Established in 2009 by cooperating with a group of specialists and professionals in the medical field, MEDMIX is dedicated to provide the best solutions for our customers who want to have health and a beauty every day.

We ceaselessly invest in R&D and devote our times and passions to improve our performances for innovative and creative products yet sticking to the core values which are good quality, reasonable price, and easy & costless maintenance.

MEDMIX promises to do our best to contribute our society for safe, healthy, and beautiful life by providing brilliant and effective medical device solutions.



Establishment of MEDMIX

2009~2010

- Established Medmix Co.,Ltd
- Launched SMARTLUX
- Acquired KFDA, Medical CE, IS13485

2011~2012

Establishment of R&D Center

- Established R&D Center
- Venture Company Qualification
- Acquired FDA approval

2013~2014

Movement of Headquarters

- Move the head office to Songdo
- Won the Korea Export Award of Million Tower
- Launched SMARTLUX SLIM

2015~2016

Launching New Devices

- Acquired MHLW from Japanese Gov. for the first time in Korea
- Launched SMARTLUX MINI
- Launched SMART VIEWER
- Launched TRIPLE1470

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Total Medical Solution Company

INTRODUCTION

HISTORY

GLOBAL CHAIN

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North America

- United States of America

Europe

- Belgium
- Germany
- France
- Poland
- Czech
- Italy

Asia

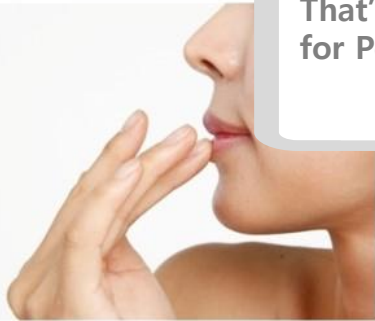
- China
- Japan
- Thailand
- Indonesia
- Malaysia

Oceania

- Australia

한경닷컴
Wstar news
연예 방송 음악 패션 뷰티 스타일

수술하면 끝? 성형 '후케어' 종결기기, 스마트룩스



“Essential Care after Plastic Surgery.
That’s SMARTLUX which is getting popular
for Post-Treatment.”

Han-Kyung, 2014

[라이프필] 차별화된 고객만족 서비스로 입소문이 난 JK 성형외과가 스마트룩스 기기를 도입해 눈길을 끈다.

미국 식약청 허가 FDA승인을 받았을 만큼 그 효과와 안정성을 입증받은 스마트룩스에는 의료용으로 사용되는 SLD칩도 적용돼 있다. 이는 피부 재생 및 피부관리 상처회복을 도와줘 후케어에 탁월한 효과를 보인다. 우수한 효과에 10분에서 20분 정도에 불과한 시술시간까지 어우러지며 스마트룩스는 많은 환자들의 회복을 효과적으로 돕고 있다.



▲ 스마트룩스 기기 시술장면

각종 성형수술 및 시술 후 스마트룩스 시술을 받으면 멍이나 붓기, 홍반, 통증에서 빠르게 회복되는 효과를 얻을 수 있다. 스마트룩스의 LED빛이 피부 진피층 및 피하층까지 침투해

Articles

“Significant Increase in the Population of
Plastic Surgery. Attention on Post-Care.”

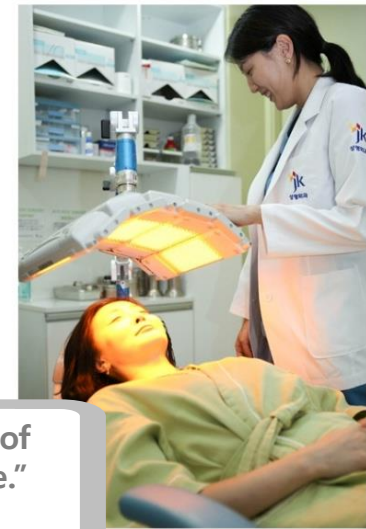
Weekly Korea, 2013

주간한국

커버스토리 | 시사 | 문화 | 라이프 | 스포츠 | **특집** | 이슈&피플

나날이 증가하는 성형인구, 수술 회복에도 신경 써야

입력시간 : 2013/12/03 16:53:00 수정시간 : 2013/12/03 16:53:00



겨울시즌에는 직진인분 아니라 수술을 마친 학생들의 성형수술 수요가 유독 증가한다. 외모가 경쟁력인 시대가 되면서 현대인들의 '외모 가구'에 대한 관심이 점점 높아지고 있기 때문이다.

지난 8월 한 취업 포털사이트에서 남녀직질인 1,474명을 대상으로 실시한 설문조사에 따르면 성형을 원한다고 답한 사람은 모두 970명이었다. 이는 전체 응답자의 65.8%를 차지할 정도로 높은 비율이다. 또한 별원마다 정도의 차이는 있었지만 추석기간이나 연말시즌에는 평소보다 20~50%이상의 환자가 몰리는 것으로 알려져 있다.

이렇게 성형수요가 나날이 증가하는 현실에는 성형기술의 발전과 보편화로 인해 성형수술에 대한 인식이 개방적으로 돌아선 이유도 한몫하고 있다.

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INTRODUCTION

HISTORY

GLOBAL CHAIN

MEDIA



"Most Powerful Phototherapy Device, SMARTLUX".

Medical Times, 2014



▲ 스마트룩스 FX

블모지의 다음이었다던 국내 광치료기기시장에 앞선 기술력을 선보이며 시장을 주도하고 있는 '메드믹스'(MEDMIX).

스마트룩스 FX 작동 기전을 살펴보면, 830nm과 635nm 파장은 상처 회복 첫 단계인 염증(Inflammation) 단계와 관련된 세포인 Mast Cell, Macrophage, Neutrophil에 직접 광활성(Photoactivation) 영향을 주고, 해당 세포 수를 증가시켜 초기에 염증 단계를 중요하게 만든다.

이중 635nm 파장은 두 번째 단계인 증식(Proliferation) 단계에 가장 큰 영향력을 미친다.

또한 585nm과 830nm 파장은 활성화에 영향을 미쳐 콜라겐과 엘라스틴을 합성하고, 진피 매트릭스를 재생하는 역할을 담당하는 섬유아세포(Fibroblast)를 촉진시킨다.

이밖에 830nm과 635nm 파장은 리모델링(Remodelling)을 담당하는 근막아세포(Myofibroblast) 활성화는 물론 표피형성과 관련된 각질형성세포(Keratinocyte)에도 영향을 준다.

스마트룩스 'DUAL'(SMARTLUX DUAL)은 특수 의료용 SLD칩을 적용한 구형구속 에미터를 위한 광치료기기.

기술성능은 수술 후 24~48시간 후면 시술 조직이 섬유화 된다.

이때 섬유화가 과도하게 진행되면 구형구속이 심하게 발생할 수 있어 수술 후 신속한 사후관리가 매우 중요하다.



▲ 스마트룩스 DUAL

시술 후 상처를 치료하기 위해 상처부위로 열량이 많이 공급되는 데, 이때 수술로 인해 주변혈관과 림프관이 손상돼 공급된 열량이 잘 빠져나가지 못해 부기가 발생한다.

이때 스마트룩스 DUAL은 시술 후 부기, 통증, 염증을 빠르게 완화시키는 것.

최근 출시된 탈모치료 전용 스마트룩스 'GX Hair'(SMARTLUX GX Hair) 또한 각광받고 있다.



Articles

"The Implementation of the Advanced Photo-therapeutic Apparatus, SMARTLUX"

Power Korea, 2014

Interview

> (주)메드믹스 임수정 본부장

앞서가는
광치료기기의 구현,
스마트룩스를 선보이다

The Implementation of the Advanced Photo-therapeutic Apparatus, Showing the SMARTLUX

고도의 기술과 임상이 필요한 의료장비 분야에서 분야별 전문가들이 모여 탄생시킨 광치료기기 '스마트룩스'가 화제다. 2009년 설립된 의료기기 전문회사 메드믹스는 전문가들로 구성된 R&D팀과 손잡고 스마트룩스 프리미엄을 선보이며 2013년에는 수출 100만 불 달성이라는 기록을 세웠다. 해외 시장에서도 한국 의료기기의 우수성을 보여주는 스마트룩스의 기술력을 통해



강력한 에너지 출력으로 광조사기기의 효과 극대화

광조사기 치료의 원리는 피부 내의 미토콘드리아가 빛에너지를 흡수하고 활성화시키는데서 비롯된다. 자극받은 미토콘드리아는 ATP를 활발히 생산하고, 세포의 재생산으로 열병은 증가하며 콜라겐과 엘라스틴이 풍부하게 생산된다. 이러한 과정을 거치며 부상이나 질환, 사출을 받은 피부는 점차 회복된다. 그동안 치료용으로 사용되었던 LED 광조사기는 기대 효과에 비해 출력 에너지값이 낮았으며, 유지 관리의 문제점도 꾸준히 대두되어 왔다. 따라서 피부 조직 손상 없이 치료 부위를 집중적으로 호전시키며, 피부 상처 치료에서 수술 및 시술 후의 회복 촉진과 발모 및 비만 치료까지 다룰 수 있는 LLLT(저출력레이저)치료가 장비의 등장은 의학계의 비선한 관심을 끌었다. 2010년 스마트룩스 프리미엄 기종을 필두로 한 스마트룩스는 강력한 에너지 출력으로 LED 광조사기 시장에 선배를 앞섰다. 메이저 언론사에서는 이러한 스마트룩스의 기술 혁신에 대해 소신을 보도한 바 있다. 기존의 일반적인 LED칩이 아닌 고출도 SLD칩을 사용하여 19x41cm의 한정된 공간에서 2,450개의 칩을 위치시킴으로써 환부에 집중되는 에너지 심도를 영국 등 해외 기기에 비해 최대 3배로 늘릴 수 있었던 것이다. 각 SLD의 칩 조사각도는 20~30도로 세계에서 가장 조밀하며, 칩의 개수만큼 증폭되어 보다 높은 기술력을 입증하였다. 칩의 양에 따라 보정형과 미노로 나뉘

Maximizing the Effect of the Irradiation Equipment with Powerful Energy Output

The principle of the irradiator treating equipment starts from the mitochondria within the skin absorbing light energy and activate it. The stimulated mitochondria are actively producing ATP, and the blood circulation increases and collagen and elastin is produced in abundance. Undergoing this process, injury or disease, the skin received treatment is gradually restored. LED Light irradiator having been used for treatment. Output energy values were lower compared to expected effects maintenance issues has been steadily emerging. The emergency of LLLT (Low Level Laser Therapy) which can improve the intensive treatment area without damaging the skin tissue, and can treat even skin wounds and the recovery after surgery, facilitate recovery after surgery and surgical procedure, and deal with even hair growth and obesity, attracted extraordinary attention of the medical community. SMARTLUX at the head of SMARTLUX premium model in 2010 gained confidence in the LED light irradiator market with powerful energy output.

The major media reported technology innovation of SMARTLUX in detail. By using high-intensity SLD chip not existing common LED chip in the limited space of 19x41cm and by placing 2450 chips, the sink rate of the energy made in England etc

상성서울 병원 성형외과 / 중원대 병원 피부과 / 허남 서브린스 피부과 / 베스트힐 성형외과 / 미가 성형외과 임구정점 / 몽블 성형외과 / 정원 성형외과 / 유진 성형외과 / 브디
 임구정점 / 몽블 성형외과 / 중원대 병원 피부과 / 허남 서브린스 피부과 / 베스트힐 성형외과 / 미가 성형외과 임구정점 / 몽블 성형외과 / 정원 성형외과 / 유진 성형외과 / 브디

고객 감동을 위한 가치 있는 선택!!



쁘띠노블 성형외과 고익수 원장
 다크세균의 치료로 지반 이식을 이용하고 있는
 저희 병원에서 는 수술 후 부기와 붓기 유일한 문제였는데
 SMARTLUX가 이 문제를 해결해 주었지요.
 SMARTLUX는 기존의 LED 장비의 개념을 완전히 바꾼 혁신적인 장비 입니다.



몽블성형외과 박성수 원장
 SMARTLUX를 통해 타 병의원과 견줄 수 없을 만큼
 가능한 지면 성형수술 후 부기나 붓기 같은 흔적들이
 희미해 없어져 환자들이 매우 만족해 하고 있습니다.
 만족해 하는 환자들을 보는 것이 얼마나 기쁘는지...



리더스 피부과 정찬우 원장
 성미 리더스 피부과에서 생애 첫는 대부분의 피부치료와
 시술 전 후에 SMARTLUX를 사용하고 있습니다.
 SMARTLUX를 사용하면서 이제 불편함을 최소화한 편안함 피부치료가 가능해졌습니다.
 SMARTLUX는 피부과에 꼭 필요한 장비라고 말할 수 있습니다.



중앙대학교 피부과 김범준 원장
 SMARTLUX는 사용의 편의성과 고품질 에너지로 인한
 확실히 LED 장비라고 할 수 있습니다.
 특히 기존의 LED 장비의 단점인 저출력 문제들을 개선하여
 피부과에서 다양한 활용이 예상되고 있습니다.

영구정점 / 몽블 성형외과 / 중원대 병원 피부과 / 허남 서브린스 피부과 / 베스트힐 성형외과 / 미가 성형외과 임구정점 / 몽블 성형외과 / 정원 성형외과 / 유진 성형외과 / 브디
 영구정점 / 몽블 성형외과 / 중원대 병원 피부과 / 허남 서브린스 피부과 / 베스트힐 성형외과 / 미가 성형외과 임구정점 / 몽블 성형외과 / 정원 성형외과 / 유진 성형외과 / 브디

A large number of prominent doctors choose SMARTLUX because of its high intensity and effect. SMARTLUX is the medical device recommended by famous doctors who have used it.

Magazine

- ✓ Dr. Koh Ik-soo (Petit Novel Plastic Surgery)
- ✓ Dr. Park Seong-su (Bong Bong Plastic Surgery)
- ✓ Dr. Jeong Chan-u (Leaders Clinic)
- ✓ Dr. Kim Beom-jun (Chung-ang Univ. Clinic)

MBC 뉴스데스크 8시 뉴스 스마트룩스 방송



주요 방송내용

LED광선(스마트룩스)이 대상포진을 비롯해, 여드름, 각종 피부질환 치료에 쓰이고 있습니다.

심한 통증과 염증을 동반하는 대상포진 환자 28명에게
약물 치료와 함께 스마트룩스 빛을 쬐게 했습니다

3주 뒤, 빛을 쬐 환자의 상처 부위가 그렇지 않은 환자보다 눈에 띄게 좋아졌습니다.
염증의 회복 속도가 20% 가량 빨라졌고 통증은 30% 이상 줄었습니다.
아토피와 여드름에도 일부 효과가 있는 것으로 나타났습니다.

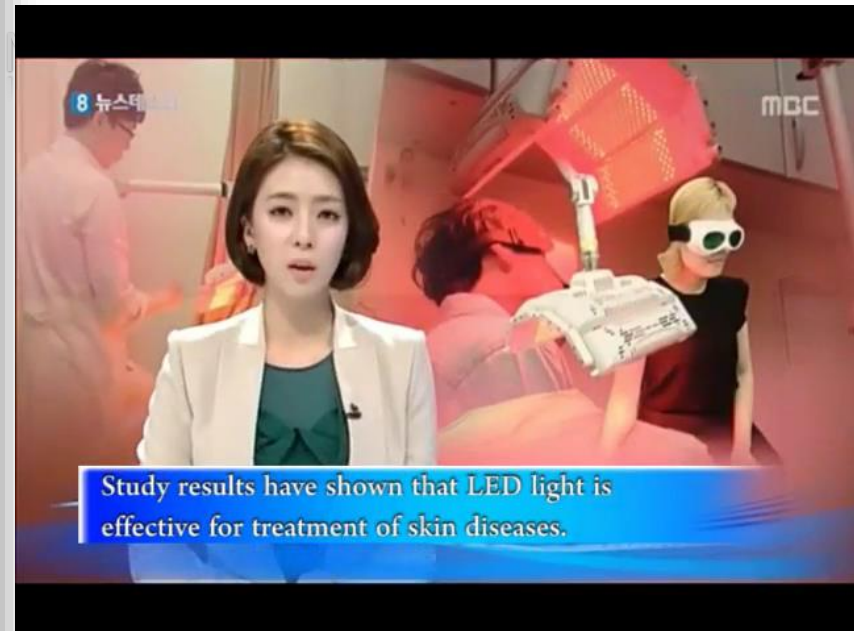
동물 실험 결과, 스마트룩스 빛은 콜라겐 생성을 촉진하고 세포의 에너지원인 미토콘드리아를
활성화시켜 피부 재생을 도왔다고 연구진은 말합니다.

색깔별로 빛의 효능도 달랐습니다.

붉은 빛은 세포 재생과 진통 효과, 파란 빛은 살균 효과가 커 여드름 치료에 효과적입니다.

SMARTLUX has been introduced on the Korean news channel, MBC with an explanation that its light has efficacy in various skin diseases such as herpes zoster, acne and inflammation.

News
MBC



Study results have shown that LED light is effective for treatment of skin diseases.

SMARTLUX

High Intensity Phototherapy Device

INTRODUCTION

PRINCIPLE

CLINICAL INDICATION

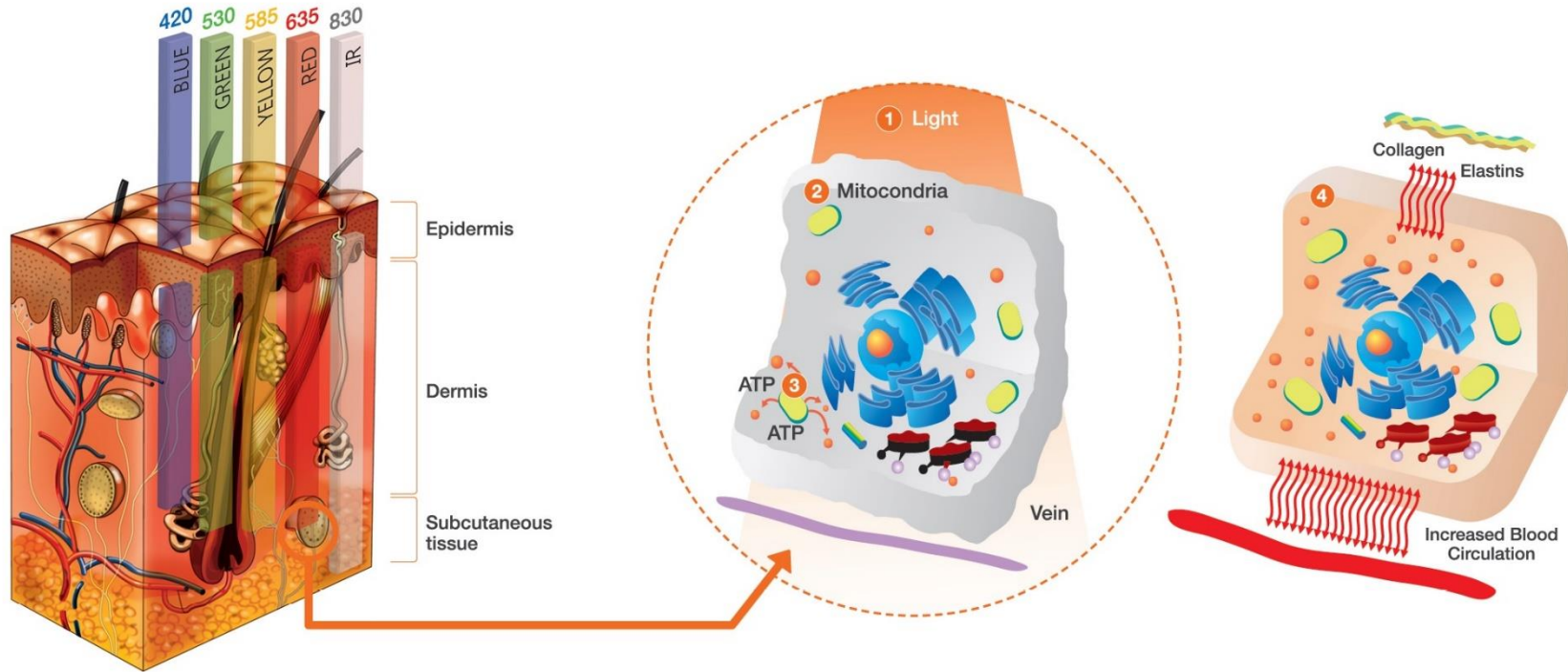
SMARTLUX VERSION



SMARTLUX delivers healing power and energy of light composed of red, blue, yellow, green, and IR with high-intensity SLDs (Super-luminous diodes) developed by SMART Phototherapy technologies. From wound healing and pain relief to improvement of dermatological conditions, anti-aging treatment, a boost to skin's radiance , SMARTLUX effects exceptional results with its various wavelengths selection and wide variety of irradiation angle.



Scientific Background



- ❶ Light penetrates into subcutaneous tissue.
- ❷ Mitochondria absorb the photon light energy and they are energized.
- ❸ The stimulated mitochondria produce more ATP, which stimulates cells to be reproduced faster and function lively like younger cells.
- ❹ The super luminous light promotes cell wall exchange and stimulates the microcirculation of blood. By increasing cell reproduction and improving blood circulation, more collagen and elastin are produced, which leads to reduce wrinkles and decrease healing time. Skin will look younger, plumper, and healthier within 2-6 weeks.

How SMARTLUX works

SMARTLUX helps to proceed below skin recovery steps faster

(Process of Skin Recovery)

Nominal Wavelength(nm)	Cell Types/Action Level								
	Inflammation			➔	Proliferation		➔	Remodeling	All
	Mast	Neutro	Macro	Fibro	Endo	Fibro-Myo	Keratino		
590-595				+++					
SMARTLUX RED 630-670	++	+	++	+++	+++	+	+++		
790	++			++					
SMARTLUX IR 830	+++	+++	+++	+	++	+++	+++		
904	-		+/-	-					

*Mast : Mast cells / Neutro : Neutrophils / Macro : Macrophages / Fibro : Fibroblasts / Fibro-Myo : Fibroblast to myofibroblast transformation / Keratino : Keratinocytes

Source
Calderhead, R. Glen. *Lasers in Dermatology and Medicine*, Springer London. 2012, 254

SMARTLUX

High Intensity Phototherapy Device





INTRODUCTION

PRINCIPLE

CLINICAL INDICATION

SMARTLUX VERSION



LIGHT COLOR	WAVELENGTH	CLINICAL INDICATION	APPLICATION
BLUE 	420nm	Sterilization	Acne
YELLOW 	590nm	Blood Circulation	Bruise, Swelling, Post-Plastic Surgery Treatment, Vascular Lesion, Whitening
RED 	635nm	Cell Reproduction	Skin Recovering, Wound Healing, Hair and Scalp Treatment
IR 	830nm	Reduction of Inflammation	Pain Relief



SMARTLUX

High Intensity Phototherapy Device

INTRODUCTION

PRINCIPLE

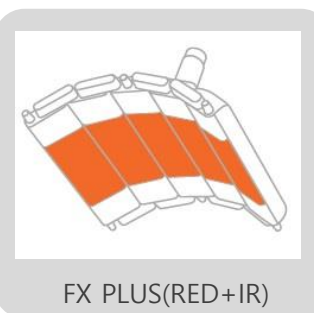
CLINICAL INDICATION

SMARTLUX VERSION



SMARTLUX SLIM

BRAND TYPE	PREMIUM BRAND
COMPOSITION	HEAD PART / BODY PART
LAMP TYPE	INDIVIDUAL LAMP TYPE (A lamp has only one light)
HEAD OPTIONS	FX PLUS (RED+IR), FX (RED+IR), DUAL (YELLOW+IR)
NUMBER OF SLD	FX PLUS: 2,450EA (RED: 1,120EA + IR: 1,330EA) FX: 1,200EA (RED: 700EA + IR: 500EA) DUAL: 2,450EA (YELLOW: 1,120EA + IR: 1,330EA)
WAVELENGTH	FX PLUS: RED-635nm / IR-830nm FX: RED-635nm / IR-830nm DUAL: 590nm / IR-830nm
INTENSITY (MAX)	FX PLUS: 65mW-135mW/cm ² FX: 45mW-90mW/cm ² DUAL: 18mW-95mW/cm ²



FX PLUS(RED+IR)



FX (RED+IR)



DUAL(YELLOW+IR)

SMARTLUX

High Intensity Phototherapy Device

INTRODUCTION

PRINCIPLE

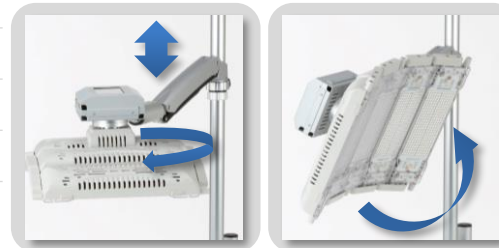
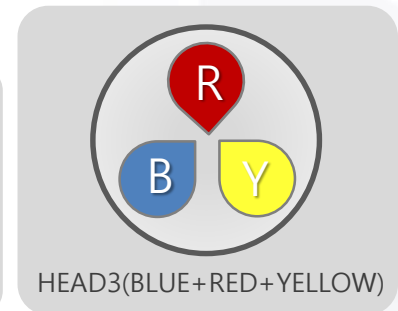
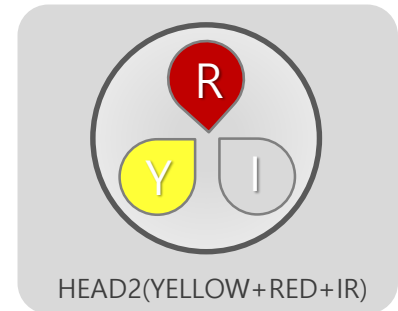
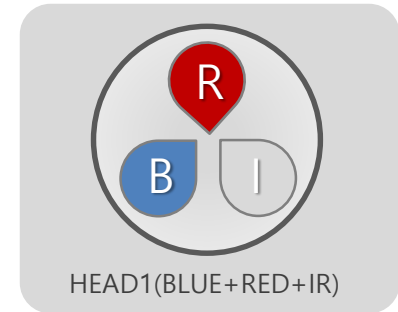
CLINICAL INDICATION

SMARTLUX VERSION



SMARTLUX MINI

BRAND TYPE	DIFFUSION BRAND
COMPOSITION	ALL IN ONE TYPE
LAMP TYPE	MULTIPLE LAMP TYPE (A lamp has three lights)
HEAD OPTIONS	HEAD1 (BLUE+RED+IR), HEAD2 (YELLOW+RED+IR), HEAD3 (BLUE+RED+YELLOW)
NUMBER OF SLD	HEAD1: 4,320EA (1,440EA per color) HEAD2: 4,320EA (1,440EA per color) HEAD3: 4,320EA (1,440EA per color)
WAVELENGTH	HEAD1: BLUE-420nm / RED-635nm / IR-830nm HEAD2: YEL-590nm / RED-635nm / IR-830nm HEAD3: BLUE-420nm / RED-635nm / YEL-590nm
INTENSITY (MAX)	HEAD1: B+R+IR = 28mW-90mW/cm ² HEAD2: Y+R+IR = 20mW-75mW/cm ² HEAD3: B+R+Y = 20mW-90mW/cm ²



<Rotative Head>

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

HIGH INTENSITY

RESEARCH PAPERS

DIVERGENCE ANGLE

VARIOUS OPTION

COOLING SYSTEM

RACK STRUCTURE



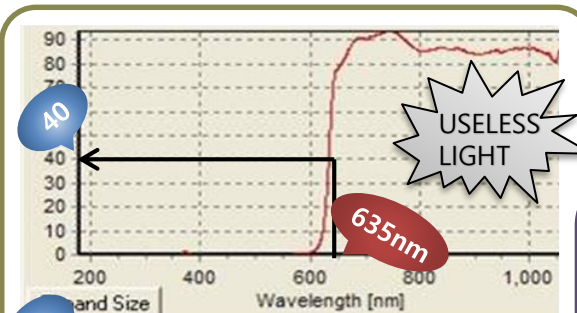
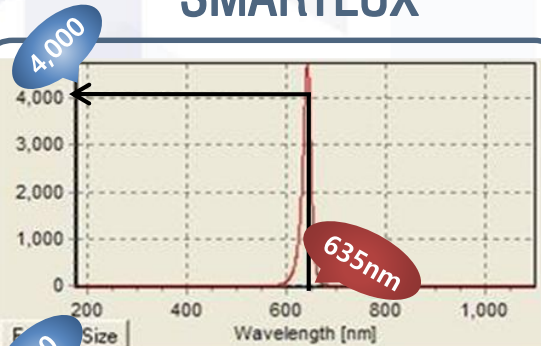
SMARTLUX has extremely high intensity with high technology.

SMARTLUX

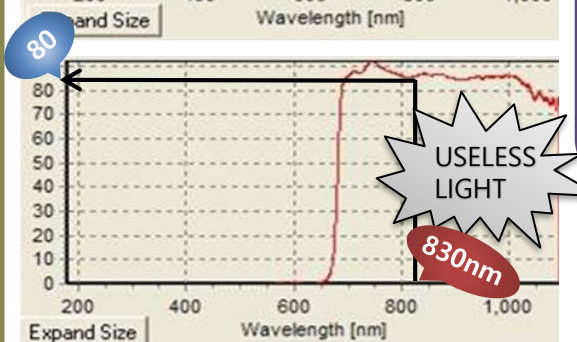
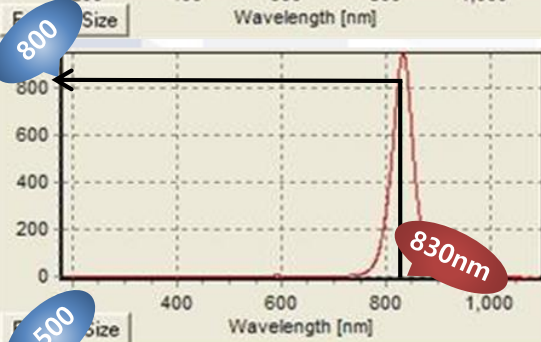
vs

LOW QUALITY DEVICE

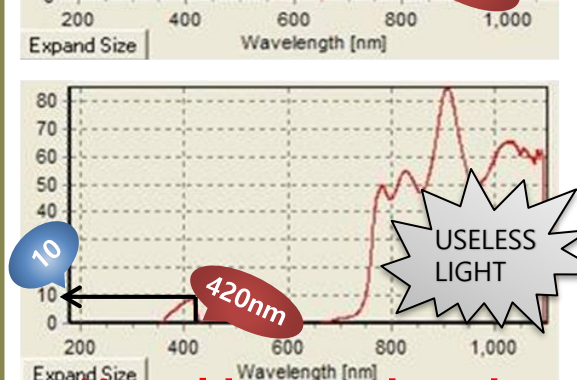
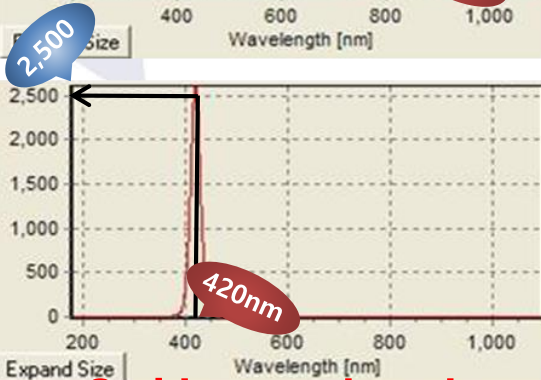
RED
(635nm)



IR
(830nm)



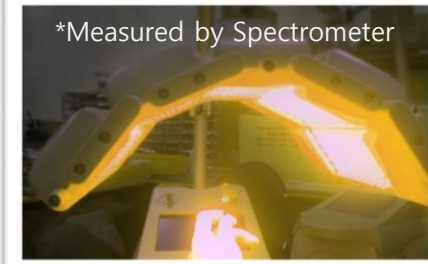
BLUE
(420nm)



See the strength at the point of specific wavelength which has clinical indication.

The strength at the point of other wavelength does not have any clinical indication. (Useless)

*Measured by Spectrometer



Stable wavelength

Unstable wavelength

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

HIGH INTENSITY

RESEARCH PAPERS

DIVERGENCE ANGLE

VARIOUS OPTION

COOLING SYSTEM

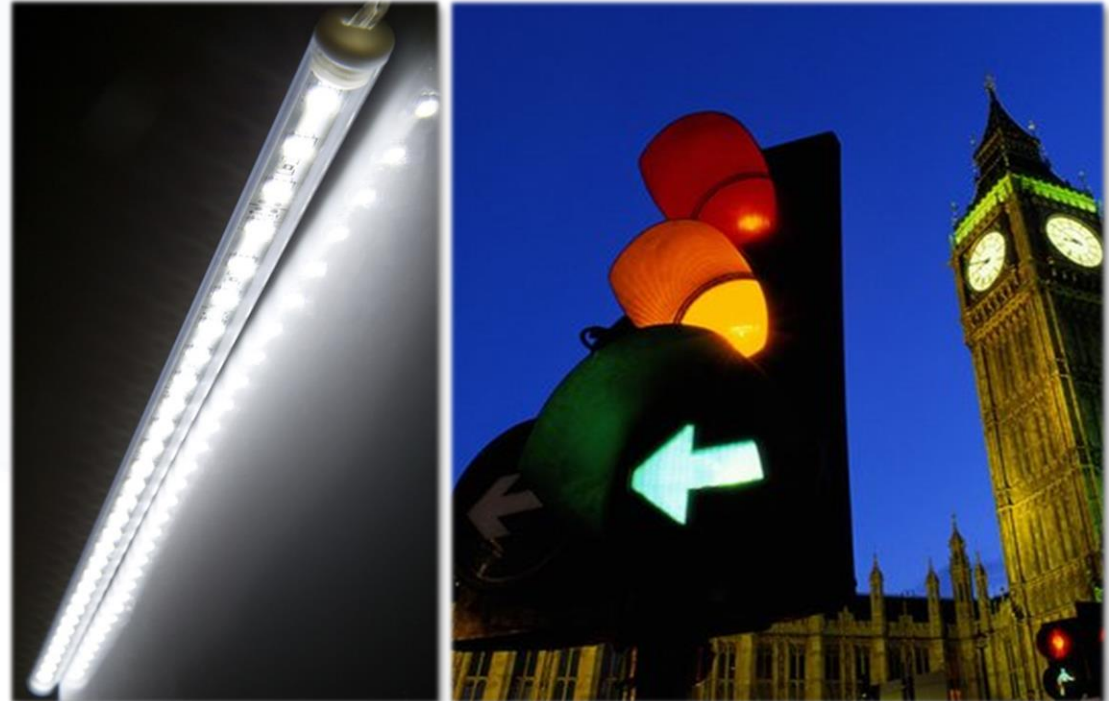
RACK STRUCTURE



Low quality devices are same as LED lighting or traffic light.

LOW QUALITY
DEVICE

=



Low quality devices can't give you any medical effect at all due to poor intensity of light.

Do you want to buy "Expensive LED Lighting" or "Medical Device"?

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

- HIGH INTENSITY
- DIVERGENCE ANGLE
- COOLING SYSTEM
- RESEARCH PAPERS
- VARIOUS OPTION
- RACK STRUCTURE



Multiple research papers have been published by SMARTLUX.
 → Reputable, Reliable, Validated Medical Device!

Efficacy of Light-Emitting Diode Photomodulation of Erythema After Fractional Carbon Dioxide Laser: A Pilot Study

IN Y. OTS, MD,* BREM J. KIM, MD,* MYUNG N. KIM, MD,* CHAN SENG E. KIM, MD†

BACKGROUND: The most common side effects of fractional carbon dioxide (CO₂) laser resurfacing are transient erythema and edema. Light-emitting diode (LED) devices increase fibroblast activity and hasten wound healing. The current study was designed to evaluate the efficacy of LED photomodulation in reducing post-fractional CO₂ laser resurfacing erythema.

OBJECTIVES: To evaluate the clinical efficacy of LED photomodulation in reducing post-fractional CO₂ laser resurfacing erythema.

MATERIALS AND METHODS: Randomly selected facial halves of 10 Korean (III-IV) were treated using a 635-nm wavelength LED array immediately after resurfacing. Each participant was subsequently treated with LED daily for 10 days. Photographs, subjective physician assessment, and chromometer erythema results, with clinical improvement assessed using a 5-point grading scale.

RESULTS: The post-laser erythema resolved faster on the experimental side. Improvements noted according to physician assessment and chromometer significantly improved between the two sides were first noted on day 4.

CONCLUSION: Treatment using a 635-nm wavelength LED array decreases post-fractional CO₂ laser treatment erythema.

The authors have indicated no significant interest with commercial supporters.

Fractional carbon dioxide (CO₂) laser resurfacing has become widely used in the treatment of photodamage and scarring because of its marked clinical efficacy and low post-treatment side-effect profile. Transient erythema, edema, and edema of the treated skin are the most common side effects associated with treatment, whereas severe or permanent complications are rare.¹ Nevertheless, despite the limited recovery period after fractional laser resurfacing, patients often report that the associated skin erythema and edema prevent them from continuing immediately with their regular activities of daily living.

Light-emitting diode (LED) photomodulation is a non-thermal technology using light, which has been shown to have a photomodulatory effect on the skin. LED therapy has been shown to have a photomodulatory effect on the skin, including erythema and edema. LED therapy has been shown to have a photomodulatory effect on the skin, including erythema and edema. LED therapy has been shown to have a photomodulatory effect on the skin, including erythema and edema.

*Department of Dermatology, College of Medicine, Chung-Ang University, Seoul, S. Korea
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Correspondence

Efficacy of combination light-emitting diode (635 and 830 nm) therapy in treating local injection-site reactions after filler

doi: 10.1111/ced.12480

Over the past decade, the use of injectable cosmetic fillers has steadily increased, with hyaluronic acid (HA) preparations being the most frequently utilized. Complication rates with injections of HA fillers have been reported to be up to 5%. The most common reaction to HA is a local injection-site reaction, which consists of swelling, erythema and induration at the injection site.¹ Although these reactions are predominantly mild or moderate in intensity, and do not result in severe sequelae, non-treatment methods promoting rapid healing with high patient compliance are highly desirable because of safety concerns regarding the use of topical steroid agents as anti-inflammatory agents.² Consequently, researchers have sought other treatment options. Light and laser therapies have attracted attention as promising non-treatment methods for this condition.³

Light-emitting diode (LED) photomodulation is a non-thermal technology used to modulate cellular activity with light. Photomodulation refers to a photomodulatory effect using non-thermal cellular stimulation at specific pulse sequences and durations.⁴ Previous animal and human studies have demonstrated that LED treatment induces reduction in wound size and promotes wound healing. LED therapy using a variety of red, blue, and yellow wavelengths has been reported to accelerate cutaneous wound healing after various injuries, including inflammatory situations.⁵ To date, no studies have been published on the specific modulation of the efficacy of LED for the treatment of local injection-site reactions after filler. In the present study, we evaluated a combination LED (635 and 830 nm) therapy for treatment.

A 32-year-old woman received an injection of cross-linked HA filler (Kotylease Perlane®, QMED, Uppsala, Sweden) into the glabellar area in an attempt to plump up the area. The HA concentration in the filler was 20 mg/mL, and the total volume used was 1 mL. Two days after the injection, the patient returned with an inflammatory reaction in the injection area with an

대한사회적 제 9 권, 제 1 호
 Journal of the Korean Society for Psoriasis
 Vol. 9, No. 1, 48-50, 2012

578-nm Copper Bromide Laser과 치료한 소광상 건선 1례

고은정 · 오인영 · 손인평 · 김소영 · 권태린 · 김형민
 중앙대학교 의과대학 피부과학교실

A Case of Small Plaque Psoriasis Treated with Combination of 578-nm Copper Bromide Laser with Light-emitting Diode (LED)

Eun Jung Ko, M.D., In Young Oh, M.D., In Pyeong S. M.D., So Young Kim, M.S., Tae Rin Kwon, M.S., Hye Mi Kim, M.S., Kwang Ho Yoo, M.D., Beom Joon Kim, M.D., Ph.D., Myeung Nam Kim, M.D., Ph.D.

Department of Dermatology, Chung-Ang University College of Medicine, Seoul, Korea

Psoriasis is characterized by chronic recurrent erythematous skin plaques that show enlargement and increased vascularity of cutaneous microvessels without formation of vessel sprouts, that is, inflammatory angiogenesis. The 578-nm copper bromide laser is effective modality for the vasculature. Light-emitting diode (LED) induce diminution in vessel size and protection from skin inflammation and ulceration report a case of small plaque psoriasis in 28-year-old successfully treated with combination of 578-nm copper bromide laser with 830-nm LED phototherapy. Clinical improvement was noted after 6 times treatment per week.

레이저
 고출력 LED 광조사기 (SmartLux)를 이용한 프랙셔널레이저 박피술 후 동통, 부종, 홍반의 빠른 감소
 Rapid reduction of post-fractional laser resurfacing pain, edema, and erythema using a novel high-output LED phototherapy device (SmartLux)
 리다스 파루과 노낙경

서론
 저출력 레이저 (low level laser)는 순환력을 개선하는 데 사용되며, 레이저 조사시간을 포함한 에너지의 개입으로 인한 내약 0.05-10J 범위 내에서 세포외 박피가 가능하지만 적절히 자라하는 효과를 나타낸다. 저출력 레이저의 임상적용은 증진효과를 1800년대에 보고되어 현재까지 다양한 파장의 레이저와 조사방법을 이용한 실험들이 계속되고 있다. 저출력 레이저의 이용한 증진효과는 다양한 조사 방법, 조직, 기질에서 생화학적, 생리적 효과, 큰 세포외막을 촉진하고 혈관벽 경직성을 증가시켜 성장인자의 발현을 증가시켜는 등의 광물리 작용을 할 수 있다.

실험 방법
 2010년 9월부터 2011년 4월까지 총 8개월 동안 얼굴의 여드름 흉터 혹은 잔주름 개선술 위해 non-ablative fractional laser resurfacing을 받은 환자를 대상으로 하였다. 무작위전향적 실험 (randomized prospective study) 방식으로 실험군과 대조군은 정하였다. Fractional laser resurfacing 사용 전인 면부에 마취제를 30-60분 동안 도포하였다.

모든 환자들에게 20-30mJ의 펄스 에너지를 사용하여 900-380 J/cm²의 밀도로 얼굴 전체에 레이저 조사를 시행하였다. 사용한 fractional laser resurfacing 장비는 1500 nm 파장의 erbium:glass 레이저인 MOSAIC (Lutronic, Korea)였다. 실험군의 환자들에게는 fractional laser 사용 직후 LED 조사를, 대조군에게는 LED 조사가 없이 wet dressing을 가각 15 분간 시행하였다.

실험군에서 사용한 LED 장비는 SmartLux (MEDMIX, Korea)이다. 본체에 장착할 수 있는 다양한 파장의 파넬을 (적색광, 황색광, 녹색광, 적외선, 적외선+적외선의 총 6가지) 중 적색광 적외선 광선이 혼합되어 있는 Fx 패널을 사용하였다. SmartLux Fx 패널의 파장은 적외선 685±6nm, 적외선 830±5nm이며 펄스폭은 프랙셔널 LED 경우 각 펄스는 1200µsec (red, 700, infrared 500)이다.

대조군에 당 광밀도 Gradience, output intensity가 90 mW/cm²로 15분 조사 시 피부에 전달되는 에너지 밀도 (energy density, dose)는 81 J/cm²에 해당하였다. 이의 연구 결과에 의하면 LED 조사는 환자의 인면 피부 부위에서 10 cm 거리에서 시행하였으나 적외선과 적외선으로부터 인상을 보지 않고 환자 불편함을 최소화하기 위해 환자에게 광선 세력의 90

REDUCING ERYTHEMA AFTER FRACTIONAL LASER

TREATMENT FOR LOCAL INJECTION-SITE REACTIONS AFTER FILLER

TREATMENT FOR SMALL PLAQUE PSORIASIS

RAPID REDUCTION OF POST-LASER RESURFACING PAIN, EDEMA, ERYTHEMA

SCI CLASS

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

HIGH INTENSITY

RESEARCH PAPERS

DIVERGENCE ANGLE

VARIOUS OPTION

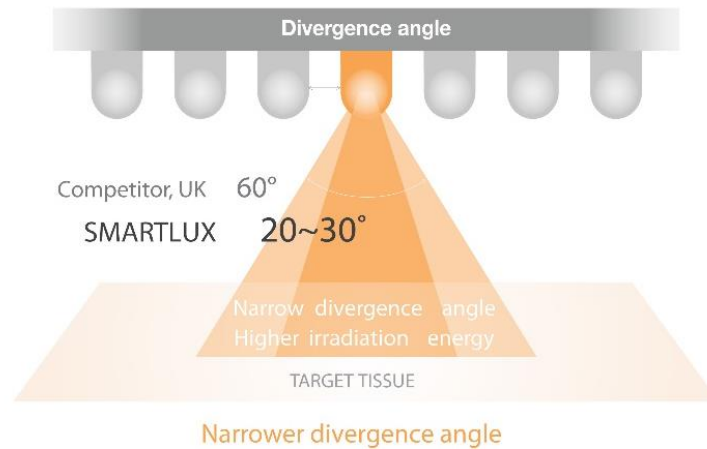
COOLING SYSTEM

RACK STRUCTURE

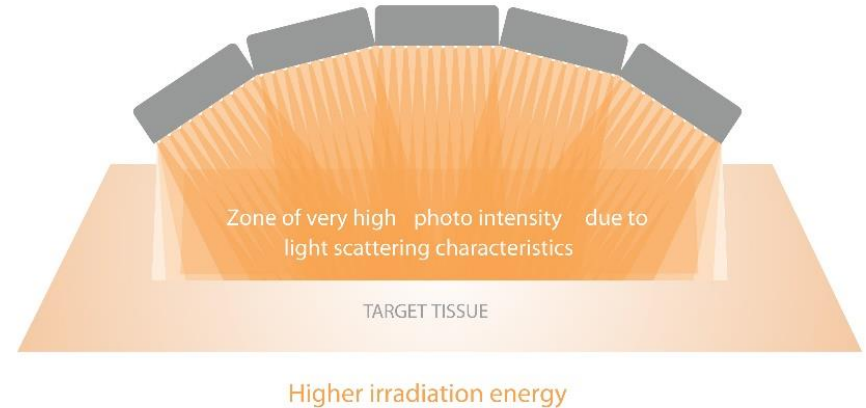


SMARTLUX has a narrow divergence angle for intensified treatment result.

Divergence Angle



Divergence Angle



Narrow and precise positioning of the SLDs in the panel array results in multiple intersections of the light beams, generating the highest photon intensity zone on the target surface of the skin, providing intensified effects.

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

HIGH INTENSITY

RESEARCH PAPERS

DIVERGENCE ANGLE

VARIOUS OPTION

COOLING SYSTEM

RACK STRUCTURE



SMARTLUX provides a wide selection to meet various demands.



SMARTLUX SLIM **FX PLUS (R+IR)**



SMARTLUX SLIM **FX (R+IR)**



SMARTLUX SLIM **DUAL (Y+IR)**



SMARTLUX MINI **HEAD1 (B+R+IR)**



SMARTLUX MINI **HEAD2 (Y+R+IR)**



SMARTLUX MINI **HEAD3 (B+R+Y)**

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

HIGH INTENSITY

RESEARCH PAPERS

DIVERGENCE ANGLE

VARIOUS OPTION

COOLING SYSTEM

RACK STRUCTURE



SMARTLUX Cooling System lengthens device life time.

Temperature Controlling System



FAN

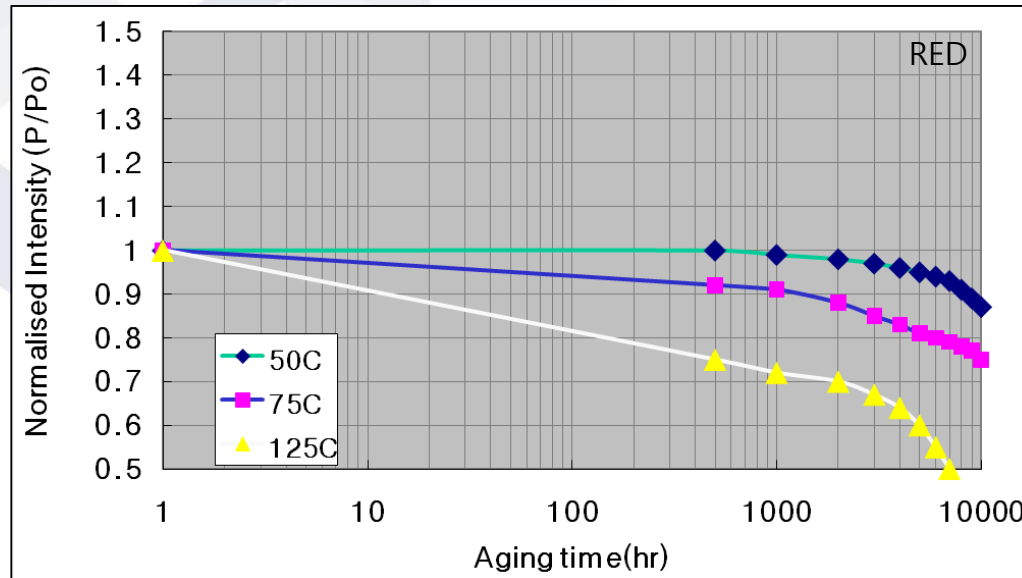
Cooling fans reduce the heats.

RADIATOR

Radiators lower the temperature.

SENSORS

Sensors maintain the temperature under 60°C



IN CASE OF USING SMARTLUX IN 50°C

IN CASE OF USING SMARTLUX IN 75°C

IN CASE OF USING SMARTLUX IN 125°C



SMARTLUX can keep its intensity at least for 10,000hours due to the cooling system which maintains the temperature under 60°C.

SMARTLUX - MAIN FEATURES

High Intensity Phototherapy Device

HIGH INTENSITY

RESEARCH PAPERS

DIVERGENCE ANGLE

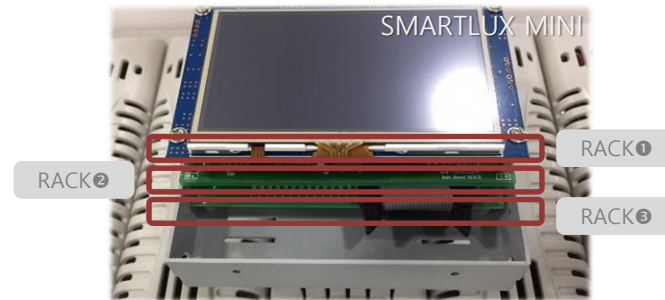
VARIOUS OPTION

COOLING SYSTEM

RACK STRUCTURE

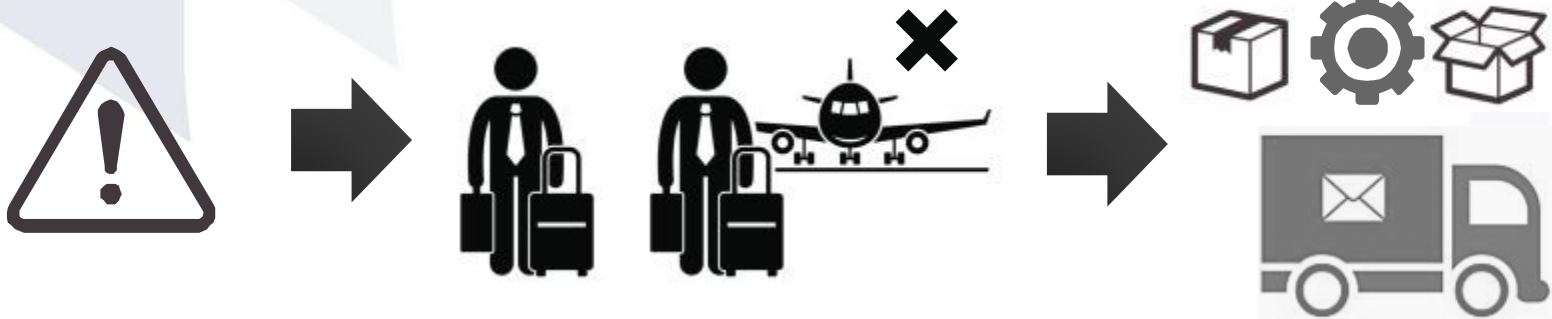


SMARTLUX has a rack structure for easy maintenance.



SMARTLUX consists of multiple racks.

Therefore, it's possible to repair the machine by just replacing the defective rack or component. It's very easy to manage the clients regardless of the distance between the distributor and clients.



No need to visit your customer's office or clinic to fix the machine.

If there is some problem, you Just send the defective rack or component to save time and money!

SMARTLUX – COMPARISON

High Intensity Phototherapy Device

KOREA - HEALITE II

CHINA - KN-7000A

FRANCE - TRIWINGS



SMARTLUX

Company	Medmix Co.,Ltd (Korea)
Number of SLDs	<ul style="list-style-type: none"> •SMARTLUX SLIM(FX PLUS): 2,450 EA •SMARTLUX MINI: 4,320 EA
Simultaneous Irradiation	<p>Possible You can use two or three colors at once.</p>
Wavelength Options & Intensity(Max)	<p>[SLIM]</p> <ul style="list-style-type: none"> •FX PLUS: R(635nm)+IR(830nm) → 65mW-135mW/cm² •FX: R(635nm)+IR(830nm) → 45mW-90mW/cm² •DUAL: Y(590nm)+IR(830nm) → 18mW-95mW/cm² <p>[MINI]</p> <ul style="list-style-type: none"> •HEAD1: B(420nm)+R(635nm)+IR(830nm) → 28mW-90mW/cm² •HEAD2: Y(590nm)+R(635nm)+IR(830nm) → 20mW-75mW/cm² •HEAD3: B(420nm)+R(635nm)+Y(590nm) → 20mW-90mW/cm²

HEALITE II

Company	Lutronic Co.,Ltd (Korea)
Number of LEDs	<ul style="list-style-type: none"> •1,800 EA
Simultaneous Irradiation	<p>Impossible You can't use two or three colors at once.</p>
Wavelength Options & Intensity(Max)	<p>[HEALITE II]</p> <ul style="list-style-type: none"> •IR(830nm) w/Y(590nm) → 40mW-100mW/cm² •R(633nm) → 30mW-65mW/cm² •B(415nm) → 10mW-30mW/cm² <p>[HEALITE II COMBO]</p> <ul style="list-style-type: none"> •R(633nm)+IR(830nm) w/Y(590nm) → 20mW-80mW/cm² •B(415nm)+R(635nm) → 10mW-50mW/cm² •B(415nm)+IR(830nm) w/Y(590nm) → 10mW-80mW/cm²

SMARTLUX – COMPARISON

High Intensity Phototherapy Device

KOREA - HEALITE II

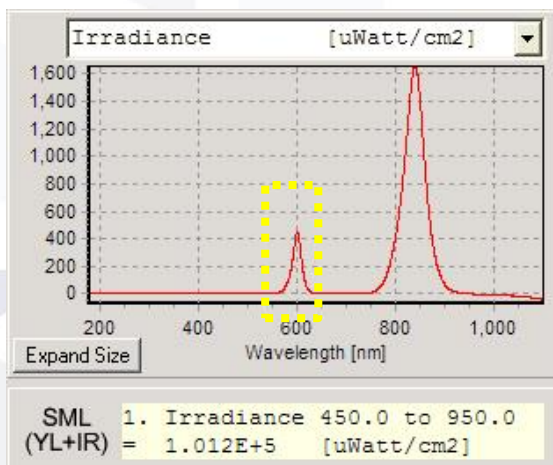
CHINA - KN-7000A

FRANCE - TRIWINGS



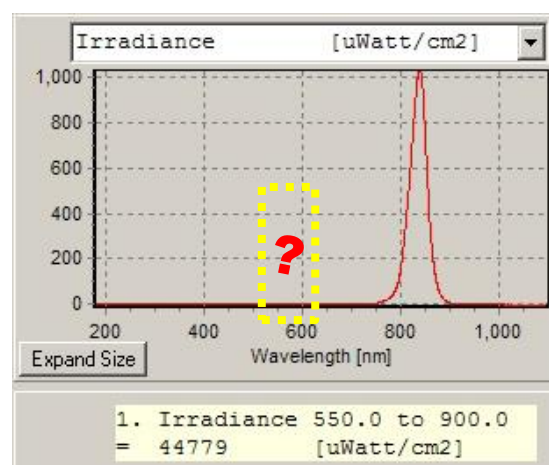
SMARTLUX SLIM DUAL

YELLOW(590nm) + IR(830nm)



HEALITE II

YELLOW(590nm) + IR(830nm)



SMARTLUX SLIM DUAL

Company	Medmix Co.,Ltd (Korea)
Number of SLDs	•SMARTLUX SLIM(DUAL): 2,450 EA
Intensity(Max)	•Testing Result: 101mW/cm² (Official Data: 95mW/cm ²)
Yellow(590nm)	There is a distinct signal in 590nm.

HEALITE II 830(w/590)

Company	Lutronic Co.,Ltd (Korea)
Number of LEDs	•HEALITE II: 1,800 EA
Intensity(Max)	•Testing Result: 44mW/cm² (Official Data: 100mW/cm ²)
Yellow(590nm)	There is no signal in 590nm at all.

◇ Intensity is based on the actual survey.

SMARTLUX – COMPARISON

High Intensity Phototherapy Device

KOREA - HEALITE II

CHINA - KN-7000A

FRANCE - TRIWINGS



SMARTLUX

KN-7000A

Company	Medmix Co.,Ltd (Korea)
Number of SLDs	<ul style="list-style-type: none"> •SMARTLUX SLIM(FX PLUS): 2,450 EA •SMARTLUX MINI: 4,320 EA
Intensity(Max)	<ul style="list-style-type: none"> •SMARTLUX SLIM(FX PLUS): 135mW/cm² •SMARTLUX MINI(HEAD1): 90mW/cm²
Maximum Simultaneous Irradiation	3 Colors(Wavelengths) [MINI] <ul style="list-style-type: none"> •HEAD1: B(420nm)+R(635nm)+IR(830nm) •HEAD2: Y(590nm)+R(635nm)+IR(830nm) •HEAD3: B(420nm)+R(635nm)+Y(590nm)

Company	Kernel Co.,Ltd (China)
Number of LEDs	<ul style="list-style-type: none"> •KN-7000A: 1,820 EA
Intensity(Max)	<ul style="list-style-type: none"> •KN-7000A: 120mW/cm²
Maximum Simultaneous Irradiation	2 Colors(Wavelengths) <ul style="list-style-type: none"> •B(415nm)+R(635nm) •Y(590nm)+R(635nm) •R(635nm)+IR(830nm)

SMARTLUX – COMPARISON

High Intensity Phototherapy Device

KOREA - HEALITE II

CHINA - KN-7000A

FRANCE - TRIWINGS



SMARTLUX

Company	Medmix Co.,Ltd (Korea)
Intensity(Max)	<ul style="list-style-type: none"> •SMARTLUX SLIM(FX PLUS): 135mW/cm² •SMARTLUX MINI(HEAD1): 90mW/cm²
Energy Range	<ul style="list-style-type: none"> •SMARTLUX SLIM(FX): 1~324 J/cm² •SMARTLUX MINI(HEAD1): 1~184 J/cm²

TRIWINGS CLASSIC

Company	Biophoton Co.,Ltd (France)
Intensity(Max)	<ul style="list-style-type: none"> •TRIWINGS CLASSIC: 105mw/cm²
Energy Range	<ul style="list-style-type: none"> •TRIWINGS CLASSIC: 1~99 J/cm²

SMARTLUX - CLINICAL RESEARCH

High Intensity Phototherapy Device

ACNE

POST-LASER TREATMENT

WOUND HEALING

BRUISE & EDEMA

ECZEMA

FRECKLE



BEFORE

AFTER



SMARTLUX TREATMENT

SLD LIGHT	BLUE
LEVEL	4~5
TIME	10 MIN
FREQUENCY	TWICE A WEEK
PERIOD	2 WEEKS

SMARTLUX - CLINICAL RESEARCH

High Intensity Phototherapy Device

ACNE

POST-LASER TREATMENT

WOUND HEALING

BRUISE & EDEMA

ECZEMA

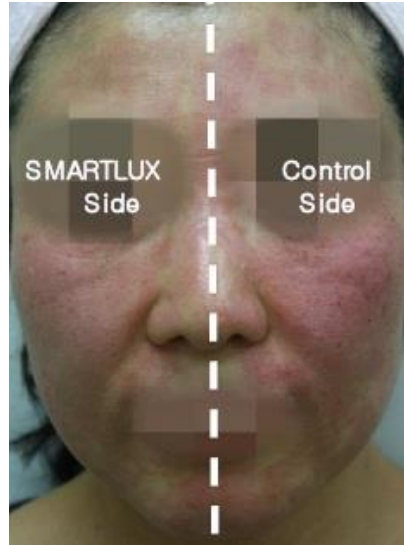
FRECKLE



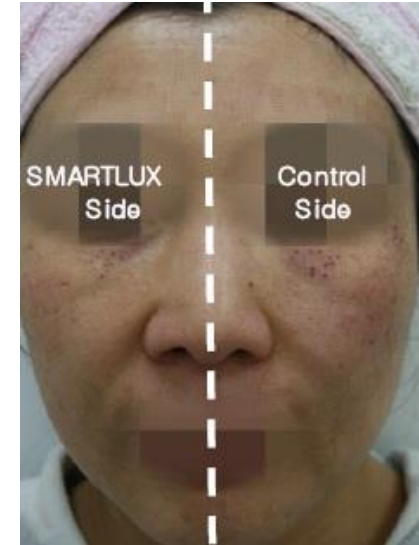
BEFORE



1ST DAY



3RD DAY



SMARTLUX TREATMENT

SLD LIGHT	FX (RED+IR)
LEVEL	5
TIME	20 MIN
FREQUENCY	EVERYDAY
PERIOD	3 DAYS

SMARTLUX - CLINICAL RESEARCH

High Intensity Phototherapy Device

ACNE

POST-LASER TREATMENT

WOUND HEALING

BRUISE & EDEMA

ECZEMA

FRECKLE



BEFORE



AFTER



SMARTLUX TREATMENT

SLD LIGHT	FX (RED+IR)
LEVEL	5
TIME	20 MIN
FREQUENCY	2 TIMES
PERIOD	3 DAYS

SMARTLUX - CLINICAL RESEARCH

High Intensity Phototherapy Device

ACNE

POST-LASER TREATMENT

WOUND HEALING

BRUISE & EDEMA

ECZEMA

FRECKLE



BEFORE

AFTER



SMARTLUX TREATMENT

SLD LIGHT	FX (RED+IR)
LEVEL	5
TIME	20 MIN
FREQUENCY	1 TIME
PERIOD	1 DAY

SMARTLUX - CLINICAL RESEARCH

High Intensity Phototherapy Device

ACNE

POST-LASER TREATMENT

WOUND HEALING

BRUISE & EDEMA

ECZEMA

FRECKLE



BEFORE



1ST DAY



3RD DAY



SMARTLUX TREATMENT

SLD LIGHT	RED
LEVEL	5
TIME	20 MIN
FREQUENCY	EVERYDAY
PERIOD	2 DAYS

SMARTLUX - CLINICAL RESEARCH

High Intensity Phototherapy Device

ACNE

POST-LASER TREATMENT

WOUND HEALING

BRUISE & EDEMA

ECZEMA

FRECKLE



BEFORE

AFTER



SMARTLUX TREATMENT

SLD LIGHT	YELLOW
LEVEL	5
TIME	20 MIN
FREQUENCY	TWICE A WEEK
PERIOD	3 MONTHS

Thank you

sales@medmix.co.kr



MEDMIX

Total Medical Solution
Company