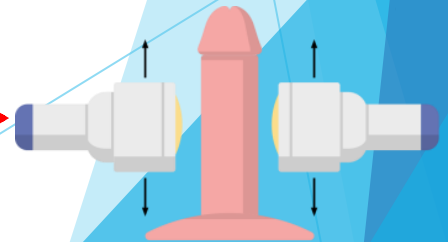
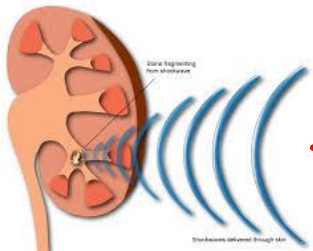


Novel Non-invasive Stem Cell Therapy to Repair Failing Organs

LiESWT

Shock Wave in Medical Application

- In 1980, Germany used forced shock wave to treat **urinary stone**
- In 2005, Germany used shock wave to stimulate cell regeneration
- It could be used to treat in **Orthopedics** such as
Tendinitis of Shoulder, Nonunion of bone fractures,
Painful Heel Syndrome and Lateral Epicondylitis of Elbow
- In 2012, **Lite-Med** cooperated with **UCSF (USA)** for new application
- In 2014, European Association of Urology declare ESWT can be used
to treat **ED** (Erectile Dysfunction) and replace medicine.
No side effect and uncomfortable feeling during treatment



LITEMED

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Director

Tom F. Lue, MD, ScD (Hon),
FACS

Research Field:

Stem Cell Research

Molecular Mechanism of Impotence

Molecular Mechanism of Female Stress Urinary Incontinence

Molecular Mechanism of Peyronie's Disease

Molecular Mechanism of PDE5A Gene Regulation

Molecular Marker of Prostate and Bladder Cancer

Roles of Integrins in Cancer and Urological Diseases

Ref: <https://urology.ucsf.edu/research/cancer/cancer-research-programs/knuppe-molecular-urology-laboratory-0>



AWCT Background

AWCT formed in 2014 to commercialize discoveries of Dr. Tom Lue's lab

Key discovery

Low energy acoustic pulses can stimulate stem cells to make new cells and regenerate tissue

Pulses must be “tuned” to individual tissues

Works in kidney, liver, brain, pancreas, nerve, muscle and more in animals

Non-invasive treatment with major advantages over conventional stem cell therapy

- AWCT's mission –design devices that can deliver the “**right**” acoustic energy to a particular tissue, prove they work, get FDA approval, and commercialize them.

- First target market –**female stress urinary incontinence (SUI)**

Ref: Tom Lue, Ching-Shwun Lin, Guiting Lin, HongXiu Ning. Optimal Dosages for Low Energy Shock Wave Treatment of Vital Organs. US patent, US10639233B2

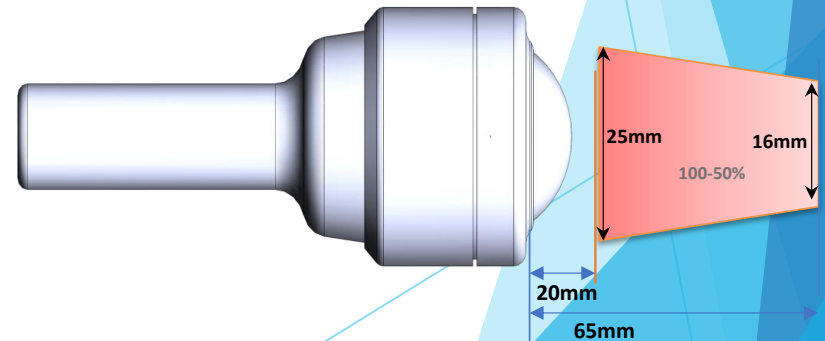
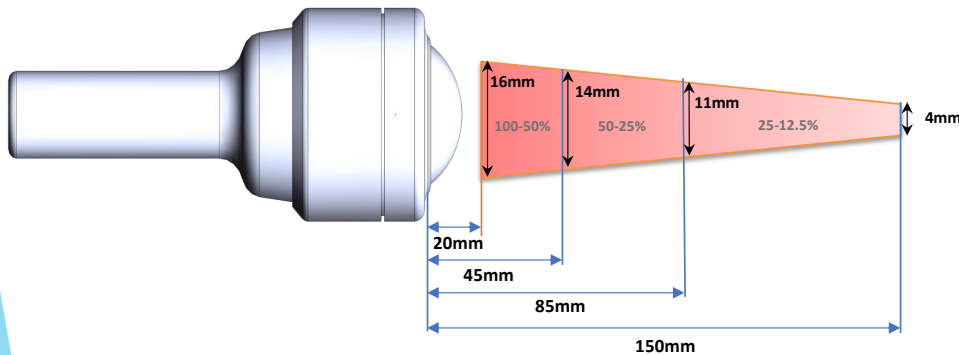
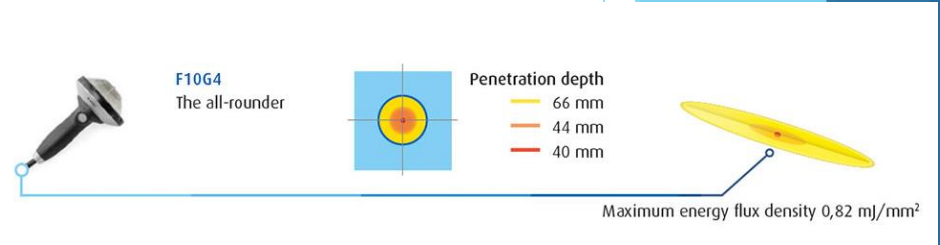
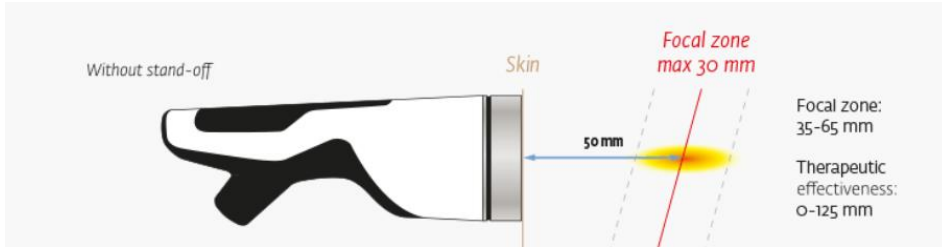
Shockwave Medical Application

	High Energy ($>0.25 \text{ mJ/mm}^2$)	Medium Energy ($0.08 \sim 0.25 \text{ mJ/mm}^2$)	Low Energy ($<0.08 \text{ mJ/mm}^2$)
Characteristic	Focused mechanical destructive forces	Anti-inflammatory	Angiogenic properties
Indication	Urinary Stone	Orthopedic disease	Wound healing, soft tissue injury, peripheral neuropathy, erectile dysfunction
Medical Device	ESWL ESWT	ESWT	LiESWT

Energy Intensity lower than 0.08 mJ/mm^2 is a safe shockwave
 The treatment of various sensitive organs with low energy acoustic shockwaves
 has been proposed in US patent US10639233B2

*Ref: Rassweiler JJ, Knoll T, Köhrmann KU, McAteer JA, Lingeman JE, Cleveland RO, et al. Shock wave technology and application: an update. Eur Urol 2011;59:784-96.
 Tom Lue, Ching-Shwun Lin, Guiting Lin, HongXiu Ning. Optimal Dosages for Low Energy Shock Wave Treatment of Vital Organs. US patent, US10639233B2*

Shockwave Focal Zone Comparison



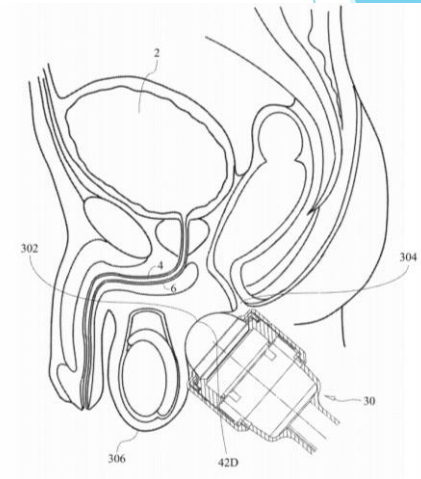
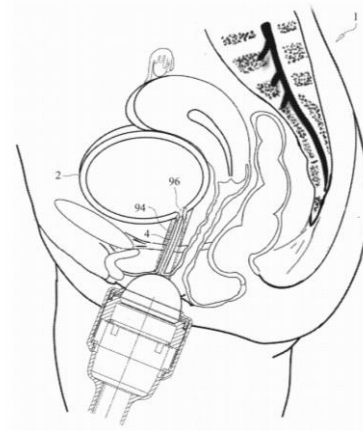
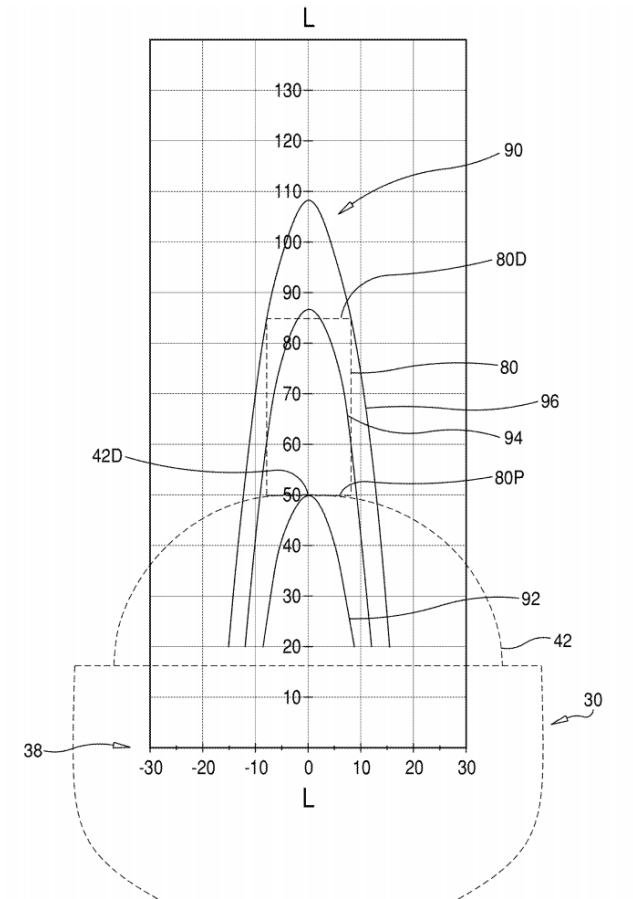
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Shockwave Focal Zone Comparison

Model	LiteMed LM-laso	AWCT SUI	Storz Duolith SD1	Richard Wolf Piezo Wave 2
Type	Electromagnetic	Electromagnetic	Electromagnetic	Piezo Type
Focal Zone Width	5mm 16mm	25mm	5mm	2mm 3mm
Energy Density (mJ/mm ²)	0.01~0.58 0.01~0.07	0.01-0.05	0.01-0.55	0.018-0.6
Effective Depth	0-150mm	0-65mm	0-125mm	0-60mm
Shock Wave Type	Prismatic	Prismatic	Prismatic	Linear
Frequency	0-8Hz	0-8Hz	0-8Hz	0-8Hz
Energy Level	10 Level	100 Level	100 Level	29 Level
Probe Choice	3	1	1	4
Durable (times)	2 million	1 million	1 million	5 million

Wide Range Focal Zone Shockwave Application

 **AWCT** *Female stress urinary incontinence (SUI)*



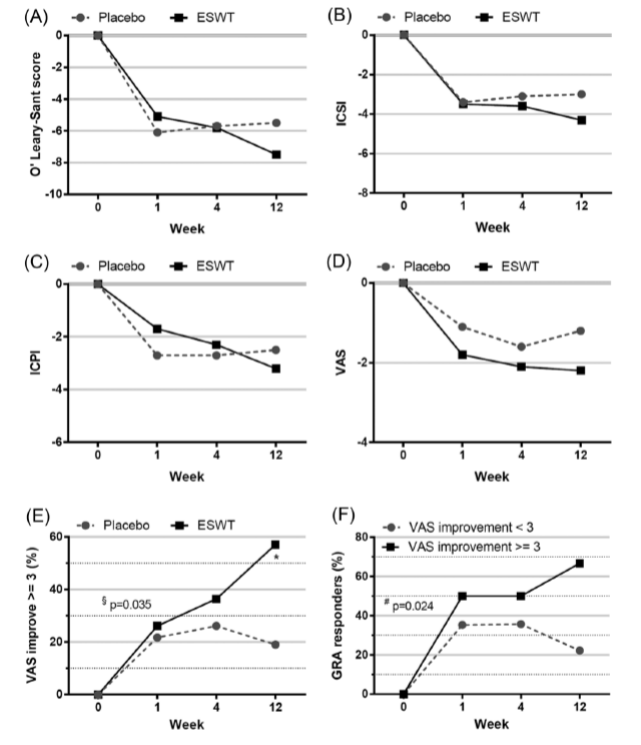
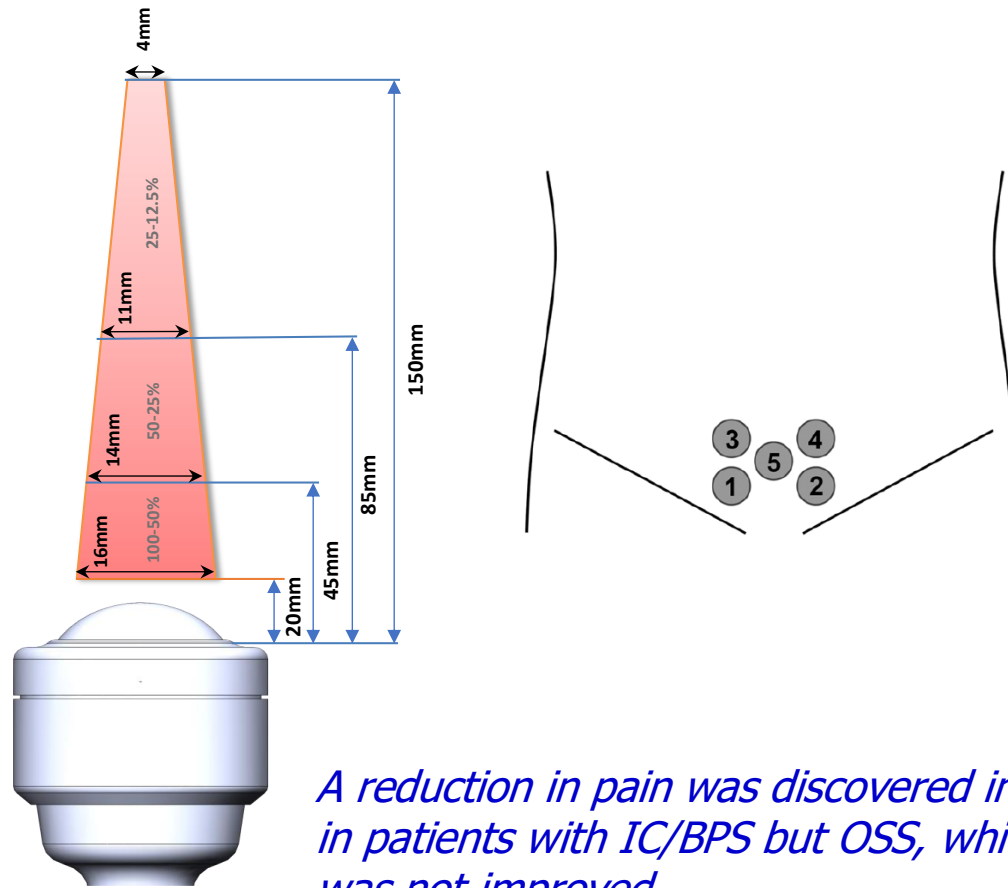
*225 subjects at 15 U.S. locations
Designated by FDA as a nonsignificant risk (NSR) device study*

Ref: CR Engles, YC Su Low Energy Acoustic Pulse Apparatus and Method. US patent, US20200054519A1

Wide Range Focal Zone Shockwave Application



Interstitial Cystitis/bladder pain syndrome



A reduction in pain was discovered in this trial assessing ESWT in patients with IC/BPS but OSS, which was the primary outcome parameter, was not improved.

Ref: Chuang Y-C, Meng E, Chancellor M, Kuo H-C. Pain reduction realized with extracorporeal shock wave therapy for the treatment of symptoms associated with interstitial cystitis/bladder pain syndrome—a prospective, multicenter, randomized, double-blind, placebo-controlled study. *Neurourol Urodyn.* 2013;39(5):1505–1514.



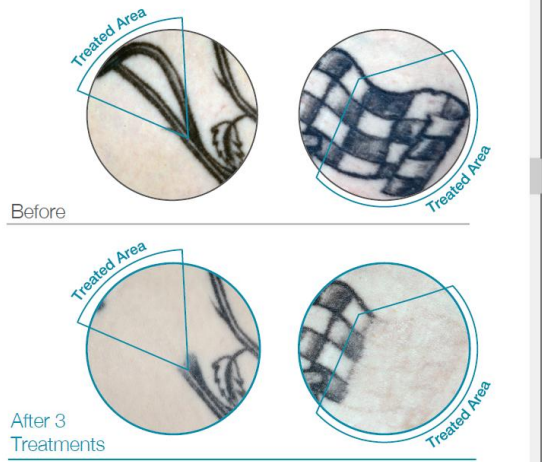
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Wide Range Focal Zone Shockwave Application

soliton

*Helping Tatto Laser Removal (FDA approval)
Cellulite Treatment (Pivotal Trial)*

Complete removal of treated ink after 3 treatment sessions*



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Related and Reference Papers

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Guiting Lin, Amanda B. Reed-Maldonado, Maofan Lin, Zhongcheng Xin and Tom F. Lue "Effects and mechanisms of low-intensity pulsed ultrasound for chronic prostatitis and chronic pelvic pain syndrome" Int. J. Mol. Sci. 2016, 17(7), 1057.