RADIAL SHOCK WAVES MODUS ESWT

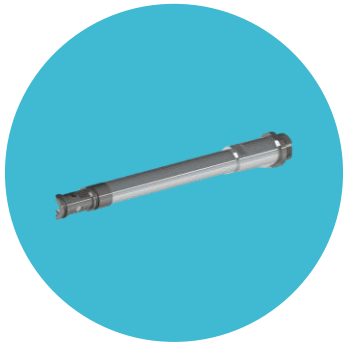
AYŞE SEDA GÜRBÜZ

OUTLINE

RADIAL
SHOCK WAVES

RADIAL VS. FOCUSED
SHOCK WAVES

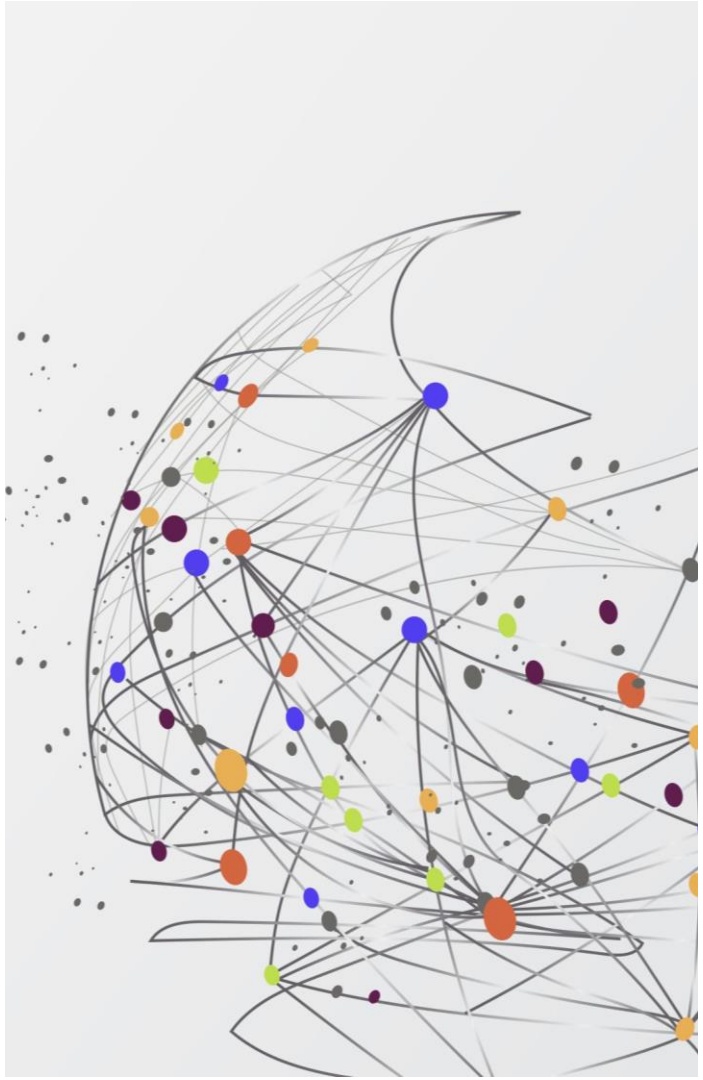
MODUS ESWT



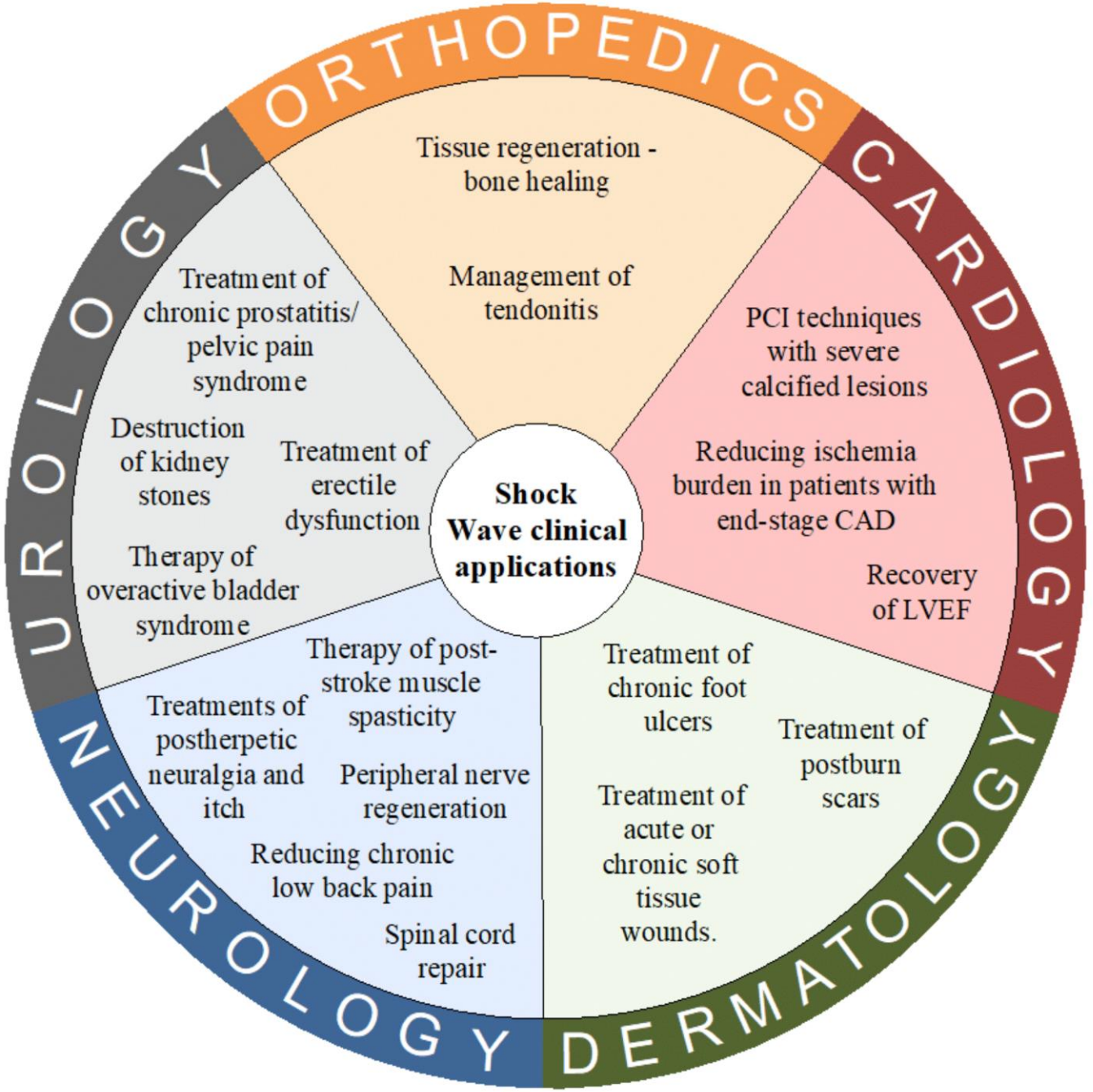
SPARE PARTS

SHOCK WAVE THERAPY (ESWT)

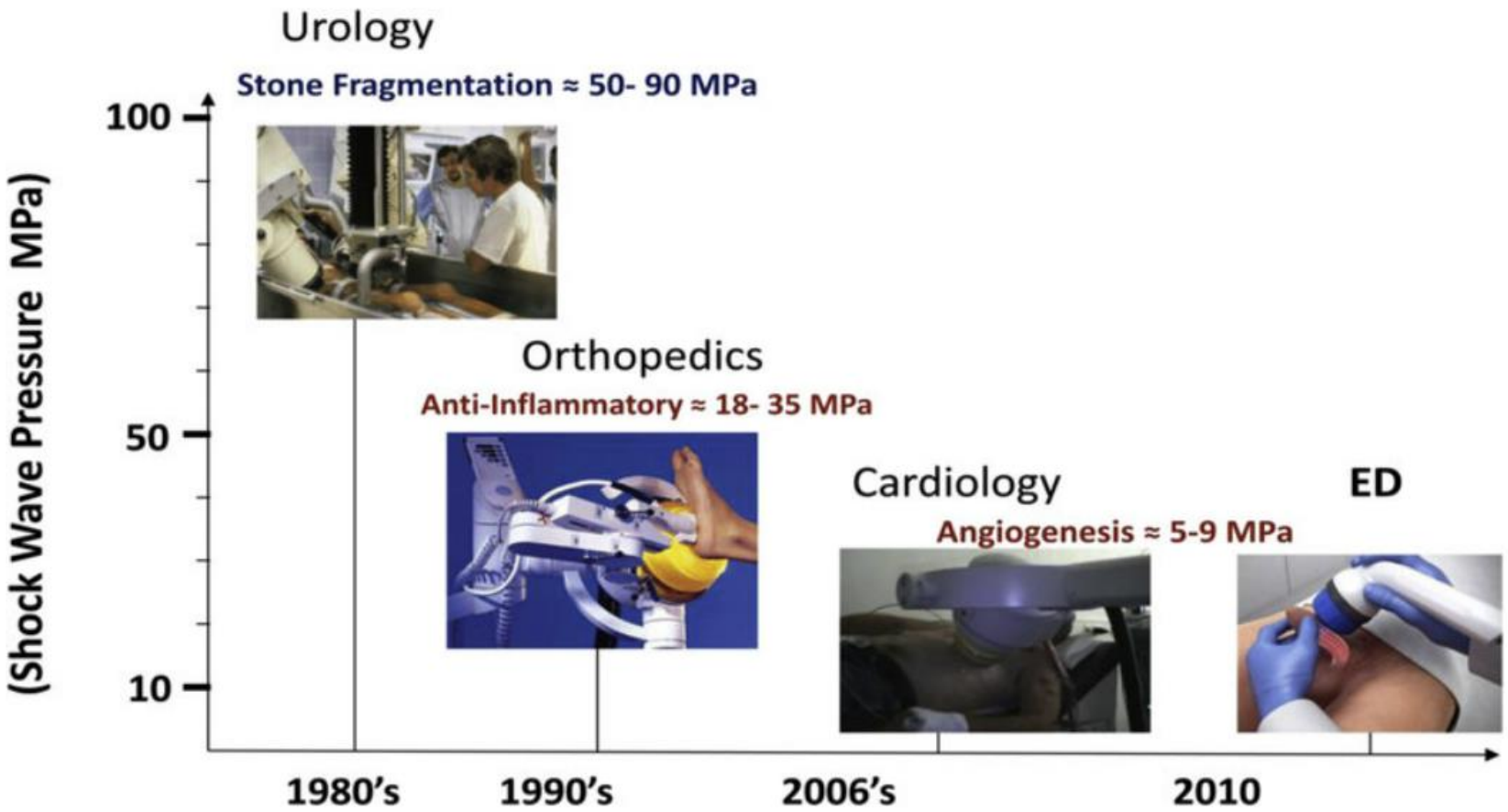
- Safe, innovative, cost-effective and non-invasive treatment
- First introduced in 1980 for the treatment of kidney stones in a lithotripsy procedure
- Preferred method in veterinary medicine, neurology, urology, cardiology, sports medicine, dermatology and aesthetics, but especially in orthopedics and physical therapy



ALL CLINICAL APPLICATIONS



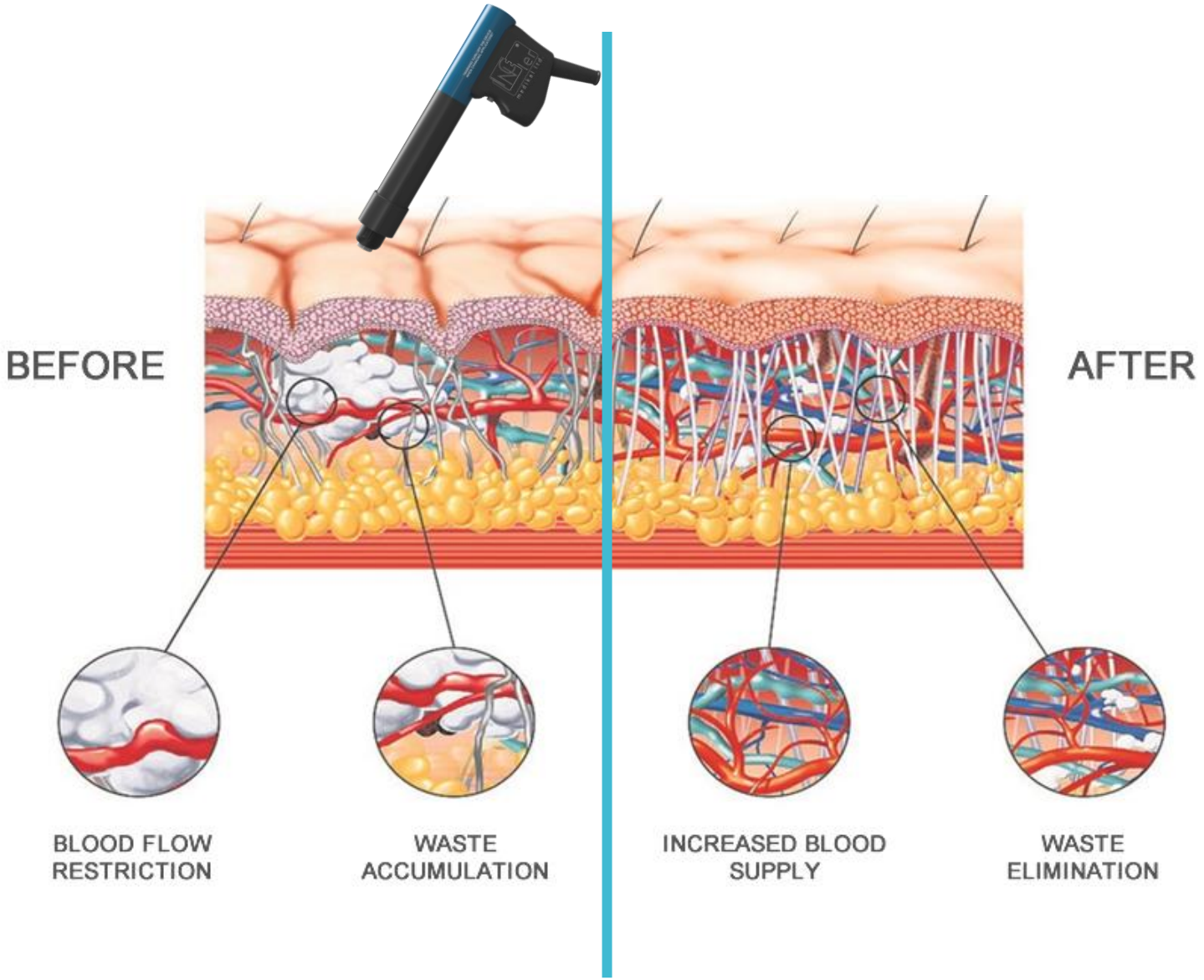
BREIF HISTORY of SHOCK WAVE THERAPY



Porst, Hartmut. (2020). Review of the Current Status of Low Intensity Extracorporeal Shockwave Therapy (Li-ESWT) in Erectile Dysfunction (ED), Peyronie's Disease (PD), and Sexual Rehabilitation After Radical Prostatectomy With Special Focus on Technical Aspects of the Different Marketed ESWT Devices Including Personal Experiences in 350 Patients. Sexual Medicine Reviews. 9. 10.1016/j.sxmr.2020.01.006.

HOW DOES SHOCK WAVE THERAPY WORK?

- New Vessel Formation
- Reducing Chronic Inflammation
- Collagen Production
- Pain Reduction



- Shock waves can be transmitted maximally in liquid medium. For this reason, gel should be used in all radial and focused shock wave treatments.

SHOCK WAVES

RADIAL

ELECTRO-PNEUMATIC

(kinetic energy)

Modus ESWT

Storz, BTL, EMS

ELECTROMAGNETIC

Zimmer enPuls

(It is mobile-portable, but the handpiece is not effective and useful. Its performance is lower than electro-pneumatic systems.)

FOCUSED

ELECTROHYDRAULIC

Modus Focused ESWT

(It is a very powerful technology developed in the 1980s and requires electrode replacement.)

PIEZOELECTRIC

(There are hundreds of piezoelectric crystals inside, and the shocks created by these crystals affect a smaller area. It has a longer service life, but it is a very expensive technology.)

ELECTROMAGNETIC

(It focuses very well on the target and works with the coil.)

Storz

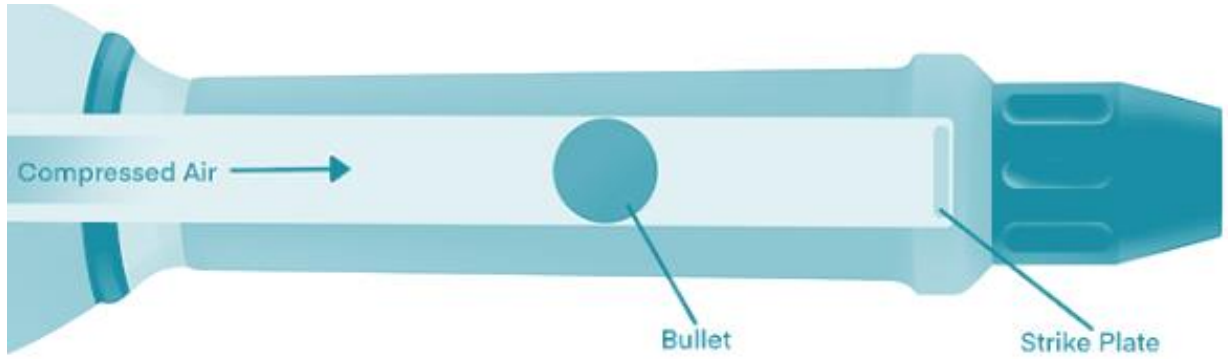
ELECTROACOUSTIC

(Electro acoustic lens system is used; the light blue part is this lens system and the dark blue part at the bottom contains a piezoelectric crystal. There are not enough scientific studies on its effect.)

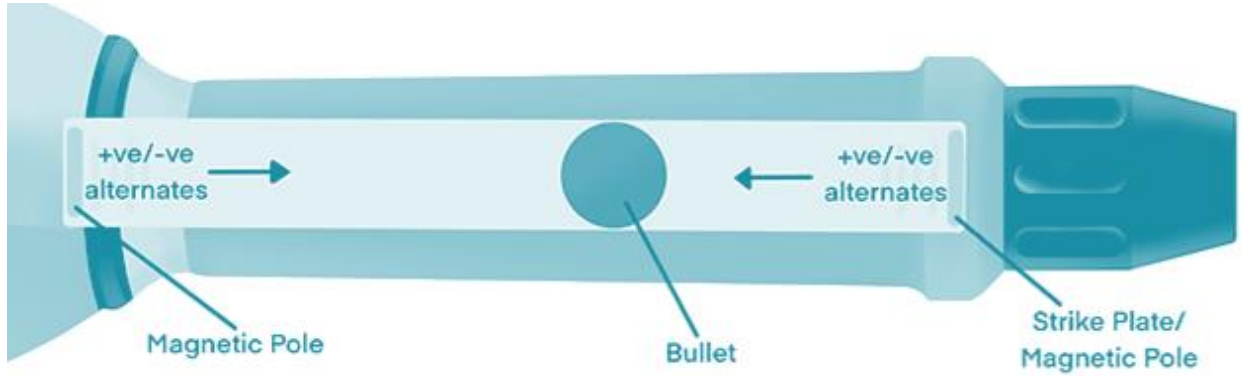
BTL

WORKING PRINCIPLE DIFFERENCES OF RADIAL SHOCK WAVES

- AIR COMPRESSED SYSTEM/ELECTRO-PNEUMATIC



- ELECTROMAGNETIC SYSTEM



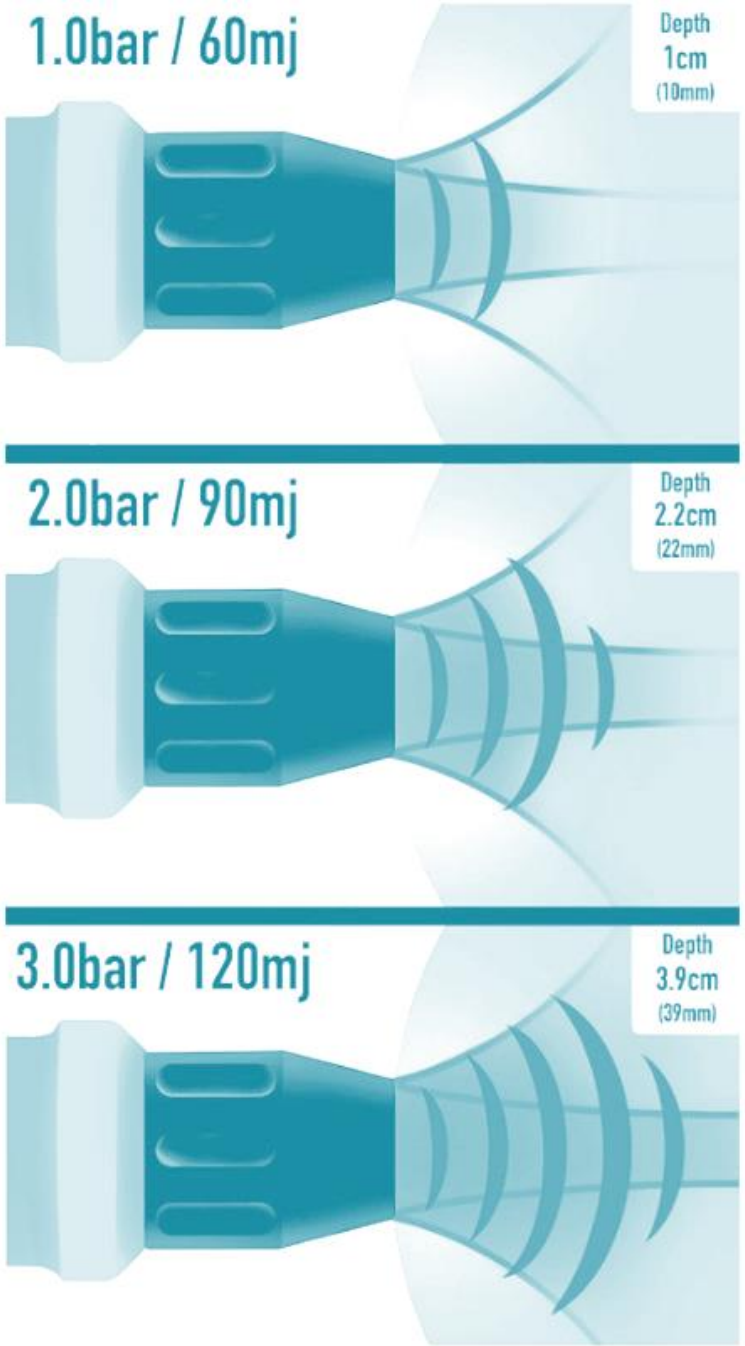
RADIAL SHOCK WAVES

Electro-Pneumatic System

- Compressed air accelerated by the pneumatic rocket mechanism is transmitted to the treatment head (applicator). Thus, the kinetic energy turns into a shock wave.

WORKING PRINCIPLE DIFFERENCES OF RADIAL SHOCK WAVES

Compressed Air Bar	Magnetic mJ	Energy Per mm using 15mm head mJ/mm2
1	60	
2	90	
3	120	0.12
4	150	
5	180	0.38



RADIAL SHOCK WAVES

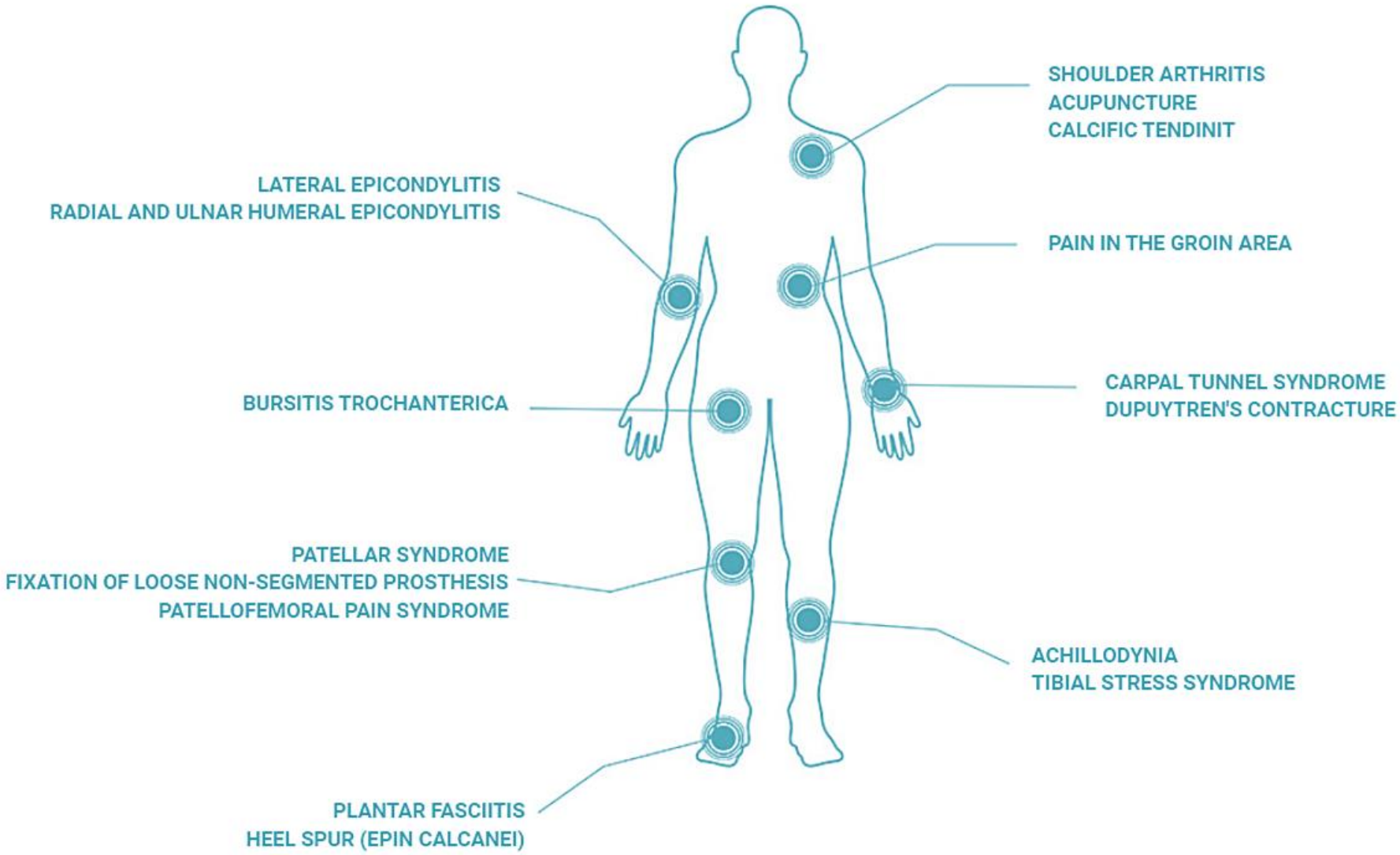
ELECTRO-PNEUMATIC HANDPIECE & APPLICATORS

ELECTROMAGNETIC HANDPIECE & APPLICATORS

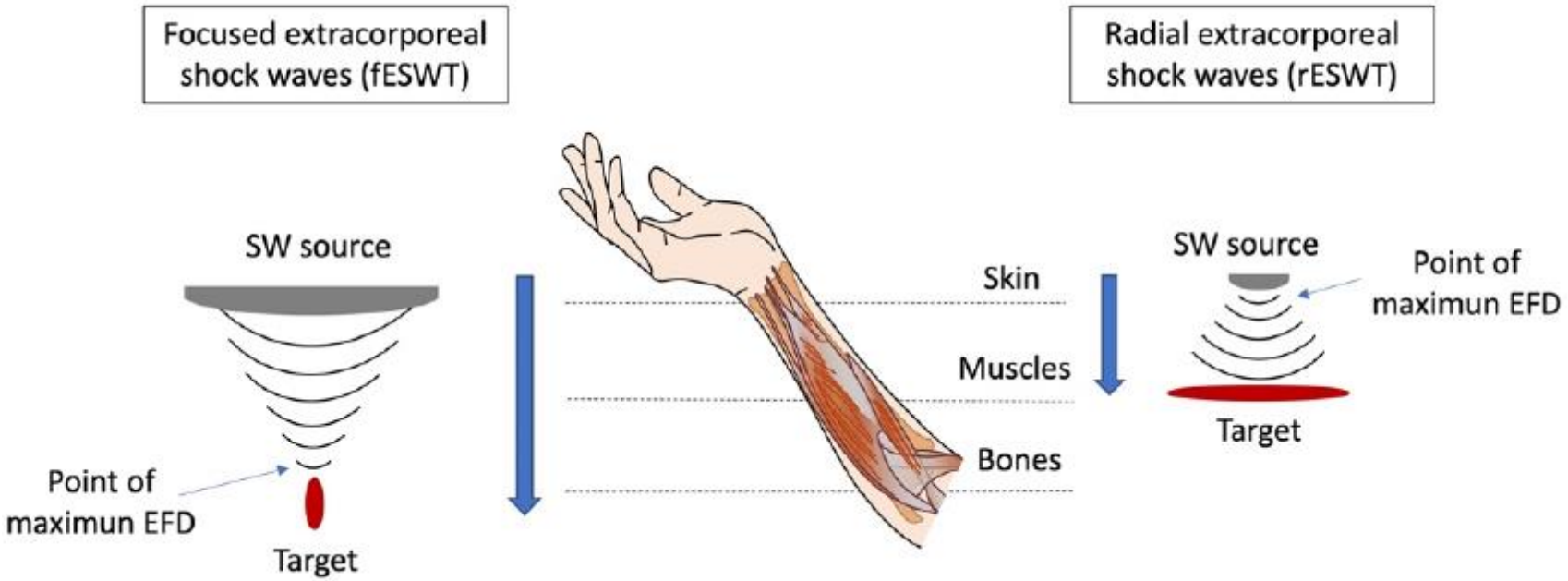
WORKING PRINCIPLE DIFFERENCES OF RADIAL SHOCK WAVES

PARAMETER	ELECTRO-PNEUMATIC	ELECTROMAGNETIC
Operation mode	Continuous	Pulse/interrupted
Shock shot capacity	Almost 1-2 million capacity in a revision kit	2 million generator capacity
Max frequency	High	Low
Clinical studies	Large number of research	Small/limited researches
Performance	High	Low
Experience in physiotherapy practices	Commonly use	Small number of devices installed

INDICATIONS



RADIAL vs. FOCUSED

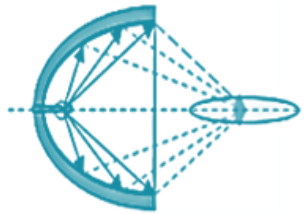


Ryskalin L, Morucci G, Natale G, Soldani P, Gesi M. Molecular Mechanisms Underlying the Pain-Relieving Effects of Extracorporeal Shock Wave Therapy: A Focus on Fascia Nociceptors. Life. 2022; 12(5):743. https://doi.org/10.3390/life12050743

TYPES OF ACOUSTIC PRESSURE GENERATORS

Focal Volume - Focused Energy

Electrohydraulic Shockwaves:
Lightning and focused thunder



Max Peak Pressure: 60 MPa
Rise time: nanoseconds
True shockwave in all settings
Largest focal area, short treatment time, most effective in levels of energy delivery and time of treatment

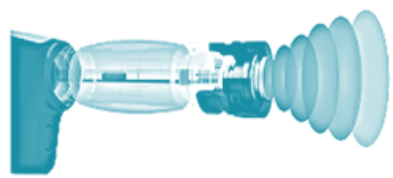
Electromagnetic Pressure Waves:
Loudspeaker

Max Peak Pressure: 110 MPa
Rise time: microseconds
True shockwave at high energy settings only.
Small intense focal area (increased treatment time)

Piezoelectric Pressure Waves:
Focused vibrating crystals

Max Peak Pressure: 80 MPa
Rise time: microseconds
True shockwave at high energy settings only.
Small intense focal area (increased treatment time)

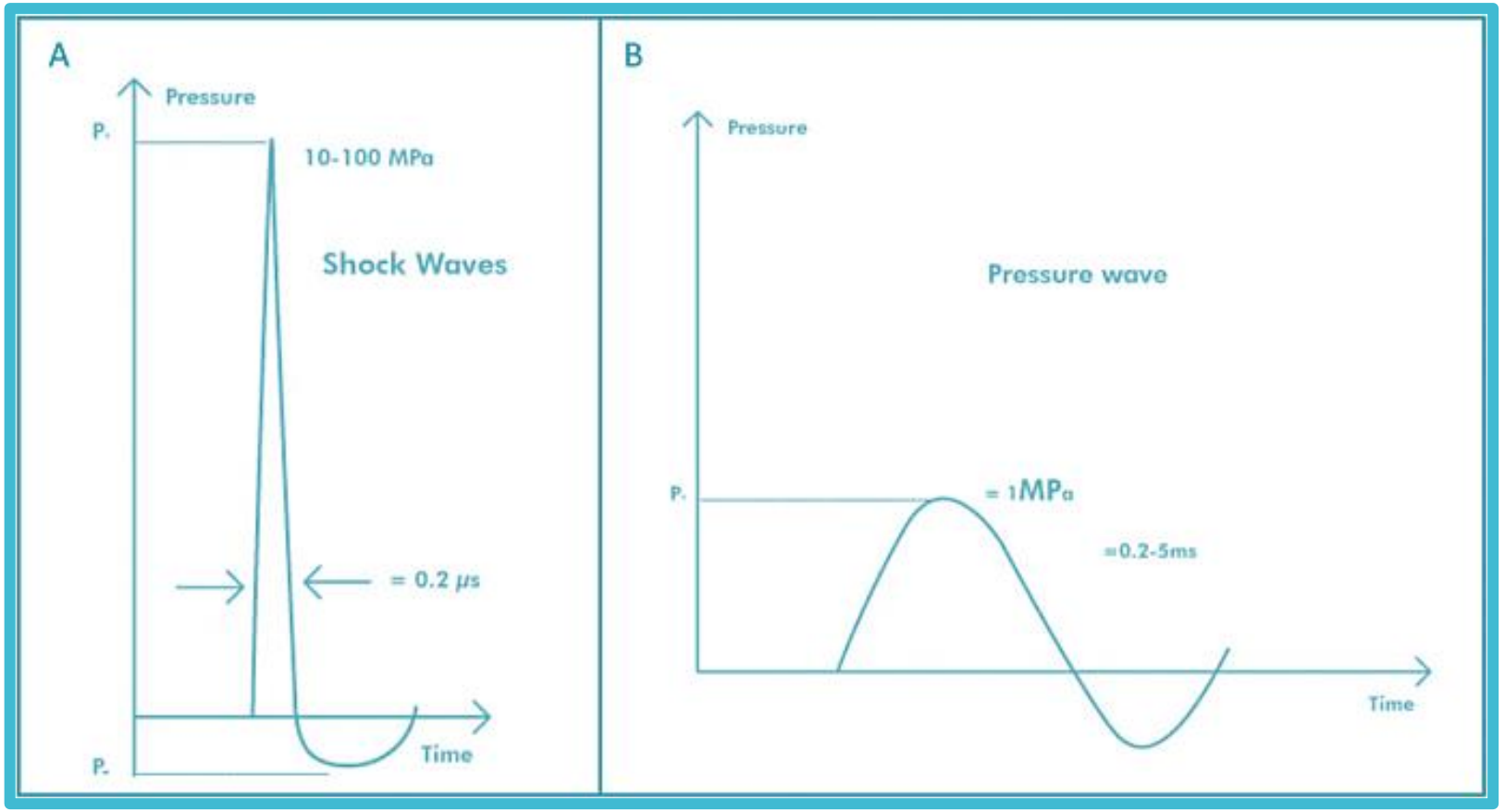
Radial Pressure Waves:
Pneumatic jack hammer



Unfocused

Max Peak Pressure: 0.4 MPa
Rise time: microseconds
Does not produce shockwaves at any setting
Energy completely dissipated by 0.5 – 1.0 cm

Focused shock waves have high energy density!



The intensity of the shock waves determines its effect!

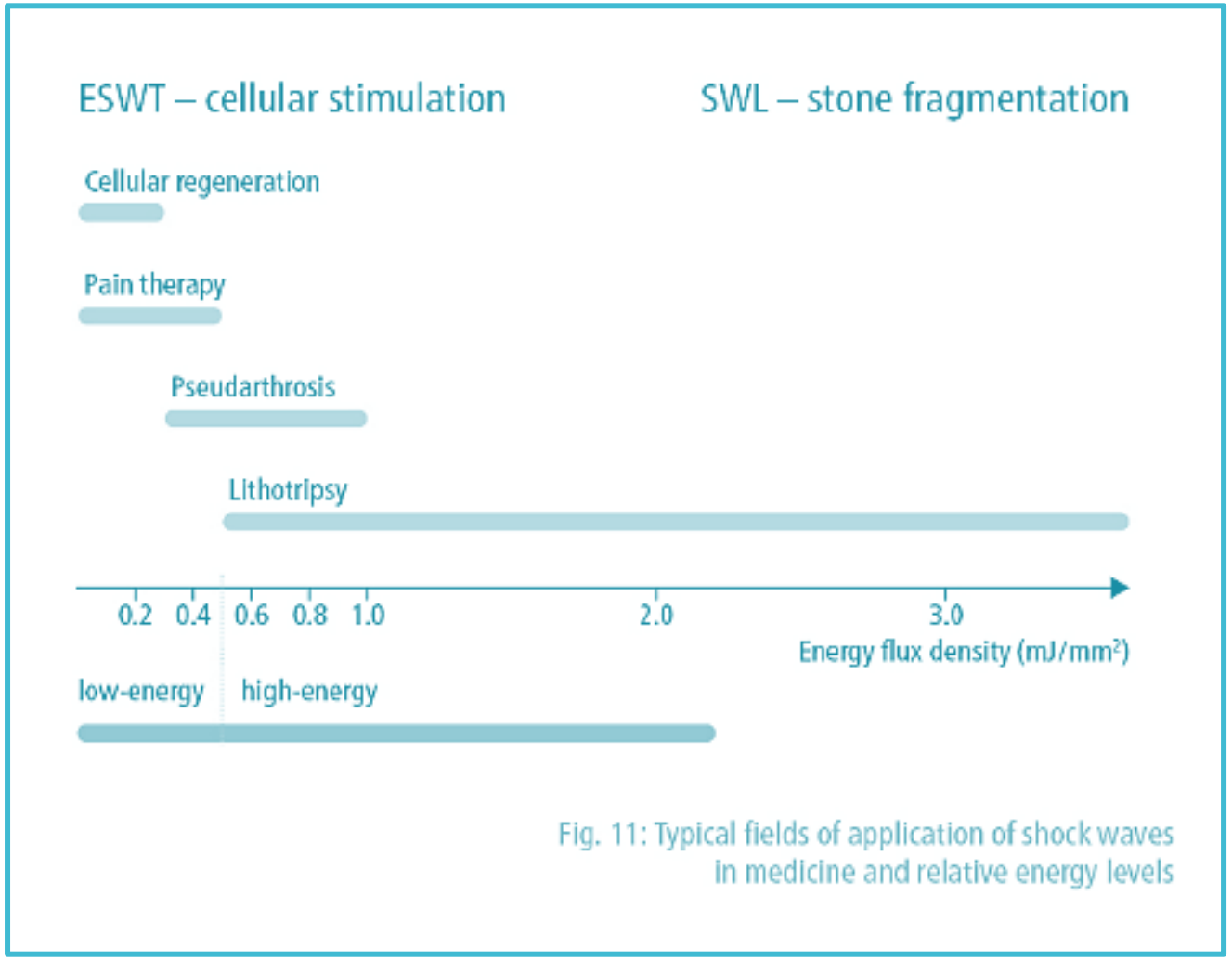


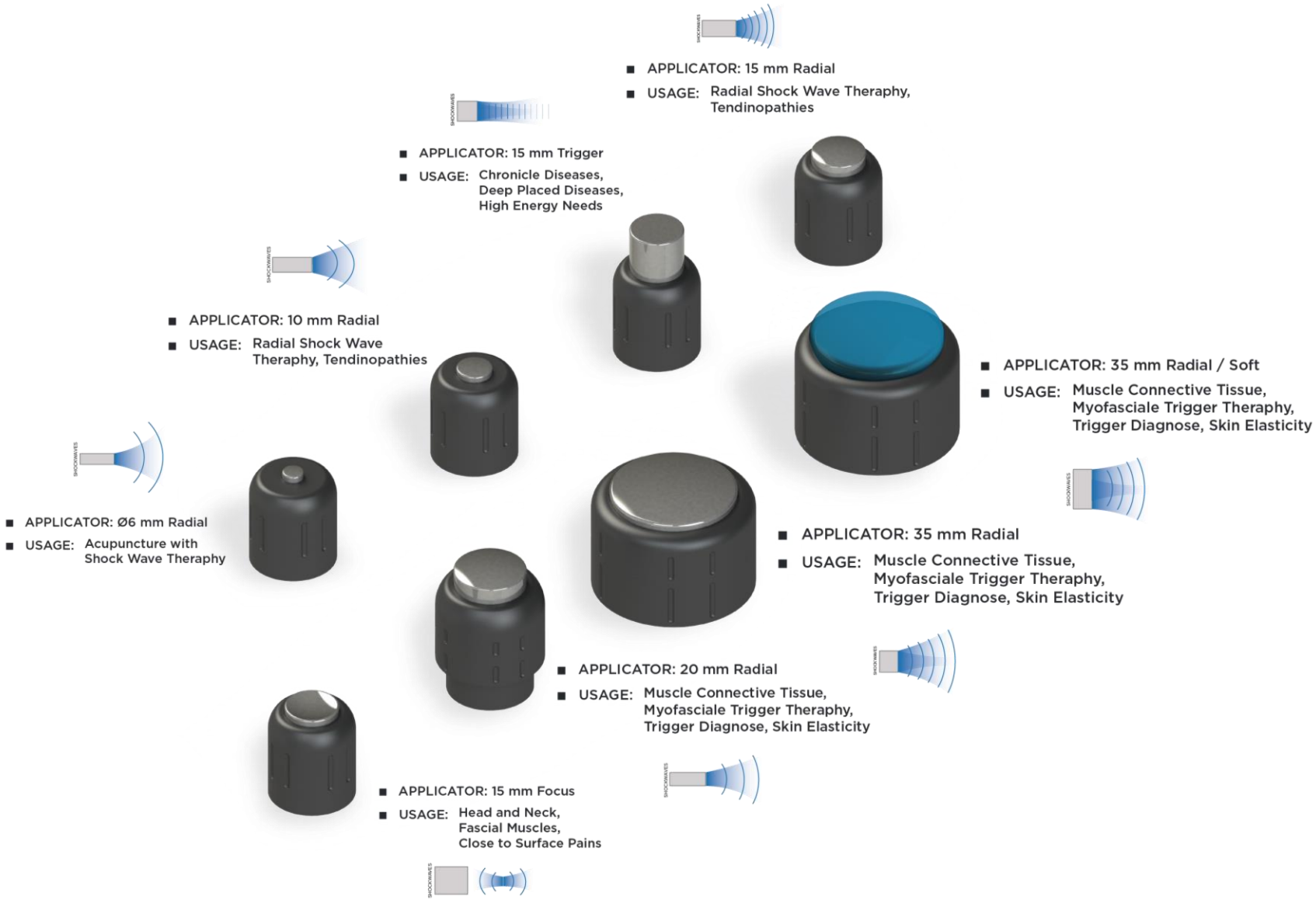
Fig. 11: Typical fields of application of shock waves in medicine and relative energy levels

MODUS ESWT

ADVANTAGES

- 3 million shock shot capacity
- Ergonomic design, lightweight handpiece
- 7 + soft applicator option
- Portable
- Indications and Pathological Applications Guide

WIDE RANGE of APPLICATORS



IMPORTANT!

- There is a focused applicator option in radial devices.
- It is confused with the focused working principle.
- These focused applicators have a radial effect.
- It does not have a point and depth effect like focused devices.

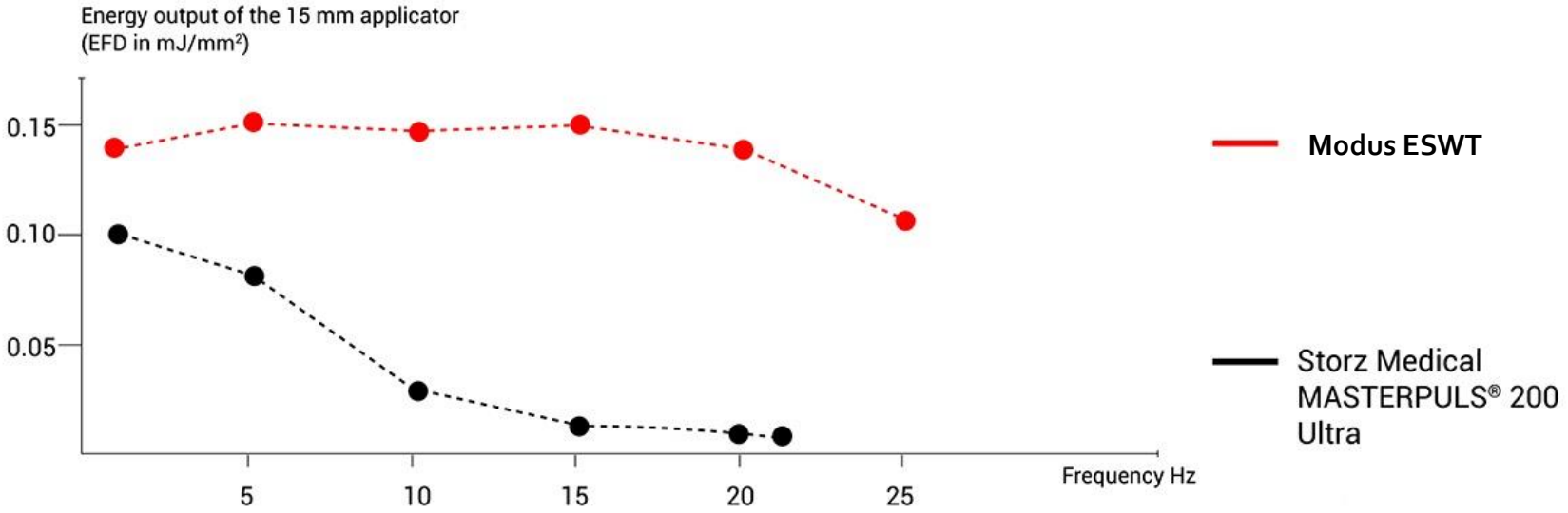
■ APPLICATOR: 15 mm Focus

COMPARISON
with
OTHER BRANDS

ESWT				
COMPANY	*EMS*	*STORZ*	*BTL*	*INCELER*
MODEL	DOLORCLAST	MASTERPULS MP200 ULTRA	BTL-6000 ELITE	MODUS RADIAL
COMMANDS	TOUCH	TOUCH	ROTARY KNOB & TOUCH	TOUCH
DISPLAY	TOUCH SCREEN	TOUCH SCREEN (OPTIONAL)	TOUCH SCREEN	TOUCH SCREEN
MAX.PRESSURE	4 BAR	5 BAR	6 BAR	5 BAR
MAX.FREQ.	22 Hz	21 Hz	22 Hz	22 Hz
COMPRESSOR	INTEGRATED	INTEGRATED	INTEGRATED	INTEGRATED
VIDEO	YES	YES	NO	YES
NO OF TREATMENT PROTOCOLS	5	22	22	23
RAMP UP	YES	NO	NO	YES
NO OF APPLICATORS	7	9	7	7
SOFT APPLICATOR	NO	NO	NO	YES
REVISION KIT LIFETIME	1,000,000	2,000,000	2,000,000	3,000,000
WEIGHT	15 kg	23 kg	7 kg	10 kg

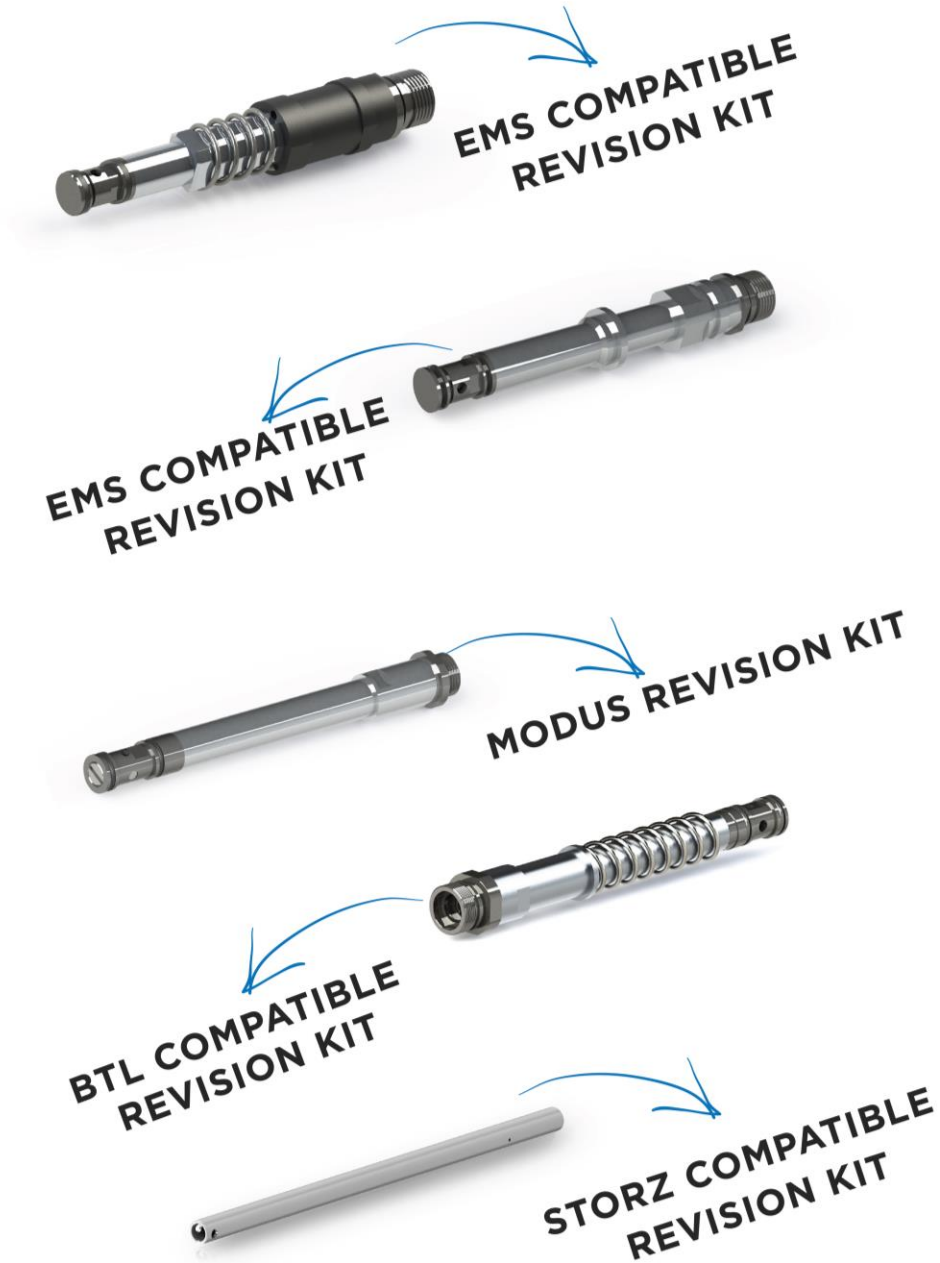
MODUS ESWT

Excellent Performance



ESWT SPARE PARTS

Revision Kits for Other Brands



3.000.000 SHOCK SHOT GUARANTEE

ESWT SPARE PARTS

Applicators for Other Brands

THANK YOU!