



NerveCube



RSWT

Radial
Shockwave
Therapy



FSWT

Focus
Shockwave



VIBE

Vibration
Therapy



ULTRA

Ultrasound
Therapy



User Manual

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1. What is Nerve Cube?

For the Nerve Cube, the core innovation lies in its **Combinational Therapeutic approach**, which lets therapists easily combine different treatment approaches — targeting deep tissue repair with electromagnetic fields or laser, or providing precise pain relief with focused or radial shock wave.

Technologies for physiotherapy, sport medicine, urology, and orthopedics:

1. Vibration Therapy
2. Ultrasound Therapy
3. Low Level Laser Therapy
4. Electrotherapy
5. Focus Shock Wave Therapy
6. Radial Shock Wave Therapy
7. High Intensity Magnetic Therapy
8. High Power Laser Therapy

Also available:

9. Radio Frequency TECAR Therapy
10. PEMF Therapy (Pulsed Electromagnetic Field Therapy)

1.1 Combinational System Overview

Combinational Design. The system features a flexible 3-unit modular architecture, consisting of 1 Control Unit + 2 Therapy Modules.

1.3 Control Unit (Top Module)

The Control Unit supports selection of concurrent technologies from the following:

- Low-Level Laser Therapy (LLLT)
- Interferential Current Therapy (IFC) and TENS Therapy
- 1 MHz & 3 MHz Therapeutic Ultrasound

1.4 Therapy Modules (Middle & Bottom Units)

Each Therapy Module is dedicated to one high-power therapeutic technology selected from the list below:

- Radial Shockwave Therapy
- Focused Shockwave Therapy
- High-Power Laser Therapy
- Vibration Therapy
- Pulsed Electromagnetic Field (PEMF) Therapy
- Pulsed Mechanical Stimulation Therapy (PMST)

This unit manages treatment parameters and delivers precise control over selected modalities.

These modules provide robust, clinical-grade treatment delivery with high output and deep tissue reach.

CONTROL BOX

(Pick any **two** out of three)



· COLD LASER



· ULTRASOUND



· ELECTROTHERAPY

3 Minor Modalities



THERAPY BOXES

(Pick any **two** out of nine)



· FSWT



· RSWT



· PMST



· PEMF



· HILT



· TECAR



· VIBRATION

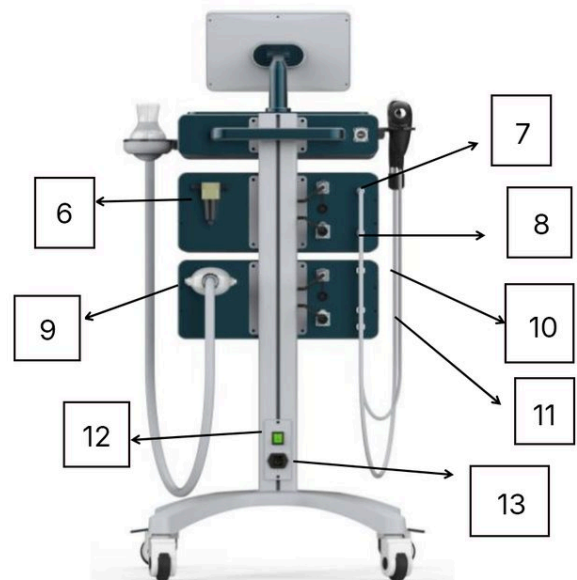
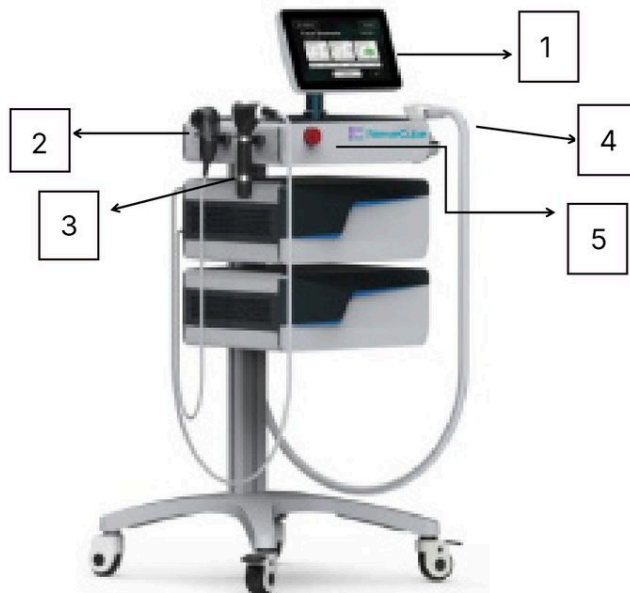
7 Major Modalities

RSWT + VIBRATION

PMST + COLD LASER

2 Special Combinations

1.5 Machine structure



No.	Part	No.	Part
1	Touch Screen	8	Applicator Socket
2	Mechanical Vibration Applicator	9	Applicator Socket
3	Radial Shockwave Applicator	10	Water Inlet
4	Focus Shockwave Applicator	11	Water Overflow & Water Outlet
5	Emergency Switch	12	Power Switch
6	Filter Cup	13	Power Socket
7	Focus Shockwave Applicator Socket		

For detailed installation videos, please consult your sales representative or visit our website:
www.nervespa.com

1.6 Therapeutic technical parameters

FOCUS SHOCK WAVE

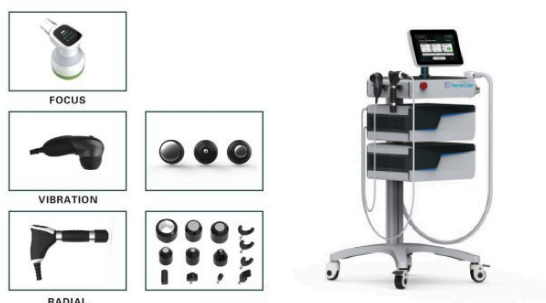
Intensity	0.03-0.39 mJ/mm ²
Frequency	1-10 Hz
Focal depth	0-65 mm (adjustable)
Penetration depth	up to 120 mm
Pressure	5-50 MPa

RADIAL SHOCK WAVE

Intensity	0.5-10 Bar
Frequency	1-21 Hz

VIBRATION

Intensity	5-100 %
Frequency	1-50 Hz



2. General Safety Information

This chapter contains the safety information that must be read, understood, and followed before the Nerve Cube is installed, operated, cleaned, or serviced. Keep this manual with the device and available to all users at all times.

2.1 Safety alert conventions

Safety messages in this manual use standardized signal words. Understand them before operating the device:

Signal word	Meaning
DANGER	Imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	Practice not related to personal injury, but which could result in equipment damage or loss of data.
NOTE	Additional information to help operate the device effectively.

WARNING!

WARNING — Incorrect handling of the device. Risk of injury to the patient and the operating personnel.

- Read this chapter, and the complete manual, before using the Nerve Cube.
- Read the separate operating manuals for all applicators and devices used with the Nerve Cube.
- Use the device only for its intended purpose and only as described in this manual.

2.2 Safety symbols and labels

Symbols appear on the device rating plate, on the applicators, and throughout this manual. Become familiar with them before use.

Symbol	Reference	Meaning
	ISO 7010 / 15223-1	Consult the instructions for use before operating.
(type BF applied part)	IEC 60601-1	Degree of protection of the applied part. [VERIFY applied-part type]
(manufacturer)	ISO 15223-1	Manufacturer name and address. [VERIFY]
(CE / UDI / type rating)	MDR / IEC 60601-1	Conformity mark, unique device identifier, and electrical type rating. [VERIFY]

2.3 Intended use, intended users, and operating environment

Intended use. [VERIFY — insert the manufacturer's cleared intended-use / indications-for-use statement verbatim.] In general terms, the Nerve Cube is a combination physiotherapy system delivering focused (FSWT) and radial (RSWT) extracorporeal shockwave therapy, mechanical vibration therapy, and therapeutic ultrasound for the treatment of musculoskeletal pain and the support of tissue repair.

Intended users. The device is for use **only by trained, qualified healthcare professionals** who have read this manual and are competent in the applied therapies. It is not for lay or unsupervised use.

Operating environment. The device is intended for use in a professional healthcare facility. It is not intended for home use, and not for use in the patient environment of life-support equipment unless [VERIFY] confirms electromagnetic compatibility for that setting.

To ensure the device is used in accordance with its intended use, the operator must have the necessary technical proficiency and knowledge of this manual. All status and fault messages signalled during treatment must be attended to without delay.

Checks and inspections prior to treatment

Always confirm the device is functioning safely before each use:

- Check device functions and indicators before starting treatment.
- Inspect each applicator, handpiece, and cable for damage: check whether any cable is loose, whether cable insulation is cracked, whether a handle shell is cracked, and whether the display functions normally. Do not use damaged components.
- Have the maintenance procedures recommended by the manufacturer carried out only by suitably authorized personnel.

2.4 Contraindications, warnings, and precautions

WARNING!

WARNING — Do not begin treatment if any contraindication applies. Screen every patient before treatment. Treating a contraindicated patient can cause serious harm. When in doubt, do not treat, and consult the responsible physician.

The full contraindications and precautions for this device are listed in **§22 Contraindications & Precautions** — screen every patient against that list before treatment. In summary, treatment is contraindicated over malignancy, active infection or open wounds, the lungs or brain, coagulation disorders or anticoagulant use, growth plates in children, and in pregnancy, and in patients with a pacemaker or implanted defibrillator.

2.5 Modality-specific safety

2.5.1 Focused and radial shockwave (FSWT / RSWT)

WARNING!

WARNING — High-energy acoustic pulses. Focused and radial shockwaves deliver concentrated mechanical energy into tissue and can cause bruising, petechiae, hematoma, and transient pain.

- Do not apply shockwaves over the **lungs, gas-filled organs (gut), the brain or skull, the spine over the spinal cord, large blood vessels, or major nerve trunks.** [VERIFY exclusion zones against cleared labelling.]
- Do not treat over **growth plates** in children/adolescents, over **malignancy, active infection, open wounds, or recent thrombosis**, or in patients with **coagulation disorders or on anticoagulants.** [VERIFY]
- Set energy to a level the patient tolerates; do not exceed the conventional treatment time and impact intensity.

Applicator handling (device-specific). The machine uses changeable applicators. Before starting the machine, the applicator **MUST BE** attached to the device firmly. **If no applicator is attached and the machine is started, the energy has no way to release and will burn the circuit board.** This misuse-caused failure **WILL NOT** be covered by the warranty.

- When the machine is powered on, do **not** install the shockwave applicator and do **not** remove handles from their outlets.
- Never insert metal into the output port.
- A **gel medium must be used** during treatment so energy penetrates stably and deeply into the treatment area. Without gel, output power is reduced by ~30%.



Consult your sales representative for video guidance on installing and changing applicators.

2.5.2 Mechanical vibration

⚠ WARNING!
WARNING — Mechanical vibration. Apply the vibration handpiece only to soft tissue at a comfortable intensity. • Avoid bony prominences and thin soft-tissue areas, and avoid treatment over [VERIFY exclusion sites]. • Some patients (e.g. those with paralysis or impaired sensation) may not be able to judge the degree of stimulation themselves; take care to prevent excessive stimulation.

2.5.3 Therapeutic ultrasound

⚠ WARNING!
WARNING — Therapeutic ultrasound. Ultrasound deposits heat in tissue and can cause burns if misapplied. • Do not apply ultrasound over the eyes, the gravid uterus, growth plates, ischaemic tissue, the heart, or over malignancy. [VERIFY against cleared ultrasound labelling.] • Keep the ultrasound applicator moving during treatment to avoid localized hot spots, and use an appropriate coupling gel.

2.6 Electrical, installation, and environmental safety

⚠ WARNING!
WARNING — Electrical hazard. Improper connection or damaged cabling can cause electric shock or fire. • Connect only to a correctly earthed (protective-earth) mains supply matching the device rating. [VERIFY mains voltage/frequency/current rating.] • Do not use the device with a damaged power cord, plug, or applicator cable. • Do not open the housing. There are no user-serviceable parts inside.

Protection against electrical hazards

Disconnect the Nerve Cube from the mains before any cleaning or maintenance.

- Do not reconnect it until it has been completely reassembled.
- Ensure there is no damage to any applicator or applicator cable.

- Make absolutely sure that no liquid can seep into the system housing or applicators.
- Operate and store the device only within the specified environmental limits. **[VERIFY operating/storage temperature, humidity, and pressure ranges.]**
- This device requires special EMC precautions; keep portable RF communications equipment away from it per the EMC tables. **[VERIFY EMC separation distances.]**

Water system (device-specific)

Because the machine uses a water system for focused shockwave, distilled or purified water must be filled into the machine when the device is first received. For maintenance, change the water every month. Consult your sales representative for video guidance on adding and changing water.

2.7 Setup and operation

- Before starting, confirm the correct applicator is **firmly attached** (see §2.5.1) and that the water system is filled.
- For focused shockwave, adjust the water level in the water bag: press the water bag appropriately to balance water pressure, ensuring stable energy output and deep penetration. After treatment, lower the water level and confirm it is stable before turning off the machine.
- Ensure the focused/radial shockwave or mechanical-vibration handpiece makes contact with the patient's skin **before** initiating treatment, to avoid impacting without force and causing abrasion.
- Explain the whole treatment process to the patient, and instruct the patient to give feedback immediately if there is any discomfort.
- Confirm that all setting parameters meet the requirements before treatment starts.
- Keep ventilation slits uncovered, and never cover the device when in use.
- Position the device so the mains plug and **emergency stop remain accessible** at all times.
- The interval between turning the power switch off and on again must be at least **3 seconds**.

2.8 Safety during treatment and patient monitoring

Treatment can give rise to undesirable reactions. The patient must be continuously observed during treatment, and the operator must respond to any reaction the patient experiences. **The patient must not be under anaesthetic** and must be able to perceive and report discomfort.

- Keep the output at an intensity level the patient finds comfortable.
- Some patients (e.g. with paralysis or impaired sensation) may not be able to judge the degree of stimulation; take care to prevent excessive stimulation.
- Do not exceed the conventional treatment time and impact intensity.
- Do **not** disconnect the control handle during treatment.
- Stop treatment immediately if the patient reports pain, excessive heat, or any adverse reaction, or if a device fault is signalled or any defect is suspected.

2.9 Emergency procedures

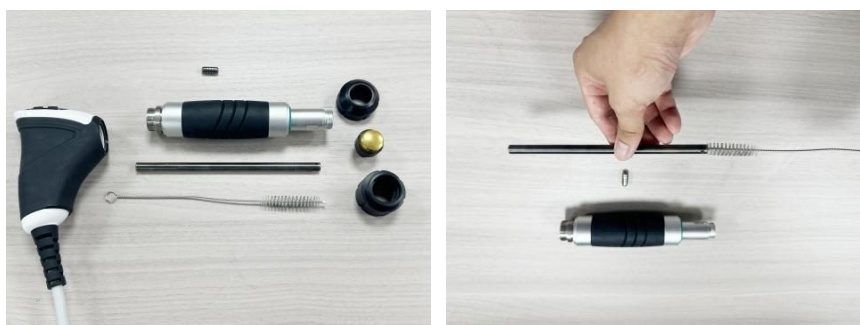
In an emergency (adverse patient reaction, smoke, abnormal noise, fluid ingress, or any device malfunction):

1. **Stop emission** — release the handpiece trigger and press the emergency stop / power off.
[VERIFY emergency-stop location and behaviour.]
2. Disconnect the device from the mains if it is safe to do so.
3. Attend to the patient and provide care as clinically indicated.
4. Take the device out of service, label it, and contact authorized service.
5. Report any serious incident to the manufacturer and the competent authority as required by local regulation. [VERIFY reporting contacts.]

2.10 Maintenance and service safety

Proper maintenance is essential to ensure optimal performance, user safety, and extended equipment lifespan. Disconnect the device from the mains before any maintenance, and refer all internal repairs to certified technicians.

After treatment, clean the **radial shockwave handle or mechanical vibration handle** promptly to avoid residual gel corrosion and impact debris from clogging the handle and affecting its normal operation. Contact your sales representative for video guidance.



Shockwave working-head installation. To replace a shockwave working head, rotate and twist it into place:



- Change the water-system water every month (see §2.6).
- After use, turn off the power and clean the equipment and treatment probes.
- Maintain at least a 3-second interval between turning the power switch off and on again.

2.11 Residual risk

Even when the device is used as intended and all instructions are followed, residual risks remain — for example bruising, petechiae, or transient pain from shockwave therapy, thermal effects from ultrasound, or unexpected patient reactions. Use the device only when the clinical benefit outweighs these risks, keep the patient under observation, and report any serious incident to the manufacturer and the competent authority. [VERIFY the residual-risk statement against the product's ISO 14971 risk management file.]

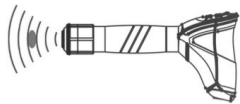
3. What is Shockwave Therapy?

Shockwave therapy is a non-invasive medical treatment that uses high-energy acoustic (sound) waves to stimulate healing in injured or painful musculoskeletal tissues.

Think of it as using controlled "sound bullets" that are delivered into the body to break down scar tissue, reduce calcification, and kick-start the body's own repair processes, improving blood flow and reducing pain.

There are two primary types:

- **Focused Shockwave** — energy is precisely focused to a single small point deep within the tissue, giving high penetration and high energy density at the focal point. For deep problems: calcific tendinitis, deep ligament injuries, bone non-unions, plantar fasciitis (chronic), joint osteoarthritis.
- **Radial Shockwave** — energy is radially dispersed from the surface into a wider, shallower area. Broad, superficial coverage. Lower penetration and more diffuse energy. Larger areas of superficial soft tissue: muscle trigger points, myofascial pain, superficial tendinitis (e.g., tennis elbow), cellulite treatment.

Item	Focus Shockwave	Radial Shockwave
		
Wave Propagation	Convergent Wave	Divergent Wave
Penetration Depth	Up to 120 mm (focal 0–65 mm)	0–35 mm
Impulse	Fast	Slow
Effect	Deep Mechanical	Superficial Mechanical
Target	Skin, muscle, bone	Skin, muscle
Number of Treatments	Less	More
Treatment Duration	5 minutes	10 minutes
Usage Area	Physiotherapy, orthopedics, sport medicine, urology, dermatology, cardiology, veterinary	Physiotherapy, orthopedics, sport medicine, aesthetics
More effective in	Erectile dysfunction, wound treatment	/

3.1 Detailed Comparison: RSWT vs FSWT

Energy Distribution

Radial Shockwave: The energy disperses in a broad, fan-like pattern, making it less concentrated.

- The energy gradually diminishes as it penetrates deeper into the tissue.
- Best for treating superficial conditions over larger areas.

Focused Shockwave: The energy is highly concentrated at a precise point in the tissue.

- Delivers energy directly to a defined depth, allowing treatment of deeper structures.

Penetration Depth

Radial Shockwave:

- Effective for tissues up to 3–4 cm deep.
- Limited to superficial musculoskeletal problems.

Focused Shockwave:

- Can penetrate up to ~12 cm (120 mm), with the focal zone adjustable to 65 mm, depending on the energy settings and technology used.
- Ideal for deep musculoskeletal structures, calcification, and bone issues.

Mechanism of Generation

Radial Shockwave:

- Produced mechanically by a projectile within the applicator.
- The projectile strikes a transmitter, creating pressure waves that radiate outwards.

Focused Shockwave:

- Generated using electrohydraulic, piezoelectric, or electromagnetic technologies.
- The shock waves converge into a focal point within the tissue.

Therapeutic Applications

Radial Shockwave:

- Tendinopathies (e.g., Achilles, tennis elbow).
- Soft tissue injuries (e.g., plantar fasciitis, muscle trigger points).
- Larger treatment areas with superficial pain or inflammation.
- Suitable for mild ED or as an adjunct to focused shockwave therapy.
- More effective for superficial tissue issues and general circulation improvement.

Focused Shockwave:

- Deep-seated conditions (e.g., calcified tendons, stress fractures).
- Bone regeneration and delayed union of fractures.
- Precise targeting of deeper anatomical structures.
- Preferred for treating vascular ED, kidney stones, and deep urological conditions.
- Best for patients with moderate to severe ED or deep chronic pelvic pain.

Patient Experience

Radial Shockwave:

- Sensation: produces a strong, tapping sensation over a larger area.
- Comfort Level: can be more uncomfortable — more intense or irritating, especially over bony areas or in sensitive individuals.
- Treatment Duration: usually takes around 15–20 minutes per treatment area.

Focused Shockwave:

- Sensation: produces a sharp, intense pulse at the focal point.
- Comfort Level: generally more tolerable for patients.
- Treatment Duration: typically takes around 5–10 minutes per session.

Cost and Equipment

Radial Shockwave:

- Generally more affordable and portable.
- Common in physical therapy clinics for general musculoskeletal needs.

Focused Shockwave:

- More expensive due to advanced technology and precision.
- Often used in specialized clinics for complex cases.

The choice between the two depends on the nature of the condition, the depth of treatment required, and the patient's comfort level.

Therefore, **focused shock wave therapy** can provide deeper penetration for deeper tissue than radial shock wave, focusing its output into more localized, more profound areas.

4. Generation of Focus Shockwave

4.1 Different Generators

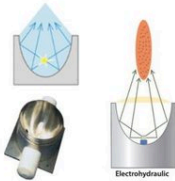
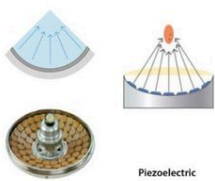
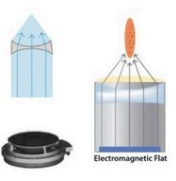
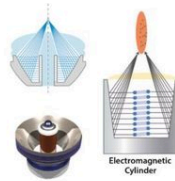
There are 3 different types of shock wave generators commonly used in the generation of focused shock wave:

a. Electro-hydraulic Generator. Generates shock waves through an electric spark in water, which are then focused on the target area using a reflector.

b. Piezo-electric Generator. Generates shock waves through piezoelectric crystals arranged on a spherical surface, focusing on the target area.

c. Electro-magnetic Generator. Generates shock waves through electromagnetic coils, which are focused on the target area through a lens or reflector.

The shock wave therapy in the Nerve Cube device uses **electromagnetic focused shock wave**.

3 Different Types of Focused Shockwave Generators				
Generator	Electro-hydraulic	Piezo-electric	Electro-magnetic	
			Flat Coil System	Cylindrical Coil System
Mechanism	 Electrohydraulic	 Piezoelectric	 Electromagnetic Flat	 Electromagnetic Cylinder
	Electrohydraulic shock waves are produced through a spark discharge in water. This type of generator uses a high-voltage electrode placed at the focal point within a water-filled semi-ellipsoid reflector. When an electric current is applied, a spark creates a plasma bubble that rapidly expands, releasing a spherical shock wave. This wave spreads, creating an initial radial wave followed by a focused shock wave through the reflector's curved surface.	This method harnesses the piezoelectric effect, where certain materials generate sound waves when an electric field is applied. In piezoelectric shock wave devices, hundreds of piezoelectric crystals are arranged on a spherical surface, and receive a rapid electrical discharge. This causes contraction and expansion of the crystals. A low-pressure pulse is induced in the surrounding water and produces a shock wave. The focal volume is determined by the geometric arrangement of the crystals inside the sphere.	Electromagnetic generators create shock waves through the use of a coil and metal membrane. When the coil is charged, it propels the metal membrane away, generating a low-pressure acoustic pulse. There are two variations of this design: Plane Wave Creation: Uses an acoustic lens to focus the generated plane wave to a specified focal point. Cylindrical Source: Produces a cylindrical wave that is focused by a hyperbolic metal reflector, forming a focused shock wave.	

4.2 Three Types of Focused Shockwave

Comparison of Focused Shockwave

Feature	Electro-hydraulic	Piezo-electric	Electro-magnetic
Technology	Underwater spark discharge	Piezoelectric crystal array	Magnetic coil (flat or cylindrical) + membrane
Depth	Deepest (35–150 mm)	Shallow–Medium; fixed per probe (5–40 mm)	Medium; adjustable (5–65 mm focal)
Energy	Highest (up to 150 MPa)	Low–Medium (30–80 MPa)	Medium (5–50 MPa)
Focal Size	Large (10–15 mm)	Smallest (3–8 mm)	Medium (5–12 mm)
Precision	Medium	Very High	High
Pain Level	High	Low	Moderate
Maintenance Cost	High maintenance	High maintenance	Low maintenance
Lifespan	Shorter lifespan	Longer lifespan	Long lifespan
Noise Level	Loud (spark discharge)	Quiet	Moderate
Treatment Speed	Fast (large focal volume)	Slow (small focal zone)	Moderate
Best For	Deep calcifications, large areas	Precision superficial treatments	Versatile multi-depth therapies

The electromagnetic generator is offered in two coil configurations — a **Flat Coil System** and a **Cylindrical Coil System**.

Advantages

- **Electro-hydraulic:** highest energy output; ideal for large areas & deep treatments; stronger mechanical effects, useful for chronic conditions.
- **Piezo-electric:** most precise shockwave focus; ideal for small areas & superficial treatment; minimal discomfort for the patient; very long lifespan.
- **Electro-magnetic:** precise focus and depth control; longer lifespan compared to electrohydraulic; less painful than electrohydraulic.

Disadvantages

- **Electro-hydraulic:** shorter lifespan of electrodes (needs frequent replacement); higher maintenance costs; can be painful due to intense energy.
- **Piezo-electric:** lowest energy output; small treatment area, requiring more treatment time; limited effectiveness on deeper tissues; fixed-depth probes; higher maintenance costs.
- **Electro-magnetic:** medium penetration depth; slightly lower energy output than electrohydraulic.

When to Choose Each

- **Choose electrohydraulic if:** treating hip / large-joint calcifications; you need maximum energy delivery; you can manage higher maintenance.
- **Choose piezoelectric if:** focused on small tendons; you prefer low-maintenance operation; you require surgical-level precision.

- **Choose electromagnetic if:** you need flexibility (variable depth without probe changes); treating mixed-depth conditions; you want balanced cost/performance.

Which One Should You Use?
• Deep musculoskeletal issues: Electrohydraulic • Highly precise and superficial treatments: Piezoelectric • A balance of depth, precision, and patient comfort: Electromagnetic

4.3 Why Choose Electromagnetic Focus Shockwave?

Electromagnetic technology strikes the best balance between power, precision, reliability, and usability — making it the preferred choice for modern clinical practice.

Longer Lifespan & Lower Maintenance

Electromagnetic systems feature fewer components subject to wear and tear, and require minimal maintenance, reducing total cost of ownership.

- Electrohydraulic systems require frequent electrode replacement due to spark erosion.
- Piezoelectric systems may suffer from crystal degradation over time, reducing efficiency.

Accurate Focus & Consistent Output

Electromagnetic systems use a flat electromagnetic coil and a metallic membrane to generate shock waves, allowing for sharper focusing and deeper penetration with consistent energy distribution.

- Electrohydraulic systems produce shock waves via spark discharge in water, leading to less precise focusing and higher variability in energy delivery.
- Piezoelectric systems rely on multiple crystal elements, which can create a narrow but highly focused wave, but with limited penetration depth compared to electromagnetic systems.

High Comfort & High Safety

Electromagnetic systems provide more controlled energy levels, reducing unnecessary tissue damage while maintaining therapeutic efficacy.

- Electrohydraulic systems can produce higher peak pressures, increasing the risk of pain or tissue trauma.

Adjustable Depth & Clinical Versatility

Electromagnetic systems are adjustable in energy and focus depth, making them suitable for both superficial and deep tissues.

- Piezoelectric systems are better for very precise superficial treatments.

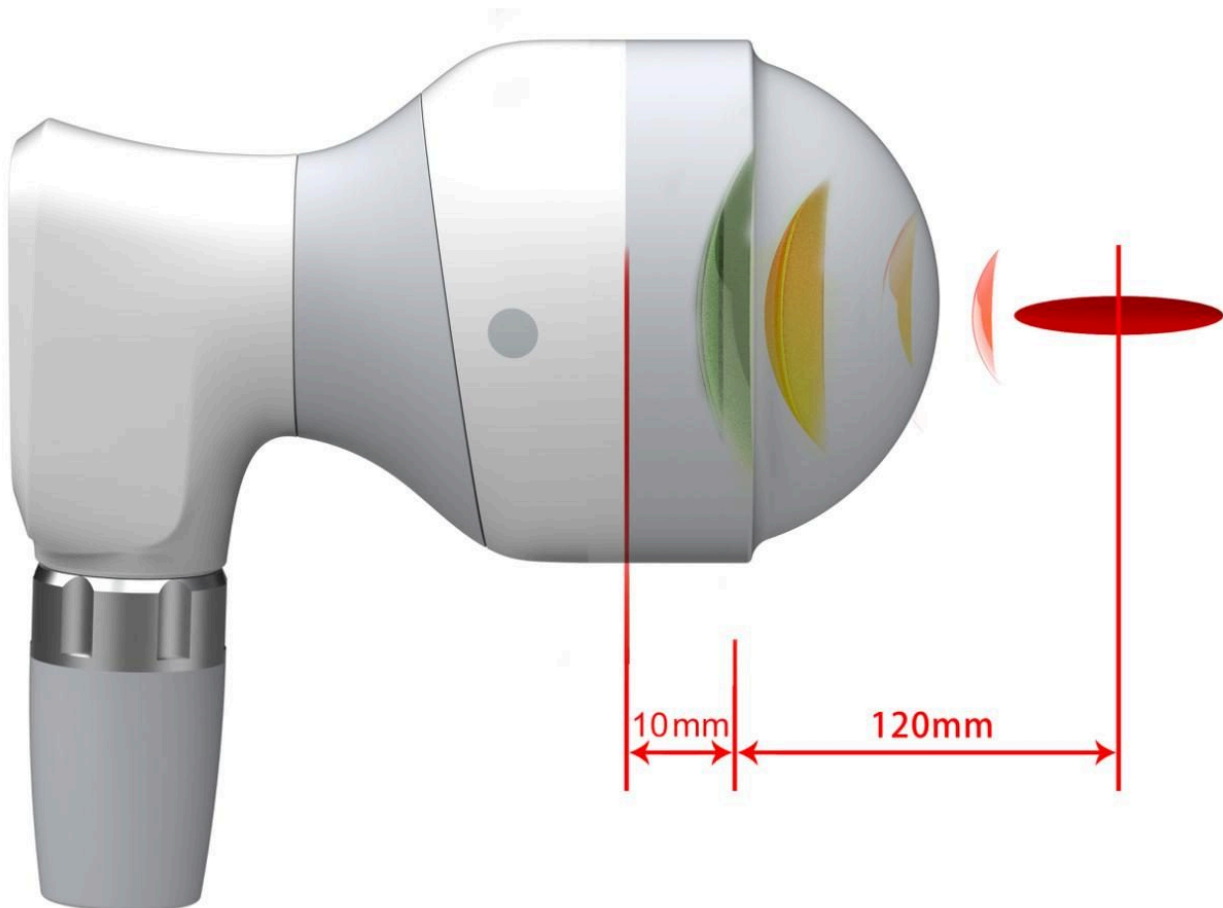
5. How Nerve Cube Focused Shockwave Works?

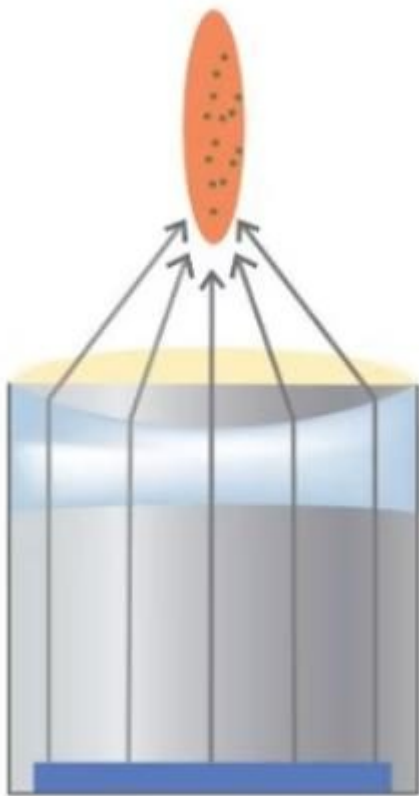
The electromagnetic focused shock wave is based on the physical principle of electromagnetic induction. It enables very precise and highly sensitive dosing of the applied shock wave energy. The shock wave source uses a special coil to focus the shock waves.

Shock waves are generated in water outside the body and then transmitted to the biological tissue. This provides an accurately defined focal zone that can move through the skin without losing power. And the

size of the hand piece on the skin experiences a minimal impact, limiting the damage to surface skin and underlying soft tissues (safer & more comfortable).

Focused shock wave treats at defined points within the body and is further adapted depending on the required depth. This accuracy feature makes focus shock wave therapy much better for treating issues deeper within the body.





Electromagnetic Flat

Nerve Cube focused shock waves are generated electromagnetically, and the system utilizes water to conduct the shock waves. It is noted that shock waves penetrate much better through water than they do through air.

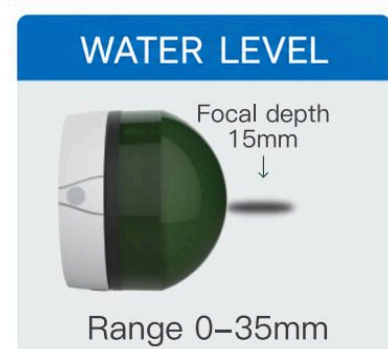
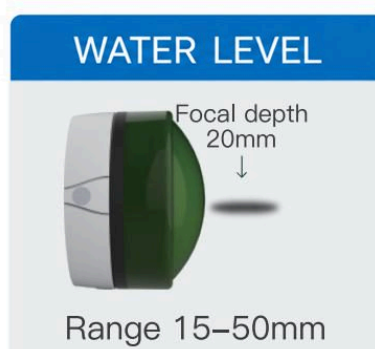
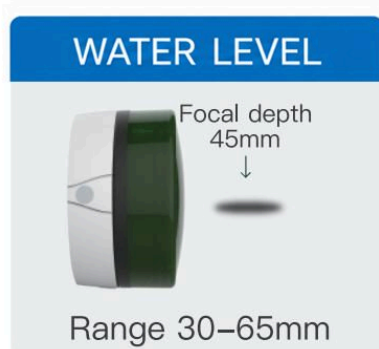
The electromagnetic membrane is immersed in water and the pressure wave produced by the membrane propagates through the water to a concentric parabolic reflector, where it is reflected to a focal point outside of the applicator, in front of the reflector.



6. The Features of Nerve Cube Focused Shockwave

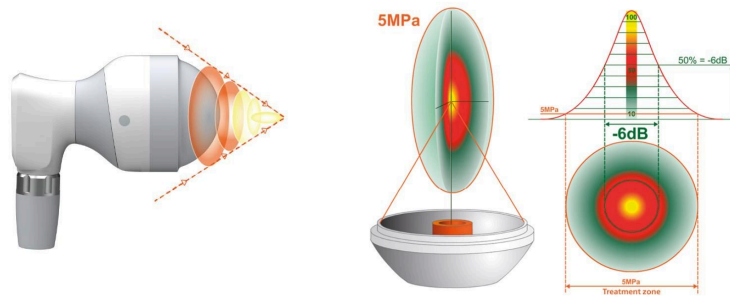
6.1 Deeper Penetration

Nerve Cube Focused Shockwave uses a smart water system to control the water level in the bladder: the volume of water changes, and so does the depth of shock wave penetration. The higher the water level, the less depth the shock waves reach. The maximum depth of the focal zone is 65 mm.



Focal Zone

The focal zone is the area of maximum energy intensity. Its size is basically independent of the selected energy level. By contrast, the size of the treatment zone depends on the selected energy level and is generally larger than the focal zone.



Penetration Depth

65 mm is the maximum focal depth, but not the maximum penetration depth. Electromagnetic focus shock wave also affects tissue surrounding the focal point, typically penetrating up to 100–120 mm, depending on tissue properties and device physics.

Shockwave energy decays exponentially in tissue due to absorption/scattering. Beyond 65 mm, the effective pressure drops significantly.

6.2 Gel-Free Depth Control

Nerve Cube Focused Shockwave

- Adjust water level to change penetration depth.
- No need to replace gel pads.
- Faster setup, reduced consumables, and lower operational costs.





Control	Function
a	Button — increase or reduce shock wave intensity
b	Button — increase or reduce shock wave frequency
c	Button — record of hits
d	"Start" button — start or stop the treatment

Traditional Focus Shockwave

- Replace gel pads to adjust penetration depth.
- Gel pads are consumables that increase cost and time per treatment.
- Less convenient for multi-depth treatment sessions.



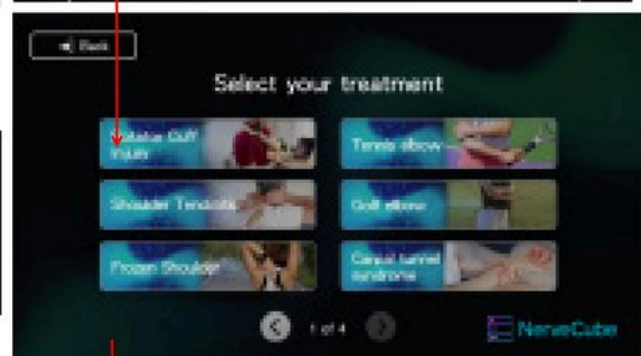
6.3 Appropriate Parameter Arrangement

6.3.1 Nerve Cube Model System — FSWT

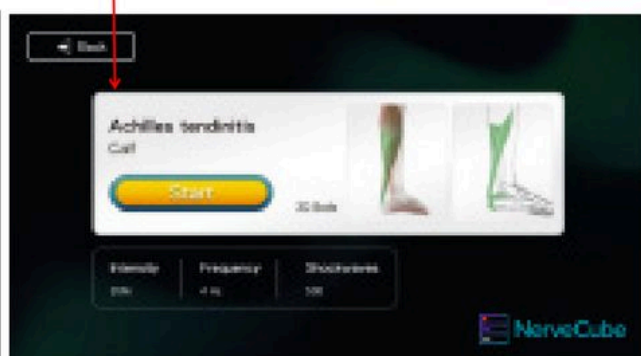
On the home page, you can click the technology you need to use — for example FSWT — and you will be taken directly into the FSWT therapy interface settings; or click "Enter" to go to the technologies page and view the treatment protocol, as shown in the figure below.



Choose treatment symptoms and click

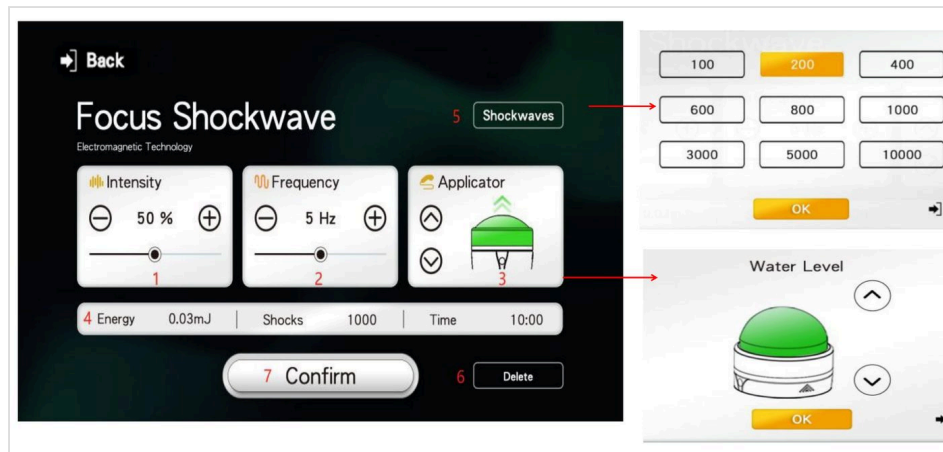


The detailed treatment protocol includes intensity, frequency, and shock waves. click the start, enter the FSWT interface settings, then click "Confirm" to proceed.



6.3.2 Reasonable Interface Settings

Alternatively, you can directly click on FSWT on the home page to enter the parameter settings interface.



Software Setup Instructions

#	Item	Description
1	Intensity	Up and down 5%; range 1–100%
2	Frequency	Up and down 1 Hz; range 1–10 Hz
3	Applicator	EFD: 0.03–0.39 mJ/mm ² (intensity 5–100%)
4	Energy / Shocks / Time	Records the energy, number of shots, and time accumulated during use
5	Shock waves	Select preset number of shots
6	Delete	Clear accumulated values
7	Confirm	Click to confirm, then press the button on the applicator again to start treatment

The system features an adjustable frequency range of 1–10 Hz, providing versatility, efficiency, and adaptability, suitable for a wide range of acute, subacute, and chronic musculoskeletal conditions.

Typical Frequency: 1–4 Hz

The frequency of focused shock wave is typically in the range of 1–4 Hz for most clinical applications, especially when higher energy per pulse is required. This is because focused shock wave therapy relies on high energy density and precise targeting, which requires sufficient time between pulses for energy storage and cooling.

Wider Range: 8–10 Hz

Some focused shock wave devices allow frequencies up to 8 or even 10 Hz, mainly for faster treatment workflows or when using lower energy levels. These higher frequencies are generally used for superficial tissues, sensitive areas, or protocols requiring lower intensity but higher pulse counts.

Frequency Application

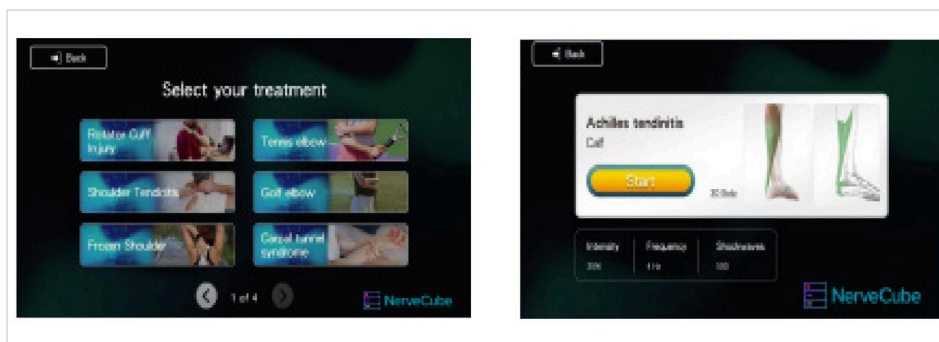
The choice of frequency should be based on the treatment goal, the condition being treated, and the patient's tolerance.

- **Lower frequencies (1–4 Hz):** ideal for chronic conditions, deep tissue penetration, and higher energy delivery per pulse. Allows more tissue recovery time between pulses.

- **Mid-range (5–7 Hz):** balanced for moderate-depth musculoskeletal treatments. Efficient for treating areas like the shoulder, elbow, or knee.
- **Higher frequencies (8–10 Hz):** suitable for more superficial or acute cases, or when treating sensitive areas with lower energy. Increases treatment speed and patient throughput.

6.3.3 FSWT Treatment Protocol

User-friendly software with treatment protocols and preset parameters.



Symptom	Intensity	Frequency	Shock Waves	Course	Interval
Achilles tendinitis (calf)	35%	4 Hz	500	3–5	Once a week
Ankle sprain (foot)	35%	4 Hz	500	3–4	Once a week
Carpal tunnel syndrome	20%	6 Hz	500	3–5	Once a week
Chronic ankle arthritis	30%	4 Hz	500	3–5	Once a week
Chronic back pain (low back)	50%	3 Hz	2000	3–5	Once a week
Chronic back pain (upper back)	50%	3 Hz	2000	3–4	Once a week
Frozen shoulder	55%	3 Hz	500	3–4	Once a week
Golf elbow	30%	6 Hz	800	3–5	Once a week
Hip pain	50%	3 Hz	500	3–5	Once a week
Knee osteoarthritis	30%	6 Hz	1000	3–4	Once a week
Leg muscle injuries	30%	5 Hz	1500	3–4	Once a week
Lumbar disc herniation	50%	4 Hz	2000	3–5	Once a week
Lumbar sprain	45%	4 Hz	500	3–5	Once a week
Piriformis syndrome	60%	3 Hz	2000	3–4	Once a week

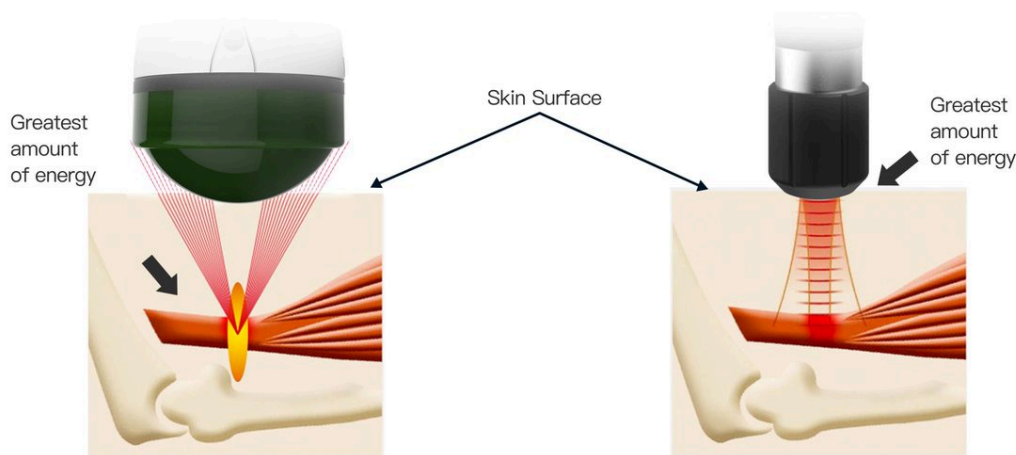
Symptom	Intensity	Frequency	Shock Waves	Course	Interval
Plantar fasciitis	30%	4 Hz	500	3–5	Once a week
Rotator cuff injury	40%	5 Hz	1800	3–5	Once a week
Shoulder tendinitis	40%	5 Hz	1800	3–5	Once a week
Sprained knee	35%	5 Hz	500	3–4	Once a week
Tennis elbow	30%	4 Hz	500	3–4	Once a week
Wrist tendinitis	20%	6 Hz	500	3–4	Once a week

6.3.4 Universal Treatment Principles & Precautions

- **Energy Setting:** Start with low to medium energy flux density (0.10–0.25 mJ/mm²) and gradually increase based on patient tolerance and tissue response.
- **Local Anesthesia:** Avoid using local anesthesia, as patient feedback is crucial for dosing and safety.
- **Imaging Guidance:** For deep structures (spine), ultrasound guidance is recommended to ensure accuracy and safety.
- **Post-Treatment:** Mild soreness for 24–48 hours is normal. Advise patients to avoid strenuous activity for 1–2 days post-treatment, but encourage gentle movement.
- **Contraindications:** Avoid treating over critical nerves, blood vessels, lungs, or the skull, and in cases of malignancy, infection, coagulopathy, or pregnancy.

6.4 FSWT Comfort Treatment

Not only is the effectiveness better with Nerve Cube focused shock wave, but skipping the skin means you don't stimulate the skin's sensory network. This leads to a more comfortable session — and because comfort is better, higher doses can often be used.



FSWT — Focus Shockwave

- Penetrates deeper (up to 12 cm).
- Highly precise, targeting specific deep structures such as tendons, bones, or joints.
- Causes less surface irritation, which often feels gentler on the skin.
- Typically described as a deep pressure sensation rather than a sharp or slapping feeling.
- May produce mild to moderate discomfort in sensitive or bony areas, but is generally well tolerated.

RSWT — Radial Shockwave

- Penetrates more superficially (typically 3–4 cm).
- Energy spreads widely, affecting a broader area of superficial tissue.
- Patients often report a strong tapping, slapping, or even burning sensation on the skin.
- Can feel more intense or irritating, especially over bony prominences or in sensitive individuals.

6.5 Low Maintenance

There are 2 consumables for Nerve Cube Focused Shockwave: the shock wave applicator and the pulse switch inside the device. The shock wave applicator has a lifespan of 500,000 shocks, while the pulse

switch lasts for 1 million shocks. These are conservative estimates, and their actual service life may exceed these figures.

Consumable	Part	Lifespan & Economics	
Consumable 1	Applicator	Lifespan: 500,000 shocks. Per treatment: 2,000 shocks → 250 treatments available. Single treatment fee: \$100. Estimated profit: \$25,000	
Consumable 2	Pulse Switch	Lifespan: 1,000,000 shocks. Per treatment: 2,000 shocks → 500 treatments available. Single treatment fee: \$100. Estimated profit: \$50,000	

Pulse Switch

In an electromagnetic focused shock wave device, the pulse switch is a critical consumable component responsible for controlling the electrical pulses that generate the shock waves. It is an internal electrical component.

Function of the Pulse Switch

1. **Electrical Pulse Regulation:** triggers and regulates the high-voltage pulses sent to the electromagnetic coil.
2. **Wave Generation:** each pulse activates the electromagnetic coil, which then generates a shock wave via a metal membrane or another transducer mechanism.
3. **Precision & Consistency:** ensures accurate and repeatable shock wave delivery for effective treatment.

Replacement

Replace the shock wave applicator with a new one. If it does not work well, you may also need to replace the pulse switch.

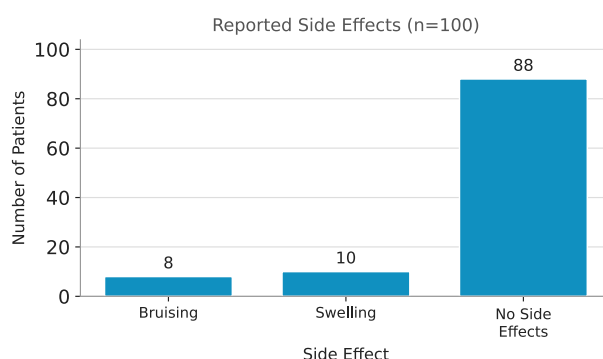
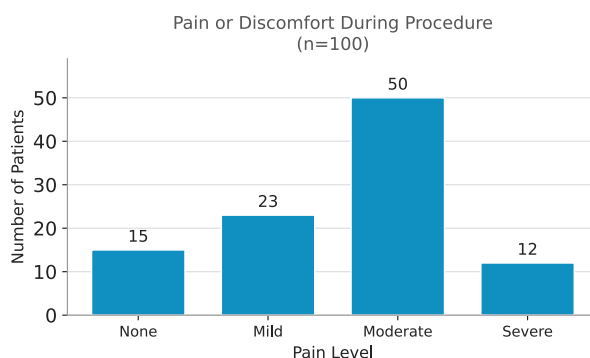
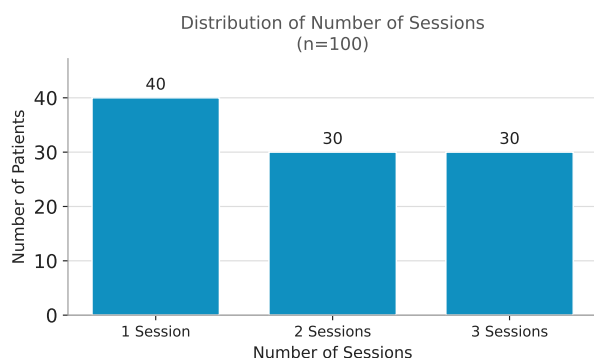
7. Patient Feedback Summary

This report summarizes feedback from 100 patients who underwent Nerve Cube Shockwave Therapy. The analysis covers session frequency, pain experience, symptom improvement, satisfaction levels, and side effects.

Summary of Results

- The majority of patients (70%) underwent two or more sessions.
- Moderate pain was the most commonly reported discomfort level (50%).
- 76% of patients reported noticeable symptom improvement, most commonly increased active range of motion (AROM) and reduced pain.
- Patient satisfaction was high, with 83% rating their experience as a 4 or 5 out of 5.
- Side effects were minimal: 88% reported none, while 8% experienced bruising and 10% swelling (some overlap).

- Importantly, 73% of patients indicated willingness to return for follow-up sessions, and 81% expressed satisfaction with the results.



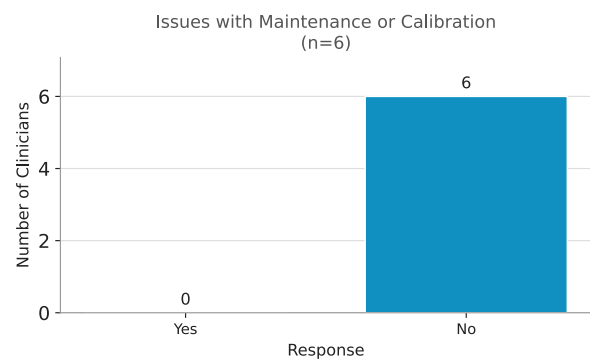
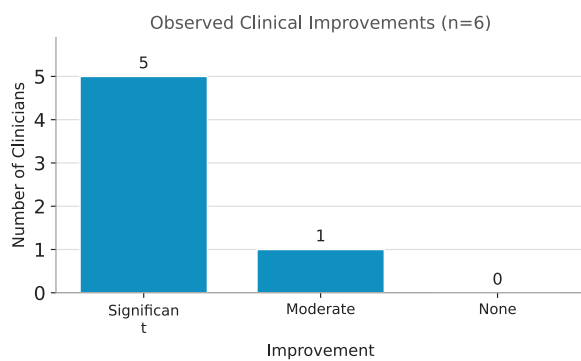
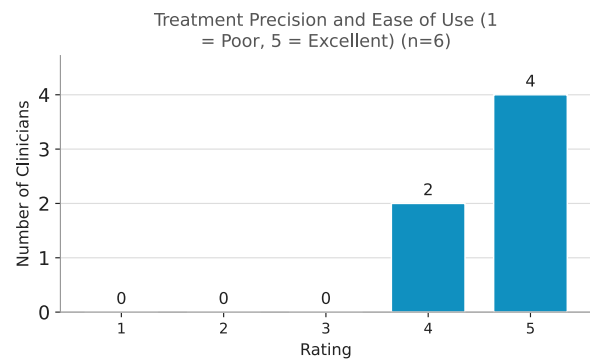
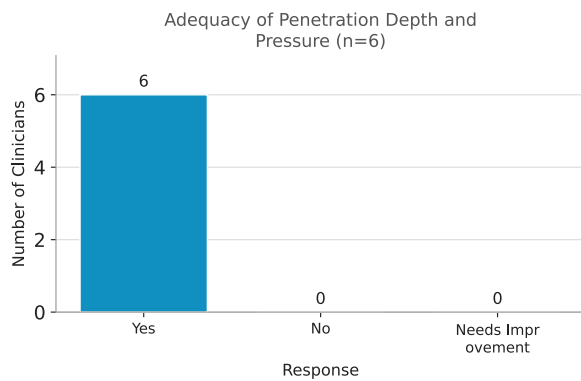
These results reinforce the clinical benefit and patient acceptance of Nerve Cube Shockwave Therapy. This data supports its role as a well-tolerated, effective modality for musculoskeletal symptom relief. As a patient-centered treatment, it demonstrates excellent outcomes in reducing pain and improving function, positioning Nerve Cube Shockwave Therapy as a valuable addition to modern musculoskeletal care.

8. Clinician Feedback Summary

This report presents qualitative and quantitative feedback from six clinicians who have used Nerve Cube Focused Shockwave Therapy. The feedback reflects real-world clinical applications and highlights device usability, patient outcomes, and areas for enhancement.

Summary of Results

- Nerve Cube focused shock wave was used for various conditions including shoulder impingement, frozen shoulder, tennis and golfer's elbow, and plantar fasciitis.
- All clinicians reported the device provides adequate penetration depth and pressure.
- Most rated the treatment precision and ease of use highly, with two clinicians rating it 4/5 and four rating it 5/5.
- Five of six clinicians observed significant clinical improvements; one observed moderate improvement.
- None reported any issues with device maintenance or calibration.
- Feedback indicated that default protocol intensities were often too high for certain areas, necessitating manual adjustment. Additionally, there were calls for an expanded protocol library covering more conditions.



9. Nerve Cube FSWT Operation

This section will guide you through the general treatment process applicable to FSWT.

Step 1 — Check the Connection. Check that the shock wave applicator is properly connected to the device.



Step 2 — Check the Water Circuit. Follow the "Water Refilling Procedure" to ensure the device's water system is full of water.



Step 3 — Define Treatment Area. Identify the exact treatment area via palpation or ultrasound imaging.



Step 4 — Power On the Device. Turn on the main power switch and wait for the system to initialize fully.



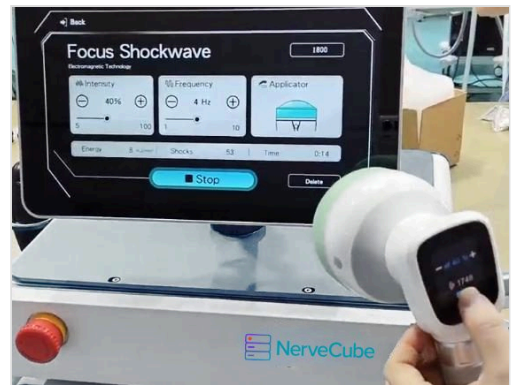
Step 5 — Set Parameters. Select a protocol or manually adjust the treatment intensity and frequency. Begin with a lower energy level and increase gradually based on patient tolerance.



Step 6 — Apply Gel. Apply contact gel to the treatment area to ensure effective energy transmission. Reapply during treatment if the gel dries or wears off. Ensure consistent gel coverage for optimal results.



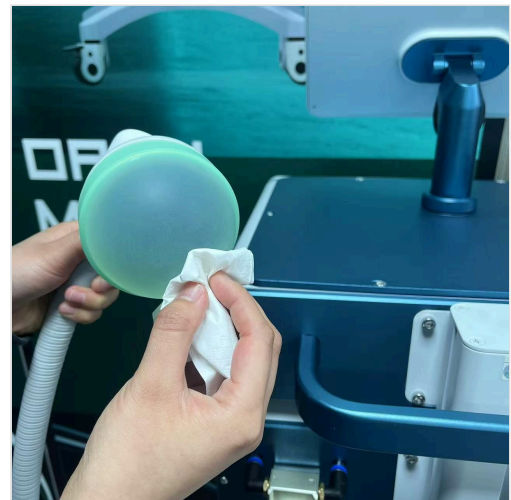
Step 7 — Start Treatment. Click "start" on the interface, then press the start button on the applicator to start the treatment.



Step 8 — Treatment Delivery. Gently press the shock wave therapy head perpendicular to the skin. Deliver shocks evenly across the target tissue (static or scanning technique). Monitor patient feedback and adjust parameters as needed.

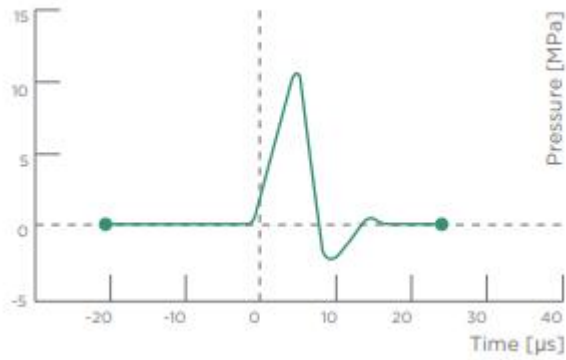


Step 9 — Clean Bladder. Clean the bladder promptly after the operation. Wipe off excess gel and assess patient response.

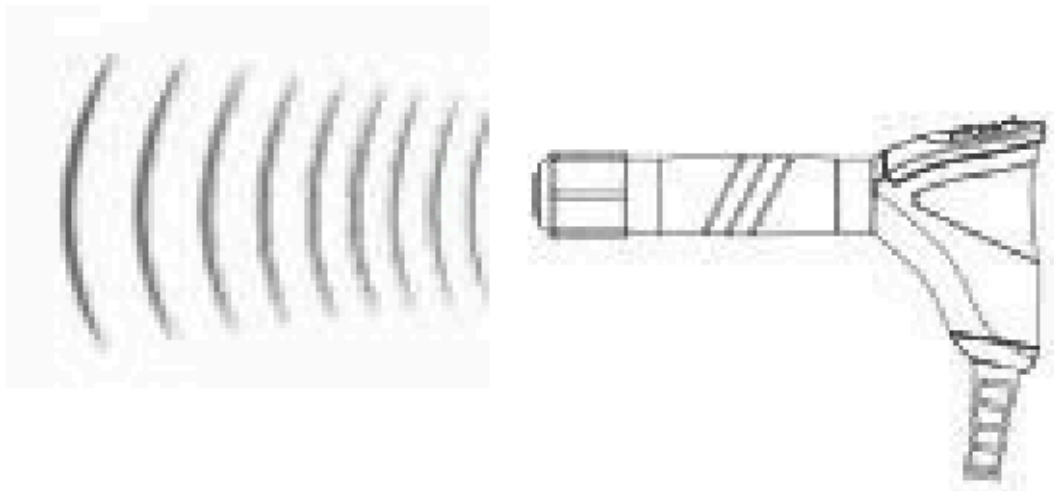


10. What Is Nerve Cube Radial Shockwave Therapy?

Radial Shockwave Therapy (RSWT) is a non-invasive treatment. A shock wave is an acoustic wave which carries high energy to painful spots and myoskeletal tissues with subacute, subchronic, and chronic conditions. The energy promotes regenerating and reparative processes of bones, tendons, and other soft tissues.



Shock waves are characterized by a jump change in pressure, high amplitude, and non-periodicity.

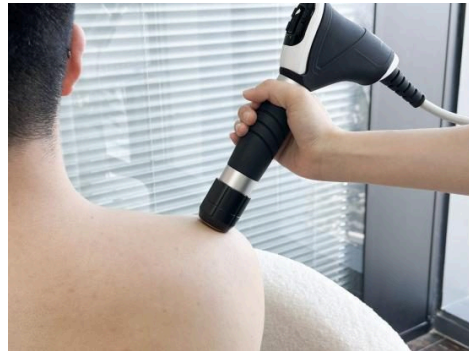
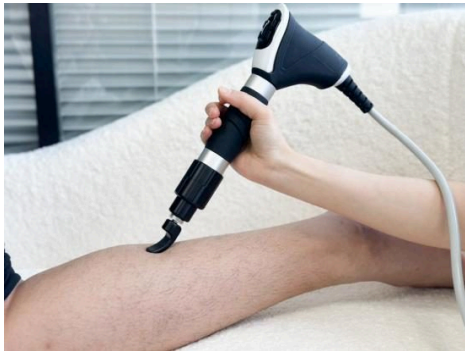


The kinetic energy of the projectile, created by compressed air, is transferred to the transmitter at the end of the applicator.

Mechanism of Action

- **Biomechanical Effects:** the waves improve microcirculation, remove metabolic waste, and stimulate angiogenesis.
- **Pain Relief & Repair:** instant energy pulses block pain signals (gate-control theory) while activating growth factors to regenerate tendons and bones.
- **Calcification Breakdown:** directly targets calcified deposits (e.g., in frozen shoulder or plantar fasciitis), restoring mobility.





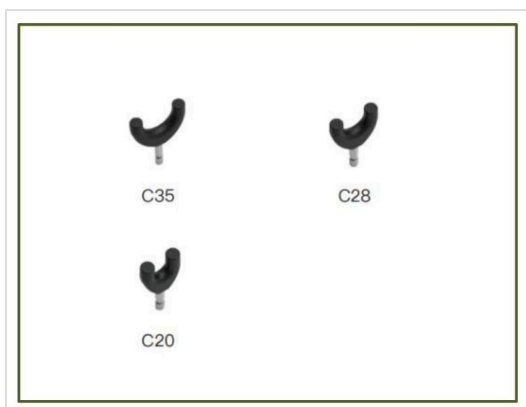
11. RSWT Accessories



Pain Management. 6 transmitters specially used for pain management, available for different treatment areas. The upgraded transmitters are more powerful and achieve deeper energy penetration, more conducive to pain treatment.



Fascia Specific. The radial shock wave handle gives a gradual release of trigger points and adhesion in the affected muscles and fascia via therapeutic pressure and gliding. This can provide enormous pain relief.



Spine Specific. Shockwave is a treatment protocol in degenerative osteoporotic neuro-spinal pathology, heterotopic ossification due to spinal cord injury, cervical spondylosis, scoliosis, sacroiliitis, and coccydynia.

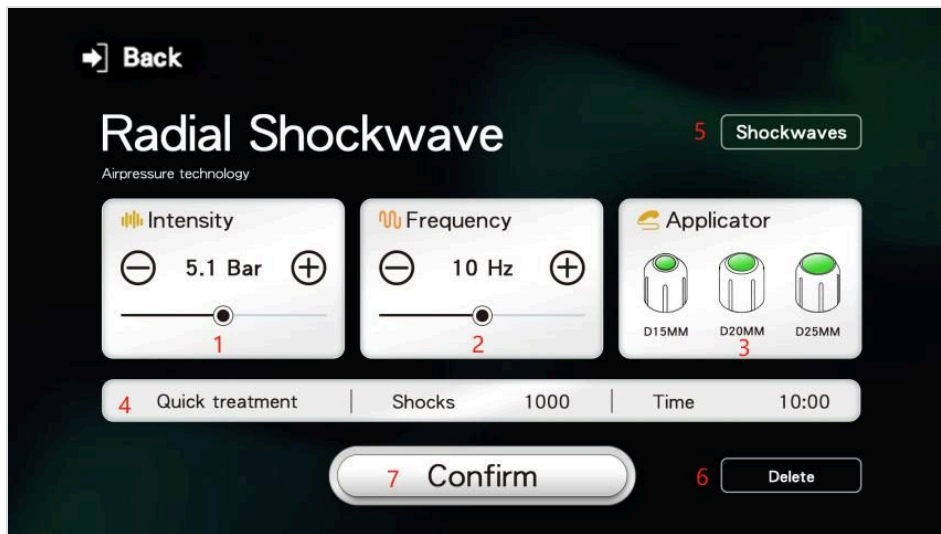
12. Indication & Contraindications

Indication	Condition
Musculoskeletal Conditions	Tendinitis; Plantar Fasciitis; Calcific Tendinitis; Bursitis; Muscle Injuries
Bone & Joint Conditions	Delayed Bone Healing; Osteoarthritis; Stress Fractures
Chronic Pain Conditions	Neck/Back Pain; Trigger Points; Fibromyalgia
Sports Injuries	Overuse Injuries; Shin Splints; IT Band Syndrome
Other Indications	Wound Healing; Erectile Dysfunction; Cellulite Reduction

Contraindication	Details
Pregnancy	Avoid treatment near the abdomen, pelvis, or lower back due to potential risk to the fetus.
Cancer	Do not treat over malignant tumors or cancerous tissues (risk of promoting tumor growth/spread).
Infections	Avoid areas with active infections (osteomyelitis, septic arthritis) to prevent infection spread.
Blood Clotting Disorders	Contraindicated for patients with bleeding disorders (hemophilia) or on anticoagulants (warfarin) due to bleeding/bruising risk.
Growth Plates in Children	Avoid treatment near open epiphyseal plates in children/adolescents (may interfere with bone development).

13. Radial Shockwave Therapy Interface

13.1 RSWT Interface Settings

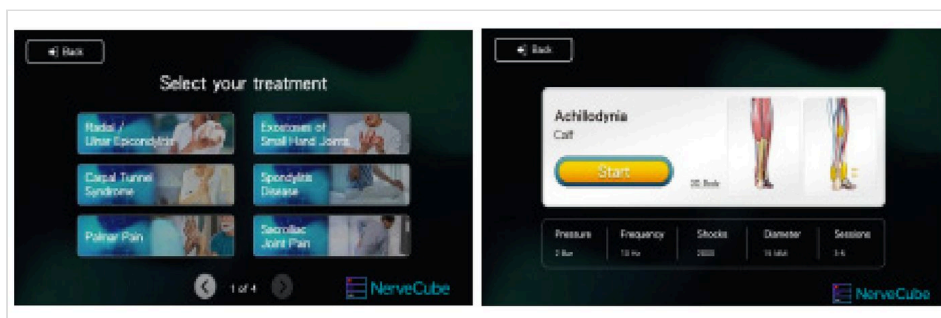


Software Setup Instructions

#	Item	Description
1	Intensity	Up and down 0.1 Bar; range 0.5–10 Bar
2	Frequency	Up and down 1 Hz; range 1–21 Hz
3	Applicator	Select the appropriate working head from this click
4	Shocks / Time	Record the number of shots and the time
5	Shock waves	Select preset number of shots
6	Delete	Clear accumulated values
7	Confirm	Click to confirm, then press the button on the applicator again to start the shock

13.2 RSWT Treatment Protocol

User-friendly software with treatment protocols and preset parameters.



Symptom	Pressure	Frequency	Shocks	Diameter	Sessions	Interval
Achillodynia	2 Bar	10 Hz	2000	15/20 mm	3–5	Once a week
Acute muscle spasm	2.5 Bar	10 Hz	2000	15 mm	3–5	Once a week
Calcification, extra-articular	2.5 Bar	10 Hz	2000	15 mm	4–6	Once a week
Calcification tendinitis	3 Bar	10 Hz	2000	15 mm	3–5	Once a week
Carpal tunnel syndrome	2 Bar	10 Hz	2500	15 mm	4–6	Once a week
Exostoses of small hand joints	2 Bar	10 Hz	1500	15 mm	3–5	Once a week
Groin pain	2.5 Bar	10 Hz	2000	20 mm	3–5	Once a week
Hamstring tendinopathy	2.5 Bar	10 Hz	2000	20 mm	3–5	Once a week
Healing enhancement	1.5 Bar	15 Hz	1500	15 mm	3–5	Once a week
Jumper's knee	2 Bar	10 Hz	2000	15 mm	3–5	Once a week
Knee arthritis	2 Bar	10 Hz	3000	15 mm	10	Once a week
Low back pain	2 Bar	10 Hz	3000	15 mm	4–6	Once a week
Muscle regeneration	1.5 Bar	15 Hz	2000	15 mm	3–5	Once a week
Muscle strain	2.5 Bar	15 Hz	2000	15 mm	7–10	Once a week
Palmar pain	2 Bar	10 Hz	1500	15 mm	3–5	Once a week
Plantar fasciitis	2.5 Bar	10 Hz	2000	20/25 mm	3–5	Once a week
Pseudoarthrosis	2 Bar	10 Hz	2000	15 mm	6–8	Once a week
Radial/ulnar epicondylitis	2 Bar	10 Hz	2000	15 mm	6–8	Once a week
Sacroiliac joint pain	3 Bar	10 Hz	2000	15 mm	4–6	Once a week
Spondylitis disease	2 Bar	10 Hz	2000	15 mm	6–8	Once a week

14. Nerve Cube RSWT Operation

This section will guide you through the general treatment process applicable to RSWT.

Step 1 — Locate the Pain Spot. Using manual palpation, locate the most painful spot.



Step 2 — Define Treatment Area. Define the area to be treated around the painful spot.



Step 3 — Apply the Gel. Apply gel to the treatment area to improve the transmission of shock wave energy, ensuring efficient delivery to target tissues without energy loss.



Step 4 — Choose Shockwave Applicator. Adapt the applicator to the treatment area.



Step 5 — Power On the Device. Turn on the main power switch and wait for the system to initialize fully.



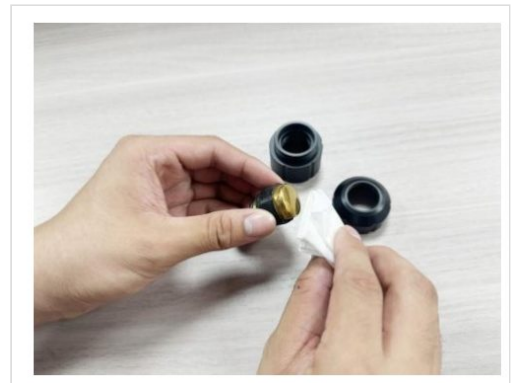
Step 6 — Set Parameters and Start. Choose the protocol or adjust the parameters in manual mode and press "Start". After starting, the energy and frequency can also be adjusted through the handle.



Step 7 — Start the Therapy. Move around and target the pain points.



Step 8 — Clean the Work Head. Clean the work head after the operation to avoid gel corrosion leading to rust.

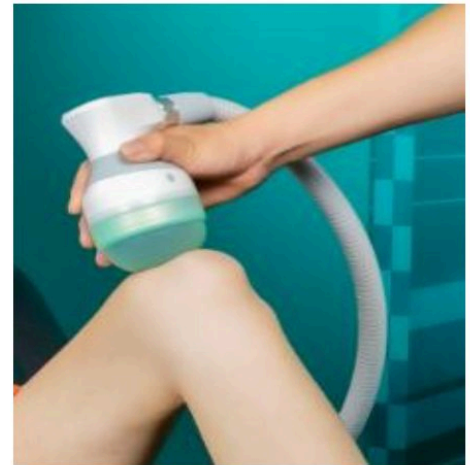


15. Combination: RSWT + FSWT

By integrating RSWT (superficial, broad-area treatment) with FSWT (deep, targeted energy), clinicians can address multi-layered tissue pathologies for enhanced outcomes. This combination leverages the unique strengths of each modality.

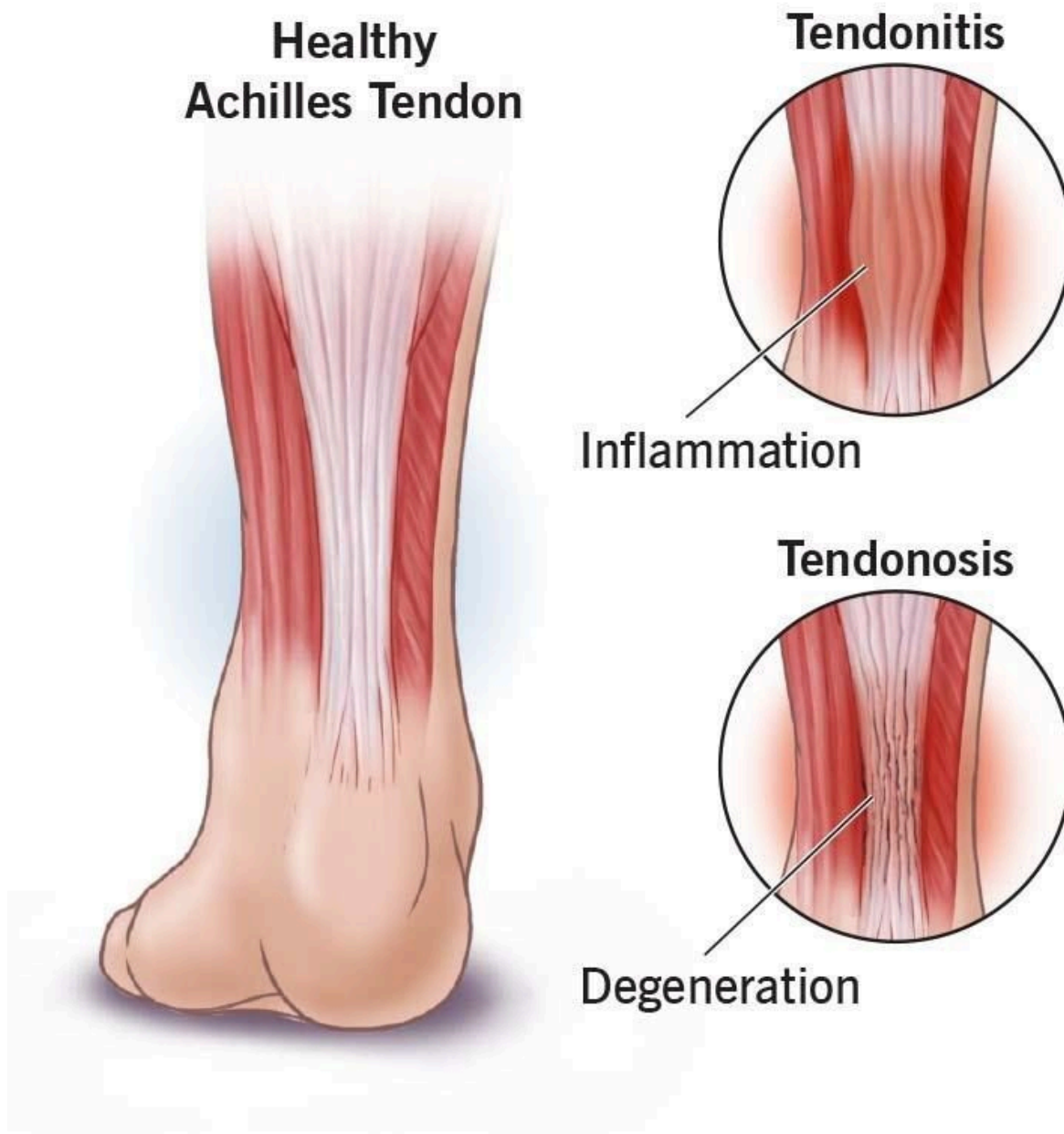


RSWT



15.1 Clinical Application: RSWT + FSWT

Chronic Tendinopathies (e.g., rotator cuff, Achilles)



Step 1: RSWT

- Softens superficial scar tissue and improves blood flow to the affected area.
- Reduces peripheral nerve sensitivity (gate-control pain relief).

Step 2: FSWT

- Breaks deep calcification and stimulates tendon matrix regeneration.
- Example: treat superficial adhesion in the Achilles paratenon (RSWT) before targeting the deep tendon core (FSWT).

Post-Surgical Rehabilitation (e.g., ACL repair)

- **RSWT:** addresses superficial scar tissue and muscle atrophy around the knee.
- **FSWT:** promotes ligament–bone interface healing and reduces deep joint stiffness.

Plantar Fasciitis with Heel Spurs

- **RSWT:** treats fascial inflammation and trigger points in the plantar surface.
- **FSWT:** targets calcific heel spurs and deep fascial insertions.

Osteoarthritis (knee/hip)

- **RSWT:** reduces superficial synovitis and muscle guarding.
- **FSWT:** stimulates subchondral bone repair and cartilage metabolism.

16. What's Mechanical Vibration Therapy?

As a non-pharmacological treatment method, therapeutic vibration helps alleviate muscle tension and eliminate trigger points. The 40 mm transmitter accelerates blood and lymphatic circulation within the extracellular matrix of connective tissues and stimulates metabolic activity through vibration therapy.

The therapeutic hand piece operates across a 1–50 Hz frequency range (30 Hz or below is recommended at lower intensity settings), ensuring physiologically regulated muscle oscillations. The 10 mm and 25 mm transmitters are designed for targeting trigger points and acupuncture points, offering fully complementary radial shock wave therapy. It is particularly suitable for addressing muscle spasms and enhancing proprioception.

Features

- **Unlimited Service Life** — engineered for permanent use with no lifespan limitations; no consumables.
- **40 mm Large-Diameter Treatment Head** — provides significantly greater coverage area per treatment; enables more efficient relaxation.
- **Maintenance-Free Design** — no regular part replacements needed; durable construction ensures long-term reliability.

Vibration transmitters. 10 mm head — precise trigger-point & small-area work; 25 mm head — treats larger muscles and soft-tissue regions; 40 mm head — delivers broad vibration for circulation and general muscle relaxation.





17. Benefits of Vibration Therapy

- Vibration stimulates muscle spindles and neural reflexes, enhancing neuromuscular activation, muscle strength, and control.
- It improves local circulation and blood flow, delivering more oxygen and nutrients, and supporting tissue repair.
- Vibration can reduce muscle tension, improve flexibility and range of motion, and assist in recovery for musculoskeletal issues.

I. Health & Rehabilitation Benefits

Benefit Category	Specific Effects & Mechanisms
Improved Blood Circulation	Stimulates the muscle pump, enhancing venous return and arterial blood flow, aiding in reducing edema and nutrient delivery.
Enhanced Bone Density	Applying mechanical load stimulates osteoblasts, beneficial for preventing osteoporosis in at-risk groups (e.g., the elderly).
Pain & Stiffness Relief	Interferes with pain signals and relieves muscle spasms, providing adjunctive relief for chronic low back pain, fibromyalgia, and arthritis.
Promoted Lymphatic Drainage	Gentle vibrations aid lymph fluid movement, assisting in detoxification and reducing swelling (commonly used in post-surgical rehab and lymphedema management).
Improved Neurological Function	Targeted vibration stimulates proprioceptors, used in post-stroke rehabilitation, balance improvement, and alleviating Parkinson's disease symptoms.

II. Sports & Performance Benefits

Benefit Category	Specific Effects & Mechanisms
Increased Muscle Strength & Power	As a supplement to dynamic resistance training, it efficiently activates fast-twitch muscle fibers, enhancing power output — ideal for athletes and trainees.
Enhanced Flexibility	Static stretching post-vibration is more effective, allowing for safe increases in joint range of motion and injury prevention.
Accelerated Post-Exercise Recovery	Increases blood flow and reduces markers of muscle soreness, helping alleviate Delayed Onset Muscle Soreness (DOMS) and shorten recovery time.
Improved Balance & Coordination	Stimulates proprioception and enhances neuromuscular control — crucial for fall prevention in the elderly and stability training for athletes.

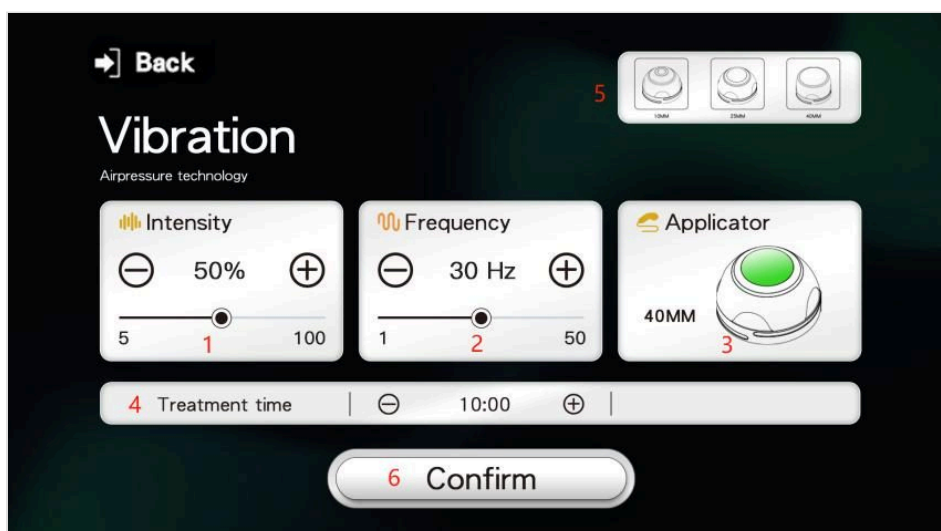
III. Key Considerations & Contraindications

To ensure safety, vibration therapy is not suitable for everyone. Strict attention must be paid to the following:

Category	Details
Ideal Users	Healthy adults, athletes, individuals at risk for osteoporosis, chronic pain patients (under medical supervision), and rehab patients (under therapist guidance).
Major Contraindications	Acute infections/inflammation, deep vein thrombosis, severe cardiovascular disease, recent surgery/fracture, pregnancy, unsecured implants (e.g., pacemakers, recent joint replacements), tumors, kidney stones, epilepsy.
Usage Principles	a. Start Low: begin with low frequency (e.g., 15–20 Hz) and short duration (e.g., 1–2 sets of 1 minute). b. Professional Guidance: rehabilitation should be guided by a physical therapist.

18. Mechanical Vibration Therapy Interface

18.1 Interface Settings



Software Setup Instructions

#	Item	Description
1	Intensity	Up and down 5%; range 5–100%
2	Frequency	Up and down 1 Hz; range 1–50 Hz
3	Applicator	10 mm, 20 mm, 40 mm
4	Treatment time	Countdown to treatment time
5	Working head	Vibration transmitter selection (10 mm, 20 mm, 40 mm)
6	Confirm	Click to confirm, then press the button on the applicator again to start the treatment

18.2 Mechanical Vibration Therapy Treatment Protocol

Symptom	Phase / Goal	Applicator	Frequency	Intensity	Course & Interval
Plantar Fasciitis	1: Pain Relief Phase; 2: Tissue Remodeling	20 mm; 40 mm	15–20 Hz; 25–30 Hz	30–50%; 40–60%	3×/wk, 3–4 wks
Chronic Low Back Pain	Relaxation & Spasm Release	40 mm	10–15 Hz	40–60%	2–3×/wk, 4 wks
Tennis Elbow	Tendon Stimulation	10 mm	25–35 Hz	40–60%	3×/wk, 3 wks
Post-Exercise Muscle Soreness	Recovery & Drainage	40 mm	5–10 Hz	30–50%	1–2 days post-exercise
Shoulder Muscle Tension	Relaxation & Trigger Point	20 mm	12–18 Hz	50–70%	2–3×/wk
Patellofemoral Pain	Quadriceps Activation	20 mm	20–30 Hz	60–80%	3×/wk, 3 wks
Carpal Tunnel Syndrome	Nerve Gliding & Flexor Relaxation	10 mm	12–20 Hz	30–50%	3×/wk, 3 wks
Hamstring Tightness	Pre-stretch Preparation	20 mm	25–35 Hz	50–70%	2–3×/wk
Osteoarthritis (Knee)	Pain Modulation & Circulation	20 mm	10–20 Hz	40–60%	3×/wk, 4+ wks
Ankle Sprain	Edema Reduction & Proprioception	20 mm	5–15 Hz	20–40%	Daily or 2×/day, 1–2 wks
Muscle Strain (Healing Phase)	Scar Tissue Alignment	10 mm / 20 mm	15–25 Hz	30–50%	3×/wk, 2–3 wks
Fibromyalgia Tender Point	Pain Gate & Relaxation	20 mm	5–12 Hz	20–40%	2–3×/wk
Post-Surgical Adhesion (e.g., ACL)	Scar Mobility	10 mm	20–30 Hz	40–60%	3×/wk, 4 wks
Shin Splints	Periostitis Management	10 mm	15–25 Hz	40–60%	3×/wk, 3 wks
Calf Cramp / Spasm	Acute Relaxation	40 mm	1–5 Hz	10–30%	As needed
Wrist Tendinitis	Tendon Gliding	10 mm	20–30 Hz	40–60%	3×/wk, 3 wks
Piriformis Syndrome	Muscle Relaxation	20 mm	12–20 Hz	50–70%	3×/wk, 3 wks

18.3 Universal Treatment Principles of Mechanical Vibration Therapy

- **Contraindications First:** NEVER use over acute infection, malignancy, deep vein thrombosis, pregnancy, or directly on the spine, eyes, carotid sinus, or a pacemaker.
- **The "3 S" Start:** Start Low (speed/frequency), Start Soft (intensity), Start Short (time). Always allow 1–2 minutes for patient adaptation.
- **Progression Over Time:** increase intensity before increasing frequency; increase duration last. If pain increases post-treatment, regress parameters.
- **Head Selection Logic:**

- **10 mm:** precision for tendons, small muscles, ligaments, scars, and trigger points.
- **20 mm:** versatile workhorse for most muscle bellies, medium-sized areas, and fascial work.
- **40 mm:** broad coverage for large muscles, general recovery, warm-up, and gentle applications.
- **Frequency as a "Tool Selector":**
 - **1–15 Hz:** neurological / relaxation (spasm, pain gate, calming).
 - **15–30 Hz:** muscular / tissue (typical treatment range for muscle tension, tendinopathy).
 - **30–50 Hz:** high-intensity / activation (pre-workout, stubborn fascial tissue).

19. Mechanical Vibration Therapy Operation Steps

Step 1 — Apply Gel. Apply gel to the treatment area.



Step 2 — Set Therapy Parameters. Set the therapy parameters (intensity · frequency · applicator).



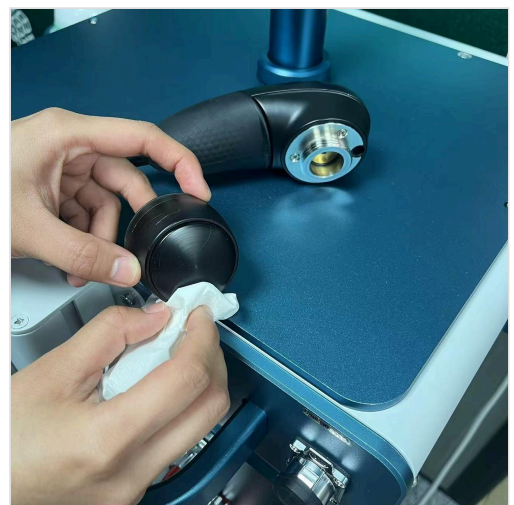
Step 3 — Start. Click "start" on the program, then press the button on the handle.



Step 4 — Start the Treatment. Begin treating the target area.



Step 5 — Clean the Working Head. Clean the working head after use.

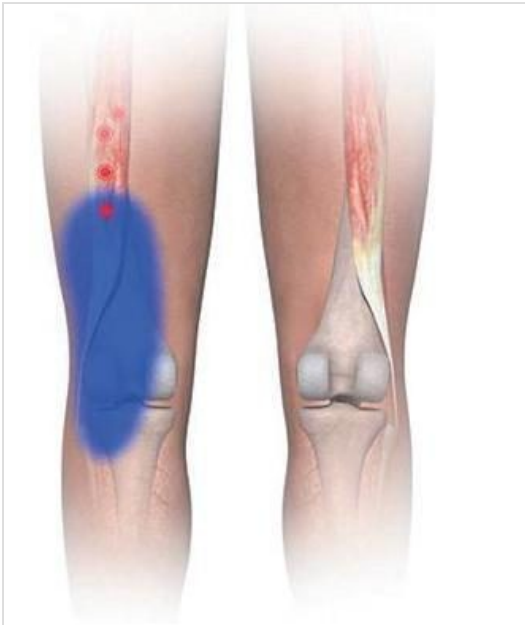


20. Combination: RSWT + Mechanical Vibration

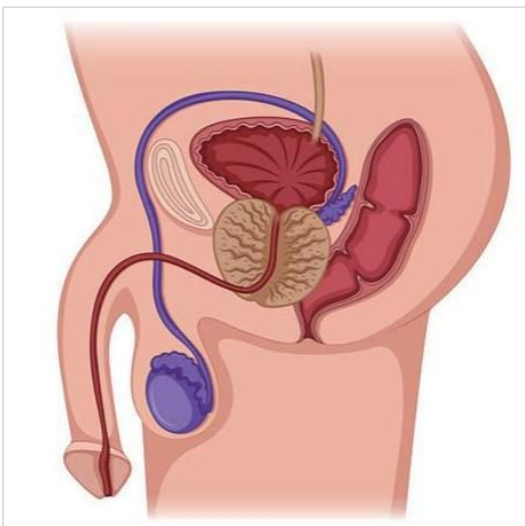
Shockwave therapy and the mechanical vibration handle are two major modalities for pain management in physiotherapy clinics, used to treat various musculoskeletal conditions.



Chronic musculoskeletal pain and inflammation: tendinopathies, tennis elbow (lateral epicondylitis), golfer's elbow, Achilles tendinitis, rotator cuff tendinitis, fasciitis, plantar fasciitis, lumbar myofasciitis.



Joint and soft tissue injuries: osteoarthritis (early stage), knee arthritis, periarthritis of the shoulder, postoperative/post-traumatic stiffness, postoperative joint adhesions, muscle fibrosis.



Other special indications: erectile dysfunction (vascular ED) — promotes penile angiogenesis and enhances local microcirculation; cellulite (orange-peel tissue) improvement — destroys adipose fibrous septa and accelerates the removal of metabolic waste.

Synergistic Value of the Combination

- Vibration therapy "primes" the tissue: boosting circulation, reducing muscle guarding, and improving neuromuscular readiness for deeper structural work.
- Following with shock wave therapy then addresses the structural repair (tendon, fascia, scar tissue) more effectively because the tissue is better prepared.
- This sequence may lead to **faster pain relief, improved tissue quality, enhanced recovery, and reduced overall treatment time** compared to either modality alone.

Medical Effects

- **Promotes pain relief and analgesia** — the shock wave component triggers mechanotransduction in tissues, leading to modulation of pain pathways, reduction of nociceptive signaling, and release of endogenous pain-inhibiting substances.
- **Stimulates tissue regeneration and healing** — shock waves and mechanical vibration together enhance cellular activity, collagen synthesis, and tissue remodeling, supporting the repair of tendons, ligaments, fascia, and other soft tissues.
- **Improves local blood circulation and neovascularization** — treatment induces angiogenesis and improved micro-circulation, delivering oxygen and nutrients to injured tissues, accelerating metabolic

waste removal and promoting healing.

- **Reduces muscle tension and normalizes muscle tone** — the therapies help relax hypertonic muscles, relieve spasms or myofascial tightness, restoring normal muscle function and reducing stiffness.
- **Enhances functional recovery and mobility** — by improving tissue quality, reducing pain, and restoring flexibility and blood flow, patients often regain better joint/muscle function, increased range of motion, and improved daily activity or sports performance.
- **Accelerates healing of chronic and degenerative conditions** — useful for chronic tendinopathies, chronic soft-tissue injuries, calcific tendinitis, fasciopathies, and conditions resistant to conventional treatment.
- **Offers a non-invasive, drug-free alternative** — avoiding surgery, injections, or long-term medication; minimal downtime, with most patients able to resume normal activities soon after therapy.
- **Supports soft-tissue de-adhesion and scar / calcification breakdown** — shock waves and mechanical stresses can help dissolve calcified deposits in tendons/ligaments and break down fibrotic scar tissue, improving flexibility and relieving chronic pain.
- **ED Treatment** — most men suffering from erectile dysfunction have vascular problems affecting the vessels that supply blood to the cavernous bodies of the penis, resulting in a decreased ability to develop and maintain an erection. Shockwave therapy for ED of this type can be a highly effective treatment: the shock waves are focused onto the area to be treated, creating new blood vessels in penile tissue and enabling patients to achieve and maintain firm spontaneous erections.

Cellulite Reduction

- **Before** — enlarged fat cells push the skin up and compress the circulatory system, reducing the inflow of nutrients and outflow of waste products. Diminished exchanges in circulation lead to a gradual stiffening of the connective tissue, pulling down on the skin. The push/pull effect creates the appearance of cellulite.
- **During** — the mechanical action of shock waves disrupts the connective tissue to firm and smooth the skin. It causes neo-vascularization and improves circulatory exchanges (the root cause of the problem), leading to thicker, more elastic skin through collagen production.
- **After** — the elasticity of the connective tissue is restored and the skin is smoother, thicker, and more elastic, with noticeable improvement to the skin texture.

21. Integrated Tri-Therapy Protocol

Mechanical Vibration, Radial & Focused Shockwave for Comprehensive Musculoskeletal Rehabilitation.

21.1 Core Principles & Standard Treatment Protocols

Vibration Therapy

Core physical principle. Applies mechanical oscillations (e.g., 15–45 Hz) to the body. This stimulates muscle spindles and proprioceptors, causing reflexive muscle contractions (tonic vibration reflex) and enhancing fluid dynamics (blood/lymph).

Standard treatment protocol:

1. Patient stands/sits on the platform or applies the local device to the target area.
2. Start at low frequency (15–20 Hz), low amplitude, for 1–2 mins for adaptation.

3. Increase to therapeutic frequency (e.g., 25–35 Hz) for 5–15 minutes.
4. Often used pre-activity (to warm up / activate) or post-activity (for recovery).
5. Can be combined with light stretching or body-weight exercises on the platform.

Radial Shockwave Therapy (RSWT)

Core physical principle. Generates kinetic energy via a projectile in the hand piece, creating radially dispersing acoustic waves that penetrate superficially (up to 3–5 cm), primarily affecting soft-tissue interfaces, fascia, and trigger points.

Standard treatment protocol:

1. Apply coupling gel to the skin over the treatment area.
2. Place the hand piece firmly against the skin. Use a grid or circular pattern, treating the entire affected region.
3. Use moderate intensity (1.5–3.0 bar), frequency (8–15 Hz), for 1500–3000 pulses per session.
4. Patient may feel strong, deep percussion. Treat 1× per week for 3–5 sessions.

Focused Shockwave Therapy (FSWT)

Core physical principle. Uses an acoustic lens/reflector to concentrate shock wave energy into a small, precise focal point deep in tissue (up to 8–12 cm). Energy is localized, allowing targeting of specific structures like tendons, ligaments, or bone.

Standard treatment protocol:

1. Crucially, use ultrasound imaging to precisely locate the pathology (e.g., calcific deposit, tendon lesion).
2. Apply coupling gel. Use the imaging to guide and fix the applicator so the focal point aligns with the target.
3. Deliver a set number of pulses (1000–2000 per session) at a low frequency (1–4 Hz) and appropriate energy flux density (EFD: 0.2–0.5+ mJ/mm²).
4. Patient may feel sharp, focused pain at the focal point. Treat 1× per week for 3–5 sessions.

21.2 Synergistic Benefits of Combined Therapy

Combining these modalities creates a powerful, multi-stage rehabilitation strategy that addresses different tissue layers and physiological phases. The logical sequence is typically: **Vibration** → **Radial SW** → **Focused SW**.

Vibration + Radial Shockwave

- **Prepares the tissue:** vibration increases local blood flow, warms fascia, and reduces muscle hypertonia, making the subsequent soft-tissue treatment with RSWT more effective and comfortable.
- **Enhances fluid dynamics:** both therapies promote circulation and lymphatic drainage, creating a synergistic "flushing" effect to reduce edema and metabolic waste in broader areas.

Radial + Focused Shockwave

- **Comprehensive tissue coverage:** RSWT treats the wider area of dysfunctional soft tissue and fascia surrounding a deep injury; FSWT then delivers high-energy, precise intervention to the specific lesion core. This is the "broad conditioning + precision strike" approach.
- **Optimized healing cascade:** RSWT initiates a robust inflammatory/repair response in superficial layers, while FSWT drives it deeply into the precise pathological structure, creating a compounded

regenerative effect.

The Full Triad: Vibration → Radial → Focused SW

This represents the gold-standard integrated protocol for complex, chronic musculoskeletal conditions:

1. **Phase 1 (Vibration):** systemic & local preparation, neuromuscular activation.
2. **Phase 2 (Radial SW):** soft-tissue release, fascial loosening, treating referred-pain zones.
3. **Phase 3 (Focused SW):** targeted, definitive treatment of the primary lesion.

Outcome: faster pain relief, more complete tissue remodeling, reduced total treatment sessions, and lower recurrence rates.

21.3 Expected Clinical Outcomes & Target Conditions

Target Condition	Combined Therapy Strategy	Expected Outcome
Chronic Plantar Fasciitis	Vibration (calf/arch) → Radial SW (entire plantar fascia) → Focused SW (at calcaneal insertion)	Faster resolution of pain, improved fascia elasticity, breakdown of calcification
Patellar Tendinopathy	Vibration (quadriceps activation) → Radial SW (peritendinous area) → Focused SW (at the deep tendon–bone junction)	Significant pain reduction during loading, improved tendon structure on imaging, faster return to sport
Frozen Shoulder	Vibration (for relaxation & blood flow) → Radial SW (anterior/posterior capsule) → Focused SW (targeted capsular adhesions)	Greater gains in passive range of motion, reduced pain, shortened overall rehab timeline
Chronic Low Back Pain	Vibration (core activation/relaxation) → Radial SW (lumbar fascia, gluteals) → Focused SW (target facet joints or ligament attachments if identified)	Improved functional mobility, reduction in local and referred pain, decreased muscle guarding

The combination of Vibration, Radial, and Focused Shockwave therapies leverages complementary physical principles to create a multi-target treatment approach. It effectively manages the entire "injury ecosystem" — from superficial fascia to deep ligaments — accelerating healing and improving long-term functional outcomes beyond what any single modality can achieve.

22. Contraindications & Precautions

Contraindications (Do NOT use in these cases)

Condition	Reason
Pregnancy	Potential unknown effects on fetal development
Malignant tumors / cancer	Risk of stimulating tumor growth or metastasis
Active infection or open wound	May worsen infection or delay healing
Blood clotting disorders / anticoagulant use	Increased risk of internal bleeding or hematoma
Use over growth plates (children)	May affect bone development in growing individuals
Treatment over lungs or brain	Risk of tissue damage or complications
Presence of pacemaker or defibrillator	Risk of device interference or malfunction
Severe peripheral neuropathy or numbness	Patient may not perceive pain/discomfort (higher risk)
Acute inflammation (uncontrolled)	May aggravate inflammatory response

Precautions (Use with Caution)

Situation	Recommendation
Bony prominences or thin soft-tissue areas	Use lower energy settings to avoid bruising or pain
Metal implants near the treatment site	Avoid direct application over implants unless medically necessary
Low pain tolerance or anxiety	Start with low energy, monitor closely, explain the sensation beforehand
Treating near critical structures (nerves, vessels)	Ensure precise targeting and proper energy settings
Over tattoos or scar tissue	May cause discomfort — test with lower energy first
Recent corticosteroid injection (within [] weeks)	Delay treatment to avoid tissue fragility or delayed healing
Previous adverse reaction to shock wave therapy	Reassess risk–benefit and consider alternative modalities
Post-treatment soreness or redness	This is common and usually resolves within 24–48 hours — advise the patient accordingly

23. FAQ — Frequently Asked Questions

What's the password?

The preset password is "888888". You can change the password if needed.

What's the warranty?

The warranty is 1 year for the main unit and 6 months for the spare parts, excluding consumables. In particular, the warranty of the focused shock wave applicator is 500,000 delivered shocks, and the pulse switch is 1 million shocks.

Do I need to replace the water regularly?

Yes. We recommend replacing the water every two weeks. You may adjust the frequency based on actual usage and operating environment. Always use purified or distilled water to prevent mineral buildup and ensure optimal device performance. It is easy to replace the water.

Focused Shock Wave Therapy

Are there consumables?

There are 2 consumables: the shock wave applicator (500,000 shocks) and the pulse switch inside the device (1 million shocks). You can order the consumables from the manufacturer.

When do we need to change out the applicator?

After approximately 500,000 shock applications, the output intensity may decrease. For example, if 40% intensity was effective for the lower back initially, you might need to increase to 70% to achieve similar results after extended use. Replacing the applicator restores full performance. If the intensity is not enough, replace it with a new applicator.

Is there a counter in the device to tell you how many shocks have been delivered?

You can check the shocks delivered in the advanced settings. The code is 720886.

Is 65 mm the maximum penetration depth?

No. 65 mm is the focal-zone position, where the shock wave intensity is the strongest. However, the energy also affects surrounding tissues, reaching beyond 65 mm — up to 120 mm depending on body tissue type. Softer tissues with less resistance allow for deeper penetration.

Is it easy for the bladder to burst? What should I do if it happens?

Generally the water bladder is durable and unlikely to break. However, we provide a spare bladder for replacement, and you can easily follow the video instruction to replace it if needed.

Is focused shock wave therapy more comfortable than radial shock wave?

It depends on the treatment area, the depth of the target tissue, and the patient's individual sensitivity. However, in many cases, focused shock wave therapy can actually be more comfortable than radial shock wave therapy, especially when treating deeper structures.

When I manually adjust the frequency above a certain level, the intensity automatically decreases. Could you explain why this happens?

This is a normal function of the focused shock wave device. When the frequency is increased, the system automatically reduces the intensity to ensure stable performance and patient safety. Please note that a higher frequency is not always better: higher frequency means faster delivery of treatment, but uses less energy due to limited energy storage time. Lower frequency allows more time for energy storage, resulting in stronger individual pulses and deeper penetration.

Radial Shock Wave Therapy

How often do I need to replace the shock wave bullet?

The shock wave bullet typically needs to be replaced after approximately 3 to 3.5 million shots. To ensure treatment effectiveness and equipment safety, regular checks are advised, and bullets and inner tubes should be replaced as necessary.

How many sessions will I need?

The number of treatments varies based on the indication, its severity, and how the patient's body reacts to the treatment. The number of treatments can therefore be anywhere between 3 and 15 — more in very

severe cases. Contact your therapist/doctor to see how many treatments you might need.

How often will I need the treatment?

The typical number of treatments per week is between 2 and 5. The therapist sets the number of treatments so that the therapy is the most effective and suitable to the patient's time options.

Are there any side effects to the treatment?

There are no side effects to the treatment. There is a possibility of slight redness of the treated area right after the treatment, which disappears within several hours.

What are the main treatment indications?

It is designed for the management of chronic tendinopathies, muscle tension, trigger points, plantar fasciitis, shoulder and knee pain, sports injuries, and post-rehabilitation muscle activation.

Is the energy output adjustable?

Yes. Both shock wave energy levels and vibration intensity can be precisely adjusted.

What about treatment protocols? Does it have protocols?

Yes. The program comes with preset parameters as treatment recommendations, for reference. Users can follow them or adjust the parameters themselves.

Mechanical Vibration Therapy

What does the intensity (%) control?

It controls the power/depth of the vibration. Start low (30–50%) and increase slowly based on comfort.

How do I pick the right head?

Use the 10 mm for precise spots (like tendons), the 25 mm for muscles, and the 40 mm for large areas like the back or thighs.

How often should I use it?

For most issues, 2–3 times per week is standard. For post-workout recovery, 1–2 times is enough. Always allow a day of rest between sessions for the same area.

How long until I see results?

You may feel immediate relaxation or reduced tightness. For chronic issues (like tendon pain), consistent use over 3–4 weeks is typically needed for lasting improvement.

Can it help with sore muscles?

Yes. Using the 40 mm head at 5–10 Hz and low intensity 24–48 hours after exercise can enhance recovery by promoting blood flow.

Does it hurt?

It should not be painful. You will feel a strong, deep buzzing or tapping sensation. If you feel sharp pain, stop immediately and reduce the intensity.



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