HIVAMAT® DEEP OSCILLATION THERAPY

EARLIER TREATMENT…FASTER RECOVERY
What Does HIVAMAT Mean?
- **Histologically Variable Manual Technique**
- The combination of manual therapy and therapeutic modality
TECHNICAL BASICS
ELECTRIC ENERGY TYPES

- Electric Current

- Electromagnetic Radiation

- Electrostatic Charge
An electrostatic field is built up between the applicator and the tissue of the patient.
This Electrostatic Attraction acts with the Friction introduced through movement of the applicator.
The soft tissues, being attracted to the applicator, react to the movement. This creates Deep Oscillation Therapy.

Electrostatic Attraction + Friction = Deep Oscillation Therapy
Electrostatic pulses create pleasant, deeply effective oscillations in the skin, connective tissue, subcutaneous fatty tissue, muscles, blood and lymph vessels down to a depth of 8 cm (more than 3 inches).

Electrostatic attraction occurs between opposing polarities
  • Via the titanium rod, or electrode for the patient
  • Via electrode on the therapist, applicator, or pair of applicators

Movement is required for the therapy to be performed

Varying frequencies and movement speeds are used to accomplish differing results throughout the treatment
Deep Oscillation Therapy

**Method of Treatment:**
- Electrostatic Attraction

**Treatment Effect:**
- Increase mobility
- Acute and chronic pain relief
- Relaxation of muscles

**Size of Treatment Area:**
- Localized to Systemic

**What Makes Deep Oscillation Unique?**
- Aids the body’s natural recovery process
- Gentle, non-invasive and relaxing to the patient
- A manual therapy technique that is device-assisted
- Decongests and clears the lymphatic system to promote healing
OTHER MODALITY PHYSIOLOGICAL EFFECTS

Ultrasound
Method of Treatment:
• Thermal
Treatment Effect:
• Breaks down edema
Size of Treatment Area:
• Localized

Stim
Method of Treatment:
• Electrical Current
Treatment Effect:
• Pain relief but does not break up edema
Size of Treatment Area:
• Localized to Moderate

Laser
Method of Treatment:
• Thermal
Treatment Effect:
• Increases circulation and nutritional flow to treatment area
Size of Treatment Area:
• Localized

Compression
Method of Treatment:
• Mechanical
Treatment Effect:
• Sequentially moves fluid from A to B
Size of Treatment Area:
• Localized to Moderate
## COMPARISON OF INDICATIONS

<table>
<thead>
<tr>
<th></th>
<th>HIVAMAT</th>
<th>LASER</th>
<th>ULTRASOUND</th>
<th>STIM</th>
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<tbody>
<tr>
<td>Arthritis</td>
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<td>Edema Reduction</td>
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<td>Muscle Relaxation</td>
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<td>Reduce Inflammation</td>
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<td>Scar Tissue</td>
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<tr>
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<td>Deep Tissue Healing</td>
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<tr>
<td>Cardiac Pacemakers</td>
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<td>Extreme Edema</td>
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<td>Metal Implants</td>
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<tr>
<td>Pregnancy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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Ultrasound image STATIC, DEEP OSCILLATION® applicator IN MOTION.
LYMPHATIC SYSTEM
The lymphatic system is part of the circulatory system and a vital part of the immune system.

Main function is defense – transporting infection-fighting white blood cells throughout the body.

Moves waste away from cells: Bacteria, viruses, proteins.

Responsible for decomposition of trauma.
A large network of capillaries that are present in nearly every area of the body
• An open system and has no central pump, capillaries are perforated, and ended with anchoring filaments to allow a unidirectional flow of lymph
• Lymph is moved through the body via peristalsis as well as during the normal movement of muscle activity throughout the day
Lymph capillaries are the smallest anatomical unit in lymphatics, starting like fingers in the interstitial space.

- Pre-Collectors
- Collectors
- Lymph Units
- Lymph Nodes (filter unit)
DEEP OSCILLATION THERAPY
THREE PHASES OF TREATMENT

Deep oscillation treatments normally work in three phases that can last up to 20 minutes in total, based on the indications and desired outcome for the affected area:

1. **Dissolution of Lymphatic Waste**
   High frequency oscillations work to break up accumulated solids in the interstitium, such as proteins, lymphocytes, and other waste deposits so that they can be moved through the lymphatic system more easily.

2. **Muscle Relaxation**
   Moderate frequency oscillations relax the surrounding tissue. With less restriction, the lymphatic pathways are opened up to support waste displacement.

3. **Waste Displacement**
   Low frequency oscillations create a synthetic peristalsis, used in conjunction with a homogeneous progression toward the nearest lymph node to evacuate the accumulations from the area.
CONTRAINDICATIONS

Deep Oscillation Therapy with HIVAMAT ® is not indicated in the following cases:

- acute infections
- acute inflammations with participation of pathogenic agents
- active tuberculosis
- acute venous diseases (untreated thrombosis)
- untreated malignant processes
- erysipelas
- patients and therapists with cardiac pacemakers and other electronic implants
- heart disorders and diseases, especially cardiac insufficiency, decompensated cardiac edema, and cardiac arrhythmia
- pregnancy
- hypersensitivity to electrostatic fields
- infectious skin diseases
THERAPY EXAMPLE

MLD UPPER LEG

• Manual Lymphatic drainage according to Vodder technique of monotonous movements, supported by HIVAMAT
THERAPY EXAMPLE

MLD LOWER LEG

• Manual Lymphatic drainage according to Vodder technique of monotonous movements, supported by HIVAMAT
THERAPY EXAMPLE

MLD LOWER & UPPER ARM

- Manual Lymphatic drainage according to Vodder technique of monotonous movements, supported by HIVAMAT
FDA & CLINICAL STUDIES
Thanks to its non-invasive, non-traumatic and highly effective approach, HIVAMAT® 200 has the following positive effects on treated tissues:

- Muscle Relaxation
- Pain Relief
- Increased Mobility
CLINICALLY PROVEN EFFECTS

- Improvement in trophy (Improves the body’s natural ability to replenish its depleted supplies of nutrients)
- Muscle relaxation
- Pain reduction
- Hematoma (Blood filled swelling/bruising) and microtrauma prophylaxis
- Edema reduction (fluid/protein filled swelling)
- Improvement in tone (through muscle stimulation and relaxation)
- Inflammation inhibition
- Stimulates wound healing
- Movement facilitation
- Anti-inflammatory effect
- Anti-fibrotic effect
- Reduction of skin irritation
- Detoxification
- Improvement in the tissue quality

Contact Richmar for a link to Clinical References
CLINICALLY PROVEN EFFECTS

DEEP OSCILLATION THERAPY

- ANTI-INFLAMMATORY EFFECT
  - WOUND HEALING
  - REDUCE SKIN IRRITATION
  - DETOXIFICATION
  - RESTORES FLOW OF NUTRIENTS & OXYGEN

- DECONGESTION
  - EDEMA REDUCTION
  - HEMATOMA REDUCTION

- MOBILITY
  - REDUCE FIBROSIS

- MUSCLE RELAXATION
  - RELEASE ADHESIONS

- PAIN RELIEF

MOBILITY

REDUCE FIBROSIS

MOBILITY

PAIN RELIEF
INITIAL TREATMENT RESULTS
Objective:
To investigate symptoms and functional impairment in women with secondary lymphedema of the breast following surgical treatment and to assess the therapeutic benefit of treatment with low-intensity and extremely low frequency electrostatic fields (HIVAMAT®), supplementing manual lymphatic drainage.

21 Patients randomly separated into 2 groups:
- Treatment Group (T=11) who were given 12 sessions of manual lymphatic drainage supplemented by HIVAMAT®
- Control Group (C=10)

Forward flexion of the cervical spine

*Fig. 2. Forward flexion of the cervical spine at the 3 time-points: T1 = start of therapy, T2 = end of 4-week therapy, and T3 = 8-week follow-up (12 weeks after start of therapy); U test between groups: T1 p = 0.240; T2 p = 0.026; T3 p = 0.023, Whitney U test difference T2–T1 p = 0.240; T3–T1 p = 0.037. Outliers are defined by 1.5–3 times interquartile-distance; extreme values are defined by more than 3 times interquartile-distance.*

Table III. Visual analogue scale (VAS) pain scores assigned to breast lymphoedema at the 3 time-points: T1 = baseline at start of therapy, T2 = at end of therapy after 4 weeks, T3 = 8-week follow-up: median (quartile 25–75)

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>p-value/Friedman</th>
<th>Difference T2–T1</th>
<th>Difference T3–T1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control group, n=10</td>
<td>5.0 (4.0 to 6.0)</td>
<td>4.8 (3.8 to 6.5)</td>
<td>4.6 (1.9 to 6.5)</td>
<td>1.000</td>
<td>−0.5 (−1.2 to 1.3)</td>
<td>0.2 (−1.5 to 0.9)</td>
</tr>
<tr>
<td>Treatment group, n=11</td>
<td>4.0 (2.0 to 5.0)</td>
<td>2.1 (1.0 to 4.0)</td>
<td>2.0 (1.0 to 3.0)</td>
<td>0.048</td>
<td>−1.0 (−2.0 to 0)</td>
<td>−1.6 (−2.3 to 0)</td>
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<tr>
<td>p-value/Whitney U test</td>
<td>0.284</td>
<td>0.031</td>
<td>0.104</td>
<td></td>
<td>0.173</td>
<td>0.282</td>
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</table>

VISUAL analogue scale (VAS). The pain scores were unaffected by treatment in the control group. In the patients treated by additional HIVAMAT®, the pain scores decreased significantly from 4.0 before therapy to 2.1 (end of therapy) and to 2.0 (at 8-week follow-up).

VOLUME MEASUREMENT

- Volume determination using the 3D measuring technique described above objectified a reduction of swelling after the intervention interval in the treatment group of $-15.7 \text{ ml} \ (-35.2 \text{ to } -6.1 \text{ ml})$ in contrast to an increased volume in the control group of $13.3 \text{ ml} \ (-3.6 \text{ to } 26.3 \text{ ml}) \ p = 0.007$.

- At follow-up, the difference lost statistical significance: treatment group $-15.4 \text{ ml} \ (-36.4 \text{ to } -1.2 \text{ ml})$, control group $-1.1 \text{ ml} \ (-16.9 \text{ to } 7.0 \text{ ml}) \ p = 0.191$. 
Clinical Effects of the Therapy Method HIVAMAT in Treatment of Sports Injuries. ALIYEV, R. Sportverl Sportschad 2009; 23: 1–4

• 2 Soccer Teams Treated by Sports Medicine Group at Rehab Hospital
  • 14 Players Treated
  • Total of 49 Various Sports Injuries
  • 15-20 Treatments with HIVAMAT per Injury (as Indicated by Severity)
87% of patients experienced accelerated hematoma/edema reduction
Objective rating of therapy outcome by treating physician

- 90% of Patients Ended with “Good” or “Very Good” Results
Subjective pain and symptom rating (VAS) by patients

- 8.7 Baseline
- 2.1 Post-Treatment
GASBARRO, V. et al.
Role of HIVAMAT® in the treatment of the lymphedema of the limbs, Ferrara (Italy), 2005.

- Treatment per patient: 8 weeks
  - 2x/week 30 min. with classical treatment ways and 2 frequencies

- n = 20 patients with peripheral lymphoedema
  - Inclusion criteria: clinical picture and criteria acc. to PHILIPS iu22
  - Exclusion criteria: lymph-specific medical treatment

- Score acc. to PHILIPS iu22
- Circumference of the extremities at 3 defined points
- Dimension of lymphoedema
- State of connectivization

- Thorough examination, anamnesis
- Fluid lymph accumulation

01.05.2005 to 31.12.2005
CIRCUMFERENCE
[lower 1/3 segment]

** p < 0.001; t-test (student)
absolute reduction: 1 cm
V. GASBARRO (2006)

Results

**CIRCUMFERENCE**
[upper 1/3 segment]

** p < 0.05; t-test (student)
absolute reduction: 9 mm

**

V. GASBARRO (2006)

Results

**CIRCUMFERENCE**
[upper 1/3 segment]

** p < 0.05; t-test (student)
absolute reduction: 9 mm

**
V. GASBARRO (2006)

Results

SUBCUTAN THICKNESS
[upper 1/3 segment]

*** p < 0.0001; t-test (student)
absolute reduction: 15 mm
Accompanying Therapy in Lymphedema
– R. Brenke, W. Siems
LYMPHEDEMA: The effect of physical stimulation of microcirculation on selected parameters of muscle fatigue
– R. Trybulski, A. Zebrowska

Comparative Effect of Ultrasound and Deep Oscillation on the Extensibility of Hamstring Muscles
– M. Hinman, R. Lundy, E. Perry, K. Robbins, L. Viertel

Effect of Treatment with Low-Intensity and Extremely Low-Frequency Electrostatic Fields (Deep Oscillation®) on Breast Tissue and Pain in Patients with Secondary Breast Lymphedema
– S. Jahrm B. Schoppe, A. Reishhauer

Improving the Quality of Life Through Effect of Treatment with Low Intensity Extremely Low-Frequency Electrostatic Field with Deep Oscillation® in Patients with Breast Cancer with Secondary Limfadem to Patients Treated with Standard Lymph Treatment
– Y. Kashilska, A. Petkov, P. Micheva, A. Batashki, Z. Batashka

Use of the HIVAMAT® 200 with manual lymphatic drainage in the management of lower-limb lymphoedema and lipoedema
– I. Teo, A. Coulborn, D. A. Munnoch
FIELDS OF APPLICATION
• Accelerated regeneration in case of trauma, especially with edemas and hematomas
• Immediately applicable, treatment can be made more times a day
• Independent self treatment while using hand applicator
• Training and competition aftercare: Improved regeneration by optimized muscular detonization and decongestion of metabolic waste products
“I use the Hivamat whenever I have any sort of nagging pain or tightness throughout my body. Whenever I feel something come up I just turn to the best machine I’ve ever used!! I really do think it keeps me on the field. During the season as all baseball players know, aches and pains happen. One time I fouled a pitch off of my calf/shin during spring training and I had a lot of swelling that I thought would keep me out for days, but thanks to the Hivamat, I was back out there the next day!! I would recommend the Hivamat to anyone!!”

Freddy Sanchez
2006 National League Batting Champion
Pittsburgh Pirates All-Star 3rd Baseman
• Acute and chronic injuries are treated with a non-invasive boost to the body’s natural healing mechanism
• Acute pain patients tolerate treatment at early onset with Hivamat’s gentle oscillating vibratory effect on the tissues
• Deep Oscillation Therapy serves as a pretreatment to manipulation and mobilization techniques to open up the pathways and clear decongestion
• Gentle to the patient and saves the clinician’s hands
• Unique therapy method different from any other modality in the clinic
• Non-invasive, non traumatic oscillations deep within the tissue boost to the body’s natural healing mechanism
• Acute, traumatic pain and chronic pain syndromes
• Effective prophylaxis of local edemas and fibrotic conversion
• Muscular relaxation, mobilization with a movement promoting effect
• Gentle for the patient and saves the therapist’s hands
LYMPHEDEMA

- On the level of the interstitum, deep oscillation causes a “Shuffling” of the basic substance, thus promoting the removal of interstitial fluid as well as content material.
- Interstitial septa and fissures are kept open by the mechanical activation, which helps interstitial drainage.
- This significantly reduces both local edema and aseptic inflammation.
- In chronic conditions the treatment helps to disperse fibrosis and to diminish hardening of the tissue.
LYMPHEDEMA

Manual Lymphatic Drainage Process
- Diagnosis and Measurement
- MLD Treatment Supported Deep Oscillation Therapy (HIVAMAT®)
  - Vodder Techniques
    - Low & Varying Pressure
    - Small Deformations of the Skin
    - Repetitive Motions
- Skin Care
- Compression
- Movement
  - Passive
  - Active
POST-OPERATIVE CARE

• Immediately applicable (first postoperative day)
• Effective prophylaxis of local edemas
• Pain relief and improved sensitivity
• Improved activity
• High-quality wound healing (scar)
• Treatment during irradiation
AESTHETICS

- Anti-aging treatment for face-neck-decolletage
- Post plastic surgery and laser resurfacing rehabilitation
- Pre-and postoperative therapy
- Cellulite
HISTORY OF HIVAMAT & HIVAMAT TODAY
MILESTONES

1988
HIVAMAT

1992
HIVAMAT 200

2008
HIVAMAT 200 Evident

2017
HIVAMAT 200 Portable
HIVAMAT 200 Evident

~$9,995.00

- Full-Color Display on 8” monitor
- Simple-to-Use Interface
- Pre-Populated Treatment Programs
- Area-Specific Instructional Application Animations
- Individual, User-adjustable Programs (burst, frequency, duty cycle, and time)
- Save Treatment Programs to Device or to a Patient Card (to use with a portable device)
- Frequency Range 5-250 Hz
- Accessories Include Both Treatment Gloves/electrodes and Self-treatment with Handheld Applicators
- 3 Year Warranty
- Optional Storage Trolley
HIVAMAT 200 Portable

- Simple-to-Use Interface
- Practice-Specific Treatment Protocol Cards: Rehab, Athletic, Chiropractic
- Easily Transportable
- Battery Operated – rechargeable
- Frequency Range up to 200 Hz
- 3 Year Warranty

~$5,995
HIVAMAT 200 Portable Interface
MARKET COMPARISON
COMPETITIVE LANDSCAPE

**Dynatronics X5**

Treatment Mechanism
- Electrostatic Attraction

Caveats
- Lacking a rapid discharge circuit (how Dynatronics circumvents patent infringement against HIVAMAT) treatments become noticeably weaker over time
- No Predefined Clinical Protocols or Anatomical Illustrations
- 200Hz Max Frequency
- 2 Year Warranty
- No Portability

**LymphaTouch / PhysioTouch**

Treatment Mechanism(s)
- Vacuum
- Vibration

Caveats
- Small Range of Low Frequency Vibration: For movement of waste, not breakdown of solids, nor tissue relaxation
- Impossible to Follow Recommended MLD Techniques
- Superficial Treatment Depth
- In areas where creating a seal is difficult or impossible, treatments are ineffective.
The original HIVAMAT® technology is patented (U.S. patent 7,343,203 B2).

Dynatronics X5 device avoids the U.S. patent by omitting a “rapid discharge circuit” which is part of revindication 1 of the above U.S. patent.

This discharge circuit avoids a cumulative charge of the patient’s tissue or applicator. The omission of this feature by X5 results in a perceivably weaker and less gentle tissue effect, as well as less safety in case of damaged membranes than with the original HIVAMAT® technology.

The Director of the United States Patent and Trademark Office

[Stamp]
Most Applicable CPT Codes

97140
Manual therapy techniques
  • Connective tissue massage, joint mobilization and manipulation, and manual traction
  • 15 minutes

97124
Massage, including effleurage, petrissage, and/or tapotement
  • Stroking, compression, percussion
  • 15 minutes
FAQs

Side Effects / Adverse Reactions?

• There are no known side effects of Deep Oscillation Therapy, nor conflicts with any medications, some patients may notice increased urinary output.
• If treatment feels unpleasant (this is uncommon) as the therapist to stop treatment.
• Treatment while wearing jewelry or with implants such as pins and plates is safe – the tissue isn’t heated during treatment, nor is an electrical circuit completed
• Treatments are not affected by and will not harm electronic devices such as mobile phones
• Becoming flush will end treatment – your body should be at a normal temperature. After a few minutes when returned to normal, therapy can resume.

What’s with the powder?

• HIVAMAT Deep Oscillation Therapy requires an absolutely dry surface for treatment
• The powder is simply a baby powder, registered with the FDA, with no safety recalls
FAQs

How does the therapy work?
• Electrostatic pulses create pleasant, deeply effective oscillations in the skin, connective tissue, subcutaneous fatty tissue, muscles, blood and lymph vessels down to a depth of 8 cm (more than 3 inches).
• Electrostatic attraction occurs between opposing polarities
  • Via the titanium rod, or electrode for the patient
  • Via electrode on the therapist, applicator, or pair of applicators
• Movement is required for the therapy to be performed
• Varying frequencies and movement speeds are used to accomplish differing results throughout the treatment

Does higher intensity equal a more effective treatment?
• No – effective therapy can happen at minimal intensity. Intensity is adjusted to accommodate the preferred pressure of massage for the patient