

Inflammation and the Lymphatic System: Can Manual Lymphatic Drainage Help?

Exploring the role of lymphatic support in injury, surgery, pain, inflammatory conditions, and recovery after illness.



INJURY
Sprains, strains and trauma



SURGERY
Postoperative recovery



INFLAMMATORY CONDITIONS
Acute and chronic



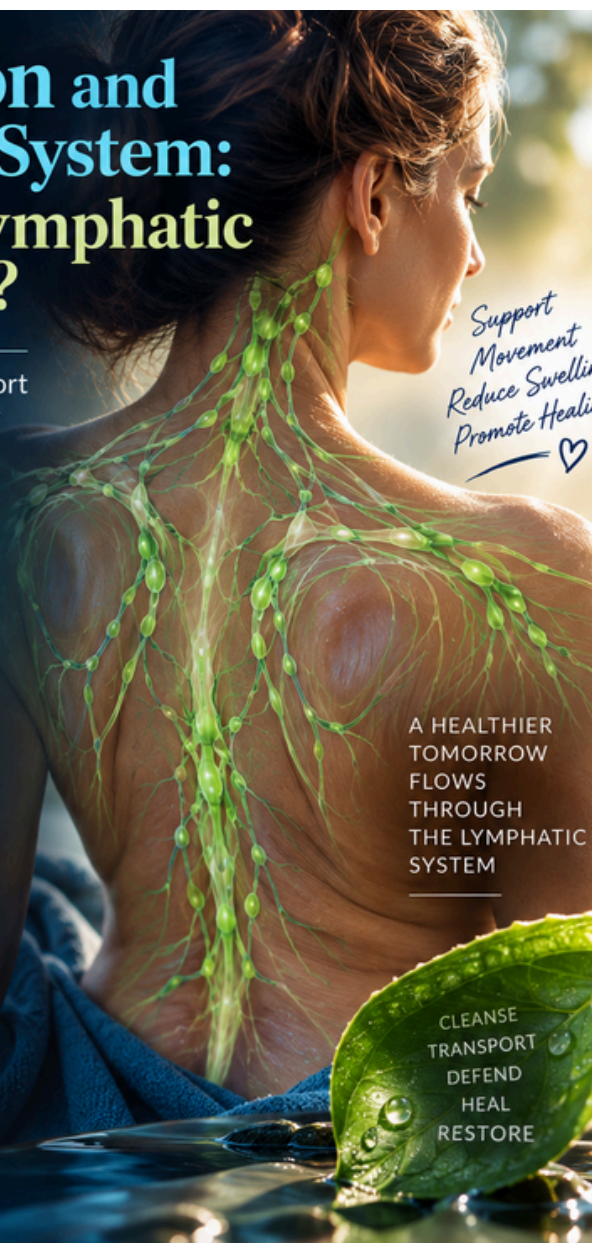
PAIN
Less swelling, more movement



RECOVERY AFTER ILLNESS
Regain strength and function



AUTOIMMUNE CONDITIONS
Supporting overall wellness



Inflammation is one of the body's most important protective responses. When we sprain an ankle, undergo surgery, fight an illness, or experience an inflammatory flare, the body responds by sending fluid, proteins, immune cells, and chemical messengers into the affected tissues. We often see the result as swelling, warmth, stiffness, tenderness, and pain.

But what happens to all of that fluid and cellular activity once it enters the tissues?

This is where the lymphatic system becomes an important part of the story.

Lymphatic vessels help collect excess interstitial fluid, proteins, cellular debris, and immune-related material while providing an essential pathway for immune surveillance and the eventual return of fluid to the circulation. During inflammation, that system may be asked to manage a considerably greater workload.

Lymphatic Restoration Therapy®

EDUCATION | EMPOWERMENT | BETTER OUTCOMES

MLD IS NOT JUST FOR LYMPHEDEMA

Manual Lymphatic Drainage (MLD) is most commonly associated with lymphedema, but its potential role may extend beyond chronic lymphatic swelling. Could supporting lymphatic transport also be useful following injury or surgery, when swelling contributes to pain and restricted movement, or during recovery from certain illnesses and inflammatory conditions?

In this article, we'll explore what happens to the lymphatic system during inflammation, what MLD may—and may not—do, and how lymphatic support might fit into a broader approach to healing, pain management, movement, and recovery.

Because when it comes to healing, nothing works in isolation. Everything works in combination.



Inflammation often gets a bad reputation, but inflammation itself is not necessarily the problem. It is one of the body's normal protective responses to injury, infection, irritation, or tissue damage. It helps contain a threat, recruit immune cells, remove damaged material, and begin the process of repair.

Imagine that you sprain your ankle. Within moments, the body recognizes that tissue has been injured and begins releasing chemical signals that initiate an inflammatory response.

Blood Flow Increases

Local blood vessels dilate, bringing additional blood, oxygen, nutrients, and immune cells to the injured area. This increased circulation contributes to the warmth and redness commonly associated with acute inflammation.

The Blood Vessels Become More Permeable

Small blood vessels also become temporarily more permeable. Fluid and plasma proteins move from the bloodstream into the surrounding interstitial space—the space between our cells. This is an important part of the healing response, but it also increases the amount of fluid within the tissue. The result? Swelling.

Immune Cells Arrive

White blood cells are recruited into the area to help respond to injury or infection. Chemical messengers coordinate this response, helping immune cells communicate and directing the different stages of inflammation and repair. The tissue environment can quickly become very busy.

There is now increased fluid, proteins, immune cells, inflammatory mediators, and material associated with injured or dying cells within the interstitial space.

And something has to manage that increased load.

This Is Where the Lymphatic System Comes In

Unlike the cardiovascular system, which circulates blood through a closed loop, the lymphatic system begins within the tissues as microscopic, blind-ended lymphatic capillaries. These delicate vessels collect excess interstitial fluid and substances that are not readily returned directly through the blood capillaries. Once that fluid enters a lymphatic vessel, we call it lymph.

Lymph then moves from the tiny initial lymphatics into progressively larger collecting vessels and ultimately through lymph nodes, where immune surveillance and immune-cell interactions occur, before the fluid eventually returns to the bloodstream.

During inflammation, the lymphatic system therefore has two closely connected jobs: Fluid management and immune transport.

When Swelling Becomes Part of the Problem

Some swelling immediately following an injury is expected. But when the amount of fluid entering the tissue exceeds the rate at which it can be cleared—or when movement, lymphatic function, or normal drainage pathways are compromised—edema may persist.

That additional tissue pressure can contribute to discomfort, stiffness, decreased range of motion, and difficulty moving.

Reduced movement can then create another challenge. Muscle contractions, joint movement, breathing, and changes in tissue pressure normally assist lymphatic transport. When something hurts, we tend to move it less. This can create a cycle:

Injury → inflammation → increased fluid → swelling and pain → decreased movement → reduced assistance to fluid transport → persistent swelling



The goal, however, is not simply to eliminate inflammation—Inflammation is part of healing.

The goal is to allow the inflammatory response to do its job while supporting the body's ability to move fluid, clear the tissue environment, restore movement, and progress toward repair.

And that leads to an important question:

If the lymphatic system plays such an important role during inflammation, can Manual Lymphatic Drainage help support that process?

That is where we go next.

MLD After Injury — The Swollen Ankle

A sprained ankle gives us a simple example of how inflammation, swelling, pain, movement, and the lymphatic system can all become interconnected.

When ligaments and surrounding tissues are injured, the inflammatory response begins almost immediately. Blood flow increases, vascular permeability changes, and fluid and proteins move into the interstitial space.

Some swelling is expected—and it is part of the body's normal response to injury.

But sometimes the swelling becomes significant enough that it begins to interfere with recovery.

When Swelling Affects Movement

As fluid accumulates around the ankle, tissue pressure increases. The ankle may feel tight, heavy, stiff, and painful.

That can make someone reluctant to move or put weight through the foot.

Unfortunately, movement is also one of the mechanisms that normally assists lymphatic transport.

Muscle contractions, joint movement, changes in tissue pressure, and weight-bearing all contribute to the movement of fluid through the tissues and lymphatic vessels.

So we can begin to see the cycle discussed earlier:

More swelling → more discomfort → less movement → less assistance to fluid transport → continued swelling.

This is where lymphatic techniques may have a role as part of rehabilitation.

Where Does MLD Fit?

Manual Lymphatic Drainage uses gentle, rhythmic skin movements intended to influence superficial lymphatic transport.

The goal is not to aggressively push fluid out of an injured ankle.

In fact, MLD should be gentle.

Initial lymphatic capillaries sit very close to the surface of the skin. Gentle stretching of the skin changes forces within the surrounding tissue and at the lymphatic capillary wall, facilitating entry of interstitial fluid when local pressure conditions favor uptake.

Once fluid enters the lymphatic system, it moves through progressively larger lymphatic vessels toward regional lymph nodes and eventually returns to the venous circulation.

MLD Is Only One Piece

In my own clinical practice, I have successfully incorporated MLD into the rehabilitation of patients with significant swelling following ankle sprains.

But I don't use MLD in isolation. Depending upon the individual and stage of healing, treatment may incorporate: Manual Lymphatic Drainage to support lymphatic transport.

Compression wrapping to help manage edema and limit excessive fluid reaccumulation.

Lymphatic taping to provide gentle mechanical influence between treatment sessions.

Movement and therapeutic exercise to restore mobility, muscle-pump activity, strength, balance, and function.

The combination is important.

MLD isn't repairing the injured ligament. Compression isn't repairing it either. And lymphatic taping isn't eliminating the inflammatory response.

Instead, these techniques may help us address one consequence of the injury—excessive or persistent swelling—while the tissues heal and rehabilitation restores normal function.

We Don't Want to Stop Healing

This distinction matters.

The inflammatory response following an ankle sprain has a purpose.

We aren't trying to shut it down simply because we see swelling.

We are trying to recognize when swelling itself begins contributing to pain, restricted movement, or delayed return of function and determine whether additional edema-management strategies are appropriate.

That is a very different goal.

Support the fluid. Restore the movement. Rehabilitate the injury. Allow the body to heal.

And an ankle sprain is only one example.

The same questions arise following surgery, orthopedic procedures, trauma, and other situations where tissue injury creates inflammation and edema.

So what happens when the injury is intentional—as it is during surgery?

That's where we'll go next.

After Surgery — When Healing Creates Swelling

Surgery creates a unique situation.

Although the procedure may be necessary to repair, replace, reconstruct, or remove something within the body, surgery itself creates controlled tissue trauma.

Incisions are made. Small blood and lymphatic vessels may be disrupted. Tissues are moved, stretched, cut, cauterized, or repaired. The immune system responds exactly as it is designed to respond:

Inflammation begins.

And with inflammation comes swelling.



Why Do We Swell After Surgery?

Following surgery, local blood vessels become more permeable and additional fluid and proteins enter the interstitial space.

At the same time, some of the tiny lymphatic vessels that would normally help collect that fluid may have been temporarily disrupted by the procedure.

MLD Is Only One Piece

Then another factor enters the picture:
We aren't moving normally.

Pain, surgical precautions, weakness, bracing, fear of movement, and decreased weight-bearing can dramatically reduce normal muscle and joint activity.

The body may therefore be producing more interstitial fluid while receiving less assistance from movement to transport it.

Bruising, swelling, stiffness, and discomfort are common consequences.

Not All Postoperative Swelling Is Abnormal
This is important.

Swelling after surgery does not automatically mean something is wrong or that the lymphatic system has failed.

Inflammation and edema are expected components of early tissue healing. Over time, newly forming lymphatic connections, changes in tissue pressure, movement, muscle activity, and normal physiological recovery help the body manage that additional fluid.

But in some patients, postoperative edema becomes substantial or persists long enough to interfere with function.

The swollen area may feel tight and heavy. Joint mobility may decrease. Clothing, braces, or shoes may become uncomfortable. Pain may make movement even more difficult.

Once again, we can find ourselves entering the swelling cycle.

Where Might MLD Fit?

Manual Lymphatic Drainage may be considered as one component of postoperative edema management when clinically appropriate.

The intention is not to force swelling away or accelerate healing beyond what the tissues are capable of doing.

Instead, gentle lymphatic techniques may be used to support fluid transport while respecting the healing tissues and any surgical precautions.

Treatment may also include:

- Movement and therapeutic exercise to restore muscle-pump activity and function.
- Compression, when appropriate, to assist edema management.
- Elevation and positioning to help manage dependent swelling.
- Breathing and mobility to restore normal pressure changes and movement throughout the body.
- Manual Therapy and interventions to scars and fibrotic tissue may help restore optimal flow and healing
- And, in selected situations, lymphatic taping may provide additional support between treatments.

But Does Everyone Need MLD After Surgery?

No.

And this is where we need to be careful with some of the claims surrounding postoperative lymphatic massage.

Research examining MLD after orthopedic procedures has produced mixed results. Some patients and surgical populations may experience improvements in swelling, comfort, or mobility, while other studies have found little additional benefit compared with standard postoperative rehabilitation alone.

That doesn't necessarily mean MLD has no place in postoperative care. It means we shouldn't treat every surgical patient according to the same formula.

- The type of surgery matters.
- The amount and location of swelling matter.
- The patient's medical history matters.
- Whether lymphatic structures or lymph nodes were affected matters.
- And most importantly, the individual response matters.

Postoperative Care Should Be Individualized

People not Protocols.

Postoperative Care Should Be Individualized

Different Surgeries. Different Needs. Same Goal.

ORTHOPEDIC SURGERY	BREAST CANCER SURGERY	ABDOMINAL SURGERY	PLASTIC & RECONSTRUCTIVE SURGERY	GYNECOLOGIC SURGERY	OTHER SURGERIES
Joint replacement, ligament repair, fracture	Lumpectomy, mastectomy, lymph node removal	Organ surgery, hernia repair, reconstructive procedures	Tummy tuck, liposuction, body contouring, flap surgery	Hysterectomy, endometriosis, pelvic procedures	ENT, thoracic, vascular, or specialized procedures

Different patients. Different healing journeys.

Individualized care makes the difference.

SUPPORT | MANAGE SWELLING | IMPROVE FUNCTION | PROMOTE HEALING | BETTER OUTCOMES

A patient recovering from a total knee replacement is very different from someone recovering from breast cancer surgery, abdominal surgery, orthopedic trauma, or a cosmetic procedure.

Their lymphatic challenges may be completely different. MLD should therefore be viewed as a clinical tool—not an automatic postoperative requirement.

When excessive swelling is interfering with movement, comfort, or function, supporting fluid management may help create a better environment for rehabilitation. But the ultimate goal isn't simply a smaller-looking limb.

The goal is to help the person move, heal, regain function, and return to life. And that brings us to another interesting part of this conversation. Because swelling isn't the only reason people seek MLD.

Many people say something else after treatment: "I hurt less."

So can Manual Lymphatic Drainage actually influence pain?

That's where we'll go next.

Can Manual Lymphatic Drainage Help With Pain?

One of the comments I frequently hear following lymphatic work is surprisingly simple: "It doesn't hurt as much."

But why? Pain is complicated. It can originate from tissue injury, inflammation, swelling, pressure, muscle guarding, nerve irritation, altered movement, or changes within the nervous system itself.

Manual Lymphatic Drainage does not address every cause of pain. But in certain situations, there are several reasons why someone may feel more comfortable following treatment.

When Swelling Hurts

Imagine again our swollen ankle.

As fluid accumulates within the interstitial space, tissues expand and pressure within the area can increase. The skin may feel tight. Movement becomes uncomfortable. A swollen joint may become stiff, and surrounding muscles may begin guarding the area.

If excessive edema is contributing to that discomfort, improving fluid management may reduce one of the factors contributing to pain. Less tissue tension may make movement easier. And once movement becomes easier, something important happens:

People begin moving again.

That movement assists circulation, muscle-pump activity, joint mobility, and lymphatic transport—potentially helping interrupt the swelling-pain-inactivity cycle.

But There May Be More Happening

MLD is characteristically slow, gentle, rhythmic, and repetitive.

That sensory input is very different from aggressive manual therapy.

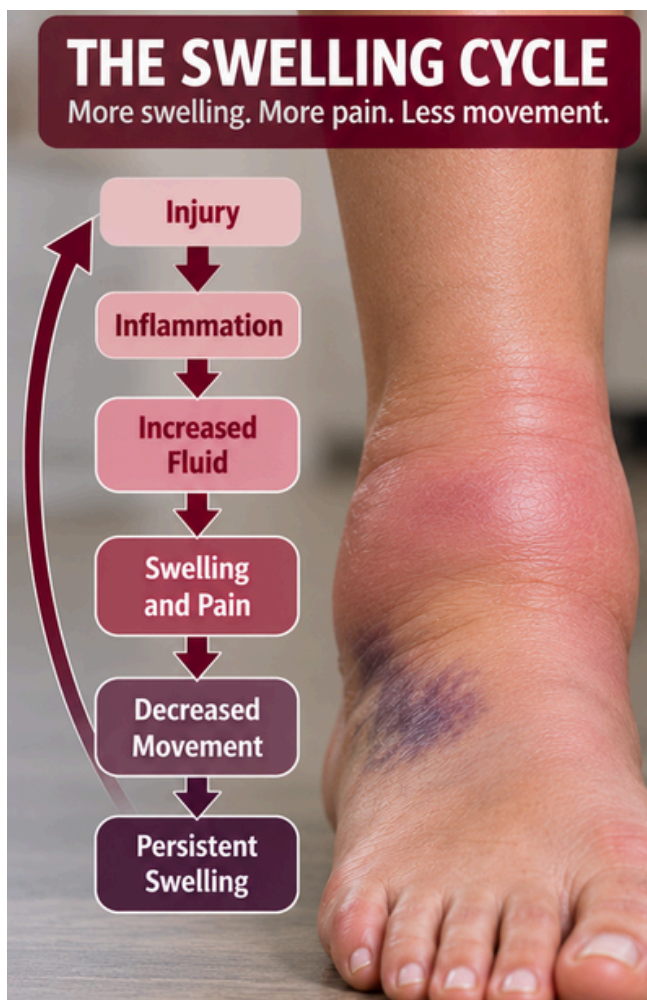
Gentle touch activates sensory receptors within the skin and provides continuous input to the nervous system. There is also research exploring whether MLD and other gentle manual techniques may influence autonomic nervous system activity, including shifts associated with relaxation.

This may help explain why some people report not only less discomfort, but also feeling calmer, less guarded, or deeply relaxed following treatment.

Pain is not produced by tissue alone. It is an experience created by the nervous system in response to information coming from the body and the environment.

Changing that sensory environment may therefore influence how pain is experienced.

Pain, Guarding, and Movement



Pain frequently changes the way we move.?

We protect the painful area. Muscles tighten. Breathing may become shallower. Movement becomes smaller and more cautious.

Over time, this protective response can create additional stiffness and discomfort.

Gentle lymphatic work may provide an opportunity to begin breaking that cycle:

Less swelling → less tissue pressure → less discomfort → easier movement → improved muscle and joint activity → greater assistance to fluid transport.

It is almost the reverse of the swelling cycle we discussed earlier. changes the way we move.

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MLD Is Not a Treatment for Every Type of Pain

This distinction is important. MLD should not be presented as a universal pain treatment.

Neuropathic pain, inflammatory pain, postoperative pain, musculoskeletal pain, migraine, central sensitization, and pain associated with systemic disease can involve very different mechanisms.

A reduction in pain following MLD does not necessarily mean that the underlying condition has been treated.

Instead, MLD may influence some of the factors surrounding the pain experience—particularly swelling, tissue pressure, movement, guarding, sensory input, and relaxation.



Sometimes Gentle Is Enough

In rehabilitation, we sometimes assume that meaningful treatment needs to be forceful. The lymphatic system reminds us otherwise.

MLD works with superficial tissues using relatively light, rhythmic movements. For someone who is already painful, swollen, guarded, or recovering from illness or surgery, that gentleness may be precisely what allows treatment to begin.

The goal isn't simply: "Make the pain go away."
The larger goal is:

- Reduce barriers to movement.
- Support fluid transport.
- Restore function.
- Help the person feel safe enough and comfortable enough to move again.

And pain isn't limited to injuries and surgery. Many people recovering from illness describe lingering aching, heaviness, fatigue, swelling, and difficulty returning to normal activity.

Could lymphatic support have a role there as well?

That's where we'll go next.

Recovery After Illness — Is There a Role for MLD?

Sometimes the infection is gone, the fever has resolved, and the doctor says you are recovering—but you still don't feel like yourself.

You may feel tired, achy, stiff, heavy, or weak. Normal activities take more effort. Perhaps you've spent days or weeks moving far less than usual. Recovery from illness doesn't always happen the moment the illness ends.

And once again, the lymphatic system may be part of the bigger picture.

What Happens While We Are Sick

When the immune system responds to an infection or illness, inflammatory signaling increases and immune cells become highly active.

The lymphatic system participates throughout this response. Lymphatic vessels transport fluid, proteins, antigens, and immune cells from peripheral tissues toward lymph nodes. Within the lymph nodes, immune cells interact, communicate, and help coordinate an appropriate immune response.

In other words, the lymphatic system isn't simply a drainage system.

It is deeply integrated with immune function.

Illness Also Changes How We Move

Think about what happens when you don't feel well. You may spend more time in bed or sitting. You walk less. You exercise less. Your breathing patterns may change. Your muscles aren't contracting as frequently.

That matters because movement, muscle contractions, joint motion, and changes in pressure associated with breathing all contribute to lymph transport.

The lymphatic vessels themselves actively contract, but normal body movement provides additional mechanical assistance.

During a prolonged illness or recovery period, that assistance may be substantially reduced.

Why Do Some People Feel Heavy or Puffy Afterwards?

There isn't one explanation. Residual inflammation, medication effects, altered fluid balance, reduced activity, deconditioning, vascular changes, sleep disruption, nutritional status, and the underlying illness itself may all contribute.

This is important because not every sensation of swelling or heaviness represents a lymphatic problem.

Persistent or unexplained swelling after illness should be medically evaluated, particularly if it is sudden, one-sided, associated with shortness of breath or chest pain, or accompanied by other concerning symptoms.

But once serious causes have been excluded and the acute illness has resolved, some individuals may benefit from strategies that gently support movement and fluid transport during recovery.

Where Might MLD Fit?

MLD should not be presented as a treatment for an infection.

- It does not kill a virus.
- It does not eliminate bacteria.
- It does not “detox” the body after an illness.
- And it should not replace appropriate medical treatment.

However, once someone is medically stable and no longer acutely ill, gentle lymphatic techniques may sometimes be considered as part of a broader recovery program—particularly when edema, reduced mobility, or an established lymphatic condition is present.

The emphasis is on supporting recovery rather than treating the disease that caused the illness.

Recovery Requires More Than MLD

This is another situation where nothing works in isolation. Recovery may include gradually increasing:

- Movement to restore muscle-pump activity and mobility.
- Breathing and positional changes to reintroduce normal pressure changes throughout the trunk.
- Hydration and nutrition appropriate to the person's medical needs.
- Rest and pacing while energy and endurance return.

Therapeutic exercise when weakness or deconditioning is significant. And, when clinically appropriate, MLD or other edema-management strategies may be incorporated.

The goal isn't to force the body to recover faster. The goal is to provide the appropriate support while the body restores normal function.

What About Long COVID and Post-Viral Conditions?

This deserves special caution.

Post-viral syndromes and Long COVID can involve complex interactions between the immune, vascular, autonomic, metabolic, and nervous systems. Research continues to evolve.

Although lymphatic and immune mechanisms are being investigated, we currently should not assume that MLD treats Long COVID or other post-viral syndromes.

Some individuals may tolerate gentle manual therapy well, while others—particularly those experiencing significant post-exertional symptom exacerbation or autonomic dysfunction—may require carefully paced and individualized care.

More treatment is not always better.

Support the Person, Not Just the Lymph



This may be the most important message. Following illness, our job isn't simply to “move lymph.”

It is to look at the whole person.

- Are they swollen?
- Are they moving?
- Are they breathing comfortably?
- Are they medically stable?
- Are they tolerating activity?
- Are they getting stronger—or does activity make their symptoms significantly worse?

Those answers determine what type of support is appropriate. MLD may be one tool in that process. But recovery is ultimately about helping the person gradually return to movement, function, participation, and life.

And this leads us into an even more complicated question:

What happens when inflammation isn't temporary—but is part of a chronic inflammatory or autoimmune condition?

When Should MLD Wait?

SAFETY FIRST. KNOW THE DIFFERENCE.

Support the right time.
Support a safer recovery.

MLD SHOULD WAIT WHEN YOU:	MLD CAN BE CONSIDERED AGAIN WHEN:
HAVE A FEVER OR ARE ACUTELY ILL Fever, chills, malaise or an active systemic infection. Allow the body to fight the infection. Rest and get medical care.	THE FEVER HAS RESOLVED You are no longer acutely ill and symptoms are improving.
HAVE CELLULITIS OR AN ACTIVE BACTERIAL INFECTION Hot, red, painful, swollen area – especially with fever or feeling unwell. Seek medical evaluation first.	THE INFECTION IS TREATED OR RESOLVED You are medically stable and on the road to recovery.
HAVE SUDDEN OR UNEXPLAINED SWELLING New or rapidly increasing swelling should be medically evaluated.	THERE ARE NO UNEXPLAINED NEW SYMPTOMS OR SWELLING Any concerning signs have been evaluated by your healthcare provider.
MAY HAVE A BLOOD CLOT (DVT) New unilateral swelling, pain, warmth, redness or tenderness. Get urgent medical assessment. MLD should not be performed until a clot has been ruled out or treated.	ACTIVITY IS TOLERATED You can gradually increase movement without a significant setback.
HAVE NEW SHORTNESS OF BREATH, CHEST PAIN, OR RAPID HEART RATE These symptoms require urgent medical evaluation until lymphatic treatment.	MEDICAL CLEARANCE WHEN NEEDED Follow your healthcare provider's guidance, especially with complex medical conditions.
HAVE UNSTABLE HEART FAILURE OR FLUID OVERLOAD Increasing edema may reflect a systemic condition. MLD is not appropriate until medically stabilized.	<i>When in doubt, check it out.</i> It's always best to consult your healthcare provider when you're unsure.

When Should MLD Wait?

There is an important difference between supporting recovery after an illness and performing MLD while someone is acutely ill.

If the body is actively fighting an infection or a new medical problem is developing, the priority is determining what is happening –not trying to increase lymphatic drainage.

MLD should generally wait during an acute systemic infection or when someone is medically unstable.

When to avoid MLD

Examples include:

- Fever or active illness: postpone MLD until recovery and medical stability.
- Active cellulitis or bacterial infection: seek medical evaluation; do not treat the infected area.
- Sudden or unexplained swelling: evaluate it before assuming a lymphatic cause.
- Possible blood clot: new one-sided swelling with pain, warmth, redness, or tenderness requires urgent assessment. Do not perform MLD until medically cleared.
- Shortness of breath, chest pain, fainting, or unexplained rapid heart rate: seek urgent medical care instead of lymphatic treatment.
- Unstable heart failure or significant fluid overload: stabilize the underlying condition first.

Kidney disease, active cancer treatment, recent surgery, complex vascular disease, and other serious conditions may require modified treatment, medical guidance, or additional clinical judgment.

When Can We Begin Again?

There isn't a universal number of days to wait after every illness.

Instead, look for recovery:

- The fever has resolved.
- The acute infection is being appropriately treated or has resolved.
- The person is medically stable.
- There are no unexplained new symptoms or swelling.
- Activity is tolerated appropriately.
- Any necessary medical clearance has been obtained.

Then MLD can be considered based on the individual's condition and reason for treatment.

Advanced training or experienced clinicians are best sought out with these examples. Some clinicians specialize in cancer care, chronic illness and even post covid and post surgery.

Anyone trained in MLD should be educated and well informed about contraindications, precautions and indications.

Autoimmune Disease, Chronic Inflammation and the Lymphatic System

So far, we have talked primarily about inflammation that has a beginning and an expected resolution—an injury, surgery, or illness.

But what happens when inflammation doesn't simply turn off? In chronic inflammatory and autoimmune diseases, the relationship between the immune and lymphatic systems becomes considerably more complicated.



The Lymphatic System Is Part of the Immune System

The lymphatic system does much more than manage fluid.

Lymphatic vessels transport immune cells, antigens, inflammatory mediators, and other material from peripheral tissues toward lymph nodes. Lymph nodes provide organized environments where immune cells communicate and adaptive immune responses are coordinated.

Lymphatic vessels themselves also participate in immune regulation. This means inflammation affects the lymphatic system—and the lymphatic system can influence the inflammatory environment.

Researchers studying autoimmune diseases have identified alterations in lymphatic function in conditions including rheumatoid arthritis, systemic lupus erythematosus, systemic sclerosis (scleroderma), and dermatomyositis.

A major review published in *Frontiers in Immunology* described lymphatic vessels as important for clearing fluid and inflammatory cells from inflamed tissues and discussed how lymphatic dysfunction may contribute to rheumatic autoimmune disease.

Chronic Inflammation Can Change Lymphatic Function

During acute inflammation, lymphatic vessels may expand and lymph transport may increase as the system responds to the increased tissue load.

Chronic inflammation can be different. Persistent inflammatory signaling may alter lymphatic vessel structure, pumping, permeability, and drainage capacity. Inflammation-induced growth and remodeling of lymphatic vessels has been documented in both acute and chronic inflammatory disease. Rheumatoid arthritis provides a particularly interesting example.

Experimental research suggests that lymphatic drainage may initially increase during inflammatory arthritis. As inflammation becomes chronic, however, lymphatic contractility and clearance can decline. Researchers have described changes in both the draining lymphatic vessels and lymph nodes as arthritis progresses.

A 2024 review similarly concluded that pathological alterations in lymphatic vessels appear closely connected with inflammatory joint disease and that restoring lymphatic function is being investigated as a potential therapeutic strategy in rheumatoid and osteoarthritis.

This gives us an important concept:

Chronic inflammation can impair lymphatic function, while impaired lymphatic clearance may contribute to persistence of the inflammatory tissue environment.

It can become a two-way relationship.

So Could MLD Help?

Possibly—but we must separate biological rationale from clinical evidence.

Lymphatic dysfunction in autoimmune disease does not prove that externally applied MLD can correct it or modify the underlying disease.

MLD should not be presented as a treatment for rheumatoid arthritis, lupus, scleroderma, or other autoimmune disorders, and it does not replace medications that control immune activity or disease progression.

However, MLD may support some individuals when swelling, limited mobility, tissue discomfort, or an established lymphatic problem accompanies the disease. Early clinical evidence supports this possibility.

An Interesting Study in Rheumatoid Arthritis

A randomized controlled study examined women with rheumatoid arthritis who were in remission, rather than experiencing an active inflammatory flare.

Participants received either a home exercise program alone or the exercise program plus MLD for four weeks.

The MLD group demonstrated improvements in pain measures and some range-of-motion outcomes. The researchers concluded that MLD could potentially be added to medical and other conservative treatment in people with RA. That detail—patients were in remission—is important.

This study does not demonstrate that MLD suppresses an acute rheumatoid flare. Instead, it suggests that MLD may have value as an adjunct to conventional management in medically stable patients.

What About Fibromyalgia?

Fibromyalgia is not considered a classic autoimmune disease, but it is relevant to this discussion because it involves chronic widespread pain and complex nervous-system and inflammatory mechanisms.

Research on MLD in fibromyalgia is surprisingly interesting.

A systematic review concluded that lymphatic drainage and myofascial therapies may improve quality of life and symptoms in people with fibromyalgia, while also emphasizing that the available evidence remained insufficient for strong conclusions.

More recently, a small double-blind randomized sham-controlled trial involving 20 women found that MLD added to medical treatment was associated with improvements in pain and fibromyalgia-related outcomes. The authors described MLD as a potential complementary treatment rather than a replacement for medical care.

These are encouraging findings—but the studies are small, and we need larger trials before making broad recommendations.

Given the correlation between MLD and the nervous system, there is a strong connection between the relief someone in chronic pain may receive and the application of MLD.

More research is needed but the exploration of neurolymphatics is promising.

What About an Autoimmune Flare?

This is where individualized clinical judgment becomes especially important.

An autoimmune flare is not the same thing as swelling following an ankle sprain.

If someone suddenly develops increased joint swelling, significant fatigue, fever, rash, respiratory symptoms, neurological symptoms, or other changes associated with their disease, the priority should be determining whether the underlying condition requires medical management.

MLD should not be used as a substitute for controlling active systemic inflammation.

Once the patient is medically stable, however, gentle lymphatic treatment may sometimes be considered for associated edema, discomfort, or mobility limitations—depending upon the diagnosis, medications, cardiovascular and renal status, skin integrity, and overall presentation.

Support, Not Suppression

Perhaps the most important distinction in this entire article is this:

MLD does not need to “suppress the immune system” or “flush inflammation out” in order to have a potential clinical role.

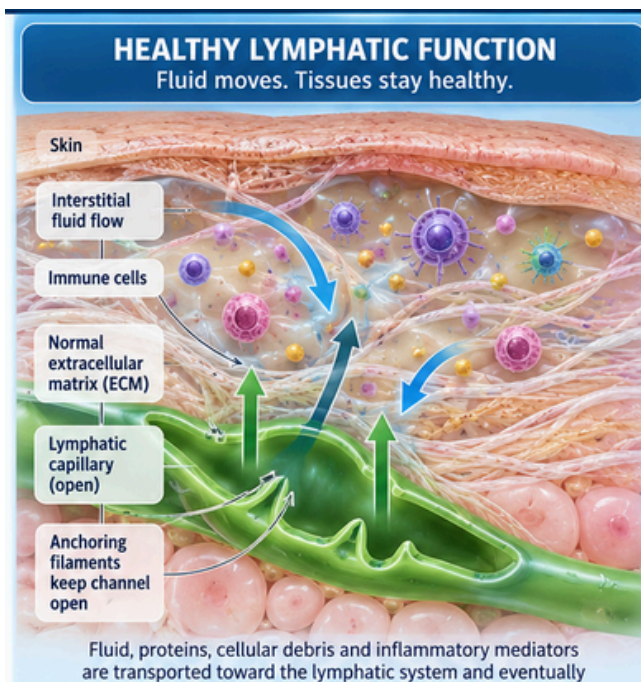
Its role may be much simpler.

- Support fluid transport.
- Address edema when present.
- Provide gentle sensory input.
- Reduce barriers to comfortable movement.
- And help the patient participate in the other components of rehabilitation that support function and quality of life.

That is very different from claiming to treat autoimmune disease.

The emerging science surrounding lymphatics and chronic inflammation is fascinating—and researchers are increasingly investigating the lymphatic system as a potential therapeutic target. But for now, the responsible clinical message remains:

- Treat the disease medically.
- Support the person therapeutically.
- Use MLD when the individual presentation indicates that lymphatic support may be appropriate.



When Clearance Can't Keep Up

Throughout this article, we have followed a common theme:

Fluid enters the tissues. Cells communicate. Inflammation occurs. Material needs to be transported away. Most of the time, this system works remarkably well.

But what happens when the amount entering the tissue repeatedly exceeds the ability of the lymphatic and vascular systems to manage it—or when normal transport is impaired?

People often use the word “stagnation.” It is not a specific medical diagnosis, but it describes an important concept: a tissue environment in which fluid and other substances are not being cleared as efficiently as they normally would be.

Clearance Is About More Than Water

The lymphatic system doesn't simply remove excess water.

Interstitial fluid contains proteins, immune cells, inflammatory mediators, cellular material, lipids, and other substances moving between the blood, tissues, and lymphatic system.

Lymphatic vessels help transport some of this material away from peripheral tissues while simultaneously participating in immune surveillance.

When lymphatic transport becomes impaired, the consequence therefore isn't necessarily just visible swelling. The tissue environment itself can change.

Persistent Swelling and Fibrosis

Lymphedema provides perhaps the clearest example.

When lymphatic transport is chronically impaired, protein-rich fluid accumulates within the interstitial space. Chronic inflammation, changes in immune-cell populations, adipose deposition, fibroblast activation, and extracellular-matrix remodeling can gradually follow.

Over time, soft swelling may become firmer and less mobile. Eventually, fibrosis can become part of the condition. This is why long-standing lymphedema is not simply “too much water.”

The tissue has undergone biological and structural change.

What About the Nerves?

This becomes particularly interesting when we consider pain. Peripheral nerves live within the same tissue environment.

Swelling can increase tissue pressure. Inflammation can sensitize nociceptors. Fibrosis and altered connective tissue can affect the mechanical environment surrounding nerves. In some conditions, edema or inflammation around a nerve may contribute to symptoms such as:

- Pain.
- Burning.
- Tingling.
- Heaviness.
- Sensitivity.
- Altered sensation.

.But an important distinction is necessary. Neuropathic pain is not simply caused by stagnant lymph.

Neuropathic symptoms can arise from nerve compression, nerve injury, diabetes, autoimmune disease, chemotherapy, spinal pathology, metabolic disease, infection, and many other causes.

Lymphatic treatment therefore should not be presented as a treatment for neuropathy itself. It can be a valuable supportive therapy.

And What About Our Organs?

This is where the lymphatic story becomes even bigger.

Lymphatic vessels are found throughout much of the body and participate in maintaining fluid balance and immune surveillance within many organ systems.

The intestine has specialized lymphatic vessels called lacteals, which are essential for transporting dietary fats.

The lungs depend upon tightly regulated fluid transport to maintain efficient gas exchange.

The liver produces a substantial amount of the body's lymph and participates in complex fluid, immune, and metabolic exchange.

The kidneys, gastrointestinal system, heart, and other tissues also interact with lymphatic networks.

And research over the last several decades has increasingly examined lymphatic dysfunction in diseases involving the heart, lungs, gastrointestinal tract, liver, kidneys, and nervous system.

But this does not mean that poor lymphatic drainage is the universal cause of organ disease. Nor does it mean that externally applied MLD can "drain the organs" or correct organ dysfunction.

Those would be significant overstatements. What the research does tell us is something much more interesting: Lymphatic function is deeply integrated with tissue and organ homeostasis.

The Brain Has Its Own Clearance Story

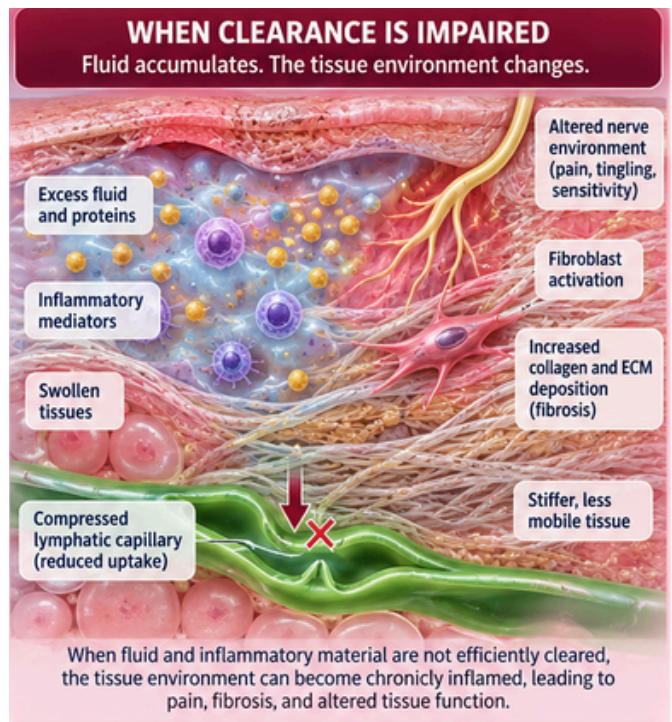
Even the central nervous system challenges the old idea that lymphatics are simply peripheral drainage vessels.

Research into the glymphatic system and meningeal lymphatic vessels has demonstrated pathways involved in fluid movement and waste clearance within and around the brain.

Sleep, vascular pulsation, cerebrospinal fluid dynamics, and meningeal lymphatic drainage all appear to participate in this complex clearance system.

This is an exciting and rapidly developing area of science. But once again, we need to separate the science from marketing claims. Manual Lymphatic Drainage performed on the neck or body has not been established as a way to "detox the brain."

Understanding these pathways does, however, reinforce an important principle: Healthy tissues depend upon movement, exchange, transport, and clearance.



When Clearance Falls Behind

Perhaps "stagnation" is best understood not as a disease, but as an imbalance.

- More fluid entering than leaving.
- More inflammatory activity than resolution.
- Less movement.
- Reduced transport capacity.
- Increasing tissue pressure.
- Persistent inflammatory signaling.
- Progressive tissue remodeling.

Depending upon the underlying condition, the consequences may include persistent edema, discomfort, restricted movement, altered tissue quality, fibrosis, or additional stress on already compromised tissues.

But the solution isn't always simply: "Move more lymph." We first have to ask:

- why clearance is impaired.
- Is there lymphatic damage?
- Venous disease?
- Heart or kidney dysfunction?
- Active inflammation?
- Medication-related edema?
- Reduced mobility?
- Surgical disruption?
- Obstruction?
- Neurological impairment?
- Or a combination of several factors?

That distinction determines whether MLD is appropriate—or whether something entirely different needs to be addressed first.

Supporting the Environment for Healing

This brings us back to the central theme of this article.

MLD doesn't have to cure inflammation, repair a nerve, reverse organ disease, or "detox" the body to have clinical value. Its potential role is more specific: Support lymphatic transport when lymphatic support is appropriate.

Help manage edema when edema is part of the problem.

Reduce barriers to comfortable movement. Work alongside compression, exercise, breathing, medical management, and rehabilitation.

Because healthy tissue depends on more than circulation alone. It depends upon delivery, exchange, movement—and clearance.

So, Can Manual Lymphatic Drainage Help With Inflammation?



After looking at injury, surgery, pain, illness, chronic inflammatory conditions, and impaired tissue clearance, we can return to our original question:

Can Manual Lymphatic Drainage help with inflammation? In the right situation, yes—but not because MLD simply "turns inflammation off."

Inflammation is a necessary part of healing. MLD does not suppress the immune response, cure autoimmune disease, repair injured tissue, or eliminate infection.

Instead, its potential value lies in supporting lymphatic transport and addressing some of the consequences that can accompany inflammation.

What Can MLD Potentially Help With?

When clinically appropriate, MLD may help:

- Manage edema and persistent swelling.
- Supporting lymphatic transport may help when excess interstitial fluid is contributing to tissue pressure, heaviness, or stiffness.
- Improve comfort.
- Reducing fluid burden and tissue tension may decrease one contributor to pain. The gentle, rhythmic nature of MLD may also provide calming sensory input to painful or guarded tissues.
- Make movement easier.

When swelling and discomfort restrict movement, addressing edema may help a person begin moving more comfortably—restoring the muscle and joint activity that also assists fluid transport.

Support postoperative and injury recovery. MLD may be incorporated alongside appropriate compression, taping, exercise, positioning, and rehabilitation when edema is interfering with function. Support people with established lymphatic dysfunction.

When inflammation occurs in someone whose lymphatic transport is already compromised, managing the additional fluid burden may become particularly important. Complement care for selected chronic inflammatory conditions.

Early research suggests potential benefits in some populations, but MLD should remain an adjunct to—not a replacement for—appropriate medical management.

MLD Is One Tool

The key lesson is that lymphatic treatment should not occur in isolation.

Depending on the person, care may combine MLD, compression, movement, exercise, breathing, skin care, pain management, nutrition, medical treatment, and rehabilitation. The right combination depends on the cause of inflammation.

Treat the cause and support the environment:

- Infection: treat the infection.
- Autoimmune disease: manage the disease.
- Injury: rehabilitate the injury.
- Cardiovascular, renal, vascular, or systemic conditions: address the underlying cause.

Then ask whether swelling, impaired lymphatic transport, tissue pressure, or restricted movement is also part of the problem. If so, lymphatic support may have an important role.

Supporting Healing—Not Fighting It

The goal isn't to eliminate every sign of inflammation.

The goal is to allow inflammation to accomplish its purpose without letting persistent swelling, impaired clearance, pain, or reduced movement become additional barriers to recovery.

That is where MLD may be most valuable. Not as a cure. Not as a detox. And not as a replacement for medical treatment.

But as a gentle clinical tool that can help support fluid transport, improve comfort, restore movement, and create a better environment for healing.

Support the flow. Restore movement. Treat the whole person.

Because when it comes to healing, nothing works in isolation. Everything works in combination.



About the Author

Laine Kristin Miller, PTA, LMT, CLT, C-MLD, has more than 36 years of experience in rehabilitation, with a clinical background spanning orthopedic and neurological rehabilitation, post-surgical recovery, pain management, and lymphatic care. As a Certified Lymphedema Therapist and Manual Lymphatic Drainage practitioner and educator, Laine integrates lymphatic techniques with movement, therapeutic exercise, manual therapy, compression, and patient education.

She is the founder of Lymphatic Restoration Therapy®, an educational approach built around understanding the lymphatic system as part of the larger picture of healing and function. Her philosophy is simple: Nothing works in isolation. Everything works in combination.

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Educational Disclaimer

This article is for educational purposes only and is not intended to diagnose, treat, or replace individualized medical care. Manual Lymphatic Drainage may not be appropriate for every person or condition. Consult a qualified healthcare professional regarding new or unexplained symptoms and before beginning treatment when medical concerns are present.