



# MASSAGE THERAPY AND LOMILOMI

Their efficacy as  
complementary therapies

A review of 16 studies to discover the use of Massage Therapy and Lomilomi as non-invasive and cost-efficient therapeutic and palliative complementary support.

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# CLASSIFICATION AND SUMMARY OF STUDIES RELATED TO MASSAGE THERAPY AND LOMILOMI

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## INTRODUCTION

With the present paper we aimed at selecting, amongst a wide number, a sample of scientific studies related to massage therapy, Lomilomi and efficacy of complementary therapies. We made a review and classification of the most relevant ones, especially those with meta-analysis, randomized control trials or others with more scientific rigor in this field.

We extracted the main discoveries, results and conclusion for a clear overview of the effects of massage therapies in healthy clients or patients, so as we discover some underlying mechanisms of action. The studies are reported and summarized not altering their words or scope in the most “objective” way.

**There is a mounting number of evidences that massage therapy and Lomilomi are a non-invasive and cost-efficient therapeutic and palliative complementary support**, when applied from certified therapists. However, despite the positive effects for the patients and clients, its safety and cost-effectiveness, it is often overlooked from the traditional approach of health care as a preventive and therapeutic tool.

In addition, the healthcare system is facing numerous challenges, with long term diseases that are increasing steadily: cancer, stress and anxiety, diabetes, obesity, heart diseases and chronic inflammation. The current health care system is not containing the complexity of these health problems. The current system is therefore under a great strain, steadily higher costs and, despite its effectiveness and already proven outcomes, there is the **high need to have an integrated approach**.

**Lomilomi, or more extensively the traditional Hawaiian medicine is a complete and holistic health system** composed by: bone setting (chiropractic), osteopathy, phytotherapy (la’au lapa’au or use of healing plants), deep anamnesis, Hula (Hawaiian traditional dance), Lua (martial art), chants, prayers, Ho’oponopono (emotional intelligence from a Hawaiian perspective), relationship with nature, ancestry, family (‘Ohana), community and spirituality.

## SUMMARY

Lomilomi, coming from the Hawaiian traditional medicine, is more than a Massage Therapy. Lomilomi is a therapy including body, mind and spirit/soul/awareness. Lomilomi covers all aspects in the sequence of treatment: **prevention – therapy – rehabilitation**.

In Switzerland, a total of **30 Billion Francs/US\$** are spent in healthcare for diseases related to cardiovascular diseases, respiratory diseases, musculoskeletal diseases such as arthrosis, rheumatism and back pain, diabetes, cancer, mental illnesses such as anxiety and depressions.

In this review we will show through evidence-based studies how Massage Therapy and Lomilomi can contribute to reduce symptoms, especially for the above-mentioned diseases. Massage Therapy has been shown to be a **cost-effective and safe treatment** with a valid complementary and sometimes proven therapeutic effect, avoiding major risks of side effects.

Massage Therapy and Lomilomi help to relieve pain, reduce the course of inflammation, alleviate symptoms of anxiety and depression, fatigue, nausea and help patients to cope better with adverse effects of chemotherapy or radiotherapy.

### ***Relevance of the individual studies in this paper for the Lomilomi therapy***

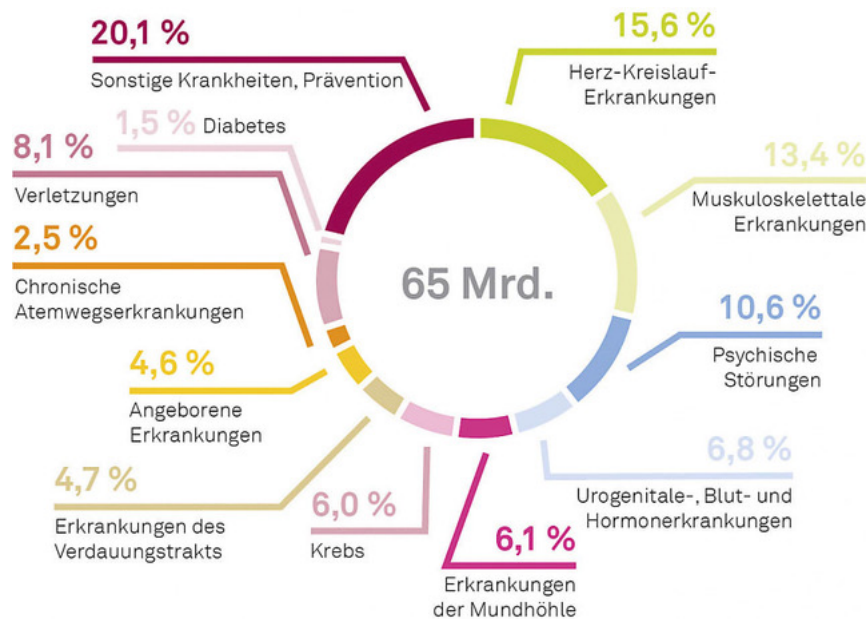
Comments and remarks on the individual studies can be found in these boxes spread across the paper.
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## THE MOST EXPENSIVE ILLNESSES/DISEASES IN SWITZERLAND

### Die teuersten Krankheiten in der Schweiz <sup>1</sup>

Herz-Kreislauf, Rückenschmerzen oder Depressionen: Eine Studie hat erstmals die jährlichen Krankheitskosten von nicht-übertragbaren Erkrankungen der Schweizer Bevölkerung ermittelt.

Auf Platz 1 der teuersten Leiden in der Schweiz rangieren die Herz-Kreislauf-Erkrankungen: mit über 10 Milliarden Franken oder einem Anteil von 15,6 Prozent an den gesamten Gesundheitskosten. Mit 8,7 Milliarden Franken (13,4 Prozent) folgen an zweiter Stelle die muskuloskelettalen Erkrankungen wie Arthrose, Rheuma und Rückenschmerzen. Rang 3 belegen psychische Erkrankungen wie Depressionen mit fast 10,6 Prozent der Gesamtkosten (6,9 Milliarden Franken).



**Nichtübertragbare Krankheiten** <sup>2</sup> (kurz: **NCD** für *non-communicable diseases*) sind nicht ansteckend bzw. nicht von einer Person auf die andere übertragbar. Sie sind auch bekannt als chronische Krankheiten, da sie sich langsam entwickeln und lange andauern.

### Wie viel kostet das die Volkswirtschaft?

- 80% der schweizerischen Gesundheitskosten werden durch nichtübertragbare Krankheiten verursacht. 2013 lagen die Kosten der NCD bei rund 50 Mrd. Franken.
- Allein die Behandlung der fünf häufigsten **NCD (Herz-Kreislauf-Erkrankungen, Diabetes, Krebs, Atemwegs- und Erkrankungen des Bewegungsapparates)** verursachen in der Schweiz pro Jahr mit **25,6 Mrd. Franken** (Stand 2011) rund **40%** der direkten Gesundheitskosten. Nimmt man die psychischen Erkrankungen und Demenz hinzu, steigt dieser Wert auf rund 51% aller Gesundheitskosten.

### ***Relevance of this study for the Lomilomi therapy***

In Switzerland, a total of 30 Billion Francs/US\$ are spent in healthcare for diseases related to cardiovascular diseases, respiratory diseases, musculoskeletal diseases such as arthrosis, rheumatism and back pain, diabetes, cancer, mental illnesses such as anxiety and depressions.

Massage Therapy and Lomilomi has been shown to be a cost-effective and safe treatment with a valid complementary and sometimes proven therapeutic effect, avoiding major risks of side effects.

## EFFECTS OF MASSAGE THERAPY (MT) / LOMILOMI (LL) <sup>3</sup>

S.-L. LIU, W. QI, H. LI, Y.-F. WANG, X.-F. YANG, Z.-M. LI, Q. LU, D.-Y. CONG, (2015)

### Recent advances in massage therapy – a review.

**Keywords:** Massage Therapy, joint, pain, arthritis, psychology, inflammation

#### Summary

People take several types of medication depending upon their illness. These medications may vary from easy painkillers to antidepressants and anticancer drugs. [...] Massage therapy is becoming a number one choice for **stress reactions, anxiety issues, sleep problems, pain management, injury repair for trauma**, enhancing recovery time for athletes in training and more importantly to enhance one's feeling of **wellbeing**.

Massage may regularly be professed as a safe and beneficial means devoid of any major risks or side effects if rendered by a trained professional.

The basic principle behind massage therapy is to produce certain physiological effects on the musculoskeletal, nervous and vascular system of the body by careful manipulation of soft tissue.

#### Highlights - Effects of MT

- Encourages the increase in circulation of blood by increasing arteriolar pressure.
- Therapeutic massage on neck and shoulders produces changes in peripheral blood flow.
- Helps in healing sore muscles. Vigorous exercise produces small tears in muscle fibers, therefore leading to inflammation and pain. **Investigations have revealed that Massage Therapy causes reduction in cytokines that are accountable to inflammation and pain** (lowers production of NF-kB, inflammatory cytokines and tumor necrosis factor-alpha TNF).
- There are evidences that massage therapy has been **beneficial to people in the treatment of anxiety** and other psychological disturbances.
- Massage therapy has been employed by several joint pain sufferers and signify an **effective option to cope with pain and improve their range of motion**, so they have more mobility.
- It is clear that massage may provide relief in multiple ways. However, the key to beneficial effects of massage therapy lies in the method or technique employed by therapists. A person might have different goals for massage like relieving himself/herself from stress, anxiety or pain due to arthritis or limited range of movement in a particular portion of body.

#### ***Relevance of this study for the Lomilomi therapy***

In Lomilomi\*, the preliminary discussion (including anamnesis) and follow-up discussion with the client helps to understand and assess the situation of the client, from a physical, emotional and often familiar level, including their daily life structure.

**With this holistic approach the therapist is able to deeply understand the manifestation of the symptoms** in the perspective of the clients' life challenges, routine and their (or absence of) self-care plan. The goal or wish of the client will be taken into consideration to focus adapt the treatment.

The physical relieve and treatment of the tensions will be enhanced by a wider approach encompassing often a self-care plan to sustain long term the beneficial effects of the treatment.

*\*Lomilomi provided by practitioners certified by ASCA (Swiss Foundation for Alternative and Complementary medicine).*

## MASSAGE THERAPY AND THE ROLE OF PRESSURE <sup>4, 6</sup>

- Tiffany Field (2014). **Massage Therapy Research Review.**
- Diego MA (2009). **Moderate pressure massage elicits a parasympathetic nervous system response.**

**Keywords:** massage therapy, pressure, pain, attentiveness, vagal activity, heart rate, immune function, EEG (electroencephalogram), neurotransmitters

### Summary

In these papers the authors explore a wide array of effects of the massage therapy, in adults and premature infants. The role of superficial vs moderate pressure is also integrated.

### Moderate Pressure

Moderate pressure massage has contributed to many positive effects including increased weight gain in preterm infants, reduced pain in different syndromes including fibromyalgia and rheumatoid arthritis, enhanced attentiveness, reduced depression and enhanced immune function (increased natural killer cells and natural killer cell activity). [...]

When moderate and light pressure massage have been compared in laboratory studies, moderate pressure massage reduced depression, anxiety and heart rate, and it altered EEG patterns, as in a relaxation response. Moderate pressure massage has also led to increased vagal activity and decreased cortisol levels. Functional magnetic resonance imaging data have suggested that moderate pressure massage was represented in several brain regions including the amygdala, the hypothalamus and the anterior cingulate cortex, all areas involved in stress and emotion regulation.

### Pain

Massage has resulted in reduced pain in all the studies we have conducted on **chronic pain** conditions from **lower back pain** during pregnancy to **labor pain, migraine headaches, premenstrual syndrome, chronic fatigue, fibromyalgia, carpal tunnel syndrome and rheumatoid arthritis.**

### Attentiveness, increased vagal activity and decreased heart rate

The massage effects on **attentiveness** might be mediated by **increased vagal activity**. The vagus nerve branch to the heart slows heart rate. Increased vagal activity has been associated with enhanced attentiveness, and in several studies enhanced attentiveness has been associated with decreased heart rate. The stimulation of pressure receptors by **moderate** versus light pressure massage is associated with **decreased heart rate** and **EEG patterns** that, in turn, are related to **enhanced attentiveness**.

### EEG, Depression – shift to left frontal lobe activity, ↑ vagal activity, ↓ cortisol levels, ↓ neurotransmitters/stress, ↑ serotonin, ↑ dopamine

Depressed individuals often have greater right than left frontal lobe EEG activity. Greater right frontal EEG activation is associated with negative emotions and with withdrawal or less approach behavior. Chronically depressed individuals show this EEG pattern even when they are no longer showing behavioral symptoms.

- Frontal EEG has shifted from right to left in depressed adolescents and adults even after a short session of moderate pressure massage.
- Other changes following massage therapy include increased vagal activity, that is typically low in depressed individuals.
- Cortisol levels that are often high in depression have decreased following moderate pressure massage
- Decrease neurotransmitters associated with stress, i.e. norepinephrine levels.
- Serotonin (the body's natural antidepressant) and dopamine (an activating neurotransmitter) have increased following moderate pressure massage.

### Immune function

- Natural killer cells and natural killer cell activity have increased following moderate pressure massage. These data are promising given that natural killer cells are noted to ward- off viral cells, bacterial cells and cancer cells.
- Massage attenuates the production of inflammatory cytokines (tumor necrosis factor- $\alpha$  and interleukin-6).

## Overall

Massage Therapy with moderate pressure enhances vagal activity which, in turn, reduces cortisol leading to many effects including reduced pain and increased immune function. Vagal activity consistently increases following moderate pressure massage. This may occur via stimulation of pressure receptors, which ultimately signal the limbic system including hypothalamic structures involved in cortisol secretion.

**Moderate pressure massage** (but not light pressure massage) **increased vagal activity** in both infants and adults. Data from many studies confirm that massage therapy decreases heart rate, lowers blood pressure, and reduces cortisol levels. And data from an fMRI study showed that following moderate pressure massage **cerebral blood flow increased in several brain regions involved in depression and stress regulation including the amygdala and the hypothalamus.** <sup>4</sup>

Moderate pressure massage has reduced pain in different syndromes including fibromyalgia and rheumatoid arthritis, enhanced attentiveness, reduced depression and improved immune function (increased natural killer cells and natural killer cell activity). When moderate and light pressure massage have been compared, moderate pressure massage reduced depression, anxiety and heart rate, altered EEG patterns and increased vagal activity, as in a relaxation response. Increased vagal activity has also been associated with decreased cortisol following massage.

## **Relevance of this study for the Lomilomi therapy**

Lomilomi encompasses the whole human being and takes into account the various stress factors that impact our lives. If we have an intact nervous system, we are able to face these stress situations with more openness, trust and positive expectations. Hence the vagal tone plays an important role in achieving a more balanced nervous system. Vagal tone refers to the activity of the vagus nerve (X), a fundamental component of the parasympathetic branch of the autonomic nervous system. **The pressure used in a Lomilomi treatment is moderate to deep, in line with the knowledge of deliberately activating the parasympathetic system.** Lomilomi practitioners also utilize this knowledge by applying techniques that have a direct effect, such as the face massage. Here, particular attention is paid to the cranial nerves V, VII, IX, X and XI, which are part of the social nervous system according to Dr. phil. Stephen W. Porges<sup>1</sup>. It is also taken into account that the XI nerve innervates the trapezius and the sternocleidomastoid muscles, which are addressed accordingly during a Lomilomi treatment. The Lomilomi massage also always includes the abdomen, the seat of the enteric nervous system. Although this system is capable of operating independently, it does rely on innervation of the autonomic nervous system via the vagus nerve. This is why it receives far more attention during a Lomilomi massage than with other massage techniques.

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<sup>1</sup> Stephen W. Porges, Ph.D. is Distinguished University Scientist at Indiana University where he is the founding director of the Traumatic Stress Research Consortium. He is Professor of Psychiatry at the University of North Carolina, and Professor Emeritus at both the University of Illinois at Chicago and the University of Maryland. Porges is the author of "The Polyvagal Theory: Neurophysiological Foundations of Emotions"; Norton & Company, 2011



## **LOMILOMI AS A MASSAGE WITH MOVEMENT MWM (with moderate or deep pressure) <sup>5</sup>**

Posadzki P1, Smith TO, Lizis P. (2009).

### **LomiLomi as a massage with movements: a conceptual synthesis?**

**Keywords:** massage, massage with movement, Lomilomi, autonomic nervous system

#### **Summary and Highlights**

Most common bodywork and manual therapies involve 2 therapeutic modalities, **massage and passive movement**. The concept of **massage with movement (MWM)** has been developed and constructed from the principles of passive movements with gentle massage during **Lomilomi massage**.

Massage therapy is a manual therapeutic approach used to facilitate healing and health. Although the literature has concluded that massage appears to be a safe, noninvasive, therapeutic modality that can provide a high patient satisfaction rate and be integrated as an adjunct for a number of different health conditions such as cancer, back pain, knee osteoarthritis, anxiety, dementia, insomnia, and lowered self-esteem, the evidence for its effectiveness in managing these health conditions remains weak, and future research has been recommended.

Lomilomi massage is a technique that combines passive movements and massage.

- Psychologically, MWM may enhance an individual's sense of coherence, level of optimism, self-esteem, emotional awareness, and cognitive processes. This may lead to more positive mind states, including empathy, happiness, joy, serenity, and calmness.
- MWM may augment and encourage deeper relaxation, enhancing bodily structure and function, by maintaining or increasing tissue mobility and flexibility and decreasing pain.
- A combination of extraception (gentle effleurage) and proprioception (limbs' position in space during passive movements) could develop the patients' self-consciousness through increased self-perception of their bodies within the here and now (actual reality).
- Joint range of motion, ligament, tendon, and fascia elasticity and resistance may be improved through enhanced tissues oxygenation and metabolism. This may optimize movement coordination and fluency.
- The autonomic nervous system, through skin-visceral reflexes, may be stimulated during MWM. This may promote optimal functioning of cardiorespiratory, endocrine, immune, digestive, or reproductive systems and ultimately result in optimal health, better quality of life, and overall well-being. Through improved circulation, tissue nutrition may be enhanced, and metabolic waste may be optimally expelled.
- MWM may mobilize nerve tracks, correct existing misalignments, and deactivate trigger point activity via increased oxygenation.

#### **Relevance of this study for the Lomilomi therapy**

**Lomilomi is the only massage technique that we know of, that combines massage and passive movements.** In contrary to other massages, the main focus of Lomilomi is not only on muscles, fascia and joints, but also on the bones. They are regarded as the seat of strength and knowledge. By applying massage and passive movements during a Lomilomi treatment, the bones and joints are targeted. The therapeutic benefits may be optimized by aiming at maximizing flexibility and joint range of motion. Mobility can be increased, pain reduced, joint stiffness decreased and swelling as well as blockages relieved.

## MASSAGE THERAPY (MT): BODY-MIND RELATIONSHIP <sup>7</sup>

S.M. Sagar MD et al. (2007)

### Massage therapy for cancer patients: a reciprocal relationship between body and mind.

**Keywords:** body–mind relationship, cancer, pain, nervous system, meridians, anxiety, depression, brain, touch

#### Summary

Although a meta-analysis concludes that massage can confer short-term benefits in terms of psychological wellbeing and reduction of some symptoms, few studies can clarify the mechanisms involved in the effect of MT. This study makes a review of a few techniques (both from western and eastern tradition), of the present evidence-based information in order to evaluate the relationship of myofascial communication systems (called “*meridians*”) to the activity in the subcortical central nervous system (CNS). This study shed some light in the mechanisms underlying symptoms and pain control in cancer patients. Safety of MT and qualification of a massage therapist are also addressed.

The reciprocal **body–mind relationship** is an important target for manipulation therapies that can reduce suffering.

This article helps to understand the physiological pathways involved in MT, including the **connection between myofascial manipulation, blood flow, and central nervous system** adaptations. Prolonged intervention with massage therapy may possibly induce more permanent neurophysiological adaptations because of neural plasticity. **The Neuro-myofascial Biology of Touch and Massage.**

#### Highlights

- The largest effect of MT may be on the reduction of trait **anxiety** and **depression**, with a course of treatment providing benefits similar in magnitude to those of psychotherapy.
- **Anxiety reduction.** The massage therapy was associated with an immediate significant decrease anxiety scores before radiotherapy (procedural anxiety), but it appeared to have no major impact on situational anxiety. However, no conclusions can be drawn regarding long-term outcomes.
- **Back pain** is the second most common illness-related reason given for a missed workday and the **most common cause of disability**. Back pain is non-specific in 70%–90% of cases and is associated with overuse or underuse of the back.
- **The Neuro-myofascial Biology of Touch and Massage**  
It is unclear whether the therapeutic benefits of massage occur primarily as a result of manipulation of muscle and ligaments, or through the brain as a result of interaction with subcortical components of the nervous system. Those components modulate autonomic functions that influence mood and the perception of pain via the limbic system and brainstem nuclei.
- The multiplicity of symptoms relieved suggests that **subconscious mechanisms** are involved in the therapeutic effects of massage. The **subconscious or subcortical effects** are to be distinguished from the placebo response, which stems from conscious awareness of the procedure. The relative contributions of the body–brain reciprocal relationship have not yet been delineated.
- **Pleasant touch and brain regions** -Available evidence suggests that the central correlates of tactile stimuli vary according to their **hedonic qualities**. **Pleasant touch** induces greater activation in the medial orbitofrontal cortex than does more intense, but affectively neutral tactile stimuli. These findings begin to identify parts of the **limbic system** that may underlie emotional, hormonal, and affiliative responses to skin contact.

The mechanistic links between manipulation of body tissues and corresponding relief from a broad range of symptoms are not fully understood. The effects are distributed, and reciprocal **interplay between the body and mind is evident**.

### **Relevance of this study for the Lomilomi therapy**

Lomilomi has been defined by one of the most respected Lomilomi references, Auntie Margaret Machado, as “a touch of Aloha”. Aloha is a word that cannot be translated with just one word, it is a feeling and intention of compassion, empathy, patience, persistence, truth, humbleness.

Therefore, one of the distinctive traits of Lomilomi\* is the role of this “empathy” or better the compassion towards the situation that the client is bringing; it is an attitude and intention set prior, during and after the treatment, to support the client along its path of healing. Together with the technical skills of the practitioner, “Aloha” is the required ingredient to create a relationship with the client based on a sense of security, trust and open and clear communication.

The **quality of touch** in Lomilomi becomes the essential and fundamental element that fosters security and trust and promotes healing. In this sense the manual therapy applied for muscle tension and joint mobilization cannot disregard a highly aware, warm and deep quality of touch.

*\*Lomilomi provided by practitioners certified by ASCA (Swiss Foundation for Alternative and Complementary medicine).*



## MASSAGE THERAPY AND PAIN <sup>10</sup>

Crawford C (2016 Jul).

### **The Impact of Massage Therapy on Function in Pain Populations. A Systematic Review and Meta-Analysis of Randomized Controlled Trials.**

**Keywords:** massage therapy, pain

#### **Summary**

Pain is multi-dimensional and may be better addressed through a holistic, biopsychosocial approach. Massage therapy is commonly practiced among patients seeking pain management; however, its efficacy is unclear.

**Based on the evidence, massage therapy, compared to no treatment, should be strongly recommended as a pain management option.**

Massage therapy efficacy, safety, research challenges, how to address identified research gaps, and necessary next steps for implementing massage therapy as a viable pain management option are discussed.

Out of 3678 articles analyzed, 67 met the criteria.

#### **Highlights**

Definition of Massage Therapy in this study:

***The systematic manipulation of soft tissue with the hands that positively affects and promotes healing, reduces stress, enhances muscle relaxation, improves local circulation, and creates a sense of well-being.***

Definition of pain in this study:

*“pain as an unpleasant sensory and emotional acute or chronic subjective experience associated with actual or potential tissue damage or described in terms of such damage.”*

- Pain is an experience that is **multi-dimensional**; not only does it impact individuals **physically, but also socially, mentally, emotionally, and spiritually**.
- Pain accounts for 80% of physician visits.
- MT appears safe with infrequent adverse events. However, results are mixed. There is a need for more studies. There was an increase in ROM with MT as compared to sham.
- Anxiety. MT appears to be more efficacious than any of these comparators (relaxation, physical therapy, or an exercise) for reducing anxiety among patients suffering from musculoskeletal pain.
- It seems to have a positive effect on the health-related quality of life.

This systematic review and meta-analysis found that **massage therapy may be beneficial, with minimal safety concerns, for treating various pain and function-related outcomes in pain populations**. Specifically, results demonstrate the efficacy of massage therapy compared to sham, no treatment and active comparators. Compared to active comparators, massage therapy was also beneficial for **treating anxiety and health-related quality of life**.

There is evidence to suggest that massage therapy may be beneficial for improving various patient-reported functional outcomes for populations experiencing pain. There is clear evidence supporting the efficacy of massage therapy compared to no treatment for pain intensity suggesting that massage therapy, rather than no treatment at all, should be offered to a patient for pain management.

### **Relevance of this study for the Lomilomi therapy**

Lomilomi, as part of an ancient holistic tradition, treats the whole being (body, mind and soul) and implies a systemic approach that includes the consideration of the familiar, societal and cultural circumstances.

**Given this 360 degree approach, Lomilomi is more suited to treat the complexity of the chronic pain in its physical, social, mental, emotional and spiritual aspects.**

By applying effective techniques, using from moderate to deep pressure, the therapist helps to release tensions, alleviate pain, increase range of motion, soften the tissue and increase the fasciae mobility and gliding.

Furthermore, Lomilomi encompasses also other important aspects. Emotional and mental struggles of the clients are brought to a higher level of awareness and processed applying the Self-Ho'oponopono practice (emotional intelligence from the Hawaiian perspective).

The effectiveness of the massage is amplified by applying local and Hawaiian healing plants extracts (La'au lapa'au) that help in softening the tissues, relaxing tense muscles, reducing anxiety, reducing inflammation in swollen joints. The application of heat and cold and compression are also used.

In addition, the structure and the intention of the treatment is set as a "ritual", holding the space for those clients that wish so to explore their spiritual connection.

## MASSAGE THERAPY AND ARTHRITIS<sup>8</sup>

Bernstein S. Dunkin M.

**Benefits of massage.** Arthritis Foundation

**Keyword:** arthritis, massage, benefits, fibromyalgia, stress

### Summary

This article on the Arthritis Foundation page explains the positive effects of massage therapies for different types of complaints: knee osteoarthritis, hand arthritis, fibromyalgia, back pain. It also provides a high-level explanation of how the massage works. Even though the authors have taken their information from scientific papers, there is not detailed information on the references used.

### Highlights

- Research suggests that massage can affect the body's production of certain hormones linked to blood pressure, anxiety, heart rate and other key vital signs.
- Improvement in pain for patient with knee osteoarthritis.
- Massage Therapy could reduce pain derived from hand arthritis.
- **A 2014 review of nine randomized trials found that massage therapy for 5+ weeks improved pain, anxiety and depression in patients with fibromyalgia.**
- Back pain improved and had more positive effects than usual care. The long-term LT effects could not be proved.
- "The critical thing is using **moderate pressure**," says Tiffany Field<sup>2</sup>. "Light pressure, just touching the surface of the skin or brushing it superficially, is not getting at those pressure receptors. Light pressure can be stimulating, not relaxing."

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<sup>2</sup> Tiffany Field, Miguel Diego & Maria Hernandez-Reif (2010): "Moderate Pressure is Essential for Massage Therapy Effects", International Journal of Neuroscience, 120:5, 381-385

## MASSAGE THERAPY AND ANKYLOSING SPONDYLITIS <sup>13</sup>

Rosemary Chunco (2011).

### **The Effects of Massage on Pain, Stiffness, and Fatigue Levels Associated with Ankylosing Spondylitis: A Case Study.**

**Keywords:** ankylosing spondylitis (AS) - Bechterew's disease, pain, stiffness, fatigue

#### **Summary**

Ankylosing spondylitis (AS), sometimes called rheumatoid spondylitis, is a chronic and systemic rheumatic disease that presents as inflammation of the vertebrae and joints. This is a clinical case study where the author describes the effects of massage on pain, stiffness and fatigue in a patient recently diagnosed with ankylosing spondylitis (AS). **Improvements were recorded in stiffness intensity, stiffness duration, pain, fatigue, range of motion.** MT seems to be an effective treatment for this patient and could potentially be it for other patients with AS.

This article provides information for massage therapists that treat AS patients, on what to consider when mobilizing their joints.

Case: a 47 years old woman, with AS who had stiffness, pain, and difficulty sleeping at night because of hip pain. This case study investigated the effects of massage on stiffness and pain over a 4-week period, during which this woman received 7 x 60' massage sessions.

Massage protocol: mostly Swedish strokes and stretching with myofascial release and trigger point therapy

Symptoms of AS often include

- pain and stiffness in the lower back, especially the sacroiliac joint;
- pain in the gluteal muscles, which is usually worse when waking in the morning;
- persistent pain for 3 months or longer;
- stiffness, which is worse in the morning; and
- increased fatigue.

#### **Highlights**

- Deep tissue mobilization is nearly always welcomed by those with AS and is usually given in combination with passive stretches and ultrasound, heat or ice.
- **Reduced morning stiffness, increased mobility, ROM.**
- Massage Therapy seemed to be helping in improving her mood. This observation is consistent with evidence that massage helps with depression.
- **Pain and fatigue levels improved.**



### Relevance of this study for the Lomilomi therapy

#### **Lomilomi and Ankylosing Spondylitis (Bechterew's disease). A case study.**

During 2018-2019 we conducted a case study on a 52 years old Caucasian man (TF) to assess the effectiveness of Lomilomi to relieve pain, alleviate symptoms and reduce stress.

Study duration: from December 2018 to April 2019, with a review in June 2019.

Diagnosis of Ankylosing Spondylitis was made 20 years prior to the study.

Symptoms:

- Sensitivity or pain of the Sacroiliac joints (SIJ) caused by Bechterew's disease.
- Tension in the neck and upper back.
- Stress due to a high-performing job, high workload, illnesses in the family and family life.

On a physical level, Lomilomi is designed to help the client reduce tension and restore an optimal muscular tone. In the neck, Lomilomi should restore the natural C-curve of the cervical spine. A gentle mobilization of the hip should activate the blood circulation in the painful region, give more range of motion and thus counteract stiffness.

On a psychological level, the customer wants the treatments to help him gain more focus and clarity. Together with the therapist, he wants to establish a corresponding self-care plan.

Protocol:

- 5 x 1.5 hours traditional Lokahi Lomilomi treatments with focus on back/neck tension reduction and hip and SIJ mobilization.
- Use of special plant oils/creams (La'au Lapa'au) to enhance the treatments' effect: anti-inflammatory 'Uhaloa oil in the SIJ area, muscle-relaxing Awa ointment in the neck/shoulder area.

Medication:

Elrezi (Enbrel) is the only medication that relieves the patient's pain of Bechterew's disease and slows down the course of the disease. TF injects itself regularly every two weeks.

Results:

- **The Lomilomi treatment had positive effects on the pain intensity and frequency, so as the client stopped injecting his medication and was still not injecting after 7 months.** This treatment clearly had an effect on in reducing clearly and long term the inflammation in the lower back and SIJ. The client injected himself after the first treatment and waited the pain to appear to re-inject. In June 2019 he still had not needed the injection.
- **The treatment had a positive effect on the stress level of the client,** allowing him to better cope with the stress at work and in the family.
- The treatment and the focus of Lomilomi on Self-Care supported the client in the process of establishing and integrating healthier habits, having as a consequence a sustainable and longterm change that affected overall his wellbeing and quality of life.
- Cost saving for in healthcare by reducing the injections until June 2019.

Price of 1 injection of Enbrel - **682.53.- CHF**

Cost per month - 682.53.- CHF x 2 = **1364.7.- CHF**

Cost saved from January to June 2019 = **8188.2.- CHF**

The holistic and encompassing approach of Lomilomi, together with the use of phytotherapy, emotional intelligence as well as with the support of the patient in establishing and maintaining sustainable Self-Care plan, **has shown in this case to alleviate pain, reduce stress, reduce inflammation, improve health, wellbeing and quality of life in a patient with Ankylosing Spondylitis.**

In addition, the effects of the treatment are being objectively demonstrated even after 2 months from the end of the treatment.

The clear saving in healthcare is also demonstrated, including the safety and efficacy of this complementary therapy, avoiding side-effects derived from the medication.

## MASSAGE THERAPY AND CANCER<sup>9</sup>

Cancer Council Australia (Sep 2014).

### **Massage Therapy and Cancer. A Guide for People with Cancer, their Families and Friends.**

**Keyword:** cancer, massage, touch

#### **Summary**

This booklet made by the Cancer Council Australia aims to share MT as a complementary practice for people with cancer. It explores the importance of touch, effects and benefits of MT, safety. It explains most common MTs, including Lomilomi. It gives important information for the massage therapist, when treating patients affected by cancer and that undergo different “conventional” treatment like chemotherapy and radiotherapy. It also explores several Massage Therapy techniques.

#### **Highlights**

MT is a good complement for patients with cancer, **it may help to alleviate several symptoms like nausea, fatigue, anxiety and depression.** Patients report improvement in their quality of life.

Massage is a safe therapy for these patients, if performed by a qualified therapist and applying adjustments due to the clinical situation, that require certain precautions (i.e. risk of lymphoedema, bone fragility, neuropathy). With the right adjustments most people with cancer can enjoy the benefits of massage therapy.

## THERAPEUTIC VALUE OF MASSAGE THERAPY (MT) <sup>15</sup>

Jyothirmai Gubili, (2017)

### Massage Has Therapeutic Value for Patients with Cancer

**Keywords:** MT, cancer, pain, stress, anxiety, depression

#### Summary

MT is an ancient form of bodywork that encompasses hands-on manipulation of muscles and soft tissues. It increases circulation, reduces muscular tension and promotes relaxation and produces emotional and psychological benefits. Therefore, MT is employed in many cancer centers around the world as a complementary therapy to provide symptom relief and to enhance comfort in patients with cancer.

**MT affected a reduction in pain, stress, anxiety, nausea, fatigue, and depression.**

Massage, provided by a licensed therapist, is generally considered safe.

## MASSAGE THERAPY AND DEPRESSION <sup>18 16</sup>

Maria Falkensteiner, (2011).

### **The Use of Massage Therapy for Reducing Pain, Anxiety, and Depression in Oncological Palliative Care Patients: A Narrative Review of the Literature.**

**Keywords:** massage therapy, depression, anxiety, pain, cancer, empathy, physical contact

#### **Summary**

A considerable number of cancer patients use complementary medicine therapies in order to alleviate different symptoms such as **pain, anxiety, and depression**, occurring in connection with **cancer**. This paper explores the question to what extent massage therapies are able to reduce the amount of pain, anxiety, and depression.

Massage therapy is to be considered a cost-efficient, noninvasive intervention positively influencing and contributing to the reduction of pain, anxiety, and depression in seriously ill cancer patients.

#### **Highlights**

- Due to the progression of cancer and the simultaneous presence of severe pain, there is an increased risk of mental complications such as anxiety and depression. 10% - 20% of oncological patients suffer from a depression. Anxiety disorders can be found with a prevalence of 13% - 79% in this group of patients.
- As pharmacological treatment causes a number of side effects, oncological patients frequently turn to **complementary medicine therapies as an adjunctive treatment to ease the symptoms. Their effectiveness with regard to the reduction of symptoms of pain, anxiety, and depression in oncological patients has been examined in several studies.**
- More clear effect seems to be proven in the short-term vs long-term. **MT can achieve a reduction of pain lasting up to 18 hours.**
- A paper analyzed here found a transformation from constant pain perception to intermittent or episodic pain perception in 14% of the participating patients.
- While the decrease in the consumption of analgesics was not statistically significant, the dosage of analgesics was subject to less fluctuation.
- **Physical contact plays an important role in reducing anxiety.** A prerequisite for the effectiveness of the intervention is that the patient can accept this close physical contact with the massage therapist (caregiver).
- These two studies **provided evidence for an improvement of the depressive mood through massage therapy.** However, the type of massage and the setting are to be taken into consideration as important influencing factors.
- Massage therapy thus has a **favorable influence with regard to reducing anxiety and depression.**
- The assumption that massage therapies are to be considered contraindicated with malign tumors because tumor growth and metastasizing may be accelerated was refuted by several authors.
- The qualitative data gained from the analysed studies has shown that interventions such as massage therapy only seem to be **effective if the patient is treated with empathy** and if a relationship between the massage therapist and the patient had been formed beforehand.

Hou WH (2010 Jul).

**Treatment effects of massage therapy in depressed people: a meta-analysis.**

**Summary**

This study systematically investigates the treatment effects of massage therapy in depressed people through meta-analysis of randomized controlled trials (RCTs) of massage therapy in this population.

All trials showed positive effect of massage therapy on depressed people.

**Massage therapy is significantly associated with alleviated depressive symptoms.** However, standardized protocols of massage therapy, various depression rating scales, and target populations in further studies are suggested.

**Relevance of this study for the Lomilomi therapy**

The internationally recognized Lomilomi specialist and teacher Kumu Dane Kaohelani Silva summarizes: "The immediate effect of Lomilomi is to bring about a state of deep relaxation and calming of mind, body and consciousness. The passive manipulations and joint mobilisations typical of Lomilomi realign the body and support mobility and performance. In addition, Lomilomi helps to alleviate the effects of depression, pain, anxiety or sadness".

## VAGAL TONE <sup>11</sup>

C. Bergland (2016).

### Vagus Nerve Stimulation Dramatically Reduces Inflammation.

**Keywords:** Inflammation, pain, autonomic nervous system (ANS), vagus nerve, vagal tone, inflammatory reflex

#### Summary

In this article is discussed the growing evidence that a way to combat inflammation is by engaging the vagus nerve and improving “vagal tone.” In more extreme cases of inflammation, such as rheumatoid arthritis (RA), depression is recently used an implanted device that to stimulate the vagus nerve with electrical impulses. The vagus nerve is the prime component of the parasympathetic nervous system which regulates the “rest-and-digest” responses vs the “fight-or-flight” response of the sympathetic branch of the ANS.

A higher vagal tone index is linked to physical and psychological well-being. Conversely, a low vagal tone index is associated with inflammation, depression, negative moods, loneliness heart attacks, and stroke.

#### Hihglights

- A clinical trial demonstrates that stimulating the vagus nerve with an implanted device significantly reduced inflammation and improved outcomes for patients with rheumatoid arthritis by inhibiting cytokine production.
- The “**inflammatory reflex**”: it seems that there would be a circuit where the potentials transmitted to the vagus nerve inhibits the production of pro-inflammatory cytokines in patients with RA.
- These findings suggest a new approach to treat chronic inflammation and other immune-mediated inflammatory diseases, reducing the side effects for the patients.

#### Relevance of this study for the Lomilomi therapy

Lomilomi encompasses the whole human being and takes into account the various stress factors that impact our lives. If we have an intact nervous system, we are able to face these stress situations with more openness, trust and positive expectations. Hence the vagal tone plays an important role in achieving a more balanced nervous system. Vagal tone refers to the activity of the vagus nerve (X), a fundamental component of the parasympathetic branch of the autonomic nervous system. **The pressure used in a Lomilomi treatment is moderate to deep, in line with the knowledge of deliberately activating the parasympathetic system.** Lomilomi practitioners also utilize this knowledge by applying techniques that have a direct effect, such as the face massage. Here, particular attention is paid to the cranial nerves V, VII, IX, X and XI, which are part of the social nervous system according to Dr. phil. Stephen W. Porges<sup>3</sup>. It is also taken into account that the XI nerve innervates the trapezius and the sternocleidomastoid muscles, which are addressed accordingly during a Lomilomi treatment. The Lomilomi massage also always includes the abdomen, the seat of the enteric nervous system. Although this system is capable of operating independently, it does rely on innervation of the autonomic nervous system via the vagus nerve. This is why it receives far more attention during a Lomilomi massage than with other massage techniques.

<sup>3</sup> Stephen W. Porges, Ph.D. is Distinguished University Scientist at Indiana University where he is the founding director of the Traumatic Stress Research Consortium. He is Professor of Psychiatry at the University of North Carolina, and Professor Emeritus at both the University of Illinois at Chicago and the University of Maryland. Porges is the author of “The Polyvagal Theory: Neurophysiological Foundations of Emotions”; Norton & Company, 2011

## VAGUS NERVE STIMULATION VNS – RHEUMATOID ARTHRITIS RA <sup>12</sup>

Frieda A. Koopman and al. (2016).

**Vagus nerve stimulation inhibits cytokine production and attenuates disease severity in rheumatoid arthritis.**

**Keywords:** Rheumatoid arthritis (RA), inflammation, cytokines, inflammatory reflex, vagus nerve

### Summary

Recent advances in basic and preclinical science reveal that reflex neural circuits inhibit the production of cytokines and inflammation in animal models. Rheumatoid arthritis (RA) is a chronic, prevalent, and disabling autoimmune disease that occurs when inflammation damages joints. One well-characterized cytokine-inhibiting mechanism, termed the “**inflammatory reflex**,” is dependent upon **vagus nerve** signals that inhibit cytokine production and attenuate experimental arthritis severity in mice and rats.

Vagus nerve stimulation (up to four times daily) in RA patients significantly inhibited TNF production and decreased significantly the RA disease severity.

### Highlights

- an implantable vagus nerve-stimulating device in **epilepsy** patients inhibits peripheral blood production of TNF, IL-1 $\beta$ , and IL-6.
- Recent advances in neuroscience and immunology have mapped neural circuits that regulate the onset and resolution of inflammation.
- Immunology and neuroscience reveal reflex neural circuit mechanisms regulating innate and adaptive immunity. In one of those, termed “the inflammatory reflex,” action potentials transmitted in the vagus nerve inhibit the production of tumor necrosis factor (TNF) and other cytokines, inflammatory molecules that are major therapeutic targets in RA.

These results establish that **vagus nerve stimulation targeting the inflammatory reflex modulates TNF production and reduces inflammation in humans**. These findings suggest that it is possible to use mechanism-based neuromodulating devices in the experimental therapy of RA and possibly other autoimmune and autoinflammatory diseases.

## MASSAGE THERAPY AND INFLAMMATION <sup>17</sup>

Gillian E. White et al. (2020).

### **Massage Therapy Modulates Inflammatory Mediators Following Sprint Exercise in Healthy Male Athletes.**

**Keywords:** MT, inflammation, soreness

#### **Summary**

Massage therapy is a common post exercise muscle recovery modality; however, its mechanisms of efficacy are uncertain. The authors of this study evaluated the effects of massage on systemic inflammatory responses to exercise and post exercise muscle performance and soreness. Inflammatory marker concentrations returned to baseline levels earlier following the massage therapy condition. No differences were observed for performance or soreness variables.

Sample of the study: 9 male athletes following high-intensity intermittent exercise.

Massage protocol: both mechanical manipulation of muscle tissue and neurolymphatic activation.

#### **Inflammation**

The inflammatory response to intense exercise is important for recovery and repair of stressed or damaged muscle tissue whereby stress signals in the form of inflammatory mediators are released from damaged or dysregulated muscle tissue.

Excessive or prolonged inflammation can lead to edema, local hypoxia, and accumulation of noxious substances, as well as phagocytosis of healthy tissue by inflammatory cells, resulting in soreness and tissue disruption.

Therefore, many post exercise modalities have been used to facilitate quicker and better recovery post exercise by targeting inflammatory processes. **Massage therapy is one post exercise recovery technique that is widely used.**

#### **Highlights**

- **Massage therapy was the most effective technique in reducing perceived fatigue.**
- A meta-analysis found a **reduced expression of proinflammatory pathways** (i.e., NFkB) and increased expression of anti-inflammatory and regenerative pathways at 2.5 h after massage therapy.
- The overall impact of massage on muscle recovery remains unclear, likely due to the variability in massage therapy protocols used.
- **The findings support the use of massage therapy as a means of expediting the resolution of inflammatory signaling postexercise as can facilitate the resolution of inflammatory processes.**
- In this study massage did not appear to improve performance or soreness measurements (small sample).

#### **Relevance of this study for the Lomilomi therapy**

In 2018 we conducted a case study on a 58 year old male (DK) to assess the effectiveness of Lomilomi on Diabetes. **The treatments showed that Lomilomi had an unexpectly positive effect on the twofold diabetes** (type 1 and 2). The sugar level dropped between two and five units during the treatments. Following the massage, the client was able to reduce the amount of injected insulin for up to six days. This success gives reason to suspect that Lomilomi has an effect beyond the usual treatment results of a massage and could possibly also bring improvement to other serious, chronic illnesses.



## DERMATOME AND FASCIATOME <sup>14</sup>

Carla Stecco, et al. (2019).

### Dermatome and fasciatome.

**Keywords:** fascia, fasciatome, dermatome, nerve, pain, pressure, autonomic nervous system

#### Summary

In this article the authors challenge the current map of the dermatome as base for the MT/fascia treatment. Instead, the increased knowledge of the rich innervation of the deep fascia and its anatomical organization indicates the need to reevaluate maps of the dermatome according to the new findings. This article articulates the distinction between dermatome and fasciatome.

The **dermatome** represents the portion of tissue composed of skin, hypodermis, and superficial fascia supplied by all the cutaneous branches of an individual spinal nerve; the **fasciatome** includes the portion of deep fascia supplied by the same nerve root and organized according to force lines to emphasize the main directions of movement. The dermatome is important for esteroception, whereas the fasciatome is important for **proprioception**. If they are altered, the dermatome shows clearly localized pain and the fasciatome irradiating pain according to the organization of the fascial anatomy.

The deep muscular fascia is a fibrous layer that envelops not only all the muscles but also tendons, joints, and ligaments, connecting several elements of the musculoskeletal system and transmitting muscular force over a distance.

#### Highlights

- The amount and type of innervation is different depending on the anatomical structure (skin, muscle, superficial or deep fascia).
- Superficial fascia is well innervated and has a lot of autonomic innervation (autonomous nervous system ANS), therefore from the fascia we can indirectly stimulate the ANS and inner organs.
- There is partially an overlap, but the dermatome and fasciatome (deep fascia) are innervated and organized differently. The fasciatome has a longitudinal organization.
- Type of pain are also different depending on if they are localized in superficial or deep fasciae. Pain located in the superficial fascia create a clear, localized, precise, specific pain sensation, like burning.
- The deep fascia produces a knife-type of pain, that irradiates to a larger area. Therefore, some deep fascia pain can be confused with a sciatic syndrome.
- Treatments for dermatome and fasciatome should therefore be different.
- Release and stretching of i.e. gastrocnemius and hamstrings can release tension in the neck. The importance for this distal release of tension is that the effects of the Massage Therapy are felt along the longitudinal fascia.

#### **Relevance of this study for the Lomilomi therapy**

Lomilomi\* is a Massage Therapy coming from the Hawaiian traditional medicine. This MT combines both moderate and deep pressure. **Therefore, both the dermatome/ skin, muscle and superficial fascia, so as the deep fascia will be addressed.** The long and longitudinal strokes, that follow the functional fascial lines helps to alleviate tension, also from a treatment distal to the area of pain.

*\*Lomilomi provided by practitioners certified by ASCA (Swiss Foundation for Alternative and Complementary medicine).*

## ABBREVIATIONS

ANS	Autonomous Nervous System
AS	Ankylosing spondylitis - Bechterew's disease
CNS	Central Nervous System
LL	Lomilomi
LT	Long term
MT	Massage Therapy
MWM	Massage with Movement
RA	Rheumatoid arthritis
ROM	Range of Motion
ST	Short term
TNF	tumor necrosis factor
VNS	Vagus Nerve Stimulation

## GLOSSARY

Anxiety	9, 16, 17
Arthritis	5, 12
Autonomic nervous system	8, 19, 22
Body-Mind relationship	9
Cancer	9, 15
Depression	9, 16, 17
EEG (electroencephalogram)	6
Empathy	17
Fibromyalgia	12
Heart rate	6
Immune function	6
Inflammation	5, 19, 20
Massage Therapy / Lomilomi	5, 6, 8, 10, 12, 15, 16, 17, 21
Massage with movement	8
Meridians	9
Pain	5, 6, 9, 10, 16, 17, 19, 22
Pressure	6, 22
Stress	12, 16
Touch, physical contact	9, 15, 17
Vagus nerve, vagal tone, vagal activity	6, 19, 20

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## ALOHASPIRIT

AlohaSpirit GmbH, founded in 1996, is the only center for Hawaiian bodywork and culture in Switzerland. AlohaSpirit is also the only Lomilomi school in Europe recognized by the 'Ahahui Lomilomi Association Hawai'i, ALH. Since 1996 we have been offering education and training in Lomilomi Massage, Hula Dance and Hawaiian culture.



AlohaSpirit is the responsible body of the SVBM (Swiss Association of Professional Masseurs) for quality assurance of the members working in the professional field of Lomilomi.

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We are particularly grateful to [Kumu Keala Ching](#), as a deeper understanding of the culture and Hawaiian philosophy allows us to bring forward this tradition and better support our clients. Kumu Keala Ching is a Hawaiian cultural educator, composer, song writer, and spiritual advisor to many Hawaiian organizations.

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## AUTHOR

As former neuropsychologist and passionate about the body-mind relationship, Piera Marongiu found in the traditional Hawaiian healthcare system and Lomilomi a catalyzer to her personal development and a way to support others in their wellbeing. Since 2011 she deepens the studies in integrative medicine and complementary therapies and Hawaiian healing arts.

Piera Marongiu is certified Lomilomi Practitioner since 2012, Assistant at the AlohaSpirit School since 2013 and supports the teachings in topics related to life science, inflammation, epigenetic, as well as neurobiology of unconscious biases. She holds a MS degree in General and Experimental Psychology from the Università degli studi di Padova.

Piera Marongiu is accredited by ASCA (Swiss Foundation of Complementary and Alternative Medicine), member of SVBM (Swiss Association of Professional Masseurs) and of the 'Ahahui Lomilomi Association Hawai'i.

*"Lomilomi expands your freedom by integrating science with ancient healing wisdom through a powerful touch"*  
Piera Marongiu