THESIS
submitted for the degree of Doctor of Osteopathy (DO)

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MOM,
Manual Osteopathy & Massage, in the treatment of Parkinson's Disease

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1 Introduction

1.1 Parkinson's as a worldwide neurodegenerative disease

The numbers are sobering: Around 6.1 million people worldwide live with Parkinson's, the most common neurodegenerative disease after Alzheimer's. Ascending trend. Because: "Parkinson's is a disease of old age," say experts. And because we are living longer and longer, there will be more and more Parkinson's diagnoses in the future. It is estimated that by 2040 three times as many as now. Parkinson's is not curable. But: The earlier the disease is recognized, the easier it is to get the symptoms under control.
What exactly happens with Parkinson's? Cells in the brain's black matter die. Cells that produce the neurotransmitter dopamine. The cause is not known. It is suspected, however, that certain proteins are the cause: They are incorrectly folded, clump together or end up in the wrong place. But above all, they infect brain cell by brain cell. So if this mechanism could be stopped, Parkinson's could be delayed or even stopped. And apparently the researchers are slowly getting closer to this goal: "For the first time, therapies are within reach that address the causes - instead of just fighting symptoms," says neurologist Prof. Günter Höglinger from the "Rechts der Isar-Klinik" in Munich and chairman of the German Society for Parkinson's and Movement Disorders (DPG) (cited from the newspaper Münchner Merkur, 15.04.2019).

1.2 Current medical treatments

Patients are usually given a drug called Levodopa. It is converted into dopamine in the brain - the messenger substance that Parkinson's patients lack. Medicines are not everything in Parkinson's. Physiotherapy promotes mobility and stability. Occupational therapy helps to cope better with everyday tasks such as getting dressed, grooming or eating. Speech therapists deal with speaking and swallowing problems.

1.3 Target of the present thesis

The aim of this thesis is to show to what extent manual osteopathy and massage can remove the blockages caused by the brain cells and contribute to the body's self-healing process.

2 History of Parkinson's Disease

In 1817 James Parkinson first published the description of Parkinson's Disease, which he called "Paralysis agitans". His treatise "An Essay on the Shaking Palsy" describes some of the symptoms of what was later referred to as "Parkinson's Disease". "Involuntary tremulous motion with lessened muscular power, in parts not in action and even when supported; with a propensity to bend the trunk forwards, and to pass from walking to a running pace: the senses and intellect being uninjured" (cf. "Currier and Currier ", 1991, p. 377). Parkinson's refers to the uncontrollable, trembling movements that usually occur at rest in connection with reduced muscle strength. In addition, it describes the tendency to bend the body forward and, when walking, to tumble forward, increasingly stumbling. James Parkinson sees the sense organs and the intellect as not impaired.

As a young man, James Parkinson had attended evening medical lectures by John Hunter in London, in which the latter described the symptoms of constant, uncontrollable muscle movements. Parkinson also studied numerous historical descriptions that go back to the Roman gladiator doctor Galen. He summarized the fragmentary written and oral traditions of others and published them. This is his particular merit.
In 1876 Charcot distinguished the MP-typical resting tremor from other forms of tremor. By including the "rigors", the "Akinesia" and the "postural instability", he specified the full picture of Parkinson's Disease.

3 Causes of Parkinson's Disease

Parkinson's Disease is a neurodegenerative disease. The causes that trigger the death of nerve cells in Parkinson's Disease are unclear. The Dopamine producing nerve cells (neurons) in the brain region Substantia Nigra (black matter) are dying. This area in the brain plays an important role in controlling movement. The cells of the black matter are connected by nerve fibers to another region of the brain. Dopamine is a Neurotransmitter molecule produced by the body to send messages between nerve cells. If there is a lack of Dopamine the transmission of movement impulses and the control of movement sequences are disturbed, and important information on muscle movements is not passed on.

4 Cell anatomy: the basic knowledge for osteopathic therapy

The cell is the fundamental unit of life. It is the smallest structure of the body capable of performing all the processes that define life, including respiration, movement, digestion, and reproduction.
Each cell has an outer plasma membrane (or cell membrane) and generally one nucleus, surrounded by a fluid matrix, the cytoplasm. Within the nucleus and the cytoplasm there is a variety of subcellular structures called organelles.
The process of cell division is called mitosis. This process allows new cells to be formed to replace those that are dying and also permits body growth. Mitosis consists of a continuous sequence of four stages in which both the nucleus and cytoplasm of a cell split to form two identical daughter cells. During mitotic cell division, the chromosomes go to each daughter cell. The two daughter cells therefore have the same number of chromosomes as the parent cell.
Most human cells contain smaller substructures known as organelles (little organs). Each of them performs a highly specialized task, and most are surrounded by a membrane. Organelles float in cytoplasm, a jelly-like substance, amino acids, and other molecules needed for cell function. Most cells of the body are highly specialized, so they have different structures.
The cell needs constant supply with vital substances, nutrients and oxygen and removes waste products. Without this circulation cells would die. The human body is made up of different specialized cells. They are different in shape, size and function depending on the role they play in the human body. Specialized groups of cells form tissue, tissue forms the organs, and a group of organs forms a system, a group of systems forms the body.
One of these systems is the nervous system. Its specialized cells are nerve cells (neurons).

5 Common forms of Parkinson's Disease

- Family Parkinson's syndromes
- Symptomatic (secondary) Parkinson`s syndromes

– Atypical Parkinson`s syndromes

6 Symptoms of Parkinson's Disease

– Slowing down movements to the point of immobility (so-called hypokinesis or akinesia)
– Muscle stiffness due to increased muscle tension (so-called rigor)
– Tremors that occur when you are resting
– Disturbed stability of posture

7 Stages of Parkinson's Disease

7.1 Early Stage

– Muscle tension and severe pain in the shoulder, arm and neck area
– Tiredness and trouble sleeping
– Quiet and monotonous language
– Change in facial expressive moods

7.2 Further course

– Movement disorder
– Memory and attention disorders up to dementia
– Anxiety disorders and depression
– Personality changes
– Bladder weakness and sluggish bowel movement

7.3 Late stage

– Significant movement restrictions up to inability to move
– Restrictions or blockages when speaking and swallowing

8 Common treatments of Parkinson's Disease

8.1 Conventional medical therapy: Levodopa (L–Dopa)

8.2 Alternative therapy methods:

– Acupuncture
– Movement therapies
– Special nourishment

9 MOM: Manual Osteopathy and Massage as an effective treatment of Parkinson's Disease

9.1 History of Osteopathy

Osteopathy was founded in the late 1800`s by Andrew Taylor Still, an American physician and surgeon in Kirksville, Missouri.
Osteopathy is an alternative medicine manipulation of the body muscle, bone and ligaments.

Andrew Taylor Still used the leverage of the bones to relieve pressure on the nerves, arteries and veins, thereby restoring the conditions for balanced physiology. Body fluids (blood, lymph, etc.) must be able to flow without hinderance. The neural supply of the tissues must also be guaranteed.

9.2 Philosophy of Osteopathy

It is based on the following principles:
– The human body is a dynamic unit.
– The body has a self-regulatory and self-healing system.
– Structure and function are interrelated.
– The rule of the artery system is supreme.

9.3 Manual Osteopathic treatments

- Parietal techniques (Osteo-articular adjustment)
- Fascial Release (Myofascial Release)
- Cranio-sacral techniques
- Visceral techniques
- Soft tissue technique
- Articulation
- High-velocity low-amplitude (HVLA) thrust
- Body adjustment
- Myofascial release
- Muscle energy
- Counter strain
- Positional release
- Lymphatic
- Chapman reflexes
- Trigger point

9.4 Target and application of Manual Osteopathic treatments

These techniques are used to examine and treat functional disorders.
- Parietal techniques for tendon, ligaments and fasciae.
- Mayo fascial release techniques for relieving pain in the myofascial tissues.
- Cranio-sacral techniques for skull, spine and sacrum including brain and spinal cord.
- Visceral techniques for internal organs and their surrounding structures.

Osteopathic-manual therapists use these techniques to treat somatic disfunction. One of its causing factors can be stress which leads to lesions and sticky fascia due to the hormones released in stressful situations.
They moreover use physical stretching and massage to increase joint mobility, to relieve muscle tension to better the blood and nerve supply to tissues, and support the body's own healing mechanisms.

9.5 MOM treatment of Parkinson`s Disease

In the treatment of Parkinson's Disease I as an osteopath use all the manual osteopathy treatment techniques as needed, particularly Cranio-sacral techniques and massage.

9.5.1 The benefits of Manual Osteopathy
– Improved circulation
– Reduced inflammation
– Increased range of motion
– Reduced blood pressure

9.5.2 The benefits of Massage

- Reduced stress
- Reduced pain and muscle soreness
- Improved circulation
- Improved physical fitness

9.5.3 The benefits of Cranio-sacral treatment

- Releasing the somatic dysfunction and restrictions from the bones and tissues
- Relieving tension in the central and autonomic nervous system
- Physical, mental and emotional benefits
- Feeling relaxed by relieving pain and stress
- Improving circulation and energy flow
- Improving the immune system
- Improving the body point of balance

9.6 The effectiveness of the treatment

The body point of balance starts from the cell: This is vital knowledge for the osteopathic treatment of Parkinson's disease.

The manual osteopath strives to remove existing somatic dysfunctions and other obstacles and to re-establish the free mobility of the joints and fasciae. In healthy people, all body structures and functions are in point of balance (equilibrium). Different causes can mess this up. The manual osteopath has a wide range of manual diagnosis and therapy methods (techniques) that he uses according to the respective causes of movement.
The manual osteopath with his holistic manual treatment helps the body, mind and soul back into harmony and balance. The aim of manual osteopathy and massage (MOM) for Parkinson's Disease is to improve the structural and dynamic balance in the body system, make energy consumption more economical and increase the patient's individual quality of life. .

9.7 Two case studies in my osteopathic practice

9.7.1 Patient 1

65 years old, female

9.7.1.1 Parkinson`s Disease symptoms

– Pain in the neck and shoulder
– Restricted mobility in the upper and lower extremities
– Indigestion
– Sweating
– Quiet and monotonous speech
– Rigor and tremor in left hand
– Brady kinesis
– Kyphotic posture
– Decreased balance
– Decreased ROM
– Depressive symptom

9.7.1.2 Treatments

Medical Treatment: Levodopa
Additional therapies: massage, physiotherapy, acupuncture

9.7.1.3 Clinical examination history

The patient comes in an unstable condition. She cannot stand upright because of a permanent tremor and muscle stiffness. Due to the severity of tremor, rigidity and also postural dysfunction, the patient can only stand a short time with great difficulty; sitting upright is also only possible with great effort for a short time. This limits the osteopathic examinations considerably.
In the first phase, the patient can only be examined passively in a lying position. Neither global hearing nor any active function tests are possible. The neck, respiratory and back muscles are tense. PRM is imperceptible due to tension or medication. Visceral tension is mainly found in the thoracic aperture, the diaphragm and the stomach.
The osteopathic treatment is based on the available findings. The aim of all treatment principles is to remove mobility restrictions in the structures and tissues through active and passive measures, in order to bring the organism back into balance. The treatment aims at relieving tension and somatic dysfunctions throughout the body. The transverse structures of the body and the cranial sutures are repeatedly loosened in the craniosacral region. The aim is also to release myofascial and visceral tension.
The treatment cycle is two times per week in the first phase. Due to the patient's imbalance there is always musculoskeletal tension and stiffness of the back, shoulder and neck.

9.7.1.4 Osteopathic treatment aims to

- reduce tension and dysfunction with massage, because blood circulation in the body has to work optimally to nourish its cells and remove waste products.
- improve the structural and dynamic balance in the body system
- economize of energy consumption
- improve the balance function

9.7.1.5 Cranio-sacral therapy

Cranio-sacral treatment is carried out according to 10–point protocol from Upledger.
The patient receives further treatment from the craniosacral therapy, e. g. treatment of the intracranial dura:

- Vertical system: Falx cerebri, Falx cerebelli, relaxation from anterior to posterior, frontal spread technique and lifting technique. Relaxation from cranial to caudal, parietal spread technique and lifting technique
- Horizontal system: Tentorium cerebelli
  Relaxation from anterior to posterior. SSB compression and SSB decompression.
  Transverse relaxation: internal rotation of the temporal bone and ear pull technique.
  Combination of the anterior-posterior and the transverse relaxation

The rhythm can only be palpated very weakly over the whole body, and even less with a lower amplitude on the right side of the body.
The transverse connective tissue is very tense in all body segments. Treatment of the upper part of the spine with atlantooccipital relaxation initially increases the hyperkinetic movements in the left foot. When the frontal bone is raised, the tension in the right arm visibly eases. When the parietal bones are raised to the cranial level, the hyperkinesia in the right foot subside, the right leg becomes completely calm and relaxed. It is relatively easy to

feel the tension of trauma and disorders in the tissues. But in these manifestations there is a so-called potency that centers these tensions. Every change in this point also results in a change in the tension pattern in its structural and functional connections.
Use of the V-Spread technique to successfully treat the bone suture restriction.
As is well known, Parkinson's Disease becomes visible when more than 70 percent of Dopamine-producing cells have died. The nerve cells that produce dopamine are located in the "substantia nigra". You can establish contact with the "substantia nigra" and communicate with it. When this happens, flow and detoxification succeed leading to the healing of the patient. That's what Upledger calls "Talk to the cell". After reaching the resting point at the end of the therapy the patient is relaxed (point of balance or still point).The articular dysfunctions are treated with MET, massage and other techniques. Visceral is mainly treated according to Barral. Cranio-sacral treatment is carried out according to the Upledger 10-point protocol, as already described.
The goal is not primarily to accompany a certain tissue in the state of the greatest possible relaxation and the best possible balance, but to support the overall homeostasis of the organism and let the organism decide which processes, paths and dynamics are necessary for this.
Functional problems of internal organs are treated with visceral therapy. The fascial treatment of the arms as well as the Latissimus Dorsi muscle, the cervical fascia, the infraspinatous fascia and partly the thoracic lumbar fascia almost always lead to the reduction of tremor and rigor. The tension in the neck is treated particularly effectively via trigger points in the Sternocleidomastoid muscle, Teres Major muscle, Coracobrachialis muscle, Scalene muscles, Splenius Capitis muscle, Suboccipital muscles and Rhomboid muscles.

9.7.1.6 Parietal treatment

Parietal treatment of the musculoskeletal system, complaints of the joints, muscles, tendons, arms and legs as well as the spine, pelvis and ileo-sacral joint as well as restrictions, dysfunctions, adhesions, constrictions. The patient's body becomes more and more adaptable and capable of regeneration, the tissue tension in the neck muscles becomes softer. Dysfunctions in the cervical spine, thoracic spine and lumbar spine are absent for longer periods of time.

9.7.1.7 Massage

The patient gets full body massage in every therapy. The massage leads to general body improvement, relaxing the nervous system, reducing stress and providing relief of muscular aches and pain. The patient always feels relaxed after the massage treatment.

9.7.2 Patient 2

71 years old, male, diagnosis Parkinson's Disease, former teacher of Biology/Chemistry

9.7.2.1 Current symptoms

- Resting tremor left hand
- Little confidence with reaction time
- Little confidence when walking outside
- Left hand tremor
- Sleeping disorder
- Deteriorated handwriting

- Decreased balance
- Moderate kyphotic forward head posture

Most affected:
- Mobility, emotional well–being
- Muscular weakness, upper and lower extremities
- Moderate incontinence

9.7.2.2 Osteopathic Treatment
The treatment cycle is one time in a week, for five weeks.

9.7.2.2.1 The aim of the treatment is
- to remove restrictions in the structures and tissues through active and passive measurements.
- to bring the organism back into balance.
- to release tension throughout the body.
- to release cranial, myofascial and visceral tension.

9.7.2.2.2 Treatment techniques
- Parietal for musculoskeletal system
- Visceral for function problems of the organs
- Craniosacral for Sacrum to Cranium
- Massage for muscle relief and relaxing the nervous system

9.7.2.2.3 Progress
After the five treatments the patient shows good progress:
improved mobility, improved postural stability, decreasing tremor, mood significantly more balanced.
The most effective treatment is cranio-sacral therapy, especially CV4-technique. With this treatment method the whole body gets relaxed. When being treated, the patient shows no symptoms of his illness. He is sleeping quietly.

Stress could be one of his possible causes of Parkinson's Disease. So I advised the patient to reduce his stress and regularly do gait and balance training. This training should contribute to prevent falls, improve the patient's muscular strength, help him to improve his balance, his postural control, his movement coordination and walking ability. The Patient followed my advice and the training was effective. It also increased his level of confidence.

Scientific background of the role of stress in Parkinson's Disease:
A study of emotional stress in Parkinson's Disease
(according to www.physiopedia.com: Caroline M. Tanner, MD, and Samuel M. Goldman, MD, MPH, 1996: "Epidemiology of Parkinson's Disease", page 327)

"Both Charcot and Gowers cited stress as a possible cause of PD. Laboratory studies suggest that stress-produced changes in central dopamine systems theoretically could contribute to the development of Parkinsonism. Similarly, persons already affected with PD experience transient worsening of their symptoms during stressful periods. Two reports linked the extreme emotional and physical hardship of concentration camp imprisonment with the subsequent development of PD. Whether these observations reflect an accelerated nigral injury as the result of stress-related increase in dopamine turnover with resultant increased oxidative injury, nutritional deficiencies of dietary protective agents, or other factors cannot

be determined. Evaluation of the relationship of less severe emotional or physical stress to the development of PD poses a methodologic challenge."

10 Conclusion and outlook

With different neurodegenerative diseases, Osteopathy treatment could or even should be an option. An osteopath seeks to find and promote health in illness.
When treating Parkinson's Disease patients, the osteopath uses manual osteopathy and massage techniques to restore the mobility of the body by removing restrictions between structures and functions.
"Movement is life" (Andrew Still). Everything that lives flows. "The rule of the Artery is supreme" (Still). Blood circulation is vital for the body to work optimally.
The fundamental knowledge of the body starts from the cell.
Cells take in oxygen and nutrition from blood circulation and they give up Carbon Dioxide, toxins and other waste products. If this cycle works properly, the cell can heal itself. Nerve tissue is composed of nerve cells (neurons). The nerve tissue has the ability to respond to a stimulus, and conduct a nerve impulse travelling from one neuron to the next. The nerve impulse serves as a communicator between nerve tissue and the other tissues. The nervous system communicates also between the internal and the external environment.
With a big knowledge of anatomy and great experience therapists can listen to the whisper of the body and communicate with it easily. They can find the dysfunctions and fix them – especially with Parkinson's Disease. Then the body can heal itself.
"Find it, fix it and leave it alone" (Andrew Still).

11 References

Dr. Tony Smith: "The Human Body – an illustrated guide to its structure, function and disorders", Copyright 1995, 2006 Dorling Kindersley Limited. London

Stuart Ira Fox: "Human Physiology" – Concepts & Clinical Applications", thirteenth edition 2013

Christy Cael: "Functional Anatomy – Musculoskeletal Anatomy, Kinesiology, and Palpation for Manual Therapists", 2010

Alan Stoddard: "Manual of Osteopathic Technique", third edition 1980

"The pocket manual of OMT – Osteopathic Manipulative Treatment for Physicians", second edition

Peter Gibbons, Philip Tehan: "Manipulation of the spine, thorax and pelvis", third edition 2010

Joseph M. Donnelly: "Myofascial Pain and Dysfunction" – the Trigger Point Manual", third edition

Leon Chaitow: "Muscle Energy Techniques", fourth edition 2013

John E. Upledger, Jon D. Vreedevoogd, “Lehrbuch der CranioSacralen Therapie“, Karl F. Haug-Verlag, 7. unveränderte Auflage 2016

Jean-Pierre Barral: "Lehrbuch der Viszeralen Osteopathie”, 2. Auflage

Torsten Liem, Tobias K. Dobler: “Checkliste Kraniosakrale Osteopathie", zweite unveränderte Auflage, Karl Haug Verlag, Stuttgart 2013

Torsten Liem, Tobias K. Dobler: “Leitfaden Osteopathie – Parietale Techniken", dritte überarbeitete Auflage, München 2009

Torsten Liem, Tobias K. Dobler: “Leitfaden Viszerale Osteopathie", dritte Auflage, München 2020

Jeremy Playfer, John Hindle, John: “Parkinson’s Disease in the Older Patient”, 2008

Prof. Dr. Bernd Leplow: "Parkinson", Germany 2007

Johannes Wilkens, Annette Kerchhoff: "Parkinson Selbsthilfe und Komplementärmedizin”, 2. bearbeitete Auflage

Prof. Dr. med. Reiner Thumler, Dr. med. Bjorn Thumler, "Parkinson", Stuttgart 1998, 2016

Willibald Gerschlager, “Parkinson: Ursachen, Diagnose, Verlauf und Therapieoptionen”, maudrich-Verlag, Wien