

THE EFFECTIVENESS OF OSTEOPATHIC  
TREATMENT IN PERIMENOPAUSE

by

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## DECLARATION

I hereby declare that I am the sole author of this master thesis.

All content that was paraphrased or quoted from published or unpublished sources or works of other authors is identified as such.

All sources and resources that I used for this thesis are cited. This paper has not been submitted with identical content to any other examination authority.

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Date

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## 1. DESCRIPTION OF THE PROBLEM

The anamnesis of women between 45 and 55 years of age frequently revealed that these patients suffer from menopause complaints in addition to other symptoms that originally made them seek osteopathic treatment.

The starting point and objective of this study is therefore to examine whether and how symptoms typically associated with perimenopause can be alleviated through targeted osteopathic treatment and thus produce a significant or measurable improvement in the patient's quality of life.

There is a number of studies and results available on alternative and complementary therapies such as acupuncture, osteopathy, hormone substitutes (phytopharmaceuticals) and homeopathy. All of these studies are aimed at alleviating menopause symptoms and improving the patient's wellbeing through various therapeutic approaches. The majority of these studies use questionnaires to evaluate the dependent variables "menopause symptoms" and the patient's "quality of life" affected by these symptoms. However, these studies often ignore important psychosocial factors, even though the object of investigation would justify an interdisciplinary approach<sup>1</sup>. Therefore, the theoretical basis of this issue shall be more closely examined in the introduction.

### 1.1. Relevance of the Problem

The climacteric is not a disease but a transition phase or a period of change in the life of a woman. Not without a reason, the term climacteric is derived from the Greek *klimakter*, which can be translated as "step ladder" or "critical phase in life"<sup>2</sup>. Some women experience few problems or little pain, others however, suffer to such a large extent from climacteric symptoms that they require medical treatment. Never before in history was there such a large number of women who experienced the transition into this new phase of life that we call menopause, a period that has come to claim approximately one third of a woman's average life expectancy.

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<sup>1</sup> So etwa vertreten Sator M.O., Fischl F.H. die Meinung, das bisherige Wissen und die Erfahrungen um das klimakterische Syndrom würden „viel zu eng und zu einschichtig“ aufgefasst und es erforderlich sei, Bewusstsein für „die mannigfaltige Varietät der Symptome sowie die zahlreichen Folgen der lang anhaltenden Östrogenmangelsituation“ zu schaffen, um „Patientinnen und Ärzte gezielt zu informieren und die weite fächerübergreifende Therapierung der Symptome“ zu ermöglichen; Sator M.O., Fischl F.H.: Der Stellenwert der "Extragenitalen Symptomatik" in der Menopause, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pacherneegg, Gablitz 2000, S. 133f.

<sup>2</sup> Pape W.: Altgriechisches Wörterbuch, Digitale Bibliothek 117 der UB Basel.

Life expectancy of women in industrialized countries has risen by 30 years during the last century, while the average age of entering menopause increased only slightly and is currently at approximately 51 to 52 years. Bodily pain and psychological disorders during menopause may be experienced during several years. This transition phase, which includes the perimenopause and postmenopause, is characterized by far reaching changes and potentially profound psychosomatic effects on a woman's life or individual life experience<sup>3</sup>.

Historically, menopause research has developed mainly on the basis of questions and results of endocrine research and has focused mainly on the various physical symptoms such as hot flashes, insomnia, changes in sexual behaviour<sup>4</sup>. Though hormone replacement therapy proved to be very successful in the treatment of these typical symptoms, it was also confronted with increasing scepticism. Hormone replacement therapy (HRT)<sup>5</sup> aims at restoring hormonal balance, which has become upset during menopause, through the administration of certain hormones in order to relieve the physical discomfort caused by these changes. The era of HRT began as early as in the late sixties with oestrogen therapy and has been further developed until the present. Media reports and internationally published studies<sup>6</sup> on the method lead to heated debate and controversy, particularly in the past few years. The WHI (Women's Health Initiative) study published in 2002, for instance, indicated an increased risk of breast cancer with certain combinations of hormone treatment<sup>7</sup>. Many women were concerned with such evidence and began to reject HRT<sup>8</sup>, as a result even doctors began to question the method. In the light of such possible risks and side effects, alternative and/or complementary treatment methods not only become increasingly important but are also often demanded by the patients themselves.

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<sup>3</sup> Fischl F.H.: Einleitung, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 11-12.

<sup>4</sup> Rosemeier H.P., Schultz-Zehden B.: Psychologische Aspekte des Klimakteriums, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 21.

<sup>5</sup> In der Literatur auch abgekürzt mit: HRT (Hormon Replacement Therapy oder auch MHT (Menopausal Hormone Therapy) oder HERS (Heart end Estrogen/Progestin Replacement Study)

<sup>6</sup> Vgl. Luzuy F.: Hormonersatztherapie und Brustkrebsrisiko: aktuelle Situation, in: Journal für Menopause, Nr. 1/2005, Krause & Pachernegg – Verlag für Medizin und Wirtschaft, S. 22 – 24.

<sup>7</sup> Vgl. „Estrogen plus Progestin Effects on Breast Cancer and Mammograms“ (o.V.), in: The Women's Health Initiative Participant Website, June 2003, URL: [http://www.whi.org/findings/ht/eplusp\\_bc.php](http://www.whi.org/findings/ht/eplusp_bc.php), (aufgerufen 19.09.2006).

<sup>8</sup> Vgl. Berichte zum Kongress "Menopause, Andropause, Anti-Aging" in Wien, Der Standard, Österreichs unabhängige Tageszeitung, hrsg.v. Bronner, O., „Das Geschäft mit den Frauen in den Wechseljahren“, 20. Oktober 2005

This is also shown by the fact that recently, treatment based on phytopharmaceuticals has attracted the interest of researchers and the public<sup>9</sup>. Plant extracts can have similar effects as oestrogen even though their chemical composition may be entirely different. Soy beans or red clover, for instance, contain such active substances, which may explain why women in Japan, where a lot of soy products are consumed, are less affected by menopause symptoms<sup>10</sup>. Some plant extracts contain considerable amounts of substances with oestrogen properties. The most important of these plant agents are known under the umbrella term phytohormones. Phytohormones are chemical substances obtained from plants that are able to trigger similar responses in the human organism as hormones do. Numerous studies meanwhile confirm the importance of phytohormones for the prevention and treatment of menopause and andropause symptoms<sup>11</sup> and suggest that the complex interaction of various mechanisms is responsible for their effectiveness<sup>12</sup>.

Other alternative or complementary methods of treatment that aim at mitigating menopause symptoms include homeopathy<sup>13</sup>, acupuncture<sup>14</sup>, traditional Chinese medicine<sup>15</sup> and, last but not least, osteopathy<sup>16</sup>. All of these methods follow different approaches but all of them claim positive effects with regards to alleviating climacteric symptoms and improving the patient's quality of life. A study by *Mückler (2001)*<sup>17</sup>, for instance, confirms the positive effect of osteopathic treatment and its ability to improve the patient's quality of life.

## 1.2. Restrictions of the Study

The methodology of this study entailed a number of limitations. These had to be accepted as the main focus was placed on osteopathic treatment and not on optimum results for the patient.

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<sup>9</sup> Vgl. diverse Weblinks zu diesem Thema bei British Holistic Medical Association, URL: [http://www.bhma.org/index.php?name=Web\\_Links&req=viewlink&cid=8&min=30&orderby=titleA&show=10](http://www.bhma.org/index.php?name=Web_Links&req=viewlink&cid=8&min=30&orderby=titleA&show=10) (hinzugefügt am 8.2.2006) „Menopause & Black Cohosh Information Center“ (aufgerufen 19.09.2006)

<sup>10</sup> Vgl. Studie der Rheinischen Friedrich-Wilhelms-Universität Bonn; in: JournalMED, Ausgabe 14.11.2005

<sup>11</sup> Trickey R.: Women, Hormones and the Menstrual Cycle, 2nd Edition, Allen and Unwin, Crows Nest 2003, insbes. S. 59 und 62f.

<sup>12</sup> Metka M.: Phytoestrogene, Phytoestrogene und Phytoandrogene, Journal für Menopause, Nr. 4/2001, S. 12 – 19.

<sup>13</sup> Vgl. Thurneysen A.: Möglichkeiten der Homöopathie im Klimakterium, Journal für Menopause, Nr. 8/2001, S. 20 – 23.

<sup>14</sup> Zeisler H., Brunner T., Sator M.: Akupunktur zu Behandlung postmenopausaler Beschwerden: Ein Erfahrungsbericht, in: Journal für Menopause, Nr. 1/2005. S. 25f.

<sup>15</sup> Vgl. Kaffka A.: Wechseljahre – Wandlungsjahre, Joy, Sulzberg 2003, insbes. S. 55ff.

<sup>16</sup> Mückler A.: Osteopathic Treatment During Transition of Perimenopause, Vienna 2001, insbes. S. 4 u. 16.

<sup>17</sup> Vgl. Mückler A.: Osteopathic Treatment During Transition of Perimenopause, Vienna 2001, S. 36 - 41.

The patient's psychological condition may have positive or negative effects on their physical and psychological wellbeing. The extent of this influence on test results cannot be evaluated in this study.

The principal approach of osteopathy calls for personalized treatment whenever possible. This means that treatment should reflect the patient's individual needs and conditions. In this study, however, patients received a total of three treatments and were first treated by following a standardized procedure in the first part of each session. Only the second part of each session was dedicated to individualized treatment.

The duration of and intervals between treatment(s) were kept constant for all test persons. More flexibility with regards to the patient's individual needs would, however, have been desirable for a more personalized style of treatment.

Individual modification of treatment according to the response of individual patients, e.g. changing the intervals between sessions, was not possible for practical reasons.

The selection of test persons and the number of individuals in the treatment group and control group: A more thorough selection of test persons (e.g. according to symptom picture) and larger study groups would have been desirable for statistically relevant test results. The recruitment of test persons proved to be an unexpected difficulty in the small town environment. Selection of test persons could only be carried out through cooperation with a gynaecologist.

Due to the limitations explained above, the result of the study can only indicate a trend, even if the hypotheses are confirmed.

### **1.3. Hypotheses and Evaluation**

#### *1.3.1. Hypotheses*

This study is based on the idea that menopausal symptoms can be alleviated to a measurable degree through osteopathic treatment and that the improvement of the patient's condition improves her quality of life. Since it seems to make sense to assess the quality of life in addition to self reported menopause symptoms, the variable "quality of life" was added to the variable "menopause symptoms".

With regards to the variable "menopause symptoms", it was examined how (dependent) variables, described by the various presentations of menopausal symptoms, change when the body and the hormonal regulatory system are influenced through certain forms of osteopathic



treatment. Since bodily changes (e.g. the influence on the hormonal regulatory system) cannot be directly measured, they can only be indirectly assessed through changes in the symptoms. The standardized questionnaire MRS II was used for this purpose. The quality of life was evaluated through the changes in the variables assessed in the standardized questionnaire SF-36.

In summary, we may formulate four fundamental hypotheses based on the explanations above:

- 1) Menopause symptoms of the test group are alleviated through osteopathic treatment, which is conformed by measurable changes in the symptoms.
- 2) Menopause symptoms of the control group do not change without osteopathic treatment, which is confirmed by unchanged symptoms.
- 3) The quality of life in the test group improves through alleviated menopausal symptoms, which is confirmed by changes in the parameters used to measure the patient's quality of life.
- 4) The quality of life of the control group does not change, which is confirmed by unchanged parameters used to assess the patient's quality of life.

### *1.3.2. Evaluation*

Hypotheses 1 and 2 are evaluated through MRS II, whereas hypotheses 3 and 4 are assessed through SF36. If the statistical evaluation of data collected with the standardized questionnaires confirms hypotheses 1 to 4, the above explained central idea can also be considered confirmed.

## 2. INVESTIGATION METHOD

### 2.1. Overview

In the framework of this study, a total of twenty women were examined, the first ten women were assigned to the treatment group and the following ten to the control group. Menopause symptoms and quality of life were evaluated with the questionnaires mentioned above before treatment and after three sessions of osteopathic treatment at intervals of two weeks. The patients were asked to assess perimenopausal symptoms and their quality of life. The same evaluation was repeated four weeks after the final treatment. The control group was evaluated in the same way. The table below illustrates the schedule of the study.

Time	Evaluation	Notes
Contacting test persons by telephone (02-03/2006)	Preselection	Testing suitability with checklist
First questioning (starting 05/2006)	MRS II and SF-36	Two weeks before first treatment (control group in the same timeframe)
First treatment		Two weeks after first questioning
Second treatment		Two weeks after first treatment
Third treatment		Two weeks after second treatment
Second questioning	MRS II and SF-36	Four weeks after third treatment (control group in the same timeframe)

Table 1: Schedule of the Study

### 2.2. Recruitment of Test Persons

#### 2.2.1. Explanatory Notes

Suitable test persons were selected in cooperation with a gynaecologist and obstetrician. Osteopathic treatment was suggested to those women who were interested and willing to participate in the study and their doctor informed them beforehand about the content and objective of the study. All patients came from a small-town or rural environment. Social

differences, family situations, religious beliefs and differences in education and income among test persons were not considered. All women were from a middle class background. Five women had a university degree, five had a leaving certificate (Matura), the remaining women had a lower level of education. The intensity of symptoms was not a criterion of selection. Only one woman from the test group was not new to osteopathic treatment.

#### *2.2.2. Criteria for Inclusion*

All participants in the study were aged between 45 and 55. Patients had to be diagnosed with at least one symptom typically related to menopause. Patients had to be in the phase of perimenopause. Before participating in the study, the osteopathic practitioner personally informed them about the procedures and all women were checked for their suitability. The questionnaires were personally distributed to the patients and they were asked to answer them privately and, if possible, at home.

#### *2.2.3. Criteria for Exclusion*

The women who met the criteria for inclusion explained above were more closely examined with the help of a checklist<sup>18</sup>. Patients who had been treated with hormones or any alternative method such as acupuncture, homeopathy or phytopharmaceuticals within the last six months were excluded from the study. Other reasons for exclusion included climacterium praecox, ovarian surgery, and early menopause induced artificially or through surgery.

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<sup>18</sup> Siehe Checkliste für die Teilnehmer der Studie im Anhang

### 3. CONCEPTUAL DIFFERENTIATION

#### 3.1. Notes

The transition phase of hormonal change that occurs during the years before and after actual menopause is usually called the climacteric, occasionally, the term menopause is also used. Both terms are often used as synonyms, sometimes even in specialized literature. The following conceptual differentiation seems therefore necessary to clarify the use of these terms in this study.

#### 3.2. Definitions

##### 3.2.1. *Climacteric*

The climacteric generally refers to the period of change in the life of a woman that occurs between premenopause and postmenopause<sup>19</sup>. The cessation of ovarian function is a process that lasts several years and can be subdivided into various phases. In this process, menopause refers to a point in time, whereas the remaining phases represent periods of time.

##### 3.2.2. *Climacteric Syndrome*

The climacteric syndrome comprises symptoms commonly known as “menopause problems“. Specialised literature explains these conditions as “a typical symptom picture that results from a relative lack of oestrogen that begins in perimenopause and may continue over a variable period of time, i.e. even several years into postmenopause“<sup>20</sup>.

##### 3.2.3. *Menopause*

While literature sometimes refers to menopause as a process related to a point in time<sup>21</sup>, it is in this study considered a period of time that comprises the 12 months following the last spontaneous menstruation controlled by the ovaries. This point of time can only be defined in retrospect after the period of twelve months has elapsed<sup>22</sup>. Menopause means the end of fertility and is caused by a gradual decrease of ovarian function. Menopause may occur naturally,

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<sup>19</sup> Vgl. Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 6, 7 u. 14.

<sup>20</sup> Definition der World Health Organisation: Report of a WHO scientific group. Research on the menopause. WHO techn. Rep. Ser. 670 (1981) 3-120, zitiert bei: Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 7.

<sup>21</sup> Huber J.: Klimakterium: Diagnose und Therapie, Grosse, Berlin 1989, S. 16; ebenso Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endocrinologica, Bd. 3., Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 8.

<sup>22</sup> Fischl F.H.: Begriffsbestimmung und Pathophysiologie, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 29; ebenso Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 6.

prematurely, or be artificially induced. Artificially induced menopause may be caused by removal of the ovaries, exposure to radiation, or treatment with antioestrogens. Natural menopause normally occurs between the age of 45 to 55 and at an average age between 50 and 54 years.

#### 3.2.4. *Premature Menopause (Climacterium praecox)*

Premature or early menopause (climacterium praecox) is menopause caused by ovarian malfunction before the age of 40 (beginning approx. at 35 years) until age 45<sup>23</sup>.

#### 3.2.5. *Premenopause*

Premenopause is “a period of several years before menopause occurs”<sup>24</sup>. This period of time begins approximately at the age of 40 and continues until the appearance of irregular cycles<sup>25</sup>. With reference to hormonal balance, premenopause is considered that period of time during which a gradual deficit in progesterone and oestrogen can be observed and occasional vegetative symptoms may appear<sup>26</sup>.

#### 3.2.6. *Perimenopause*

Perimenopause is that part of the climacteric that comprises a period between one and two years before and after actual menopause and that is usually called the actual climacteric or “change of life”<sup>27</sup>. This period of time is therefore not exactly definable. It is characterized by hormonal change and associated climacteric symptoms<sup>28</sup>. The point of menopause can only be determined 12 months in retrospect (after the “last“ menstruation no further menses for one year).

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<sup>23</sup> Sinngemäß Fischl F.H.: Begriffsbestimmung und Pathophysiologie, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000 S. 29.

<sup>24</sup> Fischl F.H.: Begriffsbestimmung und Pathophysiologie, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000 S. 29.

<sup>25</sup> Definition der Prämenopause „im engen Sinne“ nach Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 7; im „weiten Sinne“ ist darunter die gesamte reproduktive Phase zu verstehen.

<sup>26</sup> Vgl. Pfeleiderer A., Breckwoldt M., Martius G. (Hrsg): Gynäkologie und Geburtshilfe, Thieme, Stuttgart 2001, S. 51.

<sup>27</sup> Huber J.: Klimakterium: Diagnose und Therapie, Grosse, Berlin 1989, S. 16; und Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 7.

<sup>28</sup> Vgl. Fischl F.H.: Begriffsbestimmung und Pathophysiologie, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000 S. 29.

### 3.2.7. Postmenopause

Perimenopause is followed by postmenopause, the period from the end of menopause until senium (beginning at 65 years) that is characterized by a further decrease of oestrogen production and rising levels LH and FSH<sup>29</sup>.

### 3.2.8. Quality of Life

This study uses the term *quality of life* in the sense of “Health Related Quality of Life“ (HRQL), defined by the WHO as follows: *"Quality of life is defined as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the person's physical health, psychological state, level of independence, social relationships, and their relationship to salient features of their environment"*<sup>30</sup>.

It will be shown later that the above mentioned quantitative dimensions are reflected in questionnaire SF-36 that measures the following aspects: 1) physical and 2) psychological wellbeing, as well as 3) the ability to cope with daily life, and 4) social integration.

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<sup>29</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 7; ebenso Fischl F.H.: Begriffsbestimmung und Pathophysiologie, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000 S. 29.

<sup>30</sup> Definition der World Health Organization Quality of Life Assessment, Zitat entnommen von URL: <http://www.who.int/evidence/assessment-instruments/qol/ql1.htm> (aufgerufen 20.04.2006)

## 4. CLIMACTERIC SYMPTOMS AND THE QUALITY OF LIFE

### 4.1. Climacteric and Ageing Processes

#### 4.1.1. *Sociocultural Factors*

The impermanence of youth and the transition to old age and, eventually, death, have always been important issues for human beings. In the 20th and 21st century, youth and old age have acquired a new meaning in two ways – firstly, the average life expectancy has risen dramatically in western industrialized countries, and secondly, the proportion of the old and elderly among the population is constantly growing. Social and medical sciences work with unprecedented intensity on the sociomedical aspects of “ageing” and “old age”, with men also taking a growing interest in these issues<sup>31</sup>.

When we look at demographic developments in the past 100 years, the figures express the dramatic changes of the ageing process in a clear language. Around 1900, a woman had an average life expectancy of just below 50 years, which corresponded with the average age in which menopause occurred. Since then, life expectancy has increased dramatically and today, an average woman spends one third of her lifetime in postmenopause and senium while the average age of menopause has risen by only a few years. The average life expectancy of Austrian women was approximately 81 years at the turn of the millennium and roughly 44% of today’s women can expect to live up to the age of 85. A quarter of women who are 60 today are expected to live until and beyond the age of 90<sup>32</sup>.

The tremendous importance of the climacteric phenomenon with all its social, economic and cultural implications becomes apparent when we consider that women between 45 and 54 years represent approximately 5% of the world’s population. Many of these women consult a doctor because of climacteric symptoms, some need medication and care or are temporarily unable to continue working in their professions. Women’s rising life expectancy raises the importance of menopause both for the individual and for society as a whole since this phase now accounts for one third of the average woman’s life. The demographic and sociomedical developments of the past decades led to increased research on health risks and potential pathologies related to

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<sup>31</sup> Beispielhaft Fischl F.H.: Die Attraktivität des Mannes im Wandel der Zeit, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 265-271; Huber J.C.: Die extragenitalen Wirkungen von Hormonen bei Frau und Mann – Ein Vergleich, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 273-278.

<sup>32</sup> Schmeiser-Rieder A., Kunze M.: Sozialmedizinische Aspekte der Menopause und Andropause, in: Fischl F.H., Huber J.C.: (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 15ff.

postmenopause. Particularly hormone replacement therapy has often been a central subject of research and literature<sup>33</sup> and despite of controversial results it has received a positive verdict<sup>34</sup>.

Ethnologists and anthropologists noted that the issue of climacteric syndrome was primarily addressed in western industrialized countries, i.e. mainly in Europe, North America and Australia, and that interest first emerged in France around the turn of the 18<sup>th</sup> to the 19<sup>th</sup> century. The climacteric has long been considered a western phenomenon, since in this culture group the attitude of women towards old age is predominantly negative and old age is generally considered as a threat<sup>35</sup>. This approach has been put into perspective by more recent studies that question the validity of a differentiation based to cultural background. Women's attitude towards menopause depends mainly on their age<sup>36</sup> – women in postmenopause have a significantly more positive attitude towards menopause than women in premenopause. Approximately a quarter of women above 50 years report a higher degree of physical wellbeing, about three quarters change their lifestyle and improve their social situation and no less than half of all women report to be happier than in the years before menopause.

*Kowalcek et.al. (2003)* discovered that women outside the western world also experience climacteric symptoms<sup>37</sup>, however, they suffer less as their self-image or self-concept differs from that of western women. In summary we can observe that the meaning and significance of menopause must be considered in its sociocultural context. While fears of loss are dominant in the West, other cultures put an emphasis on gains, e.g. higher status within the family. *Kuhl/Taubert (1987)* summarizes the issue by explaining that “western women have come to associate menstruation and youthfulness with erotic attractiveness”<sup>38</sup>.

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<sup>33</sup> Vgl. Lauritzen Ch.: Hormonsubstitution in der Prä-, Peri- und Postmenopause, in: : Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, insbes. S. 99-101.

<sup>34</sup> v.Holst Th., Salbach B.: Hormonsubstitutionsbehandlung: Unkenntnis, Bedenken, Ängste, in: : Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, insbes. S. 165ff.

<sup>35</sup> Vgl. Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 8 - 12.

<sup>36</sup> Vgl. Rieder A., Kunze M.: Sozialmedizinische Aspekte der Menopause und Andropause, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, insbes. S. 18.

<sup>37</sup> Vgl. Kowalcek I., Rotte D., Painn K., Schmidt-Müller A., Diedrich K.: Kulturspezifische kognitive Konzepte über die Menopause – ein Vergleich prämenopausaler Frauen in Deutschland und Papua-Neuguinea, in: Journal für Menopause, Nr. 10/2003, S. 12-16.

<sup>38</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 12.



#### 4.1.2. *Sociopsychological Factors*

Self confident women are less affected by negative attitudes and expectations related to the climacteric, they experience little or no sorrow over the loss of youth and attractiveness and face potential problems more composedly. Conversely, women with a lower level of education and less self esteem suffer more from climacteric symptoms. Furthermore, women often experience a disparity between their self perception and their social status. They often feel socially “depreciated” while the majority has a very positive self-image<sup>39</sup>.

Nevertheless, it cannot be denied that the climacteric represents a fundamental change in the role of most women, since the woman’s position within the family and society changes. Many women experience fundamental psychosocial changes during this period, such as children moving out and becoming independent, the death of their parents, siblings or friends, personal illnesses or other fundamental changes in the family environment<sup>40</sup>. Additionally, women experience their own ageing and fears typically related to this process – many women are afraid of contracting a serious disease such as cancer and many worry about the possibility that their partner could die or become seriously ill. Many women suffer from loss of libido and physical attractiveness, with weight gain being clearly the dominant fear. Almost half of all women in climacteric (44%) are reluctant or afraid of taking hormones<sup>41</sup>.

Insecurity and latent fears do not always find a valve, physical pain is often involved and psychological problems ranging from mood swings to depressive disorders may also surface<sup>42</sup>. Certain signs of depression, irritability, anxiety and frequent “complaining” represent psychological and sometimes psychopathological symptoms that require differential diagnosis under consideration of other life-related circumstances, even though hormonal changes account for 90% of climacteric problems. Therapy must therefore not only focus on physical problems but also consider and address psychological symptoms<sup>43</sup>.

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<sup>39</sup> Rosemeier H.P., Schultz-Zehden B.: Psychologische Aspekte des Klimakteriums, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pacherneegg, Gablitz 2000, S. 21-28.

<sup>40</sup> Vgl. Höfle K.: Psychosomatik des Klimakteriums, Vergleichende Lebenslaufanalysen zur Typenbildung weiblicher Psychosomatik ab Menopause bis Klimakterium, Dissertation, Giessen 2003, insbes. S. 13 - 22.

<sup>41</sup> Lauritzen Ch: Hormonsubstitution in der Prä-, Peri- und Postmenopause, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pacherneegg, Gablitz 2000, S. 78.

<sup>42</sup> Dabei ist aus medizinischer Sicht unklar, ob eine aktuelle defizitäre Hormonlage oder nicht doch eher eine wechselnde Hormonlage für Stimmungsänderungen verantwortlich ist; vgl. Hochstrasser B.: Psychische Veränderungen in den Wechseljahren, in: Journal für Menopause, Nr. 2/2003,, S. 17 - 21.

<sup>43</sup> Rosemeier H.P., Schultz-Zehden B.: Psychologische Aspekte des Klimakteriums, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pacherneegg, Gablitz 2000, S. 22 und 25f.

## 4.2. The Quality of Life

### 4.2.1. Notes on Evaluation

Some researchers from social and natural sciences assume that a true evaluation of the quality of life is not possible since it would require measuring a variety of physical, mental, psychological and economic parameters and encompass health, family, work, income as well as the political and social environment of the individual<sup>44</sup>. In 1933, the World Health Organization (WHO) defined the quality of life very briefly as “an individual’s perception of their position in their immediate life context“<sup>45</sup>, without giving any direct recommendations for measuring this quality.

“Quality of life” reflects the individual condition of a human being with regards to their physical and psychological wellbeing, the subjective evaluation of which depends on social factors such as age, gender, level of education and income, to mention only a few. In order to take this wide range of factors into account, numerous concepts were developed for determining and measuring the quality of life. Various concepts and tools with specific measurement characteristics were developed for different areas of application, particularly by clinicians. *Health-Related Quality of Life (HRQoL)* is considered a suitable approach for measuring changes in general health since it is able to detect changes of health-relevant factors<sup>46</sup>. The quality of life is evaluated by the patient with the help of standardized questionnaires.

Studies that evaluated Health Related Quality of Life and climacteric symptoms were able to confirm a high correlation between these two variables<sup>47</sup>: This means that women with high ratings of discomfort in MRS II also reported a lower quality of life. In other words, menopause symptoms related to significant discomfort demonstrably reduce the patient’s quality of life<sup>48</sup>.

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<sup>44</sup> Vgl. die Zusammenfassung und weitere Definitionen bzw. Quellen zur Lebensqualität (o.V.) auf URL: <http://de.wikipedia.org/wiki/Lebensqualit%C3%A4t> (Version 28.11.2006, aufgerufen 06.11.2006)

<sup>45</sup> Bulletin of the World Health Organization 2001, Issue 11, 79, S 1047ff. Quality of Life wird hier festgelegt als “the perception by individuals of their position in life, in the context of the culture and value systems in which they live and relation to their goals, standards and concerns”.

<sup>46</sup> Vgl. Website der Universität Berlin und Humboldt-Universität zu Berlin (o.V.), URL: [http://www.charite.de/psychosomatik/pages/forschung/groups/leb\\_qual/methoden.htm](http://www.charite.de/psychosomatik/pages/forschung/groups/leb_qual/methoden.htm) (aufgerufen 06.11.2006)

<sup>47</sup> Hauser G.A., Schneider H.P.G., Rosemeier P.J., Potthoff P.: Die Selbstbeurteilungs-Skala für klimakterische Beschwerden (Menopause Rating Scale II), in *Journal für Menopause*, Nr. 4/1999, S. 17.

<sup>48</sup> Hauser G.A., Schneider H.P.G., Rosemeier P.J., Potthoff P.: Die Selbstbeurteilungs-Skala für klimakterische Beschwerden (Menopause Rating Scale II), in *Journal für Menopause*, Nr. 4/1999, S. 13.

#### 4.2.2. *Evaluation with Questionnaire SF-36*

The questionnaire SF-36 was developed by *Prof. Ware* and his work group (Rhode Island, USA) as a general and versatile tool to evaluate and gauge the quality of life. This questionnaire is not aimed at a specific target group, such as patients of a certain age, and has the advantage that it can be independently completed by the assessing person. The SF-36 has been recognized as a standard tool for the evaluation of the quality of life since the beginning of the nineties, not only in medical research but also in other disciplines<sup>49</sup>.

The following categories are evaluated in the questionnaire: Physical condition (10 questions), social relations (2 questions), limitations due to physical problems (4 questions), limitations due to emotional (psychological) problems, mental health (5 questions), vitality or energy level (4 questions), pain (2 questions) and general health (5 questions)<sup>50</sup>.

### 4.3. **Climacteric Syndrome**

#### 4.3.1. *Menopause Symptoms*

Menopause symptoms and their severity vary greatly. Some symptoms are described by women as “unpleasant” or “annoying” whereas others are experienced as a direct threat to the quality of life. The most common symptoms are hot flushes, profuse sweating, loss of libido, atrophy of vaginal skin causing dryness and soreness during sexual intercourse with possible vaginal inflammation. Other typical symptoms include dizziness, disturbed sleep, fatigue, irritability, increased emotional vulnerability, mood swings and even depression, memory loss, incontinence, cystitis, constipation, diarrhoea, dry skin, weight gain, joint and muscle pain, hair loss on the head and increased facial hair and prolonged menstruation (up to four weeks duration)<sup>51</sup>.

This variety of climacteric symptoms is commonly known today as “climacteric syndrome”, however, by far not all of these symptoms are recognised as a result of hormonal changes, particularly if they appear individually and isolated from other commonly known symptoms<sup>52</sup>.

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<sup>49</sup> Ausführlich unter URL: <http://www.sf-36.com>, und Ware J.E.: SF-36 Health Survey Update (ohne Datum), URL: <http://www.sf-36.org/tools/sf36.shtml> (aufgerufen 30.10.2006)

<sup>50</sup> Vgl. die zusammenfassende Darstellung und weitere Verweise zur Validität und Reliabilität des SF-36 (o.V.) auf der Website URL: <http://www.hsru.ox.ac.uk/shortfrm.htm> (aufgerufen 02.11.2006)

<sup>51</sup> Vgl. So etwa Huber J.: Klimakterium: Diagnose und Therapie, Grosse, Berlin 1989, S. 20-25.

<sup>52</sup> Sator M.O., Fischl F.: Der Stellenwert der “extragenitalen Symptomatik” in der Menopause, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 133f.

#### 4.3.2. *The Climacteric Syndrome*

Kuhl/Tabuert (1987) define the climacteric syndrome as the "typical symptom picture resulting from a relative lack of oestrogen that begins in perimenopause and continues over a variable period of time into postmenopause, i.e. sometimes over several years"<sup>53</sup>, the term "climacteric syndrome" should only be used if "*the symptom picture includes psychovegetative symptoms*"<sup>54</sup>.

While Fischl (2000)<sup>55</sup> defines four different categories for the clinical presentation of climacteric syndrome, we will use three categories in this study<sup>56</sup>:

Vasomotor-vegetative disorders particularly include symptoms such as hot flushes, profuse sweating and circulatory disorders. Most women experience hot flashes in connection with red blotches in the area of the chest, neck, upper arms and face. In two thirds of all cases, systolic and diastolic blood pressure increases, other symptoms such as dizziness, tachycardia and paraesthesia.

Many women suffer from emotional disturbances that may be summarized under the term psychological disorders. These symptoms include lack of drive, lack of concentration, depressive mood, insomnia, nervousness, irritability, anxiety, lack of energy, reduced libido, feeling of loneliness and forgetfulness. As explained above, these disorders cannot only be explained by a lack of oestrogen as they are also influenced by a woman's social environment and her individual psychological constitution.

The third symptom category includes genital or atrophic symptoms such as urinary disorders, vaginal dryness, joint and muscle pain.

The natural ageing process and hormonal changes that occur during climacteric lead to various changes in organ function that can be summarized as organic symptoms. Most of these changes become apparent during postmenopause, e.g. changes of the sexual organs, the skin, problems with body weight and blood pressure, as well as osteoporosis. Examples of organic disorders

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<sup>53</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 7.

<sup>54</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 14. Analog erwähnen dieselben die Synonyme „Menopausensyndrom“, „Postmenopausensyndrom“, „Wechseljahresbeschwerden“.

<sup>55</sup> Vgl. Fischl F.H.: Begriffsbestimmung und Pathophysiologie, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 32.

<sup>56</sup> Vgl. die Kategorienbildung des MRS II, der unten diskutiert wird; ebenso: Kuhl, H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 15-17.

that trouble many women include local atrophy in the urogenital tract with atrophic colpitis, flour, incontinence and cohabitation problems, dyspareunia, and generalized atrophy of the skin with dryness and wrinkling, hirsutism and effluvium. Other problems include lipometabolic disorders that promotes arteriosclerosis with an increased risk of heart attack and apoplexy. The symptom pattern may appear in varying combinations and intensities, this regulative mechanism is not yet entirely explained and investigated. Critical factors for the appearance of these symptoms are mainly the extent of oestrogen loss, the velocity of oestrogen decrease and the genetically predetermined and acquired ability to cope physically and emotionally with the ageing process<sup>57</sup>.

*Kuhl et.al.* (1987) define the climacteric syndrome as the "typical symptom picture resulting from a relative lack of oestrogen that begins in perimenopause and continues over a variable period of time into postmenopause, i.e. sometimes over several years"<sup>58</sup>. The symptom picture is composed of various symptoms of which only a few - such as hot flashes, profuse sweating and insomnia – are considered a direct result of hormonal changes<sup>59</sup>.

#### 4.3.3. *The Evaluation of Climacteric Symptoms*

Assessing the degree and severity of symptoms and making them comparable is of decisive importance for the reliable evaluation of climacteric syndrome. Several scores and measuring tools have been developed for the qualitative and quantitative evaluation of menopause problems in recent years<sup>60</sup>. The earliest efforts were those of *Kuppermann et.al.*, who published in

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<sup>57</sup> Vgl. insbes. Huber J.: Klimakterium: Diagnose und Therapie, Grosse, Berlin 1989, S. 38 – 42; weiters . Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 10ff.

<sup>58</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 7.

<sup>59</sup> Hitzewallungen, Schweißausbrüche und Schlafstörungen können als direktes Resultat des Östrogenabfalles angesehen werden. Vgl. Höfle K.: Psychosomatik des Klimakteriums, Vergleichende Lebenslaufanalysen zur Typenbildung weiblicher Psychosomatik ab Menopause bis Klimakterium, Dissertation, Giessen 2003, S. 10f.

<sup>60</sup> Vgl. Zollner Y.F., Acquadro C., Schaefer M.: Literature review of instruments to assess health-related quality of life during and after menopause. Quality of Life Research, Springer Verlag, March 2005; S. 309-327. The following eight instruments were identified: Greene Climacteric Scale, Women's Health Questionnaire (WHQ), Qualifemme, Menopause-Specific QOL Questionnaire (MENQOL), Menopausal Symptoms List (MSL), Menopause Rating Scale (MRS), Menopausal Quality of Life Scale (MQOL), and the Utian Quality of Life Scale (UQOL). Die Autoren fassen ihre Ergebnisse wie folgt zusammen: "All instruments reviewed proved to be reasonably structured and have their place in applied research. None were found that addressed all aspects of the impact of HRT on Health Related Quality of Life (HRQoL)" (...) "in order to capture the possible short-term side effects of HRT on HRQoL, it is necessary to modify one or more of the existing instruments or develop a new instrument applicable in many different countries and languages".

1953 the *Kuppermann-Index*<sup>61</sup>. Later on, missing symptoms were added in tools such as *J.G. Greene's Climacteric Scale* that used a standardized questionnaire with a four point score<sup>62</sup>.

In 1994, the MRS I (Menopause Rating Scale I) was developed and published by a group of experts around *G.A. Hauser*. However, this scale required a therapist questioning the patient during anamnesis. In 1999, the revised MRS II (Menopause Rating Scale II) was published, the new test included the symptom "anxiety" and permitted self evaluation<sup>63</sup> as well as the comparison of results with other measuring tools<sup>64</sup>. The MRS II questionnaire<sup>65</sup> provides additional explanations of the questions, which makes it easier for patients to provide accurate answers. The results of MRSII also proved the relation between symptoms and quality of life - the higher the value on the MRS self-evaluation scale, the lower (worse) the assessment of the quality of life (QoL)<sup>66</sup>.

Generally speaking, the 11 symptoms evaluated in MRS II can be arranged in the following three categories:

- 1) Vegetative symptoms: hot flushes and sweating, heart disorders, sleep disturbance.
- 2) Psychological symptoms: depressive mood, nervousness and irritability, anxiety, physical and/or emotional exhaustion, sexual problems.
- 3) Genital or atrophic symptoms: urinary disorders, vaginal dryness, joint and muscle pain.

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<sup>61</sup> Dieser Messmethode wird vorgeworfen, insbesondere das Symptom „Wallungen“ zu hoch zu bewerten und andere wichtige Symptome wie sexuelle und urologische Störungen zu vernachlässigen. Vgl. Hauser G.A., Schneider H.P.G., Rosemeier P.J., P. Potthoff: Die Selbstbeurteilungs-Skala für klimakterische Beschwerden (Menopause Rating Scale II), in *Journal für Menopause*, Nr. 4/1999, S. 13; ebenso Lauritzen Ch.: Hormonsubstitution in der Prä-, Peri- und Postmenopause, in: Fischl F.H., Huber J.C. (Hrsg.): *Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit*, Krause & Pachernegg, Gablitz 2000, S. 90.

<sup>62</sup> Vgl. den Greene-Online-Fragebogen auf URL: <http://www.menopausematters.co.uk/greenscore.php> (Last Update 14.02.2006, aufgerufen 02.06.2006) sowie auch Greene J.G.: *Constructing a climacteric scale*, *Maturitas* 1998, 29: 25-31.

<sup>63</sup> Hauser G.A., Schneider H.P.G., Rosemeier P.J., Potthoff P.: Die Selbstbeurteilungs-Skala für klimakterische Beschwerden (Menopause Rating Scale II), in: *Journal für Menopause*, Nr. 4/1999, S. 16f.

<sup>64</sup> „In fact, the comparison with other scales of similar purpose is important. Health related quality of life should be validated against quality of life measured with other generic QoL scales (e.g., SF-36),...“ (o.V.), entnommen von URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 29.09.2006)

<sup>65</sup> Vgl. MRS II Fragebogen im Anhang, deutschsprachige Version, entnommen URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 29.09.2006)

<sup>66</sup> Vgl. Oppelt P.G.: *Entwicklung und Beurteilung eines Menopausen-Gesundheits-Index (MGI)*, Dissertation, Düsseldorf 2001, S. 17f.

A vast amount of data has been collected since the publication of MRS II Rating Scale in 1999. This data underscores the applicability and reliability of this tool in clinical examinations<sup>67</sup>: the MRS produced stable and consistent results in repeated evaluations<sup>68</sup>.

#### 4.3.4. Selected Test Results on Climacteric Syndrome

The following figures on climacteric symptoms provide a rough impression of the variety and frequency of symptoms. Dominant symptoms before menopause include fatigue, headache, irritability and depressive mood, while during the first two years after menopause joint and muscle pain, night sweat and paraesthesia are most common. Depending on the general physical and emotional condition of women, conditions such as sleep disturbance may influence the appearance of nervousness, anxiety, irritability and depression. The table below shows more recent data collected in Austria<sup>69</sup> comparison to older data<sup>70</sup>.

Hot flushes with sweating	80 %	70-80%
Sleep disturbance	78 %	50-70%
Joint problems	68 %	40-55%
Nervousness	61 %	Not specified
Dry skin	59 %	Not specified
Tiredness, fatigue	58 %	50-90%
Irritability	51 %	90%
Muscle pain	50 %	40-55%
Paraesthesia	50%	25%
Vaginal dryness, burning, pruritus	47 %	Not specified
Headache	45 %	40-80%
Dizziness	45 %	20%
Reduced libido	43 %	20-80%

Table 2: Climacteric Symptoms (University Clinic, Vienna)

A first large scale investigation of menopause symptoms conducted in Germany with the use of MRS II produced results that differed significantly from all figures on moderate and serious

<sup>67</sup> Vgl. das Statistische Material und die Hinweise zum MRS II (o.V.) unter URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 29.09.2006)

<sup>68</sup> Vgl. die methodologische Würdigung unter URL: <http://www.hqlo.com/content/2/1/45> (aufgerufen 03.11.2006)

<sup>69</sup> Wechselambulanz der Universitätsklinik für Frauenheilkunde Wien; gekürzte Tabelle, Reihenfolge geändert nach absteigenden Prozentsätzen; aus Sator M.O., Fischl F.H.: Der Stellenwert der "Extragenitalen Symptomatik" in der Menopause, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 133.

<sup>70</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 149.

disorders published so far in literature. The most common symptoms were joint and muscle pain followed by sleep disturbances and nervousness. “Hot flushes and sweating”, so far considered the most common and important climacteric symptom<sup>71</sup>, was only on fourth place.

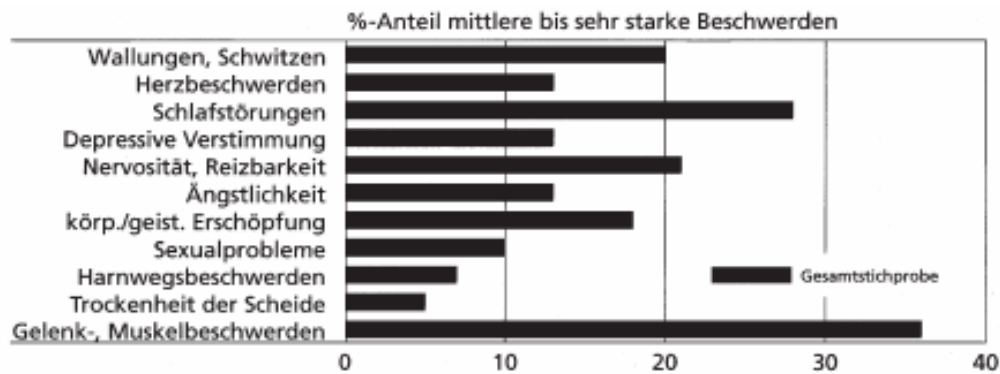


Table 3: Disorders in Women Between 45 and 60 Years

The symptom patterns can be categorized in three different clinical types. The “vegetative type” suffers particularly from hot flushes, heart problems, and sleep disturbances. The “psychological type” is affected by a combination of nervousness (irritability), anxiety and sexual disorders. And finally, the “genital type” suffers from a combination of urinary disorders, vaginal dryness as well as joint and muscle pain.

#### 4.4. The Climacteric From a Medical Point of View

##### 4.4.1. Endocrine Changes and Hormonal Balance

From an endocrinological viewpoint, menopause can be considered a transition phase or a period of change in the woman’s hormonal balance. Ovarian function and activity, which was focused on reproduction before menopause, is slowly ceasing or changing to the non-reproductive phase. The climacteric is therefore a transition period from regular menstrual cycles

<sup>71</sup> Die nachfolgend angeführten Zahlen sind entnommen aus: Hauser G.A., Schneider H.P.G., Rosemeier P.J., Potthoff P.: Die Selbstbeurteilungs-Skala für klimakterische Beschwerden (Menopause Rating Scale II), in Journal für Menopause, Nr. 4/1999, S. 13. Vgl. dazu auch die Auswertungen auf Grundlage des MRS II unter URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 29.09.2006)



to permanent amenorrhoe of postmenopause. This regulatory mechanism or "feedback loop"<sup>72</sup> is schematically illustrated below<sup>73</sup>.

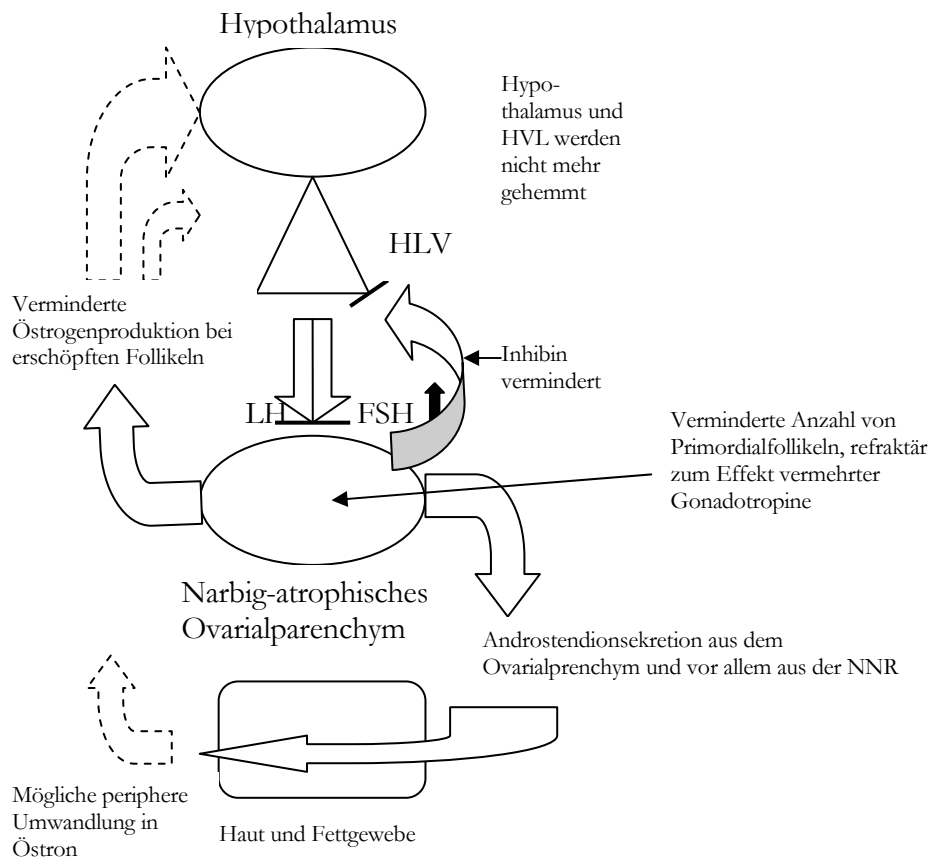


Figure 1: Illustration of the Reduced Negative Feedback Mechanism

The loss of ovarian function is considered the main reason for the changes occurring in the hormonal regulative cycle. Through atresia and natural loss of ovarian function (reduction of organ weight to less than fifty percent) follicle production is drastically reduced and oestrogen output drops to ever lower values. This ovarian exhaustion and the resulting hormone deficit causes a series of changes in oestrogen depending organs. One result is a certain vasomotor

<sup>72</sup> Vgl. auch Trickey R.: Women, Hormones and the Menstrual Cycle, 2nd Edition, Allen and Unwin, Crows Nest 2003, S. 54.

<sup>73</sup> Vereinfachte Darstellung aus Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 10. HVL = Hypophysenvorderlappen, LH = Luteinisierendes Hormon, FSH = Follikelstimulierendes Hormon; Androstendion gehört zu den Metaboliten (im Stoffwechsel durch Enzymreaktion entstandene oder veränderte Verbindung) der Androgene; Östron ist jene Östrogenform, die nach der Menopause vorrangig produziert wird.

instability that becomes apparent in the above mentioned hot flushes. Corpus luteum insufficiency with a lack of progesterone may be detected during premenopause, while oestrogen deficit is usually less significant in early perimenopause; estradiol may even be produced in considerable quantities. The follicle phase is reduced in this stage, while the luteal phase remains normal. In the course of perimenopause, the luteal phase becomes increasingly inadequate, i.e. anovulatory cycles appear more frequently - impaired follicle development may impede ovulation or cause irregular menstruation with regards to duration, frequency or menstrual course<sup>74</sup>.

The decisive endocrine changes that appear during the climacteric are caused by decreased oestrogen and gestagen production that upsets the complex regulatory cycle of hypothalamus – pituitary gland – ovaries: the low concentration of the ovarian steroid hormones estradiol and progesterone reduces the negative feedback to the superior regulatory centres of hypothalamus and pituitary gland and leads to an increased output of gonadotropic follicle stimulating hormone (FSH) and luteotropic hormone (LH) from the pituitary anterior lobes<sup>75</sup>.

The cessation of endocrine ovarian function and the resulting disinhibition of negative feedback causes a sharp increase of gonadotropins in the period between one and two years after menopause. FSH levels may rise by a factor of up to 15 times, LH levels increase to approximately three times the concentration before menopause<sup>76</sup>.

At normal oestrogen levels, the hypothalamus secretes gonatropin releasing hormone (GnRH), which inhibits FSH and LH. At the pituitary gland, this inhibition of GnRH through estrogens ceases and leads to permanent release of GnRH, causing an increase of FSH and LH production. Rising levels of FSH and LH stimulate the ovaries and permit follicle maturation under a resulting hyperestrogenism. In the process, ovarian sensitivity to FSH continually decreases and gradually results in systemic oestrogen insufficiency. However, this schematic description of the process is subject to great variations – “hormone levels may be similar to those of a young ovulating woman at one time, while little later these levels may resemble those of an older woman in postmenopause (...). The duration of these – unpredictable – episodes,

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<sup>74</sup> Vgl. Huber J.: Klimakterium: Diagnose und Therapie, Grosse, Berlin 1989, S. 38 - 42.

<sup>75</sup> Vgl. Oppelt P.G.: Entwicklung und Beurteilung eines Menopausen-Gesundheits-Index (MGI), Dissertation, Düsseldorf 2001, S. 17f.

<sup>76</sup> Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 10f.

whose frequency increases towards menopause, varies just like the entire climacteric transition phase<sup>677</sup>.

In summary we can say that the physiological processes, which bear a certain resemblance to those of premenstrual syndrome, primarily take place in the area of the hypothalamus and that the decrease of estradiol-progesteron or a lack of oestrogen play a decisive role in etiology.

#### 4.4.2. *Relations Between Hormonal Balance and Climacteric Syndrome*

It is not yet thoroughly known why and to what extent women develop a certain “climacteric symptom complex”<sup>678</sup>. Most of medical literature agrees that out of the numerous symptoms of climacteric syndrome, only hot flushes and sweating, sleep disturbance and atrophic vaginitis can be directly linked to oestrogen lack<sup>79</sup>. Apart from that there is a tendency to interpret psychological climacteric symptoms increasingly as a direct result of oestrogen lack since research revealed a connection between mood and circulating oestrogen levels – oestrogen lack most probably causes dysthymia, anxiety and mood swings<sup>80</sup>, since conventional oestrogen doses produce strong positive effects on the mood and feelings of wellbeing in healthy, non depressive women<sup>81</sup>.

#### 4.4.3. *Vegetative Aspects*

Hot flushes have so far been considered the cardinal symptom of climacteric and are causally related to the above explained endocrine changes. A closer distinction can be made between hot flush and hot flash, with hot flash denoting the subjective cortical perception, whereas hot flush is additionally characterised by reddening of the skin. Interestingly, hot flashes are by far more common than hot flushes.<sup>82</sup>

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<sup>77</sup> Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 133.

<sup>78</sup> Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 17.

<sup>79</sup> So etwa Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, ebd., S. 148, und übereinstimmend auch Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 18.

<sup>80</sup> Der günstige Effekt von Östrogen dürfte auf der Wirkung als Serotoninagonisten beruhen; bei gesunden bzw. nicht depressiven Frauen im Klimakterium konnte eine starke positive Wirkung auf Stimmung und Wohlbefinden registriert werden; Vgl. Jellinger K.A.: Neuroendokrine Veränderungen und Morbus Alzheimer im Klimakterium: in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 110.

<sup>81</sup> Übereinstimmend Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 32.

<sup>82</sup> Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 18f.

Hot flushes often begin with a feeling of pressure in the head, slight headache that increases in intensity until the actual hot flush appears. The sensation is described as a sudden feeling of intensive warmth that originates in the head and neck, then spreads over chest and back and finally over the entire body. The feeling of heat is often accompanied by reddening of the affected areas and profuse sweating. The experience is unpleasant and accompanied by numbness, headache, dizziness or heart palpitation. These hot flushes represent an intrahypothalamic phenomenon, actually a normal thermoregulatory response that is triggered for compensatory reasons. Hot flushes may appear up to 50 times within 24 hours without any notable difference between daytime or nighttime. At night, the phenomenon is notably often accompanied with night sweats and insomnia. Approximately 80% of women affected by this symptom experience hot flushes over a period of more than one year, in 25% of affected women the symptom persists over a period of more than five years.<sup>83</sup>

Another physical and psychological burden for women is sleep disturbance, particularly if it continues over extended periods of time and leads to chronic sleeplessness. Studies confirmed that phases of waking up coincide with objectively measurable parameters of hot flushes (rising skin temperature and sweating). Sleep is a finely tuned active process that involves the regulation of several regions of the brain. Important centres for this function are believed to include the limbic system and the hypothalamus. The limbic-hypothalamic-hypophysial system is attributed with a regulatory function of fundamental vital and emotional processes that include pleasure and displeasure, aggression and depression, sexuality as well as sleep and wake functions. Generally speaking, we have only rudimentary knowledge of the interactions between sexual steroids, endorphins and the metabolism of biogenic amines. We may assume that a disturbed balance of these substances could be responsible for insomnia and hot flushes. So far we only know for certain that oestrogen therapy is an effective treatment for sleep disturbance.<sup>84</sup>

#### *4.4.4. Psychological Aspects*

Apart from organic complaints, the climacteric also involves psychological changes for many women. Not all emotional and psychological problems associated with the climacteric can be explained as results of oestrogen lack or oestrogen withdrawal, though this insufficiency may

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<sup>83</sup> Vgl. Vgl. Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 157 – 162; weiters: Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 28 – 31.

<sup>84</sup> Vgl. Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: Exempla endokrinologica, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 24 – 27.

have a direct or indirect effect on psychological conditions<sup>85</sup>. However, it is certain that psychological complaints are often connected to vasomotor problems. Depressive moods, for instance, may be caused or significantly aggravated by sleep disturbance.

The climacteric involves a series of conditions that may cause depressive moods and anxiety, for instance, the loss of fertility, the loss of attractiveness, the worry about uncontrollable weight gain, the loss of the woman's function in the family ("empty nest syndrome"), a lack of affection by the partner or simply poor professional opportunities or the inability to create a meaningful future.

Worries and Fears	Percentage
Fear of cancer	78
Fear of prolonged disease with pain and suffering	62
Fear of surgery	41
Fear of osteoporosis	14
Worries about possible illness and death of the partner	40
Not being able to take care of oneself in old age	39
Inability to work, professional future	37
Financial problems, problems related to housing	27
Marriage problems, loss of love, loss of attractiveness, ceasing to be a real	32
Fear of climacteric	28
Fear of losing libido	20
Fear of gaining weight	63
Losing wellbeing, joy of life	16
Losing vitality, energy	11
Fear or concern about hormone treatment	44

Table 4: Worries and Fears of Women in Climacteric<sup>86</sup>

The psychological effects of climacteric must not necessarily be negative – the fact that menopause eliminates the fear of unintentional pregnancy, for instance, may have a positive effect on the woman's libido and her capacity for sexual experience. Some women perceive their changing social role during menopause as a positive opportunity. Women with low self esteem and a low level of education suffer more from climacteric symptoms. However, those women

<sup>85</sup> Vgl. Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 15.

<sup>86</sup> Sorgen und Ängste der Frauen in Klimakterium, Lauritzen Ch.: Hormonsubstitution in der Prä-, Peri- und Postmenopause, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 78.

who truly suffer from the often cited “hypothesis of loss” (loss of fertility, attractiveness and youthfulness, etc.) and experience menopause as a traumatic event actually form a minority<sup>87</sup>.

Generally we can say that women who enjoy a higher social status due to their profession and income level cope better with menopausal change than women with lower social status<sup>88</sup>.

#### 4.4.5. *Genital or Atrophic Symptoms*

Decreasing oestrogen levels cause symptoms due to changes in mucosa and skin. This condition usually affects the tissue of the vagina, vulva and urethra, as well as the tissue of the eyes and the oral mucosa. Low oestrogen levels speed up atrophy of urogenital organs and skin ageing, blood circulation decreases in the process. These conditions affect the physical and psychosocial wellbeing of women. However, they usually appear after menopause and rarely affect women in perimenopause.<sup>89</sup>

### 4.5. **Conclusions from the Osteopathic Point of View**

This description of the clinical picture of climacteric syndrome illustrates a number of facts and permits the following conclusions: the climacteric is not a disease but a transition phase forms part of the ageing process and may be accompanied by certain symptoms of climacteric syndrome. The combination of symptoms and their severity are highly variable. The “typical patient” who suffers from a certain combination of symptoms neither exists in reality nor in medical literature. Women’s expectations about menopause play a decisive role for their individual experience of this phase. A positive attitude is favourable, negative attitudes usually result in negative reactions. The relevant factors for a positive experience of menopause is not a woman’s hormonal status but rather a good physical condition and a positive attitude<sup>90</sup>.

The osteopathic approach and treatment should therefore follow its own principles instead of thinking and analysing in a purely symptom-oriented way. Climacteric symptoms should be

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<sup>87</sup> Vgl. die Ergebnisse der Studie von Rosemeier H.P., Schultz-Zehden B.: Psychologische Aspekte des Klimakteriums, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 21-28.

<sup>88</sup> Vgl. Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 15; sowie Rosemeier H.P., Schultz-Zehden B.: Psychologische Aspekte des Klimakteriums, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, S. 21f.

<sup>89</sup> Vgl. Trickey R.: Hormones and the Menstrual Cycle, 2nd Edition, Allen and Unwin, Crows Nest 2003, S. 175f. und Petri E., Kölbl H.: Effekte der Hormonsubstitution im Urogenitaltrakt, in: Fischl F.H., Huber J.C. (Hrsg.): Menopause - Andropause. Die Hormonsubstitution im Wandel der Zeit, Krause & Pachernegg, Gablitz 2000, insbes. S. 153.

<sup>90</sup> Sinngemäß Trickey R.: Hormones and the Menstrual Cycle, 2nd Edition, Allen and Unwin, Crows Nest 2003, S. 157.

considered a systemic result of physical, mental and emotional components and therapy should proceed accordingly.

*A.T. Still* describes the climacteric as the “third phase” in the life of a woman during which the “nourishing system of the uterus” goes through a series of changes prescribed by nature and the system tries to “stop the flow of uterine fluids”. In his opinion, the irritations resulting from this process are to be found in the organ’s vascular and nervous supply. He believes that the task of the osteopath is not to “restore a normal, child bearing uterus” but rather to “free the body and all the parts belonging to uterine life from all abnormal conditions that accumulated between puberty and sterility”<sup>91</sup>.

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<sup>91</sup> Still A.T.: Forschung und Praxis, in: Hartmann C. (Hrsg): Das große Still Kompendium, Jolandos, Pähl, 2002, S. 578f.

## 5. ANATOMY PHYSIOLOGY AND OSTEOPATHIC TREATMENT

### 5.1. Overview of Treatment

#### 5.1.1. *Anamnesis*

The first treatment was preceded by anamnesis.<sup>92</sup>

#### 5.1.2. *Examination*

The following examinations<sup>93</sup> were carried out on all patients:

Assessment of standing posture – from dorsal, lateral and ventral. Particular attention was paid to asymmetries, changes of the skin and muscular imbalance.

Check of horizontal lines: mastoid line, shoulder line, shoulder blade line and sacroiliac articulation line.

Global “listening” test in standing position.

Standing bend test.

Mobility test in standing posture: examination of flexion, extension, lateral flexion and rotation of the spine.

Sitting bend test.

Blood pressure was measured in seated position on both upper arms before the first and after the last treatment. Only one woman had reported elevated RR values in anamnesis and taken medication to regulate RR. All women said they usually had low RR, elevated values could be explained by nervousness (only one woman had received osteopathic treatment before, all other patients did not have any experience with osteopathy). The examination was then continued in supine position with a check of the pelvic position and local listening tests at the navel and pelvic organs. Finally, the craniosacral system was assessed.

#### 5.1.3. *Treatment Process*

All patients of the study group were treated three times in intervals of two weeks between sessions. In all three sessions, patients were first generally treated in the same procedure and then received personalized treatment in the second part of the session.

#### 5.1.4. *Osteopathic Considerations*

One of the cornerstones of osteopathy is to mobilize the organism’s natural self healing properties and restore the “flow” in the body. With regards to complaints and pain during

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<sup>92</sup> Vgl. das Anamneseblatt im Anhang

<sup>93</sup> Vgl. die Untersuchungen mit erläuternden Bemerkungen im Anhang



perimenopause, this means that treatment should aim first and foremost on releasing blockages and supporting the process of change that takes place within the body. In this respect, the osteopathic approach hardly differs from that of acupuncture or homeopathy.

Unlike conventional medicine or HRT, which represent symptom oriented therapy, the holistic concept of osteopathy requires a highly individual assessment of each symptom picture and equally individualized treatment of these symptoms.

In osteopathic treatment it is important to examine and treat the patient without bias. The therapist must “listen” to what the body has to tell and what it needs. *Becker (1997)* says the following: “With regards to the condition of the patient there are always three opinions: that of the patient, that of the therapist and that of the body. The only correct opinion is that of the body”<sup>94</sup>.

The objective of osteopathic treatment is to detect restrictions of function and movement in the structural (parietal), cranio-sacral and visceral system and to release these restrictions. Osteopaths usually consider the body as an organic-functional unit<sup>95</sup>, which metaphorically corresponds to *A.T. Still*, who compared the interaction of body functions with a complex “machine“ or “system” and believed that it was the task of osteopathy to keep this system “in perfect shape so that not a single nerve, vein or artery that supplies the skin, fascia, muscles or blood with one or the other fluid is ever subject to functional disorders. Fluids should be able to circulate freely to promote life and liberate the system of anything that could cause what we call disease”<sup>96</sup>.

## **5.2. Anatomical and Physiological Aspects of Treatment**

### *5.2.1. Procedure*

The general part of treatment was carried out in each of the first two sessions in the same way for all patients. The objective was to apply a generally valid approach. This part of treatment included the assessment and treatment of membranes, diaphragms and the mobilisation of the uterus. This strategy was an attempt to place particular attention on the axis hypothalamus-pituitary-ovaries. The main goal was to provide optimum freedom of movement for this

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<sup>94</sup> Becker R.: *Life in Motion*, Rudra, Portland 1997, zitiert bei (ohne Seitenangabe): Möckel E., Mitha N. (Hrsg.): *Handbuch der pädiatrischen Osteopathie*, 1. Auflage, Urban & Fischer, München 2006, S. 351.

<sup>95</sup> Barral J.P.: *Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation*, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 1.

<sup>96</sup> Still A.T.: *Die Philosophie und mechanischen Prinzipien der Osteopathie*, Kapitel II, Einige Körpersubstanzen, in: Hartmann C. (Hrsg): *Das große Still Kompendium*, Jolandos, Pähl, 2002, S. 328.

“hormonal axis”. This approach intended to improve arterial blood supply as well as venous and lymphatic drainage in this area. In the third treatment, the CV-4 technique was used almost exclusively.

### 5.2.2. *Membranes*

For osteopaths experienced in craniosacral treatment, the term “membrane” is often used as a short form for the dural membranes *dura mater cranialis* and *dura mater spinalis*, the duplications or folds – *falx cerebri*, *tentorium cerebelli* and *falx cerebelli*<sup>97</sup>. From a functional viewpoint, the structure of these collagenous tissues permits them to transfer and deflect the forces they are exposed to<sup>98</sup>.

The *dura mater* continues in the epineurium of nerves that leave the skull. The space between the *dura periostale* and the *dura meningeale* not only contains venous blood vessels but also other important structures such as the meningeal arterial vessels (branches of the *A. carotis interna* and *externa*). Sympathetic nervous fibres run between the dural layers of intracranial vessel walls (coming from the *ganglion cervicale superius* and the *plexus caroticus*). The intercranial membranes are closely connected anatomically and functionally and influence each other. They can be subdivided into four different septums according to their position and direction.

The *falx cerebri* (falciform process of cerebrum) separates the two cerebral hemispheres. The basis of the *falx* is attached to the midline of the *tentorium cerebelli* at the straight sinus. The superior sagittal sinus is at the superior margin. The inferior sagittal sinus is at the inferior margin. The *falx cerebelli* (falciform process of cerebellum) separates the two cerebellar hemispheres, is attached to the posterior and inferior part of the *tentorium* and is involved in forming the straight sinus. It forms a strong fibrous ring around the *foramen magnum* and continues as the *dura mater spinalis* in the spinal cord. The *diaphragma sellae* forms a horizontal septum above the *sella turcica* and the roof of the pituitary and contains an opening (*hiatus diaphragmaticus*) for the pituitary stalk. The *tentorium cerebelli* separates the cerebellum and the cerebrum and forms a tent-like structure above the cerebellum. Above the *tentorium* are the

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<sup>97</sup> Möckel E., Mitha N. (Hrsg.): *Handbuch der pädiatrischen Osteopathie*, 1. Auflage, Urban & Fischer, München 2006, S. 441.

<sup>98</sup> Vgl. Liem T.: *Kraniosakrale Osteopathie*, Hippokrates, Stuttgart 1998, S. 172ff. sowie Paoletti S.: *Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie*, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 101ff.

subcortical nuclei and the thalamus. The tentorium is also involved in the straight sinus and additionally in the transverse sinus and the superior petrous sinus<sup>99</sup>.

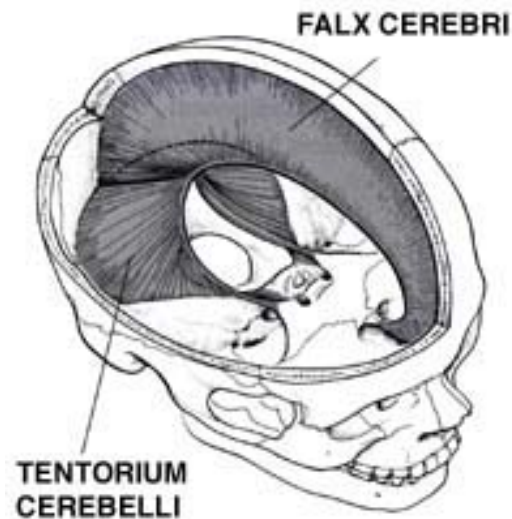


Figure 2: Intracranial Membranes<sup>100</sup>

One of the effects of releasing the membranes is improved venous drainage of the skull through the sinuses. This permits better exchange between blood and brain tissue and better absorption of cerebrospinal fluid, which in turn optimizes the exchange between CSF and brain tissue. This helps harmonizing the vegetative nervous system and improves the transmission of nervous impulses to the organs and other physical structures.<sup>101</sup>

### 5.2.3. Fasciae

The following illustration shows the general arrangement of fasciae<sup>102</sup>.

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<sup>99</sup> Vgl. Paoletti S.: Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 103 – 104; sowie Liem T.: Kraniosakrale Osteopathie, Hippokrates, Stuttgart 1998, S. 174f.

<sup>100</sup> Bild entnommen von URL: <http://www.osteodoc.com/sutherland.htm> (aufgerufen 14.11.2006)

<sup>101</sup> Vgl. Liem T.: Kraniosakrale Osteopathie, Hippokrates, Stuttgart 1998, S. 422.

<sup>102</sup> Paoletti S.: Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 111.

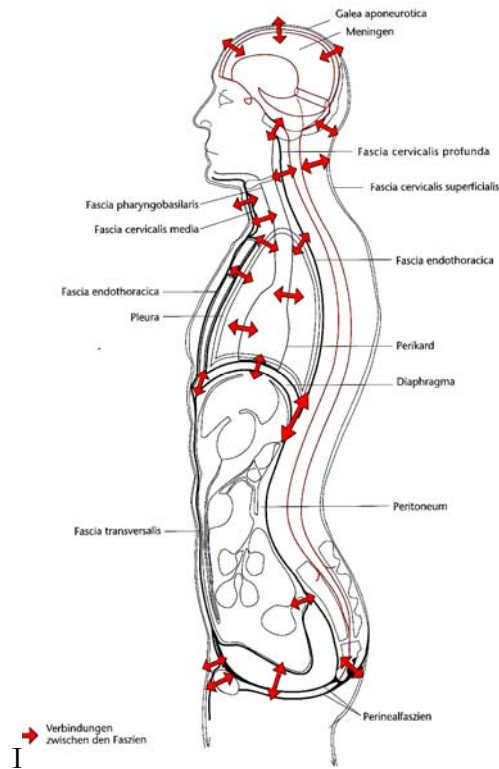


Figure 3: General Arrangement of Fasciae and their Interconnections

The embryological origin of fasciae lies in the mesoderm, from which the connective tissue developed. It forms the supporting structure of the nervous, vascular and lymphatic system and represents an uninterrupted connection between the various tissues (union of tissues) and organs. The haemodynamic role of the fascia is of particular importance in this study. The vascular and lymphatic system are connected to the fascial system. Venous and lymphatic return from the periphery is supported by the fasciae, which move constantly at a rhythm of 8 to 12 cycles per minute. The ring-like arrangement of fascial structure and the amplification of contraction waves by muscle movement creates a wringing and pumping movement that transports the fluids. Transporting fluids towards the heart is therefore an important function of the fascia. But fascia can also interfere with venous return. This is feasible if a fascia is under abnormal tension and compresses the vascular system causing stasis.<sup>103</sup>

<sup>103</sup> Paoletti S.: Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 151.

Women in perimenopause have an average age of 50 years and usually had accidents, surgery, births and lived through psychological traumata at different stages of their lives. Since membranes have the tendency to rebalance the system, it is possible to improve the mobility and the “flow” of the axis hypothalamus-pituitary through their release. Fasciae, membranes and diaphragms are closely and inseparably connected in their physiological function. A dysfunction of one of these elements has a negative effect on the function of the entire system. Therefore, treatment was aimed at releasing restrictions in all components of these systems and to balance the systems.

#### 5.2.4. *Vegetative Nervous System*

The vegetative-climacteric syndrome is characterized by hot flushes, profuse sweating, heart palpitations and reduced vitality. Oestrogen insufficiency causes involution of related organs and “disinhibition of the hypothalamus-pituitary regulatory cycle”<sup>104</sup>, which causes hypersympathicotonia accompanied by the above mentioned symptoms.

*Paoletti (2001)* believes that the transmission of nervous impulses on the fascial level is mainly a task of the parasympathetic and particularly the sympathetic system, which are not only involved in fascial mechanics but also in their biochemistry. The sympathetic system influences blood circulation and metabolism, regulates pH level and the transport of waste products. It is practically certain that fasciae possess their own system of innervation, which means that they are not rigid but can be considered a structure with autonomous mobility. If we look for the origins in embryology, we can see that embryonic development is characterized by continuous movement that leads to the formation of a human being in various stages. The ectoderm, mesoderm and endoderm originally lie very close together and go through a process of development that creates the skeleton, the body cavities and the organs. These three germ layers move simultaneously and parallel to each other and they permeate each other. This leaves a “trace of memory” of a continuous movement that can be found in the cranial, visceral and fascial areas and that permits the exchange between cells and dynamises the behaviour of fluids. It seems as if the sympathetic system would keep this movement alive.<sup>105</sup>

Increased sympathetic tone may lead to endocrine, vasomotor and visceral dysfunction. A key function of the SNS is to adapt the inner system to changes in the environment. For instance, it

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<sup>104</sup> Pfeleiderer A., Breckwoldt M., Martius G. (Hrsg): Gynäkologie und Geburtshilfe, Thieme, Stuttgart 2001, S. 74f.

<sup>105</sup> Paoletti S.: Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 173f.

is able to inhibit the activity of the intestines, which are not directly involved in the situation, and reduces blood flow in the inner organs and the skin in favour of skeletal muscles. This sympathetic activity is usually rather short and followed by a period of rest. Prolonged sympathicotonia, however, leads to reduced blood flow, decreased secretion, sphincter spasms and ultimately to restrictions and dysfunction of the affected organs.

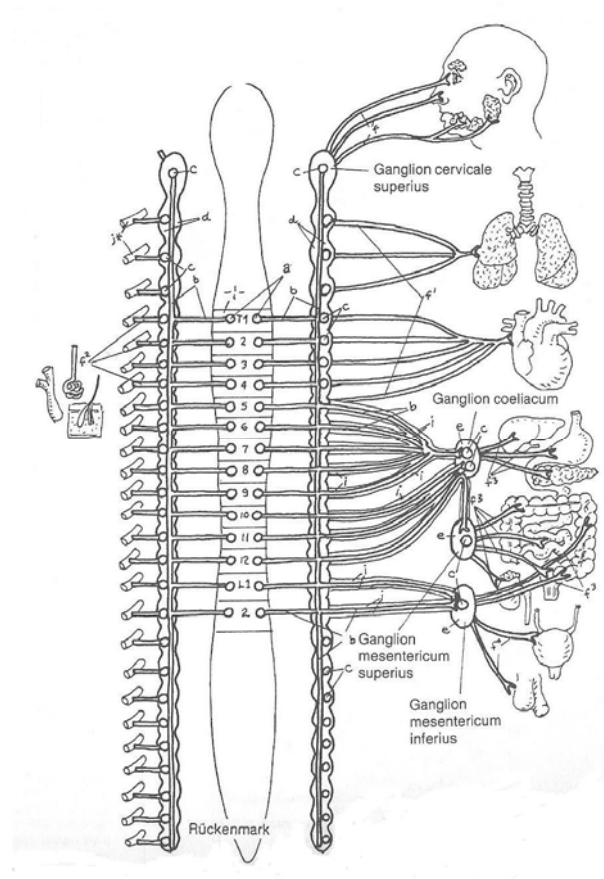


Figure 4: Autonomic Nervous System: Schematic View of the Sympathetic Nervous System<sup>106</sup>

Prolonged sympathicotonia changes normal tissue response to circulating hormones in endocrine glands. Additionally, reduced local blood supply in endocrine tissues may have effects on remote areas. Releasing tissues and restoring correct alignment is important for

<sup>106</sup> Kapit W., Elson L.M.: Anatomie Malatlas, Arcis, München 1989, Tafel 135. Die vegetative Nervenversorgung des Uterus erfolgt sympathisch von L1 bis L2, die sympathische Versorgung des Ovars entspringt auf TH10; Stone C.: Die inneren Organe aus der Sicht der Osteopathie, Wühr, Kötzing 1996, S. 175.

haemodynamics and promotes metabolism in the tissues. Blood supply is improved and the tissues receive the hormones and proteins they need for proper function. The relieved nervous system facilitates normal metabolism and effectively transmits all information necessary for homeostasis.<sup>107</sup>

#### 5.2.5. *Diaphragms*

The most important transversal levels are the pelvic diaphragm (pelvic floor), the thoracolumbar diaphragm (midriff), the cervicothoracic diaphragm (including the hyoid) the cervicocranial diaphragm (atlanto-occipital joint) and the intercranial horizontal membrane system (tentorium cerebelli).

The “functional triangles” below illustrate the relations and connections between the diaphragms. This model helps explain the biomechanical, arteriovenous, neural, endocrine and metabolic interconnections and interactions of the entire organism. All structures within one triangle are functionally, physiologically and pathologically interconnected. The triangles are both separated and interconnected through the above mentioned diaphragms. The condition of these diaphragms is crucial for the proper function of the triangles and communication between them.<sup>108</sup>

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<sup>107</sup> Paoletti S.: *Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie*, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 238f.

<sup>108</sup> Liem T.: *Kraniosakrale Osteopathie*, Hippokrates, Stuttgart 1998, S. 355f.

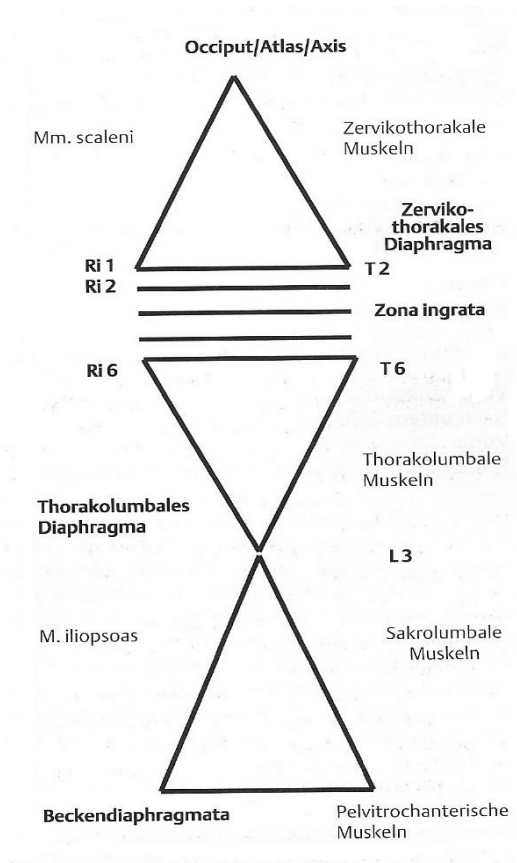


Figure 5: Functional Triangles<sup>109</sup>

While the pelvic floor and the midriff consist of tendomuscular components, the cervicothoracic diaphragm is mainly made up of membranous tissues and the cranial diaphragm is entirely membranous.

*A.T. Still* already pointed out in 1899 that a tense thoracolumbal diaphragm (midriff) may cause disease more frequently than any other part of the body, particularly if tension becomes abnormal or if its structural attachments are no longer in the correct position<sup>110</sup>. Almost all structures of the body are directly or indirectly connected to the diaphragm. Several nerves pass through it, among them the sympathetic trunk, which is relevant for the treatment of menopause symptoms as important complaints described above are vegetative symptoms.

<sup>109</sup> Liem T.: *Kraniosakrale Osteopathie*, Hippokrates, Stuttgart 1998, S. 355.

<sup>110</sup> Still A.T.: *Philosophy of Osteopathy*, Kirksville, 6th Reprint, American Academy of Osteopathy, Ohio 1986, S. 122, zitiert bei: Liem T.: *Kraniosakrale Osteopathie*, Hippokrates, Stuttgart 1998, S. 360.



One important aspect of treatment was optimizing circulation through the midriff. The fact that abdominal pressure increases during inhalation while intrathoracic pressure decreases, permits stimulating venous return to the heart and lymphatic return to the thorax.

The midriff connects the two upper diaphragms with the two lower ones and is connected to the liver through the triangular ligament, the coronary ligament of liver, the broad ligament of liver and the hepatoumbilical ligament. Through its peritoneal connection, the thoracic diaphragm is related to the liver through the coronary ligament of liver and since the liver plays an important role in processing and excreting hormones, it is favourable to release restrictions in this region. The pumping action of the midriff may be impaired if the ligaments that connect it with the liver are restricted and thus influence the position and function of the liver. Dysfunction of the liver or other organs of the abdominal area influence venous return and the function of the lymphatic flow by reducing lymphatic return. Additionally, hormones may put a strain on the liver and the gastrointestinal tract and cause side effects such as tender breasts and increased interstitial fluids in the tissue.

The midriff is connected to the kidneys through the renal fascia and the retrorenal fascia. Another important connection is to the psoas muscle as the kidney “rides” on this muscle. In osteopathy, the right kidney is the “digestion kidney” while the left is the “sexual kidney”. Disturbances of the left kidney are often connected to restrictions of the left ovary. A possible explanation for this may be the fact that both ovarian arteries run along the surface of the psoas muscle and that the left ovarian artery arises from the renal artery and runs behind the descending colon. Constriction and spasm of the psoas muscle may therefore cause compression of the ovarian artery. The ovarian arteries may also be compressed retroperitoneally.

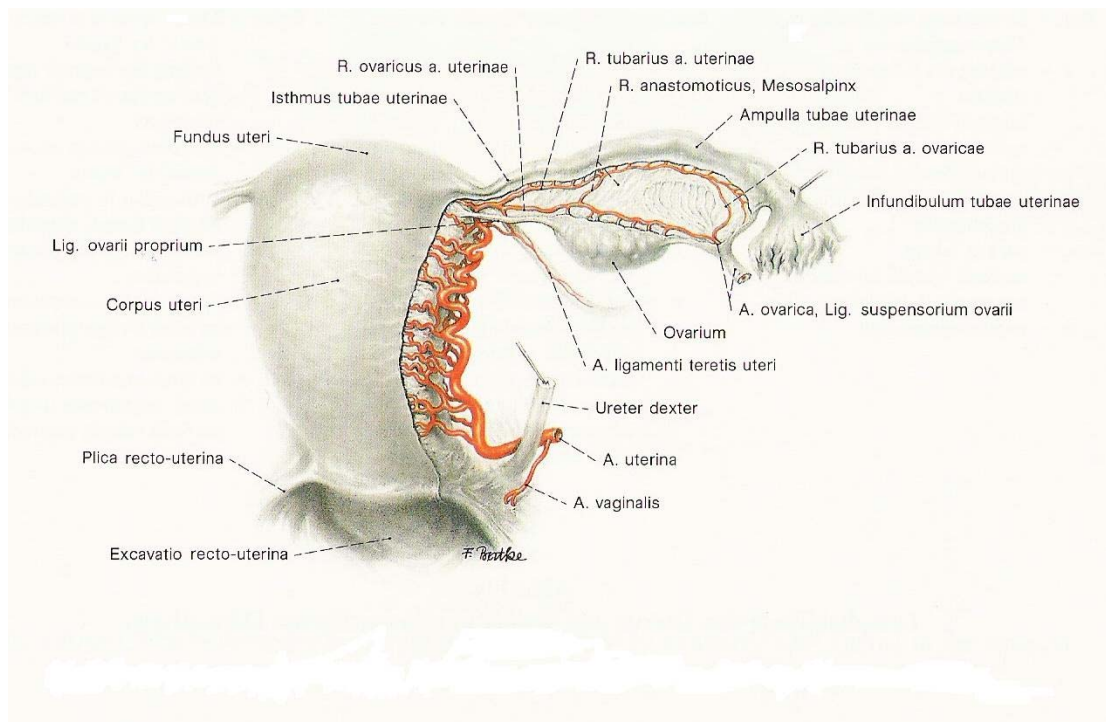


Figure 6: Blood Supply of the Uterus, Ovary and Uterine Tube<sup>111</sup>

The left ovarian vein drains into the left renal vein, the right ovarian vein drains directly into the inferior vena cava. Ptosis of the left kidney may alter the angle of the ovarian vein and impair venal return causing functional kidney problems. The left renal vein may become obstructed by the superior mesenteric artery, e.g. through ptosis of the small intestine. Just like most other gynaecological dysfunctions, these conditions cause stasis and result in a loss of mobility and motility of the organs.

The diaphragm consists of three muscular parts: the pars lumbalis, the pars costalis and the pars sternalis, all of them unite in the centrum tendineum. Innervation is through the phrenic nerve from the cervical plexus of the 3. to the 5. cervical nerves and the ventral branches of the 9. to the 12. thoracic nerves. Important nerves of the diaphragm are the vagus nerve, the phrenic nerve, the greater and lesser splanchnic nerves and the sympathetic trunk. Important vessels are the aorta, the internal mammary artery, the inferior vena cava, the ascending lumbar vein, the azygos and hemiazygos vein and finally the thoracic duct.<sup>112</sup>

<sup>111</sup> Platzer W. (Hrsg.): Perikopf Anatomie, 2. Band, 3. Auflage, Urban & Schwarzenberg, München 1989, S. 289.

<sup>112</sup> Liem T.: Kraniosakrale Osteopathie, Hippokrates, Stuttgart 1998, S. 360.

The midriff is connected to the bladder through the falciform ligament of the liver and the round ligament until the navel and from there through the urachus. The connection from the midriff to the pubic bone runs along the linea alba abdominalis. The connection to the skull is through the fascial relations between midriff and pericardium and from the pericardium through the carotid sheath to the temporal bone and the mandible. The midriff is attached to the anterior longitudinal ligament and has a connection to the pars basilaris of the occiput. The fascial connections to the oesophagus and relations to the fascia buccopharyngea with its attachments to the occiput, sphenoid and temporal bone explain the limited mobility of the craniosacral system with chronic hypertonia of the midriff. The close relationship to the skull can be explained through embryology – the centrum tendineum of the midriff originates from the transverse septum around the base of the skull and rises from there to its later position.<sup>113</sup>

The most important functions of the pelvic diaphragms are securing the position of the pelvic and abdominal organs, the function of passage, the sexual function, the endocrine function through its influence on the uterus and finally transferring physical forces to the legs and supporting the action of walking upright. The muscular pelvic diaphragms are involuntarily and voluntarily controlled and they are in connection with the urogenital system. The pelvic diaphragm can be considered a system of support for the pelvic organs. Releasing the pelvic diaphragm is absolutely necessary for free craniosacral movement.<sup>114</sup>

The function of the pelvic diaphragms may be impaired due to inflammations of the pelvic organs, cicatrization or the results of childbirth. Problems may also originate from malposition of the sacrum, coccyx or pubic bone, which are important for the ligamentous, neural and circulatory connections to the pelvic floor. If the midriff's static function is impaired, the pelvic floor may be exposed to increased physical forces.

The pelvis and its muscles can be compared to a hammock. If the pelvis is in torsion, the muscles of the pelvic floor are out of balance and everything that is held by the hammock (the pelvic organs) is unevenly supported. Since the pelvic floor is also connected to all bony elements of the pelvis, abnormal tension causes a reaction of the pelvic joints, which impairs

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<sup>113</sup> Vgl. Liem T.: Kraniosakrale Osteopathie, Hippokrates, Stuttgart 1998, S. 361f.

<sup>114</sup> Vgl. Liem T.: Kraniosakrale Osteopathie, Hippokrates, Stuttgart 1998, S. 357 u. 359.

their function. This may bring the sacroiliac articulations, the pubic symphysis and the coccyx out of balance and cause restrictions.<sup>115</sup>

Visceral manipulations in the urogenital area mainly serve to release restrictions and to normalize physiological processes. Apart from this, they help improve blood circulation and the exchange of fluids (arterial and venous circulation and lymphatic flow). This helps mitigate pain and promotes harmonious motion. Furthermore, pressure transfer and distribution in the abdominal and pelvic area can be improved, which promotes general wellbeing and raises the mental and physical energy level. Appropriate osteopathic manipulation helps improve an organ's motility but not its position. Since symptoms usually ease off (e.g. in case of pain), the organ's function will also improve. A number of local effects are also notable. The tissue is freed of adhesions and regains its elasticity, up to a certain degree. The physiology, mobility and movability of the uterus improves. Blood supply and lymphatic flow are enhanced, mechanical compressions of the nerves are eliminated, motility normalizes, which stimulates contractile structures. Local neural stimuli have a positive effect on peristaltic movement, joints become freely moveable. *J.P. Barral (2004)* was able to prove that urogenital manipulations have a wide range of effects and may influence the hypothalamus-pituitary axis, the immune system and endorphine production.<sup>116</sup>

#### 5.2.6. *The Ovaries*

The almond shaped ovary is approximately 3.5 cm long, 2 cm wide and 1 cm thick and weighs only between 6 and 8 grams. The ovary is normally located medial and inferior to the inner edge of the psoas muscle at the line of connection between the superior iliac spine and the superior margin of the symphysis. Lesions of the peritoneum or other tissues in its proximity cause sensitive reactions to pressure, pain or swelling. The position of the ovary changes with growing age and with each movement of the body. The ovaries are usually located behind the broad ligaments of uterus to which they are connected through a short peritoneal fold, in the pouch of Douglas in front of the rectum and posteroinferior to the fallopian tubes<sup>117</sup>.

The ovarian ligament (or utero-ovarian ligament) connects the fallopian tubes on both side to the lateral surface of the uterus. The ovary is connected to the pelvic wall and to the lumbar

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<sup>115</sup> Vgl. Stone C.: Die inneren Organe aus der Sicht der Osteopathie, Wühr, Kötzing 1996, S. 169.

<sup>116</sup> Barral J.P.: Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 144f.

fascia through the left and right suspensory ligament. It is not certain whether these ligaments keep the ovary in position. In old age and sedentary occupation or as a result of pregnancies, the ovary may shift lower into the pouch of Douglas, closer to the superior edge of the piriformis muscle, whose accompanying nerve to the piriformis represents a branch of the sciatic nerve. This could explain the sciatic complaints typically associated with gynaecological problems.<sup>118</sup>

The differential diagnosis of discomforts on the right side is sometimes difficult due to the anatomical proximity to the rectum and the appendix. Particularly in the case of malnutrition or malposition, the ovary may be affected in its function. The left ovary is more influenced through the reproductive organs. Presumably, the reason for this lies in the pattern of lymphatic vessels and veins. This is also why the cervix is often fixed left posteriorly.<sup>119</sup> The mesosalpinx is that part of the broad ligament which connects the fallopian tube with the ovary and consists of the anteriorly and posteriorly adjacent layer of peritoneum. From a mechanical-functional perspective, the ovary is connected to the lateral pelvic wall and the subperitoneal lumbar fascia. The remaining ligaments tie the ovary to the uterus.<sup>120</sup>

General factors such as age, number of births, dystocia (difficult childbirth), sedentary lifestyle or trauma influence the mobility and position of the ovaries. The ovaries move with diaphragmatic respiration, with contraction or relaxation of pelvic muscles and during coitus (through contraction of the uterus). After menopause they shift posteriorly. The uterus becomes heavier under the influence of oestrogen (increased deposition of interstitial fluid in the myometrium) and sinks, causing the ovaries to seemingly move upwards. Both the tubes and the ovaries must retain good mobility in order to remain functional.<sup>121</sup> From an osteopathic

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<sup>117</sup> Vgl. Pfeleiderer A., Breckwoldt M., Martius G. (Hrsg): Gynäkologie und Geburtshilfe, Thieme, Stuttgart 2001, S. 19f; sowie Barral J.P.: Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 147.

<sup>118</sup> Vgl. <http://www.unifr.ch/histologie/elearningfree/allemand/biochemie/endokrin/ovar> (aufgerufen 02.11.2006); sowie Barral J.P.: Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 148f.

<sup>119</sup> Vgl. Barral J.P.: Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 149.

<sup>120</sup> Vgl. Barral J.P.: Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 150.

<sup>121</sup> Vgl. Barral J.P.: Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 151.

viewpoint it seems therefore obvious that treatment should oppose the progressing aging process or the gradual loss of ovarian mobility it entails.<sup>122</sup>

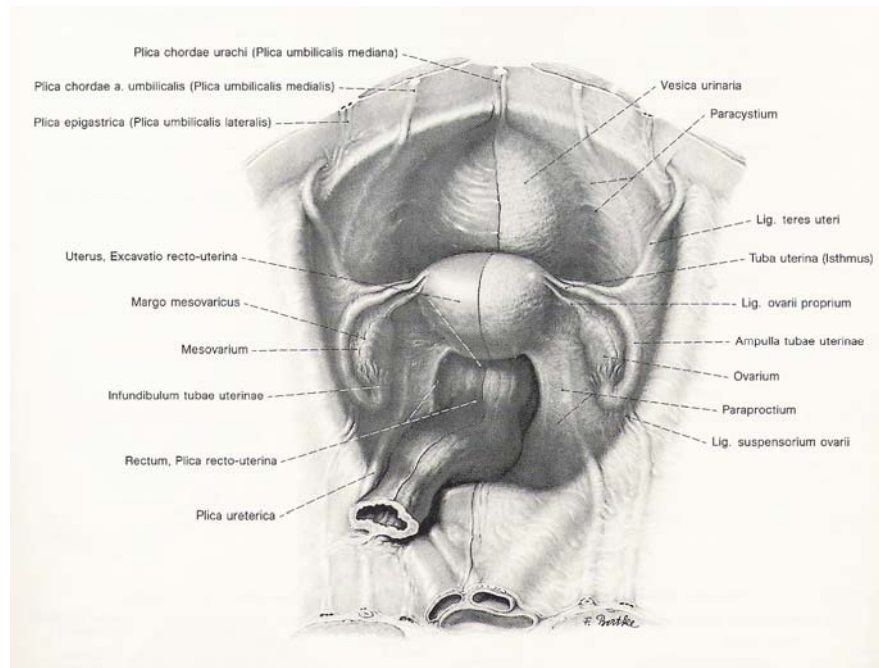


Figure 7: The Female Small Pelvis From Above<sup>123</sup>

Since direct treatment of the ovaries is only possible through intravaginal techniques, the treatment used in the framework of this study took advantage of the close interconnection between ovaries and uterus (see illustration above) to normalise ovarian mobility. Successful treatment of the uterus first requires examination and, if necessary, treatment of the small intestine, umbilical ligaments and pubovesical ligaments.

From a biomechanical viewpoint alone, the tissue of the urogenital area is exposed to tremendous stresses that may originate from pregnancies, childbirth, menstruation, back pain, intestinal problems or psychological/emotional factors. Surgery, infections, traumata or childbirths may cause adhesions that interfere with the static and dynamic conditions of the

<sup>122</sup> Vgl. Kuhl H., Taubert H.D.: Das Klimakterium. Pathophysiologie – Klinik – Therapie. Thieme Verlag, Stuttgart – New York 1987, S. 174f.

<sup>123</sup> In der Abbildung erkennbar ist die Verbindung der Ovarien zum Uterus. Entnommen aus Platzer W.(Hrsg.): Pernkopf Anatomie, 2. Band, 3. Auflage, Urban & Schwarzenberg, München 1989, S. 287.

pelvic cavity or the pelvic organs. Superficial adhesions may, for instance, affect the broad ligament and the ovary.<sup>124</sup>

*J.P. Barral (2004)*<sup>125</sup> believes that local stimulation of pelvic organs through osteopathic treatment reaches the hypothalamus-pituitary axis via afferent nerves. While such interventions are known to influence the mobility of the fallopian tubes, an effect on the hypothalamus remains yet to be proven. Based on this approach, treatment aimed at ensuring ovarian mobility through free uterine movement.

#### 5.2.7. Scars

Abdominal or genital surgery often injures particularly the median umbilical ligament and both medial ligaments, e.g. through median abdominal section. The resulting scar causes the tissue to shrink and changes its tone. The umbilical ligaments restrict the mobility of the bladder. The slightest changes can upset the balance and affect the uterus and, indirectly, the ovaries.<sup>126</sup>

Since any surgical intervention in the abdominal or pelvic area inevitably affects the elasticity of the tissue and the function of visceral organs, it is worth noting that seven of the ten women in the treatment group<sup>127</sup> had undergone surgery. For the treatment of scars it is important to know that the largest part of the affected tissue is underneath the surface of the skin and that the layers of tissue below need not be oriented in the same direction as the visible scar. Even minor trauma of the urogenital tract, which were reported by some women, may have such an effect. Falls on the tailbone are an example of such injuries.

Scars are one of the main causes of mechanical or physiological dysfunction and should always be tested. In the listening test, the scar indicates the direction of the tension it creates.<sup>128</sup> Treatment must therefore aim at improving the elasticity of the tissue in order to avoid negative effects on the surrounding organs through adhesions. This helps normalise the function of neighbouring organs.

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<sup>124</sup> Barral J.P.: *Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation*, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 2. Vgl. dazu auch die Ausführungen zu Pathoanatomie, S. 96ff.

<sup>125</sup> Vgl. Barral J.P.: *Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation*, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 2. Vgl. dazu auch die Ausführungen zu Pathoanatomie, S. 106.

<sup>126</sup> Barral J.P.: *Viszerale Osteopathie in der Gynäkologie – Urogenitale Manipulation*, Urban und Fischer, München – Jena, 1. Auflage, 2004, S. 2. Vgl. dazu auch die Ausführungen zu Pathoanatomie, S. 61f.

<sup>127</sup> 6 Frauen hatten Narben durch abdominale Operationen, 1 Frau hatte eine großflächige Verbrennungsnarbe am Bauch. Siehe Anamnese im Anhang.

<sup>128</sup> Paoletti S.: *Faszien: Anatomie, Strukturen, Techniken, Spezielle Osteopathie*, 1. Auflage, Urban & Fischer, München und Jena 2001, S. 215.

### 5.2.8. *Endocrine System*

Endocrine glands are ductless clusters of hormone producing cells that release their products (hormones) directly into the blood. For this reason, these glands are surrounded by a dense network of capillary vessels with fenestrated endothelium. Hormones are chemically active substances that produce an effect in other areas than those of their origin. These substances are carried in the blood stream over large distances to the target organ.

Hormone synthesis and excretion is controlled through “regulatory cycles”. These comprise the feedback mechanism, innervation and regulation through “other” hormones.<sup>129</sup> The hypothalamus produces hormones (releasing hormones) that stimulate the release of FSH and LH in the anterior pituitary lobes. FSH and LH are regulatory hormones that indirectly control the ovarian hormones. The ovaries have a double function: firstly, they produce oocytes, and secondly, they are important endocrine organs whose ability to produce oestrogen is vital for the development, maintenance and regression of female sexual characteristics. Furthermore, it is important that the regulation of the female hormone cycle changes during the climacteric aging process from the normal ovarian positive feedback mechanism to the reduced negative feedback mechanism.

The hypothalamus forms a functional unit with the pituitary gland. It is located in the immediate proximity of the limbic system, both mutually influence each other. This mechanism is regulated either neurally through the vegetative nervous system or through hormones that are carried and distributed by the bloodstream. The hypothalamus is therefore a link between the nervous system and the hormonal system.

### 5.2.9. *Limbic System*

A precise conceptual differentiation of the *limbic system* is difficult since its conception also includes connections to structures deeper in the brain and functional ideas about these structures. Functionally, it is very important for the sense of smell, emotional behaviour, visceral regulation and memory; its reactions cause both somatic and visceral changes in the body.<sup>130</sup>

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<sup>129</sup> Vgl. Endokrines System, URL: <http://www.unifr.ch/histologie/elearningfree/allemand/biochemie/endokrin> (aufgerufen 02.11.2006)

<sup>130</sup> Waldeyer A., Mayet A.: Anatomie des Menschen 2, 16. Auflage, de Gruyter, Berlin - New York 1993, S. 312-318.



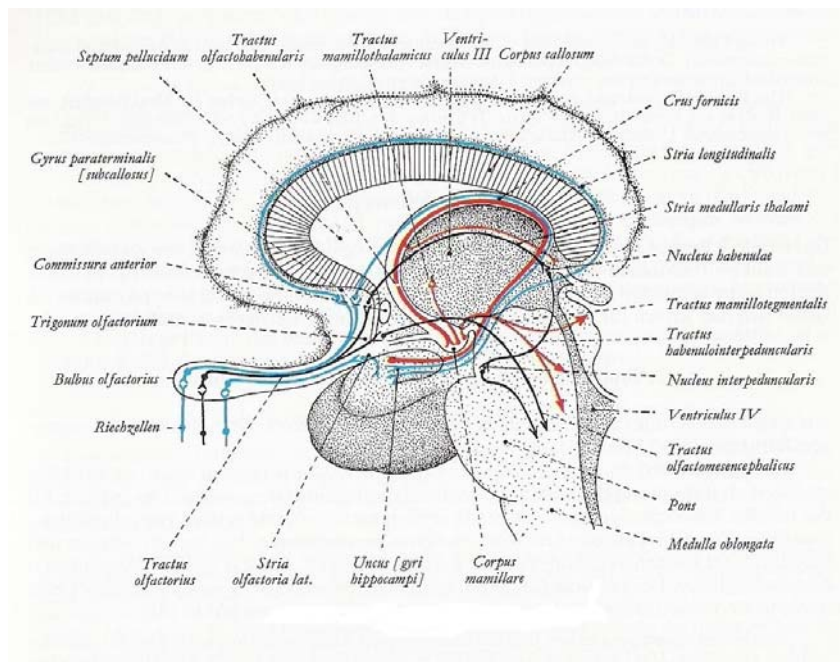


Figure 8: Pathways of the Limbic System<sup>131</sup>

The limbic system is for the largest part attributed to the temporal lobes and composed of core areas and cortical segments: the hippocampus lies at the medial wall of the inferior horn of the lateral ventricle. It received its characteristic bow-shaped form during embryological development through the rotating movement of the hemispheres. Below the corpus callosum it forms the roof of the third ventricle, continues into the fornix and ends in the corpora mamillaria, which belong to the hypothalamus.<sup>132</sup>

The limbic system has a strong influence on emotions and vegetative functions (regulation of the circulatory system, hormone secretion, activity of the immune system) and thus modulates not only motivation, drive, sexual behaviour and emotional behaviour (joy, anger, composure, despair, flight, etc.) but also sexual activity. These abilities are not only influenced by the limbic system but also by other areas of the brain and its interconnections (see ill. above).<sup>133</sup>

Furthermore, the limbic system controls the catecholamine and serotonin metabolism and the regulation and synthesis of other key hormones (sexual steroids, stress hormones, etc.). Breckwoldt et.al. (1995) point out that disturbances of the catecholamine metabolism are common

<sup>131</sup> In der Abbildung sichtbar die Bereiche für Ventriculus III und Ventriculus IV. Entnommen aus Waldeyer A., Mayet A.: Anatomie des Menschen 2, 16. Auflage, de Gruyter, Berlin - New York 1993, S. 319.

<sup>132</sup> Möckel E., Mitha N. (Hrsg.): Handbuch der pädiatrischen Osteopathie, 1. Auflage, Urban & Fischer, München 2006, S. 385f.

<sup>133</sup> Waldeyer A., Mayet A.: Anatomie des Menschen 2, 16. Auflage, de Gruyter, Berlin - New York 1993, S. 315.

in climacteric. This is partly responsible for depressive moods (dysthymia) in perimenopause, though it must be said that dysthymia does not develop without a certain predisposition and that the menopausal oestrogen deficit aggravates this condition.<sup>134</sup>

#### 5.2.10. CV-4-Technique and its Effects

*Sutherland*<sup>135</sup> developed the CV4-Technique to influence vital nervous centres. It stimulates the entire exchange process in the body through the biodynamic, bioelectrical and biochemical properties of the CSF (cerebrospinal fluid). The compression of the occiput's lateral parts reduces the adaptation of the occipital squama to pressure changes in the intercranial fluid. This leads to increased movement and exchange in the fluid and causes the CSF to pass not only through the large openings but also through the smallest passages, neural sheaths, vessels, and microtubules of the fascia and into the extracellular and intercellular fluid spaces. This generally optimizes cellular supply, improves lymphatic movement, promotes the regeneration of tissues and stimulates the cranial nerves at the IV. Ventricle.<sup>136</sup>

Among other applications, the CV-4 technique can be used in the treatment of perimenopause symptoms to reduce sympathetic tone. This should have a positive effect on symptoms of stress, anxiety and sleeplessness. Furthermore, the CV-4 technique reduces the tone of the entire connective tissue and is therefore indicated for muscular and articular disturbances, high blood pressure, tachycardia and menstrual complaints. The technique can also be used for the treatment of venous stasis oedema and other problems related to fluid stasis, poor osseous calcification (supports ossification), depressions and neuroendocrinal disorders. The CV-4 technique acts as a lymphatic pump and reduces the activity of perspiratory glands.<sup>137</sup>

Since the compression of the fourth ventricle covers such a wide range of complaints of the climacteric syndrome, it was used almost exclusively in the third treatment.

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<sup>134</sup> Breckwoldt M., Beier H.M., Neumann F., Bräuer H.: *Exempla endokrinologica*, Bd. 3. Bildatlas zum Klimakterium und zur Pathogenese der Osteoporose, München 1995, S. 32f

<sup>135</sup> Vgl. URL: <http://www.osteodoc.com/sutherland.htm> (aufgerufen 11.11.2006)

<sup>136</sup> Liem T.: *Kraniosakrale Osteopathie*, Hippokrates, Stuttgart 1998, S. 333.

<sup>137</sup> Vgl. Liem T.: *Kraniosakrale Osteopathie*, Hippokrates, Stuttgart 1998, S. 333f.

## 6. RESULTS

### 6.1. Overview

The following graph shows the overall results of MRS II evaluation according to symptom severity (mean values of MRS II scale from 0 to 5) for the treatment group before and after three osteopathic treatments. These results are compared to those of the control group. The overview already shows that the intensity of all symptoms decreased clearly according to the MRS II score in the treated group. The control group changed only slightly, which is expressed in the graph by similar curves of the mean values of symptom severity collected in the first and the second evaluation.

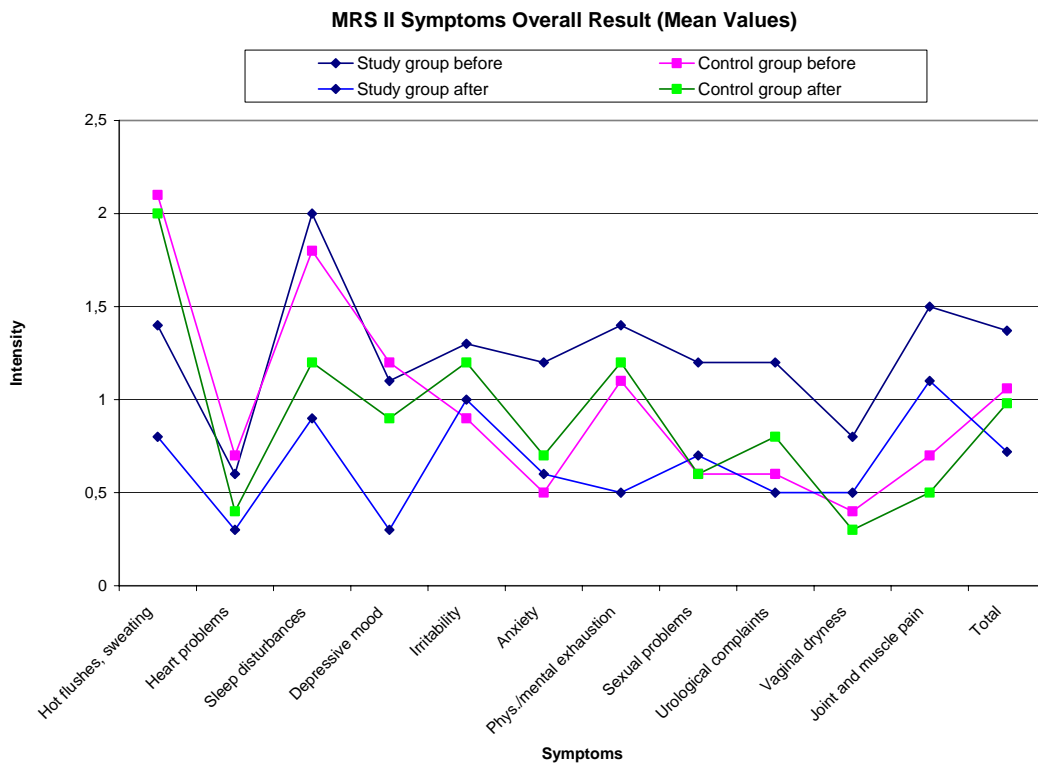


Figure 9: MRS II Overall Results Before and After Three Treatments

The mean value for complaints in the treated group was at 1.4 points before treatment, which is between “light” and “medium” on the MRS II score. This score sank after osteopathic treatments to the mean value of 0.7, which is below “minor complaints” on the MRS II score.

The diagram below shows the mean values of individual symptoms in the treatment group and their total and reveals the following trend: treatment clearly reduced the intensity of all

symptoms. The mean value of all symptoms (shown as “total” in the diagram) improved by 0.7 points on the scale of complaints. Minor improvements between 0.3 and 0.5 were measured for heart problems, irritability, sexual problems, vaginal dryness and joint and muscle pain. The most substantial improvements were achieved for sleep disturbances (1.1 points), physical/emotional exhaustion (0.9 points), depressive mood (0.8 points) and urological problems (0.7 points). This means that these symptoms were reduced from “medium” to “minor” intensity.

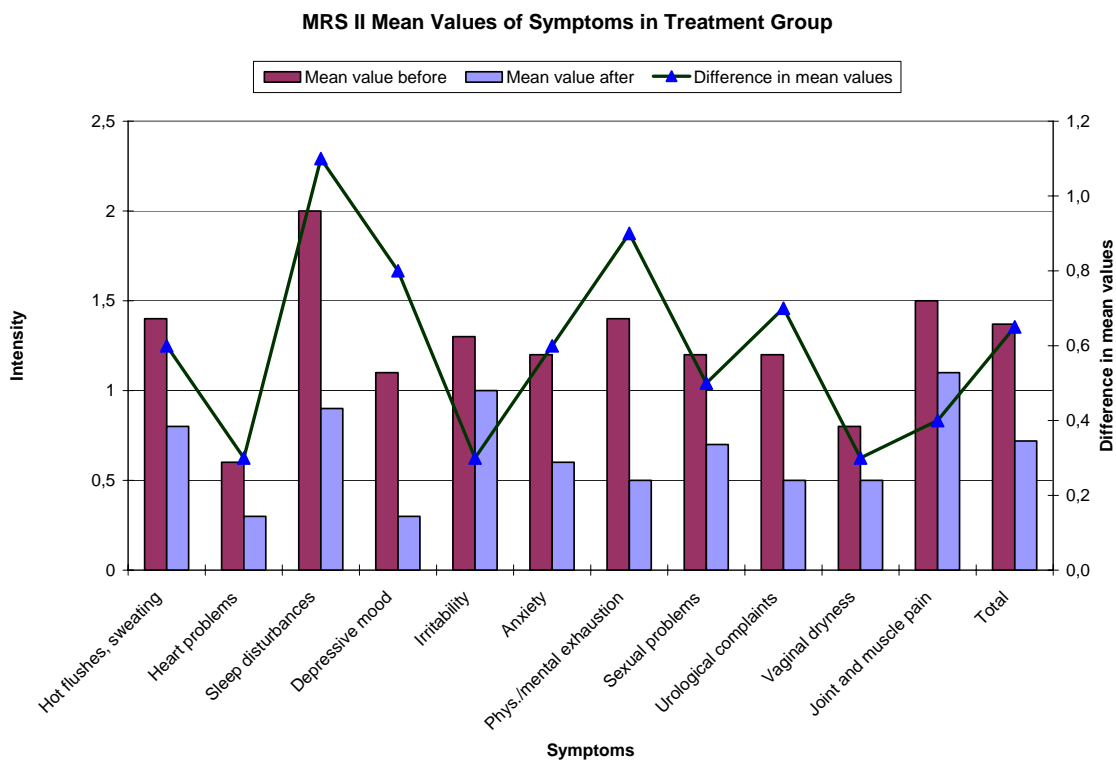


Figure 10: MRS II Treatment Group Before and After Three Treatments

The result for the treatment group can also be expressed symptom categories<sup>138</sup>. The greatest improvements were achieved for psychological complaints with a reduction of 2.6 points or 52%. These are followed by somatic symptoms that were reduced by 2.4 points or 44%. Finally, urogenital disorders improved by the absolute score of 1.5 points and a percentage of 47%.

<sup>138</sup> Die Werte für die MRS II Kategorien werden durch Addition der Werte zu folgenden MRS II Fragen ermittelt: 1. Psychological Subscale = 4+5+6+7; 2. Somatic Subscale = 1+2+3+11; 3. Urogenital Subscale = 8+9+10. Vgl. <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 10.11.2006)

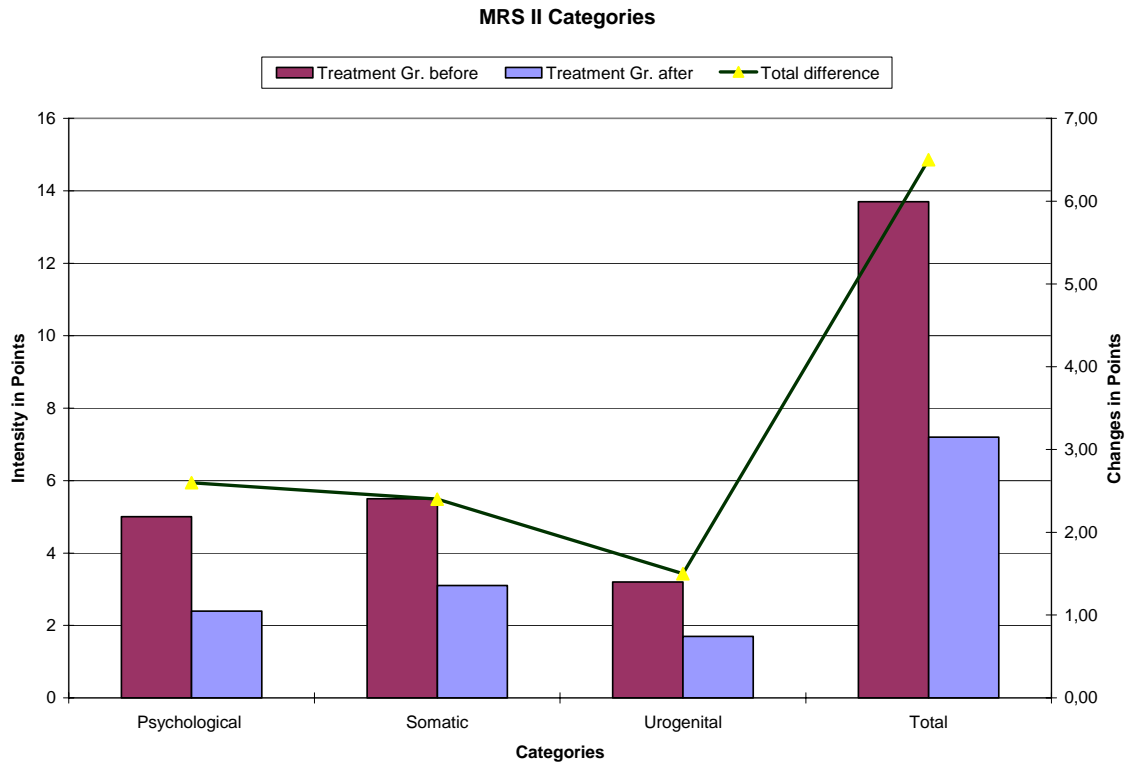


Figure 11 MRS II Categories Treatment Group

Obviously, comparisons with figures from other studies can only be made with great caution. To provide a rough idea we may mention that the percentage of improvement for mild symptoms (such as those of the treatment group in this study) through HRT is around 32 ( $\pm 10$ )%<sup>139</sup>.

In the control group, the mean value of symptom severity was at 1.1 points on the MRS II score at the first questioning, that is 0.3 points lower than in the treatment group. The mean value of all symptoms calculated for the second evaluation was at 1.0 points, which means that it changed by - 0.1 points.

The following graph shows the results of MRS II evaluation according to symptom type and symptom intensity for the control group in the first and second questioning. The continuous line indicates the changes in mean points (right scale).

<sup>139</sup> Vgl. Validity of MRS as outcome measure, URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 14.11.2006)

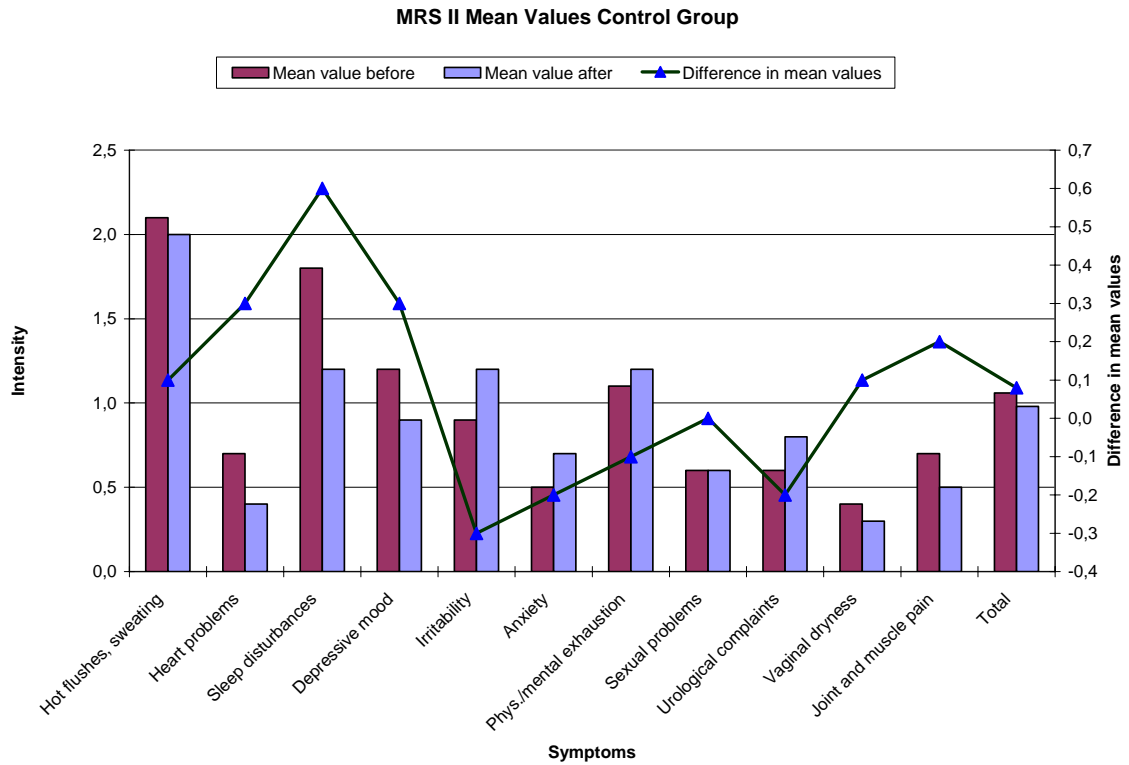


Figure 12: MRS II Mean Values of Control Group Before and After Questioning

The illustration below shows the percentage changes of individual symptoms and their total in the treatment group compared with the control group. The treatment group had 50% improvement or more in seven out of eleven symptoms, the remaining three symptoms improved by 23% to 43%. The overall result of all individual symptom values in the treatment group almost reached 50%.

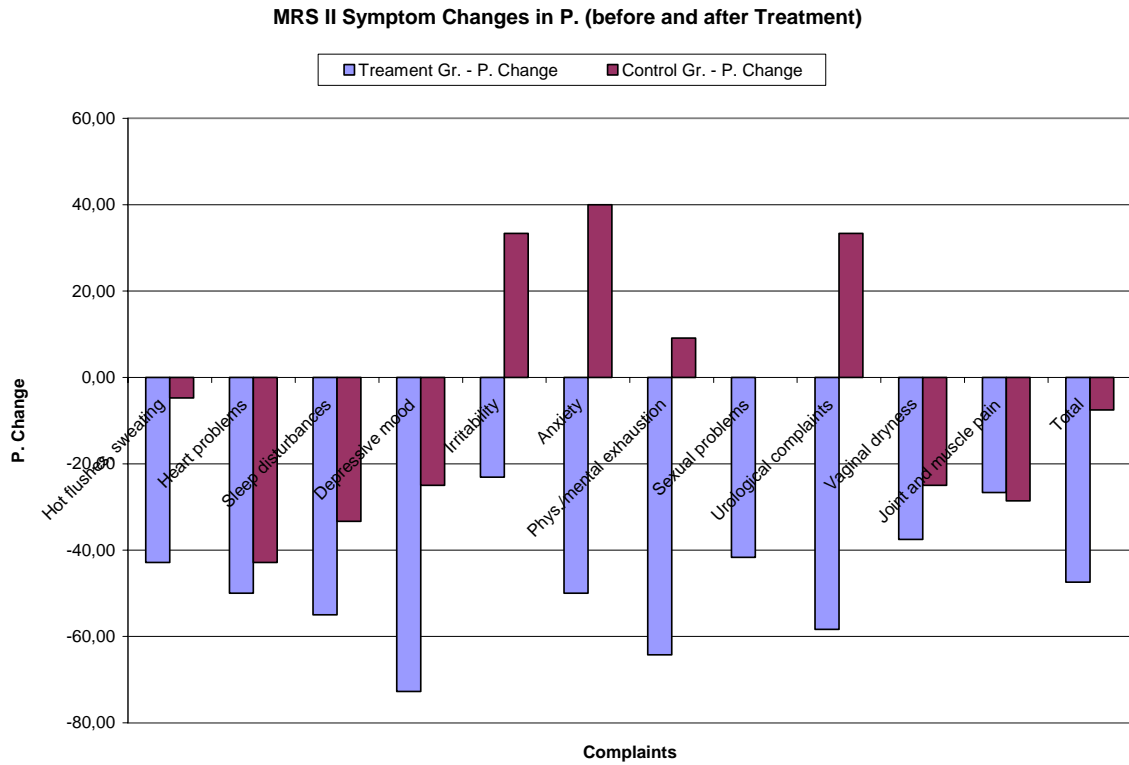


Figure 13: MRS II Complaints – Percentage Change<sup>140</sup>

The graph below shows the overall result or the development of the quality of life assessed with the questionnaire SF-36. A visible shift in the quality of life before and after treatment was neither detected in the treatment group nor in the control group. The expected improvement of the quality of life through measured symptom relief was therefore not achieved.

<sup>140</sup> Für die Kategorie „Sexualprobleme“ der Kontrollgruppe ist keine Säule sichtbar, da die Veränderung den Wert 0 aufweist

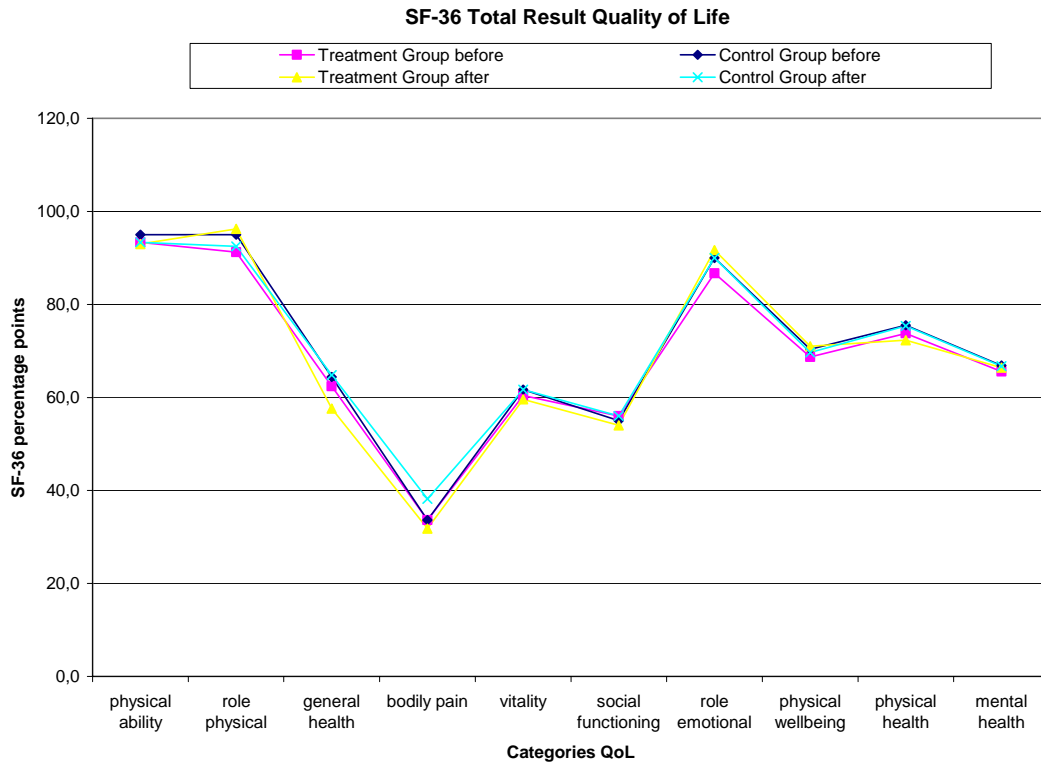


Figure 14: SF-36 Overall Result Quality of Life<sup>141</sup>

The evaluation of the quality of life before and after treatment indicates a very high level of physical health, with “physical ability” and “role limitation due to physical problems” close to the maximum. “Bodily pain” reaches only one third of the maximum score and is therefore at a very low level. The physical constitution of the treated women was above average, which was already revealed in anamnesis. This situation indicates that low to moderate menopause complaints do not significantly influence the physical quality of life.

If we compare the percentage change in the quality of life of both groups, the differences between individual values are also minor with both positive (reduction) and negative changes (increased percentage or higher score). The treatment group had negligible changes both for *physical health*, (-2 % over the total of individual results 1 - 4) and *mental health* (+1.3 % over the total of individual results 5 - 8). Similarly, there were minor changes in the control group for *physical health* (-0.2 %) and *mental health* (-0.2 %), apart from an increase of bodily pain by approximately 13.5 %. This exception is due to doubled intensity of bodily pain in two patients from the control group.

<sup>141</sup> SF-36 Score umgerechnet in Prozentwerte bezogen auf den Maximalwert (=100 %) pro Einzelkategorie



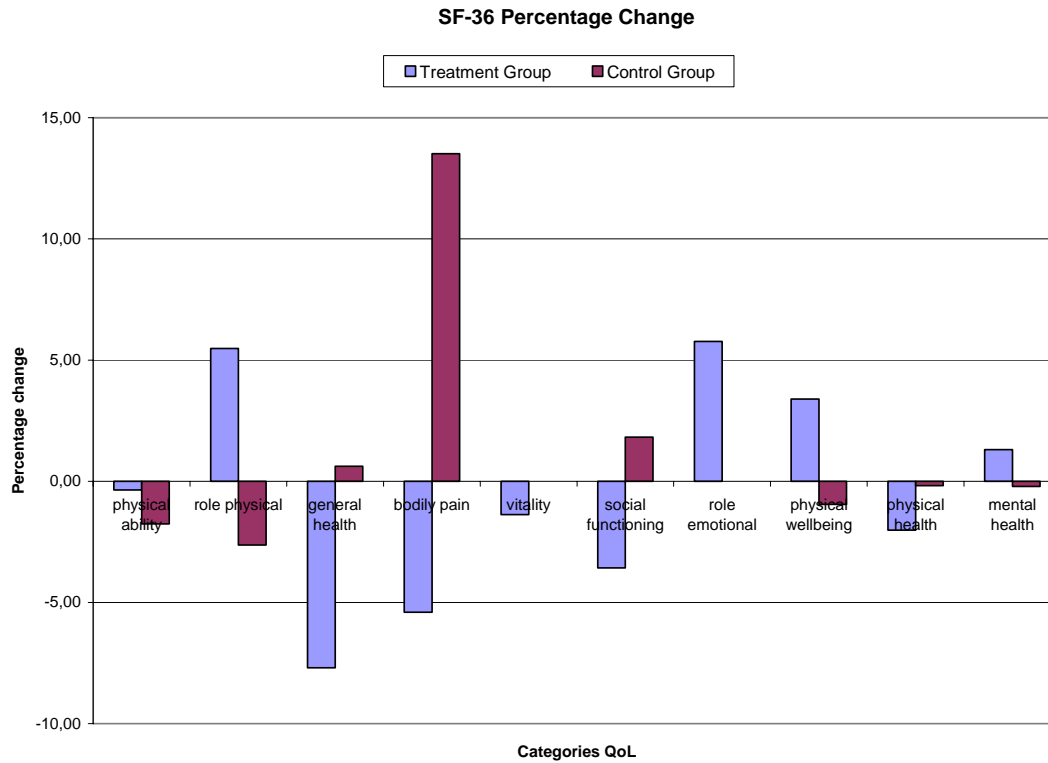


Figure 15: SF-36 Percentage Change Before and After Three Treatments<sup>142</sup>

Since all psychological symptoms of MRS II improved in the treatment group, it was plausible to expect that the categories related to mental health (vitality, social functioning, role limitations due to emotional problems and psychological wellbeing) according to SF-36 should also improve. However, this hypothesis could not be proved since all categories related to mental health showed minimal or no improvement.

## 6.2. Individual Results

The individual results on complaints of the treatment group show a relatively low intensity of pain and illustrate the low variation of answers. In the following, we will therefore only comment on “unusual” values.

The questioning of the treatment group before the first treatment showed that two patients suffered from strong pain (MRS II score = 4) and six patients from pain of medium intensity

<sup>142</sup> Für die Kategorien „Vitalität“ und „Rolleneinschränkung durch emotionale Probleme“ der Kontrollgruppe ist keine Säule sichtbar, da die Veränderung den Wert 0 aufweist

(MRS II score = 3). Light pain (MRS II score = 2) was frequently reported with a total of 32 answers and very light pain (MRS II score = 1) was most common (=mode) with 47 answers. The median distribution of complaints was also “very light” (score 1), just like the mode.

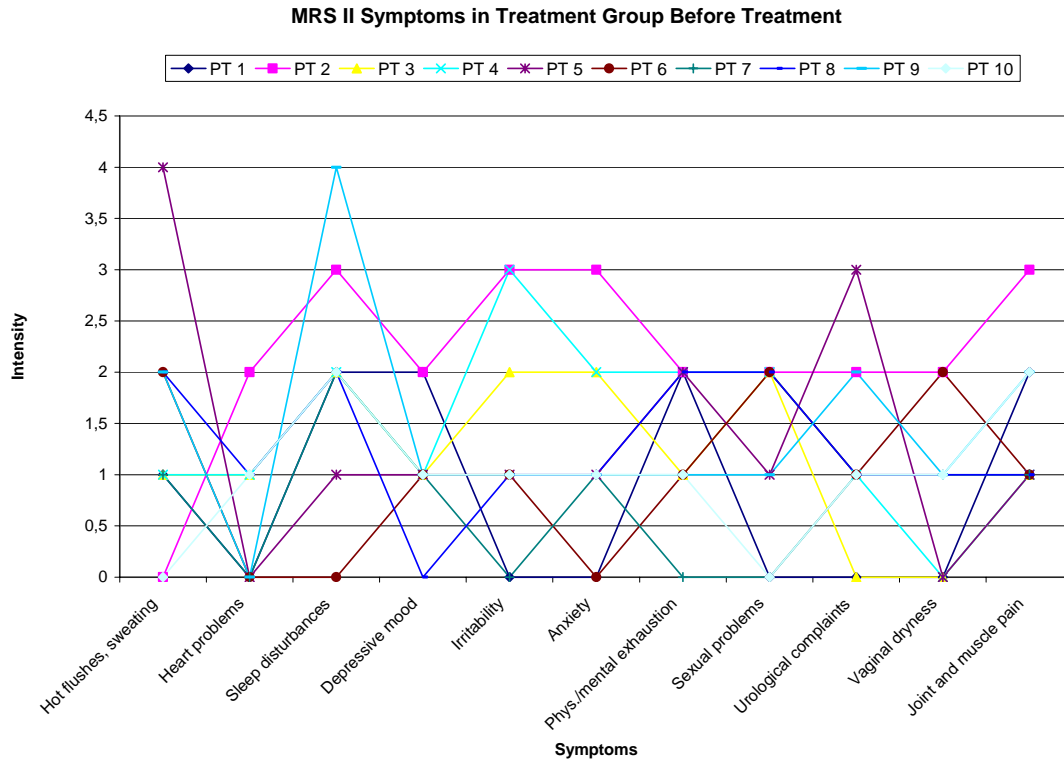


Figure 16: MRS II Treatment Group Before Treatment

After the third treatment, none of the patients from the treatment group reported “strong pain” and only two patients suffered from “medium pain” (MRS II score = 3). Light pain (MRS II score = 2) was reduced from 32 to 11 answers. Very light pain (MRS II score = 1) was down to 44 from 47, and no pain (MRS II score = 0) became the most common result (=mode) with 53 answers. The median of pain intensity according to the MRS II score remained unchanged at 1, i.e. it did not change compared to the assessment before treatment.

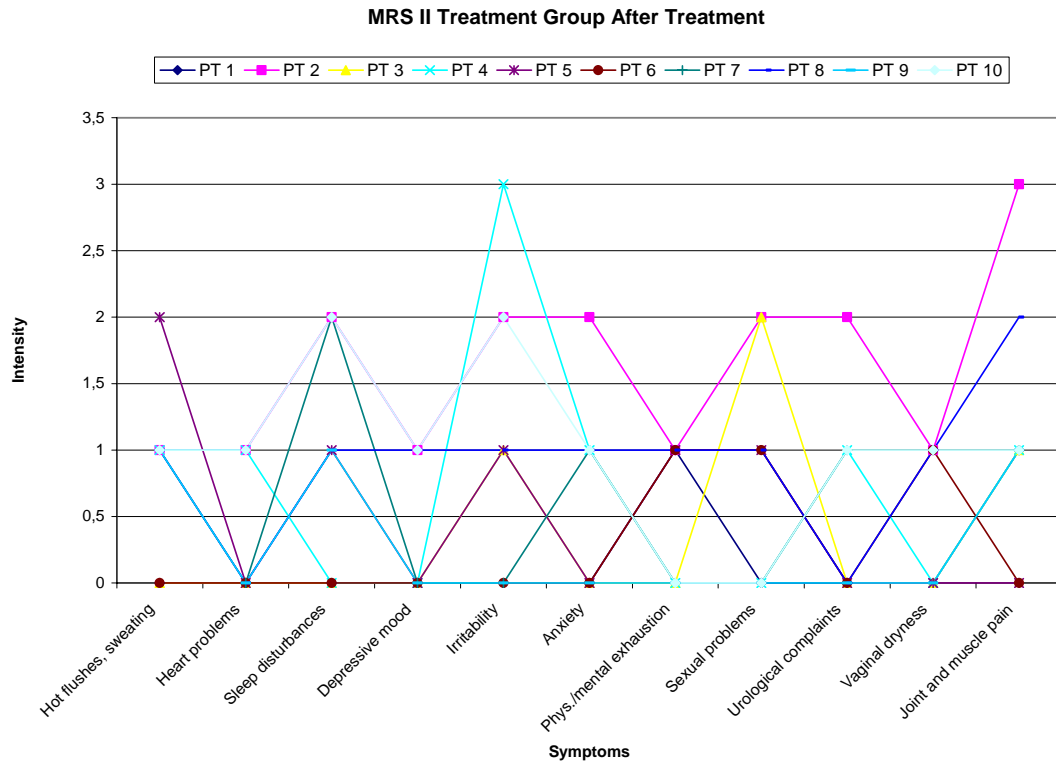


Figure 17: MRS II Treatment Group After Three Treatments

In summary, the above explained statistical data of individual results reveals the following trend: the intensity of pain was generally rather low before osteopathic treatment with hardly any exceptions (only two patients reported strong pain). After three treatments, the intensity of pain was clearly reduced. Strong pain was no longer reported, medium pain was reduced and “no pain” became the most common answer.

### 6.3. Evaluation of Hypotheses

Without claiming any statistical significance, the evaluation of hypotheses based on the results of menopause complaints and quality of life can be summarized as follows:

Hypothesis 1: Menopause symptoms of the treatment group improve through osteopathic treatment, which is confirmed by measurable changes in symptoms.

MRS II evaluation before and after three osteopathic treatments showed improvement across all symptoms (ranging between 0.3 and 1.1 points, or 27%-73%) and an overall improvement by 0.7 median points (47.5%). These results may be considered sufficient to prove the hypothesis.

Hypothesis 2: Menopause complaints of the control group do not change without osteopathic treatment, which is measurable through unchanged symptoms.

The trend of MRS II results for the control group did not show any noticeable improvement or deterioration since the mean value only fell by 0.1 points, which corresponds to a percentage change of -7.5 %. The results of the study therefore confirm this hypothesis.

Hypothesis 3: The treatment group's quality of life improves through the alleviation of menopause symptoms, which is confirmed by changes in quality of life parameters.

Against all expectations, the results of SF-36 evaluation did not confirm improvements in the quality of life, although the results of MRS II evaluation proved that symptoms were alleviated. The average changes of both the SF-36 scores (-0.5 median points) and percentage (-0.5 %) of the treatment group showed very little differences. The results of the study did therefore not confirm this hypothesis.

Hypothesis 4: The control group's quality of life does not change since menopause complaints remain unchanged – this is reflected in unchanged parameters used for assessing the quality of life.

The result of SF-36 evaluation showed a very slight average change of the median score in the control group (-0.1 points), which was underlined by the percentage changes of the overall score across all patients (-0.2 %). The statistical result therefore confirms this hypothesis.

Although the evaluation confirms hypotheses 1, 2 and 4, the results should be critically discussed, particularly with regards to the initially identified complaints and the measured quality of life.

## 7. DISCUSSION

The main objective of this study was to find out whether osteopathic treatment was able to alleviate complaints associated with perimenopause and thus improve women's quality of life. Based on this central idea, four hypotheses were formulated and tested with MRS II and SF-36 evaluations. Three of these four partial hypotheses were confirmed by the result of the study, which indicates a clear trend: *osteopathic treatment is able to alleviate complaints associated with perimenopause while symptoms of women without osteopathic treatment remain unchanged or almost unchanged!*

As explained above, this study was conducted in the framework of a master thesis and subject to methodological restrictions. These limitations concern the selection, size and distribution of the random sample with regards to the intensity of complaints and social position of the patients. As to the kind and duration of treatment, it must be reiterated that more individual cycles of treatment may produce better results and that the moment of measuring the response to treatment can never be optimally determined<sup>143</sup>. Unlike *Mückler (2001)*, this study included an additional treatment in order to draw more attention to the osteopathic method. The separation of the treatment group from the control group is another methodological difference to *Mückler's* study. The intention was to receive a clearer picture of treatment success. These measures promised to provide more pronounced differences between the members of each group and facilitate the interpretation of results<sup>144</sup>.

Criteria of statistical validity (significance) were deliberately omitted in processing the data obtained from the questionnaires. A result that meets the criteria of statistical validity would require a larger sample size. Furthermore, it would be necessary to select patients according to their symptoms so that, ideally, they represent the entire female collective. Large scale studies<sup>145</sup> on HRT showed that treatment success increases with the symptom severity before treatment.

Other studies, such as *G.A.Hauser et.al. (1999)*, proved for HRT that relieved menopause complaints correlate with increased quality of life<sup>146</sup>. This correlation was not discovered in the results of this study. However, this is hardly surprising as the examined women predominantly suffered from mild or very mild symptoms and already assessed their quality of life positively

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<sup>143</sup> Vgl. Mückler A.: Osteopathic Treatment During Transition of Perimenopause, Vienna 2001, S. 39.

<sup>144</sup> Ausführlich diskutiert bei Mückler A.: Osteopathic Treatment During Transition of Perimenopause, Vienna 2001, S. 36.

<sup>145</sup> Vgl. Validity of MRS as outcome measure, URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 14.11.2006).

before treatment. The result of this study does not seem to reflect the phenomenon that more severe symptoms lead to better treatment results and greater improvements in the quality of life<sup>147</sup>.

The attitude of participants in this study is also relevant for the result. Almost all women had a positive attitude and were interested or curious. Only one woman of the treatment group was initially sceptical. It is plausible that the trusting relationship between therapist and patient reflects their attitudes and expectations. A positive development of this relationship presumably has a positive influence on treatment. However, the aspect of social interaction is present in every therapeutic relationship and since this influence cannot be assessed in the framework of this study, it seems sufficient to mention that the relation between therapist and patients was generally very good.

As shown by *Trickey (2003)*, it should be remembered that apart from the direct effects of hormonal changes, there is a number of other physical and psychological factors that may have considerable effects on the course of menopause and the intensity of symptoms<sup>148</sup>: Such important factors include body weight, food and stimulants (alcohol, coffee, tea, nicotine!) or diet (plant agents!), stress, exercise, general lifestyle and social environment as well as the attitude towards menopause and the patient's psychological condition.

Anamnesis and treatment showed that the symptom picture was highly individual in each patient and that relations to climacteric syndrome were hardly recognizable. In other words, some of the women had (various) common psychological or structural traumata but there was no indication of a certain type or intensity of symptoms. This showed once again that individual osteopathic treatment is inevitable.

Another key factor, that should not be underestimated with regards to the individual experience of menopause and therapeutic measures, is communication. It is very important to address the worries, problems and life circumstances of climacteric women in their immediate social environment, family, workplace and, of course, in therapeutic dialogue. *Geisler (2002)* proved that ineffective or insufficient communication in the relationship to the patient causes negative

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<sup>146</sup> Hauser G.A., Schneider H.P.G., Rosemeier P.J., Potthoff P.: Die Selbstbeurteilungs-Skala für klimakterische Beschwerden (Menopause Rating Scale II), in *Journal für Menopause*, Nr. 4/1999, S. 16f.

<sup>147</sup> Vgl. Validity of MRS as outcome measure, URL: <http://www.menopause-rating-scale.info/measure.htm> (aufgerufen 14.11.2006); weiter auch: The Menopause Rating Scale (MRS) as outcome measure for hormone treatment? A validation study, URL: <http://www.hqlo.com/content/2/1/67> (aufgerufen 14.11.2006)

<sup>148</sup> Trickey R.: *Women, Hormones and the Menstrual Cycle*, 2nd Edition, Allen and Unwin, Crows Nest 2003, S. 153ff.

effects<sup>149</sup>. On the other hand, there is the positive effect of communication that uses the “dialogical principle” to turn language from an “instrument of maximum effectiveness to a healing instrument”<sup>150</sup>. Observing the patient and communicating, most of all listening as the basis of any treatment, are key elements of the *dialogical concept* and deserve special attention.

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<sup>149</sup> Geisler L.S.: Arzt-Patient-Beziehung im Wandel – Stärkung des dialogischen Prinzips, Beitrag im Abschlussbericht der Enquête-Kommission „Recht und Ethik der modernen Medizin“ vom 14.05.2002, s. 216 – 220, URL: <http://www.linus-geisler.de/art2002/0514enquete-dialogisches.html> (aufgerufen 14.11.2006)

<sup>150</sup> Geisler L.S.: Sprachlose Medizin? Das Verschwinden des Dialogischen, Imago Hominis, Wien 1997, Band IV/Nr. 1, URL: <http://www.linus-geisler.de/artikel/97imago-hominis-sprachlose.html> (aufgerufen 14.11.2006)

## 8. ABSTRACT

Background: Many women aged between 45 and 55 experience a series of symptoms and complaints associated with menopause, particularly during perimenopause. In the case of many women, these conditions affect personal wellbeing and the general quality of life.

Key phrases: perimenopause, climacteric syndrome, change of life, menopause symptoms, quality of life, osteopathic treatment.

Research Question: The objective of this study is to clarify whether specific osteopathic treatment can alleviate symptoms and ailments associated with menopause and produce significant or measurable improvements in the patient's quality of life.

Relevance for the osteopathic approach: The osteopathic treatment of menopause symptoms is of growing interest as it could represent a promising alternative (or complementary) treatment to hormone replacement therapy.

Hypothesis: Targeted osteopathic treatment of typical symptoms occurring during perimenopause can significantly or measurably alleviate these symptoms and improve the patient's general wellbeing (quality of life).

Methodology: Evaluating a study group and a control group that consist of 10 women each.

Inclusion criteria: women in perimenopause with typical symptoms. Exclusion criteria: hormone therapies, therapies with hormone substitutes, surgery, illnesses.

Procedure: Recruitment of test persons with/through a gynaecologist. Procedure: Diagnosis and evaluation of symptoms, followed by three sessions of osteopathic treatment in intervals of two weeks. Second evaluation of symptoms and quality of life four weeks after final treatment. Menopause symptoms and quality of life were evaluated through standardized questionnaires. The results of the treatment group were compared to those of the control group.

Results: The symptoms of the treatment group clearly improved. A correlation to the quality of life was not confirmed. Three out of four partial hypotheses derived from the working hypothesis above were confirmed. Osteopathic treatment effectively alleviated complaints associated with perimenopause while women without osteopathic treatment did not show improved symptoms.



Discussion: Despite of the clear result in the treatment group, statistical significance cannot be claimed due to the size and selection of the random sample. Reliable results would require a larger study group and a more careful selection of test persons. Individualized treatment was not possible but would be desirable for optimum treatment results. Other factors such as physical constitution and psychological condition could not be considered.

## **9. SUMMARY**

The first part of this paper describes the nature of the problem, the methodological approach of the study and the climacteric syndrome from the viewpoint of clinical research. This description includes the high variability of symptoms and their severity. It explains that the clinical picture of climacteric syndrome should not be seen isolated from a sociological context and that psychological factors play an important role in the subjective perception of pain and quality of life.

The second part of the paper focuses on the physical changes involved in the ageing process, the complex mechanisms it entails and their correlation with typical climacteric symptoms. These considerations formed the basis for osteopathic treatment.

The third part of the paper explains the collection of empirical data with the standardized questionnaires MRS II and SF-36, presents the processed data and evaluates the hypotheses formulated at the beginning.

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## 13. APPENDIX



## Menopause Rating Scale (MRS)

Welche der folgenden Beschwerden haben Sie zur Zeit?  
 Kreuzen Sie bitte jede Beschwerde an und wie stark Sie davon betroffen sind. Wenn Sie eine Beschwerde nicht haben, kreuzen Sie bitte „keine“ an.

**Beschwerden:**

	keine	leicht	mittel	stark	sehr stark
	-----	-----	-----	-----	-----
Punktwert =	0	1	2	3	4
1. Wallungen, Schwitzen (Aufsteigende Hitze, Schweißausbrüche) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Herzbeschwerden (Herzklopfen, Herzrasen, Herzstolpern, Herzbeklemmungen) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Schlafstörungen (Einschlafstörungen, Durchschlafstörungen, zu frühes Aufwachen) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Depressive Verstimmung (Mutlosigkeit, Traurigkeit, Weinerlichkeit, Antriebslosigkeit, Stimmungsschwankungen) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Reizbarkeit (Nervosität, innere Anspannung, Aggressivität) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Ängstlichkeit (innere Unruhe, Panik) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Körperliche und geistige Erschöpfung (allgemeine Leistungsminderung, Gedächtnisminderung, Konzentrationsschwäche, Vergeßlichkeit) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Sexualprobleme (Veränderung des sexuellen Verlangens, der sexuellen Betätigung und Befriedigung) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Harnwegsbeschwerden (Beschwerden beim Wasserlassen, häufiger Harndrang, unwillkürlicher Harnabgang) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Trockenheit der Scheide (Trockenheitsgefühl oder Brennen der Scheide, Beschwerden beim Geschlechtsverkehr) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Gelenk- und Muskelbeschwerden (Schmerzen im Bereich der Gelenke, rheuma-ähnliche Beschwerden) .....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 18: MRS II Questionnaire

## Fragebogen zum allgemeinen Gesundheitszustand (SF-36)

Ich ersuche Sie, die nachfolgenden Fragen im Zusammenhang mit der Studie „Die Wirksamkeit der Osteopathie in der Perimenopause“ zu beantworten. Ihre persönlichen Angaben werden nur im Zusammenhang mit dieser Studie ausgewertet und im Sinne der ärztlichen Schweigepflicht streng vertraulich behandelt. Bitte kreuzen Sie die zutreffenden Antworten an.

1. Wie würden Sie Ihren Gesundheitszustand im allgemeinen beschreiben?

- 1  Ausgezeichnet
- 2  Sehr gut
- 3  Gut
- 4  Weniger gut
- 5  Schlecht

2. Im Vergleich zum vergangenen Jahr, wie würden Sie Ihren derzeitigen Gesundheitszustand beschreiben?

- 1  Derzeit viel besser
- 2  Derzeit etwas besser
- 3  Etwa wie vor einem Jahr
- 4  Derzeit etwas schlechter
- 5  Derzeit viel schlechter

Im folgenden sind einige Tätigkeiten beschrieben, die Sie vielleicht an einem normalen Tag ausüben.

3. Sind Sie durch Ihren derzeitigen Gesundheitszustand bei diesen Tätigkeiten eingeschränkt? Wenn ja, wie stark?

		Ja, stark eingeschränkt	Ja, etwas eingeschränkt	Nein, überhaupt nicht eingeschränkt
3a	Anstrengende Tätigkeiten, z.B. schnell laufen, schwere Gegenstände heben, anstrengenden Sport treiben	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3b	Mittelschwere Tätigkeiten, z.B. einen Tisch verschieben, staubsaugen, kegeln, Golf spielen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3c	Einkaufstaschen heben oder tragen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3d	Mehrere Treppenabsätze steigen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3e	Einen Treppenabsatz steigen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3f	Sich beugen, knien, bücken	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3g	Mehr als 1 Kilometer zu Fuß gehen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3h	Mehrere Straßenkreuzungen weit zu Fuß gehen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3i	Eine Straßenkreuzung weit zu Fuß gehen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>
3j	Sich baden oder anziehen	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>

4. Hatten Sie in den vergangenen vier Wochen aufgrund Ihrer körperlichen Gesundheit irgendwelche Schwierigkeiten bei der Arbeit oder anderen alltäglichen Tätigkeiten im Beruf bzw. zu Hause?

		Ja	Nein
4a	Ich konnte nicht so lange wie üblich tätig sein	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4b	Ich habe weniger geschafft als ich wollte	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4c	Ich konnte nur bestimmte Dinge tun	1 <input type="checkbox"/>	2 <input type="checkbox"/>
4d	Ich hatte Schwierigkeiten bei der Ausführung	1 <input type="checkbox"/>	2 <input type="checkbox"/>

5. Hatten Sie in den vergangenen vier Wochen aufgrund seelischer Probleme irgendwelche Schwierigkeiten bei der Arbeit oder anderen alltäglichen Tätigkeiten im Beruf bzw. zu Hause (z.B. weil Sie sich niedergeschlagen oder ängstlich fühlten)?

		Ja	Nein
5a	Ich konnte nicht so lange wie üblich tätig sein	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5b	Ich habe weniger geschafft als ich wollte	1 <input type="checkbox"/>	2 <input type="checkbox"/>
5c	Ich konnte nicht so sorgfältig wie üblich arbeiten	1 <input type="checkbox"/>	2 <input type="checkbox"/>

6. Wie sehr haben Ihre körperliche Gesundheit oder seelischen Probleme in den vergangenen 4 Wochen Ihre normalen Kontakte zu Familienangehörigen, Freunden, Nachbarn oder zum Bekanntenkreis beeinträchtigt?

- 1  Überhaupt nicht  
 2  Etwas  
 3  Mäßig  
 4  Ziemlich  
 5  Sehr

7. Wie stark waren Ihre Schmerzen in den vergangenen 4 Wochen?

- 1  Keine Schmerzen  
 2  Sehr leicht  
 3  Leicht  
 4  Mäßig  
 5  Stark  
 6  Sehr stark

8. Inwieweit haben die Schmerzen Sie in den vergangenen 4 Wochen bei der Ausübung Ihrer Alltagstätigkeiten zu Hause und im Beruf behindert?

- 1  Überhaupt nicht  
 2  Ein bisschen  
 3  Mäßig  
 4  Ziemlich  
 5  Sehr

In den folgenden Fragen geht es darum, wie Sie sich fühlen und wie es Ihnen in den vergangenen 4 Wochen gegangen ist (Bitte kreuzen Sie in jeder Zeile die Zahl an, die Ihrem Befinden am ehesten entspricht).

9. Wie oft waren Sie in den vergangenen 4 Wochen...

		Immer	Meistens	Ziemlich oft	Manchmal	Selten	Nie
9a	...voller Schwung?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9b	...sehr nervös?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9c	...so niedergeschlagen, dass Sie nichts aufheitern konnte?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9d	...ruhig und gelassen?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9e	...voller Energie?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9f	...entmutigt und traurig?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9g	...erschöpft?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9h	...glücklich?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
9i	...müde?	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>

10. Wie häufig haben Ihre körperliche Gesundheit oder seelischen Probleme in den vergangenen 4 Wochen Ihre Kontakte zu anderen Menschen (Besuche bei Freunden, Verwandten usw.) beeinträchtigt?

- 1  Immer
- 2  Meistens
- 3  Manchmal
- 4  Selten
- 5  Nie

11. Inwieweit trifft jede der folgenden Aussagen auf Sie zu?

		Trifft ganz zu	Trifft weitgehend zu	Weiß nicht	Trifft weitgehend nicht zu	Trifft überhaupt nicht zu
11a	Ich scheine etwas leichter als andere krank zu werden	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
11b	Ich bin genau so gesund wie alle anderen, die ich kenne	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
11c	Ich erwarte, dass meine Gesundheit nachlässt	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
11	Ich erfreue mich ausgezeichneter Gesundheit	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Vielen Dank für Ihre Mithilfe!

Figure 19: SF-36 Questionnaire

## ERGEBNISSE MRS II vor Behandlung

Patienten Behandlungsgruppe (PB) vor Behandlung

U.Grp. vorher	PB 1	PB 2	PB 3	PB 4	PB 5	PB 6	PB 7	PB 8	PB 9	PB 10	Summe
Frage 1	1	0	1	1	4	2	1	2	2	0	14
Frage 2	0	2	1	1	0	0	0	1	0	1	6
Frage 3	2	3	2	2	1	0	2	2	4	2	20
Frage 4	2	2	1	1	1	1	1	0	1	1	11
Frage 5	0	3	2	3	1	1	0	1	1	1	13
Frage 6	0	3	2	2	1	0	1	1	1	1	12
Frage 7	2	2	1	2	2	1	0	2	1	1	14
Frage 8	0	2	2	2	1	2	0	2	1	0	12
Frage 9	0	2	0	1	3	1	1	1	2	1	12
Frage 10	0	2	0	0	0	2	1	1	1	1	8
Frage 11	2	3	1	1	1	1	1	1	2	2	15
<i>Summe</i>	9	24	13	16	15	11	8	14	16	11	137

Personen Kontrollgruppe (PK) vor Behandlung

K.Grp. vorher	PK 1	PK 2	PK 3	PK 4	PK 5	PK 6	PK 7	PK 8	PK 9	PK 10	Summe
Frage 1	1	2	1	3	4	3	2	2	1	2	21
Frage 2	0	0	0	0	0	0	3	1	1	2	7
Frage 3	0	2	2	1	0	4	3	2	2	2	18
Frage 4	1	0	1	1	0	2	1	2	2	2	12
Frage 5	0	1	1	2	0	1	0	2	1	1	9
Frage 6	1	0	0	1	0	0	0	1	1	1	5
Frage 7	1	0	1	0	0	2	1	2	2	2	11
Frage 8	0	0	0	1	2	0	1	1	0	1	6
Frage 9	0	0	0	3	1	0	0	1	1	0	6
Frage 10	0	0	0	1	1	0	1	1	0	0	4
Frage 11	1	1	0	1	0	0	0	1	1	2	7
<i>Summe</i>	5	6	6	14	8	12	12	16	12	15	106

Table 5: MRS II Results before Treatment

## ERGEBNISSE MRS II nach Behandlung

Patienten Behandlungsgruppe (PB) nach Behandlung

U.Grp. nachher	PB 1	PB 2	PB 3	PB 4	PB 5	PB 6	PB 7	PB 8	PB 9	PB 10	Summe
Frage 1	0	1	0	1	2	0	1	1	1	1	8
Frage 2	0	1	0	1	0	0	0	0	0	1	3
Frage 3	0	2	0	0	1	0	2	1	1	2	9
Frage 4	0	1	0	0	0	0	0	1	0	1	3
Frage 5	0	2	1	3	1	0	0	1	0	2	10
Frage 6	0	2	0	1	0	0	1	1	0	1	6
Frage 7	1	1	0	0	1	1	0	1	0	0	5
Frage 8	0	2	2	0	1	1	0	1	0	0	7
Frage 9	0	2	0	1	0	0	1	0	0	1	5
Frage 10	0	1	0	0	0	1	1	1	0	1	5
Frage 11	1	3	1	1	0	0	1	2	1	1	11
<i>Summe</i>	2	18	4	8	6	3	7	10	3	11	72

Personen Kontrollgruppe (PK) nach Behandlung

K.Grp. nachher	PK 1	PK 2	PK 3	PK 4	PK 5	PK 6	PK 7	PK 8	PK 9	PK 10	Summe
Frage 1	1	2	1	2	4	3	2	1	2	2	20
Frage 2	0	0	0	0	0	0	2	1	0	1	4
Frage 3	0	2	1	0	0	4	2	2	0	1	12
Frage 4	1	0	1	1	0	2	1	1	1	1	9
Frage 5	1	2	1	2	0	2	1	1	1	1	12
Frage 6	1	1	1	2	0	0	1	0	1	0	7
Frage 7	1	0	1	1	1	1	1	2	2	2	12
Frage 8	1	1	0	0	1	0	1	0	1	1	6
Frage 9	0	0	0	4	1	0	0	1	2	0	8
Frage 10	0	0	0	0	0	1	1	0	0	1	3
Frage 11	1	0	0	2	0	0	0	1	0	1	5
<i>Summe</i>	7	8	6	14	7	13	12	10	10	11	98

Table 6: MRS II Results after Treatment

## ERGEBNISSE SF-36 vor Behandlung

Patienten Behandlungsgruppe (PB) vor Behandlung

U-Grp.vorher	PB 1	PB 2	PB 3	PB 4	PB 5	PB 6	PB 7	PB 8	PB 9	PB 10
Frage 1	3	4	2	3	3	3	3	3	2	3
Frage 2	4	4	3	3	4	2	3	3	3	3
Frage 3.a	2	2	2	3	2	3	1	3	3	2
Frage 3.b	2	2	3	3	3	3	3	3	3	3
Frage 3.c	2	2	3	3	2	3	3	3	3	3
Frage 3.d	2	3	3	3	3	3	2	3	3	2
Frage 3.e	2	3	3	3	3	3	3	3	3	3
Frage 3.f	2	2	3	3	2	3	2	3	3	3
Frage 3.g	3	3	3	3	3	3	3	3	3	3
Frage 3.h	3	3	3	3	3	3	3	3	3	3
Frage 3.i	3	3	3	3	3	3	3	3	3	3
Frage 3.j	3	3	3	3	3	3	3	3	3	3
Frage 4.a	2	2	2	2	2	2	2	2	2	2
Frage 4.b	1	1	1	2	1	1	2	2	2	1
Frage 4.c	2	2	2	2	2	2	2	2	2	2
Frage 4.d	2	2	2	2	2	2	2	2	2	1
Frage 5.a	1	2	1	2	2	2	2	2	2	2
Frage 5.b	1	1	1	2	1	2	2	2	2	2
Frage 5.c	2	1	2	2	2	2	2	2	2	1
Frage 6	1	3	1	1	2	2	1	2	2	2
Frage 7	3	4	3	1	1	2	2	3	1	3
Frage 8	1	1	2	1	1	2	2	1	1	2
Frage 9.a	4	4	3	3	4	3	3	4	2	3
Frage 9.b	5	3	4	3	5	5	5	4	5	4
Frage 9.c	5	4	5	5	5	5	6	5	5	6
Frage 9.d	4	5	5	5	4	2	2	3	2	4
Frage 9.e	5	5	4	4	3	3	3	5	2	3
Frage 9.f	4	4	4	5	4	4	5	5	6	4
Frage 9.g	4	3	4	5	3	4	5	4	5	4
Frage 9.h	4	5	3	4	4	2	2	3	1	3
Frage 9.i	4	2	3	3	2	4	5	3	4	4
Frage 10	4	3	4	5	4	4	4	4	4	3
Frage 11.a	2	3	5	5	5	5	5	5	5	5
Frage 11.b	3	4	1	2	1	2	3	2	1	4
Frage 11.c	4	2	2	5	4	4	4	3	5	4
Frage 11.d	3	4	2	2	2	2	2	2	1	2
<i>Summe</i>	102	104	100	109	100	103	105	108	101	105

Table 7: SF-36 Results before Treatment

## ERGEBNISSE SF-36 nach Behandlung

Patienten Behandlungsgruppe (PB) nach Behandlung

U-Grp.nacher	PB 1	PB 2	PB 3	PB 4	PB 5	PB 6	PB 7	PB 8	PB 9	PB 10
Frage 1	3	3	1	2	3	3	3	3	1	3
Frage 2	3	3	3	3	3	2	2	3	3	2
Frage 3.a	2	2	3	3	2	3	2	3	3	2
Frage 3.b	2	2	3	3	3	3	2	3	3	3
Frage 3.c	2	3	3	3	2	3	2	3	3	3
Frage 3.d	2	3	3	3	3	3	2	3	3	3
Frage 3.e	3	3	3	3	3	3	2	3	3	3
Frage 3.f	2	2	3	3	3	3	2	3	3	3
Frage 3.g	2	3	3	3	3	3	2	3	3	3
Frage 3.h	3	3	3	3	3	3	2	3	3	3
Frage 3.i	3	3	3	3	3	3	2	3	3	3
Frage 3.j	3	3	3	3	3	3	3	3	3	3
Frage 4.a	2	2	2	2	2	2	2	2	2	2
Frage 4.b	2	1	2	2	1	2	2	2	2	1
Frage 4.c	2	2	2	2	2	2	2	2	2	2
Frage 4.d	2	2	2	2	2	2	2	2	2	2
Frage 5.a	2	2	2	2	2	2	2	2	2	2
Frage 5.b	2	1	2	2	1	2	2	2	2	1
Frage 5.c	2	1	2	2	2	2	2	2	2	1
Frage 6	1	2	1	1	2	1	1	1	1	2
Frage 7	2	4	2	1	1	1	3	3	2	2
Frage 8	1	3	1	1	1	1	2	1	1	2
Frage 9.a	3	4	2	3	3	3	3	4	2	3
Frage 9.b	5	4	5	4	5	6	4	5	6	4
Frage 9.c	6	4	6	5	6	6	6	6	6	5
Frage 9.d	3	5	3	4	3	2	3	2	2	4
Frage 9.e	4	4	3	3	3	3	3	4	2	3
Frage 9.f	5	4	6	6	5	5	5	5	6	4
Frage 9.g	5	3	4	4	4	5	5	3	5	4
Frage 9.h	4	4	2	3	3	2	2	3	1	3
Frage 9.i	4	3	4	4	4	4	4	3	5	4
Frage 10	5	4	5	4	4	4	4	3	4	4
Frage 11.a	3	3	5	5	5	5	5	5	5	4
Frage 11.b	2	3	1	3	1	1	3	2	1	2
Frage 11.c	4	2	4	5	4	2	4	3	5	4
Frage 11.d	2	3	1	1	2	2	2	2	1	2
<i>Summe</i>	103	103	103	106	102	102	99	105	103	101

Table 8: SF-36 Results after Treatment



## ERGEBNISSE SF-36 vor und nach Behandlung nach Kategorien

Patienten Behandlungsgruppe (PB) vor Behandlung

<b>BGrp. vorher</b>	<b>PB1</b>	<b>PB2</b>	<b>PB3</b>	<b>PB4</b>	<b>PB5</b>	<b>PB6</b>	<b>PB7</b>	<b>PB8</b>	<b>PB9</b>	<b>PB10</b>	<b>m</b>	<b>max.</b>	<b>%</b>
Körperl.Leistungsf.	24	26	29	30	27	30	26	30	30	28	28	30	93,3
Rolleneinschr.körp.Probl.	7	7	7	8	7	7	8	8	8	6	7,3	8	91,3
Allg.Gesundheitseinsch.	15	17	12	17	15	16	17	15	14	18	15,6	25	62,4
Körperl.Schmerzen	4	5	5	2	2	4	4	4	2	5	3,7	11	33,6
Vitalität	17	14	14	15	12	14	16	16	13	14	14,5	24	60,4
Soziale Funkt.fähigk.	5	6	5	6	6	6	5	6	6	5	5,6	10	56,0
Rolleneinschr.emot.Probl.	4	4	4	6	5	6	6	6	6	5	5,2	6	86,7
Psych.Wohlbefinden	22	21	21	22	22	18	20	20	19	21	20,6	30	68,7
<i>Physische Gesundheit</i>	50	55	53	57	51	57	55	57	54	57	54,6	74	73,8
<i>Mentale Gesundheit</i>	48	45	44	49	45	44	47	48	44	45	45,9	70	65,6

Patienten Behandlungsgruppe (PB) nach Behandlung

<b>BGrp. nachher</b>	<b>PB1</b>	<b>PB2</b>	<b>PB3</b>	<b>PB4</b>	<b>PB5</b>	<b>PB6</b>	<b>PB7</b>	<b>PB8</b>	<b>PB9</b>	<b>PB10</b>	<b>m</b>	<b>max.</b>	<b>%</b>
Körperl.Leistungsf.	24	27	30	30	28	30	21	30	30	29	27,9	30	93,0
Rolleneinschr.körp.Probl.	8	7	8	8	7	8	8	8	8	7	7,7	8	96,3
Allg.Gesundheitseinsch.	14	14	12	16	15	13	17	15	13	15	14,4	25	57,6
Körperl.Schmerzen	3	7	3	2	2	2	5	4	3	4	3,5	11	31,8
Vitalität	16	14	13	14	14	15	15	14	14	14	14,3	24	59,6
Soziale Funkt.fähigk.	6	6	6	5	6	5	5	4	5	6	5,4	10	54,0
Rolleneinschr.emot.Probl.	6	4	6	6	5	6	6	6	6	4	5,5	6	91,7
Psych.Wohlbefinden	23	21	22	22	22	21	20	21	21	20	21,3	30	71,0
<i>Physische Gesundheit</i>	49	55	53	56	52	53	51	57	54	55	53,5	74	72,3
<i>Mentale Gesundheit</i>	51	45	47	47	47	47	46	45	46	44	46,5	70	66,4

Table 9: SF-36 Categories before and after Treatment

## ERGEBNISSE SF-36 vor Behandlung

Personen Kontrollgruppe (PK) vor Behandlung

K-Grp.vorher	PK 1	PK 2	PK 3	PK 4	PK 5	PK 6	PK 7	PK 8	PK 9	PK 10
Frage 1	3	2	2	2	3	3	2	3	3	3
Frage 2	4	3	3	4	3	3	2	3	4	2
Frage 3.a	2	3	2	2	3	1	2	2	2	2
Frage 3.b	3	3	3	3	3	3	3	3	3	2
Frage 3.c	3	3	2	3	3	3	3	3	3	2
Frage 3.d	3	3	3	3	3	3	3	3	3	2
Frage 3.e	3	3	3	3	3	3	3	3	3	3
Frage 3.f	3	3	3	2	3	3	3	3	3	2
Frage 3.g	3	3	3	3	3	3	3	3	3	3
Frage 3.h	3	3	3	3	3	3	3	3	3	3
Frage 3.i	3	3	3	3	3	3	3	3	3	3
Frage 3.j	3	3	3	3	3	3	3	3	3	3
Frage 4.a	2	2	2	2	2	2	2	2	2	2
Frage 4.b	2	2	2	2	2	1	2	1	1	1
Frage 4.c	2	2	2	2	2	2	2	2	2	2
Frage 4.d	2	2	2	2	2	2	2	2	2	2
Frage 5.a	2	2	2	1	2	2	2	2	2	1
Frage 5.b	2	2	2	1	2	2	2	1	1	1
Frage 5.c	2	2	2	2	2	2	2	2	2	2
Frage 6	2	1	1	2	1	1	1	1	2	2
Frage 7	1	2	3	1	1	3	1	2	2	4
Frage 8	1	2	3	1	1	2	1	1	2	3
Frage 9.a	4	4	3	3	2	5	3	4	4	4
Frage 9.b	5	5	5	4	6	4	5	4	4	5
Frage 9.c	5	6	6	6	5	6	5	4	5	3
Frage 9.d	2	2	4	2	2	5	3	3	4	4
Frage 9.e	4	3	3	3	2	5	3	4	5	5
Frage 9.f	5	6	6	5	6	6	6	4	4	5
Frage 9.g	5	5	4	4	5	3	4	3	4	3
Frage 9.h	2	3	2	2	3	2	2	4	5	4
Frage 9.i	5	4	4	3	4	3	4	3	3	2
Frage 10	4	5	5	4	5	5	4	4	3	2
Frage 11.a	5	5	5	5	5	4	4	4	2	4
Frage 11.b	2	1	3	3	1	3	2	2	2	4
Frage 11.c	5	5	5	5	4	4	4	4	5	5
Frage 11.d	2	1	2	2	1	5	2	2	4	2
<i>Summe</i>	109	109	111	101	104	113	101	100	108	102

Table 10: SF-36 Results for Control Group 1st survey

## ERGEBNISSE SF-36 nach Behandlung

Personen Kontrollgruppe (PK) nach Behandlung

K-Grp.nachher	PK 1	PK 2	PK 3	PK 4	PK 5	PK 6	PK 7	PK 8	PK 9	PK 10
Frage 1	3	2	2	2	3	3	3	2	3	3
Frage 2	2	3	3	4	4	3	2	3	3	4
Frage 3.a	3	3	2	2	2	1	2	2	2	2
Frage 3.b	3	3	3	2	3	3	3	3	3	3
Frage 3.c	3	3	3	3	3	3	3	3	3	3
Frage 3.d	3	3	3	2	3	3	3	3	3	2
Frage 3.e	3	3	3	3	3	3	3	3	3	3
Frage 3.f	3	3	3	2	3	3	3	3	3	2
Frage 3.g	3	3	3	2	2	3	3	3	3	3
Frage 3.h	3	3	3	2	2	3	3	3	2	3
Frage 3.i	3	3	3	3	2	3	3	3	3	3
Frage 3.j	3	3	3	3	3	3	3	3	3	3
Frage 4.a	2	2	2	2	2	2	2	2	2	2
Frage 4.b	2	2	2	1	2	1	2	1	1	1
Frage 4.c	2	2	2	2	2	2	2	2	2	2
Frage 4.d	2	2	2	2	2	2	2	2	2	1
Frage 5.a	2	2	2	2	2	2	2	2	2	1
Frage 5.b	2	2	2	1	2	2	2	1	1	1
Frage 5.c	2	2	2	2	2	2	2	2	2	1
Frage 6	1	2	1	2	1	1	2	2	2	1
Frage 7	1	1	2	4	2	4	3	3	2	3
Frage 8	1	1	2	3	1	2	3	2	1	1
Frage 9.a	2	3	3	4	4	4	2	4	3	4
Frage 9.b	5	4	5	5	5	4	4	5	4	5
Frage 9.c	6	6	5	6	6	6	5	5	4	6
Frage 9.d	2	3	4	2	2	4	2	3	3	4
Frage 9.e	2	3	3	3	2	4	2	4	3	5
Frage 9.f	5	5	5	6	6	6	5	5	4	4
Frage 9.g	6	5	5	4	5	6	5	4	3	3
Frage 9.h	2	3	2	2	3	2	3	4	3	4
Frage 9.i	5	4	4	3	4	4	4	4	3	3
Frage 10	5	3	4	4	5	5	4	5	3	3
Frage 11.a	5	5	5	5	5	4	4	5	4	4
Frage 11.b	1	1	3	5	1	3	4	2	2	3
Frage 11.c	5	5	3	5	5	4	5	4	4	5
Frage 11.d	2	1	2	2	2	4	1	2	2	2
<i>Summe</i>	105	104	106	107	106	114	106	109	96	103

Table 11: SF-36 Results for Control Group 2nd survey

## ERGEBNISSE SF-36 Kontrollgruppe nach Kategorien

Patienten Kontrollgruppe (PK) erste Befragung

<b>KGrp. 1. Befragung</b>	<b>PK1</b>	<b>PK2</b>	<b>PK3</b>	<b>PK4</b>	<b>PK5</b>	<b>PK6</b>	<b>PK7</b>	<b>PK8</b>	<b>PK9</b>	<b>PK10</b>	<b>m</b>	<b>max.</b>	<b>%</b>
Körperl.Leistungsf.	29	30	28	28	30	28	29	29	29	25	28,5	30	95,0
Rolleneinschr.körp.Probl.	8	8	8	8	8	7	8	7	7	7	7,6	8	95,0
Allg.Gesundheitseinsch.	17	14	17	17	14	19	14	15	16	18	16,1	25	64,4
Körperl.Schmerzen	2	4	6	2	2	5	2	3	4	7	3,7	11	33,6
Vitalität	18	16	14	13	13	16	14	14	16	14	14,8	24	61,7
Soziale Funkt.fähigk.	6	6	6	6	6	6	5	5	5	4	5,5	10	55,0
Rolleneinschr.emot.Probl.	6	6	6	4	6	6	6	5	5	4	5,4	6	90,0
Psych.Wohlbefinden	19	22	23	19	22	23	21	19	22	21	21,1	30	70,3
<i>Physische Gesundheit</i>	56	56	59	55	54	59	53	54	56	57	55,9	74	75,5
<i>Mentale Gesundheit</i>	49	50	49	42	47	51	46	43	48	43	46,8	70	66,9

Patienten Kontrollgruppe (PK) zweite Befragung

<b>KGrp. 2. Befragung</b>	<b>PK1</b>	<b>PK2</b>	<b>PK3</b>	<b>PK4</b>	<b>PK5</b>	<b>PK6</b>	<b>PK7</b>	<b>PK8</b>	<b>PK9</b>	<b>PK10</b>	<b>m</b>	<b>max.</b>	<b>%</b>
Körperl.Leistungsf.	30	30	29	24	26	28	29	29	28	27	28	30	93,3
Rolleneinschr.körp.Probl.	8	8	8	7	8	7	8	7	7	6	7,4	8	92,5
Allg.Gesundheitseinsch.	16	14	15	19	16	18	17	15	15	17	16,2	25	64,8
Körperl.Schmerzen	2	2	4	7	3	6	6	5	3	4	4,2	11	38,2
Vitalität	15	15	15	14	15	18	13	16	12	15	14,8	24	61,7
Soziale Funkt.fähigk.	6	5	5	6	6	6	6	7	5	4	5,6	10	56,0
Rolleneinschr.emot.Probl.	6	6	6	5	6	6	6	5	5	3	5,4	6	90,0
Psych.Wohlbefinden	20	21	21	21	22	22	19	22	18	23	20,9	30	69,7
<i>Physische Gesundheit</i>	56	54	56	57	53	59	60	56	53	54	55,8	74	75,4
<i>Mentale Gesundheit</i>	47	47	47	46	49	52	44	50	40	45	46,7	70	66,7

Table 12: SF-36 Results for Control Group - 1st and 2nd survey

## Checkliste für teilnehmende Patientinnen:

1. Alter (zwischen 45 und 55):
2. Beginn von klimakterischen Beschwerden?
3. Welche Beschwerden stören Sie am meisten?
4. Art und Intensität der menopausalen Beschwerden:
5. Sonstige akute Schmerzen oder Krankheiten:
6. Menstruation (im Hinblick auf Perimenopause):
7. Menstruationspausen (im Hinblick auf Perimenopause):
8. Operationen (gynäkologischer Bereich, zumindest 1 Ovar vorhanden und funktionsfähig):
9. Hormonelle Behandlung(en) im letzten halben Jahr:
10. Alternative Behandlungsform(en) im letzten halben Jahr (z.B. Phytopharmaka bzw. Homöopathie, Akupunktur):
11. Einnahme von rezeptpflichtigen Medikamenten im letzten halben Jahr:

Figure 20: Checklist for Recruitment of Patients

## Patienteninformation zur Studie „Osteopathische Behandlung von Beschwerden in der Peri-Menopause“

Das Ziel der oben angeführten Studie ist die Beweisführung, dass mittels osteopathischer Behandlungen die Beschwerden in der Perimenopause gelindert werden können.

Die Verminderung der Beschwerden und Verbesserung der Lebensqualität werden durch Befragungen erhoben. Alle Teilnehmerinnen beantworten den Fragebogen vor Beginn der Behandlungen und nach Abschluss der Behandlungen.

Die an der Studie teilnehmenden Frauen erhalten 3 kostenlose osteopathische Behandlungen im Abstand von ungefähr 2 Wochen.

Alle personenbezogenen Daten, die im Zuge der Studie erhoben, ausgewertet und publiziert werden, unterliegen der strikten Vertraulichkeit und Anonymität.

### Erklärung des Einverständnisses

Ich erkläre hiermit durch Unterschrift, dass ich über die Zielsetzungen und Bedingungen der oben angeführten Studie aufgeklärt wurde und dass ich damit einverstanden bin.

Durch die Teilnahme an der Studie und die Behandlungen, die ich erhalte, entstehen für mich keine Kosten. Ein Austritt bzw. die vorzeitige Beendigung ziehen keinerlei Konsequenzen oder Nachteile mit sich.

\_\_\_\_\_  
Vorname und Familienname

\_\_\_\_\_  
Unterschrift

\_\_\_\_\_  
Datum

Figure 21: Declaration of Confirmation

Anamneseblatt teilnehmende Patientinnen (Datum: \_\_\_\_\_):

1. Vor-, Nachname, Adresse:
2. Beruf, Alter und Familienstand:
3. Gewicht und Größe:
4. Leiden Sie unter Schmerzen?
5. Wie viele Schwangerschaften hatten Sie? / Wie viele Kinder haben Sie? / Alter der Kinder
6. Nehmen Sie Medikamente ein (welche)?
7. Unfälle
8. Operationen
9. Herz-, Kreislaufprobleme
10. RR (Blutdruck)
11. Lungenerkrankungen
12. Leber und Galle
13. Magen-, Darmtrakt
14. Niere, Harnleiter, Blase
15. Gebärmutter, Eileiter, Eierstöcke
16. Schilddrüse
17. Kopfschmerzen, Augen, Ohren, Kiefergelenk, Zähne
18. Haut und Allergien
19. Schlafstörungen
20. Ernährungsgewohnheiten (insbes. Nikotin, Kaffee, Alkohol, Süßigkeiten usw.)
21. Regelmäßiger Sport

Figure 22: Anamnesis Checklist for Patients

## Ergebnistabelle Anamnese

N=10	Summe <sup>151</sup>	% von n	Ausprägungen	Häufigkeiten
3.	2		Übergewicht	2
4.	13		Kopfschmerzen Kreuzschmerzen Gelenkschmerzen Hüftschmerzen Migräne	6 3 2 1 1
5.				
6.				
7.	10		Frakturen Beine u. sonstige Fußverletzungen Sternumfraktur Schleudertrauma Weichteiltrauma mit Blutsturz Sehnenverletzung Schultern/Handgelenk Kopfverletzung Fibulare Bandruptur	2 1 2 1 2 1 1 1
8.	18		Appendektomie Polypen Tonsillektomie Ohroperation (Mastoidektomie) Mamma Operation gutartiger Tumor HWS Operation Gallenoperation Darmpolypen Sonstige OP	4 2 2 1 1 1 1 1 4
9.	3		Herzrhythmusstörung Herzmuskelentzündung Erhöhter Blutdruck	1 1 1
10.	1		Erhöhter Blutdruck	1
11.	6		Pneumonie Raucherbronchitis	4 2
12.	1		Erhöhte Leberwerte	1
13.	6		Nervöses Magenleiden Reflux Nahrungsmittelunverträglichkeiten	3 1 2
14.	8		Blasenentzündungen Harnverlust Harnleiter gedehnt	4 3 1

<sup>151</sup> Mehrfachnennungen eingerechnet



15.	8		Uterusentfernung Kaiserschnitt (1 Frau zweimalig) Ovarialzyste entfernt Tubenunterbindung Schmerzen durch Dammschnitt	2 3 1 1 1
16.	1		Struma	1
17.	22		Kopfschmerzen und Migräne Fehlsichtigkeit und Schielen Trockenheit der Augen Zahnprothese Schwindel bzw. Hörsturz	7 8 2 1 1
18.	2		Hautempfindlichkeit, Heuschnupfen	2
19.	10		Sehr starke Schlafstörungen stark mittel leicht keine	1 1 6 1 1
20.	20		Ausgewogene Ernährung Alkoholkonsum mäßig Kaffeekonsum stark Nikotingenuss	7 3 3 4
21.	17		Fitness, tägliche Übungen Wandern und Laufen, Berglaufen Radfahren Ski und Tennis	4 7 2 3

Table 13: Results of Anamnesis

## Erläuternde Bemerkungen zu den Untersuchungen

Haltung im Stehen beurteilt: von dorsal, lateral und ventral.

Kontrolle der horizontalen Linien: Mastoidlinie, Schulterlinie, Schulterblattlinie und ISG-Linie.

Globaler Ecoute-Test im Stehen: Die Hand der Osteopathin liegt ohne Druck auszuüben auf dem Kopf der Patientin, sodass sie die verschiedenen Bewegungen des Körpers nach vorne .nach hinten oder zur Seite wahrnehmen kann.. Die auf dem Kopf liegende Hand bildet einen Fixpunkt, sodass zwischen dem Boden und dem Kopf ein Kräftepaar entsteht .Die zwischen diesen beiden Punkten verlaufenden Faszien setzen sich, sofern ein Fixierungspunkt vorhanden ist, in Bewegung und dadurch neigt sich der Körper in Richtung des Fixierungspunktes.

Vorlaufest im Stehen: Diagnostik von Beckendysfunktionen und Beurteilung der Fascien des Rumpfes und der unteren Extremität: die Patientin steht und positioniert die Füße im Abstand von ca. 10 cm. Die Osteopathin tastet mit den Daumenspitzen den unteren Rand der Spina iliaca posterior superior und die Patientin neigt sich langsam nach vorne, wobei die Daumen unter den Spinae verweilen. Wenn sich eine Spina weiter vorwärts bewegt als die andere gilt der Test als positiv.

Mobilitätstests im Stehen: Untersuchung der Flexion, Extension, Seitneigung und Rotation der Wirbelsäule.

Vorlaufest im Sitzen zur Diagnostik der Beweglichkeit des Beckens: die Patientin sitzt auf einem Hocker, die Knie leicht gespreizt und die Füße verweilen am Boden. Die Osteopathin legt beide Daumen beidseits auf den Unterrand der Spina iliaca posterior superior und die Patientin beugt sich so weit wie möglich nach vorne,, wobei die Arme zwischen den Knien hängen. Bewegt sich eine Spina weiter nach cranial als die andere, so ist dies ein Hinweis auf eingeschränkte Beweglichkeit des Beckens. Durch die Sitzposition wird der Einfluss der unteren Extremität ausgeschaltet.

Blutdruckmessung im Sitzen an beiden Oberarmen vor der ersten Behandlung und nach der letzten Behandlung.

Kontrolle der Patientinnen in Rückenlage: Prüfung der Stellung der Spina iliaca anterior superior (SIAS), der Beinlänge, .des Sacrums bzw. Beckens, Ecoute am Nabel und Uterusecoute.

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Barbara Zanon

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