Funktionelle Schwangerschaftsprobleme und Osteopathie

Erfahrungen von Experten mit osteopathischen Behandlungen bei Hyperemesis, Hypertension in der Schwangerschaft und Gestationsdiabetes - Ein qualitativer Zugang zu diesem Thema.

Master Thesis zur Erlangung des Grades
Master of Science in Osteopathie

an der **Donau Universität Krems**
niedergelegt
an der **Wiener Schule für Osteopathie**

*von **Sigrid Steinbauer***

Hartberg, Juni 2008

Betreut von Mag. Katharina Musil
Übersetzt von Mag. Barbara Schnürch

Eidesstattliche Erklärung

Hiermit versichere ich, die vorgelegte Master Thesis selbständig verfasst zu haben.

Alle Stellen, die wörtlich oder sinngemäß aus veröffentlichten oder nicht veröffentlichten Arbeiten anderer übernommen wurden, wurden als solche gekennzeichnet. Sämtliche Quellen und Hilfsmittel, die ich für die Arbeit genützt habe, sind angegeben. Die Arbeit hat mit gleichem Inhalt noch keiner anderen Prüfungsbehörde vorgelegen.

Hartberg, 9. Juni 2008 Sigrid Steinbauer

Sigrid Steinbauer

Functional gestational problems and osteopathy

Experts' experiences with osteopathic treatment of hyperemesis, hypertension during pregnancy and gestational diabetes – A qualitative approach.

Key-words:
hyperemesis gravidarum, hypertensive gestational conditions, hypertension during pregnancy, pre-eclampsia, gestational diabetes, "structure governs function", functional gestational problems

Abstract:

Objective:

This paper evaluates the question whether any experience with the osteopathic treatment of gestational problems like hyperemesis gravidarum, hypertension during pregnancy or gestational diabetes has already been gained.

Method:

The evaluation of this topic is based on expert interviews supported by interview guidelines. Four renowned experts in the field of osteopathy and the treatment of pregnant women answer questions about their experience, the risks and limitations of osteopathic therapy of problems like hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes.

Foundations:

The approach to this topic is based on two pillars: the evaluation of A.T. Still's philosophy in particular the aspect of "structure governs function" and the current knowledge and understanding of the above mentioned gestational problems.

Result:

The interviewed experts believe that hyperemesis gravidarum and hypertension during pregnancy can be positively influenced with osteopathic treatment. In the case of gestational diabetes the experts' opinions differ as to in how far osteopathy might be able to influence the condition in a positive way.

Preface:

"Osteopathy is knowledge or it is nothing"[1]

As midwife my work is not only limited to taking care of pregnant women during the actual birth process, it already starts during the pregnancy: I try to act as support for the women and to help them with words and deeds to cope with problems that might occur. For many years my support for the women has been limited to advice regarding their diet or exercises and I soon recognized that with this kind of assistance I often was at my wit's end and had to disappoint the women and their expectations towards me as an expert.

When I accidentally came in contact with osteopathy a few years ago it did not take long to recognize the enormous potential that this kind of treatment held for pregnant women with pain in their locomotor system. I was so thrilled by the new possibilities that opened up for treating pregnant women with structural problems that I decided I wanted to become an osteopath. When I was confronted with structural complaints of pregnant women from then on I could treat them almost all successfully myself or (in the beginning of my training) refer the patients to more experienced osteopaths in the region.

Osteopathy understands itself as a holistic treatment method[2]. One of the principles on which its philosophy is based is: "structure governs function"[3]. Based on this I started to look at the kind of gestational problems that do not belong to the category 'problems of the locomotor system' but that rather are linked with certain organs of the pregnant women with new interest. I asked myself the question whether it was possible to influence gestational problems like hyperemesis gravidarum (morning sickness), hypertension during pregnancy (hypertensive gestational conditions) or gestational diabetes (gestational sugar) in a positive way through osteopathic treatment. I had the vague suspicion that I could be able to offer some help to women with those kinds of gestational problems. Therefore I started out on a journey to intensively look at and scientifically evaluate this issue. I

[1] Still, Andrew Taylor: Philosophy of Osteopathy. Kirksville 1899, p. 233. Online: URL: http://www.interlinea.org/atstill/eBookPhilosophyofOsteopathy_V2.0.pdf
[2] cf. Wiener Schule für Osteopathie: "Was ist Osteopathie?" online: URL: http://www.wso.at/neu/index.html (2. 3. 2008)
[3] cf. ibid.

decided to choose the above mentioned three functional gestational problems as examples. The present thesis will take the reader on my "journey" and present its results.

Hartberg, May 2008 Sigrid Steinbauer

Table of contents:

Introduction:

A pregnancy changes a woman on many levels. The body of the pregnant woman develops different dynamics[4] which lead to changes in the locomotor system[5] (the structure) and also adaptations in the woman's physiology.[6] Due to the increased production of relaxin, oestrogen and progesteron the body softens, i.e. the structure becomes suppler.[7] The changes in physiology and structure are determined by the following: "The maternal body systems during pregnancy have added demands placed on them by the growing placenta and foetes."[8] In addition, the female body has to nourish the developing foetus and maintain the circulation of two individuals from the moment at which the uteroplacentar circulation begins.[9] The ability of the woman to adapt to the new conditions during the pregnancy is thus indispensable. It is irrelevant for a pregnant woman whether problems that cause pain occur within her structure or whether organs like the liver or kidneys struggle to adapt to the pregnancy.

One of the basic principles in osteopathy is that the human body is an entity:[10] "Osteopathy considers all parts of the physical body, the mind and the soul (…) as connected with each other and reciprocally influencing each other. All cells, tissues and organs of the body work together and have to be seen as an entity in health and also in states of disease."[11] The body of a pregnant woman is an entity. Thus not only physical problems but also problems affecting her mind or psyche can have a negative influence on the course of the pregnancy. However, it would go beyond the scope of this paper if it would not only look at the physical problems but also include those originating in the pregnant woman's psyche or spirit. Thus this master thesis will focus on the body of pregnant women and in this area

[4] cf. Jenny Green: Osteopathy in pregnancy and childbirth. In: Sara Wickham: Midwifery: Best Practice Vol. 3/3 London, Elsevier 2003. p. 206.
[5] cf. ibid., p. 207
[6] cf. Willibald Pschyrembel: Praktische Geburtshilfe.18. Aufl. Berlin-New York: de Gruyter 1994 p.19 ff.
[7] cf. Green, p. 207
[8] Averille Morgan: Healthy Pregnancy. A practical guide for health professionals. Norfolk 2005, p. 9.
[9] Among the non-mammals of the vertebrates the yolk sac is the nutrition organ of the embryo. In mammals it is replaced by the placenta. This change occurs around the 11th or 12th day of development. cf. Jan Langman: Medizinische Embryologie, Stuttgart New York 1989: Thieme p. 43-46.
[10] cf. Still Philosophy Of Osteopathy, p. 26.
[11] Torsten Liem: Kraniosakrale Osteopathie. Ein praktisches Lehrbuch. 3. Aufl., Stuttgart, Hippokrates 2001, p. 6.

it will not discuss the treatment of structural problems during pregnancy but rather look at whether any experience with the osteopathic treatment of gestational problems like hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes has been gained so far.

The following section will present a brief outline of the structure of this paper: First of all four important terms (*structure, function,* and *structural* and *functional problems during pregnancy*) will be explained to make it easier for the reader to understand the topic. The next section provides an overview of the literature regarding the treatment of general and functional problems during pregnancy. This chapter looks at whether any literature regarding experience with the treatment of hyperemesis gravidarum, hypertension during pregnancy or gestational diabetes is available to date. The following chapter focuses on Andrew Taylor Still, the founder of osteopathy, whose works are governed by the basic theory that function is influenced by structure. The basic principle of osteopathy that structure governs function[12] represents the philosophical background for the topic discussed in this paper. Thus it seems to be justified to take a closer look on Still's points of view regarding this fundamental principle. It is also interesting that in his works Still already gave his opinion regarding the problem 'Morning Sickness' (i.e. hyperemesis).
The following chapters will examine three specific functional problems that occur during pregnancy: hyperemesis, gestational diabetes and hypertension. How are these problems viewed by conventional medicine, what are their aetiologies, what are their signs and symptoms and what kind of risks are involved?
The last chapter presents the opinions of internationally renowned osteopaths who report their experiences in treating pregnant women suffering from the above mentioned problems. To facilitate the comparison of the individual osteopaths' experiences the format of "expert interviews supported by guidelines" was chosen which prescribes almost identical questions for each of the experts. The chapter "Choice of methods" will briefly explain why this kind of approach to the topic was chosen.
By means of the expert interviews the following questions should be answered: Had the experts any experience with the osteopathic treatment of functional gestational problems like hyperemesis, hypertension and gestational diabetes? If yes, what treatment approaches do they use in trying to positively influence gestational problems like hyperemesis,

[12] cf. online: URL: http://www.sutherlandacademy.ca/main/philosophy.html (14. 4. 2008)

hypertension and gestational diabetes? What are the risks or limitations that they can point out to other osteopaths who so far have no experience in treating pregnant women with problems like hyperemesis, hypertension or gestational diabetes?

1. Structure – function – structural and functional gestational problems: clarification of some basic terms:

A basic principle of osteopathy is that structure governs function[13]. This principle forms the basis for this paper. Therefore the terms structure, function, structural and functional gestational problems will be defined to facilitate the understanding for the reader.

1.1. Structure:

The term "structure" is a loanword derived from the Latin word *structura.* Basically it means "manner of construction", "arrangement of parts", "order".[14] In a medical context structure describes the relationship of the individual body parts like bones, muscles, ligaments etc. with and to each other.

1.2. Function:

In contrast to the structure the term function (Latin: *functio*) stands for "action[15], performance, or ability[16]". Function in a medical sense means nothing else than human physiology. It describes how processes in the living organism like the work of the kidneys, digestion, or muscle action etc. are performed. The knowledge of the body's build up, which is conveyed through the study of anatomy, is regarded as important prerequisite for understanding the processes in the human organism.[17]

[13] cf. ibid.
[14] cf. Friedrich Kluge, Etymologisches Wörterbuch der deutschen Sprache. Bearbeitet von Elmar Seebold. 23. erweiterte Auflage Berlin-New York: de Gruyter 1999, p. 803.
[15] cf. Pschyrembel, Praktische Geburtshilfe, p. 501
[16] cf. Kluge, p. 291.
[17] cf. Heinz Bartels, Rut Bartels: Physiologie. Lehrbuch und Atlas. 5. überarbeitete Auflage, München-Wien-Baltimore: Urban und Schwarzenberg 1995, p. 2.

1.3. Structural and functional gestational problems:

In vain you will search for both the terms structural gestational problems and functional gestational problems in the medical technical literature. However, I deemed it important for a better understanding of my master thesis to have two terms which each summarize one group of gestational problems and which will be clearly defined below.
The term structural gestational problems designates all problems or complaints whose origin can *primarily* be found in the structure of the pregnant woman. The pain of the woman in question stands at the centre of these problems. It occurs in a specific part or region of the body and can be exactly localized. Examples for this kind of problems are back pain, sciatica and pubalgia.
When the term functional gestational problems is used in the following it designates all problems that are *not primarily* linked with a structural problem. I will use this term for all pathologies or conditions during pregnancy, which disturb the performance of physiologic processes in the body in one way or the other. Any such disturbance will result in an impairment of the wellbeing of the mother and/or child and can subsequently even become a danger for both of them. An example is hyperemesis gravidarum, one of the problems that will be evaluated in more detail in this paper.

2. Literature research:

In order to obtain an overview of the existing literature regarding osteopathic treatment and its possible positive influence on hyperemesis, hypertension and gestational diabetes I started with an intensive search of various scientific online databases. On OSTMED (The Osteopathic Literatur Database) a search with the two terms *Osteopathie (osteopathy)* and *Schwangerschaft (pregnancy)* provided a total of 714 articles from A.T. Still's time until the year 2006[18]. Prompted by these search results I decided to grant Still, the founder of osteopathy and the first who voiced his opinion regarding osteopathy and pregnancy, a special place in my paper. In this context two of Still's works, *Philosophy Of Osteopathy* (1899) [19] and *The Philosophy And Mechanical Principles Of Osteopathy* (1902)[20] proved to be particularly relevant. Both publications can be accessed by anybody free of charge on the website www.interlinea.org.

When browsing through more recent articles that I found on OSTMED I recognized that the works mainly looked at the osteopathic treatment of structural problems during pregnancy.[21] I was not able to find a concrete evaluation or study regarding the treatment of the kind of problems I chose to look at in my paper among the OSTMED results. (Another search of this database in April 2008 failed because in the meantime the organization that was in charge of the website changed (it used to be the University of North Texas Health Science Center, now: Virginia College of Osteopathic Medicine (VCOM))[22] and the database was under reconstruction.). I continued my search on the *Osteopathic Research Web* with a similar result: Among the 34 articles on pregnancy and osteopathy[23] the majority looks at the treatment of back pains[24] [25] or evaluates the

[18] cf. OSTMED (The Osteopathic Literature Database). online: URL: http://ostmed.hsc.unt.edu/scripts/starfinder.exe/
[19] Still, Philosophy of Osteopathy.
[20] Still A.T.: The Philosophy And Mechanical Principles Of Osteopathy. Kirksville 1902. online: URL: http://www.interlinea.org/atstill/eBookPMPO_V2.0.pdf
[21] cf. K. Montague: Midwifery: Oseopathy During Pregnancy. In: Nursing Mirror 1985 Jul 31; 161 (5) p. 26-28.
[22] cf. OSTMED.DR (Osteopathic Medicine Digital Repository). online: URL: http://www.ostmed-dr.com:8080/vital/access/manager/Index
[23] cf. Osteopathic Research Web. URL: http://www.osteopathic-research.com/cgi-bin/or/Search1.pl?show_one=2001
[24] cf. Gabriele Kofler: Osteopathy for Back- and Pelvic Pain in Pregnancy. Wien 2000. (Dipl.Arbeit)
[25] cf. R. Peters, M. van der Linde: Osteopathic treatment of women with low back pain during pregnancy. A randomized controlled trial. Academie für Osteopathie (AFO), 2006.

influence of osteopathic treatment on the birth process.[26] [27] A search for articles that would help to answer the question of my thesis did not yield any relevant results. Another search on Med Line (Pub Med)[28] provided numerous articles on osteopathy and pregnancy. When I specified the search with the key words hyperemesis, hypertension and gestational diabetes several publications were found[29]. Chapter 3, which looks at the three functional gestational problems from a theoretical point of view on the basis of the latest scientific knowledge will refer to these articles in more detail. Nevertheless, none of these articles and none of the articles of the database Scirus[30] specifically examine the osteopathic treatment of functional gestational problems. A search of the JAOA[31] gave the same picture: It is possible to find articles on gestational problems like hyperemesis gravidarum or gestational diabetes but they all evaluate these problems in a very general context, e.g. an article by Bottalico on diabetes in pregnancy[32] or a publication by Glick and Dick on hyperemesis gravidarum[33].

Eventually, the osteopathic literature that was relevant for the topic of this paper was limited to a few publications which will be presented below:

1.) A.T. Still's works *Philosophy of Osteopathy* and *The Philosophy And Mechanical Principles Of Osteopathy*

2.) Jenny Green: *Osteopathy in pregnancy and childbirth*. In: Sara Wickham: Midwifery Best Practice Vol 3/3 London, Elsevier 2003. p. 205-212. This article

---

[26] cf. Dorothea Lenz: Die osteopathische Behandlung als Prävention von Geburtskomplikationen. Eine Studie über die Behandlung von Erstschwangeren. Stuttgart 2003. (Dipl. Arbeit)

[27] cf. GB Andersson, HC Ostgaard, M Wennergren: The impact of low back and pelvic pain in pregnancy on the pregnancy outcome. In: Acta Obstet Gynecol Scand, o.O.1991.

[28] cf. Med Line (Pub Med). online: URL: http://www.ncbi.nlm.nih.gov/sites/entrez

[29] Two articles are mentioned here as examples: a.) cf. Norma C. Serrano: Immunology and genetic of pre-eclampsia. online: URL: http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=2270781&blobtype=pdf b.) Ravi I. Thadhani, Richard J. Johnson, S. Ananth Karumanchi: Hypertension During Pregnancy. online: URL: http://hyper.ahajournals.org/cgi/reprint/46/6/1250

[30] cf. SCIRUS. URL: http://scirus.com

[31] Melicien A. Tettambel: An Osteopathic Approach to Treating Women With Chronic Pelvic Pain. In: JAOA ,Vol 105, No suppl_4, September 2005, p. 20-22; URL: http://www.jaoa.org/cgi/content/full/105/suppl_4/S20?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=back+pain+pregnancy+osteopathy&searchid=1&FIRSTINDEX=10&sortspec=relevance&resourcetype=HWCIT

[32] cf. Joseph M. Bottalico: Diabetes In Pregnancy. In: JAOA, Vol. 101, No 2, Supplement to February 2001. p. 10-13.

[33] cf. MM Glick, EL Dick**:** Molar pregnancy presenting with hyperemesis gravidarum J Am Osteopath Assoc, Mar 1999; 99, p. 162.; Abstract online: URL: http://www.jaoa.org/cgi/content/abstract/99/3/162?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=Hyperemesis+gravidarum&searchid=1&FIRSTINDEX=0&sortspec=relevance&resourcetype=HWCIT

was originally published in the magazine 'The practising Midwife' in its edition July/August 2000[34] and looks at the osteopathic work of Steven Sandler and Stuart Korth, two outstanding figures in the osteopathic treatment of pregnant women in London.[35]

3.) One editorial comment published in the JAOA, 01/1971 in which a 1946 study regarding the effect of manipulations of pregnant women is mentioned.[36]

4.) Averille Morgan: *Healthy Pregnancy*. A practical guide for health professionals.[37] This book was published in 2005 and also refers to functional gestational problems but does not evaluate the practical treatment of such problems but rather recommends special body movements to achieve an improvement: "I suggest that the combination of body systems function being optimised in particular body postures or with specific body movements helps to inform clinical decision making and the subsequent intervention."[38]

In the following section the results of the literature research will be summarized:

1. It was not possible to find any article which deals specifically with the osteopathic treatment of pregnant women with hyperemesis, hypertension and/or gestational diabetes.
2. When browsing through the various articles and papers I noticed that in studies evaluating osteopathic treatment of pregnant women and its effect in particular those pregnant women that would be interesting for my master thesis were excluded from the study cohort.[39]
3. Even though only marginally a few papers suggest that experiences with osteopathic treatment of functional gestational problems have already been gained.

[34] cf. Green, p. 205-212.; Zitat der Ersterscheinung des Artikels: Jenny Green: Osteopathy in pregnancy and childbirth. In: The Practising Midwife 2000 Jul-Aug; 3 (7) p. 38-43.
[35] cf. Green, p. 205-212.
[36] cf. N.N.: Editorial comment. In: JAOA 1971/01 (Sept. 1971) p. 10-14
[37] cf. Morgan.
[38] Morgan, p. 82.
[39] The following publication is one example: Dorothea Lenz: Die osteopathische Behandlung als Prävention von Geburtskomplikationen. Eine Studie über die Behandlung von Erstschwangeren. Dipl. Arb. am College Sutherland, April 2003.

A study in 1946 published in the JAOA 1971 points out that in 500 pregnant women who received osteopathic treatment or manipulation during pregnancy a considerable shorter birth process could be observed and pre-eclampsia did not occur in one single case.[40]
In another publication Stuart Korth mentions in an interview with Jenny Green[41] that the treatment of symptoms in the cervical spine can improve problems like hyperemesis, which can be caused by an irritation of the vagus nerve.[42]
Even though Great Britain has a much longer tradition of osteopathic treatment of pregnant women Stuart Korth, who has been practicing as osteopath since 1964, explains that it took a long time until he was asked not only to treat structural problems during pregnancy but also functional problems. [43] He attributes this to the fact that osteopathic research in this field has a lot of catching up to do.[44]

The results of the literature research did not provide an answer to the study question. Thus another way of evaluating whether there is experience with osteopathic treatment of gestational problems like hyperemesis gravidarum, hypertensive gestational problems or gestational diabetes had to be adopted.

[40] cf. N.N.: Editorial comment, p. 14.
[41] Green, p. 211.
[42] cf ibid., p. 212.
[43] cf. ibid., p. 210.
[44] cf. ibid.

3. “Structure governs function” – The philosophy of Andrew Taylor Still

The basic osteopathic principle that structure influences function represents the foundation for the scientific consideration of the topic “functional gestational problems” and the evaluation of the question whether such problems can be influenced through osteopathic treatment. Therefore it is interesting to examine this fundamental principle more closely and to take a closer look at the man who coined the philosophy of osteopathy: Andrew Taylor Still.

3.1. The life of Andrew Taylor Still[45]:

Andrew Taylor Still was born on August 6, 1828 in Lee County, Virginia. The son of a Methodist priest and doctor experienced a deeply religious education and decided to become a doctor himself when he was 25 years old. In the wake of the death of four of his children due to meningitis and pneumonia Still turned away from the established medical practice at the time. He started looking for other methods of healing and began to carry out intensive self-studies of the anatomy and physiology of the human body. Still was inspired by the prevailing ideas and philosophies of the time (American transcendentalism, phrenology and mesmerism) and also looked into the medical religion of the Shawnee Indians, the so-called “bone setting”. He took the idea of the “circulation of a universal fluid” from mesmerism and integrated it in his medical philosophy. In 1874 Still presented his new treatment approach to the public and gave it the name “osteopathy” through which he wanted to emphasizes that he wanted to alleviate or heal the complaint (Greek: *pathos*) of the patient via the bone (Greek: *osteon*). In March 1875 he opened his own practice and subsequently founded the “American School of Osteopathy” in 1892. His major works include: *Autobiography* (1897), *Philosophy Of Osteopathy* (1899), *The Philosophy And Mechanical Principles Of Osteopathy* (1902) and *Osteopathy, Research And Practise* (1910). On December 12, 1917 Still died in Kirksville, Missouri.

[45] cf. Wikipedia: “Andrew Taylor Still”. online: URL: http://de.wikipedia.org/wiki/Andrew_Taylor_Still .

3.2. The Philosophy of A. T. Still:

In his work about the "Philosophy Of Osteopathy" that was published in 1899 Still tries to give his readers an understanding of the ideas that characterize and constitute his philosophy. The work is divided in 20 chapters, with the first two dealing with the general philosophy of osteopathy and the other 18 examining specific regions or structures of the body in more detail. The attempt to provide a clear description of the structure of Still's work has to fail because unlike in scientific publications of today no "red thread" can be found in it. Still tells his readers about "his" philosophy and one gets the impression that he is writing about what seemed most important to him at the moment. This chapter tries to provide an easily readable summary of Still's philosophy in particular with regard to the assumption that structure governs function, which is important for this paper, without distorting his basic ideas.

3.2.1. Stills 'general' philosophy:

"I was never convinced that the time was ripe for such a production".[46] These are the words with which Still, the founder of osteopathy, introduces his work *Philosophy Of Osteopathy* and he explains to his readers why he took so long to write down his tenets. Even though Still has been practicing osteopathy for already 25 years he thinks osteopathy still is "only in its infancy, it is a great unknown sea"[47]. He strongly advises his students to intensively study the anatomy and he emphasizes how important a clear understanding of anatomy is by repeatedly pointing it out in his writings. He says to his students: "You begin with anatomy and you end with anatomy"[48], and later he tells them to say in a "morning, midday and evening prayer": "O Lord, give me more anatomy, each day I live"[49]. Still extends the term anatomy to the "study of the build up of body parts"[50] and expects his students to also have an understanding of physiology, histology, elementary chemistry and clinic.[51] "If we would reason on diseases of the organs, of the head, neck,

[46] Still A. T.: Philosophy of Osteopathy. p. 3.
[47] ibid.
[48] ibid, p. 16.
[49] ibid, p. 45.
[50] Pschyrembel, Praktische Geburtshilfe, p. 66.
[51] cf. Still, Philosophy of Osteopathy, p. 17f.

abdomen or pelvis, we must first know where these organs are, how and from what arteries the eye, ear, or tongue is fed."[52] For Still it is important to have "a perfect plan and specification to build in form a house, an engine, a man, a world…"[53] If you know how a body needs to function, you can tell why diseased bodies "have been strained from being thrown off the track, or run against other bodies with such force as to bend."[54] According to Still a good function can only be achieved through making the form more perfect: "The osteopath seeks first physiological perfection of form, by normally adjusting the osseous framework, so that all arteries may deliver blood to nourish and construct all parts."[55] In order to get down to the cause of a disease he divides the body in three parts, chest, upper and lower limbs[56]: "The first division takes in head, neck, chest, abdomen and pelvis. The second division takes in head, neck, lower and upper arm and hand. The third division takes in foot, leg, thigh, pelvis, and lumbar vertebra."[57] If a problem occurs within one of theses three parts, the osteopath approaches the cause of the problem by in turn examining the individual regions of this part.[58] The following excerpt of Still's "Philosophy Of Osteopathy" illustrates how much a structural problem can influence and impair a good function:

"The eleventh and twelfth ribs may, and do often get pushed so far from their normal bearings, that they are often found turned in a line with the spine, with cartilaginous ends down near ilio-lumbar articulation. When in such position they draw the diaphragm down heavily on vena cava at about the fourth lumbar. Then you have cause for intermittent pulse, as the heart finds no passage of blood through the prolapsed diaphragm which is also stopping the vena cava and producing universal stagnation of blood and other fluids in all organs and glands below the diaphragm. Thus you have a beginning for abnormal growths of womb, kidneys, and all lymphatics of liver, kidneys, spleen, pancreas, and all tumours of abdomen."[59]

For Still an unimpaired structure is the prerequisite for an unimpaired function of the physiology, which again is the prerequisite for the body to be able to absorb the chemicals that it needs.[60] If there is no harmony of structure, physiology and elementary chemistry, tumours in the head or inner organs can develop (problems in histology).[61] The osteopath

[52] ibid, p. 12.
[53] ibid, p. 19.
[54] ibid, p. 20.
[55] ibid, p. 27.
[56] cf. ibid, p. 29.
[57] ibid.
[58] cf. ibid., p. 29-33.
[59] ibid., p. 36f.
[60] cf.. ibid. p. 40f.
[61] cf. ibid, p. 34; 37.

is called upon to search for the origin or as Still put it: "To find health should be the object of the doctor. Anyone can find disease."[62]

3.2.2. Still's opinion on specific problems:

From chapter III of his "Philosophy Of Osteopathy" onwards Still discusses specific regions or structures of the body and specific conditions. His evaluation of the individual topics does not follow any stringent logics. Sometimes he puts the structure in the foreground; sometimes he examines a particular clinical picture. In any case he always tries to establish a causal relationship between the structure and the disease or the structure and the organ. In the following I will try to illustrate Still's considerations and approach with a few concrete examples: According to Still croup is the result of abnormalities in the fluid system, which again are caused by abnormalities in the structure.[63] Still sees the human being as a machine: If it works well from the cranium to the sacrum, if all structural problems can be resolved, there are no organic problems and the body finds itself in a good state of health.[64]

Still's answer to the question about which structure he treats in the case of whooping – cough is: "…the bones that held by attachment the muscles of the hyoid system in such irritable condition that begin with the atlas and terminate with the sacrum."[65] In chapter XVI Still talks about the osteopathic treatment of 'the vermiform appendix'. He provides a concrete case example and describes how he could spare Mr. Surratt, one of his patients, a surgical intervention through his treatment: "I found lateral twist of lumbar bones; I adjusted spine, lifted bowels, and he got well."[66] Through this kind of treatment the appendix is reendowed with its ability to convey foreign substances. According to Still inflammations in this region are due to a stagnation of the food pulp at this site.[67] Regarding the cause of this stagnation he writes:"…that in every case there has been previous injury to some set of spinal nerves, caused by jars, strains or falls."[68] Still points out that he has been treating appendicitis in this way for 25 years and that he was able to

[62] ibid, p. 28.
[63] cf. ibid, p. 59.
[64] cf. ibid, p. 69ff.
[65] ibid, p. 91.
[66] ibid, p. 225.
[67] cf. ibid, p. 223-227.
[68] ibid, p. 227.

help in every single case. This success rate was remarkable at the time because a lethal outcome of an appendectomy was quite common back then![69]

3.2.3. The diaphragm – Still's point of view

Still declares that the diaphragm is a very central structure in the body:[70]
"The diaphragm is possibly the least understood as being the cause of more diseases, when its supports are not all in line and normal position, than any other part of the body. (…) All parts of the body have a direct or indirect connection with this great separating muscle."[71]
Still then tries to highlight the interconnection between the position of the diaphragm and its effect on other organs:

"Below it [*the diaphragm*] are the stomach, bowels, liver, spleen, kidneys, pancreas, womb, bladder; also the great system of lymphatics of the whole blood and nerve supply of the organs and systems of nutrition and life supply…If it should neglect its work of which it is a vital part, should we take down this wall and allow the liver, stomach and spleen to occupy any of the places allotted to these engines of life, a confusion would surely be the result."[72]

Among other things Still mentions diabetes in this context. He does not look at this disease from a mere symptomatic point of view, but considers its cause to be a strain of the diaphragm: "…and the diaphragm has caused all the trouble, by first being irritated from hurts, by ribs falling, spinal strains, wounds and on from the coccyx to the base of the brain."[73] Similarly to diabetes Still also tries to explain other abdominal lesions with a bad position of the diaphragm and not on the basis of their symptoms.[74]
For Still the unimpeded flow of blood in the individual arteries and veins plays a very important role in maintaining health.[75] He also mentions the fascias as possible origin of diseases.[76] No matter what restriction is present "the osteopath must know or learn that no infringement can be tolerated in any part."[77] – "osteopathy is knowledge or it is nothing."[78]

[69] cf. ibid, p. 225.
[70] cf. ibid, p.115-135. Still devotes a whole chapter to the diaphragm
[71] ibid., p. 123f.
[72] ibid., p. 124f
[73] ibid., p. 231f.
[74] cf. ibid, p. 232.
[75] cf. ibid. p. 153.
[76] cf. ibid, p. 86.
[77] ibid, p. 100.
[78] ibid, p. 233.

3.2.3. The chapter “Obstetrics” in “Mechanical Principles Of Osteopathy”:

In the chapter “Obstetrics” in Still’s “Philosophy And Mechanical Principles Of Osteopathy” (1902) the author discusses among other things the causes of morning sickness during pregnancy. Like in his work “Philosophy Of Osteopathy” he tries to identify a cause of the problem. He writes: “Diseases of the nerves of the pelvis come from pressure of the bowels and other organs of the abdomen and osseous disturbances. (…) We would conclude, from the relation of arteries and nerves which at this time begin an active upbuilding for the development of the foetus, that any disturbance from the normal would be a cause for this sickness.”[79] In order to treat the condition of morning sickness Still asks the woman to go into a knee-and-chest position. Already this position helps to alleviate the strain on the abdomen; in addition, he puts his hands on the lower abdomen of the pregnant woman and tries to achieve a better circulation of blood and other fluids though gentle movements in the direction of the umbilicus.[80]

[79] Still, A.T.: The Philosophy and Mechanical Principles of Osteopathy. p. 309.
[80] cf. ibid, p. 310.

4. Functional gestational problems

Osteopathy is knowledge or it is nothing.[81] If one takes this statement by A. T. Still serious it would be impossible to attempt the treatment of pregnant women and their functional gestational problems without having studied these problems intensively.
The following chapter will take a closer look on three of the most common functional problems during pregnancy. (The discussion of all possible functional gestational problems would go beyond the scope of this paper.) In addition to an evaluation of hypertensive conditions during pregnancy it seemed interesting to also look at hyperemesis gravidarum because also A.T. Still looked at this problem in his "Philosophy of Osteopathy" [82]. The detailed consideration of gestational diabetes was motivated by Still's idea that many problems (among them diabetes) can be caused through a misalignment of the diaphragm [83]. After a brief explanation of the individual conditions and their possible causes the dangers and risks for the future mother and her child that are involved in the respective pathologies will be analysed and the current management of the various problems by conventional medicine will be highlighted. Finally, the symptoms that represent a contraindication for osteopathic treatment or necessitate a hospitalization of the pregnant woman will be pointed out. Due to a lack of relevant literature on the topic this aspect will be discussed on the basis of statements by Prim. Kurt Resetarits, specialist for gynaecology and obstetrics in Hartberg (Styria, Austria). Wherever possible his statements are corroborated by passages from the literature.

4.1. Hyperemesis gravidarum:

The technical term hyperemesis gravidarum describes excessive vomiting due to pregnancy (more than 5 times per day) with the consequence of a loss of more than 5 percent of the mother's original weight because of the impaired supply of nutrients and fluids and the disturbed water and electrolyte balance.[84]

[81] cf. Still, Philosophy of Osteopathy, p. 233.
[82] cf. ibid., p. 309f.
[83] cf. ibid., p. 231f.
[84] cf. Henning Schneider, Peter Husslein, Karl-Theo M. Schneider: Die Geburtshilfe. 3. Aufl. Heidelberg: Springer Medizin Verlag 2006, p. 268.

4.1.1. Aetiology:

The aetiology of the problem is still unclear.[85] [86] [87] [88] The causes that are considered include somatic and also psycho-social factors.[89] The mother's rejection of the pregnancy or social problems that affect her belong to the psycho-social causes.[90] However, this kind of psycho-social causes of hyperemesis are dismissed by Sheehan (2007).[91] According to her the woman's originally positive or neutral attitude towards the pregnancy only turns negative due to the occurrence of hyperemesis. [92] She refers to a study by Davis in 2004[93] and points out that: "Studies of hyperemesis patients have found no difference in marital status, whether the infant was planned, or positive feelings about the pregnancy"[94]
Hormonal causes, temporary hyperthyreosis, hyperparathyreosis, disturbed liver function, disturbed peristaltics of the stomach, disturbed lipid metabolism or disturbances of the autonomous nervous system are listed among the possible somatic factors.[95] Quinlan and Hill also mention helicobacter pylori as a possible cause[96], which they saw confirmed by a study[97] in 2000. Those were their concrete results: "In this study, 61.8 percent of pregnant women with hyperemesis were found to be positive for the *H. pylori* genome, compared with 27.6 percent of pregnant women without hyperemesis."[98] In a meta-analysis by Verberg et. al. (2005)[99] data of studies between 1966 and 2005 were examined. The overview looks in particular at the possible aetiologies of the problem: human chorionic gonadotropin level (HCG), progesterones, oestrogenes, thyroid hormones, leptin, adrenal cortex, growth hormone and prolactin, helicobacter pylori infection, gastric and intestinal motility, lower oesophageal sphincter pressure, metabolic enzymes, liver enzymes, nutritional deficiencies, psychological

[85] cf. Jefferey D. Quinlan, D. Ashley Hill: Nausea and Vomiting of Pregnancy. In: American Family Physician, Volume 68, Number 1 / July 1, 2003, p. 121 (121-128)
[86] cf. Penny Sheehan: Hyperemesis gravidarum. Assesement and management. In: Australian Family Physician Vol 36, No 9, Sept 2007, p. 698.
[87] cf. Schneider, Husslein, Schneider, p. 268.
[88] cf.M.F.G.Verberg1,2, D.J.Gillott1, N.Al-Fardan3 and J.G.Grudzinskas: Hyperemesis gravidarum, a literature review. In: Human Reproduction Update, Vol.11, No.5, July 2005, p. 534.
[89] cf. ibid. p. 527-534.
[90] cf. Schneider, Husslein, Schneider, p. 268.
[91] cf. Sheehan, p. 698-701.
[92] cf. ibid., p. 699.
[93] M. Davis: Nausea and vomiting of pregnancy: an evidence based review. J Perinat Neonat Nurs 2004; 18: p312–328.
[94] cf. Sheehan, p. 699.
[95] cf. Schneider, Husslein, Schneider, p. 268.
[96] cf. Quinlan, Hill, p. 122.
[97] Quinlain und Hill refer to the following study: Hayakawa S, Nakajima N, Karasaki-Suzuki M, Yoshinaga H, Arakawa Y, Satoh K, et al. Frequent presence of *Helicobacter pylori* genome in the saliva of patients with hyperemesis gravidarum. Am J Perinatol 2000; 17:243-247.
[98] Quinlain, Hill, p. 122.
[99] cf. Verberg et a1, p. 527–539.

causes.[100] The conclusion of the meta-analysis is the following: "Besides the methodology used in the presented studies, it is possible that the factor causing HG [hyperemesis gravidarum] has not been identified yet, HG could have a multifactorial cause or HG might be the end result of various unrelated conditions."[101]

4.1.2. Dangers and risks for mother and child:

Regarding the dangers and risks for mother and child Quinlan and Hill point out: "…hyperemesis gravidarum has been associated with increases in maternal adverse effects, including splenic avulsion, oesophageal rupture, Mallory-Weiss tears, pneumothorax, peripheral neuropathy, and pre-eclampsia, as well as increases in foetal growth restriction and mortality."[102] Schneider/Husslein/Schneider (2006) mention oesophagal injuries and pneumothorax as possible risks of excessive vomiting.[103] In addition, they see a significant correlation between pronounced hyperemesis and restrictions of foetal growth.[104] Sheenan talks about increased occurrence of depression after delivery[105] and refers to a study by M. Goodwin (2002)[106]

4.1.3. Management:

In the case of mild hyperemesis dietary measures are sufficient. Several small meals are recommended.[107] Quinlain (2003) recommends:

"Affected pregnant women should be instructed to eat frequent, small meals and to avoid smells and food textures that cause nausea. Solid foods should be bland tasting, high in carbohydrates, and low in fat. Salty foods (e.g., salted crackers, potato chips) usually can be tolerated early in the morning, and sour and tart liquids (e.g., lemonade) often are tolerated better than water."[108]

This advice is consistent with Sheehan's proposals.[109]

---

[100] cf. ibid, p. 527-534.
[101] ibid., p. 535.
[102] Quinlan, Hill, p. 122f.
[103] cf. Schneider,Husslein, Schneider, p. 268.
[104] cf. ibid.
[105] cf. Sheehan, p. 698.
[106] cf. TM. Goodwin: Nausea and vomiting of pregnancy: an obstetric syndrome. Am J Obstet Gynecol 2002, p. 184–189.
[107] cf. Schneider,Husslein, Schneider, p. 269
[108] Quinlan, Hill, p. 123.
[109] cf. Penny Sheehan, p. 699.

In more severe cases the woman will be hospitalized. The impaired water and electrolyte balance needs to be normalised by infusions and if necessary complemented also by the administration of medications and parenteral nutrition.[110]

4.1.4. Necessity of hospitalization in the case of hyperemesis gravidarum:

According to Resetarits even a major loss of weight and repeated vomiting over a day do not really represent a true risk for the mother.[111] If the woman can manage to drink enough (i.e. 2 ½ litres per day) and to keep the fluid in, the loss of weight and the temporary food abstention is of secondary importance.[112] The problem has to be taken seriously if the woman shows clear signs of dehydration[113]. In this case it is recommendable to admit the woman to hospital as in-patient. [114] In this context Sheehan writes in her article on hyperemesis: "The most important step is for the patient to drink enough fluids to avoid dehydration, which exacerbates nausea. If the woman is unable to tolerate oral fluids admission to hospital is mandatory."[115] She advocates a thorough examination at the hospital if the urine strip test of the pregnant woman indicates 2+ keton body.[116]

4.2. Hypertensive conditions during pregnancy – with particular focus on pre-eclampsia

"Hypertension during pregnancy is defined with systolic blood pressure values of ≥140mm Hg and diastolic blood pressure values of ≥90mm Hg. Systolic blood pressure values of ≥160mm Hg and diastolic blood pressure values of ≥110mm Hg are considered as severe hypertension. In the case of normal values before the 20th week of pregnancy the raised blood pressure is regarded as pregnancy-induced hypertension (National Institutes of Health 2000)."[117] "Hypertension during pregnancy remains a common and potentially

[110] cf. Quinlan, Hill, p. 123.
[111] cf. Resetarits, 2008, line 17; 23f.
[112] cf. Resetarits, 2008, line 47-51.
[113] cf.Willibald Pschyrembel (editor): Klinisches Wörterbuch, 257., neu bearbeitete Auflage. Berlin-New York: de Gruyter 1994, p.305: Dehydration is defined here as: "increased […] gastrointestinal […] elimination of water without corresponding intake". This loss of water and also sodium can subsequently lead to a hypervolaemic shock and disturbed awareness.
[114] cf. Resetarits, 2008, line 50f; line 52f.
[115] Sheehan, p. 699.
[116] cf. ibid.
[117] Schneider, Husslein, Schneider, p. 292.

devastating complication"[118] According to Thadhani et. al. gestational hypertension can occur with or without proteinuria. In this case one talks about pre-eclampsia.[119] In addition, he also talks about *chronic hypertension* if the raised blood pressure pre-existed before the pregnancy or occurred before the 20th week of pregnancy.[120] This classification corresponds to that in the AWMF guidelines.[121] However, these guidelines state that one talks about pre-eclampsia even if there is no proteinuria but one of the following signs or symptoms can be detected:

- foetal growth restriction,
- liver involvement,
- disturbed renal function,
- neurological problems or
- haematological disturbances[122]

In the case of *chronic hypertension* a raised blood pressure can be observed already in the first week of pregnancy. If a proteinuria (protein in the urine) occurs in addition to the raised blood pressure one talks about a *superimposed eclampsia.* The *HELLP syndrome* ("haemolysis", "elevated liver enzymes", "low platelets") can be regarded as a severe form of pre-eclampsia even though hypertension and proteinuria can be absent in this case. Typical for this kind of pathology is that the pregnant woman complains about problems in the upper abdominal region. Lab tests can then identify *haemolysis, elevated liver enzymes and low platelets*.[123] It has already been mentioned above that if hypertension occurs in the second half of the pregnancy without proteinuria one talks about *gestational hypertension*.[124] Even though this kind of hypertension is also regarded as benign complaint during pregnancy it does carry an increased risk of pre-eclampsia that might occur later on.[125] [126]

[118] Ravi I. Thadhani, Richard J. Johnson, S. Ananth Karumanchi: Hypertension During Pregnancy
A Disorder Begging for Pathophysiological Support. In: Hypertension. Journal of the American Heart Association. 2005;46; p. 1250.
[119] cf. ibid.
[120] ibid.
[121] Cf. AWMF- Leitlinien-Register Nr. 015/018. online: URL: http://www.awmf-leitlinien.de/ (5. 5. 2008)
[122] ibid.
[123] cf. ibid.
[124] cf. Schneider, Husslein, Schneider, p.293f.
[125] cf. ibid, p. 294.
[126] cf. ibid., p.297f.

4.2.1. Aetiology of pre-eclampsia

"Pre-eclampsia is a multisystemic disorder of unknown aetiology, which occurs in around 5% of all pregnancies."[127] To date there is still no real explanation of the development of pre-eclampsia available.[128] [129] According to Cignacco it is described as an unpredictable pathology[130], other authors define it as pregnancy-induced multiorgan pathologic state.[131] Schneider/Husslein/Schneider (2006) mention a disturbed placentation but also an increased sensitivity of the maternal endothelium as possible pathogenesis, with genetic disposition, diet and chronic stress possibly playing a role.[132] "The variety of the symptoms can be ascribed to a generalized vasoconstriction, activation of coagulation and microangiopathies in different organ systems."[133]

4.2.2. Symptoms:

What is noticeable is that the blood pressure is increased to a systolic value of ≥140mm Hg and a diastolic value of ≥90mm Hg and the positive result of the urine test strip (1-2+). This corresponds to a loss of protein of more than 300 mg per day. 80 percent of pregnant women with pre-eclampsia have oedema in the legs, arms and face. [134] However, Rath (2001) says: "Oedema alone are an uncharacteristic symptom which only is important if the oedema occur very rapidly (≥ 2 kg/week), i.e. if a considerable weight gain within a very short period of time can be observed or pronounced oedema in the face are visible."[135] Rath lists all prodromal symptoms which can be evidence for a threatening pre-eclampsia: pain in the upper abdominal region, nausea, vomiting. As tell-tale central-nervous symptoms he mentions: flicking of the eyes, persisting headaches, hyperreflexia.[136] A study by Douglas/Redman (1994)

---

[127] Norma C. Serrano: Immunology and genetic of pre-eclampsia. In: Clinical & Developmental Immunology, June–December 2006; 13(2–4): 197.
[128] cf. Schneider, Husslein, Schneider, p. 296.
[129] cf. Kirsten Duckitt, Deborah Harrington: Risk factors for pre-eclampsia at antenatal booking: systematic review of controlled studies. In: BMJ, doi:10.1136/bmj.38380.674340.E0 (published 2 March 2005) p. 1. online: URL:http://www.bmj.com/cgi/reprint/330/7491/565
[130] cf. Eva Cignacco (Hg.) Hebammenarbeit, Assessment, Diagnosen und Interventionen bei (patho)physiologischen und psychosozialen Phänomenen. Bern: Huber, 2006., p. 94.
[131] cf. Schneider, Husslein, Schneider, p. 298.
[132] cf.ibid.
[133] ibid.
[134] cf. Cignacco, p. 97.
[135] Hypertensive Schwangerschaftserkrankungen: Diagnostik-Leitlinien. online. URL: http://www.thieme.de/abstracts/zgn/abstracts2001_3/daten/w7_2.html (21.4. 2008)
[136] Diagnostik und Therapie hypertensiver Schwangerschaftserkrankungen. In: AWMF online. URL: http://www.uni-duesseldorf.de/awmf/ll/015-018.htm (21.4. 2008)

retrospectively evaluating 383 cases of eclampsia shows that the prodromal symptoms have to be taken serious since 59 percent of all female patients had prodromal symptoms before the crisis.[137]

4.2.3. Dangers and risks for mother and child:

"Pre-eclampsia is a major cause of maternal and foetal mortality and morbidity"[138] Schneider/Husslein/Schneider consider pre-eclampsia as a `multiorgan pathology´ which can affect the kidneys, liver, cardiovascular system and central nervous system of the pregnant woman. [139] [140] In severe cases cerebral oedema, eclampsia and even multiorgan failure of the patient can occur.[141] There is the risk of insufficient nutrient supply to the foetus via the placenta which can even lead to intrauterine foetal death.[142] Another possible risk is the premature detachment of the placenta. The premature delivery of the baby due to the enormous risk also means that the baby can be affected by all sorts of problems due to the premature birth.

4.2.4. Management:

In mild cases an accurate control of mother and child at close intervals is absolutely imperative[143]. Additional bedrest is recommendable because it reduces the sympathetic tone and thus improves renal and uteroplacentar blood supply.[144] According to the guidelines of the AWMF(Arbeitsgemeinschaft der Wissenschaftlichen Medizinischen Fachgesellschaften) "there is a general agreement today that antihypertensive therapy of the mother is indicated in the case of blood pressure values of $\geq$ 170/110 mmHg."[145] In severe cases of pre-eclampsia the pregnant woman has to be hospitalized immediately and the termination of the pregnancy has to be considered. [146] The AWMF guidelines explain:

---

[137] vg. Schneider, Husslein, Schneider, p. 307.
[138] Duckitt, Harrington, p. 1.
[139] cf. Schneider, Husslein, Schneider, p. 298f.
[140] cf. Serrano, p. 197.
[141] cf. Schneider, Husslein, Schneider, p. 299.
[142] cf. ibid.
[143] ibid. p. 300.
[144] vg. Schneider, Husslein, Schneider, p. 301.
[145] AWMF Leitlinien 015/018.
[146] cf. Schneider-Husslein-Schneider, 300-303.

"In the case of pre-eclampsia delivery represents the only causal therapy for the pregnant woman. A prolongation of the pregnancy only serves the purpose of avoiding premature birth and presupposes that an advantage can be expected for the child. The decision of delivery thus depends on the gestational age and is usually indicated after completion of the 37th week."[147]

Schneider-Husslein-Schneider also agree with this recommendation.[148]

4.2.5. Necessity of hospitalization in the case of pre-eclampsia:

The blood pressure that is accepted today is 160/100.[149] The AWMF guidelines even set the limit at 170/110 with the following justification:

"Current meta-analyses of numerous studies concerning medication-mediated reduction of blood pressure …[of less than] (<170/110 mmHg) showed that antihypertensive measures only have little benefit for the mother but have a big correlation with an increased rate of growth-retarded children and reduced birth weight."[150]

In this case Resetarits and the AWMF guidelines recommend a thorough examination in hospital to clarify the situation.[151] Also symptoms like flicking of the eyes, headaches, severe nausea and upper abdominal complaints have to be taken seriously.[152] These symptoms can be regarded as alarm signals by the body that indicate the development of an eclampsia[153] and have to be further examined without delay.[154] The AWMF guidlines of February 2007 also advocate this recommendation.[155]

4.3. Gestational diabetes:

Gestational diabetes is considered to be a "disturbance in the glucose tolerance that first occurs or is first diagnosed during pregnancy."[156] [157]

---

[147] AWMF Leitlinien 015/018.
[148] cf. Schneider, Husslein, Schneider, p. 300.
[149] cf. Diagnostik und Therapie hypertensiver Schwangerschaftserkrankungen. In: AWMF (21.4. 2008)
[150] AWMF- Leitlinien-Register Nr. 015/018.
[151] cf. ibid.
[152] cf. AWMF- Leitlinien-Register Nr. 015/018
[153] cf. Schneider, Husslein, Schneider, p. 307.
[154] cf. Resetarits, 2008, line 82-86
[155] cf. AWMF- Leitlinien-Register Nr. 015/018.
[156] AWMF Leitlinien Register 057/008.
[157] cf. American Diabetes Association: Gestational Diabetes. online: URL: http://www.diabetes.org/gestational-diabetes.jsp

4.3.1. Aetiology:

No relevant publication explicitly describes the aetiology of gestational diabetes. Even the American Diabetes Association points out on its website: “We don't know what causes gestational diabetes, but we have some clues. The placenta supports the baby as it grows. Hormones from the placenta help the baby develop. But these hormones also block the action of the mother's insulin in her body. This problem is called insulin resistance. Insulin resistance makes it hard for the mother's body to use insulin. She may need up to three times as much insulin.”[158] According to the WHO gestational diabetes represents a separate category of diabetes but eventually corresponds to type II diabetes which is a relative insulin deficiency.[159]

4.3.2. Dangers and risks for mother and child:

With the aid of a 75g oral glucose tolerance test in the 24th to 28th week of pregnancy gestational diabetes should be recognized to avoid the following risks for mother and child.[160] The risks for the mother involve a greater tendency of urinary tract infections, pregnancy-induced hypertension and pre-eclampsia. In addition, the detection of gestational diabetes may show the pregnant woman that she carries a higher risk of developing diabetes in later years.[161] The risks for the child involved in untreated gestational diabetes are the following according to the American Diabetes Association: gestational diabetes “can lead to macrosomia, or a "fat" baby. Babies with macrosomia face health problems of their own, including damage to their shoulders during birth. Because of the extra insulin made by the baby's pancreas, newborns may have very low blood glucose levels at birth and are also at higher risk for breathing problems. Babies with excess insulin become children who are at risk for obesity and adults who are at risk for type II diabetes.”[162] The AWMF guidelines mention almost the same risks for the baby including a higher birth weight, neonatal hypoglycaemia, hypocalcaemia, hyperbilirubinaemia as well as infant respiratory distress syndrome after birth.[163]

[158] ibid.
[159] cf. ibid.
[160] cf. Schneider, Husslein, Schneider, p. 404.
[161] cf. Joseph Bottalico: Diabetes in Pregnancy. In: JAOA, Vol.101 No 2, Supplement to February 2001. p. 10.
[162] American Diabetes Association
[163] cf. AWMF Leitlinien 057/008.

4.3.3. Management:

If gestational diabetes is diagnosed the following therapeutic measures are indicated: change in diet, physical activity, regular blood sugar control and if necessary insulin therapy.[164] In their publications Cignacco and Freeman address the issue of dietary change in more detail: Freeman explains: "Nutrition management may include three meals and mid-morning, mid-afternoon, and bedtime snacks."[165] In addition, Cignacco advises the pregnant woman to abstain from sugar and refined food.[166]

4.3.4. Necessity of hospitalization in the case of gestational diabetes:

In none of the scientific articles concrete symptoms of women with gestational diabetes are pointed out, which would necessitate an immediate hospitalization of the patient. Also Resetarits does not see an indication for such a measure.

4.4. Summary:

Before the next chapter will look at the choice of method and applied methodology the issues that have been discussed so far will be presented in a brief summary:

In every functional problem, e.g. diabetes Still tried to find its actual cause. He held restrictions in the body responsible for causing these kinds of problems. For him diabetes and other abdominal problems are caused by e.g. a misalignment of the diaphragm. In his osteopathic treatment he thus tried to get as closely as possible to the origin of the problem.
Also conventional medicine looks for the causes of functional problems. Nevertheless, the aetiologies of hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes are still unclear despite numerous studies. Therefore conventional medicine usually treats only the symptoms of these kinds of gestational problems.
If the hypothesis of this master thesis, which is that experiences with the osteopathic treatment of functional gestational problems have already been gained, can be confirmed, osteopathy

[164] cf. Schneider, Husslein, Schneider, p. 405.
[165] Jeffrey S. Freeman: Diabetes-Related Clinical Issues Represented by the „Faces of Diabetes". In: JAOA, Supplement 5, Vol. 103, No 8, August 2003, p. 14.
[166] cf. E. Cignacco, p. 59.

could make use of these experiences to offer a different kind of help to pregnant women in addition to conventional methods.

The following chapters will take a closer look on whether the hypothesis can be confirmed in practice. Before addressing this issue, however, the next chapter will explain why the method of expert interviews based on “interview guidelines” was chosen for this paper.

5. Choice of method:

The theoretical foundations for the choice of the methodology are mainly drawn from the article *"Arbeitsschritte im qualitativen Forschungsprozeß – ein Leitfaden"* by König and Bentler.[167] In addition, also an article by Peter Biniok ("*Methodenlehre 1:* "*Einführung in die Methoden der empirischen Sozialforschung"*[168]) proved to be useful.

5.1. Quantitative research methods – possibilities and limitations:

Regarding the choice of method to evaluate the question "Is there experience regarding the osteopathic treatment of functional gestational problems?" there are three possibilities that lend themselves to approach this topic in a scientific way: Two draw upon the field of quantitative research: the *systematic overview* and the *experimental study*.
The *systematic overview* or *meta-study*[169] would meet the requirements necessary to answer the question of this paper. It provides information about the current state of knowledge on the topic and on the basis of that draws theoretical and/or practical conclusions[170]. However, this kind of scientific evaluation proved to be inappropriate for the specific question of this master thesis since only little scientific literature is available on this particular topic.
Several arguments also spoke against the use of the second quantitative method, i.e. the method of a *true experimental design*[171]. These reasons will be listed and briefly explained below:

1. Homogeneity of the research group
2. Legal aspects
3. Ethical aspects

Ad 1. Homogeneity[172]:

[167] cf. König Eckard, Bentler Annette: Arbeitsschritte im qualitativen Forschungsprozeß - ein Leitfaden. In: Barbara Friebertshäuser, Annedore Prengel (Hrsg.) Handbuch Qualitative Forschungsmethoden in der Erziehungswissenschaft. Weinheim; München: Juvena 1997. p. 88-96.
[168] cf. Peter Biniok: Methodenlehre 1: Einführung in die Methoden der empirischen Sozialforschung. Sitzung # 5, Berlin, 2005. (Vorlesungsunterlagen d. Instituts für Soziologie, TU Berlin, WS 2005/2006.
[169] Sommerfeld Peter: Methodologie II. 3. überarbeitete Version o.O. 2005, p. 34-37.
[170] cf. ibid., p. 35.
[171] cf. ibid., p. 15-26.
[172] cf. Sommerfeld Peter: Methodologie I. 2. überarbeitete Version o.O. 2004, p. 33-39.

The clinical pictures regarding the individual gestational problems in pregnant women are so multifaceted that homogeneity and thus comparability of the research group is impossible. (This seemed to be the first and most important reason for deciding against an experimental study in this field.) Due to the lack of homogeneity also control, randomization and blinding is not possible.

Ad 2. Legal aspects:

The treatment of pathologies during pregnancy already represents a certain risk. The implementation of a study regarding the treatment of pregnant women with pathologies during pregnancy would give immediately rise to the question about the legal implications in the case of traumatic deliveries in the context of this treatment. This problem still persists even if there is no correlation between the osteopathic treatment and the traumatic delivery or such correlation cannot be established.

Ad 3. Ethical aspects:

How can one justify it from an ethical point of view to treat one group of patients and use the other group as control without providing treatment even though one assumes that the treatment will have a positive influence?

5.2. Qualitative methods: The problem-centred expert interview based on interview guidelines[173]:

The third possibility to evaluate the topic belongs to the field of qualitative research and is based on interviews. Among the number of available interview methods the *problem-centered expert interview supported by interview guidelines* seemed to be the most appropriate in this context: on the one hand the topic of this paper deals with a field not every osteopath is confronted with in his/her practice. On the other hand, there are a

[173] On guideline-supported expert interviews: cf. König Eckard, Bentler Annette: Arbeitsschritte im qualitativen Forschungsprozeß, p. 88-96.; sowie auch: cf. Michael Meuser und Ulrike Nagel: Das ExpertInneninterview- Wissenssoziologische Voraussetzungen und methodische Durchführung. Barbara Friebertshäuser, Annedore Prengel (Hrsg.) Handbuch Qualitative Forschungsmethoden in der Erziehungswissenschaft. Weinheim; München: Juvena 1997. p. 481-491.

number of osteopaths who have the reputation to be experts for the treatment of pregnant women and all the problems that might occur during pregnancy. It is exactly this advantage in terms of expert knowledge in this field[174] that should be highlighted through the *problem-centred expert interviews based on interview guidelines* to make it available for other osteopaths (with less experience in the treatment of pregnant women).

5.3. Definition of the basic population:

The original intention of this paper was to approach all osteopaths with experience in treating pregnant women with hyperemesis, hypertension or gestational diabetes and to ask them whether they were available for a problem-centred interview. However, this ambition seemed to be more difficult to implement into practice than expected. I had to realize that many of the osteopaths I approached with the knowledge that they were working with pregnant women mainly had experience in treating structural problems during the pregnancy. Thus it was not possible to carry out an expert interview that should have the advantage to draw upon the interviewees' head-start in knowledge about treating functional gestational problems[175]. My next step thus consisted in contacting osteopaths that I did not know personally but of whom I knew that they underwent paediatric osteopathic training via e-mail. I assumed that osteopaths who worked a lot with newborns and children also had some experience with pregnant women and their treatment during pregnancy. Unfortunately I did not receive any positive reply despite repeated inquiries and requests via the OZK (Osteopathic Center for Children in Vienna)[176]. I therefore think that the osteopaths I contacted by e-mail did not consider themselves to be experts in treating women with the above mentioned problems, i.e. that they did not possess: "…relevant knowledge regarding the main question of this study …"[177], or they were not interested to be interviewed on the topic. I finally reached a first starting point for my research when I approached Renzo Molinari during one of his courses at the WSO (Vienna School of Osteopathy) which I frequented during my osteopathic training. He told me that in the Anglo-Saxon world there are some osteopaths whose main field of work is treating pregnant women. Through an online research I could find and contact two renowned

[174] cf. Meuser, Nagel, p. 484.
[175] cf. ibid.
[176] Österreichisches Zentrum für Kinderosteopathie, Wien
[177] cf. Biniok, p.20.

British experts in this field in addition to Renzo Molinari: Averille Morgan and Steven Sandler. They were also willing to be available for interviews. In addition Dr. Beatrix Urbanek, gynaecologist and osteopath in Austria agreed to answer the interview questions. Eventually, four renowned experts were ready to participate in the interviews.

5.4. Definition of the study design:

The central question of the interviews deals with the experience of the interviewed experts regarding the osteopathic treatment of functional gestational problems. Thus the basic question is: “Do these experts have concrete experience in treating problems like hyperemesis, hypertension and gestational diabetes?” If the answer is yes, the interviewees are asked to describe the concrete form of osteopathic treatment they would provide in the case of hyperemesis, hypertension or gestational diabetes in more detail. The final question of the interview concerns the dangers or risks that can occur in the context of the osteopathic treatment and the limitations the practitioners are confronted with in treating functional gestational problems.

The concrete questions to the experts were the following:

Among osteopaths you are regarded as the eminent authority on pregnant women. In your practice do you work exclusively or primarily with pregnant women?

What led you to work exclusively/primarily with pregnant women? Please give me a short outline.

What kinds of problems as regards pregnant women have you had to deal with in your osteopathic practice so far? (Please try only to list them for the time being without going into the particular problems in more detail.)

Let us now deal with three particular problems which often appear in the course of pregnancies: hyperemesis gravidarum, hypertension, gestational diabetes.
With each of these three problems I want to focus on the following aspects: experience, form of treatment, dangers and limits.

Let us first deal with hyperemesis:

Do you have any experience with hyperemesis?
By way of which forms of treatment do you try to have an effect on this problem?
What dangers do you watch out for in your treatment?
Are there any reasons not to treat a woman with hyperemesis?

Let us now deal with hypertension:

Do you have any experience with hypertension?
By way of which forms of treatment do you try to have an effect on this problem?
What dangers do you watch out for in your treatment?
Are there any reasons not to treat a woman with hypertension?

And now gestational diabetes:

Do you have any experience with gestational diabetes?
By way of which forms of treatment do you try to have an effect on this problem?
What dangers do you watch out for in your treatment?
Are there any reasons not to treat a woman with gestational diabetes?

Let us now conclude the interview:

Are there any aspects we have not covered in this interview, but seem to matter as regards our topic "Functional Problems of Pregnant Women and Osteopathic Treatment"?

The answers to the individual questions are compared with regard to the experience of the experts, their way of treating and their points of view regarding the risks and limitations of such treatments.

5.5. Implementation of the study:

When I was starting to look for interview partners for my master thesis Renzo Molinari D.O. [178], former director of the European School of Osteopathy, London, and specialist in obstetrics and gynaecology agreed to be available for an interview which I carried out on April 21, 2007 in Vienna. Further, I found the e-mail address of Averille Morgan, registered osteopath currently working in Norfolk/UK during my online literature research. She teaches postgraduate workshops for manual therapists and midwives in London and runs a pregnancy and children's clinic from her osteopathic practice in Norfolk/UK. I contacted her by telephone on February 18, 2008 and during the conversation she spontaneously agreed to answer my questions on the phone. During my search for additional interview partners on the internet I came across the name of Steven Sandler D.O., PhD, Director and Founder of the Expectant Women's Clinic (EMC)[179] at the British School of Osteopathy in London and osteopath at the Portland Hospital for Women and Children. Also Steven Sandler was open to my request and agreed to answer my questions by e-mail which he did on April 7 and 9, 2008. Finally, I also carried out an interview with Dr. Beatrix Urbanek D.O., specialist for gynaecology who has a practice in Vienna and also underwent training in paediatric osteopathy and further training at the OZK. The interview took place on April 3, 2008 in Vienna.

This methodological process had the objective to find out whether the interviewed experts had some experience with the osteopathic treatment of functional gestational problems and if yes how they would try to influence them. The following chapter will present the results of the interviews.

[178] Renzo Molinari D.O. has been practicing osteopathy for more than 25 years and specialized in obstetrics in gynaecology. He directed the European School of Osteopathy (ESO) in Maidstone and founded various osteopathy schools in Europe.
He is an extraordinary member of the American Academy of Osteopathy and acts as its coordinator in Europe.

[179] Steven Sandler founded the EMC in 1980.

6. Comparison of expert interviews on the basis of the individual questions

6.1. In your practise do you work exclusively or primarily with pregnant women?

Averille Morgan points out that she mainly works with pregnant women and babies,[180] Renzo Molinari indicates that his practice is mainly frequented by pregnant women and female patients with women's problems[181], and Dr. Beatrix Urbanek sees the focus of her work in treating pregnant women, newborn babies and patients with the desire to become pregnant[182]. Steven Sandler also says that he is working primarily with pregnant women[183], but he does not provide further information about the rest of his clientele.
None of the four interviewed experts works exclusively with pregnant women, but all of them see the focus of their work in this field.

6.2. *What led you to work primarily with pregnant women?*

When Urbanek decided to become a gynaecologist her love for pregnant women, the process of birth and newborn babies were at the centre of her decision-making process. Regarding the further training as osteopath she was fascinated by the work with her hands which is the focus of osteopathy.[184]
Molinari, Sandler and Morgen are fascinated by the continuing changes pregnant women are subject to from the beginning of the pregnancy. These continuing changes within the body of a pregnant woman led them to deal with the topic more intensively. Sandler points out that: "pregnancy is a changing situation, there is a dynamic. This is why I have found it so exiting to work with pregnant ladies over twenty years."[185] Also Molinari is quite enthusiastic: "I am very interested in pregnancy and birth from the start, because it's the time in life where the body has to adapt at every hour, every minute, every second."[186] Morgan explains that her own three pregnancies were the motivation for her increasing interest in pregnancy in general. She points out that due to her own pregnancies she was able to experience first hand the extreme

[180] cf. Morgan, 2008, line 7
[181] cf. Molinari, 2007, line 15f
[182] cf. Urbanek, 2008, line 15f
[183] cf. Sandler, 2008, line 6
[184] cf. Urbanek, 2008, line 30 and 36
[185] says Sandler, 2008, line 14
[186] says Molinari, 2007, line 30-32

changes the female body is subject to. She says that she was fascinated by the changing of her whole person.[187]
What fascinates the experts (Molinari, Morgan, Sandler) most is "the dynamics in pregnancy" and "the love of pregnant women in general" (Urbanek).

6.3. *What kinds of problems as regards pregnant women have you had to deal with in your osteopathic practice so far?*

When asked about the kinds of problems with which pregnant women mainly come to his practice Sandler lists the following examples: "Musculoskeletal problems, gastric reflux, pubalgia and symphysis dysfunction, varicose veins, head pain, shoulder pain"[188] Urbanek reports that she treats many women after Caesarean sections, who are hoping to finish subsequent pregnancies with a natural birth. Also women suffering from intestinal or stomach problems would come to her quite frequently. More rarely she would be confronted with back pain or sciatica. Also women with the foetus in breech position, who are still hoping for the baby to turn and thus to have a spontaneous delivery, come to her practice rather rarely.[189] Morgan explains that she has to do with all sorts of gestational problems, both of a structural and systemic (i.e. functional) nature. She gives a few examples like backache, pubalgia or sciatica.[190] Molinari also gives a few concrete examples of things he deals with in his practice: treatment of twins, itching und very specific pains also in their abdomen.[191] He does not mention other specific problems but talks about "many different things"[192]. In their practice the experts are confronted with all sorts of both structural and functional gestational problems. The most important thing for all four is to accompany the pregnant woman to facilitate a natural and easier delivery.[193]

6.4. *Do you have any experience with hyperemesis?*

All interviewed experts indicate to have experience with the osteopathic treatment of hyperemesis. They also agree that osteopathy can have a positive influence on these kinds of problems. Regarding their understanding of the causes of hyperemesis and the therapeutic measures to deal with the problem they partly differ quite considerably.

---

[187] cf. Morgan,2008, line 12-14
[188] cf. Sandler,2008, line 20f
[189] cf. Urbanek,2008, line 41-45
[190] cf. Morgan,2008, line 23f
[191] cf. Molinari, 2007, line 42f; 52f; 54
[192] cf. Molinari, 2007, line 55f
[193] cf. Molinari, 2007, line 59f; Morgan line 18f; Urbanek 41f; Sandler 97-100

6.4.1. *By way of which forms of treatment do you try to have an effect on this problem?*

Regarding the question of how he would treat hyperemesis gravidarum with osteopathy Molinari says: "I look at the patient in general…I will not look on one specific area in their bodies."[194] He then tries to explain his way of treatment more precisely: "I look first of all at the balance between the different compartments of pressure…"[195] Due to the changes in posture the balance of the various compartments is disturbed which in turn causes a number of functional gestational problems. Molinari interprets the overreaction of the stomach in the case of hyperemesis as a problem of changes in the pressure between the upper abdomen and the thorax[196]. Later he points out that in his treatment of pregnant women he does not focus on a specific organ or tissue.[197] Steven Sandler tries to treat the problem cranially and structurally without explaining his approach in more detail. According to him osteopathy has no place for "recipes" instead it requires a very individual work of the osteopath.[198] Morgan thinks that hyperemesis is more an emotional rather than a physiological problem. Therefore she works with the future mother a lot on the emotional level and tries to influence her emotional level via the fluid.[199] "I look on her fluid and try to find a fulcrum and to try to make the fluid running better."[200] She tries to feel what impairs the fluid flow in the woman and focuses her treatment there. In this context Morgan also mentions the importance of the axis between pituitary gland, hypothalamus and adrenal gland. She explains that if the woman is in a state of stress the limbic system stimulates the hypothalamus, which again stimulates the pituitary gland. The latter stimulates the adrenal gland to secrete more stress hormones. Thus the woman finds herself in a vicious circle that needs to be broken.[201] "Therefore it is very important to work on this axis to release this system which means to relax the woman."[202] Morgen also mentions the gastrointestinal system but in her treatment of hyperemesis it does not play a major role just like the cervical spine and thoracic spine 6-9.[203] Urbanek attributes importance to a rebalancing of the sympathetic-parasympathetic systems.[204] She also focuses on releasing tensions in the upper abdominal region, in particular in the region of the

[194] cf. Molinari, 2007, line 87f
[195] cf. Molinari, 2007, line 103f
[196] cf. Molinari, 2007, line 179-183
[197] cf. Molinari, 2007, line 109-115

[199] cf. Morgan, 2008, line 28
[200] cf. Morgan, 2008, line 32f
[201] cf. Morgan, 2008, line 37-41
[202] cf. Morgan, 2008, line 41f
[203] cf. Morgan, 2008, line 43-45
[204] cf. Urbanek, 2008, line 64-66

duodenum, and controls the tension of the sphincter oddi and pylorus.[205] Urbanek mainly works viscerally and regards structural restrictions as secondary problems.[206] She mentions the presence of a helicobacter pylori as possible cause of hyperemesis gravidarum. In her visceral examination of the stomach of the pregnant woman Urbanek can detect inflammations and in cases of positive diagnoses she refers the patient for further examinations to an internal specialist. [207]

None of the experts provide clear guidelines as to how to treat hyperemesis gravidarum. Molinari puts emphasis on re-balancing pressure between the thorax and upper abdomen, Sandler focuses on structural and cranial work, Morgan tries mainly to improve the fluid flow while Urbanek puts the balancing of the sympathetic and parasympathetic systems in the foreground.

6.4.2. *What dangers do you watch out for in the treatment?*

Sandler sees continued vomiting as danger for the woman[208], Morgan and Molinari do not mention any concrete dangers, they only point out that the consent of the mother and baby is important to carry out the treatment and that also the cooperation with doctors and midwives is important in cases of gestational problems.[209] Urbanek explains that once signs of dehydration can be detected in the female patient there is a possible danger for the woman and the baby and it would be necessary to carry out a medical examination for the purpose of clarification or even to admit the patient to a hospital.[210] According to her it would be important to do a urine test because it helps to tell quite early whether a pregnant woman tends towards dehydration.[211] If the attending osteopath does not have urine test strips available the practitioner can feel the quality of the tissues with the hands and thus find out whether the tissues feel dry or not.[212] If the tissues do not feel dry she expects her treatment to be successful and cannot recognize an immediate danger for the pregnant woman.[213]

[205] cf. Urbanek, 2008, line 67; 74-76
[206] cf. Urbanek, 2008, line 79; 90-92
[207] ibid, 2008, line 165-175
[208] cf. Sandler, 2008, line 33
[209] cf. Morgan, 2008, line 54f; cf. Molinari, 2007, 139f
[210] cf. Urbanek, 2008, line 110
[211] cf. Urbanek, 2008, line 108-111;123-127
[212] cf. Urbanek, 2008, line 141-149
[213] cf. Urbanek, 2008, line 149-155

Urbanek mentions dehydration as a reason to hospitalize a pregnant woman. In this case her opinion corresponds to that of conventional medicine which sees dehydration also as indication for a hospitalization. [214]

6.4.3. *Are there any reasons not to treat a woman with hyperemesis?*

Sandler lists concrete cases where osteopathic treatment is confronted with limitations: "If it was associated with severe weight loss and potentially toxaemia of pregnancy."[215] Urbanek points out that hospitalized patients suffering from hyperemesis can also be treated osteopathically in the hospital. In these cases the question of limitations to osteopathic treatment does not arise.[216] Molinari and Morgan emphasize how important the cooperation between midwife, doctor and osteopath is in the case of problems.

6.5. Do you have any experience with hypertension?

The treatment of hypertension in pregnant women is a problem with which all interviewed experts are familiar. Similar to hyperemesis they all think that they can have a positive therapeutic influence on this kind of problem through their treatment. But also in the case of hypertension their treatment approaches in part differ considerably.

6.5.1. *By way of which forms of treatment do you try to have an effect on this problem?*

Steven Sandler tries to treat this problem mainly on a cranial level.[217] His answer to the concrete question whether he would also look for specific structural problems is that a lesion of C2 could be a possible cause for the problem. According to him a restriction of C2 on the left can cause an irritation of the vagus nerve in the region of the cervical plexus. Sandler attributes an important role to this nerve in the context of controlling the blood pressure.[218] For Morgan hypertension during pregnancy can be caused by a problem in the placenta, which means that the circulation of blood and fluid between the mother and the baby can be impaired. She tries to address the problem through relaxing techniques on a fluid level in order to eliminate the present obstacle between the maternal and foetal circulation. Her work focuses on the treatment of the fluid.[219] "If you provide good care [for the pregnant woman] and she is feeling

[214] cf. chapter 4.1.4 and Resetarits, 2008. line 50f and Shehan, p.699
[215] cf. Sandler, 2008, line 35f
[216] cf. Urbanek, 2008, line 130-138
[217] cf. Sandler, 2008, line 42
[218] cf. Sandler, 2008, line 48-51
[219] cf. Morgan, 2008, line 63-72

fine, hypertension occurs less often"[220] says Urbanek. If all psychological factors have been eliminated, which according to her can have an influence on the body and the nervous system of the woman, her examination mainly focuses on the following four regions of the body: thoracic spine, aortic arch, vagus points (below the clavicle) and the kidneys.[221] Already in the context of hyperemesis Molinari pointed out that every treatment of each patient has to be tailored to the individual needs of the patient. Thus he says: "It is difficult to say the form of treatment…I look for the patient in general.[222] I don't try to create a concept, intellectual concept. Because that will be the best way to make a mistake."[223] Nevertheless, he considers that it is indispensable to examine the various compartments and evaluate their pressure relationship as well as to balance them if necessary in all kinds of functional gestational problems, thus also in the case of hypertension.

Like in the case of hyperemesis the experts do not offer any precise guidelines regarding the osteopathic treatment of hypertension in pregnant women. Again Molinari focuses his treatment on re-balancing various pressure compartments. Morgan works on a fluid level, Sandler on a cranial level and Urbanek emphasizes above all psychological aspects.

6.5.2. *What dangers do you watch out for in your treatment?*

Sandler mentions that hypertension can lead to the possible danger of pre-eclampsia. For him it would be a reason to refer the patient to a doctor or the hospital if the woman develops oedema and/or excessive protein in her urine. He would only treat her after an appropriate examination and approval by the specialists of conventional medicine.[224] Urbanek sees a danger for the pregnant woman if she tends towards a HELLP syndrome.
This means that Urbanek would always refer a pregnant woman with unclear complaints in the upper abdominal region to another specialist. Also symptoms like headaches are indicators of danger and should be further examined. The degree of danger is not determined by the increased blood pressure values but by the sudden appearance of the above mentioned symptoms.[225] Morgan does not mention concrete dangers but emphasizes that: "if you work in harmony with the mother and her baby I do not see any danger. You feel if there is a

[220] cf. Urbanek, 2008, line 182f
[221] cf. Urbanek, 2008, line 195-206
[222] cf. Molinari, 2007, line 83; 87
[223] cf. Molinari, 2007, line 217f
[224] cf. Sandler, 2008, line 54-66
[225] cf. Urbanek, 2008, line 261-277

problem."[226] Nevertheless, she considers it important to be informed about all possible risks involved in pregnancy, to be able to recognize them and to refer the patient to the midwife if necessary.[227] Molinari sees danger in the treatment of pregnant women with hypertension if the problem has not been thoroughly examined by conventional medicine.[228] In the case of only slightly raised blood pressure he asks whether the patient has noticed any additional symptoms [like the above mentioned and those that were listed in the chapter about conventional medicine] before he starts a treatment. Only if he is sure that the woman does not have any symptoms he thinks a treatment is justified.[229]

Molinari and Sandler emphasize that increased blood pressure values, oedema and proteinuria definitively have to be clarified through further medical tests. Urbanek points out the enormous risk in cases where additional symptoms occur. [230] In the case of hypertension Morgan and Molinari imperatively demand a close cooperation with the midwife and/or doctor.

6.5.3. *Are there any reasons not to treat a woman with hypertension?*

For Sandler the combination of hypertension, oedema [accumulation of water in the tissues] and protein in the urine represents a good reason to refer the pregnant woman to a hospital.[231] Molinari explains that an osteopathic treatment is contraindicated in the case of a BP of 140/100 or in the case of slightly raised blood pressure and the presence of additional symptoms.[232] He also asks the patient to see a doctor if the blood pressure starts to increase suddenly in order to exclude the possibility of pre-eclampsia.[233] Urbanek points out that strong pain in the upper abdominal region is an absolute contraindication for an osteopathic treatment, just like unclear symptoms like flicking of the eyes, headaches or migraine.[234] In this context Morgan mentions a considerably raised blood pressure and the presence of contraindications (which in this case means premature contractions) and the occurrence of haemorrhages as contraindications for an osteopathic treatment.[235] When working with pregnant patients it is indispensable to ask about the two latter contraindications before starting with the treatment, but they are not directly correlated with hypertension. The above mentioned symptoms

[226] cf. Morgan, 2008, line 93-95
[227] cf. Morgan, 2008, line 96-98
[228] cf. Molinari, 2007, line 308f
[229] cf. Molinari, 2007, line 332f
[230] cf. chapter 4.2.2. Symptoms
[231] cf. Sandler, 2008, line 65f
[232] cf. Molinari, 2007, line 332-334
[233] cf. Molinari, 2007, line 127f
[234] cf. Urbanek, 2008, line 271f; 261f
[235] cf. Morgan, 2008, line 95-97

(premature contractions and haemorrhages) can be seen as absolute contraindications for an osteopathic treatment even though the woman might not complain of any other problem during the pregnancy. They also require immediate hospitalization of the patient.

The contraindications in the context of gestational hypertension mentioned by Urbanek correspond to those listed in chapter 4.2.5. the limit of the acceptable but medically controlled blood pressure values in the AWMF guidelines are indicated with 160/100 in contrast to the values of 140/100 mentioned by Molinari. [236]

6.6. *Do you have any experience with gestational diabetes?*

Like in the case of the two previously mentioned kinds of gestational problems the four experts confirm that they have gained some experience with regard to gestational diabetes. However, contrary to hyperemesis and hypertension they deem their therapeutic influence on this kind of gestational problem as rather limited.

6.6.1. *By way of which forms of treatment do you try to have an effect on this problem?*

The answers to this question show clearly that none of the interviewed experts treats pregnant women with this concrete clinical picture. They have gained some experience with this kind of gestational problem because pregnant women came to see them with various sorts of problems and where gestational diabetes was only an additional factor. Therefore the question regarding the possibility of treating gestational diabetes with osteopathy had to be slightly adapted or changed.

6.6.2. *Can you imagine that gestational diabetes could be positively influenced through osteopathic treatment? If yes, through which kind of osteopathic treatment?*

Sandler's answer regarding the treatment of gestational diabetes was clear and brief: "I don't treat it."[237] Nevertheless, he treats the structural problems of patients with gestational diabetes like pelvic pain or low back pain. According to Sandler women with diabetes tend to have huge babies and that therefore structural problems, which can be easily resolved with osteopathic treatment, occur quite frequently.[238] When asked whether he thought that the diaphragm could play an important role in diabetes as indicated by Still in *Philosophy Of*

[236] cf. chapter 4.2.5 and AWMF_Leitlinie-Register Nr.015/018
[237] Sandler, 2008, line 72
[238] cf. Sandler, 2008, line 86-88

Osteopathy, he clearly dismissed the idea: "No, that was Dr. Still speaking when we little understood diabetes let alone gestational diabetes. GD is a problem linked to growth hormones and somatrophin which is why it is only gestational."[239]
Morgan thinks that the gastrointestinal tract plays a major role in gestational diabetes. According to her experience the pancreas can be strongly fixed through the duodenum. Thus the pancreas cannot work properly and sufficiently. Morgan considers that it is her task to relax the duodenum in order to free up the pancreas. For her it seems to be important in this case to look for a fulcrum and to work on it.[240] For Molinari the comfort of the pregnant woman is the most important thing in this case of gestational problem. He is not sure whether he can have an influence on diabetes with his treatment, but he thinks he has an influence on how the pregnant woman feels during her pregnancy even though she might suffer from gestational diabetes.[241] Molinari also gives advice regarding a special diet. According to him gestational diabetes is not only a problem of sugar but sometimes also of acidity. When asked what he would recommend to his patients he said: "…I will ask them to suppress acid also, to try to lower the level of inflammation…"[242] Similar to Morgan also Urbanek's observation is that in the case of gestational diabetes the pancreas is often restricted by the duodenum. Like Morgan she thus also tries to relax this region of the upper abdomen.[243] For Urbanek also the free circulation of hormones is important[244] just like a check of renal function.[245] Urbanek sums up what the other experts have already suggested: "Well, in the case of gestational diabetes I support the woman so that she is in a good balance."[246]

Morgan and Urbanek often observe that the pancreas is fixed by the duodenum in pregnant women with gestational diabetes and try to correct this. Sandler and Molinari work to improve the general comfort of the pregnant patient.

6.6.3. *What dangers do you watch out for in your treatment?*

It seems that the interviewed experts do not see any danger in the treatment of pregnant women with gestational diabetes contrary to the treatment of hypertension. Only Averille Morgan

[239] cf. ibid., line 84-86
[240] cf. Morgan, 2008, line 106-112
[241] cf. Molinari, 2007, line 270-279
[242] cf. ibid., line 294f
[243] cf. Urbanek, 2008, line 303-305
[244] cf. Urbanek, 2008, line 308f
[245] cf. Urbanek, 2008, line 318-322
[246] cf. ibid. line 320f

points out that when high-velocity-techniques are applied to women with diabetes their system might overreact:[247]

"That means on sugar you get a great response on your treatment and it is possible that the woman comes into a crisis because there will be a great response of the pancreas and she sends out a lot of insulin."[248]

6.6.4. *Are there any reasons not to treat a woman with gestational diabetes?*

None of the interviewed experts mentions any reasons.

6.7. *Regarding the application of high-velocity-techniques (HVT)*

A central question in dealing with the individual kinds of gestational problems has always been the question of the concrete form of treatment for the respective problem. Repeatedly and in different contexts the interviewees addressed the topic "manipulation with HVT". Since the opinions of the individual experts differ considerably from each other, this aspect needs to be discussed separately: Averille Morgan explains: "For me the pregnant women are in a fluid condition and so it is better for them to work with the fluid. [...] They are in such a soft condition."[249] She tries to avoid manipulations as best as possible since she is afraid that she could trigger something that cannot be stopped again. According to her it makes more sense to work with the fluid than on the woman's structure.[250] Urbanek also argues against using HVT in the treatment of pregnant women even though she emphasizes that this is only her personal opinion:

"Well, I don't think it is nice or the pregnant women find it nice. [...] The longer the woman is into the pregnancy the softer the connective tissue gets. That means that I would thrust and the next day it is the same again because of the soft connective tissues."[251]

Contrary to the two female experts Molinari and Sandler have a positive view of manipulation. When asked whether he would manipulate pregnant women Sandler answered: "Yes of course, it is a very effective and safe way to treat patients. The leverage is always minimal and the force very very small and the results can be spectacular."[252]

6.8. Closing words of the experts:

[247] cf. Morgan, 2008, line 114f
[248] cf. ibid., line 115-118
[249] cf. Morgan, 2008, line 82-85
[250] cf. ibid., line 85-91
[251] Urbanek, 2008, line 230-235
[252] Sandler, 2008, line 103ff

At the end of the interviews the experts were asked to briefly talk about aspects in the treatment of pregnant women, that they find important but might have been omitted or only peripherally discussed in the interview.

Sandler points out that it is important for all pregnant women to consider all their mechanical, i.e. structural problems. He explains: "The CT (cervicothoracic) and TL (thoracolumabar) junctions are very important for treating and encouraging the physiological changes of pregnancy, so that the woman has an easier pregnancy and therefore potentially less of a problem with the actual delivery."[253] He adds: "Our job is to facilitate the birth process (…). This is good osteopathy in my opinion."[254] Molinari evaluates the success of his osteopathic treatment on the basis of the following criteria:

"How they go on with their pregnancy. You know, if with problems like this, [*with this he means the functional gestational problems that I examine in my paper*] they can go on with their pregnancy and have a nice birth. I think my work has been good."[255]

Also for Morgan the support of the pregnant women throughout the whole course of their pregnancy plays a central role. She emphasizes:

"My intention is to work with mothers during their whole pregnancy to accompany them, to set little interventions, because they are healthy and they need only little intervention. I am very carefully on them and on their babies; I try to cushion them."[256]

Urbanek even starts to get very enthusiastic about pregnant women:

"For me pregnant women are queens … I always have to make sure that both mother and baby are well. This is the most important principle for me – all other things do not matter … There is so much perinatal and prenatal research which shows that this is the most important aspect. And as osteopaths we can do a lot for the wellbeing of the mothers and the unborn children."[257]

[253] cf. ibid., line 92-97
[254] cf. ibid., 2008, line 99f
[255] cf. Molinari, 2007, line 342-344
[256] Morgan, 2008, line 122-127
[257] Urbanek, 2008, line 353-369

7. Discussion and summary:

There is a lot of experience with treating pregnant women with structural problems during pregnancy, which is confirmed by the availability of numerous publications on this topic.[258] [259]

Osteopathic treatment of functional problems during pregnancy like hyperemesis gravidarum, gestational hypertension or gestational diabetes seems to have met with only little interest to date. This observation is corroborated by the fact that scientific papers on this topic are missing.

In problem-centred expert interviews about "functional gestational problems" and the possibility of treating them osteopathically the four interviewees (Sandler, Molinari, Morgan, Urbanek) report that in their practice they are indeed confronted with functional problems during pregnancy. This may be attributable to the fact that over the years of their practice they have gained the reputation to be experts in this field and pregnant women come to see them because they appreciate their expertise. Over the years they were thus confronted with more and more varied gestational problems. Also Stuart Korth shares this experience. He said in an interview with Jenny Green (2003): "Initially when I was asked to work at Portland it was to treat back pain, now I am invited to deal with many more obstetric related cases."[260]

It was more difficult than expected to find experts in the field of treating pregnant women who deal in their practice with such specific problems as hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes. In particular in Austria it was almost impossible to find interview partners for the project which led me to the following personal assumption: Compared with the international situation Austria has a very short osteopathic history and tradition yet it takes time and experience to become an established expert in a certain field.

[258] cf. Peters, van der Linde.
[259] cf. Tettambel, p. 20-22
[260] Green, p. 210

Two important factors in my search for interview partners were the experts' availability and our possibility to communicate. Therefore only experts from German or English-speaking countries could be considered. In addition, I had to rely on finding those experts myself or having other people recommend them to me. For this reason possibly interesting experiences of experts other than my four interview partners could not be included in this thesis.

The results of the four expert interviews presented in this paper have to be regarded as subjective. By no means, they qualify as generally valid assertions. The results of such interviews cannot be put on a par with results of clinical studies, which are assumed to collect quantitative and thus possibly repeatable data. However, the results of my interviews are relevant for answering my initial question because according to Meuser/Nagel (1997) one utilizes the experts' "advantage in knowledge" [261]. In a different passage the two authors assert that: "His [the expert's] opinion is based on definite predications, his judgments are not only guess-work or non-committal assertions."[262]

The interviewed experts treat each pregnant patient very individually, which can be put down to the fact that no scientific study can be found that gives a clear answer as to what is the cause of hyperemesis gravidarum, gestational hypertension or gestational diabetes. The sometimes very different therapy approaches of the four experts to the individual gestational pathologies thus seem to reflect the different explanation models of conventional medicine regarding the possible causes of the individual problems. This can be very well observed in the example of hyperemesis.[263]

---

[261] Meuser, Nagel, p. 484.
[262] ibid.
[263] Conventional medicine mentions among other things hormonal causes ort he presence of a helicobacter pylori or disturbances of the autonomous nervous system in the context of hyperemesis. (cf. Schneider, Husslein, Schneider,p. 268) Still tries to explain the causes of hyperemesis as follows: "Diseases of the nerves of the pelvis come from pressure of the bowels and other organs of the abdomen and osseous disturbances. (…)" A comparison of the therapy approaches of the individual experts with the explanation models of conventional medicine and Still reveals certain correlations. Like Still Molinari sees the cause of hyperemesis as being a pressure problem. In his interview he says: "I look first of all at the balance between the different compartments of pressure…" (Molinari, 2007, line 103f) Morgan emphasizes the hormonal aspect as possible cause for hyperemesis and tries to influence it via the fluid. She interprets the hormonal problem of the pregnant woman mainly as an emotional problem. Urbanek tries to influence the balance between the sympathetic and parasympathetic nervous systems with her treatment. She thus treats the autonomous nervous system. In addition, she mentions the presence of a helicobacter pylori as possible cause of hyperemesis gravidarum. In her visceral evaluation Urbanek tries to detect inflammations and if she can detect some she refers the patient to an internal specialist for further examinations. (cf. Urbanek, 2008, line 165-175) Sandler treats the pregnant women either cranially or structurally, (cf. Sandler, 2008, line). In any

All my interview partners put their focus of interest not mainly on the specific gestational problem but rather concentrate on re-establishing the patient's "comfort during the pregnancy". Sandler, Molinari, Morgan and Urbanek try to help the pregnant woman to better cope with the changes during pregnancy. They look for restrictions in the locomotor system, in the fluid system, in the hormonal system, in the emotional state or directly in the organs where they see a connection with the adaptation problem and try to release those restrictions with different treatment methods. In their approach they thus follow the tradition of A. T. Still who emphasized in his *Philosophy of Osteopathy* that: "…the osteopath must learn that no infringement can be tolerated in any part."[264]

The four experts I interviewed believe in the positive influence of osteopathy on hyperemesis gravidarum and hypertension during pregnancy through an individual osteopathic treatment, which does not follow a preset recipe.
As regards gestational diabetes neither Sandler, Molinari, Morgan nor Urbanek are convinced that they really can have a positive influence through a targeted osteopathic treatment. In particular in the case of this kind of problem all four experts put the focus in their treatment on the `comfort during pregnancy ´. The diaphragm, to which Still (1899) attributes a key function in causing functional problems (also diabetes) when it is misaligned[265], is not mentioned in particular by any of the four experts.

The interviewees agree that osteopathic treatment of women with gestational pathologies necessitates also a close cooperation with the obstetrician of the patient in question.

The reader of this paper has to be aware of the fact that it evaluates three concrete functional gestational problems. The results of the interviews are relevant for the functional problems of hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes. If a practitioner wants to attempt the treatment of another functional problem he/she should thoroughly study the problem's aetiology as well as the related risks

---

case he does not follow a "recipe" in his treatments. His approach thus corresponds to the point of view of conventional medicine: "HG could have a multifactorial cause or HG might be the end result of various unrelated conditions."(Verberg, p. 535.)

[264] Still, Philosophy of Osteopathy, p. 100.; in this paper also in chapter 3.2.2, p. 22.
[265] cf. ibid., p. 230f.; in this paper also in chapter 3.2.2., p. 22.

and possible limitations of treatment. However, the statements of the four experts suggest that osteopathic treatment could have a positive influence also on other functional gestational problems.

It would be interesting to try and confirm the experiences of the four experts interviewed for this paper with clinical studies. However, anybody who wants to carry out a clinical study to evaluate the effect of osteopathy on a concrete functional gestational problem will be confronted with the inhomogeneity of the participating pregnant women.

The experiences of the above mentioned experts could be regarded as a valuable motivation to look at gestational problems from different angles in one's own practice. The critical evaluation of the risks and limitations of osteopathic treatment in the case of hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes should help to overcome the fear of treating pregnant women with such problems.

Conclusion:

Even though to date no scientific study regarding "functional gestational problems and osteopathic treatment" is available, this paper is able to show that there are experts who have gained experience in treating hyperemesis gravidarum, hypertension during pregnancy and gestational diabetes: Beatrix Urbanek; Averille Morgan, Steven Sandler and Renzo Molinari believe in a positive influence of osteopathic treatment in cases of hyperemesis gravidarum and hypertension during pregnancy.
As regards gestational diabetes, however, the picture is a little different. The experts' opinions differ: While Morgan and Urbanek think that a positive effect is possible, Sandler and Molinari totally exclude this.

List of references:

American Diabetes Association: Gestational Diabetes. Online im Internet: URL: http://www.diabetes.org/gestational-diabetes.jsp

Andersson, GB; Ostgaard, HC; Wennergren, M: The impact of low back and pelvic pain in pregnancy on the pregnancy outcome. In: Acta Obstet Gynecol Scand, o.O.1991.

AWMF: Diagnostik und Therapie hypertensiver Schwangerschaftserkrankungen. In: AWMF online. Online im Internet: URL: http://www.uni-duesseldorf.de/awmf/ll/015-018.htm (21.4. 2008)

Bartels, Heinz; Bartels, Rut: Physiologie. Lehrbuch und Atlas. 5.überarbeitete Auflage, München-Wien-Baltimore: Urban und Schwarzenberg 1995.

Biniok, Peter: Methodenlehre 1: Einführung in die Methoden der empirischen Sozialforschung. Sitzung # 5, Berlin, 2005. (Vorlesungsunterlagen d. Instituts für Soziologie WS 2005/2006, TU Berlin)

Bottalico, Joseph M.: Diabetes In Pregnancy. In: JAOA, Vol. 101, No 2, Supplement to February 2001. S. 10-13.

Cignacco, Eva (Hg.): Hebammenarbeit. Assessment, Diagnosen und Interventionen bei (patho)physiologischen und psychosozialen Phänomenen. Bern: Huber, 2006.

Davis, M.: Nausea and vomiting of pregnancy: an evidence based review. In: J Perinat Neonat Nurs 2004, S. 312–328.

Duckitt, Kirsten; Harrington, Deborah: Risk factors for pre-eclampsia at antenatal booking: systematic review of controlled studies. In: BMJ, doi:10.1136/bmj.38380.674340.E0 (published 2 March 2005) - Online im Internet: URL: http://www.bmj.com/cgi/reprint/330/7491/565 (21. 4. 2008)

Freeman, Jeffrey S.: Diabetes-Related Clinical Issues Represented by the „Faces of Diabetes“. In: JAOA, Supplement 5, Vol. 103, No 8, August 2003. S. 14-17.

Glick MM; Dick EL**:** Molar pregnancy presenting with hyperemesis gravidarum J Am Osteopath Assoc, Mar 1999. Online im Internet: URL: http://www.jaoa.org/cgi/content/abstract/99/3/162?maxtoshow=&HITS=10&hits=10&RESULTFORMAT=&fulltext=Hyperemesis+gravidarum&searchid=1&FIRSTINDEX=0&sortspec=relevance&resourcetype=HWCIT (21. 4. 2008)

Goodwin, T. M.: Nausea and vomiting of pregnancy: an obstetric syndrome. Am J Obstet Gynecol 2002, S. 184–189.

Green, Jenny: Osteopathy in pregnancy and childbirth. In: Sara Wickham: Midwifery: Best Practice Vol. 3/3 London, Elsevier 2003. S. 205-212.

Hypertensive Schwangerschaftserkrankungen: Diagnostik-Leitlinien. Online im Internet. URL: http://www.thieme.de/abstracts/zgn/abstracts2001_3/daten/w7_2.html (21.4. 2008).

Kluge, Friedrich, Etymologisches Wörterbuch der deutschen Sprache. Bearbeitet von Elmar Seebold. 23. erweiterte Auflage Berlin-New York: de Gruyter 1999.

Kofler, Gabriele: Osteopathy for Back- and Pelvic Pain in Pregnancy. Wien 2000. (Dipl.Arbeit)

König, Eckard; Bentler, Annette: Arbeitsschritte im qualitativen Forschungsprozeß - ein Leitfaden. In: Friebertshäuser, Barbara; Prengel, Annedore (Hrsg.): Handbuch Qualitative Forschungsmethoden in der Erziehungswissenschaft. Weinheim; München: Juvena 1997. S. 88-96.

Langman, Jan: Medizinische Embryologie, Stuttgart New York: Thieme 1989.

Lenz, Dorothea: Die osteopathische Behandlung als Prävention von Geburtskomplikationen. Eine Studie über die Behandlung von Erstschwangeren. Stuttgart 2003. (Dipl. Arbeit)

Liem, Torsten: Kraniosakrale Osteopathie. Ein praktisches Lehrbuch. 3. Aufl., Stuttgart, Hippokrates 2001.

Med line (PubMed): Online im Internet: URL: http://www.ncbi.nlm.nih.gov/sites/entrez (8. 4. 2008)

Montague K.: Midwifery: Oseopathy During Pregnancy. In: Nursing Mirror 1985 Jul 31; 161 (5) S. 26-28.

Morgan, Averille: Healthy Pregnancy. A practical guide for health professionals. Norfolk 2005.

N.N.: Editorial comment. In: JAOA 1971/01 (Sept. 1971) S. 10-14

Osteopathic Research Web: Online im Internet: URL: http://www.osteopathic-research.com/cgi-bin/or/Search1.pl?show_one=2001(22. 4. 2008)

OSTMED (The Osteopathic Literature Database): Online im Internet: URL: http://ostmed.hsc.unt.edu/scripts/starfinder.exe/ (3. 10. 2006; 18. 10. 2006)

OSTMED.DR (Osteopathic Medicine Digital Repository): Online im Internet: URL: http://www.ostmed-dr.com:8080/vital/access/manager/Index (22. 4. 2008)

Peters, R.; van der Linde, M.: Osteopathic treatment of women with low back pain during pregnancy. A randomized controlled trial. Academie für Osteopathie (AFO), 2006. (Dipl.

Arbeit) Online im Internet: URL: http://www.osteopathic-research.com/cgi-bin/or/Search1.pl?show_one=2001(22. 4. 2008)

Pschyrembel, Willibald (Hg.): Klinisches Wörterbuch. 257., neu bearbeitete, Auflage. Berlin-New York: de Gruyter 1994.

Pschyrembel, Willibald: Praktische Geburtshilfe. 18. Aufl. Berlin-New York: de Gruyter 1994.

Quinlan, Jefferey D.; Hill, D. Ashley: Nausea and Vomiting of Pregnancy. In: American Family Physician, Volume 68, Number 1 / July 1, 2003, S. 121-128.

Schneider, Henning; Husslein, Peter; Schneider, Karl-Theo M.: Die Geburtshilfe. 3. Aufl. Heidelberg: Springer Medizin Verlag 2006.

SCIRUS: URL: http://scirus.com (22. 4. 2008)

Serrano, Norma C.: Immunology and genetic of pre-eclampsia. In: Clinical & Developmental Immunology, June–December 2006; 13(2–4), S. 197–201. Online im Internet: URL: http://www.pubmedcentral.nih.gov/picrender.fcgi?artid=2270781&blobtype=pdf (8. 4. 2008)

Sheehan, Penny: Hyperemesis gravidarum. Assesement and management. In: Australian Family Physician Vol 36, No 9, Sept 2007, S. 698 – 701.

Sommerfeld, Peter: Methodologie I. 2. überarbeitete Version o. O. 2004. (Skriptum)

Sommerfeld, Peter: Methodologie II. 3. überarbeitete Version o. O. 2005. (Skriptum)

Still, Andrew Taylor: Philosophy of Osteopathy. Kirksville 1899, Online im Internet: URL: http://www.interlinea.org/atstill/eBookPhilosophyofOsteopathy_V2.0.pdf (22. 4. 2008)

Still, Andrew Taylor: The Philosophy And Mechanical Principles Of Osteopathy. Kirksville 1902. Online im Internet: URL: http://www.interlinea.org/atstill/eBookPMPO_V2.0.pdf (22.4.2008)

Tettambel, Melicien A.: An Osteopathic Approach to Treating Women With Chronic Pelvic Pain. In: JAOA,Vol 105, No suppl_4, September 2005, S. 20-22.

Thadhani, Ravi I.; Johnson, Richard J.; Karumanchi; S. Ananth: Hypertension During Pregnancy A Disorder Begging for Pathophysiological Support. In: Hypertension. Journal of the American Heart Association. 2005, S.1250-1251. Online im Internet: URL: http://hyper.ahajournals.org/cgi/reprint/46/6/1250 (21. 4. 2008)

Verberg, M.F.G.; Gillott, D.J.; Al-Fardan, N.; Grudzinskas, J.G.: Hyperemesis gravidarum, a literature review. In: Human Reproduction Update, Vol.11, No.5, July 2005, S. 527–539.

Wiener Schule für Osteopathie: Was ist Osteopathie? Online im Internet: URL: http://www.wso.at/neu/index.html (2. 3. 2008)

Wikipedia: Andrew Taylor Still. URL: http://de.wikipedia.org/wiki/Andrew_Taylor_Still (5. 3. 2008)

Annex:

Exact wording of the interview:

Expert interviews (transcribed):

- Interview with Renzo Molinari
- Interview with Averille Morgan
- Interview with Stephen Sandler
- Interview with Beatrix Urbanek

Exact wording of the interview:

First of all I wish to thank you for the time you are devoting to my interview.

Among osteopaths you are regarded as the eminent authority on pregnant women. In your practice do you work exclusively or primarily with pregnant women?

What led you to work exclusively/primarily with pregnant women? Please give me a short outline.

What kinds of problems as regards pregnant women have you had to deal with in your osteopathic practice so far? (Please try only to list them for the time being without going into the particular problems in more detail.)

Let us now deal with three particular problems which often appear in the course of pregnancies: Hyperemesis Gravidarum, Hypertension, Gestational Diabetes.
With each of these three problems I want to focus on the following aspects: experience, form of treatment, dangers and limits.

Let us first deal with Hyperemesis:
Do you have any experience with Hyperemesis?
By way of which forms of treatment do you try to have an effect on this problem?
What dangers do you watch out for in your treatment?
Are there any reasons not to treat a woman with Hyperemesis?

Let us now deal with Hypertension:
Do you have any experience with Hypertension?
By way of which forms of treatment do you try to have an effect on this problem?
What dangers do you watch out for in your treatment?
Are there any reasons not to treat a woman with Hypertension?

And now Gestational Diabetes:
Do you have any experience with Gestational Diabetes?
By way of which forms of treatment do you try to have an effect on this problem?
What dangers do you watch out for in your treatment?
Are there any reasons not to treat a woman with Gestational Diabetes?

Let us now conclude the interview:
Are there any aspects we have not covered in this interview, but seem to matter as regards our topic “Functional Problems of Pregnant Women and Osteopathic Treatment”?

Thank you very much indeed for the interview.