The Neutral in biodynamic cranio-sacral osteopathy – an extraordinary state of consciousness

-Fundamental study-

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DECLARATION

Hereby I declare that I have written the present master thesis on my own.

I have clearly marked as quotes all parts of the text that I have copied literally or rephrased from published or unpublished works of other authors.

All sources and references I have used in writing this thesis are listed in the bibliography. No thesis with the same content was submitted to any other examination board before.

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Date Signature

Summary:

Key words: Biodynamics, Neutral, cranio-sacral osteopathy, lateral fluctuation, extraordinary state of consciousness, Freiburg Personality Questionnaire (FPI), Phenomenology of Consciousness Inventory

The present thesis examines the question whether the Neutral in biodynamic cranio-sacral osteopathy represents an extraordinary state of consciousness. For this purpose a total of 49 test persons (n=49) were examined. To evaluate the state of consciousness the Phenomenology of Consciousness Inventory (PCI) was used. In addition, the paper looks at whether certain traits of personality have an influence on the changes of consciousness during a biodynamic treatment. The necessary data for the analysis was collected by means of two questionnaires, on the one hand, the Freiburger Persönlichkeitsinventar (Freiburg Personality Questionnaire, FPI) and, on the other hand, a questionnaire that was developed by the author for this specific purpose.

The examination was carried out on four different days. Every participant completed the PCI twice and the FPI and the author's questionnaire once. The patients answered the questions of the PCI once with regard to a 5-minute period of sitting still (cf. Pekala, 1991) and a second time with regard to the period during which a lateral fluctuation was carried out. Both other questionnaires were completed before the biodynamic osteopathic treatment was delivered.

Overall, 17 dimensions showed significant changes of the state of consciousness during the biodynamic treatment, among them 9 major dimensions and 8 minor dimensions. Further, the study was able to show that the examined personality traits had only small or no influence on the state of consciousness of the test persons during the lateral fluctuation. Rather, it is the individual degree of hypnoidal receptiveness of the participants which is an important parameter.

Problem of gender-specificity

Certain nouns and their pronouns in the text are used in their male form like osteopath, patient, client or participant, etc. This serves a better readability and does not signify a discrimination of women. The author wants to explicitly point out that in these cases the terms include and address representatives of both sexes, male and female.

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Preface

Biodynamics is a segment of osteopathy, a sub-domain of cranio-sacral osteopathy. James Jealous, D.O. is regarded as its founder. He chose to call this form of cranio-sacral osteopathy “Biodynamics” (cf. Jealous, 2003 a).

The Neutral is part of this treatment method. According to Dr. Jealous it is a state, where the patient is able to change in response to the acting therapeutic forces in a way that his health as a whole can improve (cf. Jealous, 2003 b). It has to be stated that without the Neutral no biodynamic treatment can take place (cf. Jealous, 2003 b). Thus this state is a cornerstone of this method of treatment.

In view of the importance of the Neutral the following questions impose themselves: What kind of state the osteopath has to deal with? What is this Neutral, and what happens in this state?

There are several definitions of the neutral, many of them postulated by Dr. Jealous himself. Some of these definitions will be presented in this paper. It has to be pointed out that these definitions are very subject-specific and difficult to understand, thus a completed osteopathic training is regarded as prerequisite for a good understanding of this thesis. Many things will remain ambiguous; the scope for personal interpretation is broad.

I have written this paper with the intention to find out more about the state of Neutral. And I tried to expand my knowledge about what happens during the Neutral, to know more about the therapeutic process that takes place during a treatment. This can facilitate the communication with the patients and with representatives of other medical specialities. The communication needs to be put on a level that does not require a completed osteopathic training for understanding.

My hypothesis is that the Neutral in biodynamics represents an extraordinary state of consciousness.

On the one hand, the idea for this study was born from a comparison of the author’s personal subjective experiences during biodynamic treatments with those of other forms of therapy where patients are put in an altered state of consciousness (cf. Grof, 2006 and Goodman, 2003). On the other hand, the feedback of a number of the author’s patients, who were treated

with the biodynamic approach, represented another motivation to study the topic more in depth. The patients' feedback is relevant in so far as they reported an altered sense of time, a feeling of disintegration of their own body and illusions or hallucinations during the treatment. These are experiences that are quite typical for extraordinary states of consciousness (cf. Dittrich et al., 1985). Another important aspect is a documentary about shamanism by Ute Gebhardt (2000), which will be discussed more in detail in Chapter 1.

This paper represents an experimental study in the realm of fundamental research. There are hardly any other papers available, which also evaluate changes in the state of consciousness during an osteopathic treatment. In the work of Engel (2002) similar considerations regarding this topic can be found. His paper examines the influence of cranio-sacral fluid techniques on the state of consciousness of the patients. However, he does not explicitly mention biodynamics. Currently, there are no studies available which focus on the Neutral in biodynamics.

The first Chapter of this paper will explain how the working hypothesis was developed and present the background as well as the relevance of the study for osteopathy. This chapter is particularly important for understanding how the working hypothesis emerged.

Chapter 2 focuses on the aspects of consciousness and free will and presents definitions and different perspectives from different disciplines of science. Further, it looks at the special aspects of an "extraordinary state of consciousness". The various characteristics and definitions of such extraordinary states of consciousness are discussed.

Chapter 3 is devoted to the field of biodynamic cranio-sacral osteopathy. First, it provides a historic overview of how cranial osteopathy developed. Subsequently, the foundations of biodynamics and definitions of the Neutral are presented.

The fourth Chapter includes the experimental part and the results of the study.

The fifth and final Chapter critically discusses the implementation of the study and its results and proposes possible future steps.

1. Development of the hypothesis

As already mentioned in the preface, subjective experiences of the author played an important role in the decision to examine the Neutral in biodynamics with regard to changes in the state of consciousness. These experiences include personal experiences during sessions of transpersonal psychotherapy and the execution of ritual body postures according to Goodman. Both methods claim that the healing of the patient happens due to experiencing an extraordinary state of consciousness (cf. Grof, 2006; Goodman, 2003).

A second important instigating factor was a documentary by Ute Gebhardt of the year 2000, where the treatment practices of shamans in the former Soviet Union were presented. The title of the film is: “Die Klinik der Schamanen” (The clinic of shamans). Also in shamanistic practices people in search for help are put in extraordinary states of consciousness in order to experience palliation or healing. To facilitate a better understanding rough overviews of the holotropic therapy, the body postures according to Goodman and the documentary are presented in the following sections.

1.1 Transpersonal psychotherapy – Holotropic therapy

The first therapy form that is presented is the holotropic therapy according to Stanislav Grof. He is a psychotherapist and psychiatrist and is regarded as one of the founders of the International Transpersonal Association (cf. Walsh, 1996). He developed his own way of psychotherapy, where he uses a combination of intensive breathing and the listening to loud music as essential parts of the therapeutic process. Grof himself calls this form of breathing “holotropic breathwork” (cf. Grof, 2006). Through this process the clients are put in an extraordinary state of consciousness during which they are able to recognize and process very deeply rooted psychic traumas.

Holotropic breathing (or holotropic breathwork, from the Greek holos “whole“ and trepein “to aim at“ or “to move in the direction of“, “moving toward wholeness “) is a way of breathing developed by Stanislav Grof that followers believe allows access to non-ordinary states of consciousness, which usually are not accessible. The aim of the breathing technique is to deal with and integrate aspects of one’s personality that so far were not integrated enough and thus to move towards wholeness, which is expressed by the term “holotropic”.

Holotropic breathwork is counted among the transpersonal psychotherapies by its followers. (Wikipedia, 2008)

According to Grof the emotional and physical pain increase all the more the deeper the client can enter into the altered state of consciousness. He postulates the view *that the person in question has the impression to have crossed the borders of his individual suffering and is now feeling the pain of a whole group of people, of the whole human race or even of all living beings. (…)*

On this level clearly biographic experiences overlap with multifaceted transpersonal experiences. In psychedelic therapy sessions and occasionally in self-awareness therapy sessions or in spontaneously occurring states of this kind these phenomena can be so authentic and convincing that the person in question actually believes he is really going to die (Grof, 2006, page 25)

In the beginning the applied techniques activate the sense organs. The clients experience various sensory perceptions like seeing of colours, acoustic phenomena, haptic perceptions at various body parts or sensations of taste or smell. For Grof these perceptions have only little value in the therapeutic process; quite on the contrary, they are a barrier that has to be overcome to penetrate deeper into the person's psyche (cf. Grof, 2006). If this step is done the ensuing events are accompanied by heavy physiological reactions *like choking fits of different degrees of heaviness, a feeling of sickness and vomiting, cramp-like twitching, trembling, the body twisting and doubling over or other obvious motoric phenomena (Grof, 2006, page 25).*

Grof believes that such experiences are closely related to death, evanescence and several other phenomena which are definitely linked with the biological process of birth (cf. Grof, 2006). According to Grof the trauma of birth represents an essential factor whose effects subconsciously create the basis for the development of psychopathological processes.

Therefore I call this aspect of the subconscious perinatal (Grof, 2006, page 25).

Based on this assumption Grof postulates the existence of four hypothetic, dynamic matrices, which control the processes on the perinatal level of a person's subconciousness. He calls these matrices Basic Perinatal Matrices (cf. Grof, 2006). These four matrices of the unconscious are related to the four stages of the birth process: the phase of gestation in the placenta before the start of labour, the initiation of birth, the stage of active labour and passage through the birth canal and the moment immediately after exiting the mother's womb.

The perinatal matrices have specific relationships with the different aspects of activity in Freud's erogenous zones and the various psychopathological manifestations (Grof, 206, page 32).

In other words, this means that there is a link between the basic perinatal matrices and psychopathological syndromes like schizophrenic psychoses or endogenic depressions, and their related activities in Freud's erogenous zone, e.g. oral frustration, defecation and/or micturition behaviour or libidinous feelings after defecation (cf. Grof, 2006).

The four perinatal matrices are (Grof, 2006):

1. The amniotic universe,
2. The cosmic engulfment and experience of "no exit",
3. The death-rebirth struggle,
4. Death and rebirth.

For three decades Grof has been working in the field of systematic research regarding the clinical effects of extraordinary states of consciousness. According to him these extraordinary states of consciousness are extremely helpful with regard to the effective treatment of mental disturbances (cf. Grof, 2006).

During the first twenty years of his work he almost exclusively focused on the use and the clinical effects of psychedelic substances, in particular of LSD.

Due to the excessive use of such psychoactive substances in the 1960s and 70s legal and political steps were taken to regulate the use, which made research in this context more difficult and less popular.

Many pioneering groups of committed researchers seemed to have lost their interest or turned to examine more exciting topics (Vaitl, 2003, page10).

Due to the ban of psychedelic substances also Grof's work was channelled in a different direction. Together with his wife he was able to develop techniques which helped to *factually produce the whole spectrum of psychedelic phenomena with the aid of simple and safer non-pharmacological substances (Grof, 2006, page12).*

This new approach is called "Holonom Integration" or "Holotropic Therapy". This therapy unites controlled breathing, music and other acoustic influences, specific body work and drawing of mandalas in a specific way (cf. Grof, 2006). According to Grof *the results of his*

psychedelic research can directly be transposed onto other situations where the consciousness is altered with various non-pharmacological means (2006, page 10).

This means that there are indeed other possibilities to achieve altered states of mind without the need to ingest psycho-active substances.

Surprisingly, the multifaceted experiences ensuing the use of psychedelic compounds do practically not differ from those achieved through non-pharmacological techniques (Grof, 2006, page 10).

Vaitl (2003) describes similar observations:

Many things indicate that drug-induced changes of the state of consciousness and mystic experiences are similar in nature or even identical. "Chemical Mystic States" and "Acquired Mystic States" can phenomenologically overlap (page 20).

Further fundamental traits of the Holotropic Therapy will not be discussed in this context. Concluding it has to be pointed out that the objective of this therapy method is to put the patient in an extraordinary state of consciousness where *deeply subconscious and superconscious levels of the human psyche are mobilized and activated (Grof, 2006, page 17).*

Grof does not limit the use of the holotropic therapy approach to the field of mental diseases but expands it to the areas of traumatology and psychosomatic medicine.

In deed, problems which clearly express themselves on a psychosomatic level can always be ascribed to subconscious (biographic, perinatale or transpersonal) matters, where physical trauma plays a major role (Grof, 2006, page 24).

According to Grof (2006) the experience of a serious physical trauma represents a natural transition between the biographic sphere and the area that is strongly linked with death and rebirth. The fact of experiencing severe physical pain and the almost-death experience re-establishes the link with the trauma of birth.

The scope of such experiences doubtlessly exceeds that of ordinary mental traumas by far. The emotions and body sensations that remain of situations where the survival or the integrity of the organism was threatened seem to play an essential role in the development of various psychopathological conditions (Grof, 2006, page 24).

This approach comprises a holistic aspect which does not only take into account individual systems or parts of the body but also looks at the wholeness of the human being.

1.2 Ritual body postures according to Felicitas Goodman

Dr. F. Goodman (1914-2005) was an anthropologist who spent a large part of her life researching the connection between body postures and the experience of extraordinary states of consciousness. In her research work she combines various body postures (which she observed in cave paintings around the world during numerous field studies) with 15-minute rattling or drumming of a frequency of 200-220 beats per minute. She describes the extraordinary states of consciousness which are achieved through this process as religious trance (cf. Goodman, 2003).

Depending on the body posture the experience and content of these states of trance are different. According to Goodman the different postures provide differentiated access to alternate realities.

If one assumes such a ritual body posture and this is accompanied by an additional rhythmical stimulus (e.g. the sound of rattling), the state of consciousness is altered in a remarkable way: the person enters a state of trance and the original ritual becomes alive which provides a gateway into the experience of an alternate reality (Goodman, 2003, page 10).

In this context also postures of healing can be found, with the healing referring to the soothing of physical and also emotional/spiritual suffering. In deed, there are various postures used for healing but none of them is specifically targeted at either physical or mental suffering. The human being is also understood in his entireness. When it comes to experiencing extraordinary states of consciousness physical and psychological processes are inseparable entwined (cf. Goodman, 2003).

The ritual of healing has the purpose of re-establishing harmony and balance and always addresses the human being as a whole (Goodman, 2003, page 97).

However, the postures differ depending on which kind of healing power – meaning male or female – shall be evoked through the posture: the Bear Spirit is regarded as representing predominantly male power, while the Chiltan Spirits incorporate mainly female power (cf. Goodman; 2000).

Further, there are certain postures that predetermine gender-specific positions such as the posture of “The Couple from Cernavoda”; the result is the desired healing (cf. Goodman, 2003).

1.3 Shamanism on ARTE – The Clinic of Shamans

At the turn of the year 2005/2006 the television channel ARTE did broadcast a documentary on shamanistic healing rituals in the former Soviet Union. The film was produced by Ute Gebhardt and its title is “Die Klinik der Schamanen” (The Clinic of Shamans).

In this film Ute Gebhardt looks at shamanistic healing rituals in Tuwa, which today is part of the Russian Federation. In Tuwa shamanism was able to survive five and a half decades of Soviet communism. Even today there is a shamanistic clinic in Tuwa’s capital Kyzyl. During the shooting of the film Ute Gebhardt visited this clinic and observed the daily work of Nikolai Musokowitsch, the head of the clinic, and other shamans with the camera. Different sequences show how the shamans in the clinic use drumming to put people with various physical and mental conditions in a trance-like state and how they achieve healing through the processes that happen during this trance.

According to Nikolai Musokowitsch a disease always starts with changes in the soul. He thinks that the trance has the effect of healing the soul, which later also translates to the physical body.

(…) The shaman drums in the rhythm of the blood and by doing so can enter into the body of the patient. Only there he can find the reasons why the soul of a person has become ill. I believe that it is always the soul of a person that falls ill first and the body follows later (Musokowitsch, 2000).

The film also contains statements of the psychologist Dieter Vaitl. He is a professor at the Justus Liebig University in Gießen, Department of Psychology and Sport Science, specialist area Psychology. Since 1990 he has been responsible for the organisation and direction of an international research group which deals with the study of extraordinary states of consciousness. Since 2001 he has been the head of the Institute for Frontier Areas of Psychology and Mental Health in Freiburg (Institut für Grenzgebiete der Psychologie und

Psychohygiene, Freiburg). According to Vaitl the state of trance provokes the dissolution of the pain's emotional cntext and thus entails an improvement of the symptoms or even healing.

What we imagine happens in these brains is that during these states there is no fine-tuned interaction between the different areas of the brain like it is the case when pain is being processed.…..This does not work anymore; it is dissolved, i.e. the emotional qualities that are linked with pain and make it so uncomfortable, these uncomfortable qualities are ironed out, they are reduced, so that the source of the pain may still be there but the persons have been transferred into a relatively passive state – in this trance state maybe – through very specific practices of which we can somewhat imagine how they work and why they can be so effective (Vaitl, 2000).

The fields of transpersonal psychotherapy, the ritual body postures according to F. Goodman and shamanistic practices have in common that they produce extraordinary states of consciousness, in which the diseased person can find healing.

A comparison of the experiences of the author with the two forms of therapy that have been presented and experiences gained in biodynamic treatments show considerable consistencies regarding the content of these experiences, the perception of space and time and changes in the body scheme during the period of treatment.

Grof confines the effectiveness of the transforming powers of extraordinary states of consciousness to psychiatric patients, which, however, can be explained by the fact that his patients mainly were patients belonging to the speciality of psychiatry (cf. Grof, 2006). In the areas of shamanism and body postures according to Goodman this differentiation cannot be found.

1.4 Relevance of this work for osteopathy

More concrete information regarding the Neutral help to describe the field of biodynamic cranio-sacral osteopathy more precisely and to develop a better understanding of biodynamics. The osteopathic practitioner has more knowledge about the processes which occur in the body of a patient during a biodynamic treatment.

On the one hand, this helps the osteopath to better understand the reactions of a patient during the treatment, on the other hand, he is better capable of explaining to the patient what

happened during the treatment and what possible effects are to be expected. This means that the expertise of the osteopath is increased.

In almost every osteopathic treatment the questions arise where to start and which osteopathic approach to apply. More knowledge about the Neutral can help the osteopath to find answers to these questions more easily. It provides an aid in the decision-making process. The effectiveness of the osteopathic treatment is increased and the trust of patients in osteopathy is improved thought better treatment results.

Better knowledge about the Neutral and its effects on the human body also supports the argumentation of osteopaths in conversations with representatives of other medical specialities. A better understanding of the Neutral can facilitate the use of terms and definitions which are not only osteopathic and thus very specific to this field of expertise. Instead, words can be used, that are also used in other specialities. Osteopathy can reposition itself away from being a marginalized speciality which is accessible only to a few because of its specificity, towards a position where it is better accessible for a broader spectrum of patients. Thus the reputation and popularity of osteopathy will increase.

If the hypothesis can be confirmed, this work will also be one of the first to provide measurable quantities to support the frequently expressed claim of osteopathy that an osteopathic treatment achieves not only physical but also psychological changes. The claim of having a holistic perspective of the human being is substantiated.

1.5 Fundamentals

The first part of this paper focuses on the origins of this work. The background knowledge in the description of the two forms of therapy that have been presented above is based on the works of Grof (2006) and Goodman (2000; 2003). The quoted documentary was produced by Gebhardt (2000). In this first part the reader is confronted with forms of therapy which claim to achieve improvement or healing with the aid of extraordinary states of consciousness.

The second part of this paper looks mainly at the results of Vaitl (2003) and Dittrich (1985; 1984), who both carried out research regarding extraordinary states of consciousness. Dr. Vaitl is the head of an international group of researchers that deals with the study of extraordinary states of consciousness. His study results represent the status quo of the

research in the field of psychology. Dr. Dittrich is a psychologist. With his work in the1980s he provided the foundation for the study of extraordinary states of consciousness (cf. Vaitl, 2003). Based on a large-scale study he and his colleagues were able to identify a common core of extraordinary states of consciousness, which facilitates a phenomenological characterization of these states (cf. Dittrich, von Arx and Staub 1981 and 1985).

Another part focuses on neurobiological and neurophysiological considerations and is based on the works of Singer (2006) and Roth (1997). The philosophical sections of the present paper are based on a lecture by Goller (2001) at the University of Tübingen. The lecture was captured on video and has been published online via the server of the University of Tübingen in 2008.

The osteopathic part of this paper is based on the fundamental principles of cranio-sacral osteopathy according to Dr. Sutherland (cf. Sutherland, 1990; Magoun, 1997; Hartmann, 2004) and the principles of biodynamics according to Jealous D.O (cf. Jealous, 2000 and 2003).

The fourth part of this paper comprises a description of the methodology. It presents the design of the study, the study sample and the applied measuring instruments. These instruments are the Freiburger Persönlichkeitsinventar (Freiburg Personality Questionnaire, FPI-R) (cf. Fahrenberg, Hempel and Selg, 1984), on the one hand, and the Phenomenology of Consciousness Inventory (PCI) (cf. Pekala, 1991 and Rux, 2002), on the other hand.

Dr. Pekala has developed the PCI and Margit Rux evaluated the quality criteria of the German version in the course of her work for a diploma thesis at the Justus Liebig University, Department of Psychology, supervised by Dr. Ott who also provided valuable help and suggestions during the work on this paper.

2. Consciousness and extraordinary states of consciousness

For a human being of our time it is normal to gain experiences that go beyond the dimension of normal or usual (cf. Dittrich, 1987). The spectrum of these experiences is quite broad. It ranges from slight deviations to very serious alterations of perception, where any doubt about the altered nature of the perception is excluded. In Western cultures such states are identified by various different denominations.

They range from trance, ecstasy, obsession, monoideism, hysteria, etc. to terms like extraordinary states of consciousness ("non-ordinary states of consciousness") or altered states of consciousness, which today are used quite commonly (Dittrich et Scharfetter, 1987, page 1).

Such extraordinary states of consciousness are characterized as short episodes that differ from the "normal" or "ordinary" state of consciousness. They can just happen – like a dream – or they are voluntarily generated through various actions – like meditation or religious rituals.

The fact that they are "short-lived" and "voluntary" is essential for delimiting these extraordinary states of consciousness from psychic disorders which are caused by disease and/or adverse social circumstances e.g. isolation)and usually also last longer (Dittrich et Scharfetter, 1987, page 1).

This means that the individual wants to experience such an altered state of consciousness and voluntarily generates this state. The event is limited in time. Depending on the kind of induction (i.e. how the extraordinary state of consciousness is generated) the person in question can voluntarily end this extraordinary state at any time. However, this is problematic with regard to the induction by pharmacological substances whose effect on the body is terminated by metabolic processes. A voluntary termination of an extraordinary state of consciousness that has been generated this way is not possible.

How these altered states of consciousness are valued strongly depends on the cultural and religious contexts and is very much influenced by the prevailing social standards. Nevertheless, such situations are not isolated or scattered events which can also be defined as psychopathologies; Various authors postulate that a closer examination shows that they are completely normal processes in the human body, which are not so extraordinary as they may seem at first glance (cf. Vaitl, 2003; Goodman, 2003).

They are processes that are in principle anchored in the repertoire of experiences and behaviours of the individual person. (Vaitl, 2003, page 7)

Goodman postulates that it is an innate ability of the human being to be able to drift off in alternate realities in certain circumstances and that in this state a person can gain the most varied experiences. In her opinion this innate ability can be impaired through intensive meditation because the meditation deprives the brain of the ability to create a state of arousal that is necessary to experience the religious trance in terms of Goodman (cf. Goodman, 2003).

The reason is that the induction addresses an ability which is anchored in someone's hereditary disposition; something that is innate like our ability to sleep. This is also the reason why non-western religious communities think that someone who is not able to experience religious trance must be ill or at least has to be counted among the handicapped (Goodman, 2003, page25).

The various body postures represent different focal points of the extraordinary experiences like healing, fortune-telling, death and rebirth. If one of the approximately 40 body postures is adopted, the reports of the participants are surprisingly similar regarding the content of the experience.

Bourguignon (1973) studied the prevalence and acceptance of extraordinary states of consciousness in different cultures of the Mediterranean. In this study 488 different cultures were evaluated with regard to the institutionalization of extraordinary states of consciousness. Among 90 per cent of the evaluated cultures extraordinary states of consciousness are an inherent part of the social and cultural life and display a high degree of institutionalization, i.e. the experience of extraordinary states of consciousness is subject to strict rules.

2.1 Consciousness or "The conscious experience"

The term "Bewusstsein" (consciousness) was introduced into the German language by the German universal scholar Christian Wolff (1679-1754) in reference to the Latin term *conscientia*. The word "Bewusstsein" (consciousness) is thus derived from the Latin word *conscientia* and means "Gewissen" (conscience) in its original sense. The first to use the word in a more general sense was Réné Descartes.

***Conscientia**, ae, f. (conscio) **I.** das **Mitwissen**, **Einverständnis**: facti, coniurationis T. **II. 1**. **Bewusstsein**: ex nulla conscientia: da ich mir keiner Schuld bewusst bin; mit gen. Virium: im Gefühl . **2. Gewissen**: magna vie est conscientate: eines guten Gewissens (Stowasser, Petschenig, Skutsch, 1979, page 100)*

The term "Bewusstsein" (consciousness) has a varied meaning in the modern use of language. Often the various meanings overlap with meanings of terms like "Seele" (soul) or "Geist" (spirit) and are thus rather used in the context of natural sciences (cf. Wikipedia, 2008).

Pschyrembel's clinical dictionary (1990) contains the following definition:

General term for the description of the totality of the subjective mental processes and qualities of experiences linked with someone's self-awareness, vigilance and unimpaired perceptive and cognitive functions (Pschyrembel, 1990, page 201).

In order to help the reader to better picture the meaning of the terms "consciousness" or "conscious experience" another definition by Goller (2001) is provided below:

…first of all consciousness means all internal processes and states which are directly accessible only through self-observation, e.g.

- *Sensory perceptions like colours, sounds, smells*
- *Sensations of taste*
- *Sensations of touch*
- *Body sensations like pain, cold, heat*
- *The realm of desires, needs, voluntary decisions*
- *Feelings like joy, anger, rage*
- *Moods like cheerfulness, depressiveness*

The particularity of these states is that experiencing them has a specific character, e.g. that sadness feels differently to boredom or rage. They are the foundation for the fact that a human being feels like a human being; that everybody experiences himself as the originator of his own actions (cf. Goller, 2001)

2.1.1 Philosophical approach

In philosophy spiritual and psychological phenomena are summarized under the term "the mental" (cf. Goller, 2001). The field of metaphysics is a basic discipline of philosophy, which deals with "the mental" or the aspects that cannot be grasped physically. It is the study of the

things that cannot be seized empirically. Depending on the philosophical point of view metaphysical observations can cover very broad fields. Basically, metaphysics focuses on the central topics of theoretical philosophy. They ask questions concerning the most general principles of existence. This doubtlessly includes questions regarding someone's free will or the question of how spirit and matter are related.

The term "the mental" comprises thoughts and contents of thoughts, opinions or reflexions and also qualitative sensations and perceptions, which in the field of philosophy are commonly summarized as "qualia".

Qualia are qualities of experiences like feelings (e.g. rage or joy) or sensory perceptions like the experience of touching glass with the palm of one's hand or hearing a piece of music in a concert hall. However, it is exactly these kinds of qualities of experiences which pose insolvable problems for science because they have such specific properties. These puzzling aspects can also be described as "the mystery of the spirit" (cf. Goller, 2001).

The two following chapters will take a look at this mystery with the aid of descriptions of qualities of experiences and the scientific problems in this context.

2.1.1.1 Specific characteristics of qualia

The most important characteristics of the qualities of conscious experience are (Goller, 2001):

- Subjectivity and privatness
- Non-spatiality or non-materiality
- Dependency on perspectives (qualia are perspective)

Subjectivity and privateness mean that the contents of the conscious experience are only accessible to the person in question. An outside observer can see the behaviour of other people but he is not able to access the special content of experience of the observed person. Based on observations and the description of the experience of the person in question it is possible to draw conclusions as to his mental state and due to one's own experiences of similar situations one can imagine what might be going on inside the other person.

However, even if brain research would be able to describe which pattern of neuronal activity goes hand in hand with e.g. the experience of being in love, one would not know how it feels to be in love if one had never experienced it oneself. We would be able to recognize the state of being in love due to the specific pattern of activity of the brain but we would not know how it feels to be in love.

Brain research can study the fundamental neuronal processes of conscious experiences but not the experience itself. When a brain researcher observes a brain during conscious experience he can only observe part of the activity of the brain. However, he is not able to observe the content of the experience. Thus the experience remains subjective and private.

Non-spatiality or non-materiality means that the conscious experience does not have any measurable physical properties. A conscious experience cannot be measured because it simply makes no sense to ask how heavy or broad a thought or a perception was. Again, one can study and measure the activity of the brain but not the content of the experience. Thus the conscious experience is not like an object. But the world around us is made up of objects and is subject to the well-known laws of physics. This necessarily gives rise to the question how something non-spatial or non-material can exist in a world of space and objects? How is it possible that something non- material like a voluntary decision can have an influence on the material world? In addition to the problem of subjectivity this question is the next problem that needs to be solved in the context of the study of the consciousness.

The dependency on perspectives means that there are various possibilities to describe states of consciousness. In this context one can differentiate between the internal or subjective perspective and the external or observer's perspective. Both approaches are recognized in the field of philosophy.

The internal perspective means that the person whose state of consciousness is to be observed does the observing himself while the external perspective means that someone else observes the behaviour of the person in question or tries to empathize with the person based on his own experiences. The internal observation mainly focuses on the qualities of conscious experiences, the qualia. It is also referred to as "phenomenal approach" or "phenomenal observation". As already pointed out the internal perspective is always subjective and private. The use of questionnaires, which are completed subsequent to the situation that needs to be examined, offers a possibility of phenomenal observation. There are several questionnaires available in the field of the study of states of consciousness. The questionnaire that is most commonly used in this context is the PCI (Phenomenology of Consciousness Inventory) by Pekala. This inventory was also used in the context of this study. Chapter 4 will discuss this in more detail.

In order to better illustrate qualities of experiences and the resulting problems a frequently quoted article by the American philosopher Thomas Nagel needs to be mentioned also in this paper (cf. Nagel; 1974): In his article Thomas Nagel puts forward the question of how it is like for a bat to be a bat. To really understand the experience it is not sufficient to empathize with the world of bats or to internalize their behaviour. Even if the external observer goes to great lengths to immerse himself into the world of bats, the only experience he will be able to make is how it feels for him to be a bat. Despite all his efforts he will never be able to fly, to navigate with ultrasound or to hang head down from the ceiling. He does not have the abilities and the body of a bat. Therefore the person in question will never be able to gain the subjective experiences of a bat.

The conclusion is that an outside observer will never be able to experience how it is like for a bat to be a bat. If the problem was to be studied from a neuroscientific point of view, merely the objective features could be examined and aspects such as the brain and the anatomy of the bat would be the focus of interest.

2.1.2 The natural scientific approach

In the field of natural sciences a phenomenon is explained if all its phenomenological properties are explained. Regarding consciousness this means that the “mystery of consciousness” can be solved and explained if all properties of consciousness can be explained scientifically. The explanation of all these properties would thus mean that also all qualia, which so far have persistently eluded scientific explanation, would be explicable. However, the qualia still remain a “mystery of consciousness” and the question is whether it will ever be possible to scientifically explain the phenomenon of consciousness. The natural scientific approach presumes that the key for solving all questions regarding the phenomenon of consciousness can be found in decoding and understanding the brain’s functions.

The basic theory in the field of brain research is (Goller, 2001):

All our experiences and behaviour depend on the brain and its functions.

Based on this assumption one can derive the conclusion that without a functioning brain in combination with a functioning body nothing can really be experienced. Also derived from this assumption everything that has ever been thought or written about the soul or consciousness has its origin in the processes of the brain. Based on these assumptions Wolf Singer (2006) calls to mind an epistemological problem which brain researchers are often confronted with:

Studying the brain means that a cognitive system looks at itself through the mirror of itself. The explaining and the explained amalgamate. And the question arises in how far we are at all able to truly understand what really constitutes us (Singer, 2006, page 11).

Since it has already been pointed out that the interest of neuroscientists focuses on the brain and its functions, the following section will present various facts that have been gained through the research efforts.

2.1.2.1 Neurobiological facts

The general constitution of brains is similar. Whether it is the brain of fishes, or reptiles or mammals, one can always observe the differentiation between cerebrum, diencephalon, mesencephalon, brainstem and cerebellum. This similarity is particularly noticeable among the brains of the different kinds of mammals. The highly developed brains of primates differ only marginally from those of other mammals. This difference concerns mainly the increased

volume of the cortex. Besides this quantitative difference no difference can be observed with regard to the structure of the brains of different species (cf. Singer, 2006). The cerebral cortex is an approximately 2mm thin, folded layer of densely packed neurons, the so-called grey matter. Underneath this layer there is the area of white matter which consists of nerve cell axons.

Also the chemical messenger substances, the neurotransmitters, which allow the nerve cells to communicate with each other, have hardly changed throughout evolution. There is hardly any neurotransmitter in the brain of mammals which cannot also be observed in simple organisms like insects or snails.

Thus the ‘hardware’ has hardly changed throughout evolution, which gives rise to the question of how some species were able to develop consciousness.

It seems that not only the increase of the volume of the brain plays a role but also other preconditions have to be met in order to develop consciousness. One such precondition possibly is the development of a communication network through which the various parts of a nervous system are able to exchange information. What is noticeable in this context is that the cerebrum has maintained its internal structure almost unchanged throughout evolution. Histologically the cerebral cortex of a mouse can hardly be differentiated from a human cerebral cortex.

In contrast to technical systems it is not possible to separate hardware and software in the brain. In the brain the program for processes of function is determined exclusively through the patterns of neuronal networks of the nerve cells. The network structure is the program. (Singer, 2006, page 21)

Roth, doctor of philosophy, professor for biology and director of the Institute for Brain Research in Bremen, studies the way nervous systems of different species function. In his opinion the simplest and the more complex nervous systems function according to the same pattern – first of all, the living being is influenced by stimuli from the environment; secondly, the momentary state of arousal of the nervous system in question plays a role. With increasing complexity of the nervous system more and more signals of the organism’s own nervous system come into play as reaction to external stimuli. A possible explanation for consciousness lies in the plethora of these internal stimuli. For an external observer it seems that the observed living being has consciousness only because he is not able to recognize all the internal stimuli of the nervous system of the individual. From the outside it seems that

there is consciousness but, in fact, the individual is subject to the control of internal and external stimuli.

The principle is the same for all living beings. Therefore we have to say goodbye to the concept of a soul and the idea that there is a free will. (Roth, as cited in Klein, 2000, page 155)

Referring to Roth Klein (2000) writes:

In the case of a flatworm approximately one signal of the organism's own neural network is triggered for each external signal. A salamander has thousands of internal signals in response to the external stimuli via the sense organs. The human brain produces many million times more internal signals. (Roth, as cited in Klein, 2000, page 155)

Vaitl (2003) writes the following about the incredible amount of data that is being processed in our brains:

Considering the incredible amount of data that the human being is perceiving with his sense organs and processing in his brain (1000 – 10 000 000 bits/second), as well as the thousand-fold operations with which he communicates with his environment, the small bite of information that is left over for the consciousness to process it stands out (1-40 bits/second; maximum processing capacity of the working memory: 7 bits/second) (Vaitl, 2003, page 8).

In summary, it has to be pointed out that not all aspects related to consciousness have yet been clarified sufficiently. All the various fields of science have their specific approaches with their associated strengths and weaknesses.

According to the philosopher Thomas Metzinger (1995) the problem of consciousness – perhaps together with the question of the origin of the universe – today lies at the very limits of human understanding.

2.2 Extraordinary states of consciousness

The term "Außergewöhnlicher Bewusstseinszustand" ("Extraordinary State of Consciousness") has been coined by Arnold M. Ludwig in 1966. At this time he published the results of his literature research on the topic "Altered States of Consciousness" in the journal "Archives of General Psychiatry" and defined the term "Extraordinary State of Consciousness or "Altered State of Consciousness" (ASC) as follows:

… any mental state(s), induced by various physiological, psychological, or pharmacological manoeuvres or agents, which can be recognized subjectively by the individual himself (or by an objective observer of the individual) as representing a sufficient deviation in subjective experience or psychological functioning from certain general norms for that individual during alert, waking consciousness. This sufficient deviation may be represented by a greater preoccupation than usual with internal sensations or mental processes, changes in the formal characteristics of thought, and impairment of reality testing to various degrees (Ludwig, 1966, page 225).

According to this definition extraordinary states of consciousness can be induced in different ways. This is consistent with the statements of Grof and Goodman (cf. Chapter 1). However, in his definition Ludwig does not state clearly what he means by "sufficient deviation".

This definition of extraordinary states of consciousness has become a milestone in the scientific research of the processes of consciousness, whose credibility was doubted at the time where a behaviouristic opinion was prevailing. (Kokoszka, 1992/93, as cited in Rux, 2002; page 4)

A new definition by G.W. Farthing (1992) can be found:

An altered state of consciousness may be defined as a temporary change in the overall pattern of subjective experience such that the individual believes that his mental functioning is distinctly different from certain general norms for his normal waking state of consciousness (Farthing, as cited in Vaitl, 2003, page 12).

Both definitions refer to the normal waking state of consciousness and mention a distinctly perceivable deviation of the normal, whose differentness seems to be beyond doubt. However, judgments like that are subject to the subjective perception of the observer. Social norms or believes come into play, which seem to make an objective assessment of a deviation from the normal waking state of consciousness problematic because what is normal for one person might already be a deviation from the normal for another person.

A little more objectivity can be found in the recording and analysis of vital parameters like e.g. blood pressure, heart rate or hormonal balance. Parameters that are measured during an altered state of consciousness can be compared with the values of the normal waking state of consciousness, which are known by conventional medicine. The results of such comparisons

can contribute to establish generally valid objective criteria for determining extraordinary states of consciousness.

Felicitas Goodman started to measure the brain activity of participants in trance sessions by means of electroencephalograms (EEG). The first series of such experiments was carried out at the Psychiatric Hospital of the University of Munich under the direction of professor Kugler. The results were very surprising because the measurements showed theta-waves which in adult persons occur rather during a state of light sleep than in a state of distinct arousal. The results were confirmed in similar experiments at the Department of Psychology of the University of Vienna (cf. Guttmann, 1992).

It is e.g. possible to eavesdrop on the brain's electrical activity, i.e. to carry out EEG measurements during a trance session. (…) In such a religious trance impressive theta waves could be observed. This is surprising because an adult usually shows such waves during a state that is empty of conscious experience, e.g. when a person is falling asleep, this means the person does not experience anything, while during a religious trance the person experiences impressive visions.

(…) the experiments in Munich showed also that during a religious trance the level of adrenalin, noradrenalin and cortisol diminish in the blood serum and that the blood pressure drops even though the pulse increases at the same time. (…)

In addition, the brain starts to release beta endorphin. This opiate has been known for a while. It is the pain killer that the body produces itself. And it can also generate an overwhelming feeling of joy, a true euphoria… (Goodman, 2003, page 23).

2.2.1 Qualities of experiences during extraordinary states of consciousness

In view of the above considerations regarding the idea of consciousness this chapter will focus on the characteristics of extraordinary states of consciousness. The chapter will examine whether there are certain characteristics which can be used to describe extraordinary states of consciousness.

Since also extraordinary states of consciousness represent a form of conscious experience, the already mentioned characteristics of conscious experiences apply, i.e. the experience is subjective and private, non-spatial or non-material and perspective.

With regard to the observation of extraordinary states of consciousness there are the possibilities of a subjective internal perspective to look at the content of the experience or a rather objective external perspective to observe the behaviour.

Also in this context the internal perspective is considered as phenomenological observation.

Now, what are the specific phenomena that can be observed and how can they be evaluated?

The phenomenological characteristics of the aspects of function where the changes take place can be deduced from reports of persons who have experienced altered states of consciousness. Subsequently, one can try to objectify these changes and to identify typical pattern of reaction with the appropriate psychological or physiological methods. (Vaitl, 2003; page 12)

This method facilitates the identification of those aspects that are subject to changes during an extraordinary state of consciousness. One possibility to detect such changes is the use of questionnaires which have to be completed in retrospect of the previously experienced situation. The observations or the reports of the content of the experience are based on the internal perspective and are thus subjective.

The questionnaire that is most commonly used today has been developed by Pekala and was presented in 1991: “Phenomenology of Consciousness Inventory” (PCI). Chapter 4 will provide more detailed information on this questionnaire.

Another questionnaire is the much older APZ by Dittrich dating from the year 1975 which was used in a large-scale study on “Extraordinary States of Consciousness" (cf. Dittrich 1975).

2.2.2 Signs and characteristics of altered states of consciousness

In the mid-1980s Dittrich et al. carried out a large-scale international study where the APZ questionnaire was used to determine common characteristics of extraordinary states of consciousness. The APZ questionnaire was developed especially for this purpose and comprises 158 questions which have to be answered with either “yes” or “no” (cf. Dittrich 1975). To date this study has been the largest empirical study of extraordinary states of consciousness. It was carried out in the German-speaking part of Switzerland, the Federal Republic of Germany, Northern Italy, Tecino, the United States, Portugal and Great Britain involving a total of 1133 participants.

Basically, the hypothesis of this study was that extraordinary states of consciousness have certain basic dimensions which are independent from the kind of induction; i.e. they lead to a characteristic change in consciousness no matter how this altered state is provoked (cf. Dittrich et al., 1985).

The study showed that there are three large dimensions where these postulated changes happen. The authors of the study described these dimensions as follows (cf. Dittrich et al, 1985):

1. Oceanic boundlessness (Ozeanische Selbstentgrenzung)
2. Dread of ego dissolution (Angstvolle Ich-Auflösung)
3. Visionary restructuralization (Visionäre Umstrukturierung)

To facilitate the understanding the three dimensions are described more in detail below. For this description actual items of the APZ questionnaire are used. The numbers of the quoted examples are the actual numbers of the items in the questionnaire (cf. Dittrich, 1975).

The ‘Oceanic Boundlessness’ describes a state which has certain similarities with mystical experiences. This sub-scale comprises a total of 13 items in the APZ questionnaire.

1. I had the feeling everything around me was unreal.
7. I felt as though I were floating.
68. It seemed to me as though I did not have a body anymore.

The second sub-scale ‘Dread of Ego Dissolution’ shows characteristics which indicate an uncomfortable state similar to the experience that drug addicts would call a “bad trip”. This scale comprises 22 items.

64. I felt threatened without realizing by what.
105. I stayed frozen in a very unnatural position for quite a long time.
141. I felt isolated from everything and everyone.

The dimension ‘Visionary Restructuralization’ includes 14 items related to visual pseudo-hallucinations or hallucinations and illusions. Some of the changes concern the significance or meaning of the environment.

29. I saw light or flashes of light in total darkness or with my eyes closed.
42. Objects around me engaged me emotionally more than usual.
138. The colours of the things I saw were changed by sound and noises.

In reference to Huxley (1959), it could be said that the three primary aetiology-independent aspects of ASCs correspond to “Heaven”, “Hell” and the “Visions” (Dittrich et al, 1985, page 325).

The three aspects mentioned above form the core of extraordinary states of consciousness. Based on them the authors define the dimension “extraordinary state of consciousness” as follows (cf. Dittrich and Scharfetter, 1987):

1. Altered thought processes (“primary-process-like”)
2. Altered time sense (speed, timelessness)
3. Fear of loosing self-control
4. Intensive emotions (ranging from happiness to panic)
5. Altered body perception (up to immaterialness)
6. Visual-hallucinatory phenomena, synaesthesias
7. Altered experience of meanings

Besides his definition Ludwig (1966) also offered a characterization of extraordinary states of consciousness:

A. *Altered thinking*
B. *Altered time sense*
C. *Loss of control*
D. *Changes of emotionality*
E. *Changes of body image*
F. *Altered perception*
G. *Altered experience of meaning*
H. *Feeling of something inexpressible*
I. *Feelings of renewal and rebirth*
J. *Hypersuggestability*

For a better understanding the following section provides a more detailed explanation of the items A to J:

A: the state leads to changes in a person’s way of thinking including subjective disturbances of concentration and targeted attention. Primary-process-like thinking prevails.

B: The time is accelerated, decelerated or subjectively feels to stand still, i.e. the person experiences a feeling of timelessness.

C: The person experiences a feeling of loss of self-control.

D: The feeling of loss of self-control is accompanied by extremely intensive emotions, which can range from total bliss and ecstasy to fear and deep depression.

E: The altered perception of the body image can vary considerably: the body's boundaries dissolve, body parts are distorted, change in weight or size or are disconnected from the rest of the body. The person experiences subjective phenomena of levitation or a feeling of immaterialness, which can cause massive fear. The experience of "oceanic boundlessness" is often encountered in the context of ritualized religious practices.

F: Often changes of perception (in particular visual perception) can be observed such as hallucinations, pseudo-hallucinations, illusions and synaesthesias.

G: The often considerably altered experience of meaning is among other things expressed through the fact the objects or contexts which are not at all or hardly noticed during the normal state of consciousness suddenly become extremely significant.

H: ASCs often have the characteristic of being indescribable or difficult to put in words or even to be inexpressible.

I: Feelings of becoming one or rebirth are the aspects among all listed aspects, where the uncertainty is greatest whether they really persistently relate to the ASC. In addition, they often occur subsequently.

J: The aspect of "hyper-suggestibility" also concerns a different dimension which can be detected through special tests rather than through self-assessment. Ludwig ascribes this to the fact that as a result of the usual constants an ASC provokes a certain insecurity under whose influence events that give a certain structure can particularly easy be absorbed (Ludwig; as cited in Dittrich and Schafretter, 1987, page 30).

A comparison of other authors (Vaitl, 2003; Tart, 1980; Pekala, 1991) also shows various consistent dimensions of conscious experience, which are subject to changes when the person enters an extraordinary state of consciousness. The authors apply different degrees of differentiation to the dimensions which is the reason for the different numbers of dimensions listed by them. For instance, Ludwig (1966) lists 10, Tart (1980) lists 11 and Pekala (1991) lists 26 dimensions. In addition, some authors like Pekala (1991) also differentiate between major and minor dimensions.

Pekala based the structure of consciousness on 12 major and 14 minor dimensions (cf. Pekala, 1991). Following this assumption his inventory comprises those 26 different aspects. The major and related minor dimensions of the PCI are thus (Pekala, 1991, page 127-128):

Altered experience (body image, time sense, unusual meaning, perception); positive affect (joy, sexual excitement, love); negative affect (fear, anger, sadness); attention (direction, absorption); visual imagery (amount, vividness); self-awareness; altered state of awareness; internal dialogue; volitional control; memory and arousal. A more detailed description of the dimensions will be provided in the chapter about the PCI.

3. Cranio-sacral osteopathy

Craniosacral osteopathy is an element of osteopathy which dates back to the thoughts and understandings of Dr. Sutherland (1873-1954). As student of Dr. Still (1828-1927), the founder of osteopathy, Sutherland became familiar with the basic principles of osteopathy. In 1899 Sutherland studied at the American School of Osteopathy when he makes a momentous discovery. Looking at a disarticulated mounted skull his attention was caught by the form of the articular surfaces of the sphenosquamous sutures. For Sutherland these articular surfaces seemed to be designed for movement. He was fascinated by this idea and started to study the articulations between the different bones of the skulls of human corpses. He came to the conclusion that movement between the individual cranial bones is possible. Based on this assumption Sutherland developed the osteopathic cranial model. He described his discovery as follows:

Have you ever had a thought strike you? (…) I became impressed with the idea that this suture was a display of a design for motion. The occipital squama was so similar to the gills of a fish that the next thought was all too logical. It struck me like a flash of inspiration that this design for motion also had to represent a function. Thus I came to the conclusion that this function necessarily had to be a respiratory mechanism. (Sutherland, 1990 a, page I-18).

Nevertheless, Sutherland never saw himself as the founder of cranial osteopathy he rather attributed the development to Still (cf. Sutherland, 1990 a, page I-18.)

From a scientific point of view only little scientifically proven knowledge is available in the field of cranial osteopathy. The concept of the rhythmical movement of the cranial bones was published by Sutherland in 1939 and the idea is still disputed to date. Certain studies confirm a rhythm of 4-14 cycles per minute (cf. Fryman, 1970; Moskalenko et. al., 2001; Nelson et al., 2001; Nelson et. al., 2006), other works (cf. Ferré et. Barbin, 1991) dismiss the cranial concept. Regarding the rhythms that have been proven it is not clear yet whether they correspond to the cranial rhythm postulated by Sutherland or whether other rhythms have been discovered.

The following section will provide an overview of Sutherland's model. The terminology is taken from Sutherland and the terms are used in this paper as he intended them to be used. It

has to be pointed out that the whole issue of definitions of terms is very problematic in the field of cranial osteopathy. On the one hand, ambiguities occur due to the translation of the terms from the original English into German, and, on the other hand, different osteopaths use the same terms to describe different palpatory phenomena (cf. Dunshirn, 2007).

3.1 The cranial concept according to Sutherland

Taking into account Still's basic principles Sutherland developed the cranial model, where mobility and functionality both are essential elements. And Sutherland expresses the importance of these two aspects also in the name he choose for the phenomenon: "Primary Respiratory Mechanism". According to Sutherland there is a dynamic interrelation between the cerebrospinal fluid and the physiological function of all cells in the human body, in particular the cells of the nervous system (cf. Magoun, 1997, page 17).

With the term "mechanism" Sutherland indicates that the model is dynamic, an arrangement of elements, which in his opinion have to fulfil a clearly defined task. "Respiratory" indicates the function. According to Sutherland physiological respiration means the elimination of harmful substances and the formation of new matter by the protoplasm of the cells (cf. Magoun, 1997, page 16). For Sutherland "primary" means "before all other things". With this he wants to express the importance of the function of this mechanism, which in his opinion is also superior to the vital functions of the nuclei in the region of the Medulla oblongata (cf. Sutherland, 1990 b, page 55).

The following description of the components of the Primary Respiratory Mechanism is based on the original texts by Sutherland (1990). The chosen terminology will be used in this sense throughout this paper.

The components of the Primary Respiratory Mechanism according to Sutherland:

1. *The Fluctuation of the cerebrospinal fluid – the potency of the Tide*
2. *The function of the reciprocal tension membrane*
3. *The mobility of the neural tube*
4. *The articular mobility of the cranial bones and the involuntary mobility of the sacrum between the ilia (Sutherland, 1990 b; page 13).*

The individual components will not be discussed in detail with the exception of the *Fluctuation of the cerebrospinal fluid*. This fluid is particularly significant in Sutherland's model. In his opinion there is another fluid within the cerebrospinal fluid, which he calls 'Potency' or 'Breath of Life'. According to Sutherland this is a fluid which does not mix with the cerebrospinal fluid (cf. Sutherland, 1990 b, page 14). This assumption plays a fundamental role in Sutherland's hypothesis because he attributes particular properties to this fluid. He assumes that this fluid has an intelligence which can be utilized for diagnostic and therapeutic purposes in the cranial model.

(…) "The cerebrospinal fluid is in command". He [Dr. Sutherland; note from the author] *finds it to be an intelligent, physiological functioning that transcends all others in the body. Dr. Sutherland takes advantage of this intelligence, this "unerring potency," in the diagnosis and correction of cranial membranous articular lesions (Magoun, 1997, page 15).*

In the described model the movement that takes place is rhythmic, continuous and cyclical. According to Sutherland each cycle can be divided into an inspiration phase and an exspiration phase. The rate is 7 to 14 cycles per minute (cf. Magoun, 1997, page 19).

The movement of each bone is synchronized with each of the other bones and with the movement of the cerebrospinal fluid, the neural axis and the meninges, thus constituting a truly physiological unit. (…) All fall in the classification of flexion or external rotation for the inspiratory phase of the cycle and extension or internal rotation for the exspiratory phase.

According to Sutherland's model the characteristic changes that take place during each phase affect the whole body. The cranial bones move around specific axes which Sutherland clearly defined. Sutherland also postulates that during the phase of inspiration the whole body

becomes shorter and wider, while arms and legs move in external rotation. During the exspiration phase the movement goes in the opposite direction (cf. Magoun, 1997, page 19).

3.1.1 Function of the Primary Respiratory Mechanism

According to Sutherland the main function of the mechanism is to ensure unimpeded metabolic processes in the body. In his opinion each organism depends on the continuous movement of the fluids to maintain a normal physiology (cf. Magoun, 1997, page 20). For Sutherland changes in the pattern of movement of the Primary Respiratory Mechanism represent an impairment of the metabolic processes and thus the basis for pathological developments (cf. Magoun, 1997, page 21).

3.2 The biodynamic model according to Jealous

Based on Sutherland's model Jealous developed the biodynamic model. The terminology he uses in his model will not be commented in this paper. The terms are used analogously.

In the early 1980s Jealous became a junior member of the faculty of the Sutherland Cranial Teaching Foundation. Rollin Becker was assigned as his mentor with the task to prepare him for his function as table trainer, i.e. assistant for the practical work at the tables. This preparation involved the treatment of one another. According to Jealous one of these treatments laid the foundation for the development of the biodynamic concept because he was able to discover the Neutral with the aid of Becker. Jealous described this event as follows (2000):

And suddenly I could feel something changing inside him. It was as if the whole suddenly became buoyant and the strange thing about that was that what I felt was what I usually saw at the end of a treatment. (…) Here I was confronted with a situation where I felt something in the patient which said to me from the perspective of the functional approach of osteopathy in the cranial field that the treatment was over because the patient felt very calm, very stable, very still. (…) And suddenly there was this therapeutic process which went from his knees up to his pelvis and further up to his neck. And this process went from one site to the other inside the patient. Every time it shifted and produced a local change the whole of the patient became

more integrated and there was a feeling of greater homogeneity. It was as if the whole body of the patient went into this feeling of fluid freedom, not only the segment.

According to Jealous the Neutral is the moment when the whole of the patient starts to feel fluid; there are no reference points anymore, where a treatment according to Sutherland could start. In Sutherland's model the reference points are local neutral points with the aid of which somatic dysfunctions can be treated. In the biodynamic approach according to Jealous the biodynamic treatment can only start if the patient has reached a systemic neutral on the basis of these local neutral points (cf. Jealous, 2000). In Jealous' opinion the biodynamic treatment starts where the treatment according to Sutherland's model ends.

The five components of the cranial model according to Sutherland also apply in the biodynamic model, just like the treatment techniques developed by Sutherland. Some of these techniques are used to create the preconditions for a biodynamic treatment, to reach the state of neutral or the Neutral.

3.2.1 The Neutral

Jealous postulates that without a systemic state of neutral no biodynamic treatment can take place (cf. Jealous, 2003 b). This section presents some definitions and characteristics of the Neutral and describes methods to reach the Neutral.

According to Jealous the Neutral is a homogenous state where the fluids, the Potency and the tissues are no longer perceived as separate from each other. Thus in this state only the whole, one entity can be perceived. In Jealous' opinion this homogeneity gives the body the opportunity to be moved in all directions (as necessary in the specific case) to restore health.

In Jealous' writings different definitions of the state of Neutral can be found. Some of the definitions are listed below:

1. *A point of balance unique to the moment and the individual through which the Tidal forces can act to regenerate function. This point is collective; a function of the Whole, an integrated tone of body, soul and spirit. Through this "neutral" the priority and intention of the Breath of Life is able to permeate and "work" with as little unresolved tension (in the patient) as possible. (Jealous, 2003 a, page 25).*
2. *The Neutral is the state where the patient is free to be shifted by both the thoracic and the Primary Respiration (Jealous, 2000).*
3. *Neutral – the point at which a direct response to the Tidal forces is possible; a point of balance in the reciprocal tensions that is free to shift with Primary Respiration (Jealous, 200 3a, page 25)*

3.2.1.1 Characteristics of the Neutral

It has already been mentioned that the state of neutral has certain characteristics. What is particularly noticeable in biodynamics in contrast to Sutherland's model is the lack of a starting point for the treatment. In the cranial model according to Sutherland the diagnosis is based on the assessment of the mobility of the cranio-sacral system; deviations from the normal pattern of movement are recognized and, finally, the structure in the body that is responsible for the disturbance is identified. This structure becomes the starting point for the treatment. In Jealous' opinion there are no such starting points in biodynamics. The first indicator for the Neutral is the feeling of homogeneity. There is no pattern of movement as described in Sutherland's model. The biodynamic model according to Jealous assumes that there is no axial movement. The reference points of dysfunctions do not follow any laws of biomechanics but are oriented around a midline. With palpation a transversal widening and an axial shortening can be perceived in the homogenous field. This palpatory phenomenon can be equalized with the cranial phase of inspiration. The exspiration thus corresponds to a transversal narrowing and axial lengthening.

The second typical indicator is the rate at which the transversal widening and narrowing occurs. In his model Sutherland describes a rate of 7-14 cycles per minute, while Jealous describes a rate of 2.5 cycles per minute for the state of neutral, i.e. the cycle of inspiration and exspiration occurs 2 and a half times per minute in the Neutral.

3.2.1.2 How to reach the Neutral

Jealous describes two ways to reach the Neutral. On the audio CD "Introduction to Biodynamics" he calls the two methods 'Biodynamic method 1 and 2'. He specifically points out that method 2 should be reserved to advanced osteopaths.

According to Jealous the heading "Biodynamic Method 1" summarizes all treatment techniques of Sutherland which lead to a local neutral point in the patient. Following this approach the osteopath starts with Sutherland's cranial method and switches to the biodynamic method after the first neutral point is reached (cf. Jealous, 2000).

The techniques that are most commonly used are:

1. Balanced Ligamentous Tension
2. Balanced Membranous Tension
3. Lateral Fluctuation
4. Extension of the 4th Ventricle (EV 4)

In technique we endeavour to follow Dr. Still´s methods. That is, getting the point of release with no jerking and then allowing the natural agencies to return the bones to their normal relations and positions. (…) We do not force anything into place in the reduction of the lesion. We have something more potent than our own forces working always in the patient towards the direction of the normal (Jealous; 2003 a; page 1).

According to Jealous the "Biodynamic Method 2" means that the practitioner synchronizes with the homogeneity right from the beginning of the work.

We start with the neutral point in the patient and begin with the feeling of dynamic stillness, which is omnipresent. Thus we start with perceiving the whole which cannot be described. During the entire therapeutic process the osteopath gives up the need to know exactly what happens. The osteopath does not see any dysfunctions, no problems and no neutral point. The osteopath stays with this dynamic stillness and even though transmutations and changes will

take place in the patient as a whole, there is no augmentation, no interface with the motion. The osteopath connects with this dynamic stillness (Jealous; 2000).

3.2.1.3 Lateral Fluctuation

According to Sutherland's concept the Lateral Fluctuation belongs to the fluid techniques (cf. Magoun, 1997, page 87). In his opinion this technique means that the osteopath starts a gentle left-right fluctuation of the cerebrospinal fluid. At a certain point the cerebrospinal fluid will continue the left-right fluctuation without the help of the osteopath. From this moment onwards the osteopaths remains passive and only observes the movement of the cerebrospinal fluid. According to Sutherland this left-right fluctuation causes a deliberate disorder in the normal fluctuation of the cerebrospinal fluid. With its inherent intelligence the cerebrospinal fluid starts to re-establish its physiological order. In the course of this re-organization the body of the patient reaches a Stillpoint, which – according to Jealous – can be the gateway to a biodynamic treatment.

The osteopath takes up a contact on the head, on the sacrum or on the feet of the patient. The cranial contact can be on the occiput or on the two temporal bones. Sutherland refers to this technique also as "Pussy Foot" or "Mother Puss" technique.

The term "pussy foot" is used by Dr. Sutherland to emphasize the gentleness of the repressant technique. It is utilized to change the fluctuation of the cerebrospinal fluid to the lateral direction (Magoun, 1997, page 88).

The experimental part of this study involved the application of a Lateral Fluctuation with the contact on the occiput. Liem (1998) writes the following about this variant of the technique:

Alternative technique for the Lateral Fluctuation:

The practitioner sits at the head of the patient.

- *The palms of the hand contact the occiput like a bowl of soup.*
- *The practitioner palpates on which side the external rotation is greater.*
- *The hands start to stimulate a lateral fluctuation towards this side or follow the perceived lateral fluctuation from one side to the other.*
- *After the maximum transversal fluctuation has been palpated the hands passively follow the movement until the transversal movement becomes quiet.*
- *After a short quiet phase a natural symmetrical movement will re-establish (Liem, 1998, page 345)*

4. Methodology

The study has the objective to analyze the data of a study sample to find out whether the Neutral in biodynamics represents an extraordinary state of consciousness. The study was announced by means of an information sheet distributed in the practices of a general practitioner, a gynaecologist and a shiatsu therapist. In addition, the information was spread by word-of-mouth among the patients of the author. Through these efforts a sample of 49 patients could be acquired. The participation in the study was free and the participants did not receive any allowance for their expenses.

4.1 Implementation of the study

The evaluation of the participants was carried out on five different days at the practice of the author. On four days 10 patients and on one day 9 patients were examined. Two office rooms were available for the completion of the questionnaires. The Lateral Fluctuation was carried out in the treatment room of the author. Particular attention was paid that during the study period the participants did not talk to each other when they met accidentally and that they were alone while completing the questionnaires.

After an appointment was agreed over the phone the participants came to the practice of the author at the set time. The appointments were coordinated in a way that five participants could be examined in the morning and five in the afternoon. The appointments were arranged with 45-minute intervals between the participants. The Lateral Fluctuation was carried out by an osteopath who had received an introduction to the biodynamic approach by Dr. Jealous himself and had finished the training several years ago.

The patient’s state of consciousness was evaluated by means of a questionnaire: the Phenomenology of Consciousness Inventory by Pekala (1991). The questionnaires were subsequently analyzed with a computer program by Dr. Ott. The PCIs before and after the treatments were calculated with the aid of the paired T-test. In addition, the personal data of the participants were used to discover possible correlations between personality traits and the experience of extraordinary states of consciousness. These data were collected by means of

two questionnaires: on the one hand, a questionnaire which was drafted for this purpose by the author, and on the other hand, the Freiburg Personality Inventory by Fahrenberg, Hampel and Selg (1984).

The test was arranged in a way that the participants started by completing the three questionnaires after sitting five minutes quietly and with open eyes in one of the office rooms. (cf. Pekala, 1991).

The participants were instructed to start with the PCI and to complete the questionnaire in retrospect to the five-minute period of quiet sitting. Afterwards they had to complete the FPI-R and the personal questionnaire of the author. Subsequently they received a biodynamic treatment after which they had to complete the PCI again; this time with retrospect to the previously experienced Neutral. A final check-up of the participants concluded the evaluation.

4.2 Study materials

The materials used in this study included the Freiburg Personality Inventory in its revised version by Fahrenberg, Hampel and Selg, the German version of the Phenomenology of Consciousness Inventory, Form 1 by Pekala and a questionnaire that the author had developed himself. The three questionnaires will be presented in more detail below. The annex to this paper includes the German version of the PCI and the questionnaire of the author.

4.2.1 The Freiburg Personality Inventory – FPI

The Freiburg Personality Inventory (FPI) is a psychological personality test which is commonly used in German speaking countries. It evaluates various standardized personality traits. The FPI is used both in psychotherapy and psychological research.

The FPI has been developed as personality inventory with an average scope for various tasks of assessment, but it is mainly used in the fields of psychosomatics, psychotherapy, rehabilitation, chronic diseases, and health psychology. The FPI has thus been used in numerous screening studies, therapy studies, rehabilitation studies and catamnesis studies, e.g. regarding the effectiveness of in-patient behavioural therapies. It was also applied in a number of studies about drug or alcohol addiction, delinquency or epidemiology of mental and psychosomatic conditions (www.assessment-info.de, 2008).

The inventory can be used for the assessment of adolescents and adults. The recommended minimum age is 16.

4.2.1.1 Development of the FPI

The FPI was developed by Fahrenberg, Hampel and Selg in the 1960s and appeared in four different versions for the first time in 1970: a long version (FPI-G), two half versions (FPI-A, FPI-B) and a short version (FPI-K). After revisions of the existing versions in 1983 a fourth edition of the FPI was issued. This edition comprises two new versions: the revised version (FPI-R) and the partly altered version of the FPI-A (FPI-A1). Another revision was carried out in 1999, followed by the seventh and currently last edition of the inventory in 2001. The FPI is the oldest of the multi-dimensional questionnaires in Germany.

The revisions produced the FPI-R version of the inventory with ten standard scales and two additional scales. Overall the questionnaire comprises 138 items, which the test person has to answer with “true” or “not true”.

The forms of the FPI-G, FPI-B and FPI-K versions are still available at the publisher. However, these FPI forms have no longer been methodologically “cared for” beyond the status quo of the third edition dating from 1978. The researchers who are not primarily interested in the continuity of the dimensional description system are recommended to use the revised FPI-R form. (Fahrenberg,J. Hampel,R. and Selg,H.;1984; page 5)

Following this recommendation the FPI-R version of the questionnaire was used in this study.

4.2.1.2 Items

As has been already mentioned, the FPI-R consists of 138 items or questions. The ten main scales comprise 12, the two additional scales 14 items each. Due to double items a total of 138 items can be counted.

4.2.1.3 Scales

The scales were chosen in a way that the inventory covers a broad scope of fields to be applied. Overall the FPI-R comprises ten standard and two additional scales.

The standard scales are:

FPI-R1: Contentment with life

FPI-R6: Aggressiveness

FPI-R2: Social orientation
FPI-R3: Performance commitment
FPI-R4: Inhibition
FPI-R5: Excitability
FPI-R7: Demands
FPI-R8: Physical complaints
FPI-R9: Health concerns
FPI-R10: Openness

The two additional scales are:

E: Extraversion

N: Emotionality

4.2.1.4 Reliability

The consistency coefficients (Cronbach´s Alpha) range between 0.73 and 0.83. More precise and detailed information can be found in the instruction manual (cf. Fahrenberg, Hempel and Selg; 2004).

4.2.1.5 Validity

Despite the relatively small number of items the test values of the FPI-R capture the individual peculiarities of the scales. The correlations between the scales and the variables which were evaluated in representative surveys in 1982 and 1999 can be quoted as validity indicators. More information can be found in the instruction manual (cf. Fahrenberg, Hampel and Selg; 2004).

4.2.2 The Phenomenology of Consciousness Inventory - PCI

The “Phenomenology of Consciousness Inventory”, short PCI, is an inventory which helps to retrospectively evaluate various dimensions of consciousness. It represents an empirical, phenomenological approach to demonstrate the structures of consciousness. The PCI was developed by Ronald J. Pekala. Currently two versions are available: Form 1 and Form 2. Both versions comprise the same items but their order is different.

Pekala based the structure of consciousness on twelve major dimensions and 14 minor dimensions (cf. Pekala, 1991); a broad overview has already been provided in Chapter 2.2.2. The following chapter contains a more detailed description.

The questionnaire comprises a total of 53 items. The inventory contains five pairs of reliability items, i.e. items with a very similar or identical content. These are related to the major/minor dimensions sexual excitement (pair 5/35), altered state of awareness (pair 21/40), visual imagery (pair 12/44), direction of attention (pair 8/28) and internal dialogue (pair 6/45) and are used to check the intra-individual reliability of the test persons.

The questionnaire (Form 1) was translated into German in 1999 by Ott and authorized by Pekala. Standard values and quality criteria of the German version have been evaluated in a paper by Rux (2002).

Dr. Ott was so generous to make available the German questionnaire and a computer program to analyze the data to the author for the implementation of this study.

4.2.2.1 Major dimensions and minor dimensions

It has already been mentioned that the questionnaire comprises twelve major dimensions and 14 minor dimensions of consciousness. Five of the twelve major dimensions can be divided into two or more minor dimensions. The table below gives an overview of the major and minor dimensions of the PCI according to Pekala (1991, pages 127-128):

Table 1: Dimensions of consciousness according to Pekala

Major dimensions	Minor dimensions
Altered experience	Altered body image Altered time sense Altered perception Altered or unusual meaning
Positive affect	Joy Sexual excitement Love
Negative affect	Fear Rage/Anger Sadness
Attention	Direction Absorption
Visual imagery	Amount Vividness
Self awareness	
Altered state of awareness	
Internal dialogue	
Rationality	
Volitional control	
Memory	
Arousal (reduced relaxation)	

To provide a better understanding of the significance of each major or minor dimension the following section will provide a brief overview of the general content of the dimensions (cf. Pekala, 1991):

As can be seen in the table above, the major dimension ‘altered experience’ is composed of four minor dimensions:

- Altered body image
- Altered time sense
- Altered perception
- Altered or unusual meaning.

The minor dimension ‘altered body image’ describes the expansion of the body in the surrounding environment. The ‘altered time sense’ gives an overview of how the person experienced the time passing. The flow of time can change dramatically; it can either considerably accelerate or slow down. The minor dimension ‘altered perception’ describes changes in the perception of the environment with regard to colour, size, acuity or perspective.

‘Altered or unusual meaning’ evaluates the amount of experience that can be designated as religious or transcendent and includes feelings like awe or holiness.

The major dimension ‘positive affect’ is composed of three minor dimensions. ‘Joy’ relates to feelings of ecstasy or extreme happiness; ‘sexual excitement’ describes the amount of intensive sexual feelings; the minor dimension ‘love’ evaluates feelings of love.

The dimension ‘negative affect’ observes rage/anger, sadness and fear. The minor dimension ‘anger’ focuses on the feeling of strong anger or “being taken aback”, while the minor dimension ‘sadness’ evaluates the feeling of being very sad or unhappy. ‘Fear’ looks at the amount of anxiety or fear.

The dimension ‘visual imagery’ is composed of two minor dimensions: amount and vividness of visual imagery. The ‘amount’ describes the amount of visual images and the ‘vividness’ describes the vividness and the dimensionality of the perceived images.

The dimension ‘attention’ also has two minor dimensions: the ‘direction’ looks in what direction the attention is channelled (either inside, towards the own body, or outside, towards

the environment). ‘Absorption’ describes whether the person is completely immersed in the experience or distracted by external factors.

The dimension ‘Self-awareness’ describes to what extent the person can maintain or looses awareness of himself in the situation. The dimension ‘Altered self-awareness’ tries to capture unusual states in relation to self-awareness. Another aspect of this dimension is the observation whether the state of ones own conscious experience is different than usual.

The dimension ‘Internal dialogue’ evaluates the amount of internal dialogue the person conducts with himself. ‘Rationality’ observes whether the person’s thinking is clear and logical or rather confuse and irrational.

‘Volitional control’ examines whether someone maintains control over himself or becomes passive and receptive for experiences, which the person picks up. Examples for this are images or thoughts which suddenly occur and remain dominant.

‘Memory’ evaluates in how far the person is able to remember experiences he has gained in the past.

‘Arousal’ or ‘reduced relaxation’ describe the tension of the muscles and range from “very tight and hard” to “very relaxed and soft”. The dimensions of Pekala show great consistency with the corresponding dimensions of extraordinary states of consciousness by Ludwig (cf. Chapter 2).

Pekala’s dimensions are well-balanced and comprise the standard areas of research in the field of psychology: emotions, attention, memory, degree of arousal, etc. (Rux, 2002, page 32).

4.2.2.2 Items

The PCI consists of 53 items. Each item comprises two polarizing statements which are separated by a 7-point Likert scale where the test persons can quantify their subjective experience. The items are organized in a *randomized block design (Pekala, 1991, page 130),* so that items with a similar content do not follow one after the other. The dipolar statements of each item are arranged as opposites but on alternating sides. Therefore half of the items which belong to a specific dimension comprise statements which address the normal experience on the left side and the other half comprises statements about the altered experience on the left side.

The table below provides an overview of the representative PCI items (Pekala, 1991, page 131):

Left Pole	**Right Pole**
Attention (Absorption)	
I was distracted the whole time and unable to concentrate on anything.	I was able to fully concentrate and was not distracted at all.
Internal dialogue	
I talked to myself quite a lot.	I did not talk to myself.
Positive affect (joy)	
I felt ecstatic and full of joy.	I did not feel ecstatic or full of joy.
Self awareness	
I was not aware to have an awareness of myself; I did not have any self-awareness.	I was aware that I was aware of myself; my self-awareness was very intensive.
Altered state of attention	
My state of consciousness was not altered or unusually different.	I experienced an extremely altered and unusual state of consciousness.
Sanity	

Conceptually my thoughts were clear and differentiated.	Conceptually my thoughts were unclear and confused.

Altered experiences (altered meaning)

I experienced awe and reverence towards the world.	I did not experience awe and reverence towards the world.

Visual imagery (amount)

I had no or only a few visual images.	My experience consisted of almost exclusively visual images.

Sometimes it is difficult to understand the content of certain items. Rux (2002) examined the German translation of the PCI. In her study the test persons rated the individual items with regard to their understandability by means of a school mark system. The marks ranged from "1" = "very good understandable" to "5" = "not at all understandable".

The items which received a "five" or twice a "four" should be revised. The conspicuous items were the items 13, 26, 11, 51, 2, 4, 24, 28, 41, 27, 10, 22 and 47. Thus a total of 13 items or 24.53 per cent of all items (cf. Rux, 2002). The items are mentioned in the order of frequency of the marks they received. Item 13 was marked with "five" four times and with "four" three times and thus was the item that was most difficult to understand. The items 10, 22 and 47 received the mark "four" twice, which in this context can be regarded as relatively good to understand (cf. Rux, 2002).

To illustrate the problem item 13 (of the German version) is quoted as example:

13. Ich war mir bewusst, irgendein Bewusstsein meiner selbst zu haben; ich hatte keine Selbstbewusstheit.	Ich war mir bewusst, dass ich mir bewusst war; meine Selbstbewusstheit war sehr intensiv.

4.2.2.3 Validity

In various studies Pekla showed that the states of consciousness that can be evaluated with the aid of the PCI change in different ways depending on the applied method of induction. The discriminant validity of the PCI can be confirmed by the fact that different experimental groups experienced the same phenomenological changes of consciousness under the same conditions of induction, i.e. under the same stimulating circumstances different persons show similar changes of consciousness (cf. Pekala, 1991).

Also in the work of Rux (2002) indicators to this differential validity of the PCI can be found. In this study the results of the main study to evaluate the German translation of the PCI are compared with other data from diploma theses and term papers written in the context of a project to research rhythmic induction of trance at the Justus Liebig University.

Based on the results one can assume a differential validity of the PCI, which makes it possible to delimit states of trance from standard circumstances (Rux, 2002, page 88).

4.2.2.4 Reliability

The PCI comprises five reliability-item pairs which help to examine how consistent the test persons complete the questionnaire. The five reliability-item pairs are: Item 5 and 35, 8 and 28, 12 and 44, 21 and 40 and finally Item 6 and 45.

If all pairs are answered consistently the reliability index (RI) is 0, if all item pairs receive controversial answers the RI is 6. According to Pekala indiscriminate, coincidental answers result in a score of 3 (cf. Pekala, 1991). According to Rux coincidental answers only result in a score of 3 if the two extreme values (0 and 6) are chosen, otherwise the score for accidental answers is lower (cf. Rux, 2002).

The critical value for reliability is set at 2. If the RI score exceeds this value, the questionnaire should not be used for further analysis in favour of a higher reliability (cf. Pekala, 1991).

Should the researcher want to eliminate any subjects with questionable or marginal reliability, as, for example, in trying to increase a validity coefficient, the PCI reliability index score allows for this to be done (Pekala, 1991, page 129).

The table below illustrates the gradation of the RI-score (Ott, 1999):

Table 2: Gradation of the RI -Score

RI -score	**Reliability**
< 2.00	RI -scores are considered reliable
2.01 - 2.29	RI -scores are marginally reliable
>2.30	RI -scores are unreliable

In the present study all questionnaires with a RI-score higher than two were not taken into account for further analysis.

4.2.2.5 The computer program to analyze the PCI

This section describes the software that was made available to the author by Dr. Ott. The analysis was carried out in an EXCEL version (5.0.97 and 2000) of the PCI-HAP SYSTAT program (cf. Pekala and Kumar, 2002), PCI-HAP meaning *"hypnotic assessment procedure" (cf. Pekala, 1995a; Pekala 1995b).*

The program calculates:

- 26 dimensions of the PCI
- Reliability index (RI)
- Trance-Type Profile (cf. Pekala and Forbes, 1997)
- pHGS score (cf. Forbes and Pekala, 1993; Pekala and Kumar, 1984&1987)

The different dimensions and the reliability index have already been presented. In addition to the calculation of the 26 dimensions the program also creates diagrams of the raw data and percentiles of the 12 major and 14 minor dimensions.

In his work Pekala investigated the question whether subjective experiences with hypnosis are correlated with different types of persons. In his studies the personal and subjective experiences of test persons under hypnosis were assessed by means of the PCI and the different dimensions were subjected to PCI cluster analyses. Based on the results of these analyses Pekala and Kumar (2000) actually could identify nine different cluster types or trance types.

These nine types are: Classic Lows, Relaxed Lows, Non Dialoguing Mediums, Dialoguing Mediums, Visualizers, Rational High Mediums, Dialoguing High Mediums, Fantasy Highs und Classic Highs. A more detailed description of the nine types can be found below.

The hypnoidal score is calculated with the aid of a regression equation on the basis of the major and minor dimensions of the PCI. This equation generates the *predicted Harvard Group Scale Score (pHGSS)* and facilitates the prediction of phenomenological events, which the test persons will report after a hypnosis with high probability. It represents a measurement of intensity for phenomenological experiences depending on a person's low, average or high receptiveness to hypnosis.

A high hypnoidal score reflects the phenomenological experiences of persons who are highly receptive to hypnosis; a low score illustrates the phenomenological experiences of persons who are not very receptive to hypnosis (cf. Pekala, 1991).

Pekala and Nagler (1989) define the hypnoidal status as follows:

… we define a hypnoidal state as a the state, delineated by a regression equation using the PCI (Pekala&Kumar, 1987), that is associated with what high susceptibles would report on the PCI during a short (eyes closed), sitting-quietly interval during the introduction procedure of the Harvard Group Scale…We defined a pHGS score of 7 and above (albeit, somewhat arbitrarily) as associated with a hypnoidal state, since high susceptibles (scores of 10 or above on the Harvard) averaged scores of about 7, and none of these groups had average scores during eyes-closed of 7 or above (page 232).

If a person reaches a trance-like state, the dimensions ‘altered experience’, ‘altered state of awareness’ and ‘attention’ are very pronounced, while ‘volitional control’, ‘memory’ and ‘rationality’ are forced into the background (cf. Rux, 2002).

The table below provides an overview of the major and minor dimensions, which are subject to the biggest changes during a state of trance (cf. Rux, 2002, page 52).

Table 3: Highly altered dimensions during trance

Altered experience	Altered body image Altered time sense Altered perception Altered or unusual meaning
Altered state of awareness	
Attention	Direction (towards inside) Absorption
Volitional control	
Memory	
Rationality	

The pHGS score usually ranges between one and nine. It facilitates the assessment of how receptive to hypnosis a person is and thus how deep the trance state will be.

The table below illustrates the gradation of the pHGS score and the deepness of the trance state

Table 4: Dependency on the hypnoidal receptiveness

pHGS score	**Degree of hypnotic depth**
1.00 – 3.00	Non-hypnotizable or only mildly hypnotizable
3.01 – 5.00	Mildly hypnotizable
5.01 – 7.00	Moderately hypnotizable
>7.01	Highly hypnotizable

The set-off point for trance is a score of seven.

Use of both the pHGS scores (to obtain a quantitative measure of hypnotic depth), and trance typology profiles (to generate a qualitative measure of trance type), allows the researcher and clinician to define and operationalize trance (Pekala, Kumar; 2002; page 243).

The following table gives an overview of the nine trance types, their mean pHGS score and their typical characteristics based on the degrees of intensity of the PCI dimensions (cf. Pekala and Kumar, 2000, page 121):

Trance type	**pHGSS (mean values)**	**Charakteristika**
Classic Lows	2.88	Highest degree of arousal (muscular tension); highest degree of intact memory, rationality and self-awareness; highest degree of internal dialogue and lowest degree of loss of volitional control
Relaxed Lows	3.68	Similar to Classic Lows; less muscular tension and internal dialogue
Nondialoguing Mediums	4.87	Similar to Dialoguing Mediums, with the exception of a lack of internal dialogue
Dialoguing Mediums	5.01	Similar to Nondialoguing Mediums, with the difference of more internal dialogue
Visualizers	6.06	Highest degree of visual imagery; highest degree of self-awareness and intact memory after the Classics and Relaxed Lows
Rational High Mediums	6.86	Similar to Dialoguing High Mediums with less internal dialogue and more rationality
Dialoguing High Mediums	6.86	Second highest degree of internal dialogue after the Classic Lows; similar to Rational High Mediums with the exception of more internal dialogue and less rationality;
Fantasy Highs	7.10	Second highest degree of visual imagery after the Visualizers
Classic Highs	7.60	Low degree of memory, rationality, internal dialogue, visual imagery and self-awareness

4.2.3 "Personal Questionnaire" of the author

The questionnaire “Persönlicher Fragebogen” (“Personal Questionnaire”) was included in the study to analyze correlations between the personal factors of the test persons and the experience of altered states of consciousness during the Lateral Fluctuation.

In this context it is important to find out in how far:

- personal experiences with osteopathy and biodynamics
- personal experiences with altered states of consciousness
- personal use of medication and drugs
- personal motivation to participate in the study
- personal suffering

influence the study results.

4.2.3.1 Items

The questionnaire contains 11 questions.

Two questions refer to previous knowledge about osteopathy, three questions focus on extraordinary states of consciousness and one question each deals with personal expectations regarding the effect of a Lateral Fluctuation, the personal motivation to participate in the study, the use of drugs and medication. Another question evaluates the current physical condition of the participant.

4.3 General description of the patient sample

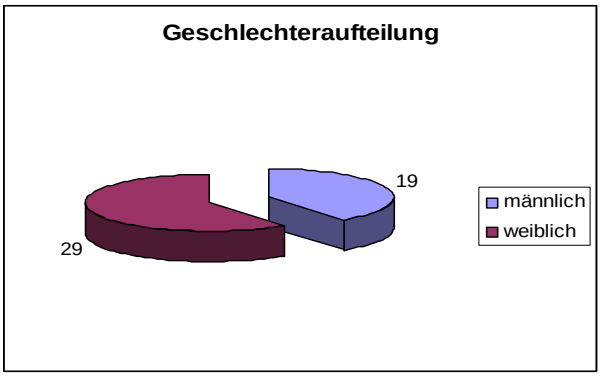
A total of 49 test persons participated voluntarily and gratuitously in the study. One participant refused the Lateral Fluctuation after having completed the questionnaires in the beginning. The data of this person were not included in the analysis, which means that in the end 48 sets of usable data were available.

4.3.1 Age and gender

The youngest participant was aged 20, the oldest 72: The average age was 42.16 years (median = 40.38).

The gender was distributed as follows: The diagram below illustrates that 29 women and 19 men participated in the study. This corresponds to a ratio of 60:40 per cent.

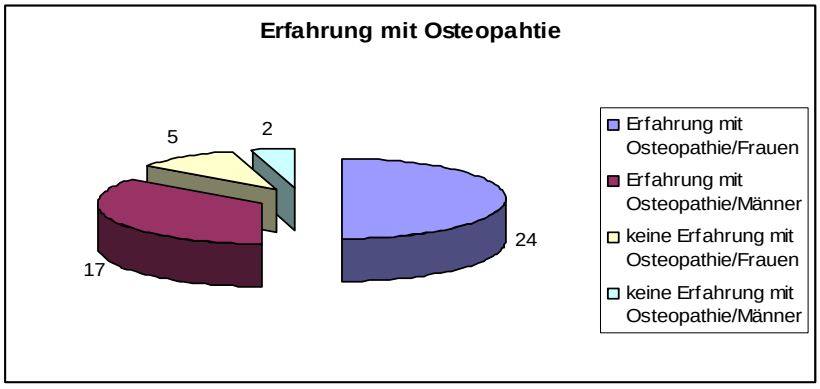
Figure 1: Gender distribution



4.3.2 Experience with osteopathy

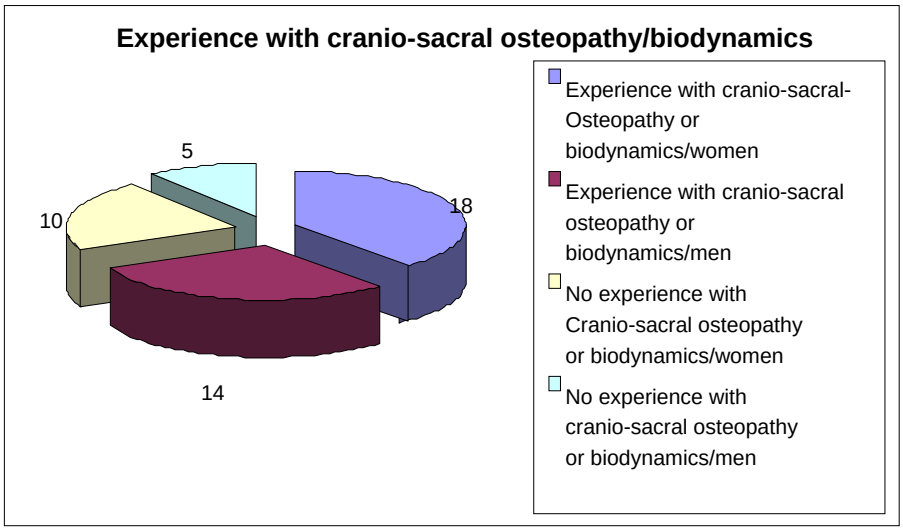
41 persons reported previous experiences with osteopathy, among them 24 women and 17 men. This is illustrated in the pie chart below.

Figure 2: Experience with osteopathy



32 persons of a total of 47 (one test person did not provide a specific answer) reported experiences with cranio-sacral osteopathy or biodynamics. These 32 test persons included 14 men and 18 women.

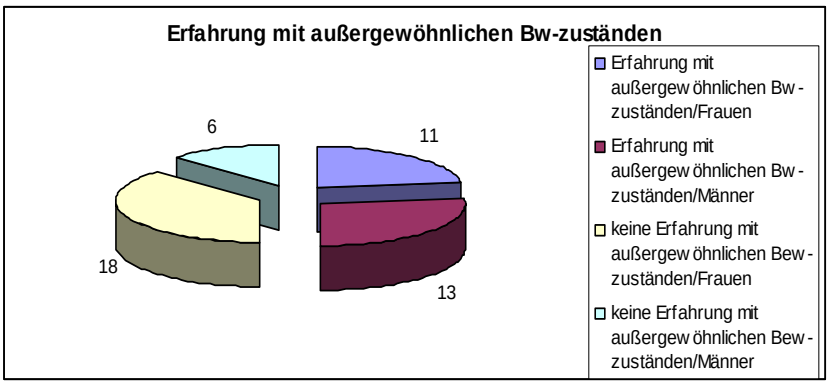
Figure 3 Experiences with cranio-sacral osteopathy/biodynamics



4.3.3 Experiences with extraordinary states of consciousness

50 per cent of the test persons answered “yes” to the question about previous experiences with extraordinary states of consciousness. This means that 24 participants (11 female, 13 male) already had experiences with extraordinary states of consciousness.

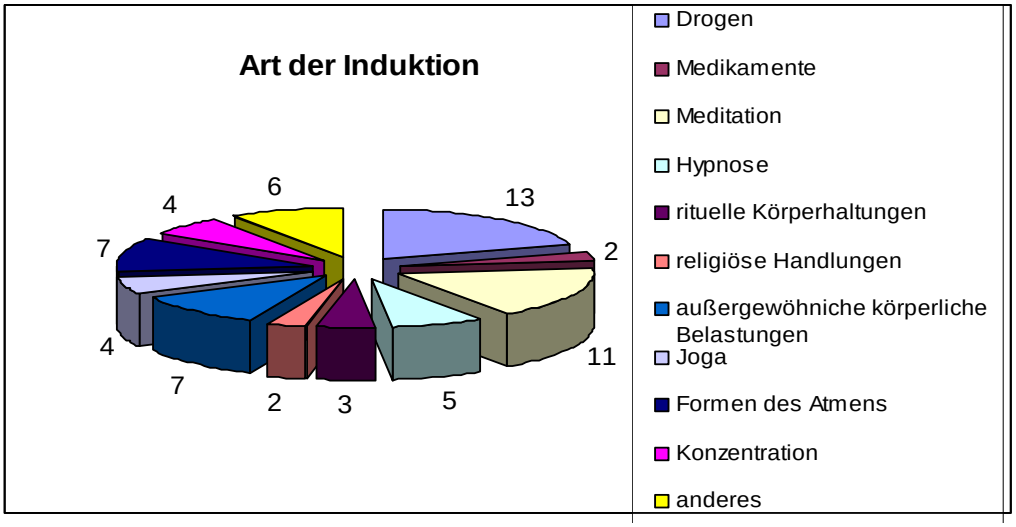
Figure 4: Experiences with extraordinary states of consciousness



The 24 participants, who already had gained experiences with extraordinary states of consciousness, were further questioned about the kind of induction was used. The diagram below illustrates that the test persons indicated drugs as the most common kind of induction, followed by meditation. Extraordinary physical strains, specific forms of breathing and other

things (like music) are mentioned by an average number of test persons, while ritual body postures, religious acts, yoga or concentration are only indicated by a few test persons.

Figure 5: Induction

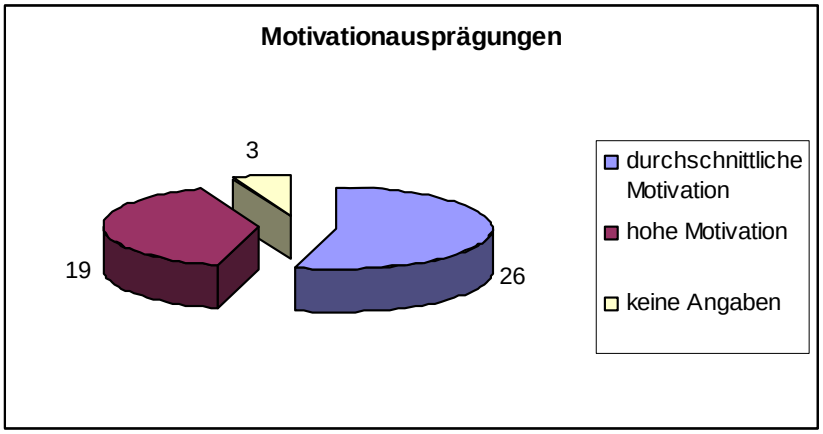


With regard to the many different forms of induction it can be assumed that the „experienced“ participants have an inherent vivid interest in extraordinary states of consciousness and have already tried many different ways to gain their own experiences in this field.

4.3.4 Motivation regarding participation

26 participants indicated an average degree of motivation to participate in the study. 19 test persons expressed a high motivation and only three participants did not answer this question.

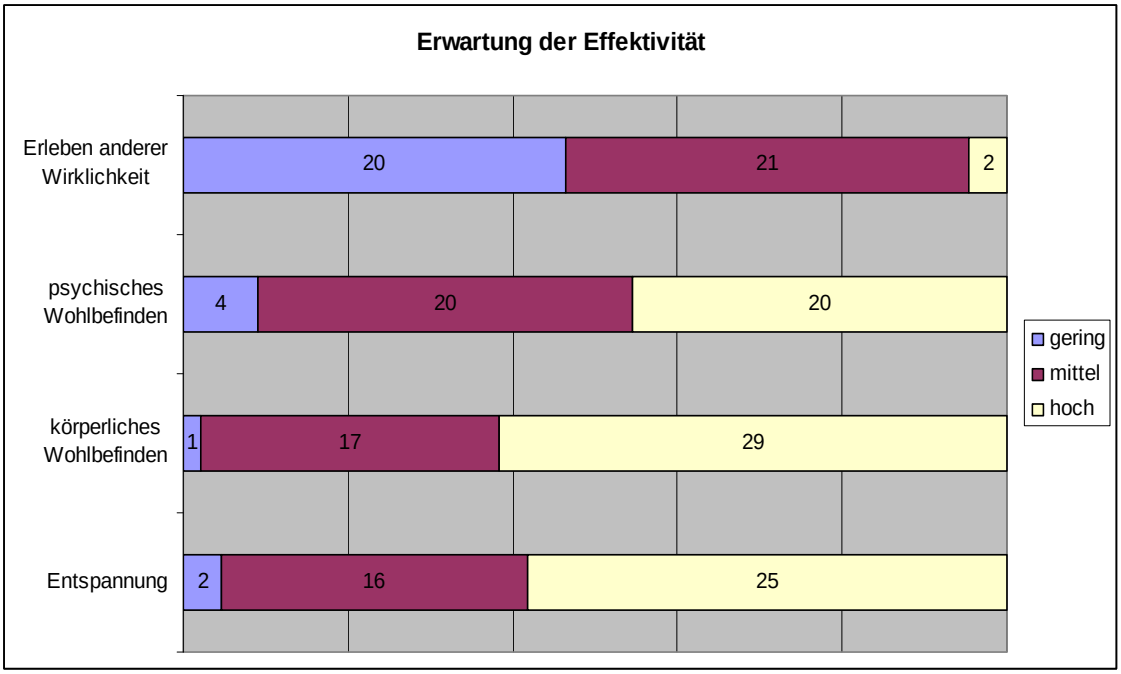
Figure 6: Degree of motivation



4.3.5 Expectations regarding the effectiveness of the experiment

The personal expectations regarding the effectiveness of the experiment were evaluated in view of the aspects: relaxation, increase of physical wellbeing, increase of emotional wellbeing and experiencing another reality.

Figure 7: Expectations of the participants



The diagram illustrates that 20 persons indicated low expectations regarding the experience of another reality, 21 persons specified high expectations and two persons indicated average expectations (five participants did not answer this question).

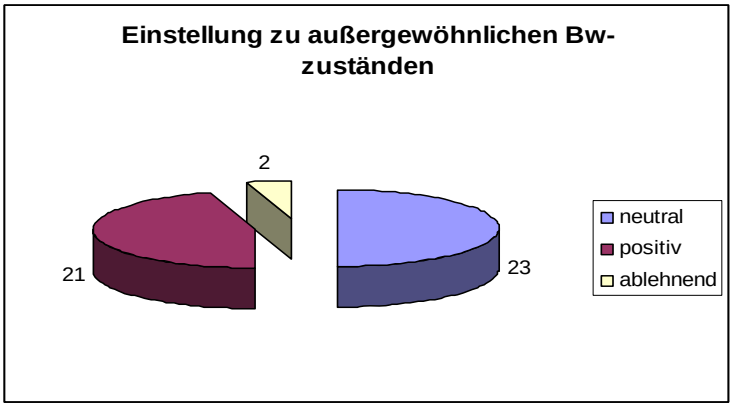
The expectations regarding the emotional wellbeing were high among 20 participants. Another 20 participants indicated average expectations; while 4 test persons only had low expectations (four test persons did not answer this question). The expectations of 29 test persons were high with regard to physical wellbeing; 17 participants had average and only one test person low expectations regarding physical wellbeing (one test person did not answer the question).

25 participants shared the opinion that the experiment would have a high effectiveness with regard to achieving relaxation; 16 test persons only had average expectations in this respect and two test persons had low expectations regarding the effect on relaxation (five participants did not answer this question).

4.3.6 Attitude regarding extraordinary states of consciousness

The attitude regarding extraordinary states of consciousness was qualified as positive by 21 test persons; 23 participants indicated a neutral attitude and two test persons were rather dismissive of extraordinary states of consciousness. Two participants did not answer this question.

Figure 8: Attitude regarding extraordinary states of consciousness

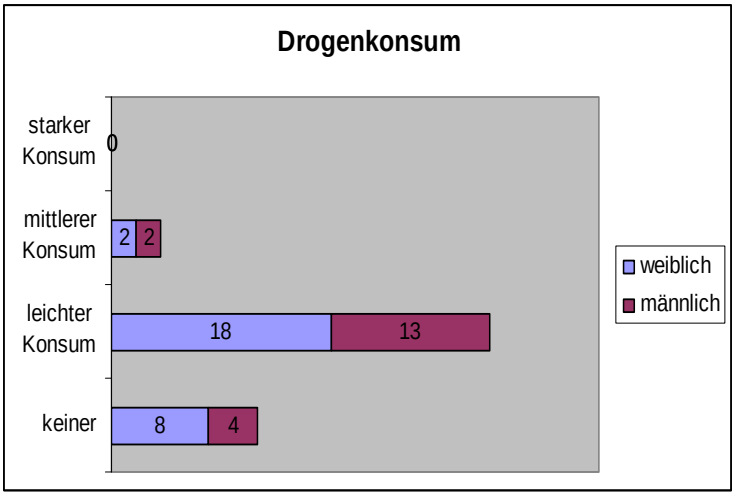


4.3.7 Use of medication and drugs

The personal use of drugs was qualified as minor by 31 test persons (18 women and 13 men). Four participants (two women and two men) indicated an average degree of drug use and 12 participants (eight women and four men) stated to consume no drugs at all (one person did not answer this question). None of the test persons indicated a high degree of drug use. The test

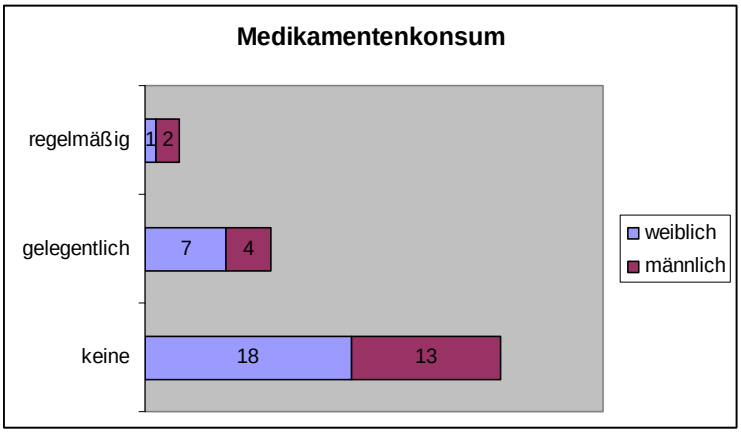
persons were not asked what kind of drugs they used; but it has to be pointed out that also alcohol was counted among the family of drugs.

Figure 9: Drug use



31 test persons specified to take no form of medication at the moment, among them 18 women and 13 men. 11 participants occasionally took medications (seven women and four men) and three test persons (two men and one woman) indicated a regular use of medication.

Figure 10: Consumption of medication



4.3.8 Current states of pain

To evaluate the different body regions with regard to pain, the participants were offered a division of the body in the regions: spine, shoulder and arm, legs, head, digestive system and other. The patients assessed their subjective perception of pain on a scale of 1 to 10, 1 signifying minimum and 10 maximum pain. In the diagram illustrating the current states of

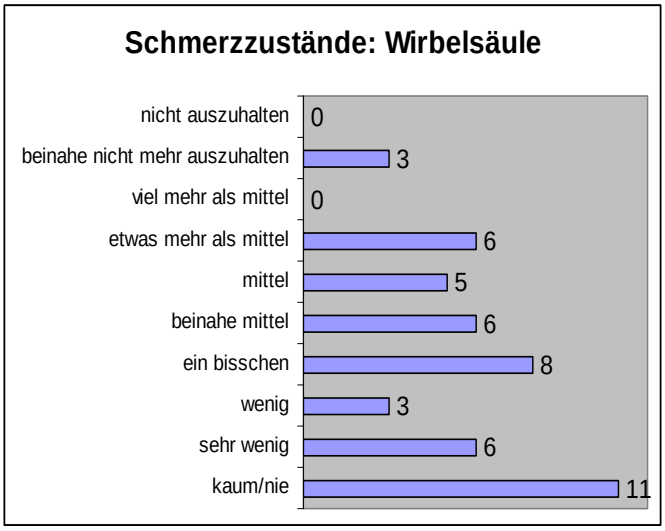
pain of the participants the figures of the above mentioned scale are replaced by words. The table below provides an overview of the figures and the associated words:

Table 5: Intensity of pain

1	hardly any /never	6	moderate
2	very little	7	more than moderate
3	little	8	much more than moderate
4	mild	9	almost unbearable
5	almost moderate	10	unbearable

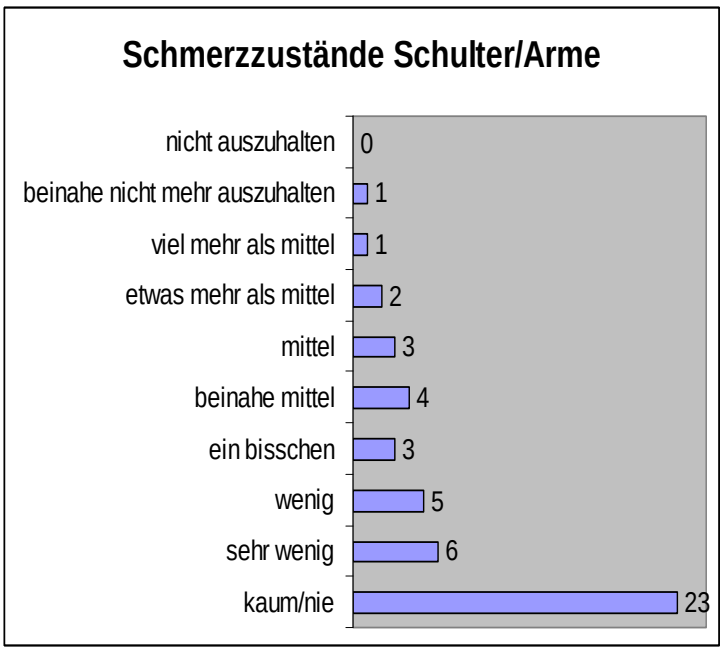
37 participants of the overall number of 48 test persons indicated pain in the region of the spine, with the intensity varying among the persons in question. Most test persons report pain of mild intensity. Only three participants indicated pain of almost unbearable intensity.

Figure 11: States of pain in the region of the spine



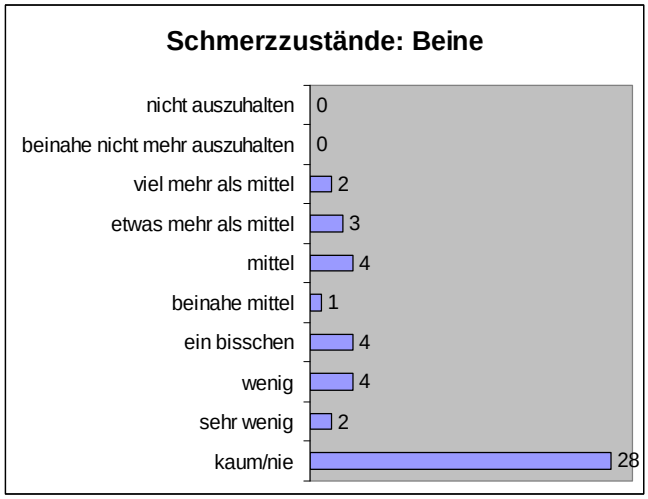
25 persons report pain in the shoulder/arm region. The majority of these persons (i.e. 6 persons) describe a pain o f very little intensity. Only one participant indicates almost unbearable pain in this region.

Figure 12: States of pain in the shoulder/arm region



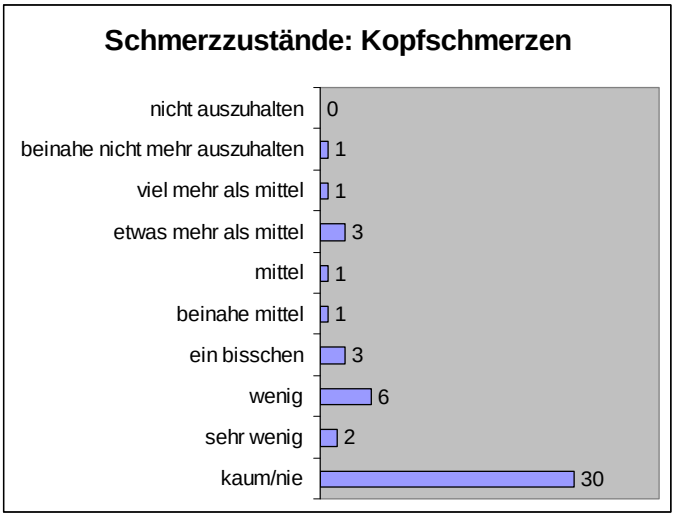
20 of the 48 test persons suffer from pain in the region of the legs. Four participants describe pain of average intensity, another four indicate mild pain and another four describe the pain as little intensive.

Figure 13: States of pain in the region of the legs



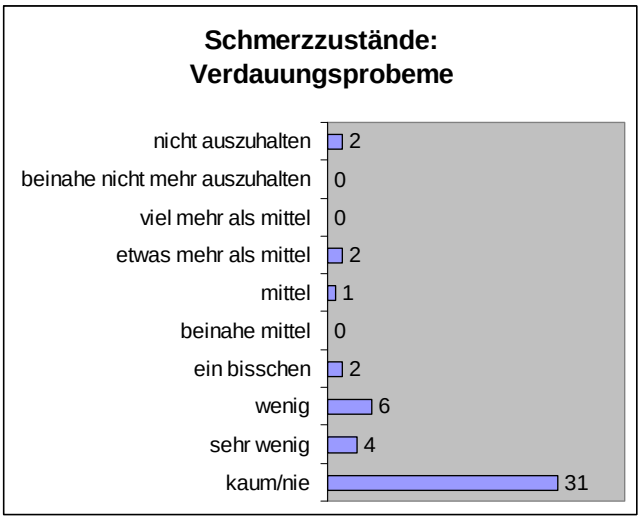
A total of 18 test persons indicate headache. The intensity of the pain is described as little by the majority of theses test persons. One participant reports almost unbearable pain.

Figure 14: States of pain in the region of the head



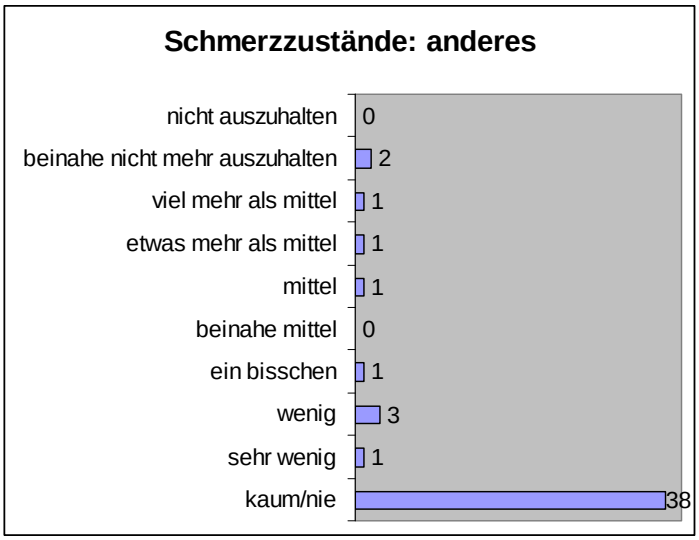
17 persons indicate digestive problems. In general, the participants assess these problems as little intensive. However, two test persons describe the intensity of these problems as almost unbearable.

Figure 15: Digestive problems



States of pain which do not fall into the regions that have been described so far are summarized in the category “other”. 10 indicated pain in this category. The majority of the test persons describe pain of little intensity. Only two test persons indicate almost unbearable pain.

Figure 16: States of pain in other regions



4.4 Results

The presentation of the results will first of all focus on the correlations between the various dimensions of the three questionnaires. These correlations are calculated according to Spearman. Subsequently, the PCIs will be analyzed and the 26 dimensions before and during the Lateral Fluctuation compared. Regarding the aspects ‘reliability’, ‘pHGS score’ and ‘dimensions’ the results of this study will be compared with those of the works of Pekala (1991) and Rux (2002).

4.4.1 Correlations FPI-R and Personal Questionnaire

A correlation according to Spearman was calculated to identify correlations between the following variables: gender, experience with osteopathy, experience with cranio-sacral osteopathy or biodynamics, experience with extraordinary states of consciousness, personal motivation regarding the experiment, personal expectations regarding the effectiveness of the experiment, attitude towards extraordinary states of consciousness, personal use of drugs, personal use of medication, contentment with life, social orientation, performance commitment, inhibition, excitability, aggressiveness, demands, physical complaints, health concerns, openness, emotionality and extraversion. This chapter will only present the most interesting results – more detailed information can be found in the SPSS-File.

It seems that the gender does not have any influence on the above mentioned variables. Only the variable “experience with extraordinary states of consciousness” shows a significant negative correlation. This means that women indicate less experience with extraordinary states of consciousness than men.

According to the calculations experiences with osteopathy go hand in hand with experiences in the fields of cranio-sacral osteopathy/biodynamics. Further, participants who already gained experience with osteopathy have higher expectations regarding relaxation and increase of their physical and emotional wellbeing.

Test persons with experience in cranio-sacral osteopathy/biodynamics often also have experience with extraordinary states of consciousness. Also these test persons expect an improvement of their physical and emotional wellbeing. Interestingly, the participants with experiences in this field take fewer medications.

Concerning the expectations with regard to the effectiveness of the experiment it could be observed that persons who expected a better relaxation also expected an improvement of their physical wellbeing. Persons who expected an improvement of their physical wellbeing also expected an improvement of their emotional wellbeing.

The personal property ‘contentment with life’ showed a negative correlation with the properties ‘excitability’, ‘demands’ and ‘emotionality’. Thus persons who indicate a high contentment with life are less excitable and more stress-resistant and display lower degrees of emotionality. According to the calculations the ‘contentment with life’ also goes hand in hand with the ‘health concerns’.

The ‘social orientation’ shows correlations with the gender. Persons with high values in this category display low values in the categories ‘aggressiveness’ and ‘openness’. A positive correlation can be observed with the characteristic ‘demands’.

The personality trait ‘performance orientation’ goes hand in hand with the ‘emotionality’ and ‘extraversion’.

Also the item ‘inhibition’ shows a positive correlation with the gender: women describe themselves more inhibited than men. In addition, persons with a high degree of ‘inhibition’ have less experience with extraordinary states of consciousness and are more introverted.

Persons who indicate a high degree of ‘excitability’ also display higher expectations regarding the ‘improvement of the physical wellbeing’, ‘physical complaints’, ‘emotionality’ and ‘demands’.

Increased ‘aggressiveness’ goes hand in hand with higher values in the categories ‘extraversion’ and ‘openness’.

The personality trait ‘demand’ also shows a correlation with the gender: women indicate higher values in this category than men. Further, a negative correlation with experiences regarding extraordinary states of consciousness can be observed. Persons with high values in the category ‘demands’ have less experience with extraordinary states of consciousness. Another correlation can be observed with the item ‘emotionality’.

Physical complaints are more often indicated by women than by men. Again, a negative correlation with extraordinary states of consciousness can be observed. Physical complaints go hand in hand with ‘health concerns’ and ‘emotionality’.

The item ‘emotionality’ also shows a correlation with the gender: women indicate higher values than men.

4.4.2 Correlations between PCI and the Personal Questionnaire

The following section will provide an overview of the correlations between the aspects of the Personal Questionnaire and those of the Excel files of the PCI (calculated according to Spearman). More detailed information can be found in the SPSS file.

The dimension ‘Love’ shows a negative correlation with the consumption of medications: persons with high values in the category ‘Love’ take less medication. Also the dimension ‘Sadness’ shows a negative correlation with the consumption of medications. The same holds for: Body Image, Meaning, Imagery Vividness, Altered State, Positive Affect, Visualizers, Dialoguing Mediums, Rational High Mediums, Dialoguing High Mediums, Fantasy Highs and Classic Highs.

The aspect ‘Time Sense’ shows a positive correlation (even though it is very small) with the categories: experiences with cranio-sacral osteopathy/biodynamics, expectations regarding the improvement of physical wellbeing and expectations regarding the experience of a different reality.

The dimension ‘Direction of Attention’ has a positive correlation with the category ‘experiences with extraordinary states of consciousness’.

Increased ‘Arousal’ goes hand in hand with the expectations regarding an improvement of the emotional wellbeing.

‘Altered Experience’ shows a small positive correlation with the expectations regarding the improvement of the physical wellbeing.

‘Imagery’ and the attitude towards extraordinary states of consciousness also show a small positive correlation.

The pHGS score displays correlations with the categories: experience with cranio-sacral osteopathy/biodynamics, expectations regarding the improvement of the physical wellbeing and experience of a different reality. In the context of the correlations of the states of pain and the pHGS score it has to be mentioned that they are not relevant. The only positive correlation can be observed between headaches and trance; all other states of pain have negative correlations with the pHGS score.

Correlation Pain Assessment – Trance (pHGS score):

Assessment Shoulder/arm	Assessment legs	Assessment headaches	Assessment Digestive problems	Assessment other	Assessment total
-0.095	-0.184	0.118	-0.046	-0.008	-0.103

The dimensions ‘Rational High Mediums’, ‘Dialoguing High Mediums’, ‘Fantasy Highs’ and ‘Classic Highs’ show positive (however small) correlations with the category ‘experience with cranio-sacral osteopathy/biodynamics.

4.4.3 Results of the PCI

The results of the EXCEL version (5.0.97, and 2000) of the PCI-HAP SYSTAT program are summarized and presented with regard to their reliability, trance types, pHGS score and PCI dimensions. The results for reliability, trance types and pHGS score refer to the PCI questionnaires which were completed after the Lateral Fluctuation. Regarding the reliability the results are also compared with those of the main studies by Rux (2002) and Pekala (1991).

Both sets of questionnaires are used for the comparison of the dimensions: the stimuli thus are ‘open eyes’ and ‘Lateral Fluctuation’.

4.4.3.1 Reliability index (RI)

Concerning the intra-individual reliability the following values were calculated for the 48 participants: The RI scores range between 0.00 (1 person) and 4.20 (1 person), the mean value is 0.95.

The table below gives an overview of the minimum, maximum an mean values.

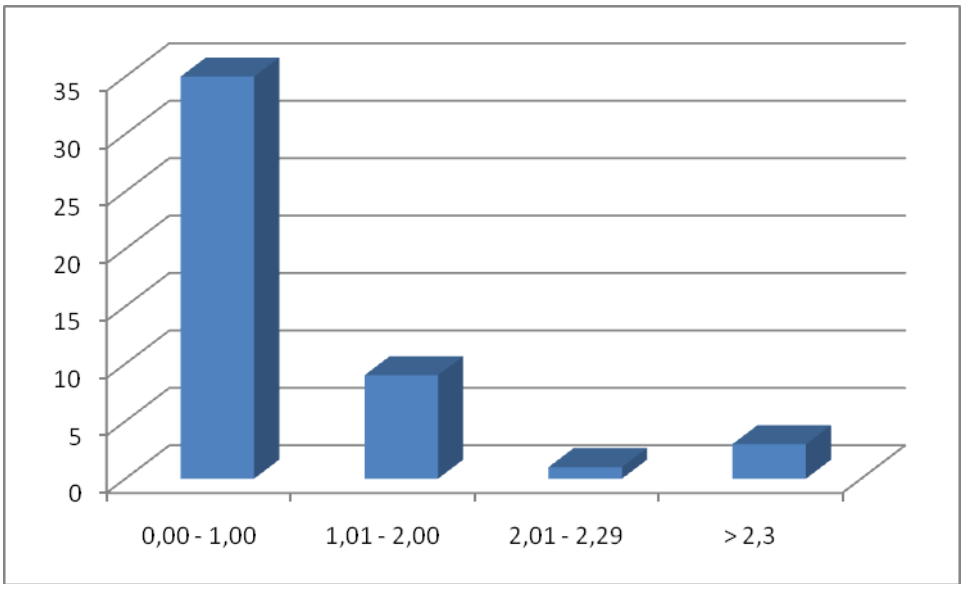
Table 6: RI score (n=48)

N	Valid	48
	Missing	0
Mean value		0.95
Median		0.8
Minimum		0.0
Maximum		4.2

91.67 per cent of the participants (44 persons) have a reliability index between 0.00 and 2.00. In the cases of 72.92 per cent (35 persons) this index is smaller than 1. The index of 2.08 per cent (1 person) ranges between 2.01 and 2.29 but in the case of this participant the answers to two items were missing and had to be replaced by the mean values calculated on the basis of the other questionnaires. 6.25 per cent (3 persons) show an RI score larger than 2.30. These persons were participants over the age of 65 years. One of these participants answered all 53 questions with 0, 2 participants explained that they had difficulties to understand the instructions regarding the completion of the questionnaires. After this first calculation these four persons were excluded from further statistical analyses.

The diagram below provides an overview of the distribution of the reliability index.

Figure 17: Distribution of the RI score



After the exclusion of the previously mentioned participants the calculations produce the following values:

Table 7: RI score (n=44)

N	Valid	44
	Not valid	4
Mean value		0.8
Median		0.7
Minimum		0.0
Maximum		2.0

Considering the problems regarding the understanding of the instructions for completing the PCI and the test persons' assurance that they did not flip back through the pages of the questionnaire when answering the questions, the intra-individual reliability can be qualified as good.

The following section will compare the results of this study with those of the main study by Rux (2002) evaluating the standard values and quality criteria of the German version of the questionnaire and with those of the first study by Pekala (1991). Rux obtained 50 valid

questionnaires for analysis of a total of 53, while Pekala had to exclude 2 of a total of 112 test persons from the analysis due to their excessive RI values.

The mean RI score of Rux was 0.74, while it was 0.85 in Pekala's study (cf. Rux, 2002 and Pekala, 1991). In comparison with the results of this study the intra-individual reliability of the participants in the study by Rux was better, but no difference could be observed with those in the study by Pekala.

4.4.3.2 Reliability (Cronbach´s Alpha)

The mean alpha coefficient of the 44 participants in this study for all 26 dimensions is 0.82. In Pekala's study this value was also 0.82 (Pekala, 1991), while it was 0.69 in the study by Rux (Rux, 2002).

The lowest value (for rage) was -0.09, the highest value (internal dialogue) was 0.95. The minimum value in Rux's study was 0.37 (for love), while the maximum value was 0.86 both for an altered state of consciousness and for internal dialogue (Rux, 2002). In Pekala's study the lowest value (for altered time sense) was 0.69, while the highest value (for sexual excitement) was 0.92 (Pekala, 1991).

The mean value of the Cronbach´s Alpha values is highest in Pekala's study with 0.82, followed by this study with 0.73 and the mean value of Rux's study with 0.67.

The following table presents a comparison of the Cronbach´s Alpha values of this study with those of Rux and Pekala.

Table 8: Cronbach´s Alpha

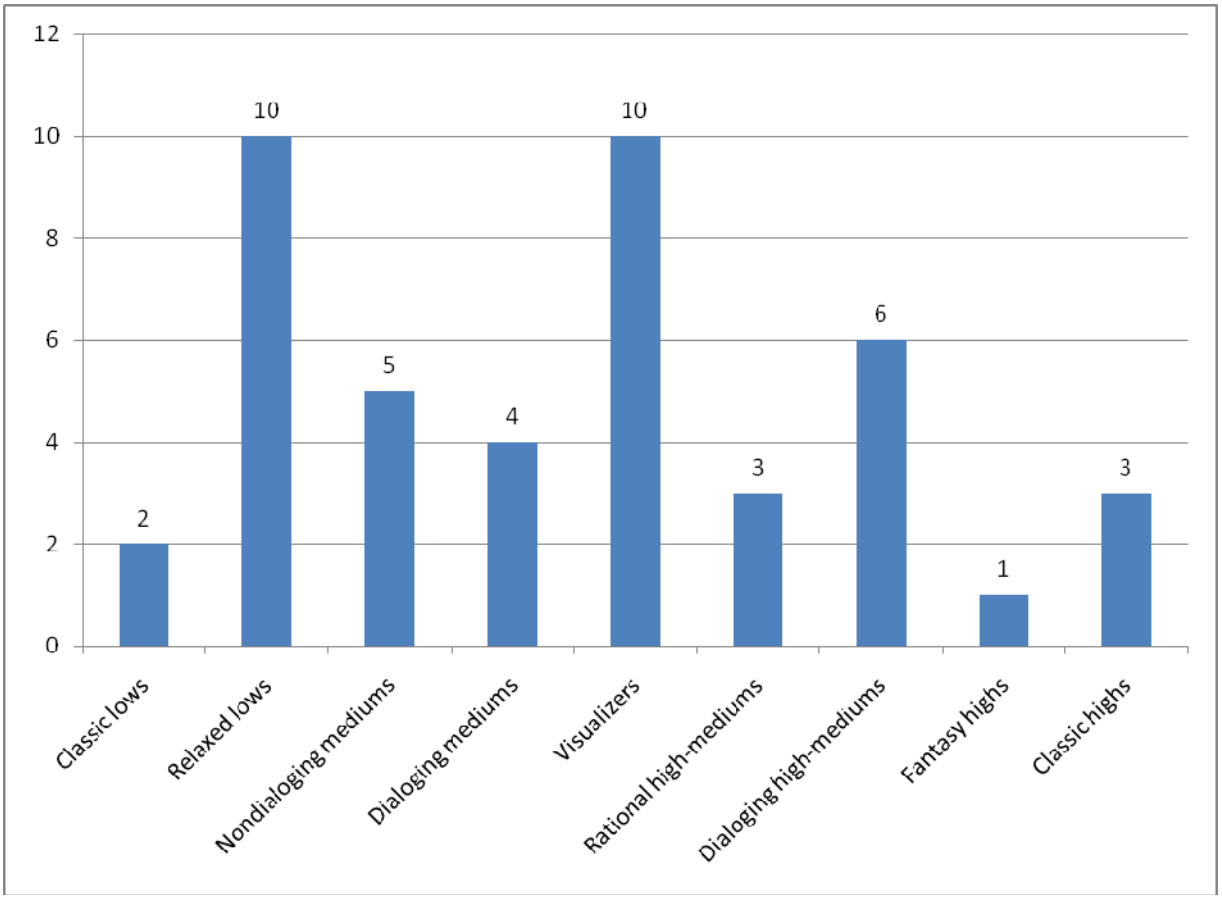
Dimensionen	**Nyul**	**Rux**	**Pekala**
D1 Joy	0.79	0.66	0.82
D2 Sex	0.76	0.84	0.92
D3 Love	0.68	0.37	0.88
D4 Anger	-0.09	0.74	0.81
D5 Sadness	0.73	0.81	0.82
D6 Fear	0.86	0.67	0.90
D7 Body Image	0.66	0.68	0.74
D8 Time Sense	0.89	0.73	0.69

D9 Perception	0.80	0.65	0.80
D 10 Meaning	0.76	0.38	0.70
D11 Imagery amount	0.92	0.67	0.90
D12 Imagery Vividness	0.67	0.55	0.82
D13 Direction of attention	0.74	0.73	0.84
D14 Absorption	0.36	0.56	0.79
D15 Self-awareness	0.79	0.54	0.77
D16 Altered State	0.79	0.86	0.83
D17 Internal Dialogue	0.95	0.86	0.86
D18 Rationality	0.72	0.74	0.80
D19Volitional Control	0.63	0.74	0.71
D20 Memory	0.92	0.72	0.80
D21 Arousal	0.89	0.50	0.79
D22 Positive Affect	0.68	0.63	0.88
D23 Negative Affect	0.69	0.85	0.87
D24 Altered Exp.	0.88	0.82	0.82
D25 Imagery	0.83	0.48	0.91
D26 Attention	0.73	0.54	0.80

4.4.3.3 Trance types profile

Concerning the description of the different trance types it has to be pointed out that none of the nine types appears remarkably often. Ten participants each can be attributed to the types ‘Relaxed Lows’ and ‘Visualisers’, followed by six participants in the category ‘Dialoguing High Mediums’ and five participants in the category ‘Non Dialoguing Mediums’. The remaining test persons are distributed among the other trance types. The diagram below provides a more detailed overview.

Figure 18: Trance types profile - distribution



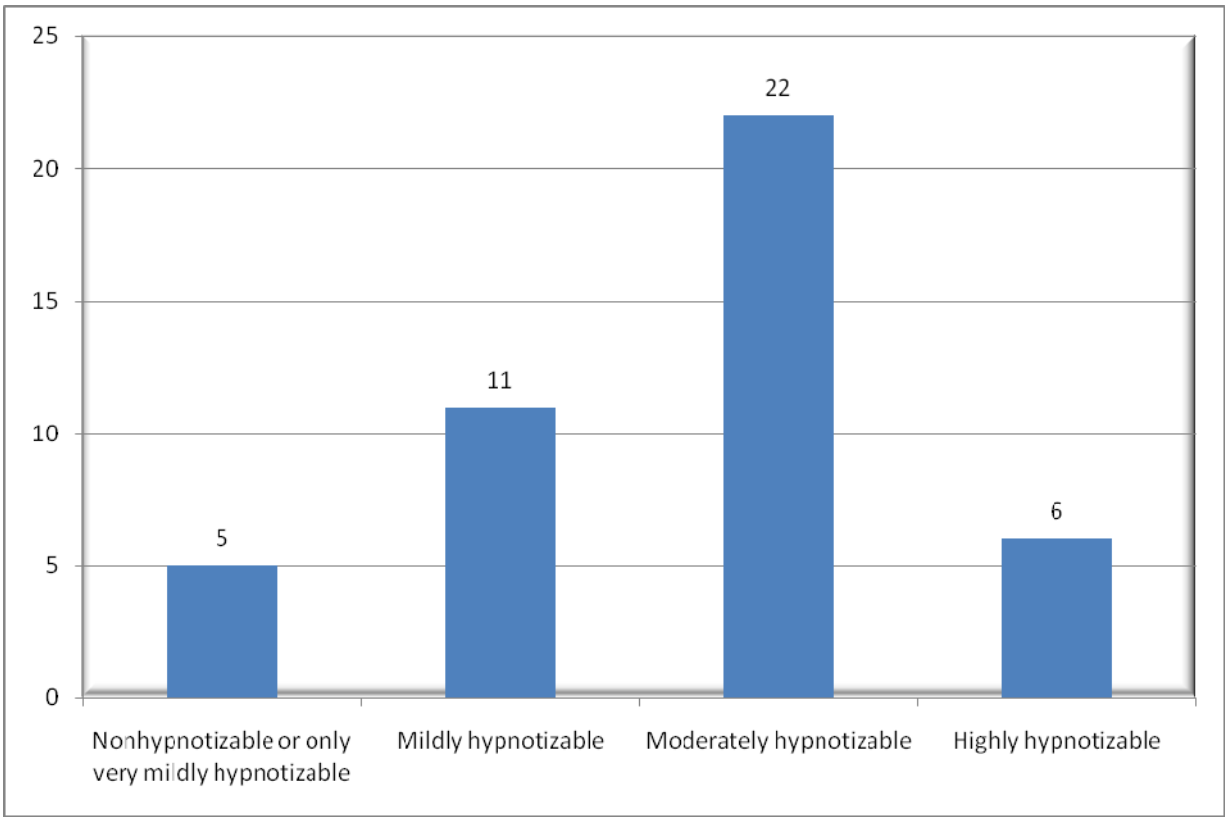
4.4.3.4 pHGS score

The lowest value is 1.7, the highest value is 8.75. The mean value is 5.3 (median 5.6).

Five participants reached a score between 1.00 and 3.00, eleven range between 3.01 and 5.00, 22 can be found between 5.01 and 7.00 and six participants have a score that is higher than 7.01.

The distribution of the values is illustrated in the diagram below:

Figure 19: Distribution of the pHGS score



Six participants reached a score that was larger than 7, in other words they exceeded the set-off point for trance.

The pHGS mean value in the study by Rux was 3.45 (cf. Rux, 2002) and thus clearly lower than the mean value in this study. This could lead to the conclusion that the participants in the study about the Neutral did not only have more interest in trance-like experiences but from the start possessed a higher degree of hypnotizability.

4.4.3.5 Dimensions

Overall 17 dimensions (65.38%) showed significant changes between the base line and the state of consciousness during the biodynamic treatment, among them nine major and eight minor dimensions.

The altered major dimensions are: altered state, volitional control, memory, arousal, positive affect, negative affect, altered experience, imagery and attention.

The minor dimensions are: joy, anger, sadness, time sense, perception, meaning, absorption und sexual excitement.

Annex 4 includes a table with the calculated values for all dimensions.

The following table provides an overview of the significantly altered dimensions and the associated p-values. Another table in annex 5 provides a list of all p-values.

Table 9: Dimensions and p-values

Major dimensions	**Minor dimensions**	**p-value**
Altered State		0.000
Volitional Control		0.019
Memory		0.024
Arousal		0.001
Positive Affect		0.000
Negative Affect		0.000
Altered Experience		0.000
Imagery		0.018
Attention		0.002
	Joy	0.000
	Anger	0.000
	Sadness	0.047
	Time Sense	0.022
	Perception	0.002
	Meaning	0.025
	Absorption	0.000
	Sexual Excitement	0.001

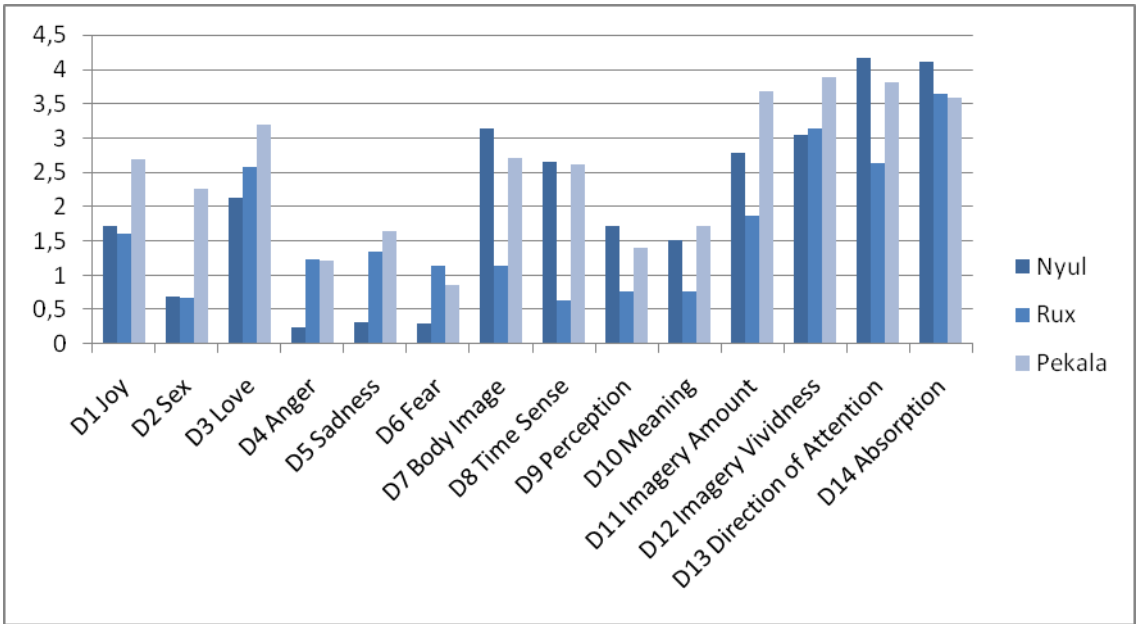
Finally, the presentation of the dimensions shall include a comparison with the results of the above mentioned studies by Rux and Pekala. The compared values are the mean values and standard deviation. For clarity reasons the dimensions are divided into major and minor dimensions. Annex 6 provides a tabular overview of the standard deviations and the figures which form the basis for the following two diagrams.

Regarding the minor dimensions in this study it is interesting that Love, Anger, Sadness and Fear show clearly lower values than in the two other studies. The dimensions Body Image, Perception, Direction of Attention and Absorption are more pronounced. Joy, Sex and

Imagery Vividness show almost similar values in comparison with Rux, while Pekala observed clearly higher values in these dimensions. In comparison with Rux Meaning and Imagery Amount have clearly higher values, while in comparison with Pekala the values are lower. In comparison with Pekala the degree of Time Sense is almost similar, while Rux observed much lower values for these two dimensions.

The following diagram provides and overview of the minor dimensions:

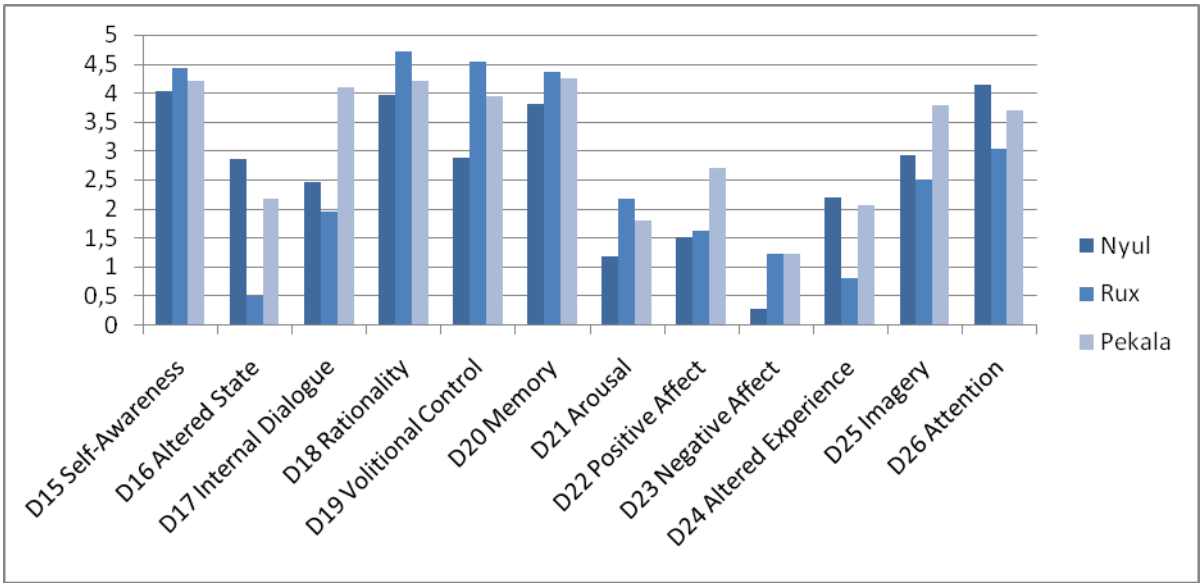
Figure 20: Mean values of the minor dimensions



In the case of the major dimensions the values for Altered State and Attention in this study are clearly higher in comparison with the two other studies. In comparison with Rux the value for the dimension Altered Experience is quite high. In comparison with Pekala the value for the dimension Altered Experience is similar. Regarding the dimensions Volitional Control, Arousal and Negative Affect the participants in this study show values that are much lower than those of the participants in the two other studies. The values for the dimensions Self-Awareness, Rationality and Memory are similar in all three studies. The dimensions Internal Dialogue and Imagery are quite pronounced in comparison with Rux, while they are smaller in comparison with Pekala.

The diagram for the major dimensions looks as follows:

Figure 21: Mean values of themajor dimensions



5. Discussion

In the preface the hypothesis that the Neutral in biodynamics represents an extraordinary state of consciousness was put forward. The results presented in Chapter 4 confirm this assumption.

5.1 Objectivity and Reliability

One interesting aspect in the implementation of the study was that it was difficult to obtain an appropriate sample size. This fact suggests that an objective evaluation of the topic “extraordinary states of consciousness” does not enjoy much popularity in the region of Eisenstadt and its surrounding area. The author comes to the conclusion that the degree of social acceptability of extraordinary states of consciousness is lower than expected.

It can be assumed that due to these circumstances the composition of the patient sample slightly impaired the objectivity of the study. 50 per cent of the participants had already gained experiences with extraordinary states of consciousness before participating in this

study and only two test persons indicated a dismissive attitude towards altered states of consciousness. This possibly explains the high alpha coefficient in this study. This is also corroborated by the fact that 41 test persons already had experiences with osteopathy, and among them 32 with biodynamics or cranial osteopathy. Further, the participants who have already gained experiences with biodynamics also mentioned experiences with extraordinary states of consciousness more frequently. Possibly also the venue where the study was carried out distorted its objectivity.

It has to be pointed out that 20 participants only had low expectations with respect to experiencing an altered state of consciousness during the biodynamic treatment. Maybe also the preconceived opinion of the test persons played a role regarding the induction of such an altered state of consciousness.

The intra-individual reliability (mean value of the RI score: 0.95) can be regarded as good. This value can be explained on the one hand by the high motivation of the test persons to participate in the study, which is clearly obvious from the description of the patient sample. On the other hand, the inventory must have been very carefully completed by the participants. In this context one has to rely upon the participants and assume that they did not look at previous pages of the questionnaire to give corresponding answers.

5.2 Comparison with the studies of Rux and Pekala

Considering the sizes of the patient samples it is obvious that Pekala had double the number of participants than in the two other studies. This fact has an influence on the standard deviation of the mean values of the experience dimensions so that a comparison of these values has only little informative value. Taking into account the various stimuli that were applied in the different studies, the question imposes itself whether the conditions of the three studies are comparable. These circumstances can explain why the three studies produced in part such different experience profiles.

Rux did hardly find any trance-like changes, while Pekala found some slight changes and this study discovered clear indicators for trance-like changes in the major and minor dimensions. What is also noticeable is that a comparison of the Cronbach´s Alpha values of the individual scales showed a minimum value of 0.69 in the study of Pekala, while the two other studies produced clearly lower values. In the present study the minimum value could be observed for

‘anger’ with a value of -0.09, which corresponds to a hardly given reliability. An explanation of this marked difference can be that in the case of the study in Eisenstadt the participants had problems understanding the items of the PCI. This assumption is corroborated by certain statements of the participants. In particular the older participants reported difficulties of understanding the questionnaires. A possible other reason for the difference could be the German translation of the questionnaire. Indicators for this are also the partly distinctively lower values of the scales in the study of Rux. Another reason for the difference can be the already mentioned composition of the patient samples. In Pekala’s study the patient sample comprised 100 per cent of his students. In the opinion of the author this impairs the objectivity of the study, which might be a reason for the persistently high values in Pekala’s study.

5.3 Conclusion

Overall, the results of this study confirm the original hypothesis. The results of the evaluation show that changes of the patient’s state of consciousness occur during the Neutral. The degree of change depends on the individual’s hypnotizability. This aspect is important regarding the decision of which osteopathic approach should be chosen in a treatment session. The next chapter will discuss this in more detail.

The possibility of changes in the patient’s consciousness makes it necessary that osteopaths are aware of the fact that biodynamic work includes processes which have the effect that the patient is at least temporarily ‘displaced’ in certain aspects. This has to be considered when assessing the reactions of the patient during or shortly after a biodynamic treatment. Due to inappropriate behaviour the patients might gain the impression of not being taken seriously. It seems that osteopaths have to accept and deal with the characteristics of extraordinary states of consciousness to better manage possible ‘abnormal’ behaviours of their patients. This is the only way to accompany the patient through the biodynamic process in the best possible way and only this way biodynamics can unfold its full potential.

Now it is possible to explain the phenomena that might occur and this helps to reduce biodynamic’s aura of mysticism. The patients’ fear or insecurity or doubts based on the triggered phenomena can be alleviated. Also patients might gain the impression that something is wrong with them because the feel or sense all sorts of things. It would be a pity

if patients developed a dismissive attitude towards biodynamics or even a negative attitude towards osteopathy just because of a lack of information.

Another important aspect is the hypersuggestability. This means that people can be temporarily insecure because of the experience of an extraordinary state of consciousness (cf. Chapter 2) and in this state of insecurity the words and actions of the osteopath can pave the way for the development of the patient's health. This again means that the osteopath has to think thoroughly about what words he is choosing and how he acts after the treatment to avoid negative influences due to the patient's state of hypersuggestability.

5.4 Outlook

It has already been mentioned that Pekala regards the pHGS score and the depth of trance as being dependent on the individual's hypnoidal receptiveness. According to him persons with a high hypnoidal receptiveness can also reach deeper states of trance. Based on this assumption the hypothesis can be derived that biodynamic treatments of patients with high hypnoidal receptiveness will achieve better results than those of patients with low hypnoidal receptiveness. It is possible that this personal characteristic represents a factor that influences the outcome of a treatment. Pekala vuses the degree of hypnoidal receptiveness to choose the form of therapy that seems to be the most appropriate for each patient among various psychotherapeutic approaches (cf. Pekala &Kumar, 2002). This would maybe also be possible in the field of osteopathy if corresponding correlations of the individual osteopathic approaches and the hypnoidal receptiveness exist. This has to be examined. Maybe the effectiveness of osteopathy could be increased when the practitioner would always be able to use the approach which enables the patient to allow the biggest changes in his body.

If Goodman's assumption is true that the ability to reach a trance-like state decreases through intensive meditation (cf. Chapter 1), this could have an influence on biodynamic treatments. Maybe the meditation influences the patient's ability to reach the Neutral. In this case it would be indicated to choose another osteopathic treatment approach to increase the chances for a successful treatment. Thus also the correlations between meditation and the Neutral could be further examined.

Another interesting aspect concerns the state of consciousness of the osteopath during a biodynamic treatment. At the moment there are no studies in this field available. Also Engel (2002) suggests further research in this field.

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8. Annex

8.1 Annex 1: Information sheet

„Laterale Fluktuation – Induktion eines außergewöhnlichen Bewusstseinszustandes?“

8.1.1 Introduction:

Dieses Informationsblatt dient zur Einführung und zum besseren Verständnis des Experiments, das ich zur Erlangung des Titels „Master of Science, Osteopathy“ im Rahmen eines postgraduellen Universitätslehrganges an der Donau-Universität Krems durchführe.

Das Thema meiner Arbeit :

„Das Neutral in der biodynamischen Cranio-sacral Osteopathie – die Induktion eines außergewöhnlichen Bewusstseinszustandes“

soll dazu beitragen, mehr über die Vorgänge im Körper des Patienten während einer biodynamischen Osteopathiesitzung in Erfahrung zu bringen.

Die Biodynamik ist eine Möglichkeit, cranio-sacrale Osteopathie zu praktizieren. Sie geht auf den Begründer der Cranio-sacral Osteopathie, Dr. W. G. Sutherland, zurück.

Die Biodynamik beinhaltet einerseits alle Prinzipien der Osteopathie, die vom Vater der Osteopathie, Dr. Andrew T. Still, erarbeitet und eingeführt wurden, andererseits fließen aber auch alle Aspekte des cranio-sacralen Konzepts von Dr. Sutherland ein.

Die Biodynamik erfährt in den letzten 10 bis 15 Jahren massiven Aufschwung durch die Bemühungen und Anstrengungen von James Jealous, D.O, der die Biodynamik direkt aus dem Kreis rund um Dr. Sutherland erlernt hat.

Meine Arbeit soll dazu beitragen, den Bekanntheitsgrad der Biodynamik zu steigern aber auch dazu beitragen, heraus zu finden, auf welchen Art und Weise sie im menschlichen Körper wirkt und Heilung bringt.

8.1.2 Implementation:

Die Durchführung der Studie erfolgt in meiner Ordination am Esterhazyplatz 6 in Eisenstadt.

Die Teilnehmer kommen einzeln nach einem festgelegten Zeitplan in die Ordination.

Jeder Teilnehmer wird begrüßt und in ein Zimmer gebracht, wo drei Fragebögen ohne Beisein einer anderen Person ausgefüllt werden. Bei den Fragebögen handelt es sich um einen Persönlichkeitstest, einen Fragebogen, mit dem der Bewusstseinszustand beurteilt werden kann und ein Fragebogen, mit dem noch fehlende persönliche Daten erhoben werden.

Anschließend wird die Teilnehmerin in das Behandlungszimmer gebracht und aufgefordert, sich auf die Behandlungsbank zu legen und die Augen zu schließen..

Nach einem letzten Check der Teilnehmerin wird dem Osteopath signalisiert, mit der Lateralen Fluktuation zu beginnen. Der behandelnde Osteopath ist ein Kollege aus Graz. Die Laterale Fluktuation ist eine Technik aus der Cranio-sacral Osteopathie, die dazu verwendet werden kann, das Neutral zu induzieren. Die Technik wird vom Kopf der Teilnehmerin aus durchgeführt.

Es handelt sich bei diesem Experiment um KEINE vollständige osteopathische Sitzung, es geht vielmehr darum, die Auswirkung einer bestimmten Technik in der Osteopathie genauer zu untersuchen.

Nach Ende der Technik werden die Teilnehmer aufgefordert, in das andere Zimmer zurück zu gehen und nochmals das PCI auszufüllen. Dabei sind sie ebenfalls alleine.

Das Ziel meiner Untersuchung ist es herauszufinden, ob durch die Lateral Fluktuation der Bewusstseinszustand der Teilnehmerinnen während der Technik verändert wird.

Die Fragebögen werden dazu verwendet herauszufinden:

- ob es durch die Laterale Fluktuation zur Induktion eines außergewöhnlichen Bewusstseinszustandes kommt
- welche Bereiche des Bewusstseins der Teilnehmerinnen sich während des Neutral verändern
- welchen Einfluss das Persönlichkeitsprofil, die Erwartungshaltung , die Erfahrung mit außergewöhnlichen Bewusstseinszuständen, der momentane Gesundheitszustand und der Bildungsgrad der Teilnehmerinnen auf deren Bewusstseinszustand während des Neutral hat

Es stehen mehrere Räume zu Ausfüllen der Fragebögen zur Verfügung, so dass sich die Teilnehmer beim Ausfüllen nicht in die Quere kommen.

Alle Fragebögen kommen in einen Umschlag, der von den Teilnehmern verklebt wird.

Ich persönlich werde keinen der Fragebögen auswerten noch durchsehen, die Auswertung erfolgt von einem klinischen Psychologen.

Mit diesen Maßnahmen wird erwartet, die höchst mögliche Anonymität der Teilnehmer zu gewährleisten und authentische Beantwortung der Fragebögen zu erhalten. Es soll damit vermieden werden, dass die Fragebögen aus Verlegenheit fälschlich ausgefüllt werden, weiters soll dadurch erreicht werden, dass keine sozial angepassten Antworten gegeben werden.

8.1.3 Exclusion criteria:

Anschließend finden Sie die Kriterien, die einen Ausschlussgrund von meiner Studie darstellen. Wenn ein oder mehrere Möglichkeiten auf Sie zutreffen, können Sie nicht am Experiment teilnehmen.

-Pathologische Bewusstseinsstörungen: Epilepsie
Schizophrenie
Wahnvorstellungen
Depression
Boarderline-Patienten

-Langandauernder Drogenmissbrauch

-Schwangerschaft

-Herzprobleme: Herzschrittmacher
Bluthochdruck (erster Wert höher 200)

-Schlaganfall (bis 12 Wochen nach dem Ereignis)

8.1.4 Necessary time:

Der gesamte Zeitbedarf pro Teilnehmerin beträgt ca. 1 Stunde und 45 Minuten.

Detaillierte Auflistung:

Zeitbedarf zum Ausfüllen der Fragebögen:

PCI:	30 Minuten
FPI:	30 Minuten
Pers. Fragebogen:	15 Minuten
Zeitbedarf der Technik:	20-30 Minuten

8.1.5 Organizational issues:

Bei Interesse rufen Sie bitte in der Ordination an, um sich in eine Behandlungsliste eintragen zu lassen. Sprechen Sie entweder auf den Anrufbeantworter oder die Mobilbox, wir werden uns umgehend bei Ihnen melden.

Telefon: 02682/61641 oder 0650/4624303

Weitere Infos erhalten Sie unter denselben Telefonnummern.

8.2 Annex 2: PHENOMENOLOGY OF CONSCIOUSNESS INVENTORY (PCI), FORM 1

von

Ronald J. Pekala, Ph. D.

INSTRUKTIONEN

Mit dem folgenden Fragebogen sollen Sie Ihre Erfahrungen im fraglichen Zeitraum mit Hilfe von Aussagen, wie der unten gezeigten, einstufen.

Kreisen Sie bei jeder der nachfolgenden Aussagen die Zahl ein, die am ehesten Ihrer subjektiven Erfahrung im fraglichen Zeitraum entspricht. Wenn Sie zum Beispiel Ihre Stimmung im fraglichen Zeitraum als „sehr ruhig und friedlich“ und keineswegs als „sehr besorgt“ einstufen, dann sollten Sie bei der folgenden Aussage die Zahl „0“ einkreisen.

1. Ich fühlte mich sehr ruhig. 0 1 2 3 4 5 6 Ich fühlte mich sehr besorgt.

Wenn Sie weder „ruhig“ noch „besorgt“ wären, d. h. Sie lägen in der Mitte zwischen diesen beiden Aussagen, dann würden Sie die „3“ auf dem Antwortbogen einkreisen. Das Einkreisen der „0“ bedeutet daß Ihre Erfahrung der Aussage links sehr ähnlich ist, wohingegen ein Einkreisen der „6“ bedeutet, daß Ihre Erfahrung der Aussage rechts sehr ähnlich ist. Das Einkreisen einer Zahl zwischen „0“ und „6“ bedeutet, daß Ihre Erfahrung irgendwo zwischen der Aussage auf der linken Seite und der rechte Seite liegt. Sie können alle Zahlen von „0“ bis „6“ frei wählen.

Für jede Aussage auf den folgenden Seiten sollen Sie jene Zahl einkreisen, die Ihrer persönlichen Erfahrung im fraglichen Zeitraum am besten entspricht. Seien Sie dabei bitte so genau wie möglich.

Damit Sie Ihre subjektive Erfahrung besser bestimmen können, werden Definitionen für einige Schlüsselwörter gegeben, die auf den folgenden Seiten verwendet werden.

1. EMPFINDUNGEN: sind innere körperliche Eindrücke, denen Sie gewahr werden. Jucken, Druck, Schmerz, Wärme und Kälte sind Beispiele solcher Empfindungen.

2. WAHRNEHMUNGEN: sind Eindrücke, die Sie aus der Außenwelt erhalten. Wahrnehmungen kommen aus der Umgebung in Form von Bildern, Geräuschen, Gerüchen, etc.

3. GEFÜHLE ODER EMOTIONEN: sind innere Eindrücke oder Stimmungen wie Glück, Freude, Zorn, Aufregung, etc.

4. GEDANKEN: sind innere Worte, Aussagen und Verbalisierungen, die Sie zu sich selbst sagen.

5. VORSTELLUNGEN: sind innere visuelle (Bilder), auditorische (Geräusche), kinästhetische (körperliche), olfaktorische (Gerüche), taktile (Berührung), oder gustatorische (Geschmack) Eindrücke oder Bilder, die in Ihnen auftauchen, ganz gleich wie vage oder schwach sie auch sein mögen. Sie entstammen Ihrem Innern, anstelle aus der Umgebung zu kommen.

6. EINDRÜCKE ODER EREIGNISSE: sind irgend etwas des oben aufgeführten, d. h. Empfindungen, Wahrnehmungen, Gedanken oder Vorstellungen.

Gekürzte deutsche Übersetzung 1999 von Ulrich Ott, Institut für Psychobiologie und Verhaltensmedizin an der Justus-Liebig-Universität Giessen, Otto-Behaghel-Strasse 10, 35394 Gießen.

PHENOMENOLOGY OF CONSCIOUSNESS INVENTORY (PCI), FORM 1

Bitte ergänzen Sie die folgenden Angaben.

Name: _____ Geschlecht: _____

Alter: _____ Höchster Schulabschluß: _____

Heutiges Datum: _____ Kode: _____

INSTRUKTIONEN FÜR DAS AUSFÜLLEN DIESES FRAGEBOGENS

SIE SIND NUN BEREIT, MIT DEM FRAGEBOGEN SELBST FORTZUFAHREN. BITTE LESEN SIE JEDE AUSSAGE LANGSAM UND SORGFÄLTIG UND ANTWORTEN SIE SO GENAU WIE MÖGLICH, INDEM SIE DIE ZAHL ZWISCHEN „0“ UND „6“ EINKREISEN, DIE IHRER SUBJEKTIVEN ERFAHRUNG IM FRAGLICHEN ZEITRAUM AM BESTEN ENTSPRICHT. TUN SIE DIES FÜR JEDE AUSSAGE.

1. Ich war die ganze Zeit über abgelenkt und unfähig mich auf irgend etwas zu konzentrieren.	0 1 2 3 4 5 6	Ich war fähig, mich vollkommen gut zu konzentrieren und war nicht abgelenkt.
2. Mein Denken war klar und verständlich.	0 1 2 3 4 5 6	Mein Denken war unklar und nicht leicht zu verstehen.
3. Die Gedanken und Vorstellungen, die ich hatte, waren unter meiner Kontrolle; ich entschied, was ich dachte oder mir vorstellte.	0 1 2 3 4 5 6	Vorstellungen und Gedanken tauchten in mir auf, ohne meine Kontrolle.
4. Ich hatte eine Erfahrung, die ich als sehr religiös, spirituell oder transzendental bezeichnen würde.	0 1 2 3 4 5 6	Ich hatte keinerlei Erfahrung, die ich als religiös, spirituell oder transzendental bezeichnen würde.
5. Ich wurde intensiver sexueller Gefühle gewahr.	0 1 2 3 4 5 6	Ich erfuhr keine sexuellen Gefühle.
6. Ich habe eine ganze Menge Selbst-gespräche geführt.	0 1 2 3 4 5 6	Ich führte keine Selbstgespräche mit mir.
7. Ich fühlte mich sehr, sehr traurig.	0 1 2 3 4 5 6	Ich fühlte überhaupt keine Traurigkeit.
8. Meine Aufmerksamkeit war vollständig auf meine eigene innere subjektive Erfahrung gerichtet.	0 1 2 3 4 5 6	Meine Aufmerksamkeit war vollständig auf die Welt um mich herum gerichtet.

9. Ich fühlte mich ekstatisch und voller Freude.	0 1 2 3 4 5 6	Ich fühlte mich nicht ekstatisch oder voller Freude.
10. Ich kann mich nicht erinnern, was ich erfuhr.	0 1 2 3 4 5 6	Ich kann mich genau an alles erinnern, was ich erfuhr.
11. Mein Körper endete an der Grenze zwischen meiner Haut und der Umwelt.	0 1 2 3 4 5 6	Ich fühlte meinen Körper weit über die Grenzen meiner Haut erweitert.
12. Ich hatte eine ganze Menge bildhafter Vorstellungen.	0 1 2 3 4 5 6	Ich hatte überhaupt keine bildhaften Vorstellungen.
13. Ich war mir nicht bewußt, irgendein Bewußtsein meiner selbst zu haben; ich hatte keine Selbstbewußtheit.	0 1 2 3 4 5 6	Ich war mir bewußt, daß ich mir bewußt war; meine Selbstbewußtheit war sehr intensiv.
14. Ich hatte keine Gefühle der Wut.	0 1 2 3 4 5 6	Ich fühlte mich wütend.
15. Meine Wahrnehmung des Zeitflusses veränderte sich drastisch.	0 1 2 3 4 5 6	Ich nahm keine Veränderungen in meiner Zeitwahrnehmung wahr.
16. Ich war sehr angsterfüllt.	0 1 2 3 4 5 6	Ich hatte keine Gefühle der Angst.
17. Meine Wahrnehmung der Welt veränderte sich drastisch.	0 1 2 3 4 5 6	Ich bemerkte keine Veränderungen in meiner Wahrnehmung der Welt.
18. Meine bildhaften Vorstellungen waren so lebhaft und dreidimensional, sie schienen echt.	0 1 2 3 4 5 6	Meine bildhaften Vorstellungen waren vage und diffus, es war schwierig eine Vorstellung von irgend etwas zu haben.
19. Die Muskeln meines Körpers fühlten sich sehr angespannt und fest an.	0 1 2 3 4 5 6	Die Muskeln meines Körpers fühlten sich locker und entspannt an.
20. Ich erfuhr keine Gefühle der Liebe.	0 1 2 3 4 5 6	Ich erfuhr sehr starke Gefühle der Liebe.
21. Mein Bewußtseinszustand war nicht verschieden oder ungewöhnlich anders als sonst.	0 1 2 3 4 5 6	Ich erlebte eine extrem veränderten und ungewöhnlichen Bewußtseinszustand.
22. Ich kann mir nicht in Erinnerung rufen, was mir geschah.	0 1 2 3 4 5 6	Ich kann mich an alles erinnern, was mir geschah.
23. Ich hatte eine Erfahrung von Ehrfurcht und Verehrung gegenüber der Welt.	0 1 2 3 4 5 6	Ich hatte keine Erfahrung von Ehrfurcht und Verehrung gegenüber der Welt.
24. Konzeptuell war mein Denken klar und unterscheidend.	0 1 2 3 4 5 6	Konzeptuell war mein Denken unklar und wirr.
25. Ich hatte vollständige Kontrolle darüber, worauf ich meine Aufmerksamkeit richtete.	0 1 2 3 4 5 6	Ich hatte keine Kontrolle darüber, worauf ich meine Aufmerksamkeit richtete.

26. Meine Körpergefühle schienen sich in die mich umgebende Welt auszudehnen.	0 1 2 3 4 5 6	Meine Körpergefühle waren auf den Bereich innerhalb meiner Haut begrenzt.
27. Ich war kontinuierlich bewußt und mir meiner selbst sehr gewahr.	0 1 2 3 4 5 6	Ich verlor das Bewußtsein meiner selbst.
28. Meine Aufmerksamkeit war völlig auf die Umgebung um mich herum gerichtet.	0 1 2 3 4 5 6	Meine Aufmerksamkeit war völlig auf meine eigene innere subjektive Erfahrung gerichtet.
29. Die Welt um mich herum wurde extrem verschieden bezüglich Farben oder Formen.	0 1 2 3 4 5 6	Ich bemerkte keine Veränderungen in der Farbe oder Form der mich umgebenden Welt.
30. Die Zeit schien sich stark zu beschleunigen oder zu verlangsamen.	0 1 2 3 4 5 6	Das Verstreichen der Zeit veränderte sich nicht.
31. Ich fühlte mich nicht unglücklich oder niedergeschlagen.	0 1 2 3 4 5 6	Ich fühlte mich unglücklich und niedergeschlagen.
32. Ich erfuhr keine tiefgründigen Einsichten neben meinem normalen Verständnis der Dinge.	0 1 2 3 4 5 6	Ich erfuhr sehr tiefgründige und erleuchtende Einsichten zu verschiedenen Ideen oder Themen.
33. Ich fühlte mich sehr ärgerlich und aus der Fassung gebracht.	0 1 2 3 4 5 6	Ich fühlte mich nicht ärgerlich oder aufgebracht.
34. Ich war nicht abgelenkt, sondern fähig, völlig in das zu versinken, was ich erfuhr.	0 1 2 3 4 5 6	Ich war fortwährend durch äußere Eindrücke oder Ereignisse abgelenkt.
35. Ich war mir keiner sexuellen Gefühle bewußt.	0 1 2 3 4 5 6	Ich erfuhr sehr starke sexuelle Gefühle.
36. Meine Gedankengänge waren irrational und sehr schwer verständlich.	0 1 2 3 4 5 6	Meine Gedankengänge waren rational und leicht verständlich.
37. Ich hatte keine Gefühle der Anspannung oder Festigkeit.	0 1 2 3 4 5 6	Ich fühlte mich angespannt und fest.
38. Meine Erinnerung an die Ereignisse, die ich erfuhr, ist extrem klar und lebhaft.	0 1 2 3 4 5 6	Meine Erinnerung an die Ereignisse, die ich erfuhr, ist extrem dunkel und verschwommen.
39. Ich bemerkte keine Veränderungen der Größe, Form oder Perspektive von Objekten in der Welt um mich herum.	0 1 2 3 4 5 6	Objekte in der Welt um mich herum änderten ihre Größe, Form oder Perspektive.
40. Mein Zustand der Bewußtheit war sehr verschieden von dem, was ich normal erlebe.	0 1 2 3 4 5 6	Mein Zustand der Bewußtheit war nicht anders als gewöhnlich.
41. Ich ließ die Kontrolle fahren und wurde empfänglich und passiv gegenüber dem, was ich erfuhr.	0 1 2 3 4 5 6	Ich kontrollierte willentlich, was ich erfuhr.
42. Ich fühlte mich nicht verängstigt oder furchtsam.	0 1 2 3 4 5 6	Ich fühle mich sehr verängstigt und furchtsam.

43. Ich hatte kein Gefühl der Zeitlosigkeit; die Zeit verging wie ich das gewöhnlich erlebe.	0 1 2 3 4 5 6	Die Zeit stand still; da war überhaupt keine Bewegung der Zeit mehr.
44. Ich hatte keine oder nur sehr wenige bildhafte Vorstellungen.	0 1 2 3 4 5 6	Meine Erfahrung bestand nahezu vollständig aus Bildern.
45. Ich führte keinerlei Selbstgespräche mit mir selbst.	0 1 2 3 4 5 6	Ich habe eine ganze Menge Selbstgespräche geführt.
46. Ich fühlte keine Gefühle der Ekstase oder extremen Glücks über meine gewöhnlichen Gefühle hinaus.	0 1 2 3 4 5 6	Ich fühlte Gefühle der Ekstase und extremen Glücks.
47. Ich fühlte keine Heiligkeit oder tiefe Bedeutsamkeit der Existenz über meine gewöhnlichen Gefühle hinaus.	0 1 2 3 4 5 6	Die Existenz wurde tief heilig oder bedeutungsvoll.
48. Meine Vorstellungen waren sehr vage und schwach.	0 1 2 3 4 5 6	Meine Vorstellungen waren so klar und lebhaft wie Objekte in der realen Welt.
49. Ich fühlte intensive Gefühle von Güte.	0 1 2 3 4 5 6	Ich fühlte keine Gefühle der Güte.
50. Ich bewahrte die ganze Zeit über eine sehr starke Bewußtheit meiner selbst.	0 1 2 3 4 5 6	Ich bewahrte überhaupt keine starke Bewußtheit meiner selbst.
51. Ich behielt ständig ein starkes Gefühl der Trennung zwischen mir und der Umgebung.	0 1 2 3 4 5 6	Ich erfuhr eine intensive Einheit mit der Welt; die Grenzen zwischen mir und der Umgebung lösten sich auf.
52. Meine Aufmerksamkeit war vollkommen nach innen gerichtet.	0 1 2 3 4 5 6	Meine Aufmerksamkeit war vollkommen nach außen gerichtet.
53. Mein Zustand der Bewußtheit war nicht ungewöhnlich oder verschieden von dem, wie er normalerweise ist.	0 1 2 3 4 5 6	Ich erlebte einen außerordentlich ungewöhnlichen und außerordentlichen Zustand der Bewußtheit.

Informationen zu Auswertungsblättern für diesen Fragebogen können schriftlich angefordert werden beim Mid-Atlantic Educational Institute, Inc., 309 North Franklin Street, West Chester, PA 19380-2765. Informationen zur Reliabilität und Validität des Instrumentes, zur Computerauswertung und seiner Anwendung, zur bisherigen Forschung und klinischen Anwendungen sind enthalten im Buch ***Quantifying Consciousness: An Empirical Approach****, veröffentlicht von der Plenum Publishing Corporation, 1991 (und erhältlich vom Mid-Atlantic Institute). Personen, die an Workshops zur Forschung mit und klinischen Anwendung von Fragebögen zum phenomenalen Erleben zur Kartierung von Strukturen und Mustern des Bewußtseins interessiert sind, werden ermutigt an das Mid-Atlantic Institute zu schreiben.*

8.3 Annex 3: PERSONAL QUESTIONNAIRE

Name: **Alter:**

1. **Geschlecht:**

   männlich weiblich

2. **Erfahrung mit Osteopathie:**

   ja nein

3. **Erfahrung mit Kraniosakral-Osteopathie oder Biodynamik:**

   ja nein

4. **Erfahrung mit außergewöhnlichen Bewusstseinszuständen:**

   ja nein

5. **Bei „ja“ erfolgt die Induktion durch (auch Zutreffendes in den Klammern ankreuzen):**

   - Drogen (Alkohol, Amphetamine, Cannabis, Opiate, anderes)
   - Medikamente (Psychopharmaka, anderes)
   - Meditation
   - Hypnose
   - Rituelle Körperhaltungen nach Felicitas Goodman
   - Religiöse Handlungen
   - außergewöhnliche körperliche Belastungen
   - Joga
   - Spezielle Formen des Atmens
   - Konzentration
   - anderes:

6. **Persönliche Motivation zur Teilnahme an diesem Experiment:**

   - keine Motivation
   - durchschnittliche Motivation
   - hohe Motivation
   - keine Angabe

7. **Persönliche Erwartung der Effektivität des Experiments hinsichtlich:**

   - Entspannung:

     gering mittel hoch

   - Steigerung des körperlichen Wohlbefindens:

     gering mittel hoch

- Steigerung des psychischen Wohlbefindens:

gering mittel hoch

- Erleben einer anderen Wirklichkeit

gering mittel hoch

8. Einstellung zu außergewöhnlichen Bewusstseinszuständen:

neutral positiv ablehnend

9. Persönlicher Drogenkonsum (Alkohol, Amphetamine, Cannabis, Opiate, anderes)

keiner leichter Konsum mittlerer Konsum starker Konsum

10. Persönliche Medikamenteneinnahme (Schmerzmittel, Psychopharmaka, Morphine)

keine gelegentlich regelmäßig

11. Persönliche Einstufung von akuten oder chronischen Schmerzzuständen (Skala von 0 -10: 0=kaum, 10=nicht auszuhalten); zutreffendes ausfüllen:

Wirbelsäule:

Schulter und Arme:

Beine:

Kopfschmerzen:

Verdauungsprobleme:

anderes:

8.4 Annex 4: Results of the T-tests for the dimensions

		Mittelwert	N	Standardab-weichung
Paar 1	Joy	55.66	44	25.574
	VAR00028	51.5455	44	26.72030
Paar 2	Sexual Exitement	64.39	44	10.974
	VAR00029	51.6591	44	25.57428
Paar 3	Love	55.50	44	26.730
	VAR00030	52.6591	44	25.57428
Paar 4	Anger	53.6591	44	5.550
	VAR00031	69.82	44	25.57428
Paar 5	Sadness	54.6591	44	9.237
	VAR00032	62.93	44	25.57428
Paar 6	Fear	55.6591	44	6.887
	VAR00033	63.09	44	25.57428
Paar 7	BodyImage	56.6591	44	29.154
	VAR00034	53.55	44	25.57428
Paar 8	Time Sense	57.6591	44	32.980
	VAR00035	44.18	44	25.57428
Paar 9	Perception	58.6591	44	30.198
	VAR00036	44.57	44	25.57428
Paar 10	Meaning	59.6591	44	28.445
	VAR00037	51.02	44	25.57428
Paar 11	Imagery Amount	62.30	44	29.742
	VAR00038	60.6591	44	25.57428
Paar 12	Imagery Vividness	68.02	44	21.324
	VAR00039	61.6591	44	25.57428
Paar 13	Direction of Attention	60.25	44	27.217
	VAR00040	62.6591	44	25.57428
Paar 14	absorption	83.59	44	24.917
	VAR00041	63.6591	44	25.57428
Paar 15	Selfawareness	69.05	44	25.855

	VAR00042	64.6591	44	25.57428
Paar 16	Altered State	65.6591	44	25.007
	VAR00043	36.11	44	25.57428
Paar 17	Internal Dialogue	59.20	44	29.129
	VAR00044	66.6591	44	25.57428
Paar 18	Rationality	67.6591	44	25.165
	VAR00045	64.41	44	25.57428
Paar 19	Volitional Control	53.70	44	31.759
	VAR00046	68.6591	44	25.57428
Paar 20	Memory	54.95	44	28.771
	VAR00047	69.6591	44	25.57428
Paar 21	Arousal	70.6591	44	22.663
	VAR00048	55.61	44	25.57428
Paar 22	Positive Affect	71.6591	44	25.984
	VAR00049	50.18	44	25.57428
Paar 23	Negative Affect	46.72	44	14.003
	VAR00050	72.6591	44	25.57428
Paar 24	Altered Experience	73.6591	44	31.943
	VAR00051	43.68	44	25.57428
Paar 25	Imagery	64.57	44	23.767
	VAR00052	74.6591	44	25.57428
Paar 26	Attention	58.77	44	26.350
	VAR00053	75.6591	44	25.57428

8.5 Annex 5: Significance (p-Werte)

	Gepaarte Differenzen			
	Mittelwert	Standardabweichung	T	Sig. (2-seitig)
Joy - VAR00028	4.11364	7.14701	3.818	.000
SexualExitement - VAR00029	12.72727	23.85066	3.540	.001
Love - VAR00030	2.84091	22.23756	.847	.401
Anger - VAR00031	16.15909	25.60427	4.186	.000
Sadness - VAR00032	8.27273	26.77847	2.049	.047
Fear - VAR00033	7.43182	25.35735	1.944	.058
BodyImage - VAR00034	-3.11364	26.23083	-.787	.435
TimeSense - VAR00035	13.47727	37.76118	-2.367	.022
Perception - VAR00036	14.09091	27.62946	-3.383	.002
Meaning - VAR00037	8.63636	24.70391	-2.319	.025

ImageryAmount - VAR00038	1.63636	30.07208	.361	.720
ImageryVividness - VAR00039	6.36364	30.25634	1.395	.170
Direction of Attention - VAR00040	-2.40909	37.28602	-.429	.670
Absorption - VAR00041	19.93182	29.87602	4.425	.000
Selfawareness - VAR00042	4.38636	36.86570	.789	.434
Altered State - VAR00043	29.54545	28.29698	-6.926	.000
Internal Dialogue - VAR00044	-7.45455	33.07107	-1.495	.142
Rationality - VAR00045	-3.25000	35.81745	-.602	.550
Volitional Control - VAR00046	14.95455	40.79441	-2.432	.019
Memory - VAR00047	14.70455	41.76266	-2.336	.024
Arousal - VAR00048	15.04545	28.97329	-3.445	.001
Positive Affect - VAR00049	21.47727	14.60565	-9.754	.000
Negative Affect - VAR00050	-25.94318	27.80167	-6.190	.000
Altered Experience - VAR00051	29.97727	26.68637	-7.451	.000
Imagery - VAR00052	-10.09091	27.25232	-2.456	.018
Attention - VAR00053	16.89023	34.85418	-3.214	.002

8.6 Annex 6: Mean values and standard deviation in comparison with Pekala and Rux

Mittelwerte der Unterdimensionen:

Unterdimensionen	**Nyul**	**Rux**	**Pekala**
D1 Joy	1.71	1.61	2.68
D2 Sex	0.70	0.67	2.26
D3 Love	2.12	2.58	3.20
D4 Anger	0.25	1.24	1.22
D5 Sadness	0.32	1.35	1.64
D6 Fear	0.29	1.14	0.86
D7 Body Image	3.14	1.13	2.70
D8 Time Sense	2.65	0.63	2.61
D9 Perception	1.72	0.77	1.40
D10 Meaning	1.51	0.77	1.71
D11 Imagery Amount	2.79	1.87	3.67
D12 Imagery Vividness	3.04	3.13	3.89
D13 Direction of Attention	4.17	2.63	3.80
D14 Absorption	4.10	3.64	3.58

Mittelwerte der Hauptdimensionen:

Hauptdimensionen	**Nyul**	**Rux**	**Pekala**
D15 Self-Awareness	4.02	4.42	4.20
D16 Altered State	2.86	0.51	2.17
D17 Internal Dialogue	2.47	1.96	4.10
D18 Rationality	3.96	4.72	4.21
D19 Volitional Control	2.88	4.53	3.95
D20 Memory	3.81	4.37	4.25
D21 Arousal	1.18	2.17	1.81
D22 Positive Affect	1.51	1.62	2.71
D23 Negative Affect	0.29	1.24	1.24
D24 Altered Experience	2.20	0.82	2.07

D25 Imagery	2.92	2.50	3.78
D26 Attention	4.14	3.03	3.71

Standartabweichungen der Unterdimensionen:

Unterdimensionen	**Nyul**	**Rux**	**Pekala**
D1 Joy	1,55	1,37	1,79
D2 Sex	1,38	1,11	1,93
D3 Love	1,81	1,41	1,89
D4 Anger	0,67	1,47	1,41
D5 Sadness	0,73	1,53	1,66
D6 Fear	0,87	1,49	1,32
D7 Body Image	1,54	1,14	1,33
D8 Time Sense	1,94	0,94	1,47
D9 Perception	1,54	1,08	1,40
D10 Meaning	1,32	0,75	1,22
D11 Imagery Amount	2,01	1,35	1,78
D12 Imagery Vividness	1,41	1,13	1,55
D13 Direction of Attention	1,31	1,16	1,66
D14 Absorption	1,45	1,21	1,56

Standartabweichungen der Hauptdimensionen:

Hauptdimensionen	**Nyul**	**Rux**	**Pekala**
D15 Self-Awareness	1.50	1.03	1.25
D16 Altered State	1.70	0.93	1.63
D17 Internal Dialogue	2.28	1.72	1.79
D18 Rationality	1.45	1.13	1.39
D19 Volitional Control	1.77	1.21	1.36
D20 Memory	1.66	1.15	1.06
D21 Arousal	1.40	1.44	1.61
D22 Positive Affect	1.26	0.91	1.56
D23 Negative Affect	0.66	1.26	1.24
D24 Altered Experience	1.19	0.74	0.96
D25 Imagery	1.52	0.92	1.57
D26 Attention	1.21	0.86	1.27

8.7 Annex 7: List of figures

8.8 Annex 8: List of tables