

# Yoga as a Therapeutic Intervention for Depression

Systematic literature review

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#### Abstract

This thesis was a literature review of studies that examined the use of yoga in the treatment of adults' and adolescents' depression. The aim was to explore whether alternative therapy methods, such as yoga and breathing techniques could be used as effective interventions in psychiatry and occupational therapy. The research questions were: Can yoga be used as a therapeutic intervention for depression? Are there any scientific studies that confirm yoga's therapeutic effects on treating depression?

The Psychodynamic Frame of Reference was used as theoretical foundations for the study. The review focused on depression that prevented social participation and living a satisfactory life. The studies reviewed in the thesis found yoga that includes both physical exercises and breathing and relaxation techniques a low-cost and effective tool in treating and preventing depression.

The thesis reviewed the effectiveness of yoga's therapeutic benefits on depression. Since depression is seen as a complex mental illness, it was necessary to include studies that showed yoga's effects on the psychosomatic aspects of human health and wellbeing. For this reason, some examples of studies on yoga's benefits in treating anxiety, panic attacks, insomnia, the nervous system, the endocrine system, immunity, stress relief and alcohol dependence were presented in this work as well.

Since reliable studies on yoga and mental health are in the process of development, it is necessary to conduct further research on the implementation of yoga in occupational therapy with different client groups and in different therapy settings.

Keyword	ls/	'ta	gs
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Depression, occupational therapy, mental health, human developmental frame of reference, psychiatry, yoga, yoga therapy

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Koulutusohjelma		
Toimintaterapia		
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Kirjallisuuskatsauksessa tutkitti masennuksen hoidossa. Masen lisätä tarkastelun alle tutkimuks psykosomaattiseen hyvinvointii myös tutkimuksia, jotka käsitte unettomuuteen, hermojärjeste laukaisemiseen sekä alkoholirii	nus on monimuotoinen mie sia, jotka osoittavat joogan v n ja terveyteen. Tästä syystä levät joogan vaikutusta ahdi lmään, umpieritysjärjestelm	len sairaus, joten oli tärkeää vaikutuksen ihmisen ä katsauksessa käsitellään stukseen, paniikkihäiriöön, ään, vastustuskykyyn, stressir vat tutkimukset liittyen

Avainsanat (asiasanat)

Masennus, toimintaterapia, mielenterveys, psykodynaaminen viitekehys, kuntoutus, psykiatria, jooga, joogaterapia

joogan käytöstä toimintaterapiassa eri asiakasryhmissä sekä terapiakontekstissa.

joogaan ja mielenterveyteen ovat kehitysvaiheessa, on tarpeen suorittaa jatkotutkimuksia

Muut tiedot		

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#### 1 INTRODUCTION

The World Health Organization predicts that depression will create the second greatest burden of disease by 2020 (WHO, 2012). This makes ever-increasing need for clinically proved, patient acceptable, safe, and cost-effective forms of intervention for this particular mental illness. The society both globally and locally needs an efficient prevention and alternative intervention to help people dealing with depression. As the world is becoming more hectic and stressful place we tend to search for faster solutions, putting more pressure on ourselves expecting to recover faster. The breaking point is only a matter of time. Burnout, sleeping problem, depression and anxiety are only few of the results that come along with a stress. According to Terveys 2015 mental health disorders have been increased among the people from the different age group. Terveys suggests that by increasing the opportunities to develop different kind of activities and interests the mental health disorders can be decreased and be prevented in future (Terveys 2015, 24). Yoga exercise is a low-cost, easy adaptable form of therapy that can be provided along with another psychological or psychiatric treatments in both clinical environment and as a patient's self-intervention.

This Bachelor's Thesis aims to explore whether the alternative therapeutic methods such as Yoga and breathing techniques could be used as an effective intervention in psychiatry and occupational therapy. The research questions I want to discuss and find the answers for are:

- 1. Can yoga be used as therapeutic intervention for depression?
- 2. Are there any scientific researches that confirm yoga therapeutic effects on treating depression?

This work focuses mostly on depression and the reason for this is the fact that depression either comes along with another mental disorders or is present in the primary stage of developing a new one. Depression can prevent patients from recovering after traumatic experience e.g. studies on breast cancer recovered women (Kiecolt-Glaser et al. 2014).

For the research method I chose the literature review that examines existing studies in the field of treating depression with yoga intervention. The discussion chapter will include analyze of research findings and my personal reflections and observations gathered alongside with the teaching yoga internationally for over ten years.

As the theoretical background for this thesis I chose Psychodynamic Frame of Reference (2.1). It focuses on the habits and behavioral mechanism that are learned along the lifespan with the strongest focus on the early stage of life. From this I discussed how Psychodynamic Approach is implemented into Occupational Therapy (2.2.1) and described The Role of Occupational Therapist in Psychodynamic Theory (2.2.2). Since depression is known for excluding person from the meaningful occupations and social participation I found it very important to include into this thesis Frame of Reference to Enhance Social Participation (2.3) and Therapeutic Use of Meaningful Occupations (2.3.1).

Next chapters treat about the Mental Health (3), Mental Health Disorders (3.1) and Mental Health Rehabilitation (3.2). After this the Depression (4) will be introduced. The link between the depression and implementing Yoga into the therapeutic intervention tool is the short introduction of the Importance of Physical Exercise for Mental Well-Being (5) and the meaning of a New Psychosocial Tool Implementation (6).

After Yoga (7) is explained thoroughly, the Research (8) method, process, and findings are presented and evaluated. The research question is to find the evidences in the previous studies that would establish the yoga's therapeutic methods on the position of the intervention tool for treating the depression. In the end the ethical reflections and suggestion for further research are discussed under conclusions.

#### 2 THEORETICAL FRAMES OF REFERENCE

#### 2.1 Psychodynamic Frame of Reference

Psychodynamic theory and the psychodynamic approach were developed from the work of Sigmund Freud (1856 – 1939) and his followers, neo-Freudians. According to this theory our psyche is composed from three parts, the id, ego and superego. All of them are developing at different stages in human live. The id is the instinctive, primitive component of personality. The id consists the biological components of personality, such as the sex instinct – Eros and the aggressive instinct – Thanatos. The id is unconscious part of our psyche. According to Freud newborn child's personality is consisted all from the id and in the later stages it develops an ego and superego. The ego is the component of personality that helps us to make decisions. The superego (or above I) develops around the age of 3 – 5. and incorporates the values and morals of society, which are learned from one's parents and others. The superego is consisted from the morals and values that we learned from our parents or other people.

According to psychodynamic model there is a constant, dynamic relation between the conscious (ego) and unconscious aspects of the mind (psyche). Actions are based on both conscious and unconscious thoughts and feelings. Theory suggests that the mental illness reflects unconscious thoughts or feelings in some way. Our behavior is influenced by material in the unconscious mind and we are usually not aware of why we act in particular way. (Creek & Lougher 2008, 70.)

According to Fidler & Fidler (1963) there is a very strong relationship between people and activity. Action is used to express and communicate feelings and thoughts. The more situations and actions we are able to experience, the greater will be our knowledge of own potential and limitations. This leads to better adaptability to the social environment. Theory sees person with a basic drive to be active. Action is directed towards achieving gratification of basic needs and making satisfactory relationships. A sense of self-worth comes form the satisfaction in

doing well in the particular areas of life that person values. (Creek & Lougher 2008, 73.)

#### 2.2.1 Psychodynamic Theory in Occupational Therapy

There are two different ways the psychodynamic theory can be implemented to occupational therapy. The first approach is based on the Freudian and Neo-Freudian model of thinking. Second approach comes from humanistic-existential theory. As a Freudian and Neo-Freudian model is mostly used in hospital environment, the humanistic theory finds its use in the mental health care centers. Psychodynamic approach addresses rehabilitation for people with different psychosocial disorders. (Creek & Lougher 2008, 72.)

Humanistic-existential approach of the psychodynamic theory sees the self-actualization as a human biggest motivation source. (Borg, Giroux & Bruce 2002, 85.) According to this theory every human being has the inner motivation to grow, develop and learn new skills. We want to achieve something that is meaningful for us and useful for others. The theory highlights the importance of emotions and motivation in human occupation and performance of any activities (Hautala, Hämäläinen, Mäkelä & Rusi-Pyykönen 2011, 308). The interaction with other people and the environment helps to learn and build the understanding of them, which at the same time supports our adaptability to the world. (Hautala et al. 2011, 309-310.)

Psychodynamic theory focuses on:

- Social participation and social interactions/relations;
- Expressions and motivation to engage in occupation;
- Self-defenses mechanisms;
- Creative activities that support the process to understand the self.

Social participation and social relations are one of the most important terms of psychodynamic theory and are discussed in the further chapter (2.3 Frame of Reference to Enhance Social Participation).

Atkinson & Wells (2000) explains that "the psychodynamic approach is concerned with both intrapersonal aspects of the person, that is, how the individual relates to himself, and interpersonal aspects, how he relates to other people" (Creek & Lougher 2008, 70). Self-actualization consists from the self-conscious, finding the purpose and interests and developing these skills. From the occupational therapy point of view it is important to create an opportunity for the client to experience many various kind of activities. Occupational therapist should give client freedom in choosing the activity that is meaningful for him without therapist's interference. (Borg, Giroux & Bruce 2002, 90.)

#### 2.2.2 Role of the Occupational Therapist in Psychodynamic Theory

Psychodynamic approach suggests that occupational therapist should not motivate client to participate in the activity only through the external motivation. The occupation itself is a communication bridge that leads client to understand different kind of emotions, rise the self-conscious and self-acceptance. Occupation helps client to recognize own skills, find fields of interests and then practice them (Borg, Giroux & Bruce 2002, 71). Occupational therapist's role is to offer the client opportunity to get interested in a process of learning and developing the skills and to find the inner motivation. These skills must come from the client's inner choice. (Borg, Giroux & Bruce 2002, 85-86.)

Psychodynamic frame of reference describes the importance of therapeutic interactions between client and therapist giving the instructions on how to make them long lasting. The occupational therapist is interested in client's own experience and opinions on his or her mental state and how it effects on meaningful areas and activities of his or her life. (Borg, Giroux & Bruce 2002, 71.) Occupational therapist must respect the client's own ways of perceiving the world and responding for different situations. Same time occupational therapist supports the process of re-modeling some of the client's reactions that are holding him down from the social participation. (Borg, Giroux & Bruce 2002, 90.)

The role of the occupational therapist is to understand the client's self-image and to achieve it therapist must choose adequate kind of activity. This will enhance client's own opinions on what he can, like and want and what stops him from performing. Therapist-client relation is very critical for therapy to be effective. If the client has the confidence in his therapist, it is more likely that the intervention will be effective. (Atkinson & Wells 2000, 16.)

Psychodynamic theory combines different creative activities and therapeutic interactions that support client's personal growth. Any choice of activity can be made both, by the therapist or the client depending upon the client needs. The change is achieved by the developing client ability to self-analyze, self-insight and self-education. Occupational therapist aims to wake up client's own will to change in his relation to self and to the external world. (Hautala, Hämäläinen, Mäkelä & Rusi-Pyykönen 2011, 307-312.)

According to American Psychology Association people who are depressed stop participating in certain everyday activities. Depression affects on their daily living activities, such as work, sleeping, eating and concentration on the tasks. People with depression may avoid any social contacts and some of them may have thoughts of death or suicide (APA 2014). In the next subchapter the frame of reference to Enhance Social Participation will be introduced.

#### 2.3 FRAME OF REFERENCE TO ENHANCE SOCIAL PARTICIPATION

The frame of reference to enhance social participation describes how the contexts and tasks can be modified to help client/patient to learn the skills of successful participation in social situations. The therapist evaluates the nature of the problems, whether they lay in the person's abilities or social environments.

American Occupational Therapy Association AOTA gives a definition of social participation, that is: "organized patterns of behavior that are characteristic and expected of an individual in a given position with a social system" (Olson 2010,

306). The most important base for positive social skills development is created in the early stage interaction between a child and parents or caregivers. Mother communicates verbally and non-verbally giving the child materials to create the associations between emotions and behavior. Child builds the patterns of routines and habits that help in understanding the world around and to organize social information in order to develop own habits and routines for successful social performance. (Olson 2010, 317.) This process is crucial in developing social skills and if for any reason the development will not occur sufficiently this may lead to social illiteracy.

#### 2.3.1 Therapeutic Use of Meaningful Occupations

Occupational therapy aims to give the meaningful experience for people within occupations by providing just right challenge. (Christie 1999, 53-54.) It also helps clients to fulfill their life roles and achieve personal goals. Meaningful occupations increase client's feelings of competence in daily life activities such as self-care, work, and leisure. (Moses 2007, 132.) By using meaningful occupation therapist helps the client to see the value of the experience that he or she has learned during engagement in the occupation and how it is applicable in life outside the occupational therapy clinic. (Ikiugu & Ciarviano 2007, 133.)

#### 3 MENTAL HEALTH

World Health Organization defines mental health as "a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to his or her community" (WHO, 2007).

According to WHO one out of four human is suffering from some kind of mental illness during his or her entire life (Mental Health Atlas 2011). One out of five adult in Finland has some mental illness history. The increasing of mental health

disorders has a major effect on the working ability. According to statistics mental problems has been increased significantly for the past 20 years. Only in year 2014 almost 38% from sick leaves were caused by some mental health illness. Statistics show that mental health disorders effect increasingly also on the death risk. (Joukamaa, Lönnqvist & Suvisaari 2011, 630; Järvikoski & Härkäpää 2011, 232.)

#### 3.1 Mental health disorders

Mental health disorder can be described in many different ways. Depending on the point of view, it can be explained on the psychological, physical, social and spiritual level. All of them are in the constant interaction during the every stage of mental health condition, beginning and continuation of illness. Mental health illness is very dynamic state, which is constantly changing along with the life situations and the experiences. (Heiskanen, Salonen & Sussi 2007, 17.)

World Health Organization defines mental health as: "an intellectual and social state of well-being, where person understands own abilities, can perform any activities of daily living under the normal stress level and is able to function normally as a part of society". (WHO 2014) We speak about mental health disorders, when the symptoms unable person to function normally in daily life activities. Mental health disorders can cause physical and psychical suffering. In some very serious cases, these symptoms can even exclude person from any social relations. (Koiskuu 2004, 29.) Behind every disorder there are different kind of emotions. It can be fear, anxiety, sadness, anger, shame, feeling of quilt and helplessness. Strong and imbalanced emotions can lead to destruction. (Heiskanen, Salonen & Sussi 2007, 114).

According to Huttunen (2008) the process of rehabilitation from the mental health disorder can occur only when the person learns to live with the certain emotions and reactions. Even with difficult and deep mental illness person can get better.

#### 3.2 Mental health rehabilitation

Mental health rehabilitation is a term that has replaced the 21th century traditional psychiatric rehabilitation. (Järvikoski & Härkäpää 2011, 234.) According to Finnish Ministry of Social Affairs and Health "mental health rehabilitation" term covers the multidisciplinary health help that is designed accordingly to personal needs of patient rehabilitation. Rehabilitation plan is adjusted with the patient's current life situation like studies, work, relations and family status. (Finnish Ministry of Social Affairs and Health 2007).

According to International Classification of Functioning (ICF-classification) the most important factor of rehabilitation is participation. The participation level of patient shouldn't be compared with the level of person that doesn't have mental health disorder but with the patient participation in different fields of life, such as working life, home and other social interactions. (Kivekäs & Kallanranta 2004, 376.)

#### 4 DEPRESSION

World Health Organization estimates that depression alone affects more than 350 million people globally and is the leading cause of disability worldwide. Depression is a common mental disorder, characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep, low energy and poor concentration. (WHO, 2015)

According to American Psychiatric Association (2000) depression presents as condition with persistently depressed mood, feelings of worthlessness, impaired cognitive skills, sleep and appetite disorders, and suicidal thoughts.

Epidemiological studies show that women have almost double the prevalence rate of depression compared to men. (Kessler, Berglund & Demler, 2003, 289.) This

may be caused by the individual personality, stress response or biological vulnerabilities of women. (Kinser, Goehler & Taylor, 2012.)

According to WHO almost one million people take their own lives each year. Despite the effective treatments, the majority of affected people do not receive such treatment. World Health Organization urges to find more effective and low-cost intervention treating the depression. (WHO, 2012)

#### 5 IMPORTANCE OF PHYSICAL EXERCISE FOR MENTAL WELL-BEING

There are plenty of reviews providing insight on the importance of physical exercise for mental health. Any form of exercise and regular physical activity in general prevent obesity, cardiovascular disease, hypertension and diabetes. Research teams in the USA (Farmer et al. 1988, 40-51), Netherlands (Van Gool et al. 2003, 1-7) and Finland (Lampinen et al. 2006, 454-466) were using different populations of workers, adults, adolescents and older people. The findings show that people who are physically active and exercise regularly are less likely to be diagnosed with depression. Another studies by Biddle & Mutrie (2001) show that people who experience mental health benefits from exercise are more motivated to continue exercising.

#### **6 IMPLEMENTING A NEW PSYCHOSOCIAL TOOL**

According to Krupa, Fossey, Anthony, Brown & Pitts (2009, 160) occupational therapy has the very important impact for the psychiatric rehabilitation by providing different kind interventions and exceptional practices. The authors highlight the importance of multidisciplinary collaboration in developing efficient recovery.

Bruce & Borg (2002, 17) say that the occupational therapy has very strong theoretical background that needs to be implemented into practice. Therefore it is

necessary to present more evidences of validity behind the occupational therapy interventions. The World Health Organization highlights mental illness as a public issue, predicting that depression will create the second highest burden of disease by 2020 (Andrade et al. 2013). Exercise like yoga is a low-cost intervention, which has the potential, if effective, to play a significant role in both developed and developing countries in the prevention and treatment of depression. This work aims to find out whether yoga therapy is a suitable intervention tool for treating depression.

#### 7 YOGA

Yoga is an ancient tradition coming from the Sanskrit root *yuj*, which means "to yoke, to bind, to join, to attach, to direct and to concentrate one's attention on" (Iyengar 2001). Word *yoga* means *union* that is taking place between the mind, body and spirit. Yoga, with origins in ancient India has several sub-types (Table 1; Cook, 2007.). It incorporates physical postures (asanas), controlled breathing (pranayama), deep relaxation, and meditation.

Yoga is one of six orthodox schools of thought in Hindu philosophy. In the classic Yoga Sutras, written around 250 CE, Patanjali describes yoga as: 'chitta vrtti nirodhah', that can be translated: 'Yoga is suppression (nirodha) of the fluctuations (vrtti) of the mind or consciousness (chitta) (Iyengar 2012, 199). The Bhagavad Gita, 700-verse Hindu scripture written in Sanskrit describes Yoga as the 'deliverance from contact with pain and sorrow'.

According to Bellur Krishnamachar Sundararaja (BKS) Iyengar (1918-2014) one of the greatest yoga teacher of our times, yoga is a moderation, balance and harmony in living. He says: "Yoga is not for him who gorges too much, not for him who starves himself. It is not for him who sleeps too much, nor for him who stays awake. By moderation in eating and in resting, by regulation in working and by concordance in sleeping and waking, Yoga destroys all pain and sorrow" (Iyengar 1981).

B.K.S. Iyengar himself was born with certain health problems. His biography contains many health struggles that he overcome by practicing yoga and incorporated it for the therapeutic benefits. The Iyengar Yoga is distinguished from other styles of yoga by its emphasis on the medical and therapeutic aspects of practice. It focuses on the precise structural alignment, the use of props, and sequencing of poses. (Williams, Petronis & Smith 2005, 107-117.)

Type of yoga	Key features
Asthanga	Dynamic series of sequential posture, based on six series of asanas
Iyengar	Focuses on precise alignment in the pose, regulated breathing, and
	meditation. Practice supported by the yoga props: blocks, belts etc.
Hatha	Basic form of yoga which incorporates postures and meditation
Kundalini	Focuses on awakening the energy at the base of the spine and channeling it
	upwards
Yin-Yang	Based on the Taoist concepts of yin and yang, opposite and complementary
	principles in nature.
Bikram	Hot yoga, consists of a series of 26 postures performed in a space with
	temperature above 38 °C
Viniyoga	Gentle practice that emphasizes on synchronization of poses and breathing
Sivananda	Consists of 12 basic yoga postures along with chanting and meditation

Table 1. Some sub-types of Yoga (Cook, J. 2015. In: Yoga Journal.)

#### 7.1 Yoga in the West

In the mid-19<sup>th</sup> century yoga has gained more attention in the West world. The first Hindu teacher that introduced yoga to a western audience was Vivekanda. He visited the Europe and United States in the 1890s. From the very beginning yoga was seen as form of gymnastics. Later on it was associated with spirituality and meditation but the strong focus on posture (*asana*) and techniques of breath control (*pranayama*) has remained until today. Three yoga teachers: B.K.S. Iyengar, K. Pattabhi Jois and T.K.V. Desikachar introduced their own variations of Hatha Yoga (postural yoga) in the beginning of the 1950s. Nowadays there are many varieties of different yoga styles and also more entrepreneurs have branded their own styles (e.g. Bikram yoga) (White 2011).

Even if modern yoga has little in common with ancient yoga, this does not mean that is less real than other forms of yoga (Singleton, 2010). Yoga has turned into a mass culture phenomenon that is considered as a valuable method for stress management, and improving health and wellbeing in general.

#### 8 RESEARCH PROCESS

#### 8.1 Theoretical search

The theoretical research for this study was done through book and article searches and online databases in searching for relevant studies on the subject. The theoretical background for this thesis was relied on the Psychodynamic Theory, Frame of Reference to Enhance Social Participation detailed by the Therapeutic Use of Meaningful Occupations.

#### 8.2 Search for the evidence: Literature review

The literature review focuses on the study of the essential literature, which can be, for example scientific articles. The purpose of literature review is to gather information about the evidenced and the type of information on the subject that has been previously published, to show how the new research is associated with completed and existing studies (Hirsjärvi, Remes & Sajavaara 2009, 121; Tuomi & Sarajärvi 2012, 123).

The literature review describes the most important research results of the point of views, methodological solutions, interventions, theories, and various methods that are related to the research topic. Previous data research is selected, evaluated thoroughly and interpreted. Next the results of a new study are compared with the previous findings. The purpose of the literature review is to examine only appropriate and topic associated researches (Hirsjärvi et al. 2009, 258-259).

#### 8.3 Search conditions and terms

This Bachelor's Thesis aims to explore whether the alternative therapeutic methods such as Yoga and breathing techniques could be used as an intervention in psychiatry and occupational therapy. The research questions I want to discuss and find the answers for are:

- 1. Can yoga be used as therapeutic intervention for depression?
- 2. Are there any scientific researches that confirm yoga therapeutic effects on treating depression?

Research is based on a systematic review of the studies concerning yoga as a therapeutic method for depression. Study findings were examined with a use of content analysis of data. Specifically, only studies evaluating the yoga effects on patients with depression were included into searching process. For each database I applied the following, purposely broad search terms: (depression AND yoga) OR (mental health AND yoga). In the next step of searching I used more terms combination, like: yoga AND psychiatry AND occupational therapy OR yoga for depression AND yoga therapy AND depression OR psychiatric disorders.

Electronic searches such as PubMed, OTseeker, The Cochrane Library, Academic Search Elite & Cinahl (EBSCO, joint analysis), Nelli-portaali and the standard bibliographic databases, were performed through January-June 2015 and updated in July-September 2015. The entire process of writing the thesis has started in September 2014 and has been continued till the fall 2015. Searches included also manual literature review as well as Google Scholar-database. (Table 2.)

DATABASE/ DATAENGINE	SEARCH TERMS/ KEYWORDS	IDENTIFIED STUDIES AT THE PRIME STAGE OF SEARCH	RESULTS OF THE AVALIABLE STUDIES	STUDIES INCLUDED INTO RESEARCH REVIEW
PubMed	Different search	27	26	3
OTseeker	terms/key words and the combinations of	4	1	1
The Cochrane Library	them e. g.: depression, yoga, mental health, yoga therapy, Psychiatry, occupational therapy, psychiatric disorders	12	12	0
Academic Search Elite & Cinahl (EBSCO, joint analysis)		18	11	2
Nelli-portaali		2	2	0
Google Scholar		0	0	0
Manual search		19	19	1
Summary	-	82	71	7

Table 2. Results of the research review process for different databases

Next the trials were excluded and included due to the criteria presented in the table below (Table 3.)

Exclusion criteria	Inclusion criteria
Insufficient information	Sufficient information
Yoga was NOT the central component of	Yoga was central component of the
the intervention	intervention
Subjects were NOT diagnosed with	Subjects were diagnosed with depression
depression or did NOT report experiencing	or reported experiencing symptoms of
symptoms of depression	depression
Study was NOT reported in English	Study was reported in English
Study did NOT include a control group	Study included a control group

Table 3. Exclusion and inclusion criteria

#### 8.4 Search process

Seven studies examining the effects of yoga on depression have met criteria for inclusion (see: Table 2.) in this review. Figure 1 illustrates the process of study extraction. At the prime stage of the search process there were 82 studies found that have matched the keywords: yoga and mental health. In the next step twenty-three studies were excluded due to their insufficient information. Sixteen studies

were excluded due to their intervention methods, where yoga was not the central component of the intervention. Next eighteen studies were excluded because the subjects weren't diagnosed with depression and/or they didn't experience the symptoms of depression. Five studies weren't reported in English. Thirteen studies did not have a control group during the research process.

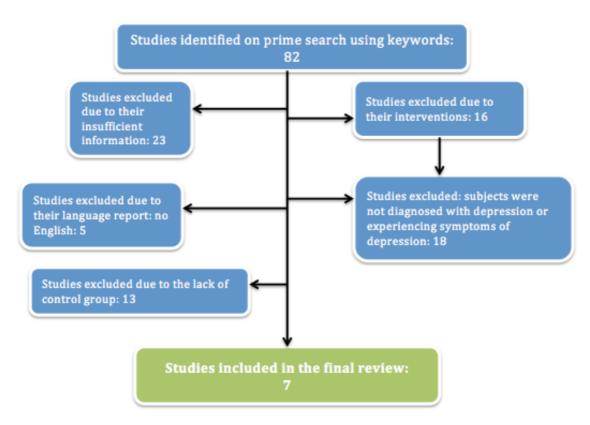


Figure 1. Study search

#### 9 RESEARCH FINDINGS

(For the synthesis see: Table 4. Research synthesis, p.23)

### Yoga as a Complementary Treatment of Depression: Effects of Traits and Moods on Treatment Outcome

Thirty-seven subjects (27 women and 10 men) were selected at the first stage of this study. After completing the intervention and pre- and post-intervention assessment data, the seventeen participants continued in the study. Participants

were diagnosed with unipolar major depression in partial remission. The intervention method included 20 Iyengar yoga classes. Subjects rated their mood states before and after each class. Also the psychological characteristics were assessed pre- and post-intervention.

Results show that yoga intervention decreased significantly the level of depression, anxiety, neurotic symptoms and low frequency heart rate variability in the all of the seventeen participants. Also there was significant change on moods improvement from before to after the yoga classes. Study uses the psychological measures that are especially useful to provide objective markers of the processes and effectiveness of treatment. Authors suggest that this study may provide a base for further investigations and even can lead to clinical application of yoga in depression and other mental health disorders. (Shapiro, et al. 2007).

#### A yoga intervention for young adults with elevated symptoms of depression

The purpose for this study was to give a scientific research for the yoga uplifting effect on the mood that practitioners have noticed. Study examined the effect of a short-term Iyengar yoga course on mood in mildly depressed young adults. The twenty-eight participants (age 18-29) were experiencing mild levels of depression, with the scores in the "mild mood disturbance" range on the BDI (Beck Depression Inventory) and self-reported symptoms of depression. Along with the Beck Depression Inventory, participants were measured with State-Trait Anxiety Inventory, Profile of Mood States and morning cortisol levels.

Subjects in the yoga group attended two Iyengar yoga classes each week for 5 weeks. The classes were composed of the yoga position that helps to alleviate depression. The results show significant change in the self-reported symptoms of depression and trait anxiety in the yoga group. The changes were reported in the middle of the yoga course and according to the results they maintained the same by the end. There were also changes observed in acute mood, with participants reporting decreased levels of negative mood after yoga classes.

Authors conclude that these results provide suggestive evidence of the yoga effects for improving the mood. However the future studies with larger samples are required to get better evaluation on yoga and the mood disturbances. (Woolery et al, 2004)

### Laughter yoga versus group exercise program in elderly depressed women: a randomized controlled trial.

The aim of this study was to compare the effectiveness of Laugher yoga with the standard exercise therapy group for the decreasing depression and increasing life satisfaction in older adult women in Iran. The effect on mental and physical aspects of healthy individuals was shown to be beneficial.

All of the subjects, seventy elderly women (mean age 65-68) reported subjective symptoms of depression. Subjects completed Life Satisfaction Scale pre-test and demographic questionnaire. Next they were located randomly into three groups of laugher yoga therapy, exercise group and control group. All of three groups were measured with post-test on depression and life satisfaction level.

The analysis reported a significant improvement of depressive symptoms of both Laugher yoga and exercise therapy group in comparison to control group. There was no significant difference in these two active treatment groups. However, there was a significant difference in the life satisfaction of Laughter Yoga group (increased) in comparison with the control group. Results showed that Laughter Yoga is as effective as group exercise program in improvement of depression and life satisfaction of elderly depressed women. (Shahidi et al. 2011).

Assessing depression following two ancient Indian interventions: effects of yoga and ayurveda on older adults in a residential home.

The purpose of this study was to examine the effects of yoga and ayurveda on geriatric depression with self-report of symptoms consistent with depression. Study was evaluated in 69 elderly participants (mean age of 72 years) living in a residential home. Subjects were stratified by age and gender and randomly allocated to three groups: Yoga, Ayurveda, or Wait-list Control. The yoga group program (7 hours 30 minutes per week) included physical exercises, relaxation techniques, breathing exercises and lectures. The Ayurveda Group received an herbal preparation twice daily for the whole period. The study was 24 weeks long.

Results demonstrate the decreased scores on the geriatric depression symptoms (GDS) in the Yoga Group. There were no significant changes in the other groups. Authors suggest that the main limitations were the potential group interaction benefits of the yoga activity. Also relatively modest sample size and the inclusion of only mildly depressed individuals make it impossible to generalize these results for more ill patients or to home-based yoga. (Krishnamurthy & Telles, 2007)

#### Yoga's Impact on Inflammation, Mood, and Fatigue in Breast Cancer Survivors: A Randomized Controlled Trial.

The largest study of yoga that used biological measures to assess results shows that practicing yoga exercises can reduce inflammation. (Kiecolt-Glaser et al. 2014). That's important because inflammation is associated with chronic diseases including heart disease, diabetes, arthritis and depression. It's also one of the reasons that cancer survivors commonly feel fatigue for long time after the treatment.

The subjects for this study were 200 breast cancer survivors, who had not practiced yoga before. All of the participants started yoga practice as one group. Next the half of the group stopped practicing yoga, while the other half continued 90-minute classes two times in week for 12 weeks. They also received the DVDs

and instructions for a home practice. Results show that the group that had practiced yoga reported less fatigue and higher levels of vitality three months after treatment had ended. Authors highlighted the effects of yoga in decreasing the depression symptoms in the recovery process.

#### The effects of yoga on mood in psychiatric inpatients

Authors of this study were examining the effects of a single yoga class for 113 inpatients at a New Hampshire psychiatric hospital. Participants, included patients with bipolar disorder, schizophrenia, and major depression completed the Profile of Mood States (POMS), standard 65-item questionnaire before and after the participation in a yoga class. Patients were offered additional classes.

The results indicated that average levels on all five of the negative emotions factors on the POMS, including tension-anxiety, anger-hostility, depression-dejection, fatigue-inertia, and confusion-bewilderment have dropped significantly. Patients who took additional yoga classes experienced positive effects. Authors notice that improvements in mood were not related to gender or diagnosis. The results of these studies suggest that yoga was associated with improved mood, and may be a useful way of reducing stress during inpatient psychiatric treatment (Lavey et al, 2005).

## Antidepressant efficacy and hormonal effects of Sudarshana Kriya Yoga (SKY) in alcohol dependent individuals

Study examined the effect of the SKY therapy (yoga breathing technique) on depressive symptoms in 60 alcohol-dependent men at a mental health center in Bangalore, India. All the participants (mean age of approximately 35 years) went under the week of a standard detoxification program. After this they were randomized to receive SKY therapy or a standard alcoholism treatment control

(control group) for a two-week study. Participants completed the Beck Depression Inventory (BDI) before and after the two weeks of this intervention.

Results show reductions of BDI scores occurred in both groups, however a significantly more in the SKY group. After the full three weeks, scores on the BDI dropped 75% in the SKY group, as compared with 60% in the standard treatment group. NOTE: However, this study documents only a possible acute effect of yoga and it does not provide insights into long-term benefits. The authors agree that SKY therapy suits the best as a treatment for the early stages of depression and recovery from alcoholism (Vedamurthachar et al, 2006.)

Research (Title/authors)	Methods/ Intervention	Subjects	Results	Authors conclusions
Yoga as a Complementary Treatment of Depression: Effects of Traits and Moods on Treatment Outcome (Shapiro et al. 2007).	20 classes were led by senior Iyengar yoga teachers, in three courses of 20 yoga classes each	All the participants were diagnosed with unipolar major depression in partial remission. After completing the intervention and pre- and post-intervention assessment data, 17 out of 37 subjects continued in the study.	Results demonstrated the significant reductions for depression, anger, anxiety, neurotic symptoms and low frequency heart rate variability in the 17 completers. Also there was significant change on moods improvement from before to after the yoga classes.	Yoga appears to be a promising intervention for depression; it is costeffective and easy to implement.
A yoga intervention for young adults with elevated symptoms of depression (Woolery et al. 2004)	2x60min/week Iyengar yoga for 5 weeks. Participants were measured with BDI, State- Trait Anxiety Inventory, Profile of Mood States and morning cortisol levels.	28 volunteers ages 18 to 29 with mild levels of depression, ranged on the BDI (Beck Depression Inventory) and self-reported symptoms of depression. None had significant yoga experience.	Significant decreases in self- reported symptoms of depression and trait anxiety in subjects who participated in the yoga course.	Further investigation with larger samples and more complex study designs recommended.
Laughter yoga versus group exercise program in elderly depressed women: a randomized controlled trial. (Shahidi et al. 2011).	Subjects completed Life Satisfaction Scale pre-test and demographic questionnaire. 3 groups were selected: laugher therapy, exercise therapy and control group. Groups were measured with post-test on depression and life satisfaction.	70 elderly women (mean age of 65 years in the intervention groups and 68 years among controls) reporting subjective symptoms of depression	The analysis reported a significant improvement of depressive symptoms of both Laugher Yoga (LY) and exercise therapy group in comparison to control group. No significant difference between LY and exercise therapy groups. However, the increase in life satisfaction of LY group showed a significant difference in comparison with control group.	Findings showed that Laughter Yoga is at least as effective as group exercise program in improvement of depression and life satisfaction of elderly depressed women. The mild severity makes this study not generalizable to more severe clinical depressives.

Assessing depression following two ancient Indian interventions: effects of yoga and ayurveda on older adults in a residential home. (Krishnamurthy & Telles, 2007)	24 weeks program. 3 groups: Yoga (7,5h/week) Ayurveda (2 times/day herbal preparation), or Wait-list Control.	69 elderly participants (mean age of 72 years) living in a residential home.	Scores on GDS of the Yoga group at both 3 and 6 months decreased significantly. There were no significant changes in the other groups.	The main limitations: potential group interaction benefits of the yoga activity, relatively modest sample size, and the inclusion of only mildly depressed individuals.
Yoga's Impact on Inflammation, Mood, and Fatigue in Breast Cancer Survivors: A Randomized Controlled Trial (Kiecolt-Glaser et al. 2014).	Half of the group stopped practicing yoga, the other half received, 2x90min/week for 12 weeks, with DVDs and instructions to home practice.	200 breast cancer survivors. No yoga experience.	The yoga group reported less fatigue and higher levels of vitality 3months after treatment had ended. Yoga exercises can reduce associated with depression inflammation.	Authors suggested more research to evaluate specific impact on the depression. Research is strongly supported by studies on association of inflammation and depression.
The effects of yoga on mood in psychiatric inpatients (Lavey et al, 2005).	Participants completed the Profile of Mood States (POMS), before and after the participation in a single yoga class.	113 inpatients at a New Hampshire psychiatric hospital included patients with bipolar disorder, schizophrenia, and major depression.	The results of these studies suggest that yoga was associated with improved mood, and may be a useful way of reducing stress and depression symptoms during psychiatric treatment.	Authors notice that improvements in mood were not related to gender or diagnosis. Further studies are needed with a more than just a one yoga class.
Antidepressant efficacy and hormonal effects of Sudarshana Kriya Yoga (SKY) in alcohol dependent individuals (Vedamurthachar et al, 2006).	Week of a standard detoxification program. Next randomized to SKY therapy or a standard alcoholism treatment (control group) for a 2 weekS study.	60 alcohol-dependent men at a mental health center (mean age of approximately 35 years) in Bangalore, India.	After the full three weeks, scores on the BDI dropped 75% in the SKY group, as compared with 60% in the standard treatment group.	SKY might be a beneficial treatment for depression in the early stages of recovery from alcoholism.

Table 4. Synthesis of the researches

#### **10 DISCUSSION**

All the results of presented studies suggest that yoga is a promising intervention for depression. It is cost-effective and easy to implement. However, further studies are required to evaluate these specific practices and their suitability in depression. Authors of the researches and reviews agree on the fact that yoga produces many beneficial emotional, psychological and biological effects for the patients with depression. In first study Shapiro and colleagues (2007) used the psychological measures to provide objective markers of the processes and effectiveness of the yoga complementary treatment. Results demonstrated the significant reductions for depression. Also there was significant change on moods improvement from

before to after the yoga classes. Their observations may help guide further clinical application of yoga in depression and other mental health disorders. This study was very well designed and based on the other measurements that significantly helped to see results from the different perspectives.

Another study by Woolery and colleagues (2004, 60-63) confirms the same statement that yoga is promising complementary intervention for patients with depression. In their research they used Iyengar yoga classes, known from the therapeutic approach in practice that are focused around the effects on human psychophysiology. This research was more precise than the previous one because classes emphasized on practicing the poses that are known from their ant-depressant effects, like backbends, standing poses and inversions. Subjects were measured with Beck Depression Inventory, State-Trait Anxiety Inventory, Profile of Mood States. In addition the yoga classes were led by certified senior Iyengar yoga teacher and that makes the research very reliable.

Results demonstrate that subjects who participated in the yoga course significantly decreased their self-reported symptoms of depression and trait anxiety. Research was five-weeks long that is long enough to see the results of yoga practice in the group of individuals that have never practiced yoga before. However, longer research is warranted to expect more precise effects of yoga practice with larger samples and more complex study designs.

Another style of yoga was used in the next research. Shahidi and colleagues (2011) were checking the differences of the intervention effects in the groups of elderly depressed women. In one group they used the basic exercise program and in another group they used Laugher yoga. There were significantly more participants in this study than in two previous ones. Seventy women (mean age 65-years old) with the self-reported symptoms of depression were randomized into three groups of laugher therapy, exercise therapy, and control group. All of three groups were measured with post-test on depression and life satisfaction. Results of this research showed that there is a significant improvement of depressive symptoms of both Laugher Yoga (LY) and exercise therapy group in comparison to control

group. But there was no significant difference between LY and exercise therapy groups and it does not distinguish yoga intervention from the basic exercise program. However, the increase in life satisfaction of LY group showed a significant difference in comparison with control group. This study results give come critical insight to the idea of yoga as an intervention tool. Compared with the previous studies this research demonstrates that yoga intervention is not significantly different than intervention with the physical exercises. The mild severity makes this study not generalizable to more severe clinical depressives.

In another study Krishnamurthy and Telles (2007) also focused on the geriatric symptoms of depression. As the interventions methods they used yoga and Ayurveda. Krishnamurthy and Telles randomly located 69 residents of the elderly house into three groups with different intervention program. Subjects (mean age of 72 years) were receiving yoga classes, or herbal preparation based on Ayurveda. The third group was a wait list-control group. Findings show that the scores on the geriatric depression symptom (GDS) of the Yoga group at both 3 and 6 months decreased significantly. There were no significant changes in the other groups (Ayurveda and wait list-control group). Also very interesting are authors' suggestion about the factors that effected on the results. They said that the main limitations were caused by the potential group interaction benefits of the yoga activity. They admitted that the sample size was relatively modest and they include into the research only mildly depressed individuals. Knowing that it is difficult to generalize yoga intervention to more ill patients or to home-based yoga. Another fact that is important to take under consideration is the lack of formal diagnoses of the participants according to criteria specified by the Diagnostic and Statistic Manual of Mental Disorders (DSM).

Kiecolt-Glaser et al. (2014) presented more physiological insights of yoga intervention in their studies on the breast cancer survivors. They wanted to check how yoga practices effects on inflammation, mood and fatigue. Although, the studies do not put the depression as the main subject to be investigated the inflammation itself is associated with chronic diseases including heart disease,

diabetes, arthritis and depression. It's also one of the reasons that cancer survivors commonly feel fatigue for long time after treatment.

The results of the 200 breast cancer survivors that were practicing yoga twice a week for 12 weeks demonstrated less fatigue and higher level of vitality after the yoga intervention. Authors suggested further investigation to evaluate specific impact of yoga in the treating depression.

Next study was measuring the effects of yoga on mood in psychiatric inpatients (Laveu et al. 2005). Yet another studies that does not contain the "depression" term in the tittle, but the fact that research participants (113 inpatients of the New Hampshire psychiatric hospital) were diagnosed with major depression along with bipolar disorder and schizophrenia, makes this study very interesting and worth of adding to this review. Participants attended one yoga class. Before and after practice they completed the Profile of Mood States (POMS), standard 65-item questionnaire. The results of these studies suggest that yoga was associated with improved mood, and may be a useful way of reducing stress and depression symptoms during psychiatric treatment. The authors notice that improvements in mood were not related to gender or diagnosis, however the further studies are needed with a more than just a one yoga class.

In their studies, Vedamurthachar and colleagues (2006) were checking the antidepressant efficacy and hormonal effects of Sudarshana Kriya Yoga (SKY) in 60 alcohol dependent men at the Bangalore Health Center (India). The participants went under the week of a standard detoxification program. After this they were equally randomized to receive SKY therapy or a standard alcoholism treatment control (control group) for a two-week study. Results showed that the scores on the BDI dropped 75% in the group that received yoga intervention for the full three weeks compared with 60% in the standard treatment group. Although the authors suggest that SKY might be a beneficial treatment for depression in the early stages of recovery from alcoholism, more research is necessary. What concerns me in this study was the very little description of the standard treatment methods, which would help to compare the differences in the interventions in these two groups. Authors notice also another limitations, like the fact that

antidepressant effects of SKY were demonstrated in early abstinence that also had substantial spontaneous improvement. It is not proven if this effect contributes to sustained abstinence and for that reason further investigation is requested.

Although results from presented studies are encouraging, they should be seen as a preliminary samples of studies because their methodological limitations.

#### 10.1 Yoga for Occupational Therapy

Presented studies show that yoga can be used as a therapeutic intervention for patients with depression regardless their age, sex or physical limitations. It is very promising that all of the current studies on yoga and Occupational Therapy address yoga practice for physical rehabilitation. The combination of yoga exercise and Occupational Therapy can address the environmental, physical and functional needs of occupational therapy patients. Yoga gives a therapeutic workout that address both the physical and mental health challenges. It helps to improve the physiological respond of the central nervous system for the stress. Yoga positions can be also modified and performed with the yoga props, like chairs, straps, bolsters or bricks to make practice possible for all patients with any physical limitations. Yoga is adjustable for individual needs same as the occupational therapy. This makes these two disciplines very close to one another.

Yoga can be practiced anywhere. Both yoga studio or home environment can provide significant meaning for occupational therapy. Yoga at public studio can help patient to practice social skills and like the study shows, can improve patient's social participations. Depression may limit patient's ability to function in the group situations. For that reason yoga classes can be a very good start to increase patient's courage to be among another people. Depending on the patient's therapy goals and also individual readiness to practice in the group, yoga can be easily practice one-on-one at home or only by the patient alone as a self-intervention. Occupational therapist will evaluate the patient's environment to increase home safety and to improve the daily functions. Implementing yoga practice at patient's

home might also require environmental modifications made by the occupational therapist. One of the greatest yoga teachers of our times B.K.S. Iyengar said: "Yoga teaches us to cure what need not be endured and endure what cannot be cured". Yoga and occupational therapy have the same purpose. They both aim to improve individual's physical and mental wellbeing.

#### 11 CONCLUSSION

The process of writing this thesis was very challenging. Not only because I had to write it in English but also because of the topic. Before I started I thought that writing about yoga would be very easy. As a yoga teacher I thought it's not difficult to write about something I do every day for the past 13 years. Frankly, it was a very complicated process. Most of the knowledge about the yoga I gained by practice on my yoga mat doing physical exercises and relaxations. However this practical experience of yoga gave me very strong foundation to search for the studies that would scientifically prove what I'm feeling in yoga and what effects I have observed in my yoga students. Because as a person that has suffered from the depression episode herself, I was convinced to find out what are the researches findings on the yoga and depression.

The research question for this thesis was to check if there are studies that could prove yoga's therapeutic effects for depression. The results of the search showed that indeed there are plenty of studies on yoga and mental health in general. The only problem with them is that they are too small or not reliable. Another thing what made me a bit critical with these studies is the fact that some yoga styles are too connected with the spiritual aspects of yoga that they are not treated seriously by scientific world. Even though there're many studies on yoga and depression, I have not found that many that would be presented in the context of occupational therapy. The reason for that can be the fact that yoga is quite new therapy method and it has not been yet enough examined.

Depression is a complex illness. Many people seek complementary therapies for depression because traditional treatments may not precisely address the symptoms of depression (Kessler, Berglund & Demler, 2003, 289). According to

Uebelacker and colegues (2011) yoga is seen as an alternative and complementary therapy and may be helpful for treating depression. The authors of the: "Hatha yoga for depression: critical review of the evidence for efficacy, plausible mechanisms of action, and directions for future research" claim that yoga can be flexibly adapted to daily mood to enhance to the physical and emotional health.

In addition yoga is low-cost, easily available and can be used as a self-intervention. Gentle exercises help to enhance strength, balance and flexibility. Yoga practice gives the sense of control over body (Weintraub, 2004). Researchers agree on the idea that different yoga interventions can help practitioners decrease self-reported depression and also modify their self-reported perceptions of stress. However more physiological and neurological researches are needed. It is suggested that yoga intervention could provide people with depression with a sense of control during a stressful situation or depressive episode. Yoga practice encourages positive self-talk and enhances the self-acceptance. According to the research findings the yoga physical movements, calm breathing and relaxation give individuals the tool to overcome the mood with the self-acceptance, embracing the moment and situation as it is now. (Weintraub, 2004.)

The results on yoga effectiveness in the group treatment support the theoretical foundations for this thesis that is frame of reference to enhance social participation. As the studies show, the factors in the effectiveness of yoga for depression may be social support provided during group classes that help enhance coping in some individuals. This fact supports also another theoretical foundation for this thesis - Psychodynamic Frame of Reference principals:

- Social participation and social interactions/relations
- Expressions and motivation to engage in occupation
- Self-defenses mechanisms
- Creative activities that support the process to understand the self.

Psychodynamic theory combines different creative activities and therapeutic interactions that support client's personal growth. In this context yoga is very innovative form of the therapy intervention. According to Hautala and colleagues

the change is achieved by the developing client ability to self-analyze, self-insight and self-education. (Hautala et al. 2011, 307-308.)

According to Weintraub (2004) yoga may help also in self-actualization. In Psychodynamic Theory self-actualization is described as the self-conscious that helps individuals find the purpose and interests and developing the skills. From the occupational therapy point of view it is important to create an opportunity for the client to experience many various kind of activities. (Borg, Giroux & Bruce 2002, 90.)

However the group therapy may not work for all the individuals. Social situations may be too difficult and even could disturb the positive experience of yoga practice. In this case individual yoga classes, where there're only occupational therapist/yoga teacher and client/patient present would be a complementary intervention that may lead to enhancing patient's ability in social participation. In some cases bringing people with depression together may be an intervention in itself. (Schmid et al. 2012.)

Fidler & Fidler (1963) explained strong relationship between people and activity. Action is used to express and communicate feelings and thoughts. The more situations and actions we are able to experience, the greater will be our knowledge of own potential and limitations. This leads to better adaptability to the social environment. For that reason occupational therapy with the yoga classes as the intervention may help client/patient to learn the skills of successful participation in social situations. Same time this kind of intervention method may provide client the opportunity to the self-insight. (Hautala et al. 2011, 307-308.)

Researchers approve that yoga may assist the individual to have a better and healthier response to stress on both physical and mental level. (Sageman, 2004, 125-141.) Yoga techniques may help an individual change the perception of the stress and stressing factors. Although there are not enough researches on yoga for depression these that are available for now go along with the idea that yoga can be

used as a supporting intervention for pharmacological and psychological therapies. (Uebelacker, et al. 2011, 22-33).

My suggestion for the further researches are to design a longer study with individuals with the diagnosed depression, that could evaluate information of the strategies of the most helpful yoga practice strategies and to check whether positive benefits of yoga practice are sustained over time.

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