

Course Name:

Science and Practice of Deep Diaphragmatic Breathing for Self and Community Development

Goal

With its goal of developing the self and the community, this course is meant especially for the social work professional. Modern science of neurophysiology agrees with ancient spiritual wisdom in understanding the potential of deep diaphragmatic breathing in areas generally defined as health and wellness. Armed with the understanding and skill gained from the course, the social work professional will be able to provide his/her services in individual, family, group, institutional and business settings in the following areas of personal and community development with:

People: of calm disposition, higher clarity, higher creativity, higher emotional intelligence, higher stress resilience, more thoughtfulness, less reactivity, more caring and compassion

Physical Health: prenatal help to expectant mothers, prevention and management of physical disorders such as hypertension, headache, diabetes, asthma, cardio-vascular, immune system, pain management, cancer rehab, energy issues, etc.

Mental Health: anxiety, depression, anger management, relationship management, habits and addiction disorders, emotional intelligence, insomnia, etc.

Learning: development of attention and focus, learning disorders, performance and test anxiety, etc.

Behavior: better discipline, family harmony, decrease in crime and anti-social behavior

Business: coherent relationships, less absenteeism, more involvement, more cooperation, better work environment, more creativity, more profit

Course Descriptions

Calendar

This course focuses on developing stress resilience through diaphragmatic breathing. Diaphragmatic breathing works by up-regulating the control of the body-mind complex developing various facets of the self and the community.

General

Stress has been around as long as existence. It is the cause of many an ailment. Managing stress can benefit the individual, the family and the society. Breath control is an evidence based technique of developing stress resilience that has been known for centuries and is the foundation of body-mind practices such as meditation and yoga, but it is only lately that science has caught up with it.

This course is about developing a habit of diaphragmatic deep breathing a regular practice of which is instrumental in developing resilience to life stresses resulting in a natural cultivation of multi-pronged self-development in the practitioner. The practice of diaphragmatic deep breathing works by upregulating the neurophysiological control of the body-mind complex resulting in:

1. Disposition of calm with:
 - a. Thoughtfulness

- b. Clarity
 - c. Emotional intelligence
- 2. Better Physical health
- 3. Better Mental health
- 4. Improvements in attention span and focus for:
 - a. Deeper insight
 - b. Learning ability
 - c. Problem solving ability
- 5. Behavior for harmonious relationships in
 - a. Family
 - b. Community
 - c. Business

It is obvious that the individual person and the family benefit.

Community benefits as well in the following ways:

- a. Better physical and mental health
- b. Better educated and self-reliant population
- c. Reducing incidence of poverty
- d. Higher sense of belonging, lower alienation and higher civic involvement
- e. Better behaviour resulting in lower crime
- f. Cost effectiveness in health care, education, policing
- g. Efficient businesses with higher collegiality and lower absenteeism
- h. Prosperous and happy community

Learning Methodology

The learning methodology in this course will be a mix of cognitive, experiential and professional.

The cognitive component of the course will comprise of the theoretical neurophysiological principles explaining the development potential naturally inherent in practice of deep diaphragmatic breathing.

Since the development potential is realized through a practice, an experiential component is required in order to develop a personal insight and conviction of the potential. Therefore, about 25% of the class time will be dedicated to personally experiencing the practice of deep breathing and sharing of related feelings, experiences and insights. The students will also be required to practice deep breathing for a dedicated 20 minutes each day in addition to developing a habit of breath awareness with:

- a. Many 1-2 minute deep breathings breaks during the day
- b. Deep breathe while relaxing, listening to music, watching television, lying in bed before sleeping, etc.

Developing a habit of breath awareness is important because we breathe autonomously 24/7 without awareness. Taking time out for breathing deep is easy to forget. The profundity of its effects is easily overlooked due to the deceptive simplicity of the practice. The student will be required to keep a log of the individual practice, associated feelings and the attempts at developing breath awareness as a habit.

Since social work students will be involved in teaching of the practice of deep diaphragmatic breathing in helping individuals, families, business and communities develop with its use, the students must have a measure of professional experience of observing how it is done. This learning modality will involve visits to different community agencies using the practice.

Evaluation

Evaluation will be based upon demonstrated ability in each of the three learning components in the course: cognitive, experiential and professional in consultation with the class in the beginning of the course.

Learning Outcomes

Experiential Learning

This learning component aims at gaining an insight through personal experience resulting in an understanding of the practice and its benefits, and generates a conviction in its efficacy through:

1. Experiential understanding of the critical nature of breath
2. Understanding of metrics to evaluate deep-breathing
3. Experiential understanding of the feelings resulting from the daily practise
4. Understanding of methods of building group coherence through mindful listening of shared experience and feelings in a group process,
5. Understanding of biofeedback and its theoretical basis, and
6. Experiential understanding of the growth of thoughtfulness at the expense of reactive behaviour as a result of the practice

Cognitive Learning

The cognitive theoretical component of the course aims at developing an understanding of the scientific underpinnings of the practice of breathing and its relationship with various facets of human life. The course uses modern neurophysiology to explain how the practice naturally leads to self-development in all practitioners. The purpose of the theoretical content is to create a deeper knowledge of the scientific basis of deep breathing. Armed with this understanding the benefits of the simple practice do not seem exaggerated. Specific objectives include:

1. Recognition and understanding of the vitality of breath in human health and wellness
2. Understanding the anatomy, science and physiology of mind-body complex,
3. Understanding the two-way relationship between mind-body complex and breathing,
4. Applying the understanding to control the mind-body complex
5. Understanding stress and its effects on physical and mental processes,
6. Understanding biofeedback and related measurements and its uses

Professional Learning

The professional component of the course aims at providing an experience and the scientific understanding of best practices in deep breathing, thereby preparing the student to:

1. Offer deep breathing workshops in the community in various settings
2. Use breath based rehabilitation practices in high risk environments such corrections, withdrawal management, etc.

3. Demonstrate the sensibilities of legislation in the practice of medicine to refrain from its infringement.

Content of the Theoretical Component of the Course

The course contents include the specifics to of human anatomy, physiology, and neurology related with integrated control and coordination of the mind-body complex. The list of related overview of topics including:

1. What is stress?
 - a. Causes of stress
 - b. Manifestation of stress
 - c. Pervasiveness of stress
2. Science of Mind-Body Complex,
 - a. Cells and cellular structure
 - b. Physiological characteristics and needs
 - c. Homeostasis
3. Mind-body complex
 - a. Autonomic and volitional behaviour
 - b. Sensory load and its effects
4. Physiology of human body
 - a. Respiratory system, lung volume and gas exchange
 - b. Blood circulation
 - c. Metabolism,
 - d. Immune system
5. Regulation and Control of Mind-Body Complex
 - a. Human brain and the nervous system
 - b. Endocrine system
 - c. Sensory load and its implications
6. Modification of regulation and control of Mind-Body complex
 - a. Chemical neurotransmitters related with the states of stress and calm b. Brain plasticity
 - c. Biofeedback and measurements related with the states of stress and calm
 - d. Mechanisms through which deep breathing works to create resilience to stress with consequential effects on health, wellness and behavior
7. Intergenerational impact of stress
 - a. Prenatal inheritance of stress biochemistry
 - b. Neonatal stress disorder
 - c. Lifelong effects without early remediation
8. Review of cutting edge research in the role of breath based practices to prevent and manage disorders in physical health, mental health, learning ability, interpersonal behavior, anger, anxiety, habits, addictions, and sense of belonging to the family and community
9. Case studies of rehabilitation practices using breath based practices
10. Understanding sensibilities of legislation in the practice of medicine to refrain from its infringement

Appendix A

The Rationale

1. Judging from 54 deaths by suicide in Waterloo Region in 2014 and 532 hospitalizations due to attempted suicides, our Waterloo region is battling a mental health crisis that is rooted in stress.
Ref: The Record, Oct 23, 2015
<http://www.therecord.com/news-story/6033645-mental-health-crisis-in-waterloo-region-let-s-get-at-this-as-a-community/>
2. Kitchener Waterloo Community Foundation lists Belonging & Leadership, and Health & Wellness as critical community quality of life areas upon which the community should focus attention. Both these indices are stress related.
Ref: Waterloo region's Vital Signs Priority Report
https://www.kwcf.ca/vital_signs
Belonging as identified in this report is a comprehensive metric including identification of an individual with the community. Higher the sense of belonging, lowers the sense of alienation. If people do not belong, they are alienated.
3. Opening sentences of an editorial in the New York Times entitled Treating Mental Illness in New York, From All Angles:
"As too many people know only too well, mental health is a world of unmet needs and untold suffering. Society's ability to identify and treat emotional ailments and addiction is painfully inadequate ..."
Ref: New York Times Nov 25, 2015
<http://www.nytimes.com/2015/11/26/opinion/treating-mental-illness-in-new-york-from-allangles.html?emc=eta1& r=0>
4. TECHNICAL REPORT entitled The Lifelong Effects of Early Childhood Adversity and Toxic Stress by the American Academy of Pediatrics Ref: *Pediatrics* 2012; 129; e232
<http://pediatrics.aappublications.org/content/pediatrics/129/1/e232.full.pdf>
The report suggests that "toxic stress, can result from strong, frequent, or prolonged activation of the body's stress response systems in the absence of the buffering protection of a supportive, adult relationship." It further suggests that many adult diseases should be viewed as developmental disorders and it offers intriguing insights into causal mechanisms that link early adversity resulting toxic stress (both prenatal and neonatal) to impairments in:
 - a. Brain Architecture neural connectivity leading to impairments in memory, mood related functions, autonomic balance, hormonal balance, self-regulation and mood control, impulse control and decision making,
 - b. Learning ability with higher risk of school failure, discipline problems and gang membership,
 - c. Physical health issues such as immune system problems and inflammatory markers related with diverse degenerative diseases such as cardiovascular disease, viral hepatitis, liver cancer, asthma, chronic obstructive pulmonary disease, autoimmune diseases, and poor dental health,

- d. Mental Health issues such as anxiety, depression, anger disorders, relationship management disorders, addiction to smoking, drinking and illicit drugs, adoption of unhealthy lifestyles such as overeating, pathologic gambling and promiscuity,
 - e. General wellbeing and prosperity with socioeconomic inequalities such as unemployment, poverty, and homelessness,
 - f. Social behavior with lack of civic participation, community life, sense of belonging to the community, alienation from the family and the community, criminal behavior, educational failure,
 - g. Interpersonal behavior with inability to maintain loving and supportive relationships.
 - h. Toxic stress can be viewed as the precipitant of a physiologic memory or biological signature that confers lifelong risk well beyond its time of origin.
 - i. Health in the earliest years—beginning with the future mother’s well-being before she becomes pregnant - lays the groundwork for a lifetime of physical and mental vitality.
5. POLICY STATEMENT entitled Early Childhood Adversity, Toxic Stress, and the Role of the Pediatrician: Translating Developmental Science Into Lifelong Health Ref: *Pediatrics* 2012; 129; e224
<https://www.ndhealth.gov/heo/American%20Academy%20of%20Pediatrics%20Article.pdf>
- On treatment of toxic stress, the policy statement advises the pediatric community to “provide strong, proactive advocacy for more effective interventions for children with symptomatic evidence of toxic stress.” These could include:
- a. *“the formation and/or continuous strengthening of local traumatic stress networks to treat children and families experiencing significant adversity; and*
 - b. *“increasing the number of accessible, affordable, and culturally competent mental health professionals who are qualified to provide evidence based treatments, such as trauma based cognitive behavioral therapy and parent-child interaction therapy.”*
6. A study to assess health care providers training, perceptions, and practices regarding stress and health outcomes concludes, “The majority of respondents "rarely" or "never" practiced stress reduction techniques themselves. Belief in the importance of stress counseling, its effectiveness in improving health, and confidence in one's ability to teach relaxation techniques were all related to the probability that providers would counsel patients regarding stress. There is a need for curriculum reform that emphasizes new knowledge about stress and disease, new skills in stress reduction, and more positive beliefs about mind/body medicine and its integration into the existing health care structure.”
 Ref: J Natl Med Assoc. 2003 Sep; 95(9): 833, 836-45
7. A national study in the United States investigates when physicians counsel their patients about stress. According to this study, “The prevalence of stress in primary care is high; 60% to 80% of visits may have a stress-related component.” The investigation concludes that only 3% of the office visits studied “included stress management counseling by primary care physicians. Stress management counseling was the least common type of counseling, compared with counseling about nutrition (16.8%), physical activity (12.3%), weight reduction (6.3%), and tobacco cessation (3.7%).”

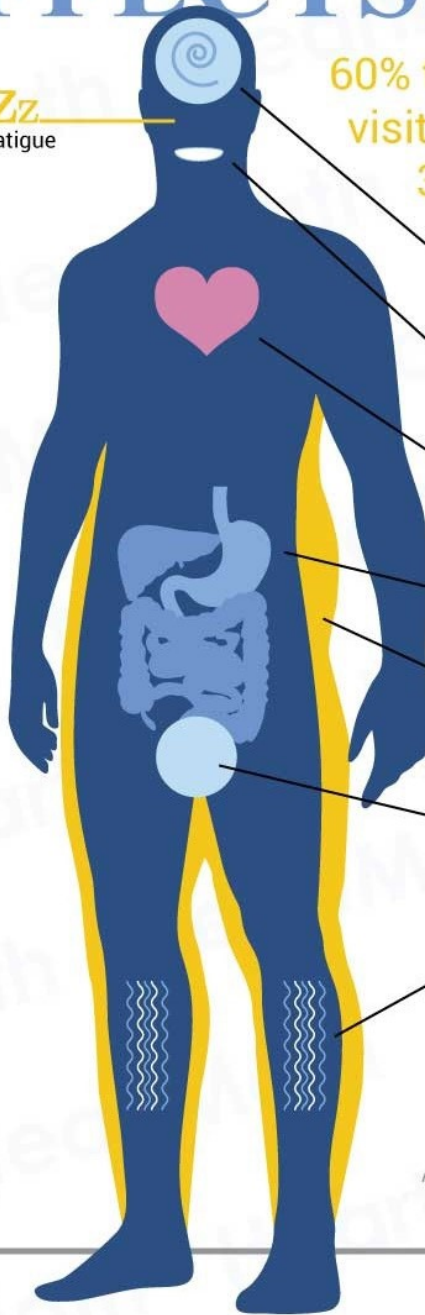
Ref: *JAMA Intern Med.* 2013; 173(1): 76-77

8. **How Stress Affects the Body**

Ref: <http://images.heartmath.com/lc/patient-lp/Infographic-How-Stress-Affects.pdf>

HOW STRESS AFFECTS THE BODY

Zzzzz
Chronic Fatigue



60% to 80 % of primary care doctor visits are related to stress, yet only 3 % of patients receive stress management help.

JAMA Intern Med. 2013;173(1):76-77

Headaches, Dizziness, ADD/ADHD, Anxiety, Irritability & Anger, Panic Disorders

Grinding Teeth & Tension in Jaw

Increased Heart Rate, Strokes, Heart Disease, Hypertension, Diabetes Type I & II, Arrhythmias

Digestive Disorders, Upset Stomach, Abdominal Pain, Irritable Bowel Syndrome

Weight Gain & Obesity

Decreased Sex Drive

Muscle Tension, Fibromyalgia, Complex Regional Pain Syndrome



STRESS AFFECTS THE ENTIRE BODY & CAN CAUSE MANY OTHER PROBLEMS

42% of Americans report lying awake at night due to stress

American Psychological Association Stress in America Report 2013

FACT #1: YOUR BODY DOESN'T CARE IF IT'S A BIG STRESS OR A LITTLE ONE.

FACT #2: STRESS CAN MAKE SMART PEOPLE DO STUPID THINGS.

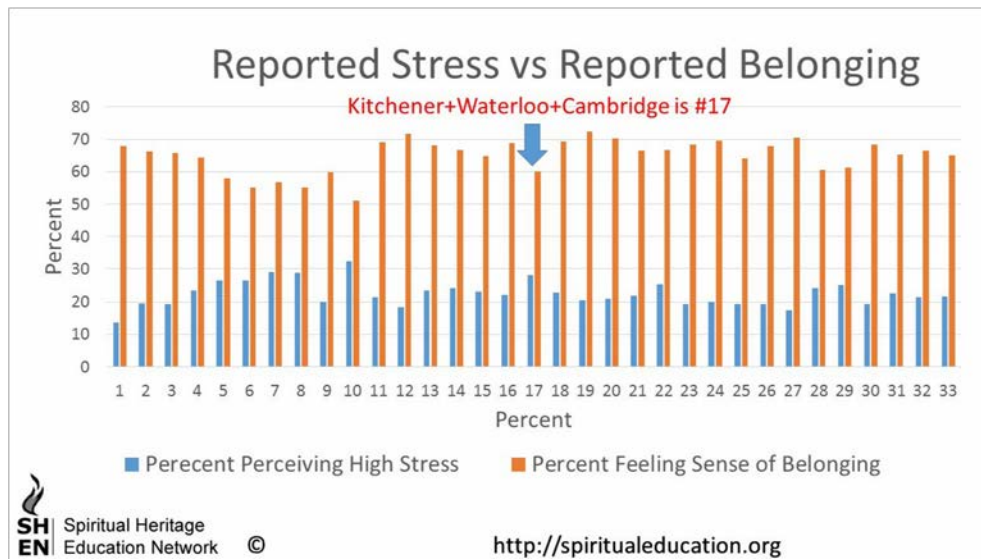
FACT #3: PEOPLE CAN BECOME NUMB TO THEIR STRESS.

FACT #4: WE CAN CONTROL HOW WE RESPOND TO STRESS.

FACT #5: THE BEST STRATEGY IS TO HANDLE STRESS IN THE MOMENT.

9. Stress and Sense of Belonging

Ref: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/health117z-eng.htm> This reference contains tables published by Statistics Canada. These tables include data by census metropolitan areas of the country for the 2011-2012 years on the percentages of the inhabitants perceiving significant life stress and those with strong sense of belonging. In the following diagrams, we analyze that data with percentages perceiving significant stress plotted along x-axis and those with strong sense of belonging along y-axis.



The analysis shows clearly that higher the percentage of the inhabitants in a community perceiving significant stress the lower the percentage with high sense of belonging.

10. **We may be numb to stress and deny it, but it does not spare anyone.**