Using Yoga to control stress

Marcio Rodrigues Baptista  
Mestrando em Ciência da Motricidade Humana-UCB  
mriyoga@bol.com.br

Estêlio Henrique Martin Dantas  
Prof. Titular do Programa de Pós-Graduação Stricto Sensu em Ciência da Motricidade Humana-Universidade Castelo Branco-Brasil  
estelio@ism.com.br

ABSTRACT: The objective of this work is to investigate the different causes and consequences of stress in mental, emotion and physical aspects of human being. Based on recent data, researches and studies published about ways of controlling and preventing stress, we can conclude that the most important agent against stress is the practical of exercise and Yoga. Along the study, we observed that when the exercise is complemented with Yoga, it is much more effective in treating and preventing stress, improving quality of life in physical, emotional, intellectual, social and spiritual aspects.

Keywords: stress, Yoga, physical exercise, quality of life.

Stress is a combination of physical, mental and emotional feelings that occur by several reasons, such as worries, fears, anxiety, psychological pressure and physical or mental fatigue that produce tension.

According to Rangé (2001), since the XVII century, the definition “stress” was used to describe the tension-anxiety phenomena and distress commonly known nowadays. In the XIX century (1910), Sir William Osler, a British doctor, observed in his researches that the excess of work and worries were related to heart problems. With his discovery, he made a definition to the word “stress” as equal to “work excess” and “strain” (organic reactions to stress) as “worries”.

In 1936, Dr. Seyle suggested the use of the word “stress” as a definition to a syndrome caused by multiple and different agents. After that, the word started to be used at Medical Sciences. Dr Seyle’s researches were influenced by two physiologists: Bernard, in 1879, who suggested that the organisms themselves remain constant although changes in the external environment take place; and Cannon, in 1939, whose thesis supported the definition of homeostasis as an effort of the physiological processes to keep the balance inside organisms. With these theories, Dr Seyle defined stress as a homeostasis break down in the organisms.

Many researches took place to detect, prevent, reduce and control the stress causes and effects for the mental, physical and psychological human health.

According to Battinson (1998), stress is a very used word as a definition to the symptoms produced by the organism as an answer to the developing tension. A certain level of stress is common to help people to face the challenges of life. Nevertheless, high levels of stress in the body can cause unpleasant reactions to humans. Stress symptoms varies from person to person. The signs and symptoms are easily identified in some people, as they can lose or win weight faster than usual, have irregular sleeping standard, develop breathing problems, depressions and introversion. They start to neglect the family, they don’t have a nice performance at work and they have oscillations of humor and behavior.

There are two types of stress: the positive and the negative. The positive stress motivates ans inspire, helping people to take fast decisions; the negative stress can be very sharp (intense, but disappears fast) or chronic (not so intense, but can last several times for a longer period of time). Niemann (1999).

The impact of stress related to the human psychophysiologic aspect has importance when it comes to the deterioration of health and life standard. By means of a competitive society, without a socio-economic balance and with high urban crime rates (main social reasons that cause stress) human kind suffers alterations, which are not favourable at all to the behavior, affective, social and physical standards. For this reason, people use several methods and resources in order to try to reduce stress and enhance life expectancy, overcoming the causes and effects of the negative stress.

ETIOLOGY

Several are the original causes of stress. Some origins can be relevant or not, depending on the form the individual reacts to the factors. Even though the main emotional center is biological, the emotions are different since each person has his or her own feelings and points of view, all different from one another.

According to Rangé (2001), the stressing agent is any situation that creates a strong emotional state, which can break the internal homeostasis, demanding some adaptation. The stressing agent can be positive or negative.

- External agents: events or conditions that affect the organism. They don’t depend, many times, of the characteristics or behavior from the person.
- Internal agents: events or conditions determined by the person. They are characterized by the way of the person. For example, by anxiety, shyness, depression or neurosis. In other
words, the internal agents can be, for instance, the difficulty of expressing one’s feelings (Lipp and Rcha, 1995), lack of assertivity or irrational believes (Hilton and Rottheiler, 1991).

- Biogenetic agents: they don’t depend on interpretation and they can develop the automatic stress since they are related to the human kind survival. For example, the hunger, the thirst, the hot and the cold.

**SEMIOLGY**

Each individual has different reactions to the symptoms and diseases caused by the agents. The stress symptoms are varied and they differ according to the phases the person might be in. Dr Seyle found that the if the stressing agent is kept on long term, the body will pass through 3 phases (Nieman, 1999):

- Alarm phase (big intensity and doesn’t last for long)
- Resistance (the organism functions must return to normal as soon as the body get used)
- Exhausting phase (small intensity and lasts for long, sicknesses can appear, leading to death)

According to the Padronization of Adults Stress Symptoms (Lipp, 2000), a fourth phase was identified as clinic but as well as in the statistics. The phase is called “almost-exhausting” and is characterized for a weakness of the individual, that doesn’t manage to be under adaptation or under stress resistance. The diseases start to appear, but not as dangerous as in the exhausting phase.

**CONSEQUENCES OF STRESS (SIGNS AND SYMPTOMS)**

**Physical**

- Brain problems / pain in the muscles as a reason for the muscle tension
- Bad digestion / stomach problems / reduction of the appetite / anorexy
- Urinary problems / heart complications / increasing of blood pressure
- Pain in the articulations / jawbone tension
- Deafness / difficulties in the blood circulation system
- Breathing complications
- Dermathologic manifestation
- Lack of hormone balance
- Sexual difficulties
- Reduction of immunity (able to chain the development of diabetes, hipertension and obesity).

**Mental / Emotional**

**loss or reduction of concentration skill**

- sensation of isolation / depression / despair / anxiety
- wrong thoughts / feelings of frustration and hostility
- compulsive behavior disturb / repetitive behavior
- variation of mood (sadness x happiness)
- aggression / anger
- memory reduction / confusion and mix of thoughts and ideas
- fears and phobias with no reason / insecurity / apathy
- high anxiety / panic syndrome
- permanent ideas of chasing, no motivation and excessive worries
- low self-esteem
- According to Lower (1975), the principle of psychophysiology: “Each modification at the physiologic state is followed by an appropriate mental-emotional change; whereases each modification at the mental-emotional state is followed by an appropriate change in the physiologic state”.

To each emotion there is a different physiologic reaction. The emotions are to be felt in the body and to be thought by the head, says Kertz and Kerm (1985).

**STRESS AGENTS AND REGULATORS**

Nowadays it is necessary to dominate the stress because it is part of our lives. Kids, teenagers, adults and old people suffer with it. Sometimes they can handle it, however, new stressing stimulations that not always manage to be under control appear and end up being a cornerstone for other diseases to develop. There are strategies, life styles and methods to prevent, reduce and control the stress. Among them we could take one: Yoga. Yoga has steps to be used separately as a form of therapy, for instance, the perception of the senses during the stretching, balance and strength exercises, associated to the breathing, phycophysical relaxing and meditation exercises.

**Innoculation of stress**

According to Rangé (2001), cognitive variables influence the interpretation given to the stress reasons, being more relevant then the event itself. The ability to face it is a result of cognitive events and flexible behavior to deal with the internal and external specific demands. Meichenbaum, in the 80’s, created the stress inoculation technique, which consists on the psychological training of the individual when it comes to stressing situations. This way, the therapy can make the person able to create private methods and resources in order to combat stress when it happens in a real situation.
The stress inoculation is being used as a treatment to some phobias such as the panic syndrome, anxiety, alcoholism and pain control that happen in family conflicts and at work.

**Physical activities**

Several studies related to the stress and physical activities show that making exercises often is related to having a good mental health. None the less, there are other factors that contribute for the mental-emotional health.

According to Jackson, Morrow, Hill and Dishman (1999), there is a big influence between the physical fitness and the social, emotional and intellectual fitness due to the psychological impact of the physical activities upon stress, depression and anxiety. When the mental health is enhanced, the self-esteem and the sleep also gets better due to biological results caused by the exercises, lowering the depression and the anxiety.

According to North and Col. (1990), physical activities have anti-depressive effects, different from each type of physical activity (moderated or intense). All types of physical activities - including the anaerobic ones - are effective and the more is the duration of the program and the number of sessions, the exercises have better results than relaxing and are equal to the psychotherapy. Together they have better results than each of the separately.

Nieman (1999) suggests that, generally, the physical endurance and exercises are related to the lower heart estimulations, during and after the mental stress. In some studies, it is clear that the physical endurance also helps the body against mental stress. When people are under mental stress, they present a bigger heart beating rate, high blood pressure and intensive nervous system stimulation. Scientists call these alterations as cardiovascular reactivity to mental stress. Researches from Duke University show that in some individuals it can lead to heart attacks.

It is believed that the reactivity reduction to mental stress is important in the daily administration from work and life events. The physical exercises are profitable because once the body is used to the heart beating, blood pressure and hormones from the exercises, the body is trained to react calmly when the same answers are chained by mental or emotional stress.

<table>
<thead>
<tr>
<th>STRESSING ASPECTS AND AGENTS</th>
<th>PROFESSIONAL AGENTS</th>
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<tbody>
<tr>
<td><strong>ASPECTS</strong></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>- constant psychologica pressure</td>
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<tr>
<td></td>
<td>- constant and excessive competition</td>
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<td></td>
<td>- dissatisfaction with the job</td>
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<td>- low salaries</td>
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<td></td>
<td>- problematic relationship with the work mates and bosses</td>
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<td></td>
<td>- living every day with unbearable people</td>
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<td></td>
<td>- cultural differences</td>
</tr>
<tr>
<td></td>
<td>- professional insecurity and risk to be fired</td>
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<tr>
<td>Affective</td>
<td>- breaking up a relationship (divorce)</td>
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<td></td>
<td>- jealousy, possessiveness / lack of love and care</td>
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<tr>
<td></td>
<td>- dissatisfaction or incompatibility at the date or marriage</td>
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<tr>
<td></td>
<td>- love frustrations</td>
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<tr>
<td></td>
<td>- death of a cherished person / difficulties in the relationship</td>
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<tr>
<td>Emotional</td>
<td>- private problems</td>
</tr>
<tr>
<td></td>
<td>- emotional trauma or disgrace in the family</td>
</tr>
<tr>
<td></td>
<td>- getting old / constant quarrelings and fights</td>
</tr>
<tr>
<td>Familiar</td>
<td>- worries with the kids</td>
</tr>
<tr>
<td></td>
<td>- problems with the parents (sicknesses, places to live, etc)</td>
</tr>
<tr>
<td>Physical</td>
<td>- physical limitations / sedentarism</td>
</tr>
<tr>
<td></td>
<td>- sickness or chronic diseases</td>
</tr>
<tr>
<td></td>
<td>- work excess / wrong way of resting</td>
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<tr>
<td></td>
<td>- overtraining / problems with the bones and muscles</td>
</tr>
<tr>
<td></td>
<td>- bad eating habits</td>
</tr>
<tr>
<td></td>
<td>- abuse of alcohol and drugs / tobacco</td>
</tr>
<tr>
<td>Economic</td>
<td>- debts, financial problems, charges</td>
</tr>
<tr>
<td></td>
<td>- reduction of purchase power and reduction of the family standard</td>
</tr>
<tr>
<td></td>
<td>- retire / lack of money</td>
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<tr>
<td>Ambiental</td>
<td>- ambiental, visual and sound pollution</td>
</tr>
<tr>
<td></td>
<td>- long distance between working place and home</td>
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<tr>
<td></td>
<td>- intensive traffic / urban violence</td>
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<tr>
<td></td>
<td>- unpleasant or disappointing working place</td>
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<tr>
<td></td>
<td>- living in risky places and with no comfort</td>
</tr>
<tr>
<td></td>
<td>- lack of space to practice sports and leisure</td>
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<tr>
<td></td>
<td>- excessive heat or cold</td>
</tr>
<tr>
<td>Intellectual</td>
<td>- intellectual burn out</td>
</tr>
<tr>
<td></td>
<td>- low ability to deal with reality</td>
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<td></td>
<td>- mental or intellectual emptiness</td>
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Generally the depressive patients are sedentarians and present a considerable reduction of depression when they start to do physical exercises regularly. Anxiety is a condition caused by tension or insecurity and it is originated by facing a real or imaginary danger. This feeling, relatively normal, affects almost all people in a moment of their lives. However, if anxiety becomes excessive or unrealistic, it can interfere the normal functions of the body. Anxiety disturb, including many phobias, panic syndroms and compulsive-obsessive behavior are the most common mental health problems. One of the psychological benefits is the reduction of anxiety that can last for many hours. The effect of the stress reduction is observed with aerobic exercises, but not with the anaerobic ones.

There are at least six theories that include a feeling of control and self confidence, social interaction, interruption of regular stress, chemical and structural changes in the body that introduce a sensation of feeling nice. Depending on the individual, all these factors can contribute to enhance the mental health from people who exercise often. Some theories can be defined the following way:

- **Self control:** as soon as people start and keep a regular program of exercises, the feelings of control and self confidence increase. In other words, an attitude of “I can do that” is developed.

- **Social interaction:** the exercises are usually done with other people, which makes possible finding new friendships, enjoying and taking care of one’s self-esteem. At Globo (a newspaper), it is presented that the practice of physical exercises enhances the mood and helps taking care of depression. Nowadays, British specialists from Nottingham Trent University discovered a brain substance that explains this reaction. They say that a session of aerobic activities increases the level of feniletilamine, a chemical substance related to energy, mood and concentration.

- **Interruption / absent mind:** the argument is that an interruption of daily and stressing routine can result a nicer mood for some people that practice exercises.

- **Improving brain functions:** it was observed that positive alterations occur on the brain as a result of physical activities.

- **Neurotransmission system:** disturbs are caused by 3 chemical substances - serotonin, dopamine and norepinepine - . They were found in depression and other mental disturbs.

The physical exercises have a role of preventing and treating depression when they in normal level inside of the brain.

- **Organic chemical substances:** they were used during several centuries for pain relief and euphoria induction. In 1975, scientists had a big success in isolating these substances of the body that had qualities similar to the morphine. During the exercises, the hipofisis increases the production of a substance called B-endorphine, which increases the concentration. Most of the scientists observed that B-endorphine doesn’t increase, unless the exercise is too intense or with a duration higher than 1 hour.

In 1985, the National Departament Institute of Mental Health in the USA concluded that exercises are strictly connected to health and social interaction; anxiety and depression are frequent symptoms that reduce with the practice of physical activities, as well as neurotic problems; strong depression requires special treatment; physical exercises done in correct ways help reducing stress components; the clinical opinion is that exercising has positive effects in emotions for all ages and all genders; people who need psychological medication can do at the same time physical activities under medical control.

**YOGA**

It is a philosophy from India dating from thousands of years that thoughout the centuries has been addapted to nowadays, observing its essence and goals. There are more than 25 types of Yoga, however, in the Western part of the planet, Yoga and its roofs are more famous in the styles that use the breathing exercises to balance bioenergy, physical stretching positions, strength and balance; psychophysical relax and meditation. Yoga is mainly used as a healthy life style and more related to therapy due to the scientifical western culture. It is proved that the regular practice of Yoga is essencial to prevent and fight against stress.

According to Battison (1998), many doctors recommend Yoga for patients because of its long history of therapy for health and life quality.

**PRÁNÁYÁMA – bioenergy domination by breathing control**

Hermógenes (1988) says that occidental countries consider the breathing as only physiological phenomenun, which the body

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**PSYCHOLOGICAL PROFITS CAUSED BY PHYSICAL ACTIVITIES**

<table>
<thead>
<tr>
<th>GET BETTER</th>
<th>GET WORSE</th>
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</thead>
<tbody>
<tr>
<td>- Intellectual profit</td>
<td>- The lack of profit at work</td>
</tr>
<tr>
<td>- Confidence / security</td>
<td>- Agression and anger</td>
</tr>
<tr>
<td>- Personality</td>
<td>- Depression</td>
</tr>
<tr>
<td>- Emotional</td>
<td>- Anxiety</td>
</tr>
<tr>
<td>- Memory / perception</td>
<td>- Mental confusions</td>
</tr>
<tr>
<td>- Self-steem / welfare</td>
<td>- Phobias</td>
</tr>
<tr>
<td>- Humor / sexual satisfaction</td>
<td>- Emotional tension</td>
</tr>
<tr>
<td>- Emotional independence</td>
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</table>
uses oxygen in order to be able to do the chemical changes and distribute the nutrients by the blood. Stop breathing has a same meaning as death.

However, in Yoga, breathing is not only a simple definition, it is also psychological and transcendental. As it is part of 3 dimensions and one of the most important acts of our lives. It is the only double physiological process, being voluntary and involuntary at the same time. It is possible to control the breathing by making it long or short, controlling the speed or stop its rhythm. Nevertheless, all the time we forget about it and let only our body do it involuntarily.

The psychological breathing evidences are shown by alteration of the functional rhythms that occur at the same time with the psychological alterations. When someone is anxious the breathing automatically accelerates, as well as it gets calmer when someone is mentally and emotionally relaxed. When someone is involved in antagonistic wishes or tendencies, breathing gets irregular and without rhythm.

By the breathing exercises, when voluntarily the breathing speed is low, calm and relaxed, the smoothness also affects emotionally and mentally; peace among mind, will and impulses are established instead of contradictions and antagonistic wishes.

According to Dantas, Psychophysiology (2001), the type of breathing practiced by Yoga tends to increase the flexibility to use the whole lung area, using muscles from the thorax and abdomen instead of only profiling from the diaphragm. Breathing in and out is done by the nose and the former takes $\frac{1}{2}$ less than the latter. This helps getting the vital energy from the air. The breathing must be slow and profound.

There are energized, relaxed and balanced pránáyámas. The bio-energy runs through the body taking the energy to all cells of the body. Each type of exercise corresponds to a psychophysiological effect in the individual.

Arderson (1980) describes that “breathing must be soft, rhythmic and controlled. When the body is curving to the front, breathe out according to the movement; breathe in slowly as you keep the movement. Don’t hold the breath while you are stretching. If a determined position stops the harmonic feeling, it is obvious that you are not relaxed. You should try a comfortable position in the movement in order to breathe naturally.

The oriental culture, according to Tribastone (2001), by controlling the breathing process the individual not only manages a bigger domination in the body and emotions, but also energy life and bioenergy control. The occidental culture only defines breathing as a need for the physiological balance. It is proved that between the psycho-affective life there is a close connection, such as asthma, attributed to emotional insecurity and feeling of being abandoned. Actually, superficial and oral breathing and anxiety symptoms are possible to be controled under the psycho instability.
Some effects scientifically proved, Dantas (2001)
• psychological enhance, essencial to reach orgasm
• oxygen reduction, that means, lowering down the metabolic functions
• heart beating rythm reduces more than profound sleep
• breathing rythm reduction
• anxiety reduction
• memory improvement in 12% and perception amplification up to 40%.
• Blood circulation increases up to 300%
• Adrenaline excess elimination
• Scientifical researches show the brain waves, which are electric nervous impulses from the brain
* beta > upon 14 Hz - vigile state
* alfa > from 7 up to 14 Hz – state of meditation / relax
* teta > from 4 to 7 – anaesthetic state / profound relax
* delta > below 4Hz – inconscience state

During this relax and meditation state, the individual is in “alfa” and has a bigger domination of the body, having more power to heal the problems and reaching the goals.

Tribastone (2001) says the voluntary relax is an important moment to the body in general, either for the tonification of functions as well as for the body structural scheme. Besides it, there is a relation between tonification and emotional and affective life, says J. Dropsy. According to the theory “when the spirit gets agitated, the body makes contractions; when the bode makes contractions, the spirit gets agitated”.

According Le Bouch, the muscular tonification is a result of complex functions from the nervous system, in such a way that the emotional and mental parts are important for the muscles contractions. It was observed that the muscles tones also influence the psychological activities both emotional and affective. As it is seen, relax has not only an education path, but also therapeutic ones to enhance emotional and mental human parts.

DHYANA – meditation

Meditation is the evolutive phase from mental training, first passing through the state of pratyahara (abstraction from the 5 senses) and then dhárana (concentration), which is the continuation of the sensors inibition.

According to Feuerstein (1998), concentration is the mind´s state of immobility, of the redirection of thoughts. Meditation is a method that the agent concentrates more in less things to support. The goal is to empty the mind without losing the alert state.

The effects phychoenergetic and psychospiritual are similar and more profound than the yoganidra. The benefits go from stress reduction up to mental capacity. Concentration ability enhances the habits related to stress, eating habits, hipertension and mental hiperactivities, Battinson (1998).

CONCLUSION

Excessive stress provokes health and life quality reduction, taking humans to morbidity and even to death. Preventing and treating stress by means of economic, fast and effective methods contribute for stress control as well as correct physical activities and Yoga.

Through analyzing stress control and internal and external aspects, physical activities can be done in combination with Yoga; which will lead to emotional balance, excitation or apathy reduction, enhance at assertivity and affection, anxiety control and mental, physical and emotional stress symptoms.

There is an evidence that physical activities practiced with Yoga increase health and life quality. However, the causes of stress can still exist; then it is also necessary to modify the emotional biography with changing the stress agents by strengthen the combat against the stress situation, modifying perception in a more positive and confiant views together with habits and behaviors.

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