BALANCE

The Health Benefits of Understanding and Counter-Balancing Stress

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Battle Stations! Battle Stations! The "Fight-or-Flight" Alarms Bells Go Off

The call to arms comes from the brain (amygdala) to alert the body and sounds the battle alarm. The *thalamus* sends this imminent message to the brain stem to release stimulating norepinephrine throughout your brain, all in a split second! Then the Sympathetic Nervous System (SNS) signals the body, creating "battle awareness" for the fight-or-flight responses. The hypothalamus prompts the pituitary gland to signal the adrenal glands to release the hounds… the "stress hormones."

SNS Prepped for Fight or Flight

Within seconds the troops are on full alert and stress hormones are pulsing through the bloodstream, alarms are sounding calling us to greater alertness. The SNS and the *hypothalamic-pituitary-adrenal axis* (HPAA) are intertwined, to prep our mind and body for action, either *fight* or *flight.* This activation is a change from our baseline for the purpose of responding to a risk, in order to marshal resources, or to seize an opportunity, priming us for the fight or to run like crazy from the risk. We have all felt this preparedness, some of us are addicted to it, consciously or unconsciously, and some of us hate the sensations they produce.

- **Heart rate** is increased by epinephrine so the heart can move more blood
- **Pupils dilate** for eyes gather more light
- **Muscles tighten** prepped for fight or flight, and often become very tight
- **Blood pushes through to large muscles** by norepinephrine; blood thins and is directed toward the brain and major muscles for survival
- **Blood pressure increases** (BP) –Increased BP is triggered by released stress hormones

- **Breathing rate increases** to get more oxygen into the body and to the brain, breathing airways dilate and the breathing becomes rapid; the bronchioles of your lungs dilate for increased gas exchange
- **Perspiring or sweating** happens to cool down the body's increased metabolism
- **Immune system is suppressed** by cortisol as all resources channel to the Fight or Flight
- **Saliva decreases**
- **The Colon slows down**, you become constipated
- **Emotions intensify**, organizing and mobilizing the whole brain for action
- **All five senses become more sensitive and alert**, touch, taste and smell all become more acute
- **Mind becomes over focused on the negative**, SNS/HPAA arousal stimulates the amygdala, which is hardwired to focus on negative information and react intensely to it
- **Stress sets us up for fear and anger,** mobilizing and energizing emotions.
- **Decreased perception of pain** occurs
- **Increased Central Nervous System,** (CNS) activity and mental activity occurs
- **Increased circulation of free fatty acids**, increased output of blood cholesterol; stored reserves of fats and sugars are converted and released into our blood stream to supply extra energy to fight or run away
- **Increased brainwave activity** occurs
- **Kidneys decrease output**, bowel and bladder sphincter close
- **Inhibition of erection/vaginal lubrication** occurs

It's all systems go!!! Interestingly, the brain cannot distinguish between a real or potential threat; it can only respond to both, by triggering the fight-or-flight response. That means if you are sleeping and awakened, you hear a noise and think a madman is bashing down your front door with an axe, there is no difference in our physiological responses of fight-or-flight, then if you had dreamt it, and have awakened from a nightmare. When the SNS triggers, the mind and rational thought processes have far less control over our instinctual reactions. These reactions were formed hundreds of thousands of years ago by our early ancestors on the ancient plains of

the African Serengeti. These intense reactions helped our ancestors survive saber tooth tigers and many other life-threatening dangers, but these day these reactions go off in traffic… almost daily, the body readies "battle stations" everywhere and the hyper-alert of fight-or-flight, has over-revved us. This chronic, constant, hypervigilance, never took its toll on our ancestors, they died around forty years of age.

Modern man, over the last few thousand years has developed many contemplative and restorative practices, and now, at this point in our culture, it has never been more important to employ them. Using mindfulness practices, to balance the SNS and PNS to prevent our mental perspectives from being distorted, and cloudy minds making risky decisions, all from worn down brains, has never been more important. The physical health consequences can be severe for SNS fight or flight, chronic over reactions.

"Stage of Resistance" This is the 2nd stage of stress. If the stressor is ongoing, the body mobilizes its internal resources in an effort to return to a state of homeostasis balance, but because the perception (even if not real) of a threat still exists, complete homeostasis is not achieved. The stress response stays activated, usually at less intensity than during the alarm stage, but still at a level to cause hyper-arousal.

The State of Exhaustion is the 3rd and final stage of stress, all the body's resources are eventually depleted and the body is unable to maintain normal function. At this point the initial autonomic nervous system symptoms may reappear (sweating, raised heart rate etc.). If stage three is extended over time, long term damage may result as the capacity of glands, especially the adrenal gland, and the immune system is exhausted and function is impaired resulting in obvious illnesses listed before, ranging from cardiovascular problems, to mental illnesses.

Frequent (SNS) Battle Stations Wear us Down

The signs and symptoms of unmanaged stress vary among different people.

Emotional symptoms – anxiety, depression, anger, guilt, hurt, morbid jealousy, shame/ embarrassment, suicidal feelings

- We lose focus of the reality as it is. Frequent SNS/HPAA activation wears down the hippocampus, which is vital for forming *explicit memories*–clear records of what actually happened.

- Anxiety, repeated SNS/HPAA activity primes these systems into an increasingly rapid arousal of anxiety.
- Depression, routine SNS/HPAA activation undermines the biochemical basis of an even-keeled–let alone cheerful disposition in several ways: reduced norepinephrine may cause you to feel flat–with poor concentration.
- Over production of Glucocorticoids lower the production of dopamine. This leads to a loss of enjoyment of activities once found pleasurable.
- Stress reduces serotonin, probably the most important neurotransmitter for maintaining a good mood.

Behavioral symptoms – Alcohol/drug abuse, Avoidance/phobias, Sleep disturbances/insomnia, Increased nicotine/caffeine intake, Restlessness, Loss of appetite/overeating, Anorexia, bulimia, Aggression/irritability, Poor driving, Accident proneness, Impaired speech/voice tremor, Work related impediments may include: Poor time management, Compulsive behavior, Checking rituals, Eat/walk/talk faster, Sulking behavior, Frequent crying, Poor eye contact. Absenteeism/ presenteeism, Accidents, Inability to delegate, increased sick days, Inefficiency, Persistent lateness, and Procrastination

Interpersonal symptoms – Passive/aggressive in relationships, Timid/unassertive, Loner, No friends, Competitive, Put other' needs before own, Sycophantic behavior, Withdrawn, Makes friends easily/with difficulty, Suspicious/secretive, Manipulative tendencies, Gossiping.

Physical Symptoms Include:

- Gastrointestinal–ulcers, colitis, irritable bowel syndrome, diarrhea, and constipation
- Immune–more frequent colds and flu's, slower wound healing, greater vulnerability to serious infections
- Cardiovascular–hardening of the arteries, heart attacks
- Endocrine–type II diabetes, premenstrual syndrome, erectile dysfunction, lowered libido
- We dumb down: the hippocampus is one of the few regions in the human brain that can actually grow new neurons—but glucocorticoids prevent the birth of neurons, impairing its ability to produce new memories. Making our ability to deal with the reality as it is impaired. We are then more likely to *simulate* and project biased versions onto memory gaps.

SNS: The 5:1 Over-Focus on Negativity, Bad is Stronger than Good

"The greater power of bad events over good ones is found in everyday events, major life events (e.g., trauma), close relationship outcomes, social network patterns, interpersonal interactions, and learning processes. Bad emotions, bad parents, and bad feedback have more impact than good ones, and bad information is processed more thoroughly than good. The self is more motivated to avoid bad self-definitions than to pursue good ones."

--Bad is Stronger than Good--.

Review of General Psychology 2001. Vol. 5. No. 4. 323-370 http://www.csom.umn.edu/Assets/71516.pdf

A few past failures outweigh many successes. People will do more to avoid losses, than to acquire a comparative gain. Fear or loss aversion drives biochemical behavior inside us, to avoid sizable gains over minor losses. *Loss aversion* or fear, often overpowers gainful opportunities. Bad information about a person carries more weight than good, just look at political data of the effectiveness of negative attack-ads. In relationships it takes five positives interactions to overpower the effects of a single negative one.

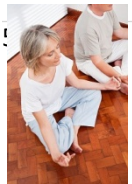
The negative fear of SNS reactions, really get more of our attention than they should. And often is not balanced against a well-toned PSN. There is a very good evolutionary reason the SNS alarm state to have an over focus on the negative. *Fear causes fleeing and thereby saves lives* this ancient protective mode is hardwired into our brains, and carried in our SNS. After-all, fear outweighs, because if we are fleeing a horrible death from a saber tooth tiger, why should the brain register (dinner) a rabbit moving out the corner of our eye or a good looking woman. The ancestors, who survived the lethal dangers, paid a lot more attention to being killed than mating or dinner. Their Brains learned to enhance and focus wholeheartedly on possible negatives, excluding possible opportunities for a safe day. Aversion is stronger in the body-Mind than craving.

The Parasympathetic Nervous System (PNS)

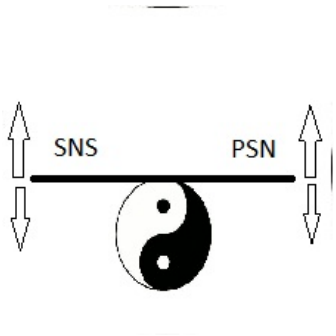
Relax, Revive, Reset, Restore, Renew and Rejuvenate

"Inner peace is not the absence of conflict. Nor the absence of challenge, but rather the capacity to be with what is, in each moment. Without prejudice or judgment."

—Christina Feldman--



Basically, the PNS conserves energy levels. It increases bodily secretions such as tears, gastric acids (opens up the appetite), mucus and saliva which help to defend the body and help digestion. Chemically, the parasympathetic system sends its messages by acetylcholine which is stored at nerve endings. The PNS is responsible for ongoing, steady-state activity. It produces a feeling of relaxation, often with a sense of contentment–this is why it's sometimes called the "rest-and-digest" system. This ancient response would have kicked-in after the danger of the hunt (SNS) on the Serengeti, our ancestor brings home the food, and enjoys a good meal with family and friends, and relaxes in front of the fire to 'rest and digest' and with a good night's sleep. In the morning he wakes with his nervous system balanced, restored and rejuvenated, to face the dangers of a new day. This was the edge that human beings developed over competitor species, where the PNS relaxes and restore. These two wings of the Autonomic Nervous Stem (ANS) are connected like a seesaw, when one goes up, the other one goes down, we need to make sure the seesaw is well oiled, so it does not get stuck in one direction but can appropriately move between the two.



Parasympathetic activation is the normal resting state of your body, brain, and mind. If your SNS were surgically disconnected, you'd stay alive (though you wouldn't be very useful in an emergency). If your PNS were disconnected, however, you'd stop breathing and soon die. Sympathetic activation is a *change* to the baseline of PNS equilibrium in order to respond to a threat or an opportunity. The cooling, steadying influence of the PNS helps you think clearly and avoid hot-headed actions that would harm you or others. The PNS also quiets the mind and fosters tranquility, which supports contemplative insight.

The Parasympathetic Nervous System (PNS)

- Conserves energy in your body
- Produces a feeling of relaxation
- Often with a sense of contentment–this is why it is sometimes called the "rest-and-digest" system
- Parasympathetic activation
- Normal resting state of your body, brain, and mind

- Restoration and regeneration for the body mind and soul comes during "being", not "doing"
- Singing, laughing or meditation
- Conserves thus builds reserves for more challenging times

The benefits, if PNS is in Balance, are huge:

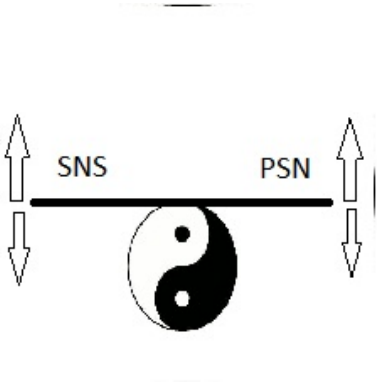
Psychological Benefits	*Physiological Benefits*
· Improves self esteem	· Lowers blood pressure
· Improves self confidence	· Reduces heart attack risk
· Reduces anxiety levels	· Reduces stroke risk
· Reduces risk of depression	· Reduces osteoporosis risk
· Reduces risk of panic attacks	· Lowers risk of developing certain cancers
· Less reliant on alcohol	· Boosts immune system
· Improves coping skills	· Suffer less colds and flu
· Reduces anger levels	· Reduces constipation
· Improves relationships	· Lowers risk of type II diabetes
· Improves quality of life	· Reduces risk of gall bladder disease
· Greater optimism	· Reduces risk of diverticulitis
· Greater efficiency at work	· Boosts energy levels
· Improves concentration	· Improves sleep pattern
· Improves memory	· Keeps arteries more flexible
· Reduces anxious thinking	· Improves cholesterol profile
· Reduces feelings of frustration	· Blood clots less easily
· Increases feeling of control	· Reduces risk of impotence
· Improves decision making	· Reduces back pain
· Make less mistakes	· Lowers stress hormone levels
· Reduction in mood swings	· Reduces muscle tension
· Less sensitive to criticism	· Improves sex life

Balance of SNS and PNS

"When the mind is at peace, the brain releases dopamine and nor-epinephrine along with endorphins to enhance a person's sense of security and comfort. When we relax, the body feels free to spend energy cleaning up free radicals created during metabolism. The white blood cells

have unlimited access to energy for disposing bacteria and waste. Considering these immune functions, it becomes clear how the daily practice of relaxation exercises can restore immune resilience."

—Michael Liebowitz, M.D.-- The Chemistry of Love



The PNS and SNS evolved hand-in-hand to keep animals and humans alive in, and alert in, very dangerous environments. We need access to both of them in dynamic balance.

That balanced combination of aliveness and centeredness is the essence of peak performance recognized by athletes, businesspeople, artists, and meditators. It's the result of the SNS and PNS balance and dynamic harmony. Centeredness, love, and wisdom aren't cultivated by suppressing the SNS, but rather by keeping the autonomic nervous system (SNS & PNS) as a whole, in an optimal state of balance. Where both are available to us when needed and the SNS does not over balance of lifestyle and a nervous system should have the tone of the PNS strong.

A Balanced SNS and PNS, *Seeing the Reality As It Is!*

To see-the-reality-as-it-is, is to learn and adjust skillfully from lessons of the past, and respond, clearly, and centered to the present. The problem is…. with the alarm bells ringing in our ears, in a SNS dominant unbalanced state, our perceptions are skewed and twisted at that moment, and the memories afterwards, that are tucked away deep in the brain, are also twisted. So becomes very difficult to respond appropriately in the moment, with a clear mind and centered decisions, and then after it is over, our mind files away a memory with holes in it, and if that is not bad enough, we can also embellish those holes in our memories and color them in from our own simulations in our brain. Much the same as the brains capacity, to fill in the information lacked by visual blind spots. How many times have you questioned someone's memory of a traumatic event, to find it so different from our own? This is compounded when a group or a company trauma happens, it's difficult to access the collective memory, and compare it to the facts of the reality, in order to study and learn from past mistakes.

If you can think in front of a tiger, you will surely succeed.

"If you know the point of balance, you can settle the details.

If you can settle the details, you can stop running around.

Your mind will become calm.

If your mind becomes calm, you can think in front of a tiger.

If you can think in front of a tiger, you will surely succeed."

--Mencius-- (Chinese Philosopher c.372 – 289 BC)

If you can't fight or flee… then flow. Do you know your point of balance? How can we get to it and center ourselves in the middle of a battle? We have to retrain and balance our Mind-Body, not to be overwhelmed by the SNS or overcome by an overly negative view of reality, which contorts our reactions and decisions. Even if you have unlearned or healed a negative past experience, studies show it still leaves an indelible trace in our brains. It's that residue that sets the stage for a neurological over reaction, ready to reactivate, if we are ever in the same fear-triggering circumstance.

Aversion is primed deep inside our minds and brains wiring, this 'negativity bias' primes us and makes us react through the SNS responses. This projection from past experience, does not allow us to view reality-as-it-is. The white noise of anxiety is harder for us, not react in the present, uncolored from the past.

What is a parasympathetic workout?

You need to train. A weight lifter starts with 10 lbs., then 20 lbs., slowly building to 100 lbs., training hard to lift 200 lbs. You don't just walk into a gym and lift a 250 lb. weight. You will be able to handle the 250 lbs. of the stress of pain, but only by training yourself. Regular relaxation, meditation, yoga or just regular quiet time — anything that increases our ability of our PSN to bounce back. If we can simply stay present, keeping the mind-in-the-moment, with whatever is arising, whether through PSN work-outs, that help us reshape our minds and brains.

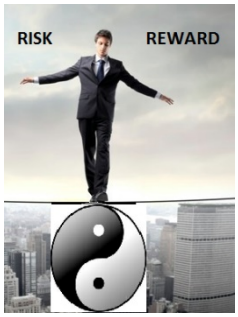
For example, take ten belly breaths, inhaling and exhaling a little more fully than usual. This is both energizing and relaxing, activating first the sympathetic system and then the parasympathetic one, back and forth, in a gentle rhythm. Notice how you feel when you're done.

Try a simple breathing exercise: Relaxed abdominal breathing is a slow, calm style of breathing where we breathe mainly from our diaphragm/abdomen. If you observe a child that is relaxed and happy and you will see that their abdomen moves out when they inhale and it deflates when they exhale. There is very little movement in their chest. Studies have shown that

practicing this style of diaphragmatic breathing reduces muscle tension and anxiety levels within 60 seconds. Abdominal, slow breathing stimulates the Parasympathetic.

We can train our minds to respond in a positive balanced way to risks. Unclouded and unfettered by SNS programmed biased to negativity, for over caution against risk to reward, but rather to see the reality-as-it-is, clearer, freer of past reactions, dulled by cloudy perceptions. Our minds and awareness can change what arises and nourish a growing sense of the peace and clarity inside.

Warm-heart cool-head *Balance seizes the opportunity in risk***.**



- **Balance** – not reacting to the fleeting stream of experience.
- **Equanimity** – evenness of mind especially under stress
- **Equipoise** – even balance of weight or other forces; equilibrium
- **Steadiness** – sustained through all circumstances
- **Presence** – engaged with the world but not troubled by it; guided by values and virtues, not reactive patterns.

To cultivate equanimity is to cultivate a state of mind, being, or preparedness, where the SNS and PNS are in harmony – This "state of being balanced" is to be prepared, for specific or unpredictable emergency, events or situation. It's this balanced centeredness that Rudyard Kipling describes in his poem "If":

"If you can keep your head when all about you
Are losing theirs and blaming it on you;
If you can trust yourself when all men doubt you,
But make allowance for their doubting to"

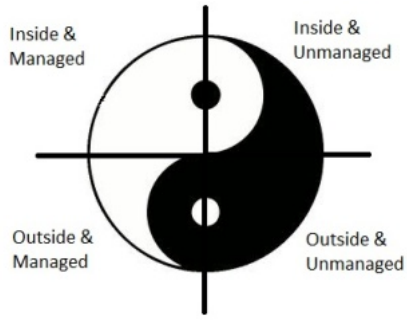
This poem has been embraced by the British, as an example of *noble suffering*, through two world wars, and to this day, kind-of defines the British evenness under pressure. Keep your head by balanced SNS/PSN response, when all around you are losing theirs (and flaring an unchecked SNS response.)

"If you can meet with Triumph and Disaster
And treat those two impostors just the same"

Equipoise of mind and body, of SNS and PSN, where neither craving for victory or aversion of defeat, can shake the balance of the mind. This is hung over the entrance to Centre Court at Wimbledon. The ancient circuitry of the brain continually triggers reactions. Equanimity is the circuit breaker that prevents the craving (broadly defined) that leads to suffering. Equanimity is at the very heart of Buddhist contemplative practice.

Weighing Risk against Opportunities for Rewards

Balance of SNS (Yang) and PNS (Yin)



Warm Heart and Cool Head

Balance Inside, is most often unmanaged. The PNS cools and keeps the SNS balance even, to help us think clearly, avoiding hot-headed responses that would harm us or others. The PNS also quiets and calms the mind and fostering evenness and tranquility, which supports insights for opportunity. The PNS and SNS evolved hand in hand in order to keep animals–including humans–alive in very dangerous environments. We need appropriate access to both of them.

That combination of aliveness and centeredness is the essence of the peak performance zone recognized by athletes, businesspeople, artists, lovers, and meditators. It's the result of the SNS and PNS, the gas pedal and the brakes, working in harmony together.

Happiness, love, and wisdom aren't furthered by shutting down the SNS, but rather by keeping the autonomic nervous system as- a-whole in an optimal state of balance: Mainly parasympathetic arousal for a baseline of ease and peacefulness. Mild SNS activation is essential for enthusiasm, vitality of purpose, and wholesome passions. Occasional SNS spikes to deal with demanding situations, occurring from a great opportunity at work, to a late-night call from a daughter crashed a car yet is unhurt, it is appropriate to energize and motivate to deal with the situation, and then to produce a relaxation response to smooth out the SNS is balance inside.

What to Do to Create Balance? 20 Minutes Daily of a Relaxation Body Scan.

The term, 'Relaxation Response' was coined by Dr. Herbert Benson, professor, author, cardiologist, and founder of Harvard's Mind/Body Medical Institute. The response is defined as your personal ability to encourage your body to release chemicals and brain signals that make your muscles and organs relax and slow down and increase blood flow to the brain. A daily

creation of a Relaxation Response, helps to turn off fight or flight response and bring the body back to pre-stress levels. Research has shown that regular use of the Relaxation Response can help any health problem that is caused or exacerbated by chronic stress such as fibromyalgia, gastrointestinal ailments, insomnia, hypertension, anxiety disorders, and others.

Body Scan Relaxation Technique: This is the heart of the Natural Stress Relief Program, methodically scanning the mind through the body, connecting and relaxing as you go. Remember, just 20 minutes a day for 5 weeks will get you the positive results. It takes 5 weeks daily to be able to produce a relaxation-response at will and turn-off the switch that produces the fight-or-flight response. The goal is eventually not to need this audio, but to do a memorized version as your own narrative to your relaxation response.

Free D'Arcy Wellness Stress Relief Program Resource.

https://www.darcynat.com/stress-relief-program/

Free D'Arcy Wellness Body Scan Relaxation Audio (20 minutes)

https://www.darcynat.com/wp-content/uploads/2017/11/Body_Scan_Stress_Relief.mp3

Relaxation-Response Research, 20 minutes daily for a 5-week program.

(If a Pharmaceutical could match these results, it would be considered very successful drug indeed!)

- **Stress Relief Progressive Relaxation Research 50% Reduction in Visits to an HMO** After a relaxation-response based intervention which resulted in estimated significant cost savings*. Behavioral Medicine, Volume 16, pages 165-173, 1990.*
- **80% of Hypertensive Patients have Lowered Blood Pressure and Decreased Medications** –16% are able to Discontinue All of their Medications. Patients in the relaxation response group were more likely to

successfully eliminate an antihypertensive medication. *The Journal of Complementary and Alternative Medicine, 2008.* These results lasted at least three years*. Journal of Cardiopulmonary Rehabilitation, Volume 9, pages 316-324, 1989.*

- **Relaxation Therapy Similar to Stage 1 Sleep** Relaxation Therapy may exert their therapeutic effects, in part, through cerebral energy conservation/restoration. *Applied Psychophysiology and Biofeedback, 2004.*
- **64% Decreased Stress and Anxiety,** Lower levels of perceived stress and anxiety and increased stress management behaviors, compared to scores of 44 10th graders participating in the wait list control group. *Annual meeting of the Society of Behavioral Medicine, 2009.*
- **31% Improvement in Severe PMS,** Over a 5-month study. Obstet Gynecol 75(4): 649-55.
- **Increased Fertility,** The group was able to cope more effectively with the demands of infertility treatment. *Annual meeting of the Society of Behavioral Medicine, 2009*.
- **Chronic Pain Patients Reduce their Physician Visits by 36*%.*** *The Clinical Journal of Pain, Volume 2, pages 305-310, 1991.*
- **Open Heart Surgery Patients have Fewer Post-Operative Complications.** *Behavioral Medicine, Volume 5, pages 111-117, 1989.*
- **100% of Insomnia Patients Reported Improved Sleep and 91% Either Eliminated or Reduced Sleeping Medication Use.** The American Journal of Medicine, Volume 100, pages 212-216, 1996.
- **Infertile women have a 42% conception rate, a 38% take-home baby rate, and decreased levels of depression, anxiety, and anger.** *Journal of American Medical Women's Association. Volume 54, pages 196-8, 1999.*
- **57% Reduction in PMS reduction in physical and psychological symptoms**. *Obstetrics and Gynecology, Volume 75, pages 649-655, April, 1990.*
- **Increased Self-Esteem: High school students exposed to a relaxation response-based curriculum had significantly increased their self-esteem.** *The Journal of Research and Development in Education, Volume 27, pages 226-231, 1994.*
- **More Effective at School Inner city middle school,l students improved grade score, work habits and cooperation and decreased absences.** *Journal of Research and Development in Education, Volume 33, pages 156-165, Spring 2000.*

Stress Relief

Switch-off *Stress,* ***Switch-on*** *the immune system*

Our fight or flight response is hardwired from cavemen days. All our immune resources, are robbed by our fight-or-flight (SNS) responses. Stress flares our F&F (SNS) many times a day, suppressing our immune response.