



TheElite Training Group track club

Expanding the area of what is possible

In Track & Field Distance Running & Competent Self-Care in medicine and psychology

www.theetgtrackclub.com

quad & para nerve repair

A major part of TheETG mission is to expand the area of what is possible in competent self-care in medicine and psychology. TheETG's primary method of achieving that is to proliferate applied science based information by way of \$free packets containing plain language info for anyone seeking to move themselves or others forward in these areas.

TheETG packets attempt to address the following;

".....the benefits that US health care currently deliver may not outweigh the aggregate health harm it imparts."
[Journal Of The American Medical Association...Volume 302 #1..July 1, 2009...page 89 - 91]

"Not enough doctors adapt appropriately to new scientific findings.....An insufficient number of medical faculty members are well prepared, effective educators, and too few medical schools prepare their students for a lifetime of learning and change."
[J.Hilliard, et al. -- The Lancet -- Volume 385 #9969 -- February 21, 2015 -- page 672]

"...takes an average of 17 years to translate 14% of original research into benefit.....average of 9 years for interventions recommended as evidence-based practices to be fully adopted."
[M.Tinkle, et al -- Dissemination and Implementation -- Nursing Research and Practice -- Volume 2013]

".....1.5 million U.S. residents are harmed or killed each year because of medication errors, according to an Institute of Medicine report."
[Nature Medicine -- Volume 12 #9 -- September 2006 -- page 984 - 985....News In Brief]

"It is estimated that more than 700,000 individuals are seen in hospital emergency departments for adverse drug events each year in the United States."
[Centers For Disease Control -- 2015]

"Most drugs are only effective for a small percentage of people who take them."
[Michael Leavitt -- U.S. Secretary of Health & Human Services 2005 - 2009]

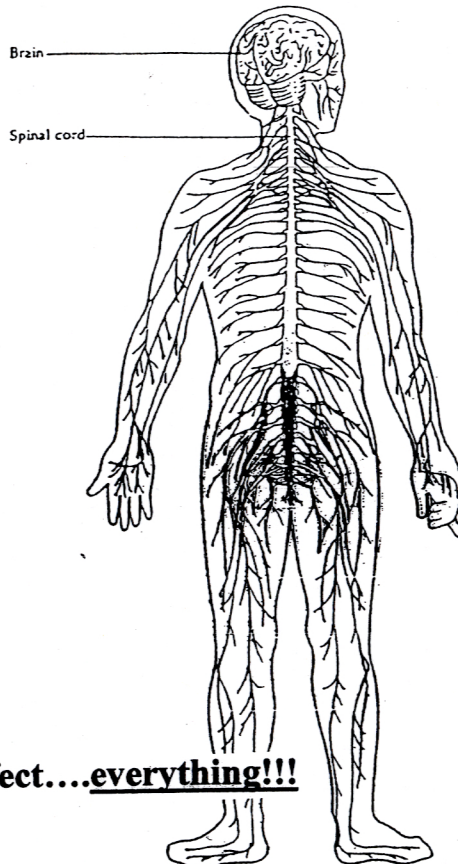
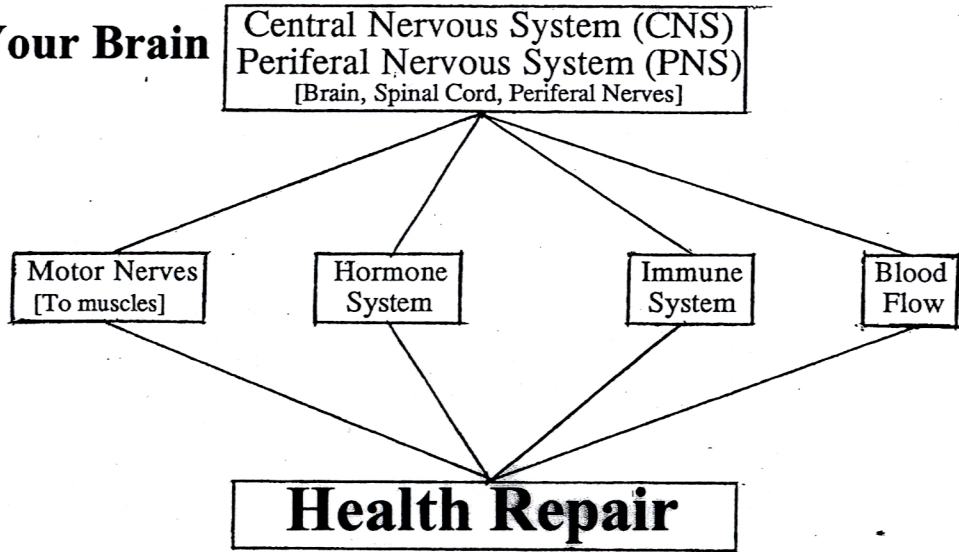
".....A recent study for example, found that only half of all cardiac guidelines are based on scientific evidence."
[President Barack Obama -- Speech to the American Medical Association -- June 15, 2009]

"All the good things....they don't teach us in medical school, because the drug companies pay for our education."
[Dr. John Sessions M.D.]

You may copy any and all contents of this packet, with exception and exclusion of using such copies for purposes of producing revenue, profit, or any direct or indirect compensation.

[21st century Health Repair]

Use Your Brain



Train The Brain

The Brain;

-- Branches out to the body

-- Thus it can control or effect....everything!!!

ETG Spinal Cord Rehab.

Goal = reverse paralysis

Belief systems.....

Have been.....

--- spinal cords don't heal

Should be....

--- spinal cords don't heal on their own.....**immediately**.....or without doing some aspect of training.

To reverse paralysis.....

--- you **must** stimulate nerve fibers that are descending [ie. from brain to leg/arm] and ascending [ie. from leg/arm to brain] that are above and below the spinal cord injury site.

Time Course Goals

--- Recover "some" movement within 12 months following the first training session

--- Recover fully functional movement within 24 months following recovery of "some" movement

Paralysis Reversal Training --- Group 1

Attempts to move leg/arm

purpose --- stimulation of nerve fibers descending into the spinal cord injury site, stimulating repair of severed//damaged nerve fibers.

Massage of limbs and torso below the spinal cord injury site

purpose --- stimulation of nerve fibers ascending into the spinal cord injury site, stimulating repair of severed//damaged sensory nerve fibers.

Paralysis Reversal Training --- Group 2

Visualization of leg/arm movements

purpose --- stimulation of nerve fibers descending into the spinal cord injury site, stimulating repair of severed//damaged nerve fibers.

Autogenic Relaxation

purpose --- aide in the production of Nerve Growth Factor and other neuro-trophin substances, as well as aide immune system function at the spinal cord injury site.

Paralysis Reversal Training --- Group 3.....Begin once you've begun recovering "some" movement.

High weight/resistance movement of leg/arm

purpose --- stimulation of nerve fibers leading to the production of greater connections to muscle fibers, and a greater ability to activate muscle fibers.

High velocity movement of leg/arm

purpose --- stimulation of nerve fibers leading to the production of greater ability to quickly activate muscle fibers.

Progressions

Progressions

-- [once you've recovered "some" movement] You must have progressions to higher effort or resistance to movement at least every 4 weeks built into your training program to avoid a plateau in your improvement.

Avoid stagnant workout protocols.

Caveats

Avoidance of Over-training

-- Over-training will stall or reverse your progress

-- Keep efforts down to very few reps//minutes per training session [high effort = high results, thus there is **no need** for high quantity, high volume work]

-- Train no more than 3 days per week

----- No ingestion of drugs [beer, coffee, liquor, stimulants] that impair and or destroy brain cell function, impair production of Nerve Growth Factor and/or other neuro-trophin substances

----- No ingestion of the types of pain killers that impair production of Nerve Growth Factor and/or other neuro-trophin substances

----- No ingestion of the types of pain killers that suppress the function of immune system cells.

Autogenic Relaxation

Mind-body Connections

Things you can use to your advantage in life, business, sport, etc, etc.

From slowing cellular aging and reducing likelihood of heart attack...to improving workout recovery and adaptations to training in athletes and weekend warriors.

Can improve everything from worker productivity on the job, to student learning in the classroom, to child and toddler behavior and brain development, to stay-at-home mom stress reduction in the household.

If you have a brain and nervous system, mind-body connections are your friends.

I first began using Autogenic relaxation sometime in the early 1980's. As a coach of distance runners I began teaching it to my athletes in the mid-1980's to help both in sport and in their academics, test preparation, etc. Many of them still use it today in daily lives as do I.

Autogenic Relaxation

Auto-genics works directly through the brain, the principal regulator of all body systems. The brain can put into practice, verbal instructions and imagined feelings oriented toward operation of internal organ systems such as blood flow, heart rate, nervous system relaxation, etc.

Purpose

-- reduce brain and peripheral nervous system activity, reduce stress hormone [cortisol] levels and/or effects, increase blood flow and oxygenation, increase or normalize levels of substances and growth factors [nerve growth factors, neuro-trophic factors, anabolic hormones, etc] that promote regeneration and recovery functions in brain, nerve, immune system, and muscle.

Duration

-- 20 seconds to 20 minutes

Autogenic Relaxation: Stage 1

-- Oxygenation [diaphragmatic breathing]....lay on floor or sit, place one hand on stomach. During inhale, make your stomach rise prior to your chest rising.

Autogenic Relaxation: Stage 2

-- Brain and nervous system activity reduction.....close your eyes, let go of thoughts related to daily activities. Repeat affirmations several times...."This is my down-time, I am calming and quieting all cells of my body. I am resting."

Autogenic Relaxation: Stage 3

-- Blood flow.....create relaxation, warmth and heaviness in limbs and torso. Repeat the affirmations...."my hands and arms are becoming warmer and heavier. My feet and legs are becoming warmer and heavier. My chest and torso is becoming warmer and heavier. I am feeling more and more quiet, calm, and relaxed."

Eyes closed bed-rest [and/or Napping]

Laying down on a bed, floor, ground and close your eyes.

Purpose

Split-up the amount of "up-time" and/or awake-time on a given day by inserting some down-time. Reduce the cumulative total amount of daily activity and stress loads on brain, nervous system, and immune system.

Duration

-- 10 minutes to 2 hours

Hot Jacuzzi or hot bath

Sit in a hot Jacuzzi or bath tub.

Purpose

-- Provide temperature and relaxation related stimuli for production of growth and regeneration oriented substances in the brain and body [nerve growth factor, growth hormone, etc]. Increase blood flow and oxygenation in order to promote regeneration and recovery functions in brain, nerve, immune system, and muscle.

Temperature

F = 98 - 105 degrees

C = 37 - 40

Duration

-- 5 to 10 minutes

Access to information and the ability to apply it is the major mechanism of success in human performance in track & field, in medicine, in health and wellness. As you continue to acquire and apply more information you continue **to expand the area of what is possible.**

To be a good track coach one must -first- be a good physiologist.

To be a good medical doctor one must -first- be a good physiologist.

To be a good physiologist one must -first- be willing to.....

-- put data ahead of dogma

-- put science ahead of indoctrinated tradition

-- put logic and reason ahead of faulty assumptions

-- put mechanisms ahead of correlations and "risk factors"

-- put critical thinking and clinical reasoning ahead of memorized "if-then" statements

-- aggressively keep up with, read, and apply large amounts of published research

-- accept outcomes as the judge and jury of your work

Early mobilization may ease recovery process.....

“It is known that physical activity triggers changes in the central nervous system.”

“Adult rats, trained on treadmills for 4 weeks, and a group of sedentary rats was submitted to contuse moderate spinal cord injury.“

“Lesion volume and lesion areal fraction per section were smaller in the trained group. Lesion index was more pronounced in the sedentary group.”

“In conclusion, treadmill running may favor a better functional recovery in the acute period after spinal cord lesion and wound repair processes leading to neuroprotection.”

M.Schultz et al

[Treadmill running protects spinal cord contusion from secondary degeneration](#)

Brain Research.....Volume 1346.....July 30, 2010...page 266 - 278

"Until recently, the local inflammation that occurs in response to spinal cord injury has received a negative reputation; overall, it was assumed to be one of **the major causes of a vicious neurotoxic cycle that leads to impaired recovery following injury.**

This local inflammation involves both the activated tissue-resident microglia and monocyte-derived macrophages infiltrating from the blood. Ten years ago, we proposed that the **blood-derived macrophages**, reminiscent of "alternatively activated" macrophages (also known as tissue repairing, M2), **are not spontaneously recruited in sufficient numbers to sites of injured central nervous system (CNS).**"

"We further demonstrated that their exogenous administration to the margins of injured spinal cord **improved functional outcome.** However, our suggestions evoked criticism, claiming that we were adding macrophages to a site that is already overwhelmed with inflammatory cells."

"Using experimental paradigms that enabled functional distinction between the resident and infiltrating cells, our most recent studies further corroborated our repair perception, showing that

"(a) **infiltrating monocyte-derived macrophages are recruited following injury and localize to the margins of the lesion,** unlike the activated resident microglia that are not compartmentalized, and

"(b) activated resident microglia (b) and infiltrating monocyte-derived macrophages perform distinct roles; recruited **blood-derived macrophages display an (IL-10-dependent) anti-inflammatory phenotype** when they become co-localized with the glial scar."

"We further found that post-injury recruitment of blood monocytes is indeed suboptimal. Augmentation of the levels of naïve blood monocytes leads to their increased recruitment to the same zones that are the targets of the infiltrated endogenous monocytes, and they acquire the same anti-inflammatory activity, leading to improved recovery. Thus, boosting the levels of the relevant blood monocytes **reinforces the body's own repair mechanisms** that, for reasons that are currently under investigation, are not optimally triggered within the critical post-injury period."

M. Schwartz

"Tissue-repairing" blood-derived macrophages are essential for healing of the injured spinal cord: From skin-activated macrophages to infiltrating blood-derived cells?

Brain, Behavior, and Immunity....Volume 24 #7....October 2010....pages 1054 - 1057

9
“...a variety of approaches from boosting the function of immune cells within the lesion to promoting regeneration of severed connections.....”

“....not all approaches are drug-based. Some research suggests that neural circuits can turn off when not used for long periods of time, but might be able to be reactivated by intense rehabilitative training.”

Regenerating Hope
Nature Neuroscience.....Volume 7 #3...March 2004....page 197

“rTMS of the cerebral cortex resulted in physical and sensory improvements.....”

“The researchers believe that rTMS strengthens the information leaving the brain to the spinal cord and activates surviving nerves to strengthen their connections.”

News In Brief
The Lancet....Volume 363....May 15, 2004....page 1617

“Neurotrophins play a crucial role in cell survival and anatomical reorganization of damaged spinal cord.”

“Our data indicate that Brain Derived Neuro-trophic Factor and Neuro-trophic Factor 4 expression could be modulated by activity of spinal circuitry and further support putative involvement of the endogenous neuro-trophins in mechanisms of spinal cord neuro-plasticity.”

R. Gulinoa, et al
Levels Of Brain-Derived Neurotrophic Factor And Neurotrophin-4 In Lumbar Motoneurons After Low-Thoracic Spinal Cord Hemisection

Brain Research.....Volume 1013, Issue 2....July 9, 2004.....pages 174 - 181

“Here we show that the adult brain has the capacity for self-repair after insults causing extensive neuronal death.”

A. Arvidsson, et. al
Neuronal Replacement From Endogenous Precursors In The Adult Brain After Stroke

Nature Medicine....Volume 8 #9.....September 2002....page 963

"Spinal cord injury is a traumatic event from which there is limited recovery of function, despite the best efforts of many investigators to devise realistic therapeutic treatments. Partly this is due to the multifaceted nature of SCI, where there is considerable disarray and dysfunction secondary to the initial injury."

"Here we focus on a single strategy, exercise/physical training, which appears to have multiple applications and benefits for an acute or chronic Spinal cord injury."

"Exercise has been demonstrated to be advantageous at cellular and biochemical levels, as well as being of benefit for the whole animal or human subject."

"Data from our lab and others will be discussed to further elucidate the many positive aspects of implementing exercise following injury and to suggest that rehabilitation is not the sole target of a training regimen following Spinal cord injury."

H.R. Sandrow-Feinberg, J.D. Houle

**Exercise after spinal cord injury as an agent for neuroprotection, regeneration and rehabilitation
Brain Research -- Volume 1619 -- September 4, 2015 -- page 12**

Resveratrol --vs-- spinal cord injury

Definitions --- Apoptosis = cell death

“Research on the pathology of spinal cord injury have been recently focused on oxidative radicals stress and inflammation associated neuronal apoptosis.”

“Resveratrol, a natural phenolic compound, has been extensively studied....”

“... the study of its potential role in neuroprotection and underlying mechanism in spinal cord injury model has been limited.”

“In this study, we investigated the effect of resveratrol on neurologic functions and histopathologic changes after spinal cord injury and the mechanism underlying its neuro-protective effects.”

“Resveratrol treatment reversed the decrease of SOD activity and increase of MDA level caused by spinal cord injury...”

In addition, resveratrol treatment suppressed immunoreactivity and expression of inflammatory cytokines.....after spinal cord injury....”

“.....resveratrol treatment inhibited injury-induced apoptosis.....”

“Our data suggest that resveratrol significantly promotes the recovery of rat dorsal neuronal function after spinal cord injury, and this effect is related to its characteristics of anti-oxidation, anti-inflammation and anti-apoptosis.”

Chanbjian Liu, et al

Resveratrol improves neuron protection and functional recovery in rat model of spinal cord injury
Brain Research.....Volume 1374.....February 16, 2011.....page 100 - 109

<http://theetgtrackclub.com/selfcare>

**On the self-care page of TheETG website,
please see the free pdf packet titled....**

TheETG nutrition medicine —

<http://theetgtrackclub.com/documents/TheETGnutrimedicine.pdf>



**On the self-care page of TheETG website,
please see the free pdf packet titled....**

TheETG exercise program —

<http://theetgtrackclub.com/documents/TheETGexerciseprogram.pdf>

So called "performance enhancing drugs" are prescription drugs.

Some examples of the effectiveness of prescription drugs in sport.....

"The drug erythropoietin, often called EPO.....a new systemic review of existing research reveals that **there is no scientific evidence that it does enhance performance**, but there is evidence that using it in sport could place a user's health and life at risk."
EPO [erythropoietin] doping in elite cycling: No evidence of benefit, but risk of harm
Science Daily.....December 5, 2012.

"...**there is no scientific basis from which to conclude that rHuEPO has performance-enhancing properties** in elite cyclists." "The use of rHuEPO in cycling is rife but scientifically unsupported by evidence, and its use in sports is medical malpractice."
J.A.Heuberger, et al
Erythropoietin doping in cycling: lack of evidence for efficacy and a negative risk-benefit.
British Journal Of Clinical Pharmacology.....Volume 75 #6.....June 2013...page 1406

"The **over-exaggeration of the effects of growth hormone** in muscle building is effectively promoting its abuse...."
"....there is the question of disinformation on rhGH....Part of this problem may, paradoxically, derive from the anti-doping authorities themselves. By ignoring the evidence the **rhGH does not work** in normal healthy subjects, the athletic establishment could be accused of effectively promoting its use."
"**We must tell athletes the truth: growth hormone does not 'work'** or at least not as they think it does and that its is associated with all kinds of immediate and long term hazards-----everything from decreased performance to cancer."
"....none of us scientists, doctors, coaches, or sports bodies should continue to suggest that this dangerous doping practice works."
M.J. Rennie
British Journal Of Sports Medicine.....Volume 37 #2....April 2003....pages 100-103

"**Testosterone prohormones** such as androstenedione, androstenediol, and dehydroepiandrosterone (DHEA) have been heavily marketed as testosterone-enhancing and muscle-building nutritional supplements for the past decade."
"Contrary to marketing claims, research to date indicates that the use of prohormone nutritional supplements (DHEA, androstenedione, androstenediol, and other steroid hormone supplements) **does not produce either anabolic or ergogenic** effects in men. Moreover, the use of prohormone nutritional supplements may raise the risk for negative health consequences."
G.A.Brown, et al
Testosterone Prohormone Supplements.
Medicine & Science in Sports & Exercise.....Volume 38 #8....August 2006.....pg 1367-1537

So called "performance enhancing drugs" are prescription drugs.

Some examples of the effectiveness of prescription drugs in American medicine & health care.....

"Most drugs are only effective **for a small percentage** of people who take them."
Michael Leavitt [U.S. Secretary of Health & Human Services 2005 - 2009]

".....the benefits that US health care currently deliver **may not outweigh the aggregate health harm** it imparts."
Journal Of The American Medical Association...Volume 302 #1..July 1, 2009...page 89 - 91

"It is estimated that more than 700,000 individuals are seen in hospital emergency departments for adverse drug events each year in the United States."
[Centers For Disease Control.....2015]

"106,000 deaths/year **from non-error**, adverse effects of medications"
B. Starfield
Is US Health Really the Best in the World
Journal of The American Medical Association.....Volume 284 #4....July 26, 2000....page 483 - 485

".....1.5 million U.S. residents are harmed or killed each year because of medication errors, according to an Institute of Medicine report."
Nature Medicine....Volume 12 #9.....September 2006.....pg 984 - 985.....News In Brief

Pursue becoming a

**Master Of
Sport**