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SKY and Vagus Nerve

Lets meet our Vagus Nerve

Longest Cranial Nerve

Command center for the Parsympthetic branch of the Autonomic Nervous System

Controls and manages the involuntary functions in the body , i.e all the functions you can not manage directly but are critical to your health

Vagus Nerve is an internal switch that determines whether we are in a stressed or a relaxed state

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SKY and Vagus Nerve

Vagus Nerve is involved in

Heart Health

Breathing

Hearing

Speaking

Weight Management

Digestion

Hunger and feeling of satiation

Nutrient Absorption

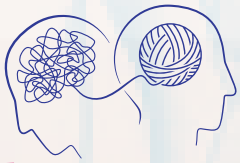
Blood Glucose balance

Immunity

Inflammation reduction

Vit B and D production

Social bonding



Depression Remission

Positive mental health

Fertility

A healthy Vagus Nerve is the key to good mental , physical and social health

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Important Terms for Understanding Vagus Nerve Function

Heart Rate Variability - HRV

variation in time between each heart beat

High HRV implies a healthy Vagus Nerve

Vagal Tone

Activity of Vagus Nerve. High Vagal tone means a more active Vagus Nerve

High vagal tone implies a more active nerve

Low Frequency (Lf) HRV

Low frequency component of HRV indicative of stress, fight or flight state

Low Lf component indicates high vagal tone

High Frequency (Hf) HRV

High frequency component of HRV indicative of rest, digest and repair state

High Hf component indicates high vagal tone

LF/HF Ratio

The ratio of LF to HF reflects the sympathovagal balance , indicative of balance between stress and rest states

Low Lf/Hf ratio indicates resilience & balance between stress and rest

Most Studies measure HRV, Lf, Hf and Lf/Hf via an electrocardiogram (ECG) in order to assess Vagus Nerve function

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SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve

5 Research studies that measure impact of SKY on Vagus Nerve

3 Countries in which studies on SKY and Vagus were conducted : India, Italy & USA

190 Combined Sample size of the studies

Study population included healthy people, students and those suffering from anxiety & depression

Most Studies measure HRV, Lf, Hf and Lf/Hf via an electrocardiogram (ECG) in order to assess Vagus Nerve function

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SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve - Study 1

Study Objective

Impact of a single Long SKY session on HRV (Vagus Nerve activity)

Population

30 healthy individuals practicing SKY for more than 2 months

Study Design

HRV measurement before and after a single Long SKY session

Results

↑ 13.5% increase in rest and digest state: parasympthatic activation

↓ 12.5% decrease in Heart Rate

Lf decreased and Hf increased

Increased Vagal tone

A single session of Long Sudarshan Kriya has a cardioprotective effect and increases Vagal tone

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SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve - Study 2

Study Objective

Impact of SKY on Cardiac Autonomic (Vagus Nerve) Activity

Population

46 individuals suffering from anxiety or depression* (Control n=22/ SKY n=24)

**People suffering from anxiety or depression have lower vagal tone than normal population*

Study Design

ECG measured at baseline (pre) and 15 days post SKY.Controls received conventional therapy (CT). SKY grp received CT & SKY

Results

Lf decreased and Hf increased

Lf/Hf ratio decreased implying sympathovagal balance

Increased Vagal tone

Higher Hf in SKYgroup indicates reduced anxiety and depression

Control group did not observe significant changes in parameters

People suffering from anxiety have a lower vagal tone than normal population. SKY helps increase the Vagal tone and sympthovagal balance

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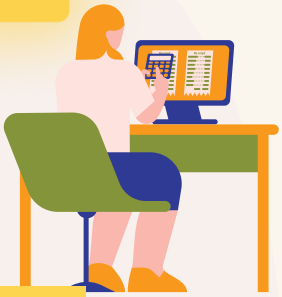
SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve - Study 3



Important Terms

Mental Workload

Mental workload refers to the quantum of mental resources required to perform multiple tasks at the same time. Constant high mental workload can cause mental fatigue & reduces productivity.

Low Workload Task

A simple task that requires little mental effort

High Workload Task

A complex task requiring large mental effort

Mental workload level can be interpreted through heart rate variability(HRV). HRV decreases with an increase in mental effort because workload has a direct effect on vagal tone

High Mental Workload = Decreased HRV

Higher Mental Workload is correlated with Sympathetic Activation , Lower HRV and Lower Vagal Tone

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SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve - Study 3

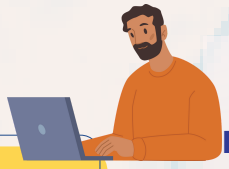
Study Objective

Impact of SKY on Mental Workload and Vagus Nerve

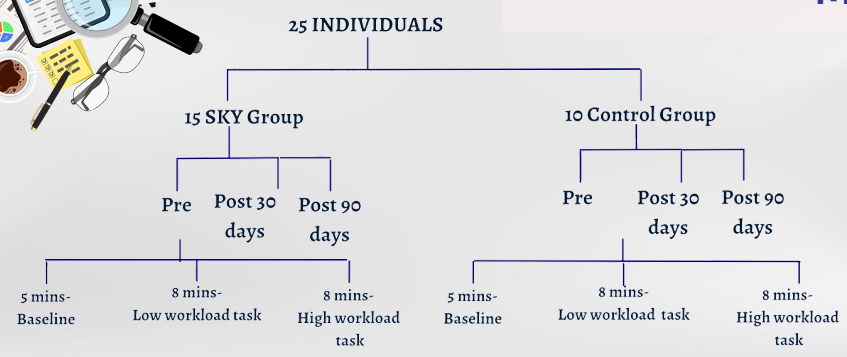
Population

25 healthy individuals novice to SKY (Control n=10/ SKY n=15)

Study Design



Participants were subjected to ECG (HRV) measurement at baseline as well as during Low Mental Workload and High Mental Workload tasks. This was measured before SKY, after 30 days and 90 days post SKY. This allowed the investigators to assess the impact of SKY on Mental Workload



The study uses Vagal tone (HRV) to measure the mental workload during simple tasks that require less effort as well as complex tasks that require more effort

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Research Studies on SKY and Vagus Nerve - Study 3

Results: SKY Group

After 30 days of SKY

1. Subjective experience of workload reduced
2. Task performance improved for both type of tasks
3. Lf/Hf ratio decreased implying greater sympathovagal balance during both type of tasks

Results: Control Group

After 30 days of SKY

1. Subjective experience of workload reduced slightly for simple tasks but increased for complex tasks
2. Task performance decreased for both type of tasks
3. Lf/Hf ratio increased implying reduced sympathovagal balance during both type of tasks

After 30 days of practice, SKY group felt more relaxed and experienced less stess even while doing complex tasks that require a lot of mental resources. There was an increase in Vagal tone and sympthovagal balance even under conditions that usually use a lot of mental resources and can create stress.

SKY IMPROVES MENTAL PERFORMANCE WHILE KEEPING ONE RELAXED AT THE SAME TIME

SKY improves stress tolerance and improves Vagal tone even under situations that require mental resources and can be stressful.

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SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve - Study 4

Study Objective

Impact of SKY (Yes+) on Vagal Tone in Young Adults

Population

29 college students from Atlanta, USA novice to SKY

Study Design

ECG along with a stationary bicycle challenge, was used to measure cardiac vagal tone & rate of recovery for heart rate via Inter-beat interval (IBI) measurement at baseline and after 4 weeks of SKY practice. IBI denotes gap between two heart beats and is related to HRV. Higher IBI denotes faster recovery from stress, higher HRV and greater Vagal tone

Results

48%

Increase in IBI recovery rate between baseline and 4-week assessment for SKY practitioners

Post SKY increase in IBI rate denotes higher HRV and hence faster restoration of sympthovagal balance after exercise

SKY PRACTICE ALLOWS ONE FASTER RECOVERY FROM STRESS AND SWIFT RESTORATION OF A RESTFUL STATE POST STRESS OR EXERTION

SKY accelerates recovery from physical stress and improves Vagal tone

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SKY and Vagus Nerve

Research Studies on SKY and Vagus Nerve - Study 5

Study Objective

Impact of SKY on Sympathovagal Balance

Population

60 healthy adults novice to SKY

Study Design

The study cohort was divided into SKY and Control Group. The SKY group practiced SKY while the control group walked daily for 30 mins. The HRV was measured via ECG before and 150 days after SKY. For analysis the population was divided into Grp A and B depending on their initial

Grp A : Lf<64ms2 : low Lf is correlated with relaxed state

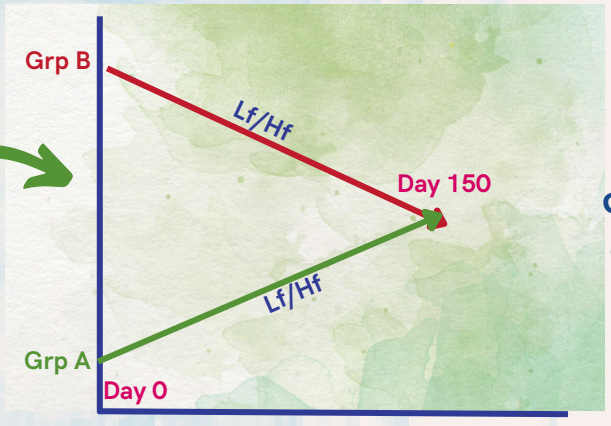
Grp B : Lf>64ms2 : high Lf is corrleated with stressed state

Results-SKY Grp

Lf/Hf ratio converged for grp A &B within 150 days

Lf decreased & Hf increased

Increased HRV (Vagal tone)



No such convergance was noticed in control group

SKY PRACTICE BRINGS CONVERGANCE OF LF/HF RATIO IN BOTH GROUPS BRINGING THEM BOTH TO BALANCE

SKY practice brings sympathovagal balance for people with both high or low Vagal tone. Its effects are customized to one's physiology!