

**WE'RE A PROUD SPONSOR!**



MASTERING THE MARKET

**STRESS & MENTAL WELLNESS**



MASTERING THE MARKET

## STRESS & MENTAL WELLNESS

SEPT. 30 - OCT. 2

HELP US WELCOME...

### DR. DEEPAK MUNDKINAJEDDU, PHD

*Head of Research And Development,  
Natural Remedies Private Limited*




Stress, Sleep, and Solutions:  
Natural Ingredients Take Center Stage





*Welcome*

**Stress, Sleep & Solutions**  
Natural Ingredients Take Center Stage



Sometimes the most  
productive thing  
you can do is relax.

MARK BLACK

RELAX

# The Session will Delve Into...

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**Overview on Stress and Sleep**

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**The Link Between - Stress and Sleep**

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**Scientific Evaluation of Stress and Sleep Issues**

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**Solutions for Stress and Sleep Issues**

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**Natural Ingredients are Taking Centre Stage**

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**Focus on Holy Basil - The Traditional Support and Science Behind**

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**Holixer™ - The New Age Calming Adaptogen**

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**- Optimized Holy Basil with Clinical and Scientific Validations**

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Overview on  
Stress and Sleep

# Overview on Stress

<https://www.ncbi.nlm.nih.gov/books/NBK541120/>

## Acute Stress

Acute stress is short-term stress that comes and goes quickly.

Everyone experiences acute stress from time to time.

## Episodic Acute Stress

When one experiences acute stress on a regular basis.

People working in certain professions, like healthcare providers experience this the most.

## Chronic Stress

Chronic stress is long-term stress that goes on for weeks or months.

One may experience chronic stress due to marriage troubles, issues at work or financial problems.

**77%**

of workers reported experiencing work-related stress .  
*APA's 2023 Work in America Survey*

**56%**

of employed U.S. adults report job stability as a source of stress

**37%**

of U.S. adults report being unable to do anything when they are stressed

# Overview on Sleep

*International Classification of Sleep Disorders (ICSD)*

## Insomnia

Having difficulty falling and staying asleep.

## Sleep-related Breathing Disorders

Breathing changes while we sleep.

## Central Disorders of Hypersomnolence

Having trouble feeling alert during the day.

## Circadian Rhythm Sleep-wake Disorders

Internal clock makes it difficult to fall asleep and wake up on time.

## Parasomnias

Physical actions or verbal expressions happen during sleep like walking, talking or eating.

## Sleep-related Movement Disorders

The urge to move makes it difficult to fall asleep and/or stay asleep.

**07**  
*out of*  
**10**

Persons were tired when their work-day is done, due to insufficient sleep.

**40%**

Women are more likely to have insomnia than men are.

**75%**

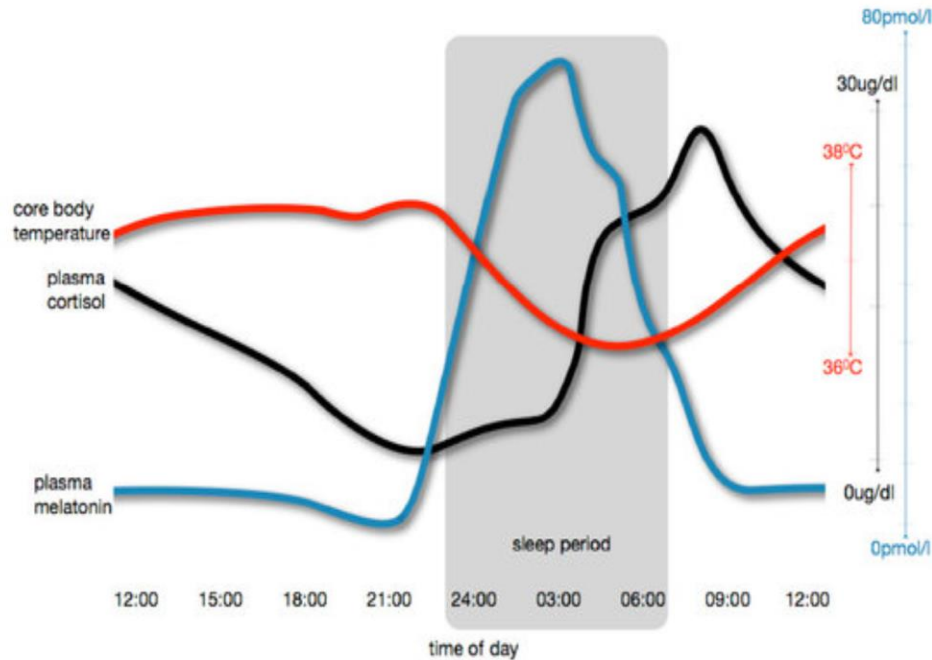
Of older adults experience symptoms of insomnia.



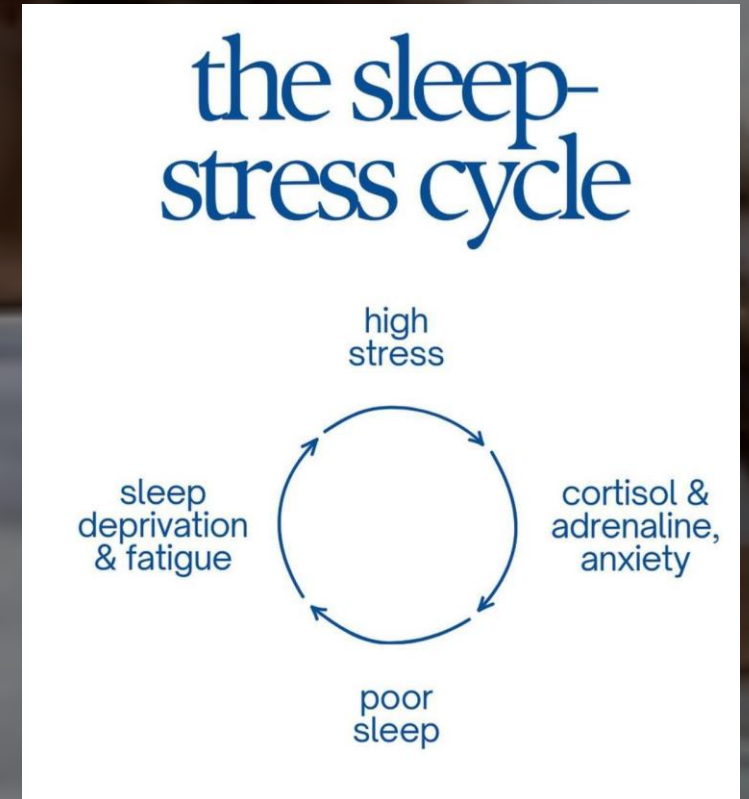
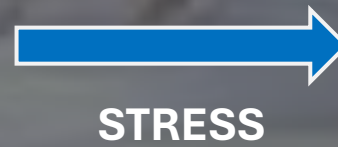
# Understanding the Link Between Stress & Sleep



# Sleep-Stress Cycle



**The normal synchronous relationships between sleep and daytime activity and cortisol, melatonin and body temperature.**



# Stress and Sleep - The Scientific Evidences



Neuroscience & Biobehavioral Reviews

Volume 117, October 2020, Pages 65-77



Stress & sleep: A relationship lasting a lifetime

**scientific** reports

**OPEN** | Stress in obstructive sleep apnea



Nature and Science of Sleep

Association Between Occupational Stress and Sleep Quality: A Systematic Review



Sleep  
Research  
Society®

SLEEP, 2023, 1–11  
<https://doi.org/10.1093/sleep/zsac256>  
Advance access publication 27 October 2022  
Original Article

**Original Article**

Daily reactivity to stress and sleep disturbances: unique risk factors for insomnia

ann. behav. med. (2021) 55:413–423  
DOI: 10.1093/abm/kaaa053

REGULAR ARTICLE

The Cycle of Daily Stress and Sleep: Sleep Measurement Matters

<http://dx.doi.org/10.5607/en.2012.21.4.141>  
Exp Neurobiol. 2012 Dec;21(4):141–150.  
pISSN 1226-2560 • eISSN 2093-8144

**Review Article**

**en**

Experimental Neurobiology

Stress and Sleep Disorder

# Scientific Evaluation of Stress and Sleep



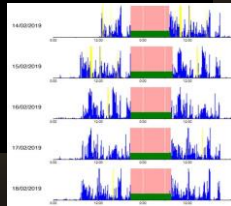
# Scientific Evaluation of Stress and Sleep

## Validated Self-reported scales

- Perceived Stress Scale
- Pittsburgh Sleep Quality Inventory (PSQI)
- Perceived Stress Reactivity Scale (PSRS)

## Objective Measurements

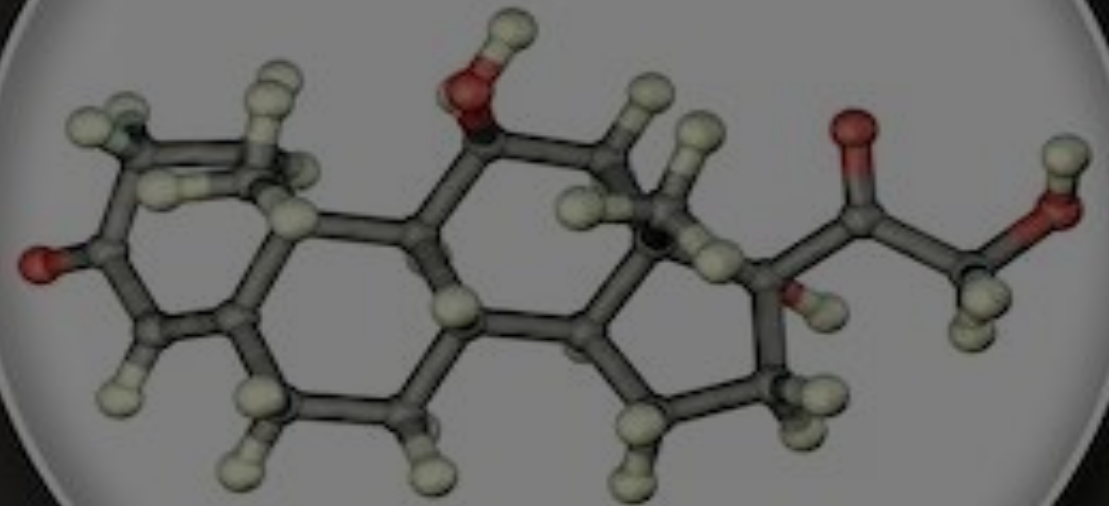
- EEG / Polysomnography
- Actigraphy
- Heart rate & Blood Pressure



## Biomarker Measurements

- Cortisol
- Melatonin

## Cortisol



# Biomarkers of Chronic Stress: In-depth

## Biomarkers of HPA-axis

- Cortisol – hair, salivary and urinary
- Adrenocorticotrophic hormone (ACTH)
- Brain-derived neurotropic factor (BDNF)

## Endocrine biomarkers

- Prolactin and oxytocin
- Dehydroepiandrosterone sulfate (DHEA-S)

## Biomarkers of Autonomic Nervous System (ANS)

- Catecholamines – epinephrine and norepinephrine

## Biomarkers of Metabolic Processes

- Glucose, HbA1c, triglycerides, and cholesterol

## Biomarkers of Immune System

- Cytokines
- Natural killer cells (NK) and leukocytes
- C-reactive protein (CRP) and fibrinogen

## Antioxidant biomarkers

- SOD and catalase
- Malondialdehyde (MDA)

# Solutions for Stress and Sleep Issues



# Approaches for Managing Stress and Sleep

A person is sitting at a desk in a dimly lit room, looking stressed with their head in their hands. The background shows a window with a view of a city at night. The overall mood is one of exhaustion and stress.

## Physical

- Exercise - Yoga
- Sports
- Outdoor Activities

## Chemical Drugs

- Anti-anxiety Drugs
- Sedatives

## Emotional

- Meditation, Mindfulness...
- Music
- Pets

## Supplements

- Melatonin
- Botanicals - Adaptogens



A photograph of a sunset over a vast, green field. The sun is a bright yellow orb on the horizon, casting a warm glow across the sky. The field is filled with dense green vegetation, possibly a crop field, stretching to the horizon. The sky is a mix of orange, yellow, and light blue.

Natural Ingredients are Taking Center Stage!!!

# Botanicals for Sleep

**Chamomile**



**Lemon Balm**



**Valerian**



**Lavender**



**Passion-Flower**



# Botanicals for Stress (Adaptogens)

**Ashwagandha**



**Rhodiola**



**Ginseng**



**Path: Energy to Tackle Stress**

**Bacopa**



**Path: Cognition Related Stress**



**Holy Basil**

**Path: Calming Effect to Tackle Stress & Sleep Issues**

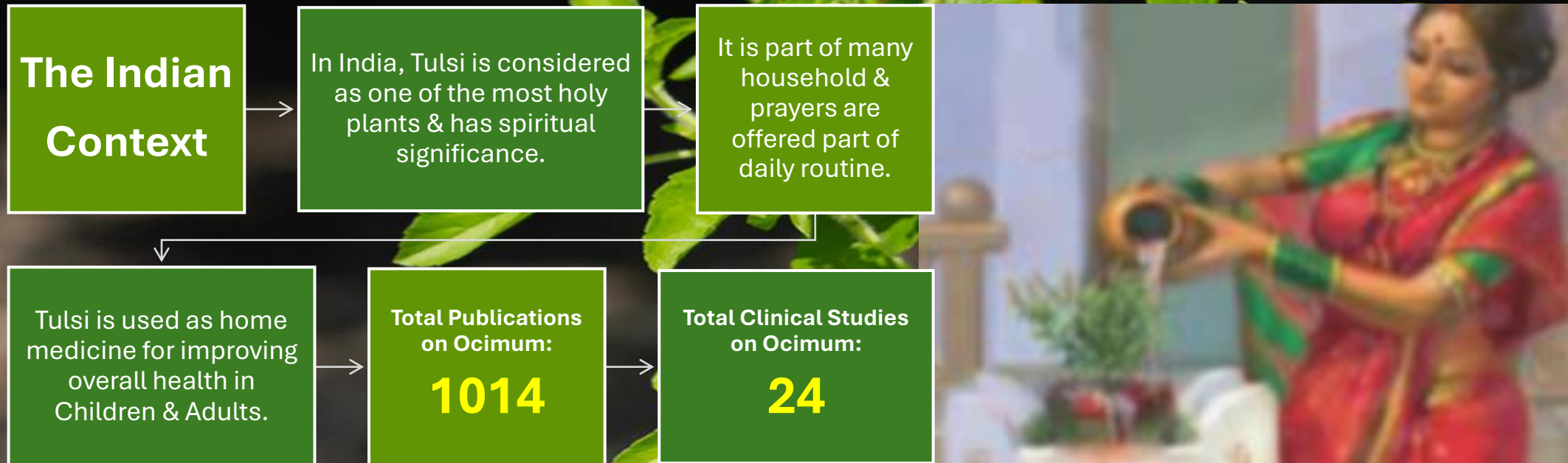
# Focus on Holy Basil

*Traditional Support and Science Behind*



# Holy Basil (*Ocimum tenuiflorum*) - The Elixir of Life

- Commonly used in Ayurveda.
- Holy Basil is an adaptogen, balancing different processes in the body.
- Holy Basil helps the body cope with stress, promotes mental clarity, supports rejuvenation & promotes sleep.



A woman with long blonde hair is shown in profile, looking upwards towards a bright sun. The background is a soft-focus field of yellow flowers, creating a warm and serene atmosphere. The sun is positioned in the upper right, casting a golden glow over the scene.

**HOLIBER™**

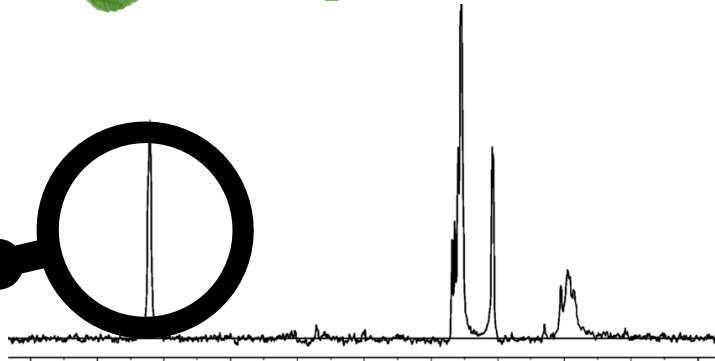
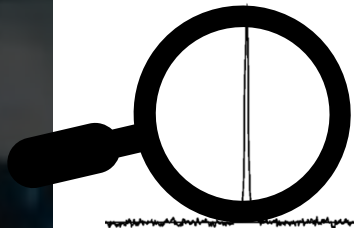
# The New Age “**Calming Adaptogen**”

Optimized Holy basil with  
Clinical & Scientific Validations

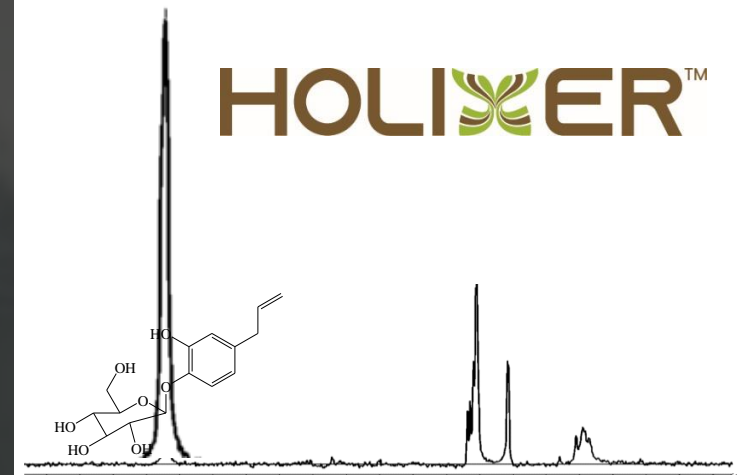
# Development of Holixer™ - 5 years of R&D Optimization



**Holy Basil**



**HOLIXER™**



Dose: Just 250 mg/day

Palatable Taste, All Natural

100% Water Soluble, Organic

Sustainably Grown and Cultivated

Human Clinically Substantiated

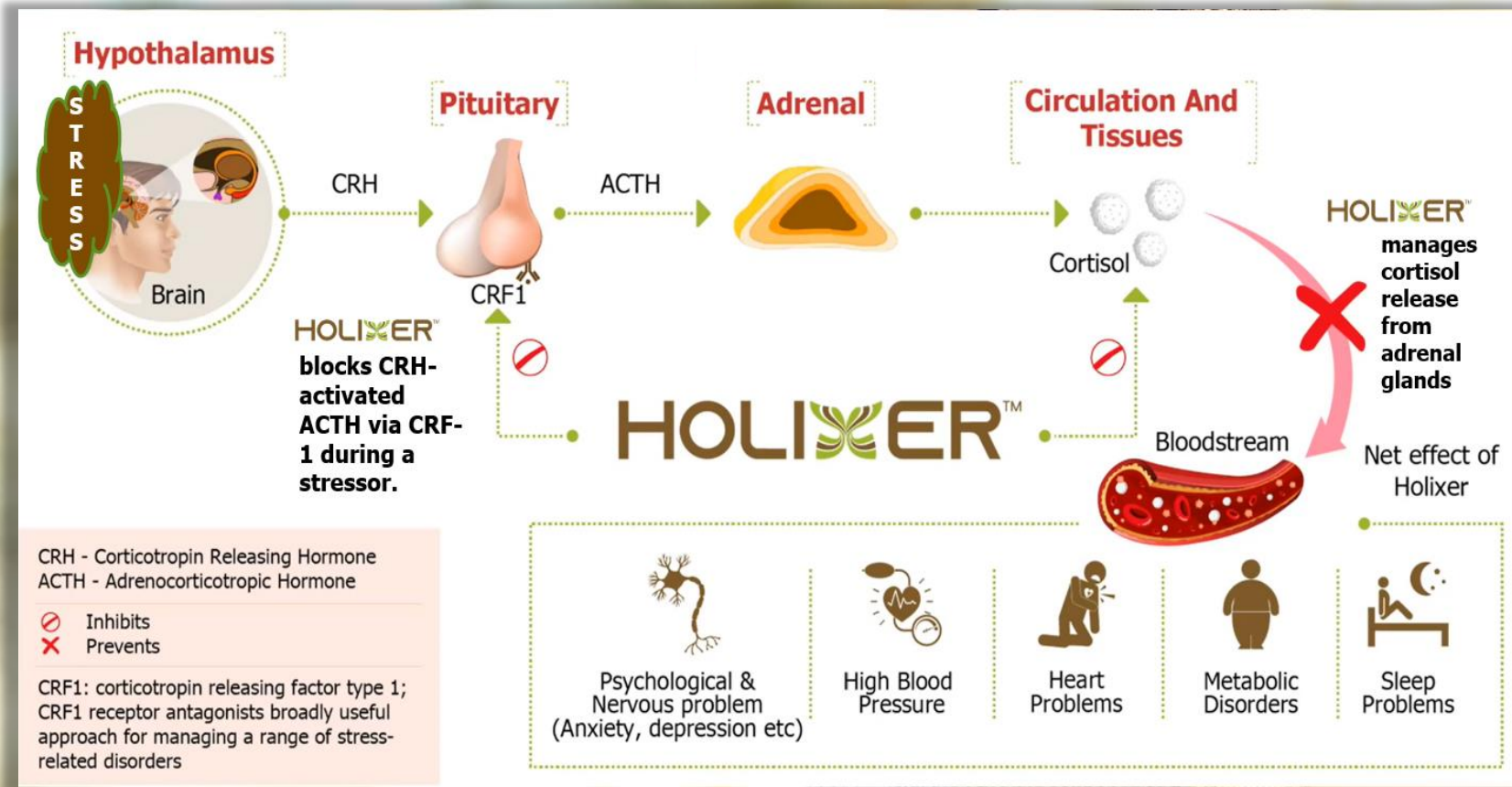
Manages Everyday and Acute Stress

Improves Quality of Sleep and Life

Fast-Acting, Non-Habit Forming

Format and Formulation Flexible

**2024: GRAS and New Clinical Study**





**HOLIXER™**

# Gold Standard RBDPC Trial

**No. of Participants: 100** (n=50 in each group)

**Dose: 250 mg/day** for 8 Weeks

## Stress Evaluation

### Objective:

Hair cortisol, Salivary cortisol, Salivary alpha amylase (sAA) & BP

**Subjective:** Perceived Stress Scale (PSS) & VAS

## Sleep & QoL Evaluation:

### Objective:

Smart Gadget: Fitbit®

### Subjective:

Athens Insomnia Scale (AIS) & PROMIS 29

# Holixer: A Gold Standard RBDPC Trial

## In Chronic Stress

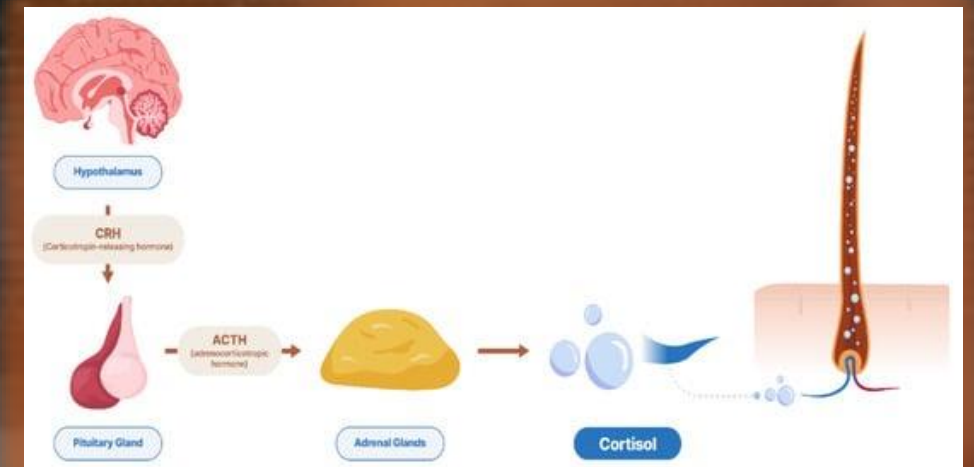
- Hair cortisol reduction by 66% vs placebo
- 37% reduction in PSS vs placebo (2x times lower than placebo)

## In Acute Stress

- Parameters were controlled within 10 Mins.  
(Salivary Cortisol - Holixer 113% vs Placebo 163%, Salivary Alpha Amylase (sAA) & Blood Pressure)

## In Sleep

- 48% improvement in AIS (Athen Insomnia Scale)
- Wearable Sleep Tracker (Fitbit®) - Significant improvement in sleep efficiency





# Ideas for Stress & Sleep Formulations

## Standalone Formulation

### Supplement Facts

Serving Size: 1 Capsule

Servings per Container: 60 Servings

Amount per Serving	% Daily Value
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Holy Basil Extract (leaves, aerial parts) (as Holixer® standardized to ≥ 5% Ocimum Bioactive Complex consists of Rabdosiin, Rosmarinic acid, Luteolin-7-o-beta-glucuronide, Ociglycoside I and Apigenin-7-o-beta-glucuronide)®	250mg +
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# Ideas for Stress & Sleep Formulations

## Combination Formulations

### Ingredients:

GABA: 250mg

Ashwagandha extract (root & leaf)  
250mg

Holy Basil leaf extract (Holixer™) : 250mg

Magnesium (as magnesium oxide &  
magnesium glycinate): 200mg

L-theanine: 200mg

Black pepper fruit extract  
5mg

<b>SUPPLEMENT FACTS</b>		
Serving Size 2 Vegan Capsules Servings Per Container 30		
	<b>Amount Per Serving</b>	<b>% Daily Value</b>
Holixer™ Holy Basil ( <i>Ocimum tenuiflorum</i> ) Extract	250 mg	**
Ashwagandha ( <i>Withania somnifera</i> ) Root and Leaf Extract (standardized to 35% [42 mg] total withanolides)	120 mg	**
L-Theanine	100 mg	**
Gamma Amino Butyric Acid	100 mg	**
Cacao Seed ( <i>Cocoa theobroma</i> ) Extract (Standardized to 10% [10 mg] Theobromine)	100 mg	**
*Daily Value not established		

<b>Supplement Facts</b>	
Serving Size: 1 Scoop (approx. 4.8g) Servings Per Container: 10	
	<b>Amount Per Serving</b>
Glycine	3g**
<b>Organic Herb Blend</b>	1g**
Holixer™ Holy Basil Leaf Extract	
Valerian (Root) Extract	
Chamomile (Flower) Powder	
Lavender (Flower) Powder	
Chinese Skullcap (Leaf) Powder	
Passion Flower Extract (Leaf, Stem, Flower)	
L-Theanine	200mg**
Gamma-Aminobutyric Acid (GABA)	200mg**
**Daily Value (DV) not established.	



# Ideas for Stress & Sleep Formulations

## Combination Formulations

<b>Supplement Facts</b>	
Serving Size: 1 Capsule Servings Per Container: 30	
Amount Per Serving	
Valerian Root Extract (on Maltodextrin)	500 mg**
Holy Basil (Aerial part) Extract	250 mg**
Hops Flower Extract	120 mg**
*Daily Value not established.	

Melatonin Free Sleep Support

<b>Supplement Facts</b>		
Serving Size 4 Capsules Servings Per Container 30		
	Amount Per Serving	%DV
Calories	5	
Total Carbohydrate	2 g	< 1%*
Vitamin A (as Beta Carotene)	1000 mcg RAE	111%
Vitamin C (as Ascorbic Acid)	40 mg	44%
Vitamin D (D3 as Cholecalciferol)	37.5 mcg	188%
Niacin (as Niacinamide)	150 mg NE	938%
Folate (as 5-Methyltetrahydrofolate)	680 mcg DFE	170%
Pantothenic Acid (as d-Calcium Pantothenate)	20 mg	400%
Zinc (as Zinc Amino Acid Chelate)	15 mg	136%
Selenium (as Selenium Amino Acid Chelate)	200 mcg	364%
Sodium	15 mg	< 1%

For Stress Cortisol in Skin Health



# Summary

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- The Stress & Sleep link is well established with scientific evidences
- Stress & Sleep are trending category & consumers are looking for effective natural solutions
- The commonly known adaptogens support energy pathway to tackle stress & sleep
- Holixer<sup>(TM)</sup> – The New Age “Calming Adaptogen”, supported by gold standard clinical trials and evaluated on the latest advanced parameters
- Holixer<sup>(TM)</sup> - Formulation friendly



The New Age “**Calming Adaptogen**”



Stress Less | Find Calm | Sleep Sound

