# Improving Sleep Health *through* Research

# Levagen+

# THE IMPORTANCE OF SLEEP



#### Did you know...





of global adults

reported they typically wake up at least once during the night<sup>1</sup>



More people refer to **online information source** when it comes to learning about sleep<sup>1</sup> Despite 80% of people worldwide wanting to improve the quality of their sleep, the majority (60%) of these adults

have not sought help from a medical professional.<sup>1</sup>



Research indicates that sleeping less than

7-8 hours each night, or

poor quality sleep has been associated with many health

risks.<sup>2</sup>



# THE BENEFITS OF SLEEP



# **CAUSES OF SLEEP DISTURBANCE**



### **CURRENT LANDSCAPE**

# \$163 million by 2030<sup>1</sup>

Of people are dissatisfied with the quality of sleep<sup>2</sup>

products make a

. products make a

. products make

sleep claim

mood claim

a CBD claim

50%

# Poor Sleep from Jan – increased by<sup>3</sup> 2100 March 2021 BRAIN POSITIONED PRODUCTS IN UK

2207



# **SLEEP IS RELEVANT TO**

#### Sport & Exercise

- i. Improve recovery, performance, mood and well-being.
- ii. Athletes have a heavy reliance on CBD/NSAIDS, which can cause adverse effects. Therefore, there is a need for safer alternatives with similar benefits.

#### COVID-19

i. Increasing demands of anxiolytics to relieve stress and support sleep due impact from uncertainty, unemployment, deaths etc.

#### **Healthy Ageing**

- i. Management of everyday stressors (work, kids, school etc.)
- ii. Rejuvenate mind and body

#### **TOP 20 INGREDIENTS USED IN SLEEP PRODUCTS**

(Sports Integrated)



- i. Currently, there is little evidence to support existing ingredients, with the use of many based on anecdote than science.
- Valerian root, passion flower, chamomile and hops are just a few that are frequently used in formulations ('Sea of Sameness' – no innovation).
- 1. **Valerian** = drowsiness caused by the herb may be acceptable at night but limit what people can do if taken during the day ('hangover effect').
- 2. **Melatonin** = causes drowsiness and there are regulatory issues in certain regions of EU (drug, not supplement)
- 3. **CBD** = regulatory issues, risk of toxicity and doping, lack of clinical evidence etc.

# **ROLE OF ECS IN SLEEP**

Regulates numerous circadian processes & sleep/wake cycle.

- i. Temperature regulation
- ii. Mood
- iii. Nervous system
- iv. Endocrine and GI function
- v. Sensory perception

AEA (often referred to as the 'Bliss Molecule') improves REM sleep [TRPV1], has a calming effect [CB1 and CB2] and reduces pain [CB1].

> Levels of AEA low prior to sleep and increases during sleep, indicating its interaction with sleep/wake cycle

Sleep deprivation can lead to dysregulation of ECS & AEA.

Therefore, compounds that
influence ECS safely could be an
effective way to manage sleep
disorders and disturbances.



## **PEA** AS A PROVEN SLEEP INGREDIENT

#### What is it?

The human body releases PEA in times of pain, stress and inflammation

#### How does PEA work?

PEA helps to regulate pain, mood (anxiety/stress) and sleep by influencing the ECS (increasing levels of AEA)

PEA has direct actions on reducing pain and inflammation (via PPAR-a), which impairs sleep quality

#### **Evidence on sleep<sup>6</sup>**

2x600mg PEA significantly improved sleep quality of those with carpal tunnel syndrome (increase continuous sleep / reduce sleep latency (i.e. time to fall asleep).

This shows PEA to be a potential treatment for sleep disorders

#### **Challenges of PEA**

Poor bioavailability

Levels deplete naturally in the body during stress, so need to replenish with exogenous supplementation

### THE CAPTAIN OF THE DREAM TEAM: LEVAGEN<sup>®</sup>+

#### What is it?

- i. Bioavailable form of PEA (x1.75 time absorption than standard PEA) = lower dose required
- ii. Legal, safe and clinically studied PEA
- iii. Informed-ingredient Certified

#### **Evidence in Sleep**

#### Applied anecdotes in elite sport [Gloucester Rugby Case Study]

- i. Needed a CBD alternative
- ii. Integrated Levagen®+ into their nutritional strategies with a focus on how players stayed 'healthy' and maintained sleep hygiene.
- iii. Athletes found a significant improvement in sleep quality and using Levagen®+ as part of their daily sleep protocol

#### Not just about sport, but relevant everyday people too...

Consumers are increasingly focused on more holistic areas of health and wellbeing than just sporting performance. Here, consumers want to manage lifestyle and improve brain function and cognition through sleep.



# **GENCOR SLEEP STUDY**

#### **Gencor Sleep Study<sup>7</sup>**

125 healthy adults took 350mg of Levagen+ (2x175mg) or placebo one hour before sleep onset.

- i. Novel low dose formulations for sleep
- ii. Pittsburgh Sleep Quality Index (PSQI), Sleep Diary, Sleep Inertia Questionnaire (SIQ), Epworth Sleepiness Scale (ESS)

#### **Results:**

- 1. Time to fall asleep was X3 times faster in the Levagen+ group compared to placebo (19 minutes vs 6 minutes by 8 Weeks) [Sleep Diary]
- 2. Sleep inertia (i.e. time to feel fully awake) was significantly faster than placebo (11 minutes faster vs 1 minute) = subjects on Levagen+ also felt fully awake sooner in the mornings [PSQI]
- 3. Cognition of Levagen+ group significantly improved upon awakening compared to placebo [SIQ]
- 4. Levagen+ does not cause any drowsiness throughout the day [ESS]

### WHY IS PEA THE ONLY OPTION

#### Why do we need it?

- 1. Natural sleeping aid that can help individuals relax before sleep, leading to faster time to fall asleep and improved cognitive function upon waking
- 2. Does not cause drowsiness, unlike other pharmaceutical options / melatonin.
- 3. This supports relevance and application whether directly [reduced inflammation] or indirectly [ECS/ AEA] in sleep.
- 4. PEA is applicable to consumers across their lifespan.
  - i. This is because the benefits are inherently linked [pain, inflammation, mood and sleep] and represent different outcome measures for the same physiological mechanism.
  - Ultimately, the benefits are important no matter who is the target consumer or market; it is more about how they are communicated and positioned for the purpose of resonating with consumers:
    - a. **Sports Nutrition**: Management of disturbed sleep for optimal performance and recover
    - b. Healthy Ageing: Sleep for holistic wellness / lifestyle management
    - c. General Wellness: Management of everyday stressors

#### Why is it important right now than ever before?

- i. Sleep is the best recovery strategy, especially during COVID where athletes must self-isolate (i.e. other recovery strategies are limited: sauna, ice baths, F2F massages etc.)
- ii. Unlike CBD, PEA is legally recognized as a dietary supplement in markets around the world and has a long history of safe use.

# SUMMARY

- 1. Levagen<sup>®</sup> + provides a unique solution for sleep products to differentiate them from the 'Sea of Sameness'
- 2. Levagen<sup>®</sup>+ is clinically-proven to enhance sleep.
- 3. Levagen  $\mathbb{R}$  + is a superior form of PEA.

#### NutraIngredients Awards

The NutraIngredients panel of judges honored Gencor's **Levagen**®+ as a finalist in the:

**Sports Ingredient of the Year Category NutraIngredients Asia Awards 2019** 



AWARDS

The NutraIngredients panel of judges honored Gencor's **Levagen®+ Not CBD** as a finalist in the:

Editors Award for Functional Foods Innovation Category NutraIngredients Asia Awards 2019

#### **NutraIngredients Awards**

The NutraIngredients panel of judges honored Gencor's **Levagen®+** as a finalist in the:

Sports Ingredient of the Year Category NutraIngredients Awards 2020



The NutraIngredients panel of judges honored Gencor's **Levagen**®+ as a finalist in the:

Editors Award for Functional Foods Innovation Category NutraIngredients Awards 2020

#### **ESSNA** Awards

The panel of judges at the European Specialist Sports Nutrition Alliance (ESSNA) Awards selected **Levagen**®+ as the Runner Up for:

**Best Sports Nutrition Ingredient 2019** 

#### **ESSNA** Awards

The panel of judges at the European Specialist Sports Nutrition Alliance (ESSNA) Awards selected **Healthspan Elite - Levagen®+ Sport** as the Runner Up for: **Best Targeted Product 2020** 







- Manufacturer in a cGMP facility (independently audited and certified annually)
- Self affirmed GRAS

# Improving Mood Health *through* Science

# CALMaluma

# **WORLDWIDE STRESS & ANXIETY**

#### Covid-19's Widespread Impact On Mental Health

Share of adults who experienced stress, anxiety or sadness that was difficult to cope with alone during the pandemic



n=8,259 (February to June 2020) Source: The Commonwealth Fund



statista 🗹

Percentage of adults in select countries who reported stress, anxiety, or great sadness since the COVID-19 outbreak started as of 2020



Commonwealth Fund; SSRS © Statista 2020 Worldwide: Commonwealth Fund: SSRS: March to May 2020: 8.259 adults: 18 years and older

The Gallup data suggests that people in many countries around the world entered the pandemic in an already heightened negative state, which may not bode well for their post-pandemic lives.<sup>8</sup>

Even before the COVID-19 pandemic people reported feeling anger, stress, sadness, worry and physical pain at elevated levels, according to Gallup's 2020:Global Emotions Report.<sup>8</sup>

It is a growing problem across the globe and shows no signs of letting up. Stress has no preferences or boundaries. Half of people in Iraq and Ghana - and the United States - were stressed in 2019 only to explode during 2020 global pandemic.

Along with the obvious physical implications for people who contract Covid-19, the pandemic is having a devastating mental health impact on people all over the world.

The grief among those who have lost loved ones, the unease at losing a job and economic security, the frustration of lockdowns, the challenges of working from home while taking care of kids along with the fear of contracting the disease have all taken their toll on mental health.<sup>9</sup>

## MENTAL HEALTH DECLINE

STRESS IN AMERICA 2020: A NATIONAL MENTAL HEALTH CRISIS **COVID-19 Is a Significant Stressor** for Most Americans





Nearly 8 in 10 (78%) say the coronavirus pandemic is a significant source of stress in their life

Nearly 7 in 10 (67%) say they have experienced increased stress over the course of the pandemic

STRESS IN AMERICAM

© American Psychological Association

STRESS IN AMERICA 2020: A NATIONAL MENTAL HEALTH CRISIS

The magnitude of the mental health burden faced around the world is not being matched by the investment it requires. The extraordinary increase in mental health needs - with the added challenges of COVID-19 - is taking its toll on already overburdened and under-resourced mental health services. Countries spend on average only 2% of their health budgets on mental health. Despite some increases in recent years, international development assistance for mental health has never exceeded 1% of all development assistance for health.<sup>11</sup>

STRESS IN AMERICAT

Covid-19 is a significant stressor for most Americans as nearly 8 in 10 (78%) say the coronavirus is a significant source of stress in their life. In addition, nearly 7 in 10 (67%) say they have experienced stress over the course of the pandemic.<sup>10</sup>

While more intense for the Gen Z population, stress and declining mental health is affecting Americans widely, now more than ever.<sup>12</sup>

The pandemic caused a spike in Anxiety and Depression in the US. The graph below shows the % of US adults showing symptoms of anxiety and/or depression disorder\*13



\* Based on self-reported frequency of anxiety and depression symptoms.

They are derived from responses to the first two questions of the eight-item Patient Health Questionnaire (PHQ-2) and the seven-item Generalized Anxiety Disorder (GAD-2) scale.

Sources: CDC, NCHS, U.S. Census Bureau









Likewise, countries like the United Kingdom had depression numbers spike during the pandemic. The % of British adults reporting moderate to sever depressive symptoms below.<sup>14</sup>

#### % British adults reporting moderate to severe depressive symptoms 19.2% 9.7% July 2019-March 2020 June 2020

% saying moderate to severe depressive symptoms developed during the pandemic 12.9%

Based on a nationally representative survey of 3,527 GB adults. Source: Office for National Statistics



### MOOD HEALTH

Close to 1 billion people globally have a mental disorder and those with severe mental disorders tend to die 10 -20 years earlier than the general population. Suicide is claiming the lives of close to 800,000 people every year -1 person every 40 seconds - and is the second leading cause of death for young people aged 15-29 years. Relatively few people around the world have access to quality mental health services, especially in low- and middle-income countries where more than 75% of people with mental, neurological and substance use disorders receive no treatment for their condition at all.<sup>15</sup>

#### **COVID'S MENTAL STRESS**



% of adults who reported experiencing stress, anxiety, or great sadness that was difficult to cope with alone since the outbreak started.<sup>16</sup>

Americans are more likely than people in other countries to report mental health concerns. According to Commonwealth Fund Survey.<sup>15</sup> They found that since the start of the outbreak, 1/3 of U.S. adults experienced stress, anxiety, or great sadness that was difficult to cope with by themselves. This is a significantly higher proportion than in other countries, where no more than 1/4 of adults reported the same. Past research shows that even prior to the pandemic, Americans were already among the most likely to experience emotional distress.

Since the pandemic started, just one in three adults in the U.S. and the U.K. reported being able to get help from a professional when feeling stress, anxiety, or sadness. In contrast, approximately half of Australians and Canadians were able to get the help they needed.<sup>16</sup>



onature

Stress is a problem we clearly need to address, but what can we do? The good news is that there are numerous strategies that have been shown to be effective for relieving stress, including eating a healthy diet, getting plenty of sleep, exercising regularly, talking to friends or a mental health professional, and engaging in relaxation techniques and meditation, just to name a few.

Another stress-relief tool at everyone's disposal: dietary supplements, some of which have been shown to help lower anxiety levels, tame sleep troubles, ease depression symptoms, and more.

Gencor invests in clinical research and science to ensure that each of our ingredients provides real and measurable results to consumers. Mood health has never been as important as it is now and many consumers want to utilize natural alternatives in combination with food and exercise to ensure they achieve the best possible results.

By including ingredients like Levagen<sup>®</sup> + and CALMaluma<sup>®</sup> into formulas, manufacturers can ensure that consumers get what they need out of a supplement.

# **MOOD HEALTH**



#### What Is CALMaluma™

CALMaluma<sup>™</sup> consists of a Caralluma Fimbriata extract (CFE), derived from a cactus-like plant, which has been clinically researched for its therapeutic potential in easing anxiety and stress in adults.

The beneficial outcome of its consumption is often an overwhelming feeling of calmness. CALMaluma<sup>™</sup> has been clinically researched for both its safety and functionality, providing additional assurance for those who suffer the burdens of stress and anxiety.\*

Gencor has developed a patented process for extracting the key constituents of the Caralluma fimbriata plant, without chemically altering those constituents. This process has allowed Gencor to develop an effective, safe, and easy-to-use ingredient that helps adults in dealing with reducing stress and ultimately lowering the levels of anxiety.\*

#### **CLINICAL RESEARCH**

#### Study results for a clinical trial at University of Sunshine Coast, Queensland, Australia:

An eight-week double-blind, randomized placebo controlled clinical trial was conducted using CALMaluma<sup>™</sup> on 97 patients (49 in the active group and 48 in the placebo group).<sup>18</sup>

The study showed statistically significant results in the active group when compared to the placebo for:

- Reduction of stress, frustration, and anxiety\*
- Increase in positive experience of emotion\* (helps with relaxation)
- Supporting healthy cortisol levels for men\*
- Promoting a healthy adrenal response in men\*



#### Fig. 1. Mean anxiety scores for active and placebo groups, with severity ranges. Error bars represent standard error of the mean

#### Study results for Nootropic effects:

An in-vivo animal study showed CALMaluma<sup>™</sup> also facilitates learning and supports memory function. The study also revealed a reduction in anxiousness in test animals. CALMaluma<sup>™</sup> therefore exhibited both Nootropic and Anxiolytic activity in animal models.<sup>19</sup>

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