From Untreatable to Unstoppable:

Transforming Tick-borne Disease and Chronic Illness with Oral Peptides and Bioregulators

Kent Holtorf, MD

25th Annual ILADS Scientific Conference, San Antonio, TX . Nov 7-10, 2024

Disclosures

Founder-Integrative Peptides

- None of the information and claims contained within this presentation pertain to a specific product from any company.
- Only generic names of compounds and substances that can be purchased from multiple companies and organizations will be used.
- No content is endorsed by or pertains to Integrative Peptides or any other company or organization.
- The opinions expressed are my own and have nothing to do with those of Integrative Peptides, Holtorf Medical Group, The National Academy of Hypothyroidism, or any other organization.

Goals for Attending Physicians

- Gain a comprehensive understanding of oral peptides and bioregulators, including their mechanisms of action and potential benefits.
- Explore how peptide-based therapies are redefining the treatment landscape for chronic and complex conditions.
- Learn about the latest research findings and clinical applications of oral peptides in various medical specialties.
- Identify potential patients who may benefit from peptide-based therapies and develop strategies for incorporating these treatments into clinical practice.
- Develop a clear understanding of the potential benefits and limitations of peptide therapy, including considerations for patient selection, dosage, and monitoring.
- To understand the basic major clinical classes of peptides and what peptides to use for different disorders and symptoms (15min).
- To understand the importance of the pineal and thymus gland in overcoming chronic illness and why thymic and pineal peptide supplementation can be the key to successful treatment of chronic immune-related illness. (15 min)
- To understand how immune modulation is a major key to successfully treating chronic infections, chronic illnes and age-related conditions.
- Become familiar with oral peptides and bioregulators, including the MOA, effects,
- Learn how unique peptide-based therapies are redefining the treatment landscape for a wide range of chronic and complex conditions
- Network with colleagues and experts in the field of peptide therapy, fostering collaboration and knowledge exchange.

The Immune System and Health

Immune Health is Key

It's the most significant determinant of overall health and longevity.

Thymus Plays a Major Role

Thymus involution is at the core of the Th1/Treg to Th2/Th17 shift.

Shift Worsens with Age and Environment

Toxins, stress, and poor lifestyle contribute to the shift.

Vicious Cycle of Degeneration

A worsening immune shift leads to multisystem degeneration and illness.

Kavinson, VKh, Peptides, Genome, Aging. Advances in Gerontology, 2014;4(4):337-45.

The Immune System and Health

1

Thymus Involution

2

Th1/Treg —> Th2/Th17

3

Cell Danger Response (CDR)

Mitochondria, GI, & pineal-hypothalamic-pituitary-hormone axis dysfunction

4

Vicious Cycle

new and reactivating infections, IAOC, autoimmunity, & T-cell exhaustion.

5

Immunosenescence

with associated **reduced autophagy**

6

SASP

Increased inflammation

7

Cellular Senescence

Tissue and organ abnormalities

8

Multisystem Disease and Multiple Symptoms

1. Thomas R, et al. Contributions of Ag-Related thymic Involution to Immunosenescence and Inflammaging. Immunity & Aging 2020;17:2:1-17

Thymic Decline with Age

1

Age 15

Thymus gland, crucial for immunity, begins to decline.

2

Age 30

Pineal gland calcification is common, affecting hormone and immune function.

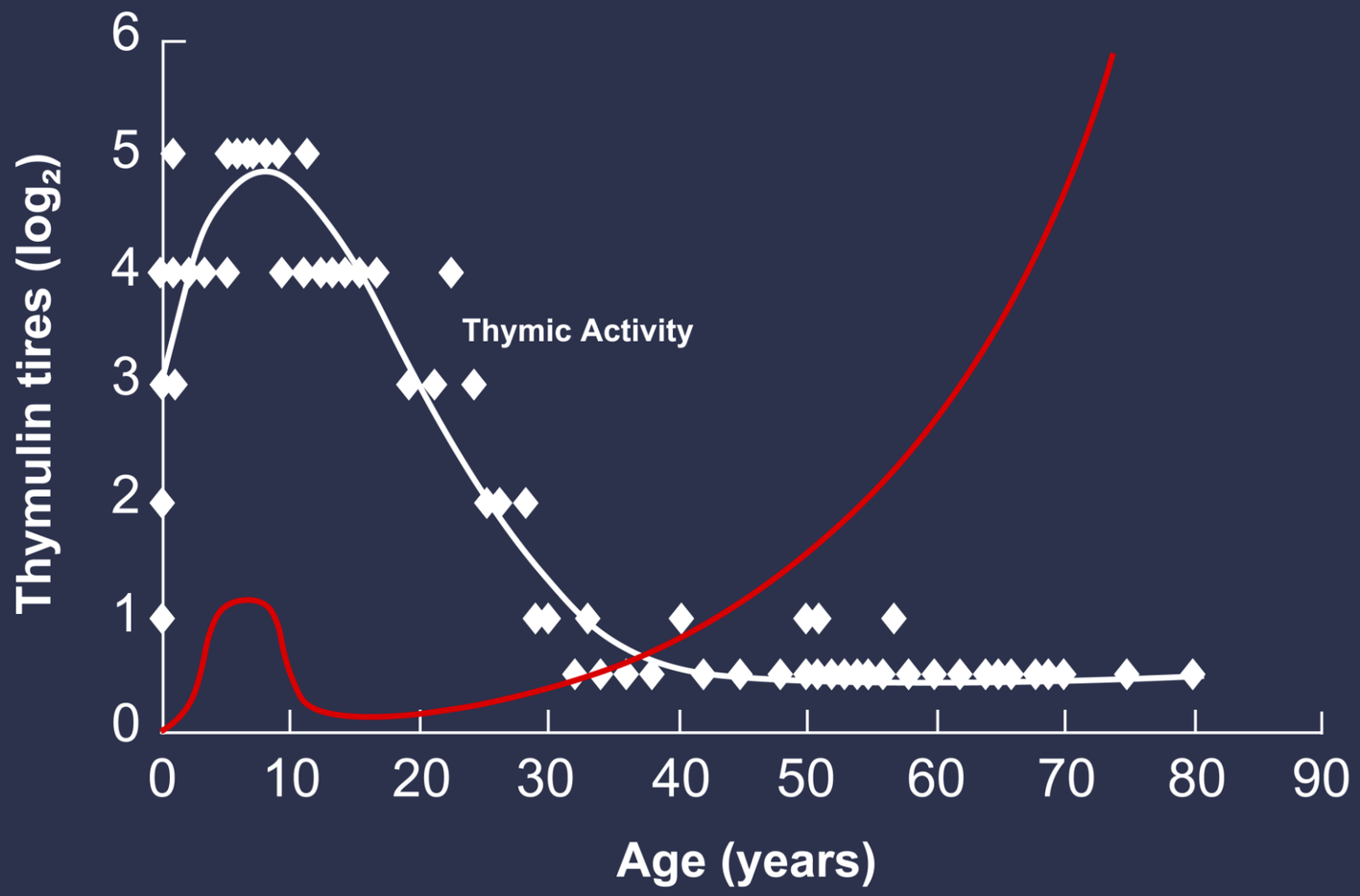
3

Age 40-45

Thymus activity is minimal, coinciding with increased risk of age-related diseases.

The thymus involution weakens the immune system, contributing to age-related health problems like cancer, heart disease, diabetes, mortality and morbidity and a major reason patients can't recover from chronic infectious, autoimmune and inflammatory conditions.

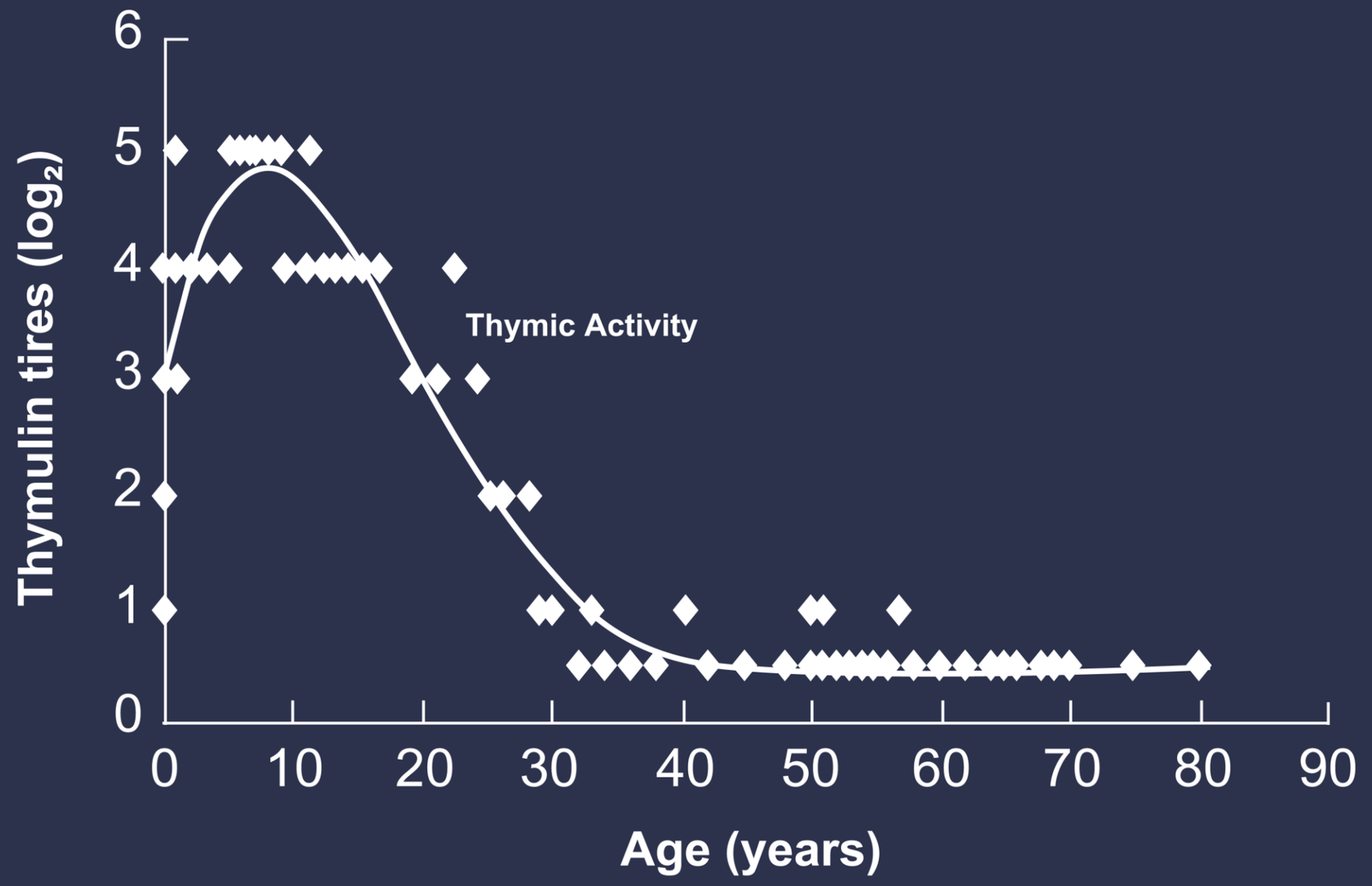
1. Lewis V, et al. Circulating thymic-hormone activity in congenital immunodeficiency. Lancet 1977;2:471-5



1. Consolini R, et al. Distribution of age-related thymulin titers in normal subjects through the course of life. Clin Exp Immunol 2000; 121:444-447

2. Gui J, Mustachio LM, Su DM, et al. Thymus Size and Age-related Thymic Involution: Early Programming, Sexual Dimorphism, Progenitors and Stroma. Aging Dis 2012;3(3):280 linked to the development of various age-related diseases.vvvvvvv

Thymic Activity and Age



1. Consolini R, et al. Distribution of age-related thymulin titers in normal subjects through the course of life. Clin Exp Immunol 2000; 121:444-447
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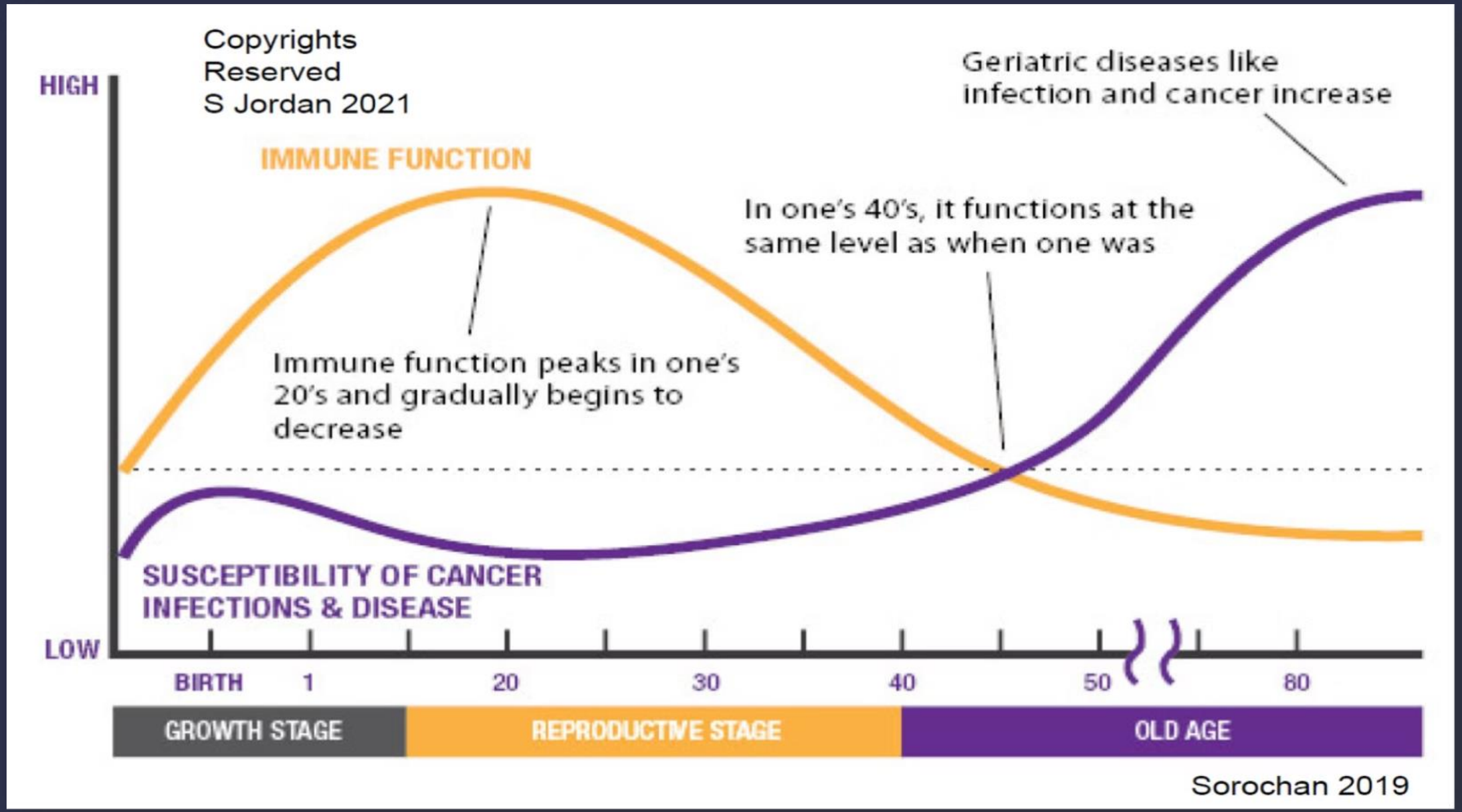
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HIGH
IMMUNE FUNCTION
Geriatric diseases like infection and cancer increase
In one's 40's, it functions at the same level as when one was
Immune function peaks in one's 20's and gradually begins to decrease
SUSCEPTIBILITY OF CANCER INFECTIONS & DISEASE
LOW
BIRTH
1
20
30
40
50
80
GROWTH STAGE
REPRODUCTIVE STAGE
OLD AGE
Sorochan 2019

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Evidence for T-helper 2 shift and association with illness parameters in chronic fatigue syndrome (CFS)

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Abstract

Few immunological markers have been consistently reported in CFS. However, a shift to a T-helper 2 (Th2) type immune response has been hypothesized for individuals with CFS. The current study investigated whether individuals with CFS who exhibited a stronger shift towards a Th2 type of immune response would also exhibit more severe symptoms, poorer neurocognitive functioning, and poorer physical and psychosocial functioning. The current investigation measured the percentage of Th1-like and Th2-like memory cells using cell surface flow cytometry in 114 individuals with CFS. The associations between the ratio of Th1 and Th2 memory cells and various illness parameters measures were then examined, including symptom severity, psychiatric functioning, neurocognitive functioning, salivary cortisol levels, and chronic pain status. Results indicated that individuals who exhibited a more extreme shift towards a Th2 immune response also exhibited poorer sleep and high levels of basal salivary cortisol. The implications of these findings are discussed.

Keywords

chronic fatigue syndrome; t-helper 2 shift; immunology; salivary cortisol; cognitive functioning

High levels of type 2 cytokine-producing cells in chronic fatigue syndrome

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(Accepted for publication 17 November 2003)

SUMMARY

The aetiology of chronic fatigue syndrome (CFS) is not known. However, it has been suggested that CFS may be associated with underlying immune activation resulting in a Th2-type response. We measured intracellular production of interferon (IFN)-γ and interleukin (IL)-2; type 1 cytokines), IL-4 (type 2) and IL-10 (regulatory) by both polyclonally stimulated and non-stimulated CD4 and CD8 lymphocytes from patients with CFS and control subjects by flow cytometry. After polyclonal activation we found evidence of a significant bias towards Th2- and Tc2-type immune responses in CFS compared to controls. In contrast, levels of IFN-γ, IL-2 and IL-10-producing cells were similar in both study groups. Non-stimulated cultures revealed significantly higher levels of T cells producing IFN-γ or IL-4 in CFS patients. Concluding, we show evidence for an effector memory cell bias towards type 2 responsiveness in patients with CFS, as well as ongoing type 0 immune activation in unstimulated cultures of peripheral blood cells.

Keywords chronic fatigue syndrome cytokines immune activation Th1/ Th2 cytokines

Thymic Activity and Chronic Disease

- According to the U.S. Center for Disease Control (CDC), approximately 80% of aged individuals are afflicted with at least one chronic disease as a result of a declination of thymic-related immune function.

Low levels of thymic peptides

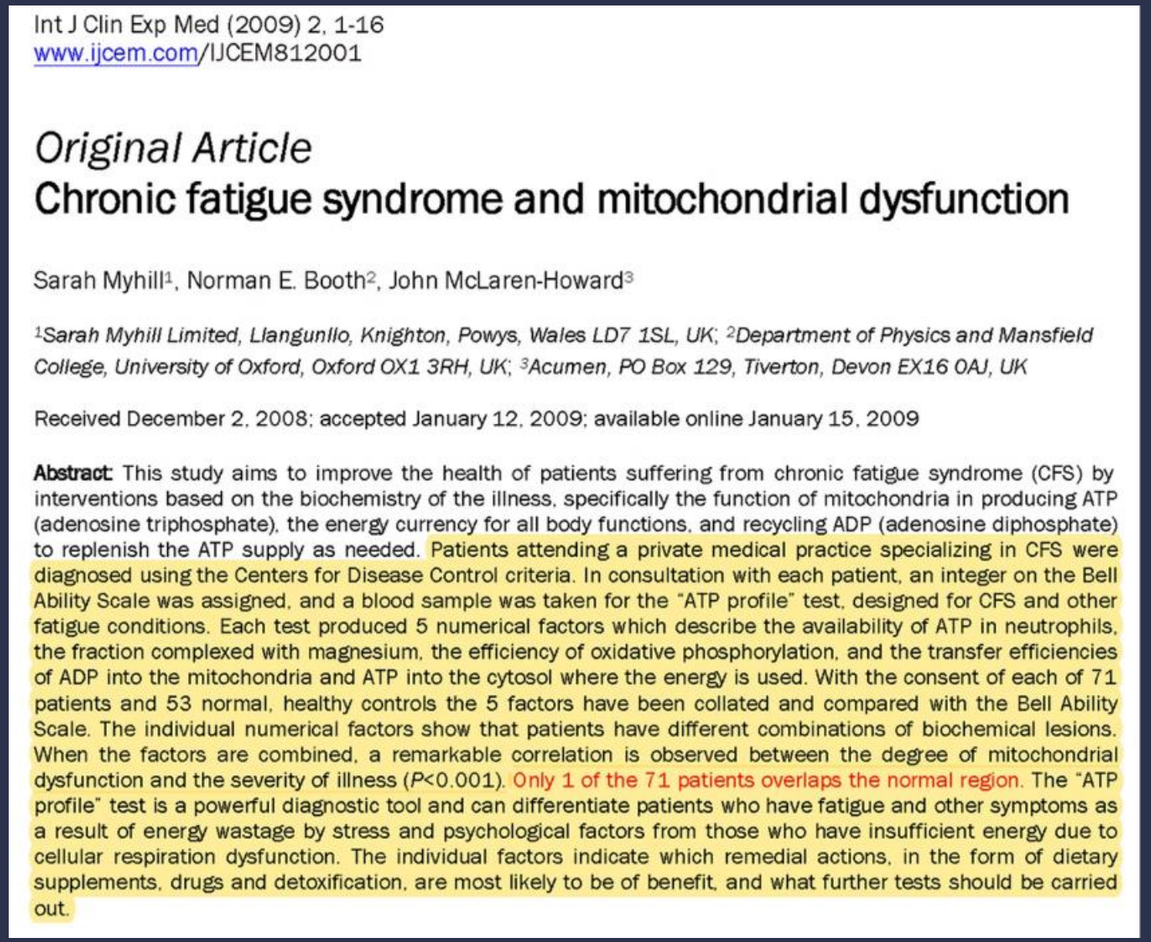
- Seen n primary, secondary, and tertiary immunodeficiencies
- Found in autoimmune diseases, including SLE, RA, Hashimoto's, and MS.
- Thymectomized animals and humans are highly susceptible to autoimmune diseases.

1. Gui J, Mustachio, et al. Thymus Size and Age-related Thymic Involution: Early Programming. Aging Dis 2012;3(3):280-90
2. Singh VK, et al. Thymopentin and Splenopentin as Immunomodulators. Immunologic Resch 198;17(3):345-68.

Th1/Treg —> Th2/Th17 Shift in CFS and Associated Mitochondrial Dysfunction

Immune Shift and mitochondrial Dysfunction

- The authors found that all of the CFS patients had mitochondrial dysfunction.
- The degree of mitochondrial dysfunction correlated with the severity of the illness ($p < 0.001$)
- *“Only 1 of the 71 patients overlaps the normal region.”*



Int J Clin Exp Med (2009) 2, 1-16
www.ijcem.com/IJCEM812001

Original Article

Chronic fatigue syndrome and mitochondrial dysfunction

Sarah Myhill[1], Norman E. Booth[2], John McLaren-Howard[3]

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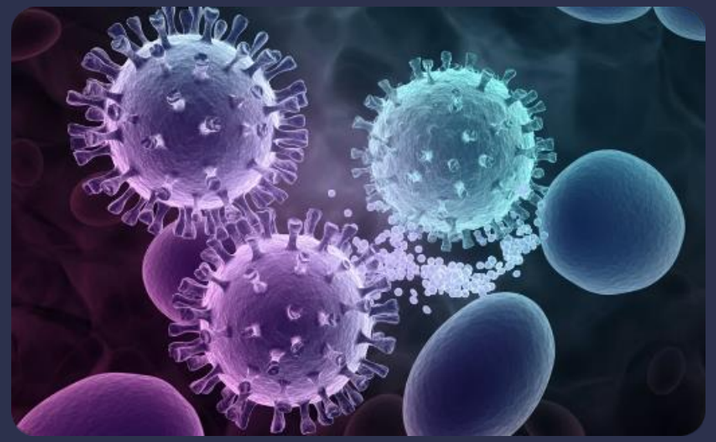
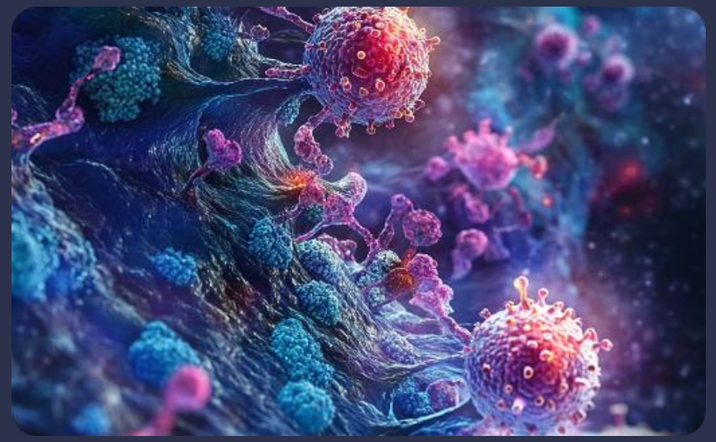
Abstract: This study aims to improve the health of patients suffering from chronic fatigue syndrome (CFS) by interventions based on the biochemistry of the illness, specifically the function of mitochondria in producing ATP (adenosine triphosphate), the energy currency for all body functions, and recycling ADP (adenosine diphosphate) to replenish the ATP supply as needed. Patients attending a private medical practice specializing in CFS were diagnosed using the Centers for Disease Control criteria. In consultation with each patient, an integer on the Bell Ability Scale was assigned, and a blood sample was taken for the “ATP profile” test, designed for CFS and other fatigue conditions. Each test produced 5 numerical factors which describe the availability of ATP in neutrophils, the fraction complexed with magnesium, the efficiency of oxidative phosphorylation, and the transfer efficiencies of ADP into the mitochondria and ATP into the cytosol where the energy is used. With the consent of each of 71 patients and 53 normal, healthy controls the 5 factors have been collated and compared with the Bell Ability Scale. The individual numerical factors show that patients have different combinations of biochemical lesions. When the factors are combined, a remarkable correlation is observed between the degree of mitochondrial dysfunction and the severity of illness ($P<0.001$). Only 1 of the 71 patients overlaps the normal region. The “ATP profile” test is a powerful diagnostic tool and can differentiate patients who have fatigue and other symptoms as a result of energy wastage by stress and psychological factors from those who have insufficient energy due to cellular respiration dysfunction. The individual factors indicate which remedial actions, in the form of dietary supplements, drugs and detoxification, are most likely to be of benefit, and what further tests should be carried out.

CD4/CD8 Ratio and Thymic Function in HIV Patients





Traditional Markers

Traditional markers, like viral load and CD4 counts, have been used to monitor HIV progression. However, these may not fully capture subtle immune dysfunction in patients on effective treatment.

CD4/CD8 Ratio

The CD4/CD8 ratio is a more precise biomarker for immune health in HIV patients, providing a comprehensive assessment of overall immune dysfunction and biologic age.

Thymic Function

Disruption of thymic function, reflected by the CD4/CD8 ratio, is a key marker for in premature thymus dysfunction and immune aging seen in chronically infected patients.

1. Smith CJ, et al. Trends in underlying causes of death in people with HIV from 1999 to 2011 (D:A:D. The Lancet 2014;384(99939):241-8 McBride JA, et al.
2. Imbalance in the game of T cells: What can the CD4/CD8 T-cell ratio tell us about HIV and health? PLOS Pathogens;13(11)e1006624

CD4/CD8 Ratio, Thymic Function, Biologic Age, and Healthspan

Mortality

“We recently described the thymic function failure as an independent predictor of all-cause mortality in uninfected elderly humans.”

Immunosenescence

A low CD4/CD8 ratio reflects Immunosenescence and significantly predicts a wide range of morbidities, such as autoimmunity, diabetes, CVD, stroke, cancer, frailty, chronic infections, etc.

Biologic Age

A low CD4/CD8 ratio is associated with chronic viral infections, oxidative stress, thymic dysfunction, and multiple disease states (ideal > 2.5).

Referenc...

View more

References:

- Ferrando, et al. Thymic function failure and C-reactive protein levels are independent predictors of all-cause mortality in healthy elderly humans. Age (Dordr) 2013; 35:251–59
- De Santis M, et al. β-thymosins and interstitial lung disease: study of a scleroderma cohort with a one-year follow-up. Respir Res 2011; 12(1): 22.
- Muller GC, et al. The inverted CD4:CD8 ratio is associated with oxidative stress during aging. Cellular Immunology 2015;296(2):149-154.

What are Peptides and Bioregulators?

Chemical Structure

Peptides are short chains of amino acid. They are similar to proteins, but are shorter in length, typically less than 50 amino acids long.

Bioregulators are two (2) to four (4) amino acids in length.

Biologic Role

Peptides & bioregulators play vital roles, acting as the master regulators of most every known process in the body and serve to fine tune the body's processes.

They can act as hormones, neurotransmitters, and metabolic and immune system regulators.

Therapeutic Potential

Due to their potent biological activities, peptides have significant therapeutic potential.

Increasing numbers of peptides and bioregulators are becoming clinically available that can safely improve, optimize or normalize specific functions of the body.

1. Khavinson V. Peptides and ageing. Neuroendocrinology Letters 2002;23(3):11-144
2. Anisimo VNN, et al. Effect of synthetic thymic and pineal peptide on biomarkers of ageing, survival and spontaneous tumor incidence of female CBAmice. Mech Ageing Dev 2001;122(1):41-68.

Understanding Peptide Complexes

Peptide complexes are revolutionary bioregulators that offer targeted therapeutic effects for age-related diseases. These low molecular weight peptides, with a molecular mass of up to 5000 Da, are derived from the organs and tissues of young animals. Their unique ability to regulate tissue-specific cells makes them powerful tools in the fight against age-related deterioration.

Each peptide complex is designed to address specific physiological processes, selectively increasing cellular and tissue metabolic functioning and protein synthesis. For instance, the vascular peptide bioregulator targets vascular wall cells, brain targets brain, etc. By combining these fifty, plus bioregulator extracts, isolates, and other peptides, substantial synergistic effects are created that addresses multiple aspects of chronic illness and age-related diseases.

Extract...

View more

1 Extraction

Peptides are isolated from young animal tissues using advanced biotechnology techniques.

2 Purification

The extracted peptides undergo rigorous purification processes to ensure high quality and safety.

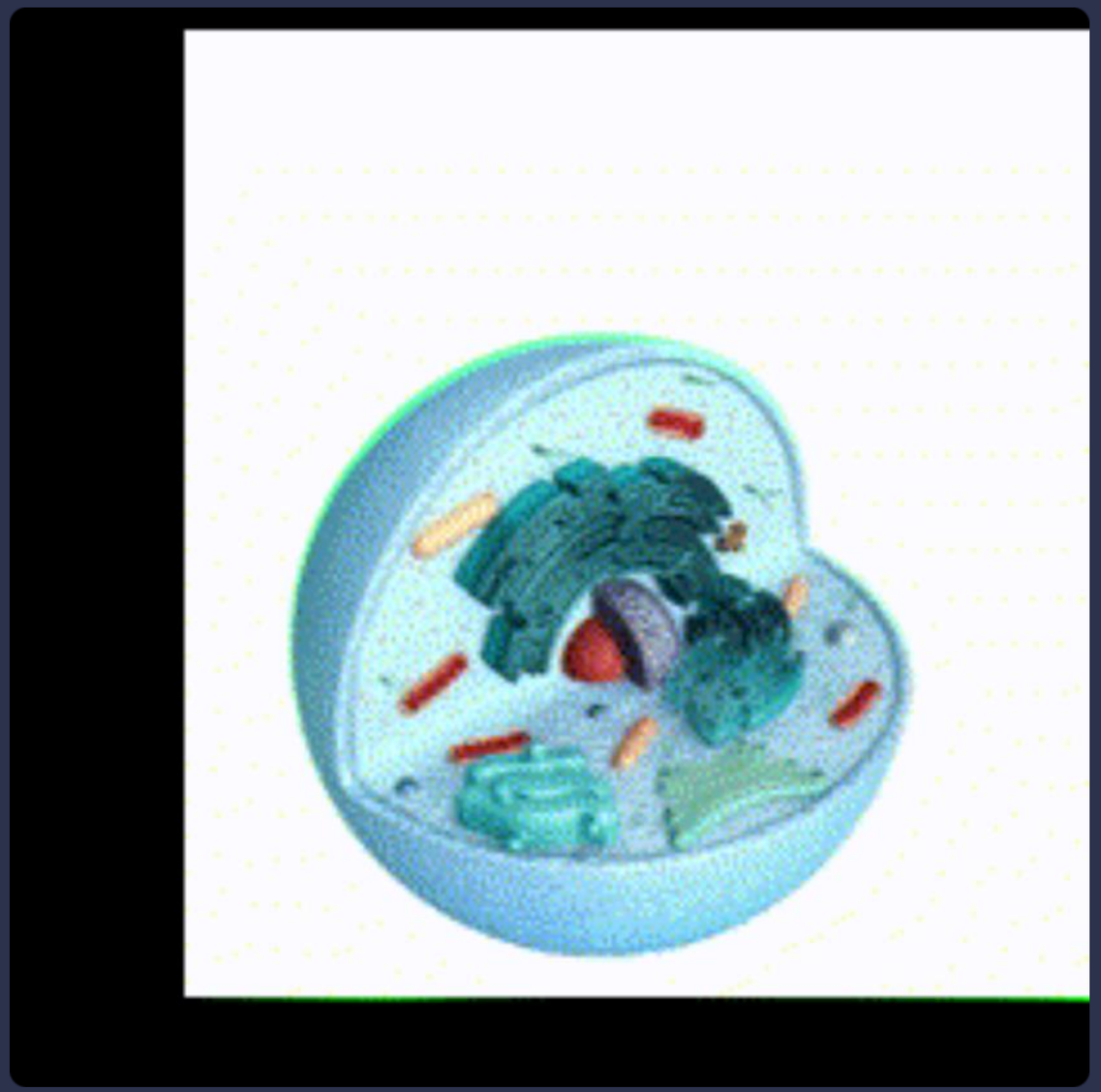
3 Formulation

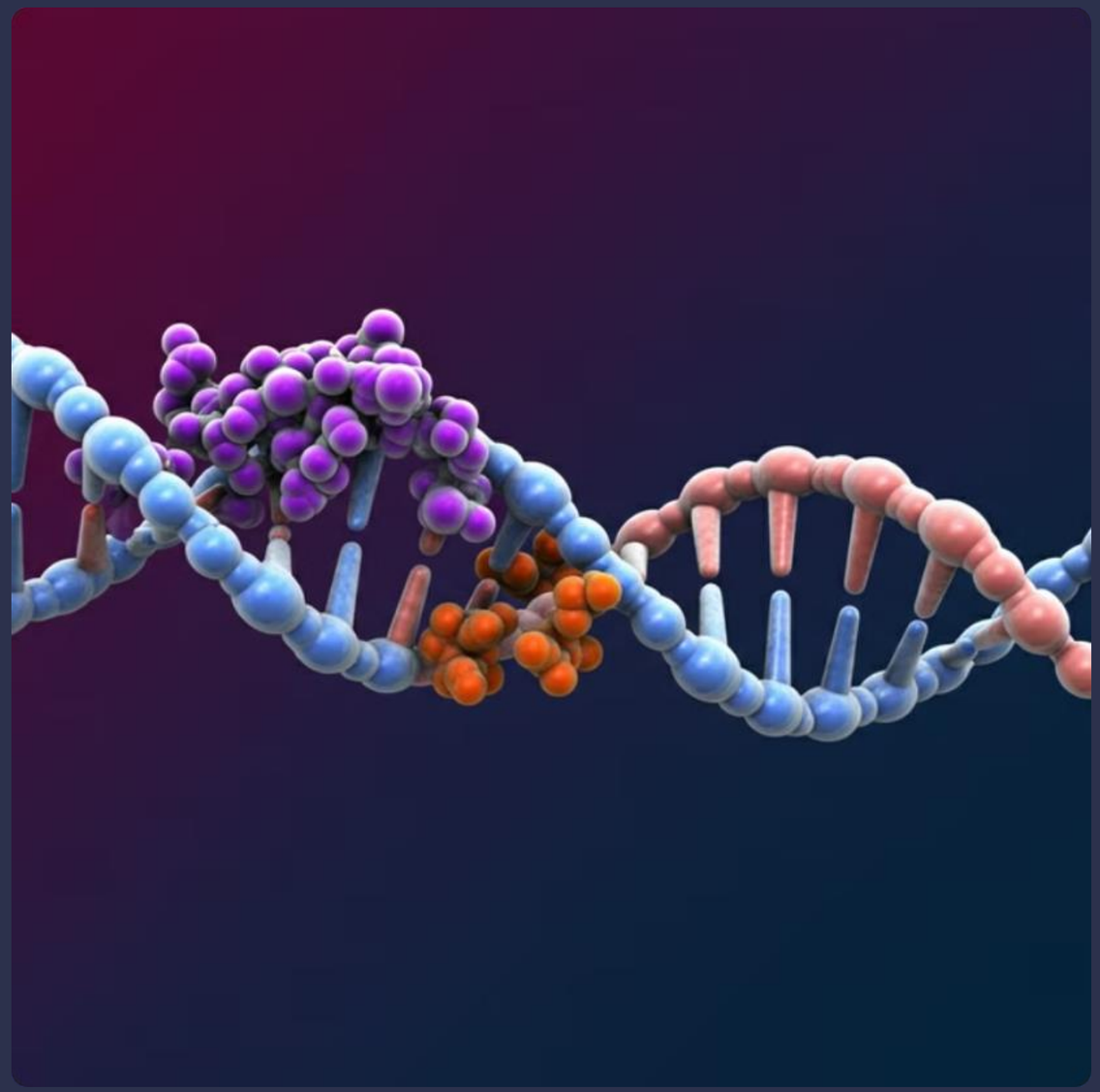
Purified peptides are combined into specific complexes tailored for different physiological targets.

4 Clinical Application

The peptide complexes are administered to patients as part of comprehensive treatment programs.

Mechanism of Action





Click here

Peptide Mechanism of Action

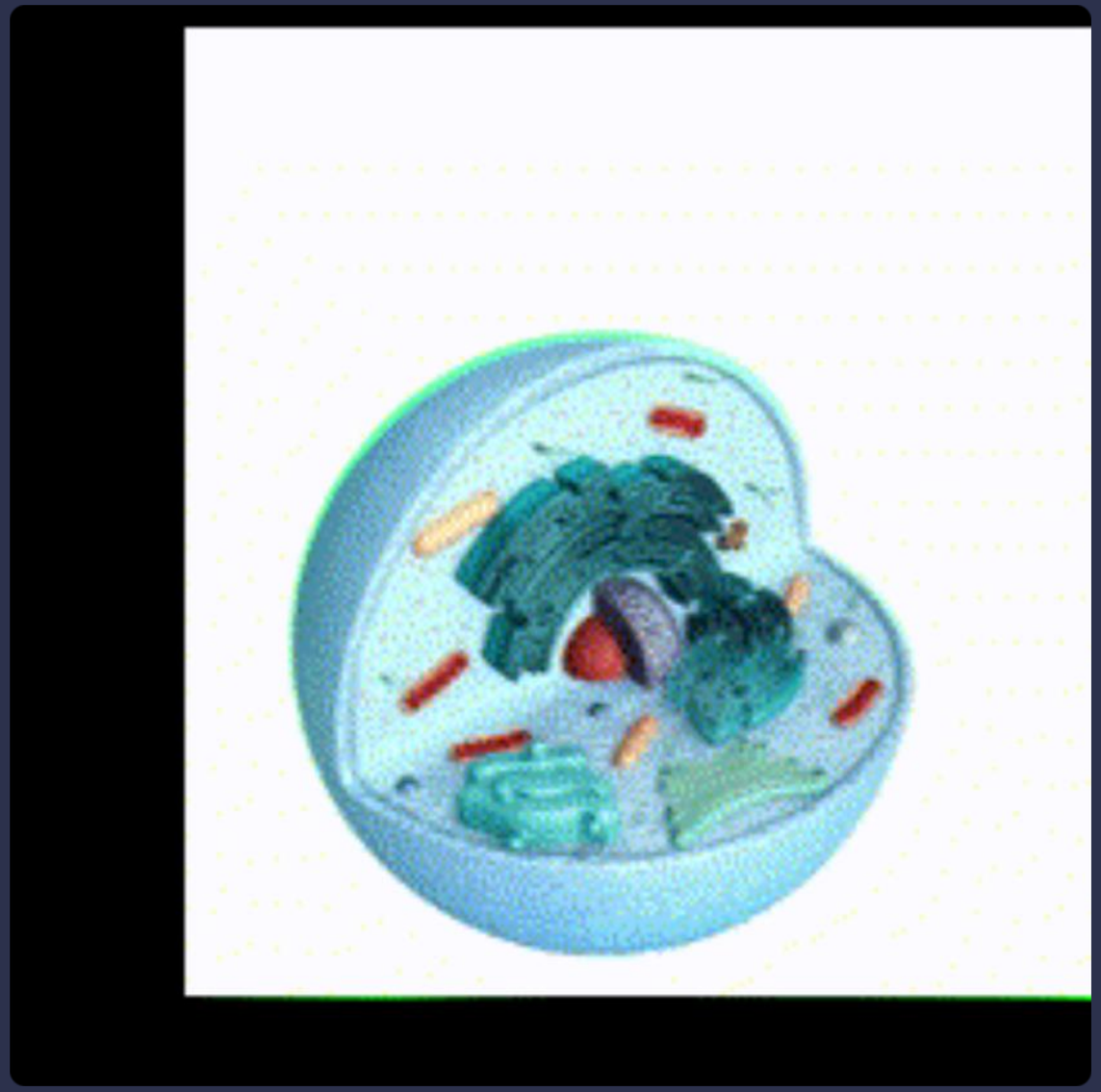
Peptides act as signaling molecules, binding to receptors on the cell surface and initiating a cascade of events that indirectly influence cellular activity, rapid onset and offset, but can lead to long-lasting epigenetic changes.

Bioregulator Mechanism of Action

Bioregulator peptides bind to gene translation activators or inhibitors, influencing transcription patterns and affecting protein synthesis, altering transcription patterns toward a younger, healthier phenotype, with a slower onset and offset.

1. Morozov, VG. Peptides of pineal gland and thymus prolong human life. Neuro Endocrinol Lett. 2003 Jun-Aug;24(3-4):233-40

Mechanism of Action



Peptide Mechanism of Action

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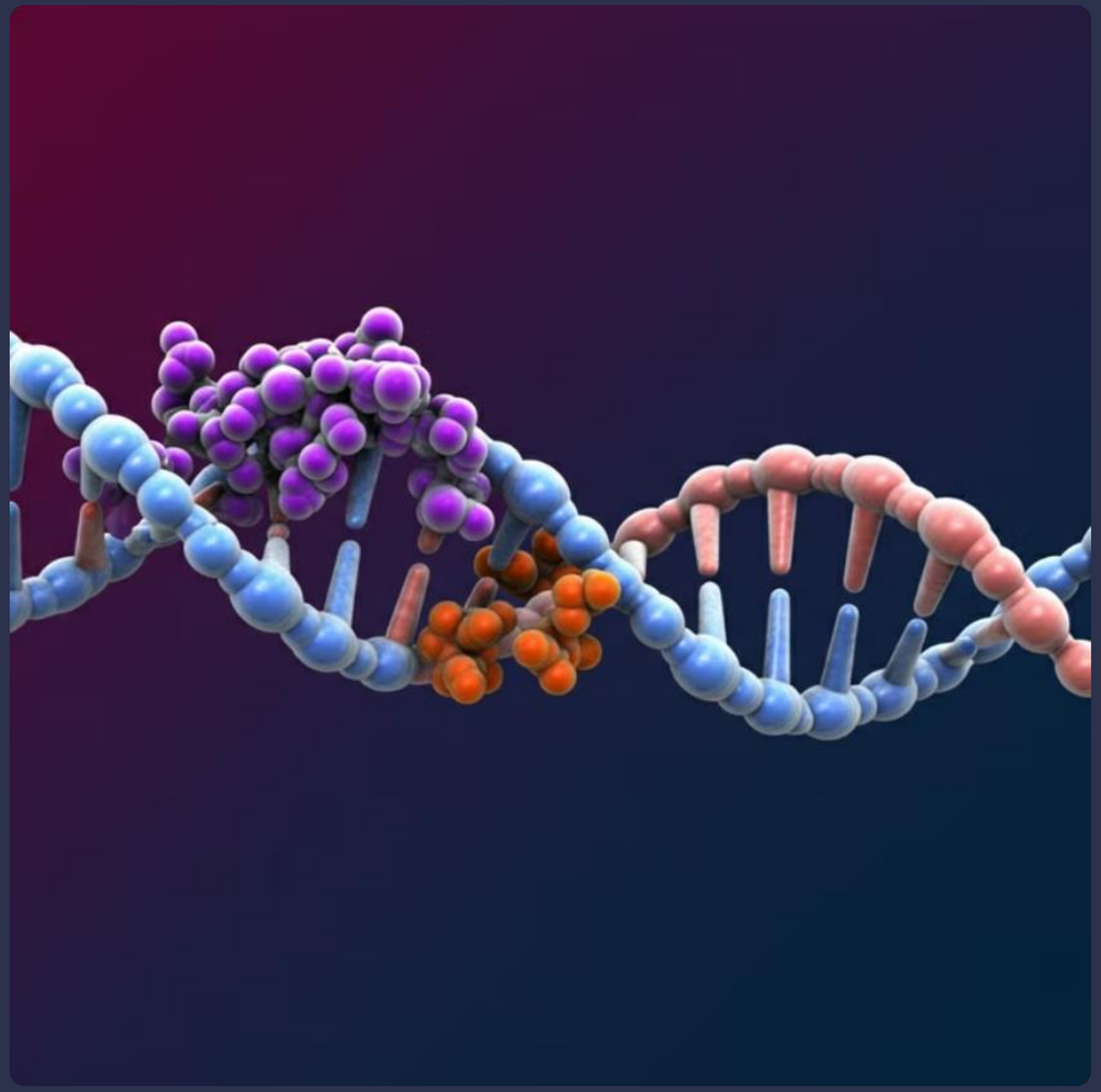


Bioregulator Mechanism of Action

Bioregulator peptides bind to gene translation activators or inhibitors, influencing

Safety of Peptides

Highly Specific and Targeted Control

Peptides regulate a vast array and multiple tiers of biological processes, from the nervous system to connective tissue to the cardiovascular system. Compared to hormones, peptides exhibit more specific and targeted control, while peptide bioregulators exhibit the most specific and targeted control of metabolic processes.

Exceptional Safety Profile

Studies have shown the exceptional safety of oral peptides, with many showing no toxicity at a 100 or even 1,000 to 10,000 times the typical therapeutic dose.

Growing Availability

As the number of clinically available peptides and bioregulators continues to grow, healthcare professionals now have an increasing array of tools that can safely optimize and normalize bodily functions.

Potent at Low Doses

Peptides are highly potent, effective even in the nanogram and picogram range, which are one million to one billion fold less than the typical milligram doses used for supplements and medications. (0.000,000,1 to 0.000,000,000,1 less than a mg)

1. Sikiric, P., et al., Stable Gastric Pentadecapeptide BPC 157: Novel Therapy in Gastrointestinal Tract. CPD, 2011. 17(16): p. 1612-1632.

Use of Peptides and Bioregulators Will Change Your Practice

Wide Range of Applications

Peptides and bioregulators can effectively treat a large percentage of your patients across a wide range of conditions, many who you previous had nothing for, from the sickest, multisystem patients to antiaging, HRT, fatigued, depressed, and athletic populations.

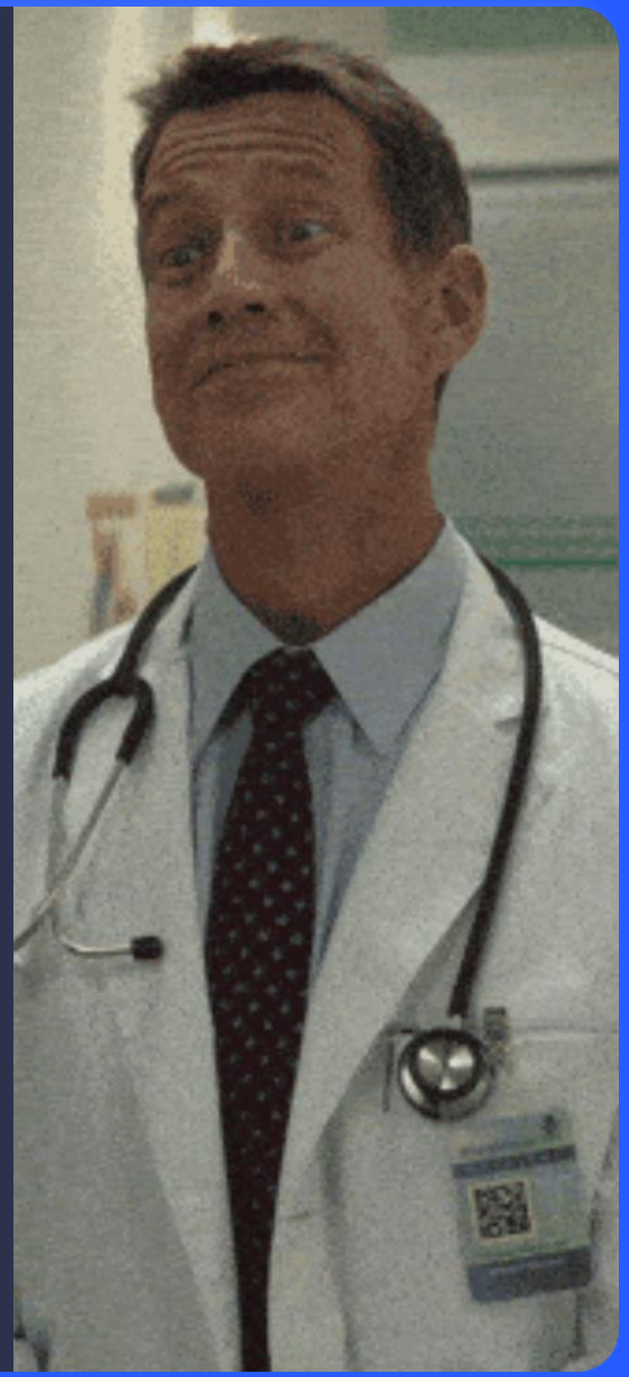
Unparalleled Safety and Efficacy

These 3rd generation, oral peptide supplements and bioregulators offer an unmatched safety and efficacy ratio compared to other therapies, with potent formulations and improved bioavailability.

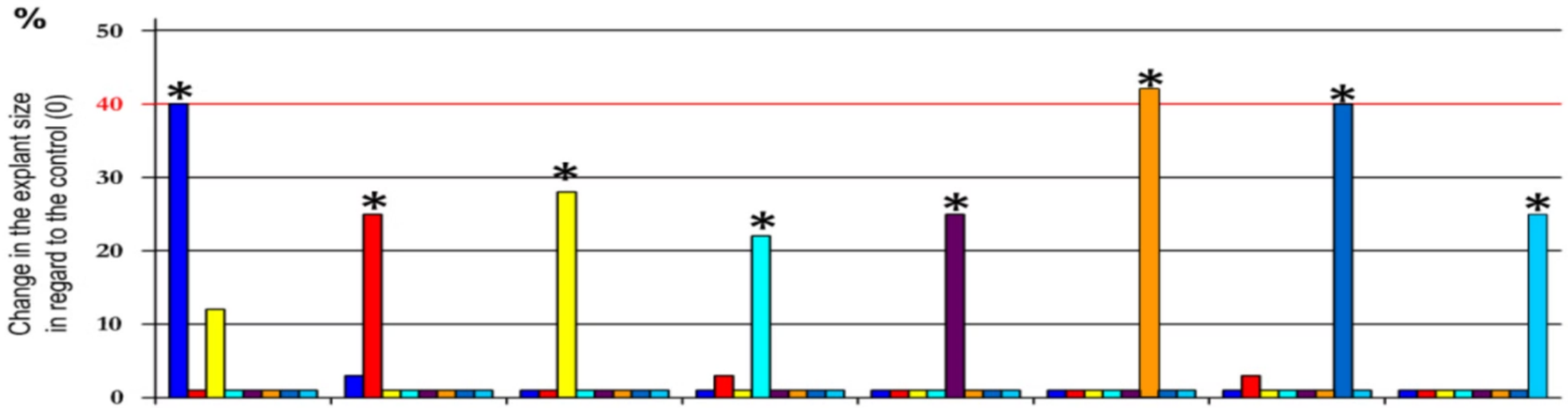
Gut-Brain Axis and Beyond

Peptides and bioregulators can address both the gut-brain axis and brain-gut axis, effectively treating a huge population with gut and systemic issues that have been resistant to other treatments.

Sikiric, P., et al., Stable Gastric Pentadecapeptide BPC 157: Novel Therapy in Gastrointestinal Tract. CPD, 2011. 17(16): p. 1612-1632.



Peptide tissue (gene)-specific regulation



Peptide \ Tissue	Cerebral cortex	Subcortical structures	Liver	Urinary bladder	Thymus	Pancreas	Heart	Bronchi
Brain	+	-	-	-	-	-	-	-
Pineal	-	+	-	-	-	-	-	-
Liver	-	-	+	-	-	-	-	-
Prostate	-	-	-	+	-	-	-	-
Thymus	-	-	-	-	+	-	-	-
Pancreas	-	-	-	-	-	+	-	-
Heart	-	-	-	-	-	-	+	-
Bronchi	-	-	-	-	-	-	-	+

* - $p<0.05$ as compared to the control

Khavinson V. Bull. Exp. Biol. Med. (2002)

Bioregulators

Unveiling the Secret Weapon of Soviet Super Soldiers and Olympic Athletes

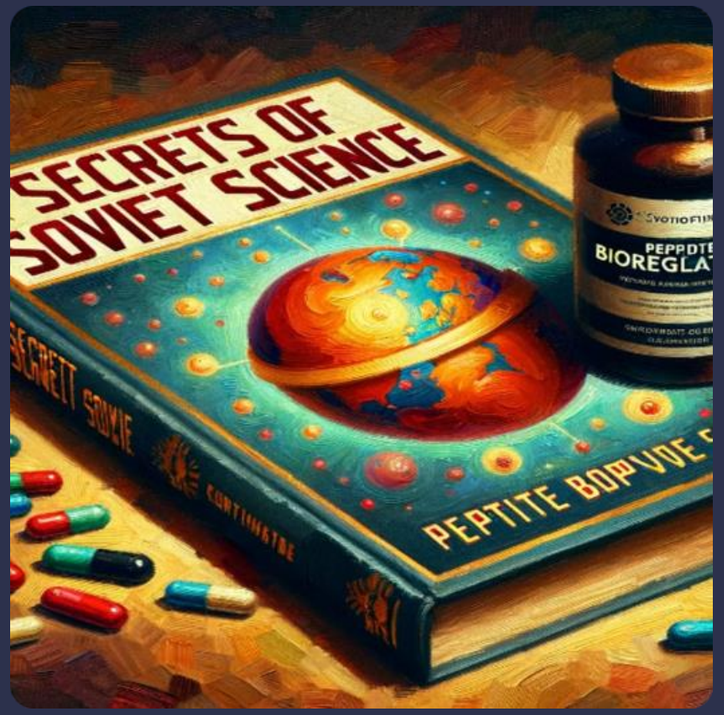
A Cold War Secret: Bioregulators

Soviet Military Challenge

During the Cold War, Soviet submariners, supersonic jet fighters, and cosmonauts pushed the limits of human endurance. As a result, they suffered from “premature aging effect” and physical decline.

Top Secret Mission

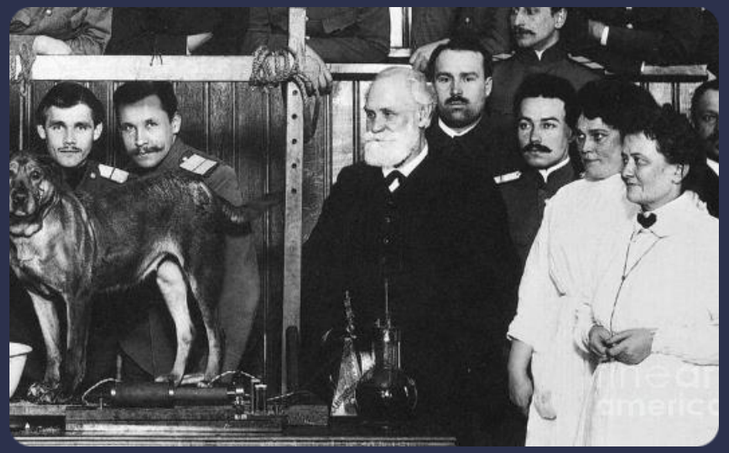
This alarming problem prompted the formation of a top-secret project for the USSR Ministry of Defense to find a solution.



Breakthrough Discovery

Their search led to a groundbreaking discovery with the potential to revolutionize our understanding of aging.

The Birth of Peptide Bioregulators



Soviet Discovery

Soviet scientists, led by Colonel Vladimir Khavinson, M.D., Ph.D., paired with Ivon Pavolv, made a groundbreaking discovery that specific organ extracts from fetal cows, including the pineal and thymus glands, could reverse premature aging effects in a tissue-specific manner.

Unlocking the Secrets of Peptides

This led to the isolation of ultra-short peptides, only two to four amino acids in length, which were found to be able to enter cells and interact directly with DNA, modulating gene expression to promote youthful cellular function.

A Secret Weapon

For decades, these peptide bioregulators were a closely guarded secret, used exclusively by the Soviet military and Olympic athletes to maintain peak performance.

The Cold War Discovery That Could Extend Your Lifespan

1 Western Discovery

It wasn't until after the fall of the Soviet Union that the West began to uncover the extensive research and incredible potential of these once-classified peptides.

2 Public Availability

Now, after years of research and development, these powerful peptide bioregulators are available to anyone looking to enhance their health, vitality, and longevity.

3 High Bioavailability

Other uniquely beneficial properties of bioregulators are that their small size and composition make them resistant to enzymatic degradation in the gastrolienal tract, and they are readily transported through the intestinal barrier, making them highly orally bioavailable.

4 Tissue Bioavailability

They also readily pass across cell and nuclear membranes and the blood-brain barrier, allowing them to efficiently affect their target tissues.

The Cold War Discovery That Could Extend Your Lifespan

Longevity

With the ability to selectively activate youthful genes and suppress age-related genes, peptide bioregulators offer a way to not just slow aging but potentially reverse it, extending both lifespan and health span.

Cutting Edge of Health Science

With over twenty natural bioregulator extracts and over thirty bioregulator peptide isolates available for commercial use, these peptides represent the cutting edge of health science, providing a practical solution for those seeking to maintain youth and vitality.

66. Khavinson V. Peptides and ageing....

View more

66. Khavinson V. Peptides and ageing. Neuroendocrinology Letters 2002;23(3):11-144

71. Anisimo VNN, et al. Effect of synthetic thymic and pineal peptide on biomarkers of ageing, survival and spontaneous tumor incidence of female CBAmice. Mech Ageing Dev 2001;122(1):41-68.

Longevity and Therapeutic Effects

Lifespan Extension

Peptide bioregulators can potentially extend lifespan by regulating gene expression associated with aging processes, enhancing protein synthesis, and supporting healthy cellular function.

Senescent Cell Removal

Peptide bioregulators promote the removal of senescent cells, reduce inflammaging, and suppress SASP secretion, targeting the root causes of aging and chronic illness.

Bioregulators and Aging (TAP Study)

Telomere Length and Aging

Numerous studies have shown that telomere length is closely linked to the aging process. People with shorter telomeres have a much higher chance of dying from any cause compared to people with longer telomeres.

Clinical Evidence

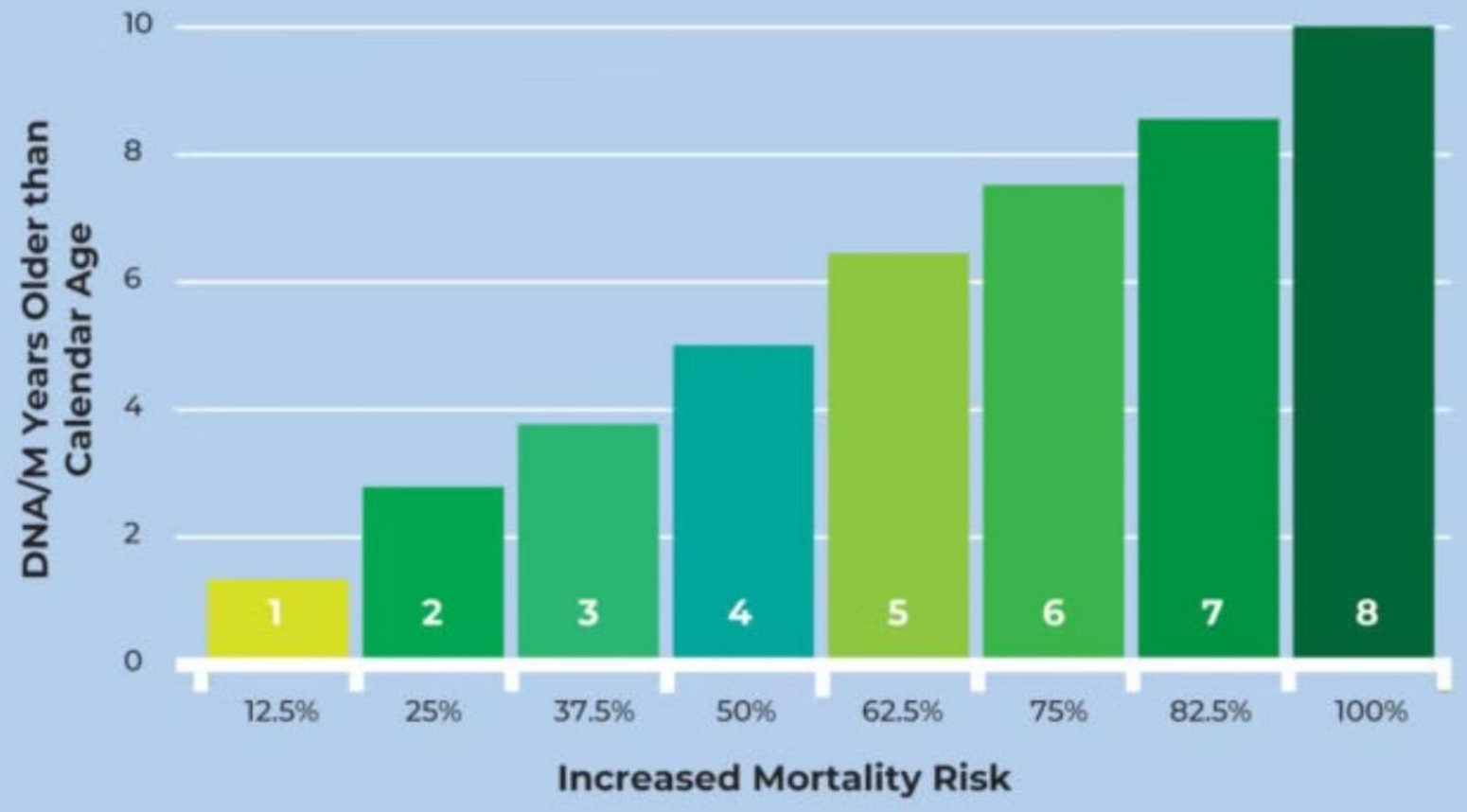
Studies in Russia and the United States have proven that peptide bioregulators can restore stem cell function, increase telomere length, and reverse biological aging in a broad spectrum of ways. These effects are linked to significant decreases in markers of mortality and illness.

Ongoing Russian Study

The Telomerase Activation Protocol (TAP) study gives subjects a combination of 5-7 peptide bioregulators for ten days each month, rotating through a total of 21 peptides over time.

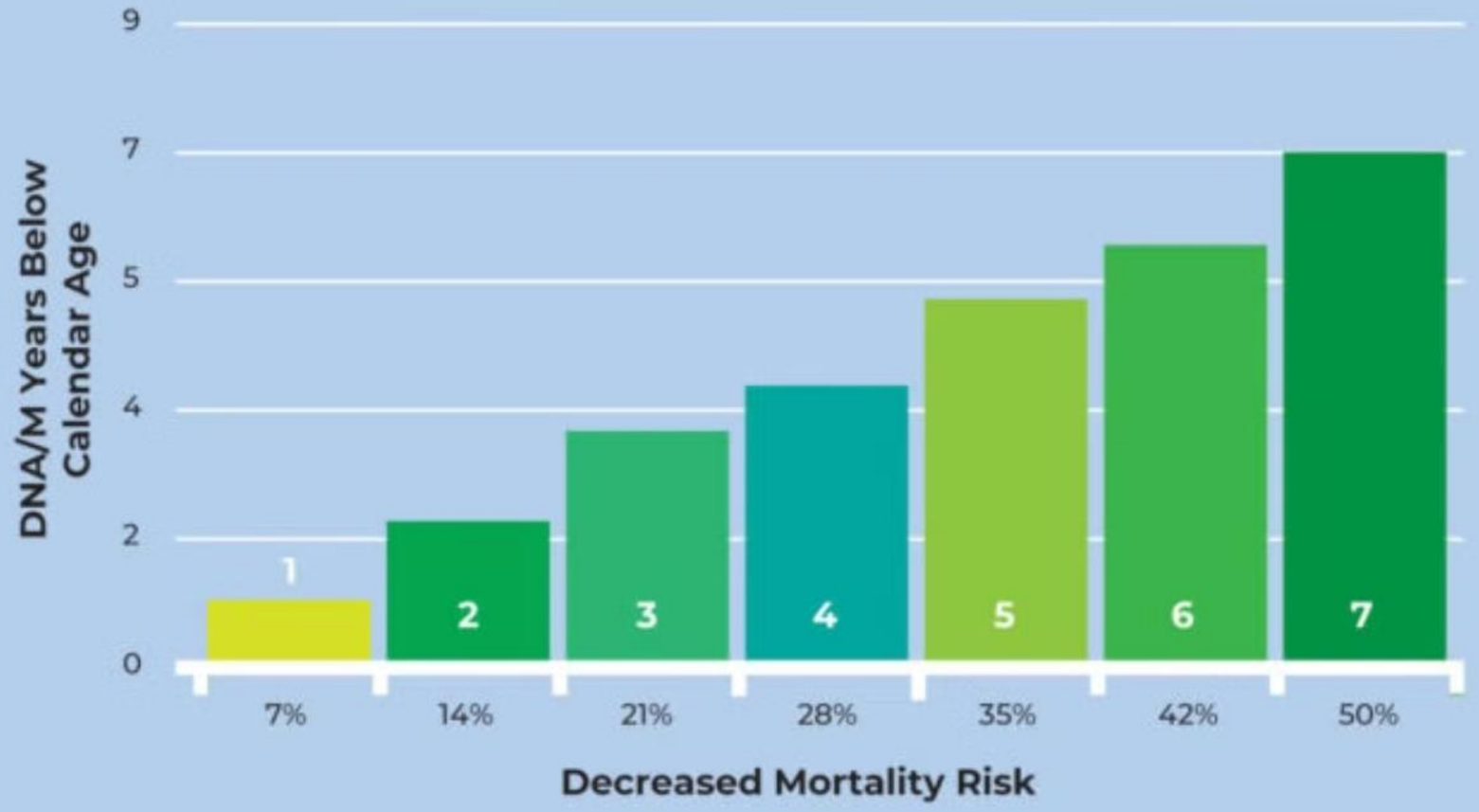
Telomere length and biological age are measured at the start and annually.

Horvath Epigenetic Clock
DNA Methylation Mortality Risk



The percentage increase mortality risk is sequential but not neceassrily a lineal progression as shown

Horvath Epigenetic Clock
DNA Methylation Mortality Risk



The percentage decrease mortality risk is sequential but not neceassrily a lineal progression as shown

Telomerase Activation Protocol (TAP) Study

Study Goals

The study goals are to **reduce biological age by 7 years, which is associated with a 50% reduction in all-cause mortality, improve quality of life (QoL), and achieve an extended healthy lifespan.**

Clinical Results

On average, participants r**eversed their telomere age by 22 years over three years**, achieving an **average of 7 years of telomere lengthening per year.**

Current Status

Over 100 participants are actively involved or have achieved their telomere goals and are now on a minimal maintenance program.

The Epigenetic Methylation Analysis and Intervention Study

Study Goals

- For this 3-4 year study, the goals are to determine if **peptides can reverse biological aging, in addition to telomere length, at the molecular (DNA/m) level via EpiAge® testing with a personalized peptide bioregulator protocol.**

Study Participants

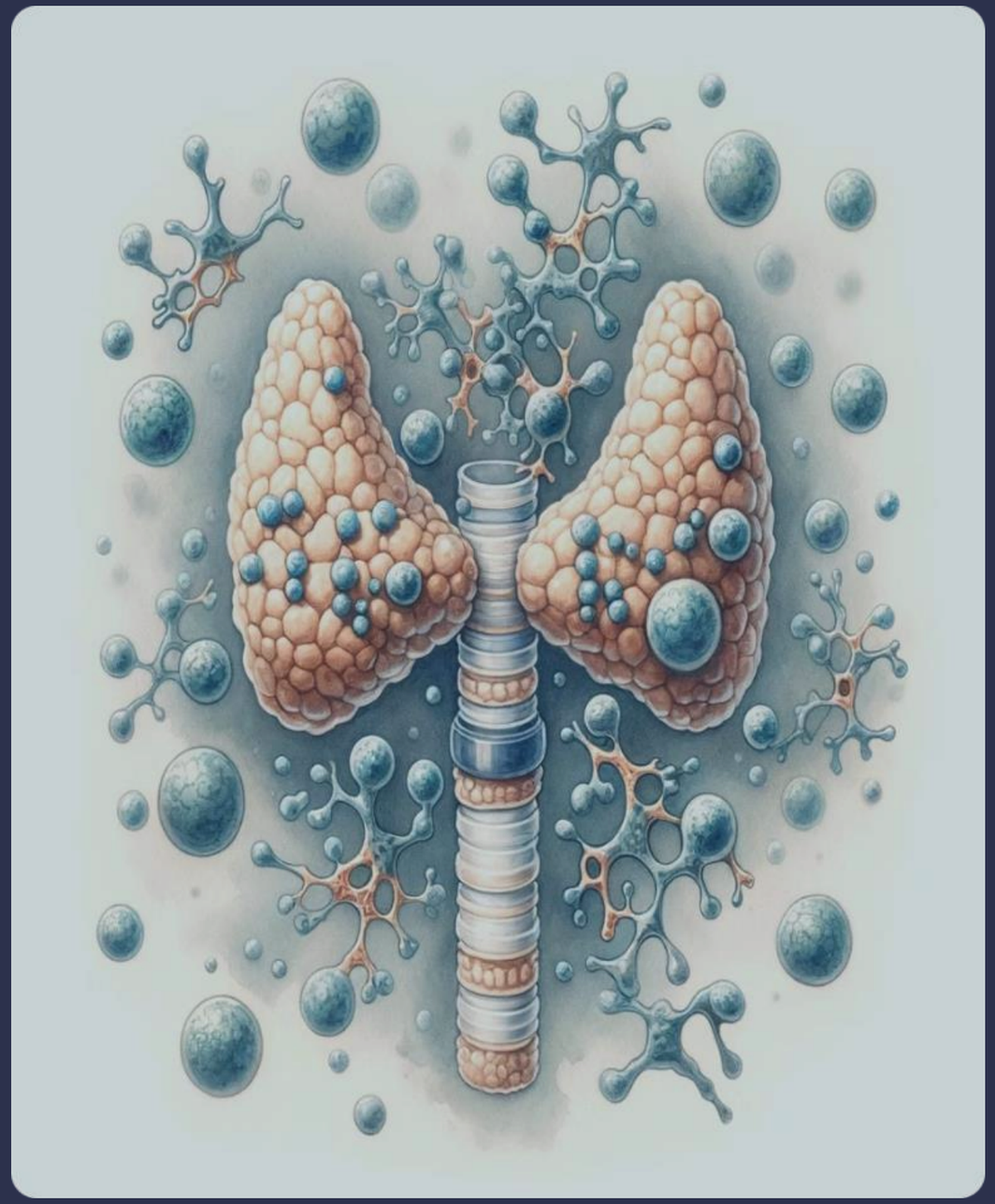
The average study participant had a baseline epigenic age 3.5 years older than their chronological age, equating to about a 40% increased risk of of mortality.

Clinical Results

On average, participants **reversed their telomere age by 14 years and over 5 years in EpiAge after two years**. **Over 90% of the telomere participants reached their telomere goal in 2 to 3 years.**

Current Status

Over 100 participants are actively involved or have achieved their telomere goals and are now on a minimal maintenance program.



Thyroid and Thyroid Axis Bioregulators Overview

Thyroid and Thyroid Axis Bioregulators Overview

Extracted from the thyroid glands of young...

View more

- Extracted from the thyroid glands of young animals
- Stabilizes thyroid function and thyroid hormone levels.
- Can normalize thyroid function and reverse hypo and hyperthyroidism and autoimmune thyroiditis, including Hashimoto’s and Grave’s disease.
- Reduces the size of thyroid nodules.
- Improves pineal-hypothalamic-pituitary-thyroid axis and mitochondrial function.
- Prevents stem cell aging.
- Activates telomerase and stem cell function.
- Supports the healthy functioning of the neurologic, immune, and cardiovascular systems.
- Improves hypercholesterolemia, insulin resistance, and metabolic function.
- Rejuvenates hair, nails and skin.
- Shown to improve physical performance, endurance, cognitive function, mood disorders, bone density, antioxidant activity, quality of life, and survival rate.
- Improved longevity in old and elderly patients.
- Reduced cancer rates and the incidence of chronic infections.

Thyroid Bioregulator

Influence of THYREOGEN® on the level of thyroid hormones in blood serum in patients with primary hypothyroidism.

Thyreogen®

Normal thyroid levels in nmol/l
Total T3 (0.9 to 2.8 nmol/L)
Total T4 (51.48 - 154.46 nmol/L)

Table 1

Indicators	Before Treatment	After Treatment with Conventional Means	After Treatment with Thyreogen®
T3, (nmol/l)	0,38±0,03	1,12±0,06	1,58±0,07*
T4, (nmol/l)	38,8±5,4	55,1±4,3	87,5±6,2*

Thyroid Bioregulator for Primary Hypothyroidism

1 Study Participants

- The study involved **25 patients with primary hypothyroidism,** including 11 men and 14 women aged 56 to 67 years**. The control group consisted of 19 patients,** including 7 men and 12 women.
- **Patients in both groups complained of significant fatigue, poor endurance, drowsiness, memory impairment, frequent headaches, dizziness, and an increased incidence of angina. In most cases, signs of thyroid atrophy were detected by palpation.**

2 Treatment

- The control group was **prescribed conventional therapy of T4 for three months**.
- **Patients of the primary group received Thyroid bioregulator 1-2 capsules 2 times a day before meals for three months.**

Testing

- The patients' biochemical analysis of **blood (serum T3 and T4)** was performed along with a **thyroid ultrasound** and **EKG** examination before and after the trial.

Thyroid BioregulatorTherapy for Primary Hypothyroidism

Results:

- Compared to the control group receiving T4 therapy, those receiving the Thyroid Bioregulator noted improvement in the clinical manifestations of the disease in 78% of cases, and the most significant effect was observed in persons of the older age group with pronounced signs of thyroid atrophy.
- After just 20 days of treatment, the Thyroid Bioregulator group noted increased working capacity and endurance, decreased frequency and intensity of headaches, and decreased angina compared to the control group on T4 therapy.
- *78% of the patients taking the Thyroid bioregulator saw a clear improvement in symptom resolution of their disease.*

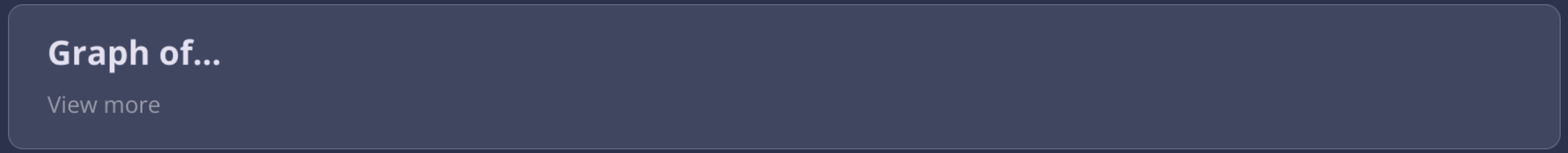
Thyroid Hormone Levels

- After treatment with T4, the total T3 reached the low normal range, but T4 levels did not from a pretreatment T3 level that averaged 60% below the lowest level of normal and a T4 level that was 35% below the lowest level of normal.
- On the other hand, the addition of the thyroid bioregulator resulted in a 300% increase in the T3 level from baseline and a 40% increase over T4 replacement alone, with T4 levels doubling and 60% higher than T4 alone.
- After stopping the therapy, the T4 and T3 levels in the Thyroid Bioregulator group remained in the normal range for 3-4 months.

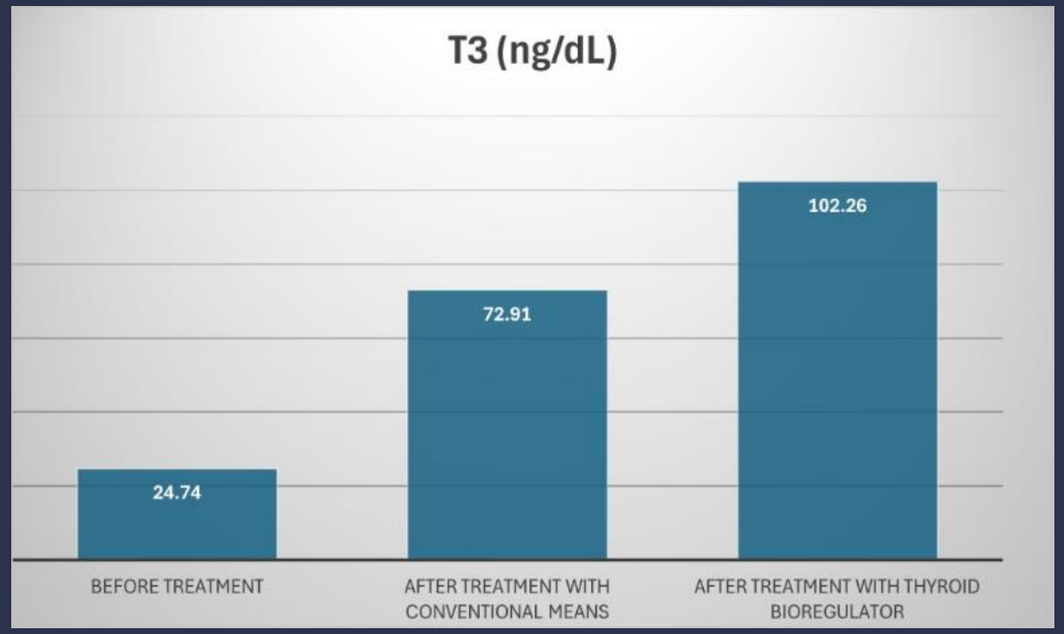
1. Khavinson V. Short Peptide Bioregulators in the Treatment of Hypothyroidism. Medical Center of the Northwest Department of the Russian Academy of Medical Sciences, 2005-2006.

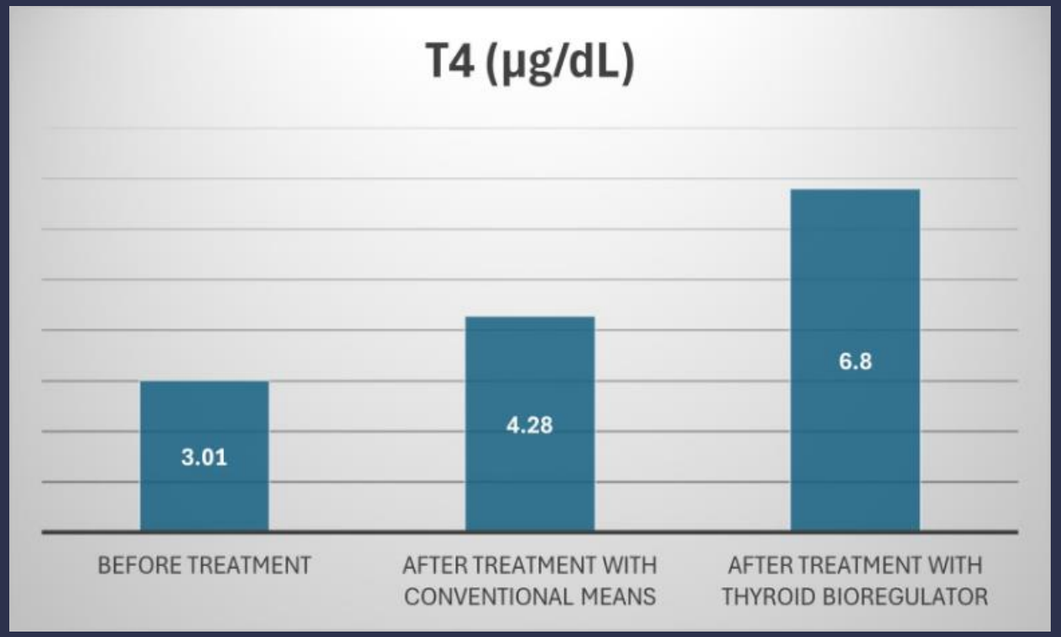
Thyroid Hormone Levels

Indicators	Before Treatment	After Treatment with Conventional Means	After Treatment with Thyroid Bioregulator
T3 (ng/dL)	24.74	72.91	102.26
T4 (µg/dL)	3.01	4.28	6.8



Graph of Results





1. Khavinson V. Short Peptide Bioregulators in the Treatment of Hypothyroidism. Medical Center of the Northwest Department of the Russian Academy of Medical Sciences, 2005-2006.

Treatment of Autoimmune Thyroiditis with Thyroid vs. Thyroid-Axis Bioregulator

Mission

- A 4-month study on the efficacy of Thyroid vs. Thyroid Axis Bioregulator Therapy for autoimmune Thyroiditis with hypothyroidism compared to standard therapy of L-thyroxine 50 mcg/day for four months.
- Two hundred eighteen patients (218) with autoimmune thyroiditis aged between 39 and 51-years old. were randomized

Group I

Eighty-nine (89) people received **standard treatment of L-thyroxine 50 mg daily** for 4 months.

Group II

Forty-two (42) people received **peptide thyroid bioregulator therapy** in addition to the standard treatment scheme

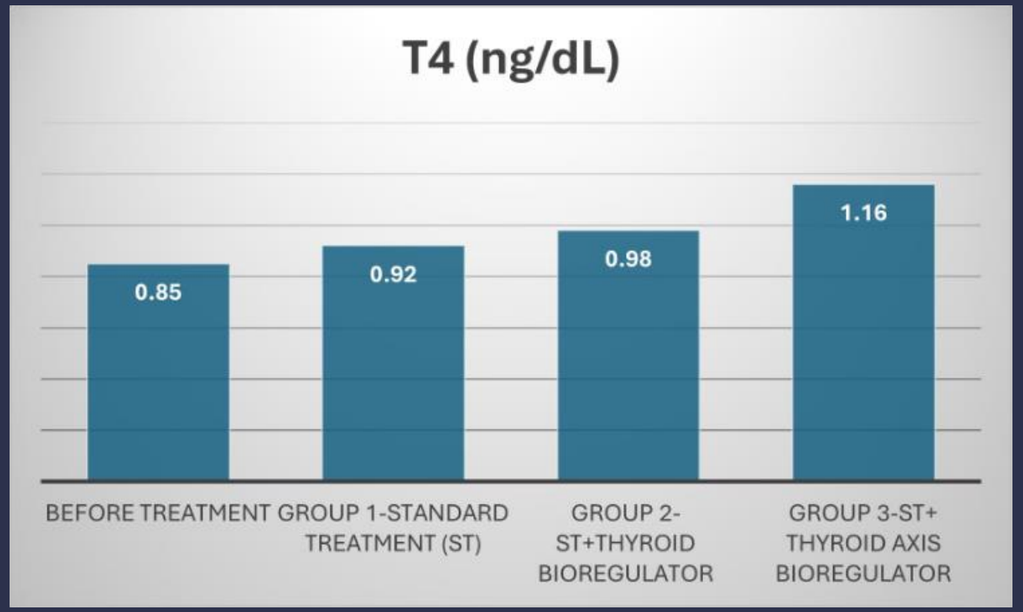
Group III

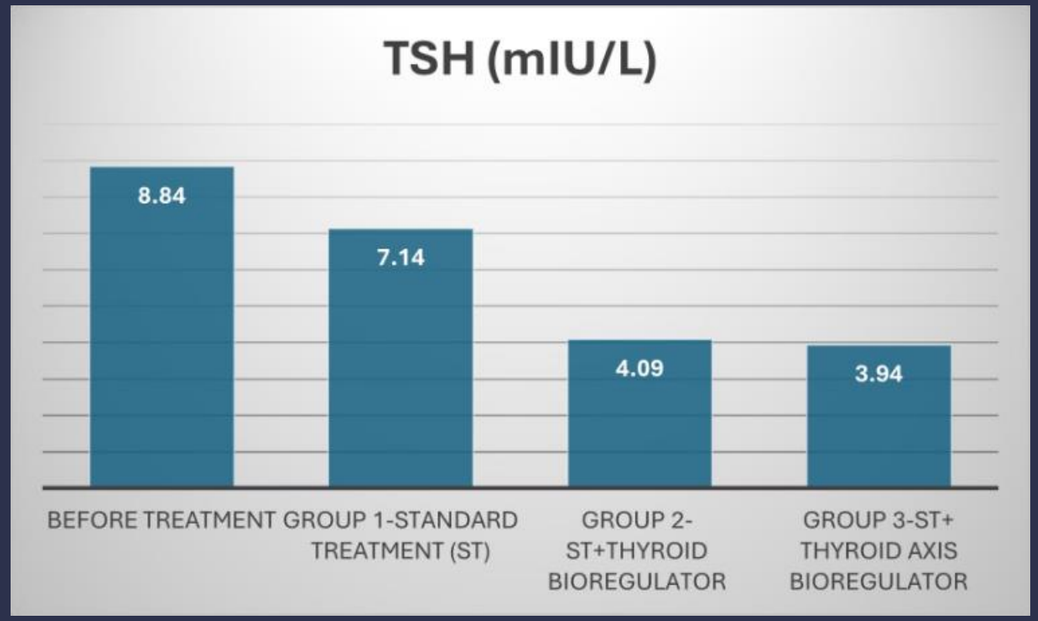
Eighty-seven (87) people received **peptide thyroid-axis bioregulator therapy** in addition to the standard treatment.

Study Results

Indicators	Normal Range	Before Treatment	Group 1- Standard Treatment (ST)	Group 2- ST+Thyroid Bioregulator	Group 3-ST+ Thyroid Axis Bioregulator
Number of Patients	-	218	89	42	87
USG	-	-	-	-	+
IRTG	-	-	-	+	+
T4 (ng/dL)	0.8-2.1	0.85	0.92	0.98	1.16
TSH (mIU/L)	0.35	8.84	7.14	4.09	3.94
ATG (IU/L)	0-4.1	87.1	83.32	77.41	18.91
ATPO (IU/L)	0-5.61	371.2	361.24	357.23	29.16

Study Results Graphs

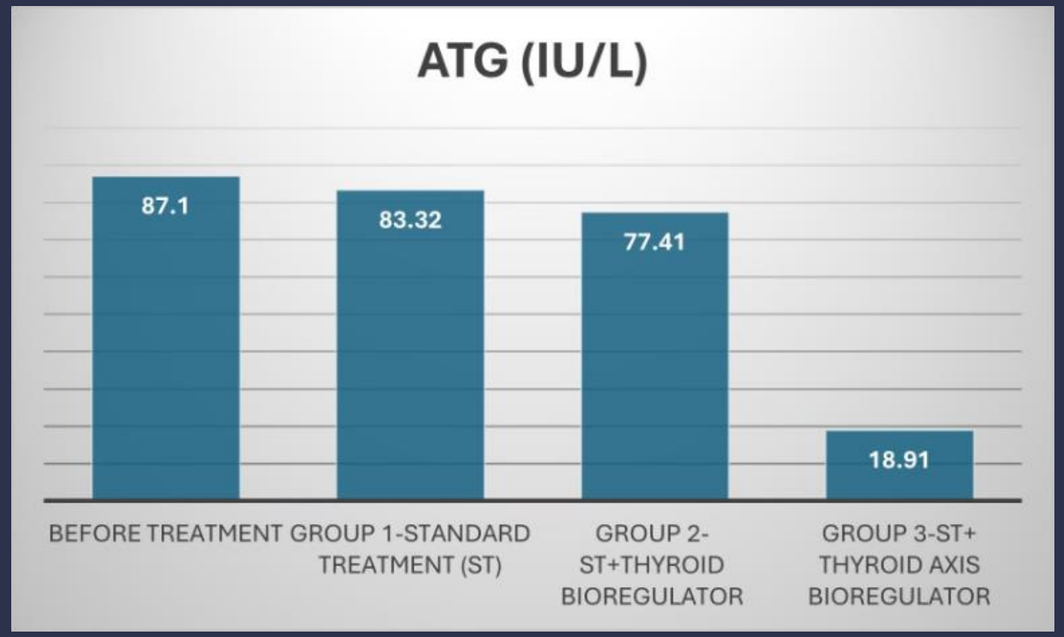


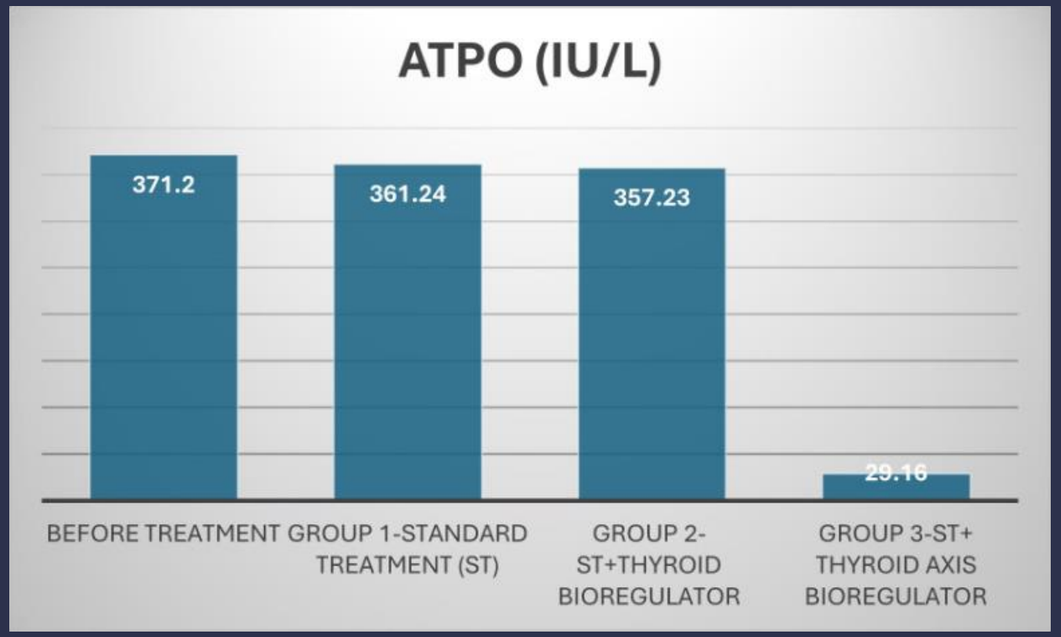


Study Results...

View more

Study Results Graphs





Thyroid Bioregulator Axis Formula

Supplement Facts

Serving Size: 1 capsule
Servings Per Container: 60

	Amount Per Serving	Value*
Purified Natural Bovine Thyroid Glandular Peptide Complex (Free of T4 & T3) with Minimum of Naturally Occurring Acetylated and Amidated	**25 mg**	*
Thyroid Bioregulator Alpha-24C	**> 195 mcg**	*
Thyroid Bioregulator AWG2	**> 235 mcg**	*
Thyroid Bioregulator C44	**> 185 mcg**	*

Other Ingredients: Microcrystalline Cellulose, Silicon Dioxide, Gelatin Capsules

Thyroid Axis Bioregulators

1. Experiment on the effects of Thyroid Axis Bioregulators on sixty (60) young rats (4 days old) and forty-five (45) old rats (24 months old) after undergoing hypophysectomy (removal of the pituitary gland).

2. **Group I:** Fifteen (15) young and ten (10) old rats were sham-operated with all others being .

3. **Group II:** Fifteen (15) young and fifteen (15) old rats in group II received physiologic saline for 40 days after having pituitary removed.

4. **Group III:** Fifteen (15) young rats and ten (10) old rats received THYROID AXIS BIOREGULATOR C44 (TABa-C44),

5. **Group IV:** Fifteen (15) young rats and ten (10) old hypophysectomized (pituitary removed) rats received THYROID AXIS BIOREGULATOR Alpha-24C (TAB-A24C) in group IV.

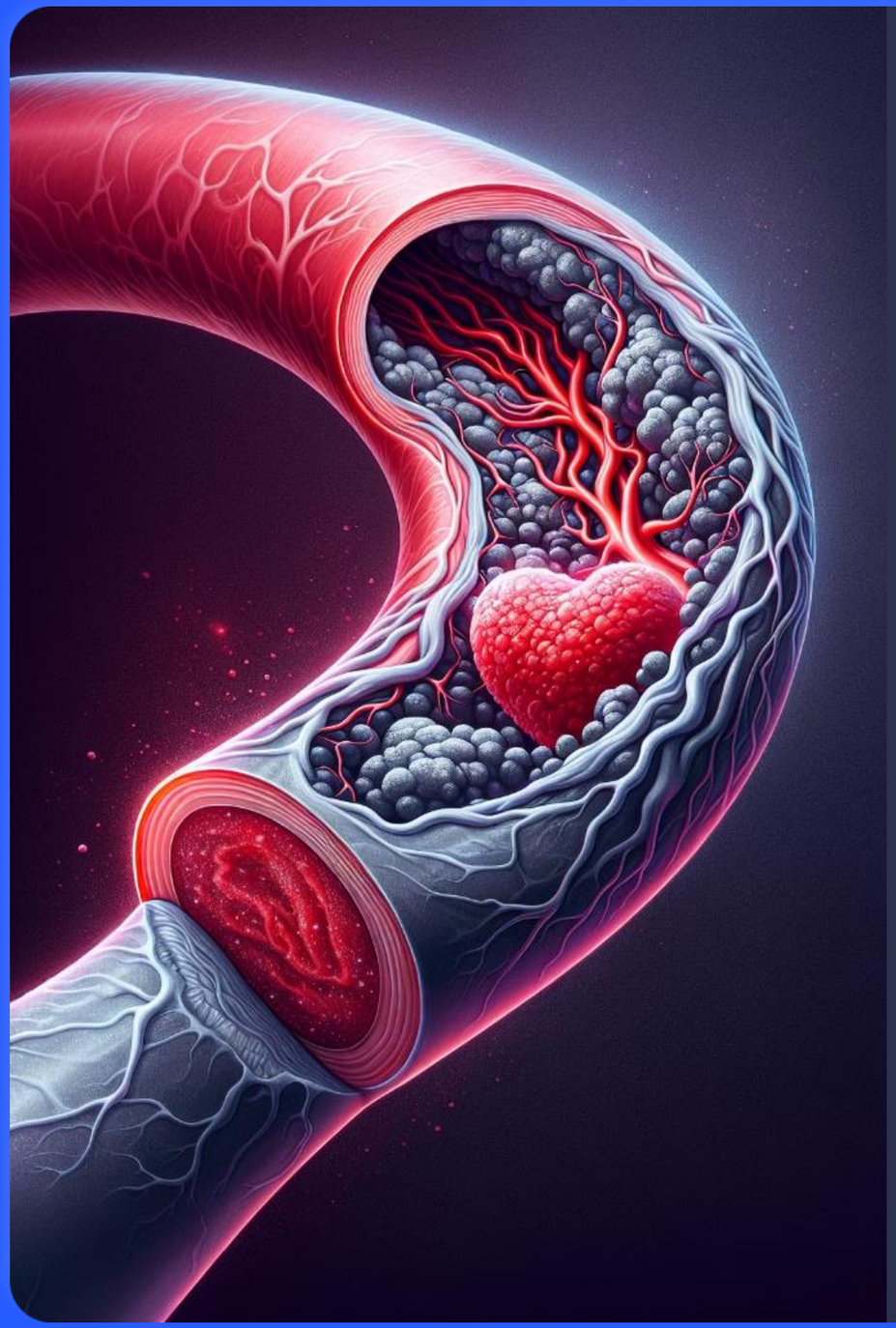
Thyroid Axis Bioregulators

1 Thriving

- The young and old rats treated with saline quickly experienced a 43% and 30% weight loss and growth retardation with sluggishness, suppressed excitement and anorexia.
- While those given TAB-C44 had a 19% and 21% weight loss, and the TAB-A24C group only had a 7% and 6% weight loss, respectively.

2 Thyroid and Thymus Function

- Normal thyroid architecture was much more consistently maintained in the TAB-C44 and ATB-A groups compared to the saline group.
- TSH, T3 and T4 levels plummeted 80-90% after hypophysectomy, but the decline was significantly blunted by TAB-C44 and TAB-A24C.
- TAB-C44 and TAB-A24C prevented the signs of hypothyroidism and normalized the structure and function of the thyroid gland.
- TAB-A24C and, especially, TAB-C44 are shown to significantly rejuvenate, and stimulate both the structure and function of the thymus.



Peptide Bioregulator Combinations and Atherosclerosis

Combinations of peptide bioregulators, such as blood vessels, pineal, subcortical brain, and liver, are shown to prevent and reverse chronic diseases of aging, such as atherosclerosis, varicose veins, osteoporosis, diabetes, Alzheimer's, etc.

The Role of Senescent Cells in Cardiovascular Pathology

Endothelial Dysfunction

The accumulation of senescent endothelial cells with shortened telomeres during aging leads to apoptosis, resulting in disturbed blood flow and endothelial dysfunction.

Vasorelaxation Impairment

These senescent cells are unable to produce adequate nitric oxide, essential for vasorelaxation, contributing to lipid peroxidation in smooth muscle cells and promoting intimal thickening—a key stage in atherosclerosis development.

Proatherosclerotic Influence of SASP

SASP factors enhance pro-atherosclerotic activities, exacerbating plaque formation and endothelial dysfunction at vulnerable sites.

The Role of Peptide Bioregulators in CV Health

Senescent Cell Removal

Oral thymic peptides bioregulators, including **Thymogen, Vilon,** and **TB4 fragments** are key to removing SCs via increased Th1.

Inflammaging and SASP Reduction

BPC-157, and the bioregulators **KPV,** oral **Cerebrolysin**, and the **Vessel, Cardiac, Pineal, and Brain Bioregulators**, function to reduce inflammaging and SASP production—vital in managing the aging of the cardiovascular system.

Therapeutic Potential:

Demonstrating the ability to remove SCs, reduce inflammaging and suppress SASP secretion, bioregulators can significantly prevent, reverse, and mitigate the progression of atherosclerosis, myocardial infarction, CHF, cardiac hypertrophy, diastolic dysfunction, and other cardiovascular conditions.

Stojhanovic, SD, et al. Senescence-induced inflammation: An important player and key target in atherosclerosis. Euro Heart J 2020;41:2983-96.

Study Design: Bioregulator Treatment of Cerebral Atherosclerosis

Group I

(514 pts)

Control Group: Received standard treatment following conventional schemes for atherosclerosis, including statins.

Group II

(319 pts)

Two Peptide Combination: Standard treatment enhanced with vascular peptides (vesugen) and subcortical brain bioregulator peptides (pinealon)

Group III

(416 pts)

Four Peptide Combination:

Group II therapies plus pineal (epitalon), and liver bioregulators.

The study involved 1,249 patients aged 55-65 with atherosclerosis, conducted at the Moscow Center of Revitalization and Health.

Gorgiladze, DE, et al. The Use of Peptides for the Treatment of Age-related Diseases. Aging and Antiaging-Prospects for the Development of anti-aging technologies: The World Congress of the International Assoc. of Gerontology and Geriatrics. June 23, 2013:2-10.

Peptide Complex Components and Their Functions

1 Vesugen (Blood Vessel)

Regulates vascular wall cells, reduces pathological vascular changes, lowers cholesterol and lipoprotein levels, mitigates risks of vascular, neurologic, and glandular dysfunction, and inhibits SASP secretion.

2 Pinealon (Subcortical Brain)

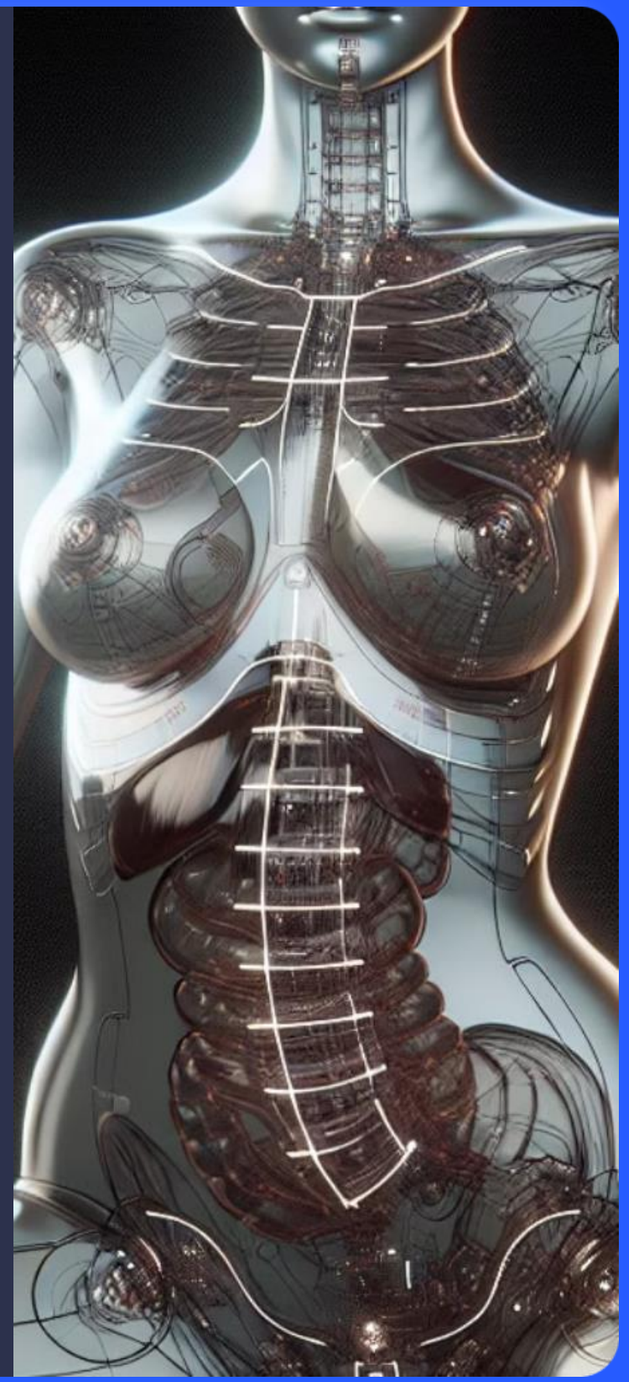
Targets brain tissue cells, enhances brain reserve capacity, improves resistance to hypoxia and toxins, reduces oxidative stress, and is crucial for cognitive function.

3 Livagen (Liver)

Acts on liver cells, normalizing their function and restoring metabolism, prevents and treats fatty liver, NASH, and is essential for overall health and longevity.

4 Epitalon (Pineal)

Regulates pineal gland cells, normalizes melatonin synthesis, reverses infertility, lengthens telomeres, reduces morbidity and mortality, including the incidence of cancer, CVD, and is shown to improve the QOL, healthspan and longevity.



Methodology and Measurements

Cholesterol and Lipid Levels

Total cholesterol, VLDL, and triglycerides were measured to assess the impact of peptide complexes on lipid metabolism.

Subjective Health Evaluation

Patients' self-reported symptoms and quality of life were assessed to gauge the overall impact of the treatment on their well-being.

Treatment Duration and Dosage

During the four month study, Pineal was given once per day for two months, while the others were given two per day for three out of the four months.

Results: Lipid Metabolism and Coagulation

Index	Before Treatment	Standard Scheme	Standard + Ventfort, Cerluten	Standard + Full Complex
Total Cholesterol (mg/dl)	336.21 ± 15.62	293.62 ± 11.59	243.61 ± 19.34*	224.62 ± 22.49*
Triglycerides (mmol/L)	409.6 ± 44.29	364.8 ± 44.29	346.4 ± 50.76	284.4 ±4 4.29*
VLDL (mg/dl)	55.38 ±2.7	47.58 ± 2.1	35.57 ± 2.7	33.5 ± 1.2

*Statistically significant improvement compared to the standard treatment group.

"The application of our peptide complex yielded remarkable improvements in lipid metabolism and coagulation system indicators..."

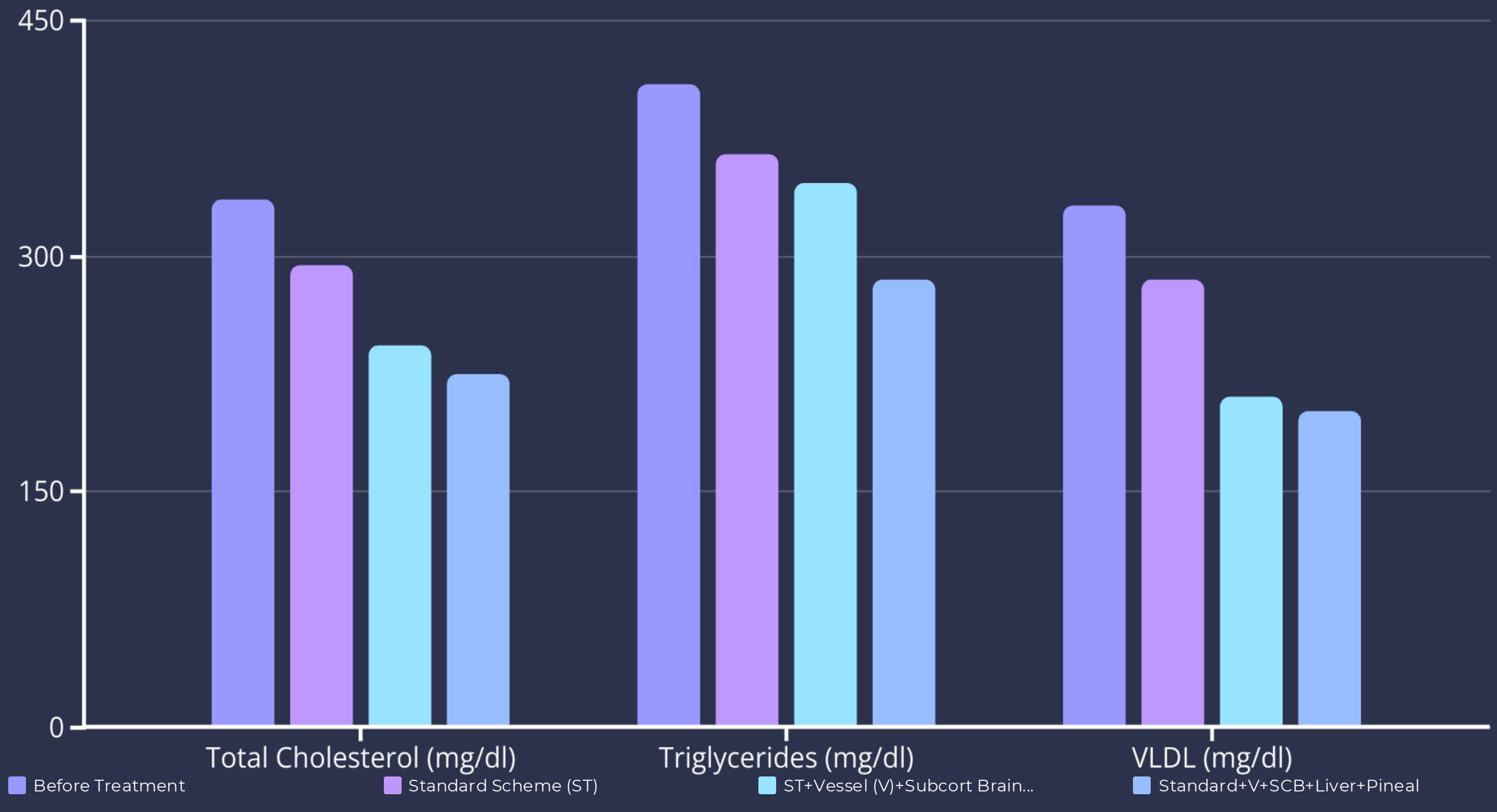
"The most significant positive changes were observed in the third group, which received the comprehensive four-peptide treatment."

Gorgiladze, DE, et al. The Use of Peptides for the Treatment of Age-related Diseases. Aging and Antiaging-Prospects for the Development of anti-aging technologies: The World Congress of the International Assoc. of Gerontology and Geriatrics. June 23, 2013:2-10.

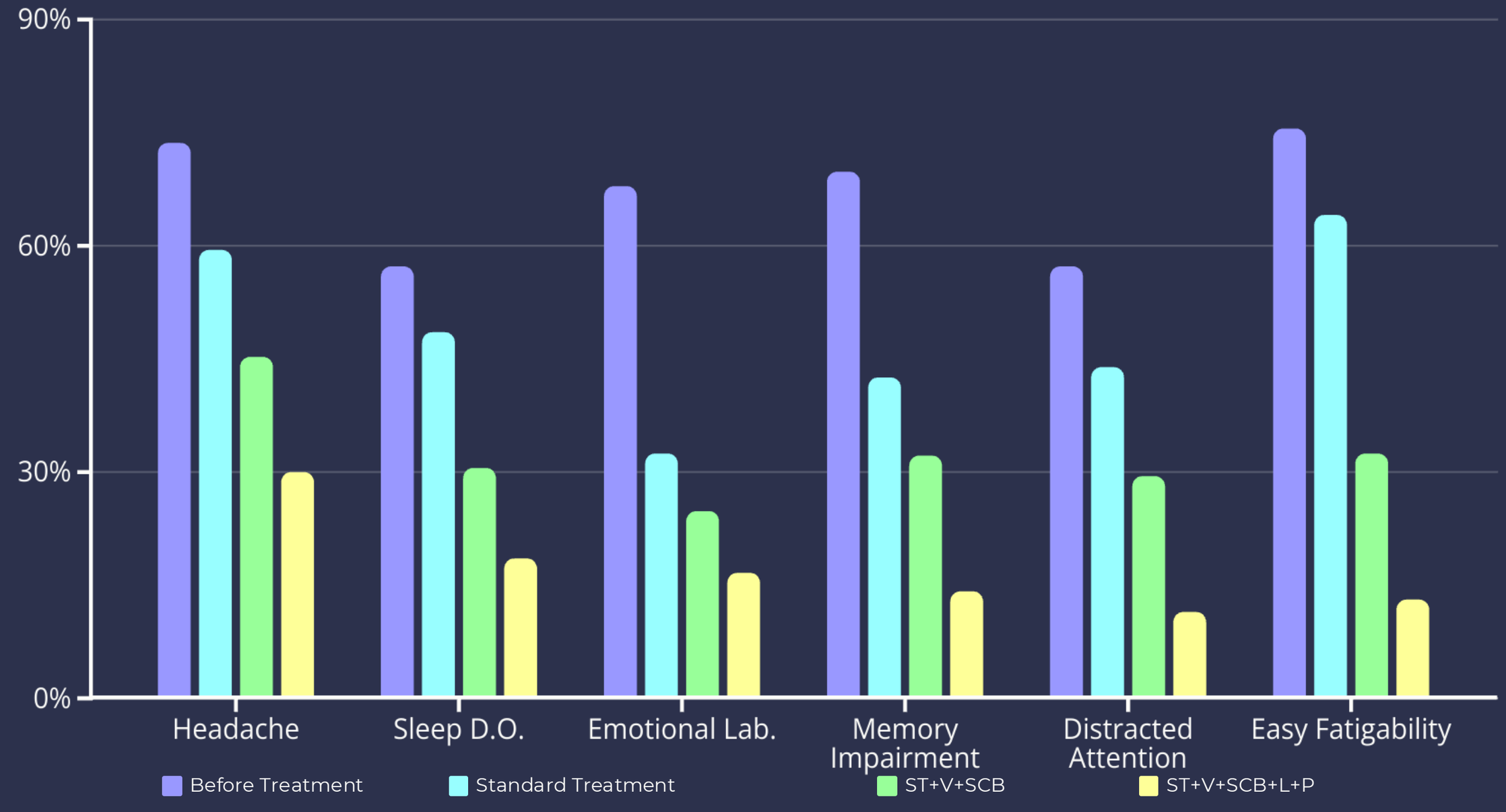
Graph of...

View more

Graph of Results



Results: General Health Indicators



Conclusions and Recommendations

"Our groundbreaking study demonstrates the remarkable efficacy of peptide bioregulator complexes in treating cerebral atherosclerosis."

"The combination of bioregulators not only improved objective markers of vascular health but also significantly enhanced patients' quality of life."

"These peptide bioregulators showed no side effects, complications, or addiction potential, making them a safe and powerful tool in anti-aging medicine."

1. Gorgiladze, DE, et al. The Use of Peptides for the Treatment of Age-related Diseases. Aging and Antiaging-Prospects for the Development of anti-aging technologies: The World Congress of the International Assoc. of Gerontology and Geriatrics. June 23, 2013:2-10.

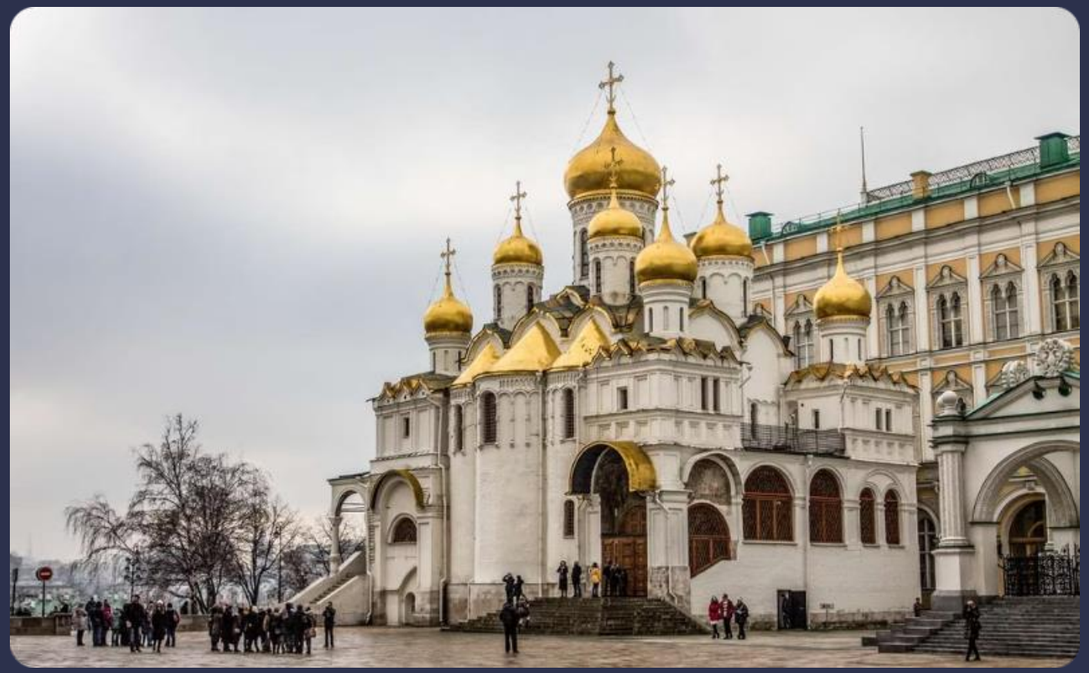
Combination Oral Peptide Bioregulator Therapy for Type II Diabetes

1. This study evaluates the effectiveness of peptide complexes in treating type II diabetes mellitus.

2. A cohort of 918 patients aged 52-65 were divided into three groups, receiving different treatment regimens.

3. The research aimed to compare standard treatment with peptide-enhanced approaches.

Methods



Study Location

The 3-month study was conducted at the Moscow office of the Center of Revitalization and Health.

Dosing

Pancreas and **subcortical** brain was given, two capsules per day for three months, while **pineal** was given one capsule per day for two months.

Patient Groups

Group 1

Three hundred twenty-nine (329) people who received standard treatment following a conventional regimen.

Group 2

Two hundred fourteen (214) people who received, in addition to the standard treatment regimen, pancreas bioregulator.

Group 3

Three hundred seventy-five (375) people who received a combination of oral peptide bioregulators, which included pancreas plus pineal and subcortical brain.

Peptide Combinations

Pancreas Bioregulator (Pancragen)

- Regulates pancreatic cells, , improves metabolic health, lipid utilization, and is shown to prevent and reverse metabolic syndromes, diabetes, neurologic, and cardiovascular diseases.
- Reduces body fat and improves endurance.

Subcortical Brain Bioregulator (Pinealon)

- Regulates and protects brain cells, improving function of the nervous, endocrine, reproductive, and immune systems.
- It also restores lipid and carbohydrate metabolism, offering anti-atherogenic, anti-diabetic, anti-autoimmune, and potent anti-cancer effects.

Epitalon (pineal)

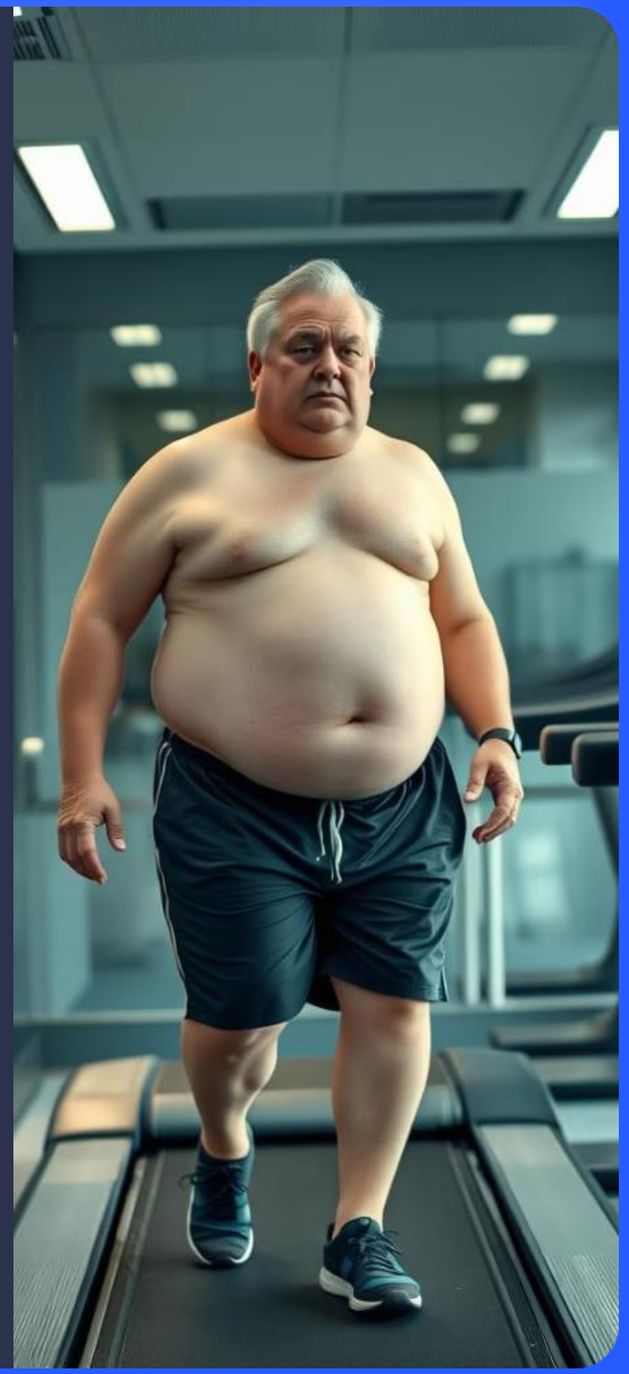
- Regulates pineal gland cells, normalizes melatonin synthesis and improves nervous, endocrine, reproductive, and immune system functioning.
- It restores lipid and carbohydrate metabolism, offering anti-atherogenic, anti-diabetic, anti-autoimmune, and potent anti-cancer effects.

Treatment Outcomes

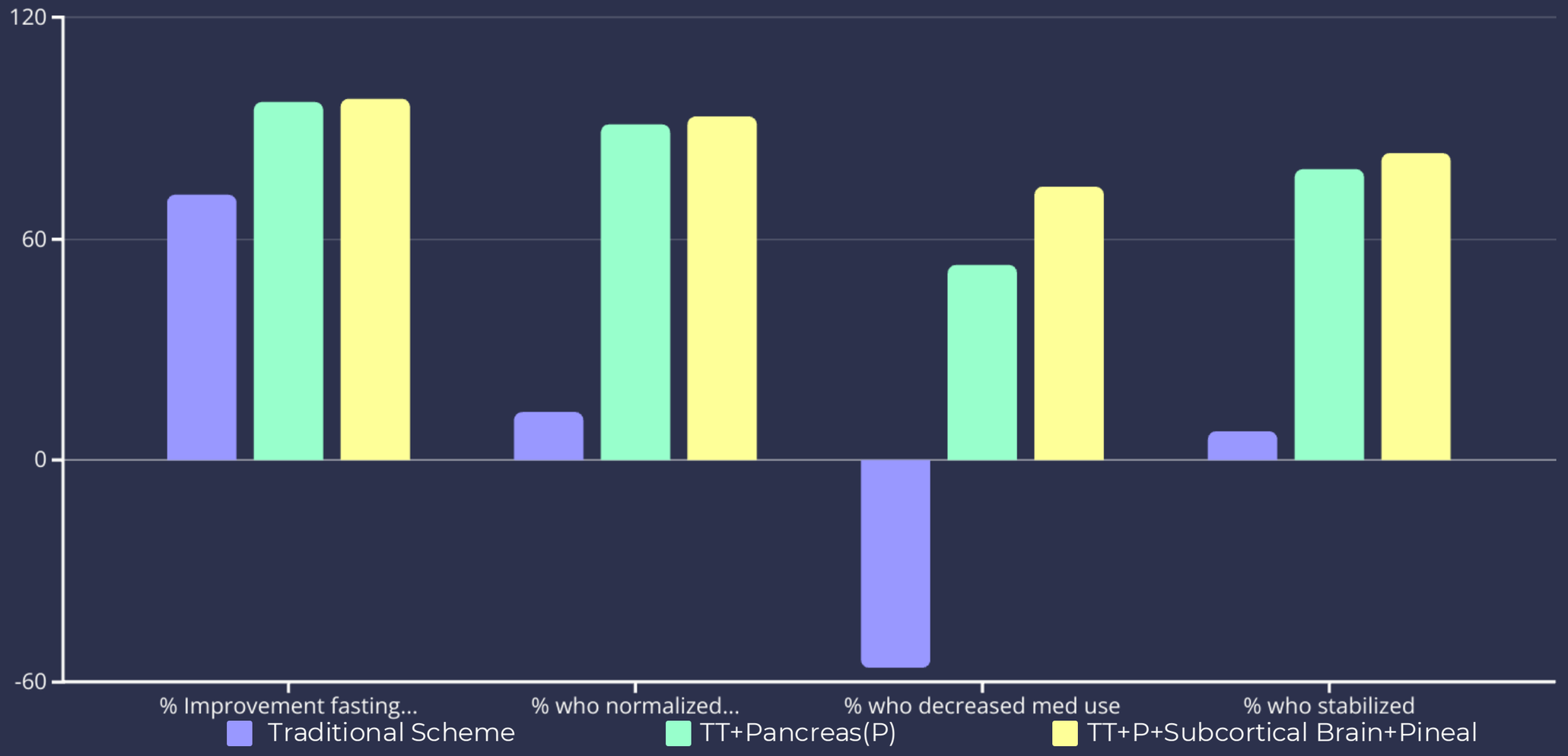
The study results are summarized in the table below and subsequent next three graphs, which compares the key outcomes across the three treatment groups.

Percent of Each Group Achieving Success in Each Area

Group	Glucose Normalization	Dose Reduction	Stabilization
1 (Standard)	13.9% (22 days)	0% (-55.3%)	4%
2 (pancreas)	91.1% (18 days)	53.3%	78.5% (3-4months)
3 (pancreas, pineal & brain)	92.8% (12 days)	74.4%	79.2% (4-5 months)



The Effectiveness of Each Treatment (Percent Improvement in Each Marker)



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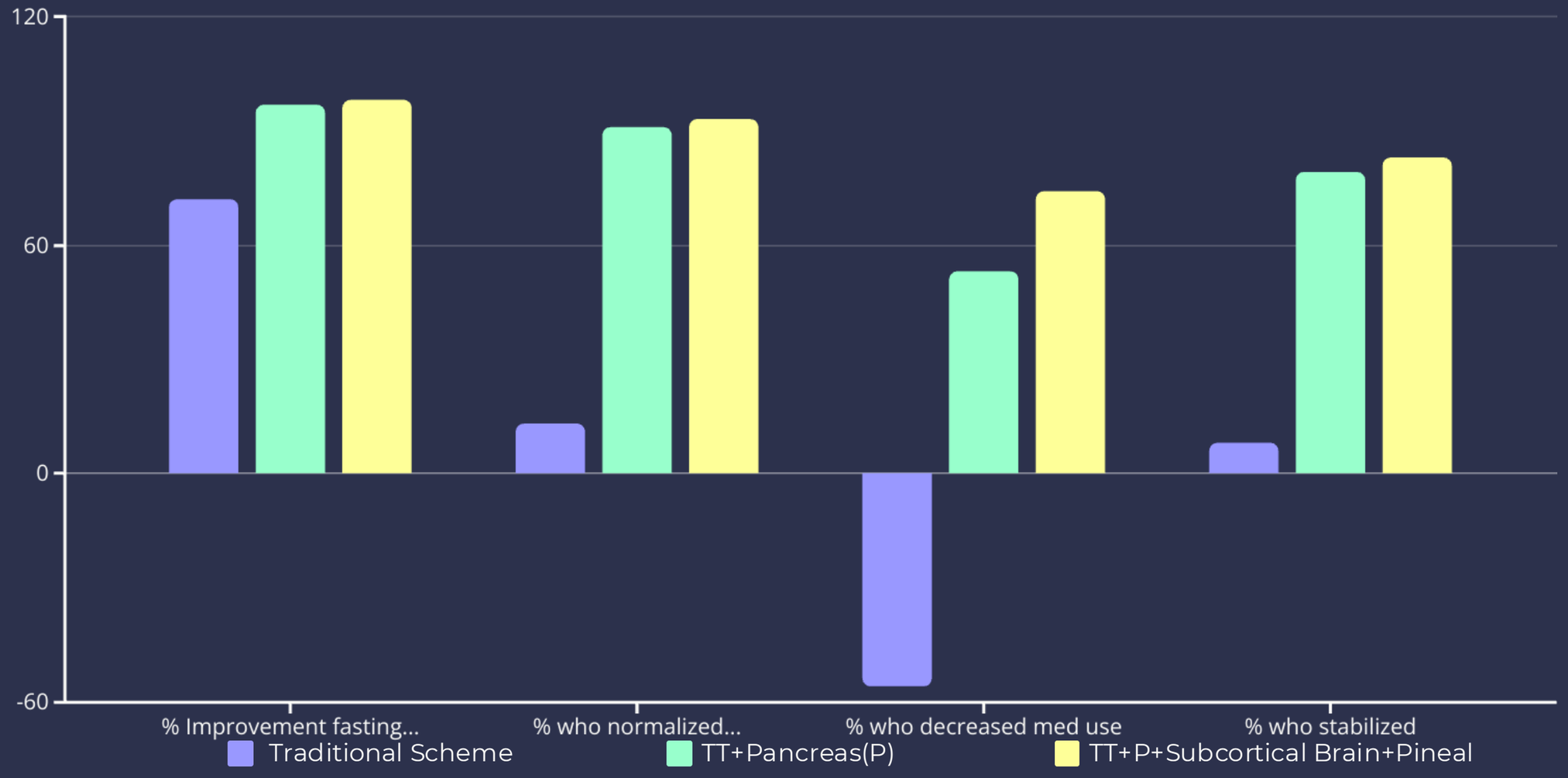
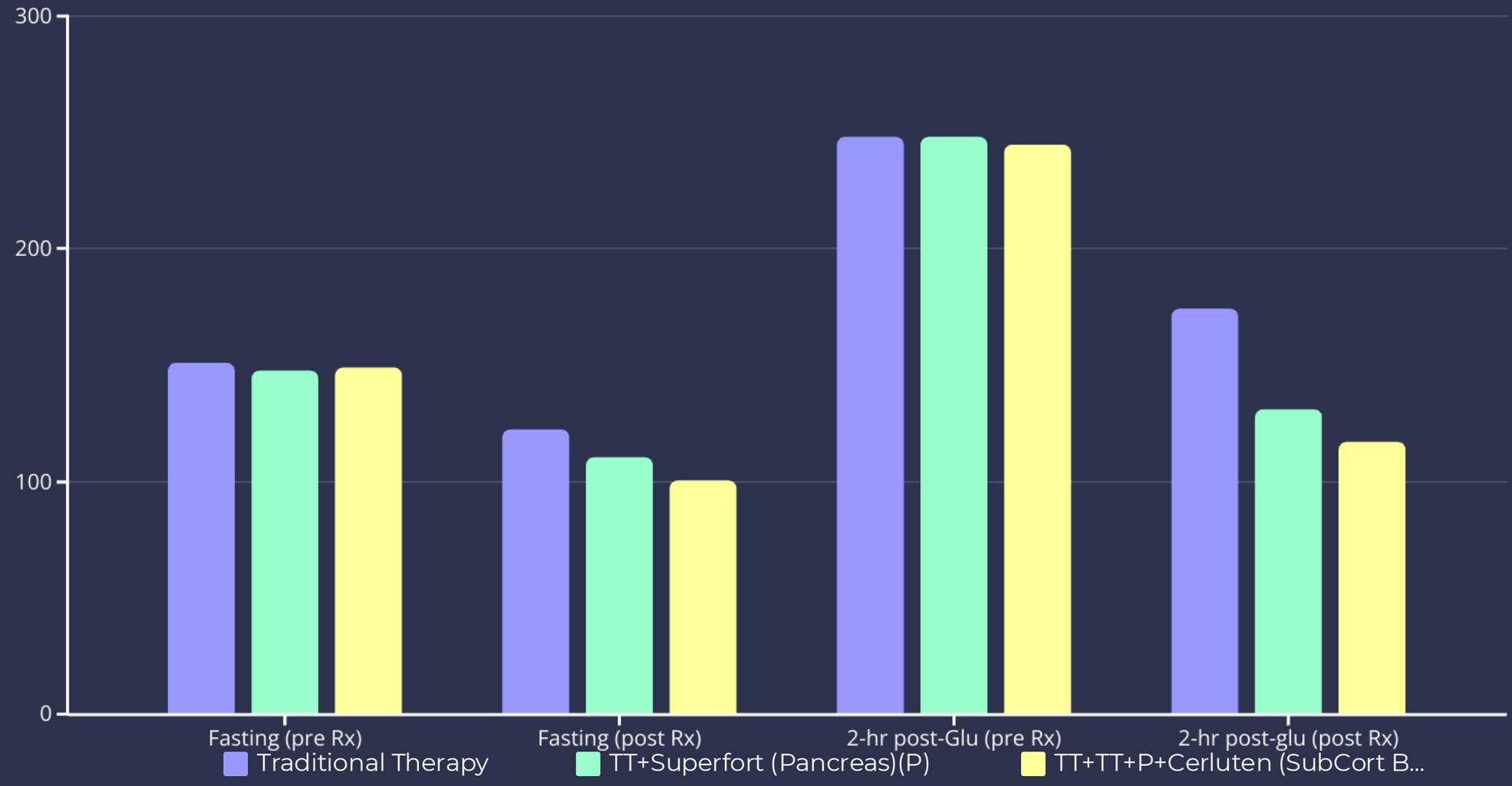


Glucose levels in the three groups, fasting and 2-hr glucose tolerance test before and after treatment



Conclusions and Recommendations:

Efficacy of Peptide Combination

The combined peptide treatment (Group 3) showed superior results in glucose normalization and dose reduction.

Long-term Benefits

Peptide treatments demonstrated longer-lasting positive effects compared to standard therapy.

Safety Profile

No side effects, complications, or addictions were reported with peptide treatments.

Treatment Recommendation

Advised dosage: Pancreas and Subcortical Brain (2 capsules/day, 3 months), and Pineal (1 capsule/day, 2 months).