ISNS Case Study Journal 2024

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ISNS Case Study

Crohn's Disease

By Dr. Norbert Ketskés, M.D., and Dr. Christina Rahm Ph.D.

Crohn's disease is a type of inflammatory bowel disease that causes inflammation in the digestive tract, most commonly your small and large intestine. Around 6 to 8 million people are affected globally by Crohn's disease. There are six types of Crohn's disease that include: Ileocolitis—the most common type–lower small intestine and part of the large intestine are inflamed, Ileitis—swelling and inflammation in your small intestine (ileum), Gastroduodenal—the stomach and top of your small intestine (duodenum) is inflamed and irritated, Jejunitis–patchy areas of inflammation in the upper half of your small intestine (jejunum), Chrohn's (granulomatous) colitis—when the lining of the large intestine is inflamed, and Perianal Disease—inflammation around the anus that can cause fistulas and abscesses.

Symptoms can be mild or severe and can develop suddenly or gradually. When symptoms are active, they are called a "flare". Symptoms of your digestive tract include: arthritis, skin tags (around anus usually), inflammation in the eye, rashes, and inflammation in your bile ducts. The exact cause of Crohn's disease is unknown, but it is believed to result from a combination of factors: Genetic factors–a family history of Crohn's disease increases the risk, with certain genetic mutations (e.g., NOD2/CARD15) linked to higher susceptibility, Immune System Dysregulation– an abnormal immune response where the immune system mistakenly attacks the gastrointestinal tract, causing chronic inflammation, Environmental Factors–factors like diet, smoking, geography (more common in Western countries) may play a role in triggering or exacerbating the disease, and

Microbial Factors– imbalances in gut bacteria and certain infections might contribute to the development and progression of Crohn's disease.

People often seek medical attention for Crohn's disease due to persistent diarrhea, abdominal cramping, or unexplained weight loss. You may be referred to a gastroenterologist, a specialist in digestive diseases, for further evaluation. Lab tests and imaging procedures are essential for diagnosing and managing digestive tract conditions.

Lab tests involve analyzing fluid or tissue samples to detect signs of disease, such as a blood test to measure blood cell counts and chemistry, which can reveal conditions like inflammation or anemia. A high white blood cell count may indicate inflammation or infection, while a low red blood cell count could suggest anemia, often associated with Crohn's disease. Elevated C-reactive protein (CRP) levels are a marker of active inflammation. Stool tests are used to identify bacteria or parasites and can help rule out infections that cause chronic diarrhea, with the calprotectin fecal test specifically measuring intestinal inflammation.

Imaging procedures offer detailed pictures of the digestive tract, with a CT scan using X-rays to show the extent of inflammation and CT enterography involving a contrast solution to highlight the small intestine. MRI utilizes magnetic fields and radio waves for detailed images, useful for identifying fistulas, with MRI enterography potentially requiring a special contrast fluid.

Endoscopy techniques involve inserting a thin tube with a camera into the digestive tract to capture images of inflamed areas. A colonoscopy examines the colon and ileum and may include biopsies to check for white blood cells, while an upper endoscopy visualizes the upper digestive tract from the mouth to the beginning of the small intestine. Capsule endoscopy involves swallowing a small capsule with a camera to capture images as it travels through the digestive system.

Case Study

Country Conducted: Hungary

Patient: Male

Age: 36-year-old

History: No significant past medical history

Symptoms:

- Chronic diarrhea for months
- Abdominal pain in the lower right quadrant
- Unintentional weight loss of 10 kg over 5 months
- Fatigue
- Occasional fever
- Bloody mucous, purulent stools (during the relapse period)
- Feeling weak
- Bloating, abdominal discomfort (during the remission period)

Clinical Test:

Blood Tests

High inflammatory parameter (CRP: 106 mg/l,normal up to 5,0) and higher liver enzyme levels: ASAT-86 (U/L) (range 2-35), ALAT-88, (range2-45), GGTP-112, (range 4-55 U/L)

Se Iron 6,5 (range 10,7-32,2 micromol/l) (iron deficiency anemia)

Hemoglobin: 105 (range 120-160 g/l)

Haematocrit: 0,29 (range 0,36-0,47 l/l)

Abdominal Ultrasound: Thickened loops of bowel

CT: Thickening of terminal ileum with "comb sign,,

Colonoscopy Findings:

- Segmental inflammation with ulcerations
- Cobblestone appearance in terminal ileum
- Biopsy Results:
- Chronic inflammation consistent with Crohn's disease

LEGEND:

Proprietary blend I: silica, vitamin c, and trace minerals.

Proprietary blend II: N-acetyl L-tyrosine, anhydrous caffeine, L-theanine, velvet bean seed, pine bark, curcumin, and vitamin d.

Proprietary blend III: black seed oil, resveratrol, turmeric, raspberry ketone, apple cider vinegar, aloe Vera, and d-ribose

Proprietary blend IV: Vitamin C, Zinc sulfate, and Vitamin D3.

Proprietary blend V: Inulin, Green Banana Flour, Apple Fiber, Bacillus Coagulans, Spirulina, Wheat Grass, Barley Grass, Alfalfa Leaf, Flaxseed, Psyllium Husk Powder, Chlorella, Broccoli, Kale, Spinach, Green Cabbage, Parsley, Aloe Vera, Cayenne Pepper, Blueberry Powder, Pomegranate Seed Powder, and MCT Coconut Oil Powder

Proprietary Blend VI: B-Nicotinamide Adenine Dinucleotide (NAD+), Magnesium, Trace Minerals, Quercetin, Vitamin D, Vitamin D, and Vitamin K2

Conventional Treatment:

Medications

Anti-Inflammatory Drugs:

- 5-ASAs (e.g., mesalamine): Reduce digestive tract inflammation.
- Corticosteroids (e.g., prednisone): Used short-term for flare-ups to quickly reduce inflammation.

Immune System Suppressors:

- Azathioprine and Mercaptopurine: Maintain remission by suppressing the immune system.
- Methotrexate: Alternative for immune suppression if other drugs fail.

Biologics:

- TNF Inhibitors (e.g., Remicade, Humira): Target specific inflammation proteins.
- Integrin Inhibitors (e.g., Entyvio): Prevent immune cells from reaching the gut.
- Interleukin Inhibitors (e.g., Stelara): Target inflammation-related interleukins.

Antibiotics:

- Treat infections and complications (e.g., ciprofloxacin, metronidazole).

Other Medications:

- Anti-diarrheal: Loperamide for managing diarrhea.
- Pain Relievers: Acetaminophen (avoid NSAIDs).
- Nutritional Supplements: Address deficiencies from malabsorption.

His Medications:

Remission period: sulfalazin 3000mg/day (3x2/day)

Relapse period: sulfalazin 6000mg/day (4x3/day) and steroid (methylprednisolone orally, with a decreasing dose of 24 mg) and mesalamine in the form of an enema, directly into the intestine)

Treatment/Method:

Proprietary blend I: 2x5 drops, morning and evening, for 3 days, then every 3 days then increased by 1-1 drops every 3 days to 2x10.

Proprietary blend II: 1 in the morning for 7 days, then 2, 1 in the morning and 1 in the afternoon.

Proprietary III: 1 sachet in the morning for 7 days then 1 sachet in the morning and 1 sachet in the evening.

Proprietary blend IV: ½ teaspoon in the morning.

Proprietary blend V: 1 teaspoon in the evening for 7 days, then 1 teaspoon in the morning and 1 teaspoon in the evening.

Proprietary VI: 1 in the morning for 7 days then 1 in the morning and 1 in the evening

Additional Treatment:

Lifestyle and Dietary Changes

- Dietary Modifications:
    - Avoid Trigger Foods: Such as dairy, fatty foods, and high-fiber foods.
    - Gluten-free diet!
    - Cow's milk poor and vegetable-rich diet
    - Eat Small, Frequent Meals: To ease digestion.
    - Stay Hydrated: Drink plenty of fluids.
- Quit Smoking:
    - Reduces flare-ups.
- Manage Stress:
    - Use techniques like yoga, meditation etc..

Results:

After 1 month:

Fatigue, weakness, and bloating decreased.

He was able to reduce sulfasalazine from 3000 mg/day (3x2)to 1500 mg/day (3x1)

After 3 month:

The feeling of discomfort disappeared.

And great news is that the patient didn't relapse in the last 1 months!!!

He was able to reduce sulfasalazine from 1500 mg/day to 500 mg/day (1x1) He is feeling well, there is no pain and his weight has increased!

Control Lab tests:

Inflammatory parameter CRP: (106!) 18 mg/l, (normal up to 5,0), liver enzyme levels: ASAT- (86!) 37 (U/L) (range 2-35), ALAT- (88!) 44, (range 2-45), GGTP- (112!) 49, range (4-55 U/L)
Se Iron (6.5!) 10,0 (range 10,7-32,2 micromol/l)
Hemoglobin: (105!) 120 (range 120-160 g/l)
Haematocrit: (0,29!) 0,37 (range 0,36-0,47 l/l)

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ISNS Case Study

Hungarian Free Diver

By Dr. Norbert Ketskés, M.D., and Dr. Christina Rahm Ph.D.

Freediving is a form of underwater diving where divers rely on breath-holding rather than using breathing apparatus such as scuba gear. It's an ancient practice that has evolved into a sport and recreational activity. Free divers can explore underwater environments, depths, and marine life without the encumbrance of bulky equipment.

Competitive freediving involves various disciplines such as:

1. Static Apnea: Holding one's breath for as long as possible while floating on the surface of the water.
2. Dynamic Apnea: Swimming underwater horizontally for as far as possible on a single breath.
3. Constant Weight: Diving as deep as possible and returning to the surface under one's own power without changing the weight configuration.
4. Free Immersion: Diving as deep as possible and returning to the surface by pulling on a line without the use of fins or propulsion aids.
5. Variable Weight: Using a weighted sled to descend to depth and ascending under one's own power.

Freediving requires proper training in breath-holding techniques, relaxation, and safety procedures to minimize the risks associated with breath-holding underwater. It's a beautiful way to connect with the ocean and explore the underwater world in a more natural and serene manner.

Freediving relies on the diver's ability to hold their breath and dive underwater without the use of breathing equipment like scuba gear. Here's how it typically works:

Preparation: Before the dive, free divers engage in specific breathing techniques to optimize oxygen levels in their body and increase their breath-holding capacity. This might involve breathing exercises and relaxation techniques to calm the body and mind.

Entry: The diver enters the water and begins the dive, either from the surface or from a platform, depending on the type of dive.

Descent: The diver descends underwater, using fins and streamlined body movements to conserve energy and reduce drag. During the descent, the diver equalizes their ears and sinuses to prevent discomfort or injury from pressure changes.

Exploration/Task: Depending on the purpose of the dive, the diver may explore underwater environments, interact with marine life, or perform specific tasks, such as gathering information for research or photography.

Ascent: When the dive is complete or the diver's breath-hold limit is reached, they begin the ascent back to the surface. During the ascent, the diver continues equalizing and maintains a controlled pace to avoid injury from rapid pressure changes.

Surface Protocol: Upon reaching the surface, the diver performs a series of safety protocols to ensure a safe recovery, such as removing any water from the snorkel, signaling to the safety team or dive buddy, and taking recovery breaths.

Recovery: After the dive, the diver rests and recovers, replenishing oxygen levels and preparing for subsequent dives if desired.

Throughout the process, safety is paramount in freediving. Divers often work with trained safety partners or teams, adhere to depth and time limits, and follow established safety protocols to minimize the risks associated with breath-holding and underwater diving. Proper training, technique, and equipment also play crucial roles in ensuring a safe and enjoyable freediving experience.

Pressure Effects:

Increased Pressure: As a free diver descends, the water pressure increases, compressing the air spaces in the body, including the lungs, sinuses, and ears.

Barotrauma: Rapid changes in pressure can cause barotrauma, which is the physical damage to body tissues due to pressure imbalances. Equalizing the pressure in the ears and sinuses is essential to prevent barotrauma.

Blood Shift: Under pressure, blood is redistributed from the extremities towards the chest cavity, allowing the lungs to collapse less and facilitating deeper dives.

Nitrogen Narcosis: At depths beyond 30 meters (100 feet), some free divers may experience nitrogen narcosis, a reversible alteration in consciousness similar to alcohol intoxication, caused by the increased partial pressure of nitrogen in the bloodstream.

Depth Effects:

Oxygen Deprivation: The deeper a free diver descends, the greater the pressure on the body, which reduces lung volume and oxygen availability. This can lead to hypoxia (oxygen deprivation) if the dive is prolonged or if oxygen consumption is high.

Buoyancy Changes: As a free diver descends, the increased pressure compresses wetsuits and buoyancy compensators, causing them to lose buoyancy. Proper weighting and buoyancy control are essential for maintaining neutral buoyancy at different depths.

Temperature Changes: Water temperature decreases with depth, and deep dives can expose freedivers to cold water, increasing the risk of hypothermia. Proper thermal protection and acclimatization are necessary to withstand cold temperatures during deep dives.

The mammalian dive reflex is a fascinating physiological response that occurs in mammals, including humans, when they are submerged in water. It's a set of adaptations that enable mammals to conserve oxygen and survive underwater for extended periods. Here's how the mammalian dive reflex works:

Bradycardia (Slowing of Heart Rate):

When the face, especially the area around the eyes and nose, is exposed to cold water, it triggers a reflexive response in the body. The body interprets this as a potential threat to survival and activates the mammalian dive reflex. One of the primary responses of the mammalian dive reflex is the slowing of the heart rate, known as bradycardia. Bradycardia helps to conserve oxygen by reducing the oxygen demand of the body's tissues, especially the heart and brain.

Peripheral Vasoconstriction:

In response to cold water exposure, blood vessels in the limbs and peripheral tissues constrict, redirecting blood flow towards vital organs such as the heart, brain, and lungs.This peripheral vasoconstriction helps to preserve oxygen-rich blood for essential functions, further conserving oxygen during the dive.

Blood Shift:

As a mammal descends underwater, the increasing pressure causes the blood volume to shift from the peripheral tissues towards the chest cavity. This blood shift helps to counteract the effects of water pressure on the chest and lungs, reducing the risk of lung collapse and facilitating deeper dives.

Spleen Contraction:

The mammalian dive reflex also triggers the contraction of the spleen, a reservoir for oxygen-rich red blood cells.Contraction of the spleen releases additional red blood cells into circulation, increasing the oxygen-carrying capacity of the blood and extending the duration of the dive.

Suppression of Non-Essential Functions:

In addition to physiological changes, the mammalian dive reflex may also suppress non-essential functions such as digestion and cognition, focusing the body's resources on vital functions for survival underwater.

Overall, the mammalian dive reflex is an extraordinary adaptation that enables mammals, including humans, to endure the challenges of underwater environments by conserving oxygen, redirecting blood flow, and adapting to the physiological demands of diving. Free divers often utilize and benefit from the mammalian dive reflex during their dives, allowing them to explore the depths of the ocean with greater efficiency and endurance.

Fatima is the first Hungarian world champion in freediving. She won a gold medal in FIM discipline at the AIDA Depth World Championship in 2019 and did 8 NRs for Hungary during the 11 months being in the sport.

From the age of 16 Fatima was working in the tourism industry in Budapest, first as a salesperson and then as a cultural project manager and tour guide. In 2016 she decided to change her life and travel, ever since she lost 40kgs, worked in Spain with kids in hotels and she was traveling in Central America to be a scuba professional. In Honduras she decided to sign up for a freediving beginner course at Free dive Utila and she fell in love with deep diving. Fatima decided to dedicate herself to breath hold diving and moved to Dahab in October 2018. During the 8 months training in Egypt, she did a quick progression to 80m, participated in 4 competitions in the Blue Hole and became an AIDA instructor.

Fatima is competing in all depth disciplines, but her favorite is CWNF, she is planning to be based in Dahab and Croatia and doing workshops all over the world. In the future Fatima wants to continue to compete in depth and make freediving more popular especially for younger generations.

Achievements:

- November 2018 - Dahab FIM 47m NR
- April 2019 - Dahab FIM 71m NR
- April 2019 - Dahab CNF 53m & 58 m NR
- May 2019 - Dahab CWT-BI 66m NR
- May 2019 - Dahab CWT 71m NR

- September 2019 - AIDA WCH FIM 81m Gold medal
- September 2019 - AIDA WCH CWT 78m NR
- July 2023- Vertical Blue FIM World Record 102m

Case Study

Country Conducted: Hungary
Patient: Female
Age: 31 -year-old
Symptoms: At our first consultation she had been getting really tired lately. She had joint and muscle pain, severe hip and shoulder pain. She had concentration and digestive problems, often had bloating and diarrhea. Experienced concentration problems in the last third of her workouts, she got tired too soon. Lost focus, lost work out rhythm. She felt physically weaker.

Clinical test:

Lab test: Mild inflammatory parameter:

WBC (white blood cells): 12,2 (range 4,8-10,8 G/L) , CRP: 21 mg/l, (normal up to 5,0)

Abdominal ultrasound examination:

Bilateral inguinal muscle fiber inflammation

Treatment/Method:
Proprietary blend I: 2x6 drops, morning and evening, for 3 days, then every 3 days then increased by 1-1 drops every 3 days to 2x10
Proprietary blend II : 1 in the morning for 3 days, then 2, 1 in the morning and 1, 45 minutes before training, then 3, 1 in the morning and 2, 45 minutes before training
Proprietary blend III: 1 sachet in the morning, after 3 days, 1 sachet in the morning and 1 sachet after the training
Proprietary blend IV: 1 teaspoon in the morning
Proprietary blend V: 1 teaspoon in the in the evening
Proprietary blend VI: 1 in the morning for 3 days then 1 in the morning and 1 in the evening for 3 days, then 2 in the morning and 1 in the evening
Proprietary blend VII: 1 teaspoon, dissolved in the morning

LEGEND:

Proprietary blend I: silica, vitamin c, and trace minerals.

Proprietary blend II: N-acetyl L-tyrosine, anhydrous caffeine, L-theanine, velvet bean seed, pine bark, curcumin, and vitamin d.

Proprietary blend III: black seed oil, resveratrol, turmeric, raspberry ketone, apple cider vinegar, aloe Vera, and d-ribose

Proprietary blend IV: Vitamin C, Zinc sulfate, and Vitamin D3.

Proprietary blend V: Inulin, Green Banana Flour, Apple Fiber, Bacillus Coagulans, Spirulina, Wheat Grass, Barley Grass, Alfalfa Leaf, Flaxseed, Psyllium Husk Powder, Chlorella, Broccoli, Kale, Spinach, Green Cabbage, Parsley, Aloe Vera, Cayenne Pepper, Blueberry Powder, Pomegranate Seed Powder, and MCT Coconut Oil Powder

Proprietary Blend VI: B-Nicotinamide Adenine Dinucleotide (NAD+), Magnesium, Trace Minerals, Quercetin, Vitamin D, Vitamin D, and Vitamin K2

Additional Treatment: Stress management! Special diet! (The state of the digestive system is important!!)

Results:

After 1 month:

Inflammatory parameter WBC (white blood cells): 12,2-9,1 (range 4,8-10,8 G/L)

(CRP: 21-5.5 mg/l, normal < 5,0)

Digestive problems are greatly reduced, the diarrhea stopped.

Her hip and shoulder pain is greatly reduced!

Her ability to concentrate gradually increased and she was able to concentrate on tasks throughout the workout. She was able to keep up her focus much more effectively.

Her focus on the actual task was goal-oriented, and significantly improved!

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ISNS Case Study

Hyperlipidemia and Obesity

By Dr. Norbert Ketskés, M.D., and Dr. Christina Rahm Ph.D.

Hyperlipidemia is a condition marked by elevated levels of lipids, primarily cholesterol and triglycerides, in the bloodstream. Lipids play essential roles in cellular structure, energy storage, and hormone production, but when present in excess, they can accumulate in the arterial walls, contributing to atherosclerosis. This process, which hardens and narrows the arteries, significantly increases the risk of cardiovascular diseases such as heart attack and stroke. Hyperlipidemia can be classified into two main categories: primary (genetic) and secondary (acquired). Primary hyperlipidemia often results from inherited genetic mutations that affect lipid metabolism, such as familial hypercholesterolemia. Secondary hyperlipidemia arises due to lifestyle factors or other medical conditions. Common causes include a diet high in saturated fats, trans fats, and cholesterol, sedentary behavior, obesity, excessive alcohol consumption, and smoking. Medical conditions like type 2 diabetes, hypothyroidism, chronic kidney disease, and liver diseases also increase the likelihood of developing hyperlipidemia. Risk factors for hyperlipidemia include age, family history of cardiovascular disease, a diet rich in unhealthy fats, lack of physical activity, and conditions like metabolic syndrome and obesity. Hormonal changes, such as those occurring during menopause, can also increase lipid levels. Treatment typically involves a combination of lifestyle modifications, such as improving diet and increasing physical activity, and medications like statins or fibrates, which help lower cholesterol and triglyceride levels.

Obesity is a medical condition characterized by an excessive accumulation of body fat that can negatively impact overall health. It is typically measured using the body mass index (BMI), a simple ratio of weight to height, with a BMI of 30 or higher classified as obese. Body fat distribution and muscle mass are also important factors in assessing obesity-related health risks. Obesity develops when the body consumes more calories than it expends, leading to fat storage. This imbalance can result from various factors, including poor dietary habits—such as consuming high-calorie, nutrient-poor foods—and a sedentary lifestyle. Other contributing

factors include genetics, hormonal imbalances (like those seen in hypothyroidism or polycystic ovarian syndrome), certain medications, and environmental influences. Stress, lack of sleep, and mental health conditions can further contribute to weight gain by disrupting appetite regulation and metabolism. Obesity is closely linked to hyperlipidemia, as excess body fat alters lipid metabolism. Adipose tissue, particularly visceral fat, releases various bioactive substances, including free fatty acids and inflammatory cytokines, which disrupt normal lipid metabolism and increase the production of triglycerides in the liver. This results in higher levels of triglycerides and low-density lipoprotein (LDL) cholesterol, often referred to as "bad" cholesterol, while decreasing levels of high-density lipoprotein (HDL) cholesterol, known as "good" cholesterol. The accumulation of lipids in the bloodstream due to obesity raises the risk of atherosclerosis, where fatty deposits build up in the arteries, narrowing them and significantly increasing the risk of cardiovascular diseases.

The health implications of obesity are extensive and serious, encompassing a wide range of conditions. These include cardiovascular diseases, such as increased risk of heart attack and stroke, as well as hypertension due to elevated cholesterol levels. Additionally, obesity is a major risk factor for type 2 diabetes, often leading to insulin resistance. Other health implications include dyslipidemia, metabolic syndrome, obstructive sleep apnea, osteoarthritis, and increased risk of certain cancers, including breast, colon, and endometrial cancer. Non-alcoholic fatty liver disease (NAFLD) is also common among obese individuals, potentially leading to liver damage. Managing obesity effectively requires a multifaceted approach that addresses lifestyle, behavioral, and sometimes medical interventions. Key strategies include adopting a balanced diet rich in whole foods, such as fruits, vegetables, whole grains, lean proteins, and healthy fats, while reducing caloric intake and avoiding processed foods and sugary beverages. Engaging in regular physical activity, aiming for at least 150 minutes of moderate-intensity exercise per week, is essential; activities can include walking, cycling, swimming, or strength training. Behavioral interventions, such as cognitive-behavioral therapy (CBT), can help individuals develop healthier eating habits and coping strategies for emotional eating. Participating in support groups or programs can provide motivation and accountability for individuals working towards weight loss goals. In some cases, healthcare providers may prescribe medications to assist with weight loss or to manage obesity-related conditions. For individuals with severe obesity or those who have not achieved success through other methods, bariatric surgery may be considered as an option to promote significant weight loss and improve metabolic health. Regular monitoring of weight, dietary habits, physical activity, and overall health is crucial for long-term success and for reducing the risk of obesity-related health complications. By addressing obesity through a combination of these strategies, individuals can improve their overall health, reduce the risk of hyperlipidemia, and mitigate the associated health risks.

Case Study

Country Conducted: Hungary

Patient: Female

Age: 55-year-old

History:

- Sedentary lifestyle, minimal exercise beyond daily activities.
- Diet is high in saturated fats, carbohydrates, and low in fiber.
- Social drinker, consuming alcohol occasionally, non-smoker.
- High stress levels

Medical History:

- 4 years ago, controlled with medication.

Symptoms:

- Unintentional weight gain of 18 kg over the past 2 years.
- Persistent fatigue and shortness of breath, especially with exertion.
- Frequent joint pain, particularly in the knees and lower back.
- Occasional chest discomfort after physical activity.

Clinical Test:

- Liver Function Tests: Normal
- Renal Function Tests: Normal
- Thyroid Function: Normal
- Electrocardiogram (ECG): Normal, no signs of ischemia

LEGEND:

Proprietary blend I: silica, vitamin c, and trace minerals.

Proprietary blend II: N-acetyl L-tyrosine, anhydrous caffeine, L-theanine, velvet bean seed, pine bark, curcumin, and vitamin d.

Proprietary blend III: black seed oil, resveratrol, turmeric, raspberry ketone, apple cider vinegar, aloe Vera, and d-ribose

Proprietary blend IV: Vitamin C, Zinc sulfate, and Vitamin D3.

Proprietary blend V: Inulin, Green Banana Flour, Apple Fiber, Bacillus Coagulans, Spirulina, Wheat Grass, Barley Grass, Alfalfa Leaf, Flaxseed, Psyllium Husk Powder, Chlorella, Broccoli, Kale, Spinach, Green Cabbage, Parsley, Aloe Vera, Cayenne Pepper, Blueberry Powder, Pomegranate Seed Powder, and MCT Coconut Oil Powder

Proprietary Blend VI: B-Nicotinamide Adenine Dinucleotide (NAD+), Magnesium, Trace Minerals, Quercetin, Vitamin D, Vitamin D, and Vitamin K2

Laboratory Tests:

- **Fasting Blood Glucose:** 6.6 mmol/L (Pre-diabetes?)
- **HbA1c:** 6.1 % (Pre-diabetes?)
- **Lipid Profile:**
    - **Total Cholesterol:** 6.9 mmol/L (High, Normal: < 5.2 mmol/L)
    - **LDL Cholesterol:** 4.5 mmol/L (High, Normal: <3.0 mmol/L)
    - **HDL Cholesterol:** 0.8 mmol/L (Low, Normal > 1.1 mmol /L)
    - **Triglycerides:** 3.1 mmol/L (High, Normal: <1.7 mmol/L)
- Height: 162 cm
- Weight: 95 kg
- BMI: 36.2 kg/m^2 (Obese - Class II)

Conventional Treatment:

Pharmacological Treatments

- **Statins:** medications such as atorvastatin, simvastatin, and rosuvastatin that effectively lower LDL cholesterol and reduce cardiovascular risk.
- **Fibrates:** medications like fenofibrate and gemfibrozil primarily target high triglyceride levels and can also help raise HDL cholesterol.
- **Niacin (Vitamin B3):** can help lower LDL and triglycerides while raising HDL levels, though it may have side effects such as flushing.
- **Bile Acid Sequestrants:** medications like cholestyramine and colesevelam that bind bile acids, reducing LDL cholesterol levels by forcing the liver to use cholesterol to make more bile acids.
- **PCSK9 Inhibitors: i**njectable medications such as alirocumab and evolovumab that significantly lower LDL cholesterol, especially in individuals with genetic conditions or those who cannot tolerate statins.
- **Omega-3 Fatty Acid Supplements:** prescription-strength omega-3 fatty acids (e.g, EPA and DHA) can lower triglyceride levels.

Bariatric Surgery

- **Types of Surgery**
    - **Gastric bypass:** reduces the size of the stomach and alters the digestive process, leading to significant weight loss.
    - **Sleeve Gastrectomy:** removes a portion of the stomach to limit food intake and promote hormonal changes that enhance weight loss.
    - **Adjustable Gastric Banding:** places a band around the upper part of the stomach to create a small pouch, restricting food intake.

Treatment/Method:

Proprietary Blend I (3 months): 2x5 drops, morning and evening, for 3 days, then every 3 days then increased by 1-1 drops every 3 days to 2 x 10 drops daily.

Proprietary Blend II: 1 capsule in the morning for 3 days, then 2 capsules, 1 capsule in the morning, and 1 capsule in the afternoon.

Proprietary Blend IV (3 months): ½ teaspoon in the morning

Proprietary Blend V (3 months): 1 teaspoon in the evening

Proprietary Blend VI (3 months): 1 capsule in the morning

Proprietary Blend VII (3 months): 1 teaspoon in the morning

Proprietary Blend VIII (3 months): 1 capsule in the morning and 1 capsule in the evening

Proprietary Blend IX (3 months): 1 teaspoon in the morning

Additional Treatment:

Lifestyle and Dietary Changes

- **Dietary Modifications:**
    - Introduce a Mediterranean diet that is rich in fruits, vegetables, whole grains, lean proteins (such as fish and poultry), and healthy fats (e.g, olive oil and nuts).
    - Reduce consumption of processed foods, sugary snacks, red meat, and saturated fats.
    - Increase intake of dietary fiber through vegetables, legumes, and whole grains to aid in cholesterol reduction and improve gut health.
    - Encourage portion control and healthy snacking (e.g, nuts and fruits).
- **Exercise**
    - Start with low-impact exercises such as brisk walking, swimming, or cycling for 30 minutes, 5 days a week.
    - Focus on weight-bearing activities like walking to strengthen joints and muscles, improving osteoarthritis symptoms.
    - Gradually introduce strength training exercises to build muscle mass and improve metabolic rate.
- **Manage Stress:**
    - Recommended stress-reduction techniques such as yoga, meditation, or breathing exercises to reduce emotional eating and manage her blood pressure.

Results:

- After one month, the individual experienced a noticeable decrease in fatigue and shortness of breath, with moderated joint pain, particularly in the knees and lower back. Chest discomfort following physical activity also improved. Overall, her general well-being enhanced, leading her to incorporate cycling, aerobics, and meditation into her routine. During this period, she achieved a weight reduction of 5 kg, bringing her total weight down to 90 kg.

- After three months, the individual experienced a continuous decrease in fatigue and shortness of breath, while joint pain, particularly in the knees and lower back, continued to moderate. Additionally, chest discomfort after physical activity ceased entirely. To further enhance her fitness, she supplemented her movements with functional training. Overall, she feels much better than she did three months ago, and her confidence has returned, reflecting her improved health and well-being.

Control Lab tests:

- **Fasting Blood Glucose:** 6.0 mmol/L - (6.9)
- **HbA1c:** 5.8% (6.1)
- **Lipid Profile:**
    - **Total Cholesterol:** 5.7 (6.9) mmol/L (High, Normal: < 5.2 mmol/L)
    - **LDL Cholesterol:** 3.7 (4.5) mmol/L (High, Normal: <3.0 mmol/L)
    - **HDL Cholesterol:** 1.1 (0.8) mmol/L (Low, Normal > 1.1 mmol /L)
    - **Triglycerides:** 2.0 (3.1) mmol/L (High, Normal: <1.7 mmol/L)

- **Weight: 82 kg (13 kg reduction)**
    - BMI: 31.2 kg/m2 (Obese-Cass 1) (36.2, Obese-Class II)

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ISNS Case Study

Hypothyroidism

By Dr. Norbert Ketskés, M.D., and Dr. Christina Rahm Ph.D.

Hypothyroidism is a prevalent condition where the thyroid gland fails to produce and release sufficient thyroid hormones into the bloodstream, leading to a slowdown in metabolism. Also known as underactive thyroid, this condition can cause fatigue, weight gain, and increased sensitivity to cold temperatures. The primary treatment for hypothyroidism is hormone replacement therapy. In its early stages, hypothyroidism may not present noticeable symptoms, but if left untreated, it can lead to serious health issues such as high cholesterol and heart problems. The diagnosis is typically confirmed through blood tests. The thyroid is a small, butterfly-shaped gland located at the front of your neck, just beneath the skin. As part of the endocrine system, it plays a crucial role in regulating various vital body functions by producing and secreting hormones. The thyroid's primary function is to control the speed of your metabolism, which is the process by which your body converts food into energy. Since every cell in your body requires energy to function, any dysfunction in the thyroid can have widespread effects.

The endocrine system is a network of glands that produce and release hormones, which are chemicals that carry messages through your bloodstream to organs, skin, muscles, and other tissues. These hormones regulate many bodily functions by signaling what actions to perform and when. As an endocrine gland, the thyroid produces and releases hormones such as thyroxine (T4), triiodothyronine (T3), reverse triiodothyronine (RT3), and calcitonin. Thyroxine (T4) is

the main hormone produced by the thyroid, but it has a minimal impact on metabolism until it is converted into triiodothyronine (T3) through a process called deiodination. Although T3 is produced in smaller quantities than T4, it has a much more significant effect on metabolism. Reverse triiodothyronine (RT3) is produced in very small amounts and counteracts the effects of T3. Calcitonin is a hormone that helps regulate the amount of calcium in the blood. For the thyroid gland to produce thyroid hormones, it needs iodine, an element found in food (most commonly in iodized table salt) and water. The thyroid traps iodine and converts it into thyroid hormones, which then influence various bodily functions, including energy use, heart rate, breathing, digestion, body temperature, brain development, mental activity, fertility, and the maintenance of skin and bones.

The clinical manifestations of hypothyroidism vary depending on the severity and duration of the condition. Symptoms often develop gradually, typically over several years, making them difficult to detect in the early stages. Initial signs, such as fatigue and weight gain, may be subtle and easily attributed to aging or other factors. However, as the metabolic rate continues to decrease, more pronounced symptoms may emerge. These can include lethargy, cold intolerance, constipation, xerosis (dry skin), facial edema, coarse hair, unintentional weight gain, myopathy, musculoskeletal pain, depressive episodes, menorrhagia, and cognitive impairment. Hypothyroidism can arise from either primary or secondary causes. Primary hypothyroidism originates from conditions that directly affect the thyroid gland, leading to insufficient production of thyroid hormones. Secondary hypothyroidism, on the other hand, is due to dysfunction of the pituitary gland, resulting in inadequate secretion of thyroid-stimulating hormone (TSH), which in turn affects thyroid hormone synthesis. Primary hypothyroidism is more prevalent, with Hashimoto's disease being the most common cause. Hashimoto's thyroiditis, an autoimmune disorder with a genetic predisposition, involves the immune system attacking and impairing the thyroid gland's ability to produce and release adequate levels of thyroid hormones. Other primary causes of hypothyroidism include thyroiditis, treatment for hyperthyroidism, iodine deficiency, and hereditary disorders.

The clinical presentation of hypothyroidism can vary significantly among individuals and may mimic other medical conditions. As a result, diagnosis relies not only on clinical symptoms but also on laboratory evaluations. Initial diagnostic testing typically involves measuring serum

TSH levels. Elevated TSH with concomitantly low free thyroxine (T4) levels confirms the diagnosis of hypothyroidism. In some cases, triiodothyronine (T3) levels may also be assessed. If TSH is elevated, but T4 and T3 levels are within the reference range, the diagnosis is subclinical hypothyroidism, a condition that generally lacks overt symptoms. Standard treatment for hypothyroidism involves daily administration of levothyroxine (Levo-T, Synthroid, among others), a synthetic form of the thyroid hormone. This oral medication restores normal hormone levels, alleviating the symptoms associated with hypothyroidism. Patients typically experience symptomatic improvement within one to two weeks of initiating therapy. Lifelong treatment with levothyroxine is necessary, and periodic monitoring of TSH levels is recommended to ensure appropriate dose adjustments.

Case Study

Country Conducted: Hungary

Patient: Female

Age: 38-year-old

History: No significant medical history

Symptoms: Bradycardia, cool, dry skin, unjustified fatigue, coarse hair and brittle nails, generalized swelling, particularly in the face and around the eyes, problems in the menstrual cycles.

Weight gain with no significant changes in diet or exercise

Lab tests:

TSH: 6,28 mikroIU/ml (norm. range:0.35-4.94)

T4: 7,15 ng/dl (norm. Range: 9.01-19.05)

Anti TPO: 210,8 U/ml (norm. Range: <5.61)

Medication: L-thyroxin: 75-100 microgram/day (alternating)

Treatment/Method: She received proprietary blends.

Proprietary Blend I: 2x3 drops, morning and evening, for 3 days, then every 3 days then increased by 1-1 drops every 3 days to 2x10

Proprietary Blend II: 1/2 sachet in the morning for 7 days then 1 sachet in the morning for 7 days then 1 sachet in the morning and 1 sachet in the evening

Proprietary Blend IV: 1/2 teaspoon/day for 7 days, then 1 teaspoon/day

Proprietary Blend V: 1 teaspoon in the in the evening for 7 days, then 1,5 teaspoon in the evening

Proprietary Blend VI: 1 in the morning for 7 days then 1 in the morning and 1 in the evening

Additional treatment: Exercises to achieve a positive mental and emotional state (e.g: yoga, meditation, breathing exercises, stress management, regular exercise and adequate

LEGEND:

Proprietary blend I: silica, vitamin c, and trace minerals.

Proprietary blend II: N-acetyl L-tyrosine, anhydrous caffeine, L-theanine, velvet bean seed, pine bark, curcumin, and vitamin d.

Proprietary blend III: black seed oil, resveratrol, turmeric, raspberry ketone, apple cider vinegar, aloe Vera, and d-ribose

Proprietary blend IV: Vitamin C, Zinc sulfate, and Vitamin D3.

Proprietary blend V: Inulin, Green Banana Flour, Apple Fiber, Bacillus Coagulans, Spirulina, Wheat Grass, Barley Grass, Alfalfa Leaf, Flaxseed, Psyllium Husk Powder, Chlorella, Broccoli, Kale, Spinach, Green Cabbage, Parsley, Aloe Vera, Cayenne Pepper, Blueberry Powder, Pomegranate Seed Powder, and MCT Coconut Oil Powder

Proprietary blend VI: B-Nicotinamide Adenine Dinucleotide (NAD+), magnesium, trace minerals, quercetin, vitamin D, vitamin C, and vitamin K2

sleep. A gluten free and selenium rich diet were also proposed (e.g: fish and other seafood)

Results: After 1 month: She noticed an improvement in her energy levels and was able to lose some of the weight she had gained. She no longer felt cold all the time.

After 3 months: Her symptoms gradually continued to improve.

Her energy levels continued to increase, she experienced less hair loss, and her mood lifted. The swelling on the face and around the eyes is gone.

Heart function normalized. Menstrual cycles have returned to normal. She was able to reduce the dose of Levothyroxine!

Control Lab tests:

TSH: 5.12 (6.28) micro IU/ml (norm. range:0.35-4.94)

T4: 10.15 (7.15) ng/dl (norm. Range: 9.01-19.05)

Anti TPO: **58.2 (210,8)** U/ml (norm. Range: <5.61)

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ISNS Case Study

Type 2 Diabetes

By Dr. Norbert Ketskés, M.D., and Dr. Christina Rahm, Ph.D.

Type 2 diabetes (T2D) is a chronic metabolic disorder marked by persistent hyperglycemia, primarily due to insulin resistance and an inadequate compensatory insulin secretion. In T2D, the body's cells become less responsive to insulin, the hormone responsible for glucose homeostasis, or the pancreas fails to produce sufficient insulin to regulate blood glucose levels effectively. This condition represents the most prevalent form of diabetes, accounting for approximately 90-95% of global diabetes cases. The etiology of T2D is multifactorial, encompassing genetic, environmental, and lifestyle components.

Several risk factors contribute to the development of T2D. A strong genetic predisposition exists, particularly in individuals with a family history of the disease. Central adiposity, characterized by excess visceral fat, significantly exacerbates insulin resistance. Sedentary behavior also plays a critical role by promoting obesity and reducing insulin sensitivity. Increasing age, particularly beyond 45 years, further increases susceptibility. Dietary patterns, particularly those high in refined sugars, processed foods, and unhealthy fats, are implicated in obesity and dysregulated glucose metabolism. Moreover, certain ethnic populations, including African Americans, Hispanics, Native Americans, and Asians, exhibit a higher genetic susceptibility to T2D. Women who experience gestational diabetes are at an elevated risk of developing T2D later in life. Additionally, metabolic syndrome—defined by the coexistence of hypertension, dyslipidemia (elevated cholesterol and triglycerides), and central obesity—further amplifies the risk of T2D development.

The pathogenesis of type 2 diabetes is predominantly attributed to insulin resistance, where peripheral tissues such as skeletal muscle, adipose tissue, and the liver exhibit a diminished response to insulin. This impaired insulin signaling results in a reduced cellular uptake of glucose, leading to chronic hyperglycemia. In response to this insulin resistance, the pancreatic beta cells initially undergo compensatory hypersecretion of insulin. However, over time, beta-cell function progressively deteriorates, culminating in an inability to sustain the requisite insulin output, thus contributing to inadequate glycemic control. Several core pathophysiological mechanisms characterize this condition. Insulin resistance leads to a reduced sensitivity of peripheral tissues to insulin's effects, impairing glucose uptake and utilization. Concurrently, beta-cell dysfunction emerges, with a progressive decline in insulin secretory capacity. This dysfunction exacerbates hyperglycemia, as cells become increasingly ineffective at glucose absorption. Moreover, hepatic insulin resistance results in excessive hepatic gluconeogenesis, further elevating plasma glucose levels and intensifying the hyperglycemic state.

The diagnosis of type 2 diabetes is typically established through several blood tests that assess glycemic control. The Fasting Plasma Glucose (FPG) test measures blood glucose after an overnight fast, with a result of 126 mg/dL or higher on two separate occasions confirming a diabetes diagnosis. The HbA1c test evaluates long-term blood sugar control by measuring the average blood glucose level over the preceding 2-3 months; a value of 6.5% or higher is indicative of diabetes. Additionally, the Oral Glucose Tolerance Test (OGTT) assesses the body’s response to a glucose load, with a two-hour post-glucose level of 200 mg/dL or higher suggesting diabetes.

If poorly managed, type 2 diabetes can lead to a spectrum of complications that affect multiple organ systems. Cardiovascular complications are prominent, with an elevated risk of heart disease, stroke, and accelerated atherosclerosis. Diabetic neuropathy, characterized by nerve damage, particularly in the extremities, can cause pain, tingling, and sensory loss. Nephropathy may occur, potentially progressing to chronic kidney disease and eventual renal failure. Diabetic retinopathy, a leading cause of vision impairment, results from damage to retinal blood vessels. Foot complications, often due to a combination of poor circulation and neuropathy, can result in non-healing wounds and infections, sometimes necessitating

amputation. Additionally, individuals with diabetes are more prone to bacterial and fungal skin infections. Emerging evidence suggests a potential link between type 2 diabetes and an increased risk of Alzheimer's disease and other forms of dementia.

The management and treatment of type 2 diabetes are centered on controlling blood glucose levels, enhancing insulin sensitivity, and mitigating complications. This approach typically integrates lifestyle modifications with pharmacological interventions. Lifestyle modifications play a crucial role in diabetes management. Dietary adjustments involve consuming a balanced diet rich in whole grains, vegetables, lean proteins, and healthy fats to stabilize blood sugar levels and support weight management. Minimizing the intake of processed foods and sugars is essential. Regular physical activity is also beneficial, as it enhances insulin sensitivity and aids in weight management; the American Diabetes Association recommends a minimum of 150 minutes of moderate-intensity aerobic exercise per week. Weight loss, even modest, can significantly improve insulin sensitivity and glycemic control. Self-monitoring of blood glucose levels enables patients to tailor their diet, exercise, and medication regimens effectively.

Pharmacological treatment options include several classes of medications. Metformin is often the first-line treatment, functioning to decrease hepatic glucose production and enhance insulin sensitivity. Sulfonylureas stimulate insulin secretion from the pancreas. GLP-1 receptor agonists slow gastric emptying, increase insulin secretion, and reduce appetite. DPP-4 inhibitors aid in lowering blood glucose by boosting insulin release and decreasing glucose production. SGLT2 inhibitors facilitate glucose excretion through the urine. In cases where oral medications are insufficient, insulin therapy may be required to achieve glycemic control. Ongoing monitoring and prevention of complications are integral to diabetes management. Regular blood tests, including HbA1c, cholesterol, and renal function assessments, are critical for evaluating treatment efficacy and identifying early complications. Foot care is essential to prevent ulcers and infections, while annual eye exams are recommended to screen for diabetic retinopathy.

Case Study

Country Conducted: Hungary

Patient: Male

Age: 55-year-old

Height: 175 cm

Weight: 105 kg

BMI: 34.3 kg/m² (Obese class I)

Family History: Father with Type 2 Diabetes, Mother with Hypertension

Medical History: Hypertension for 5 years

Symptoms: The patient has experienced persistent thirst (polydipsia) for the past 7 months, accompanied by frequent urination (polyuria), particularly during the night (nocturia). Additionally, the patient has had an increased appetite (polyphagia) for the past 6 months and has gained 11 kg over the last year. This weight gain is associated with ongoing fatigue and lethargy. The patient reports continuous tiredness and nocturia, with a marked increase in appetite leading to significant weight gain.

Clinical Tests:

- **Fasting Blood Glucose**: 9.0 mmol/L (Normal: <6.0 mmol/L)
- **HbA1c**: 8.1% (Normal: <5.9%)
- **Lipid Profile**:
  - Total Cholesterol: 6.2 mmol/L (High)
  - LDL: 4.1 mmol/L (High)
  - HDL: 0.9 mmol/L (Low)
  - Triglycerides: 2.7 mmol/L (High)
- **Liver Function Tests**: Mildly elevated ALT (45 U/L)
- **Renal Function Tests**: Normal
- **Urine Analysis**: Trace proteinuria and glucosuria

Medication: Metformin 2x1000 mg/day

LEGEND:

Proprietary Blend I: silica, vitamin C, and trace minerals.

Proprietary Blend III: black seed oil, resveratrol, turmeric, raspberry ketone, apple cider vinegar, aloe Vera, and d-ribose

Proprietary Blend IV: Vitamin C, Zinc sulfate, and Vitamin D3.

Proprietary Blend V: Inulin, Green Banana Flour, Apple Fiber, Bacillus Coagulans, Spirulina, Wheat Grass, Barley Grass, Alfalfa Leaf, Flaxseed, Psyllium Husk Powder, Chlorella, Broccoli, Kale, Spinach, Green Cabbage, Parsley, Aloe Vera, Cayenne Pepper, Blueberry Powder, Pomegranate Seed Powder, and MCT Coconut Oil Powder

Proprietary Blend VI: B-Nicotinamide Adenine Dinucleotide (NAD+), magnesium, trace minerals, quercetin, vitamin D, vitamin C, and vitamin K2

Proprietary Blend VIII: Gymnema Sylvestre, Panax notoginseng, Astragalus membranceus powder, Ginger Root, White Kidney bean, valerian root

Proprietary Blend IV: L-Leucine, L-Isoleucine, L-Valine, L-Lysine, L-Phenylalanine, L-Threonine, L-Methionine , L-Tyrosine L-Cystine, HMB, TetraSOD® Phytoplankton, Milk Thistle Seed, Grape Seed Extract 95%, Juniper Berry, L-Glutathione

Treatment/Method: He received proprietary blends.
Proprietary Blend I (3 months): 2x6 drops, morning and evening, for 3 days, then increased by 1 drop every 3 days up to 2x10

Proprietary Blend III (3 months): 1/2 sachet in the morning for 7 days, then 1 sachet for 7 days, then 1 sachet in the morning and evening

Proprietary Blend IV (3 months): 1/2 teaspoon in the morning

Proprietary Blend V (3 months): 1 teaspoon in the evening

Proprietary Blend VI (3 months): 1 in the morning and 1 in the evening

Proprietary Blend VIII (2 months): 1 in the morning and evening

Proprietary Blend IX (2 months): 1 teaspoon in the morning

Additional treatment:

- Diet: A balanced, Mediterranean-style diet focused on whole grains, lean proteins, and healthy fats (e.g., olive oil). Emphasis on reducing refined sugars and carbohydrates. Incorporate foods with a low glycemic index.
- Exercise: min. 150-200 minutes of moderate-intensity exercise per week (e.g., brisk walking, cycling). Include strength training twice a week.

Results:

After 1 month, the patient's fasting blood glucose level decreased to 8.0 mmol/L (144 mg/dL), down from 9.0 mmol/L (162 mg/dL), but still above the normal range (<6.1 mmol/L, or 110 mg/dL). There was a noticeable reduction in polydipsia and frequent urination (polyuria), with a slight improvement in fatigue. The patient's weight also decreased to 103 kg.

After 3 months, the fasting blood glucose level improved further to 6.2 mmol/L (113.4 mg/dL), approaching the normal range. The HbA1c also decreased to 6.2%, down from 8.1%. The lipid profile showed improvements, with total cholesterol at 5.9 mmol/L, LDL at 3.4 mmol/L, HDL at 1.2 mmol/L, and triglycerides at 1.9 mmol/L. Urine analysis showed that proteinuria and glucosuria had resolved. Fatigue and lethargy were greatly reduced, and polydipsia and polyuria were almost eliminated. The patient's weight further decreased to 95 kg.

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