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About IAFM

The Indian Association of Functional Medicine is an association that facilitates awareness, research, and education of Functional Medicine in India and around the globe. Functional Medicine determines how and why illness occurs and restores health by addressing the root causes of disease for each individual.

We have come up with a website https://iafm.in/ where patient and general audiences find the latest research in the field of preventive and integrative medicine. We right now have a network of 64 practitioners from India who are practising Functional Medicine. Apart from medical practitioners, our biggest strength comes from coaches and nutritionists who are trained in functional medicine. Our "Find A Practitioner" tool is the largest referral network in Functional Medicine, created to help patients to locate functional medicine practitioners at https://iafm.in/members/.

We regularly publish articles in the form of blogs where our members write authentic articles on various subjects of health and wellness. Our regular updates present the latest news and trends in functional medicine and keep practitioners up-todate with how they can apply this information in their clinical practices. You can also subscribe to us from a website where you will get our newsletters and more information.

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https://iafm.in/product/iafmpractitioner-membership/ From the President's Desk Always laugh when you can, it is cheap medicine _ Lord Byron



Dear IAFM Family,

The health of our liver is integral to our overall well-being, playing a crucial role in metabolic processes, detoxification, and nutrient storage. In recent years, the incidence of liver problems in India has been on the rise, with increasing cases of fatty liver disease, hepatitis, and cirrhosis. This alarming trend can be attributed to several interconnected factors, including lifestyle changes, environmental issues, heavy metal and toxin exposure, and genetic predispositions.

The rapid shift in lifestyle patterns is one of the most significant contributors to the growing liver health crisis in India. Urbanization and modernization have brought about changes in diet and physical activity, leading to many things such as unhealthy diets, sedentary lifestyles, and alcohol consumption. The consumption of high-calorie, lownutrient foods has surged. Diets rich in processed foods, sugary beverages, and unhealthy fats contribute to obesity and non-alcoholic fatty liver disease (NAFLD). Traditional diets, which were balanced and rich in nutrients, are being replaced by fast food and convenience meals that lack essential nutrients necessary for liver health. The rise in sedentary behavior, driven by increased screen time and a decline in physical activity, has resulted in higher rates of obesity and metabolic syndrome. These conditions are closely linked to liver disease, as excess body fat can lead to fat accumulation in the liver, causing inflammation and damage. Alcohol consumption has also seen a significant rise, particularly among the younger population. Alcohol is a major risk factor for liver disease, leading to conditions such as alcoholic liver disease and cirrhosis. Social and cultural changes have normalized alcohol consumption, further exacerbating liver health issues.

The environment factors play a crucial role in liver health. India faces several environmental challenges that contribute to the rising incidence of liver problems. The air and water pollution expose individuals to a variety of toxins that can accumulate in the liver, leading to oxidative stress and liver damage. Industrialization and urbanization have led to increased levels of pollutants, which are harmful to liver health. The widespread

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The Sweet Spot of Diabetes Care

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Where are we and Where are we Headed in Diabetes Management?

The common myth among people and even most healthcare professionals is that the management of diabetes is all about blood sugar numbers by medications. This symptomatic management is usually done by modulating the number of drugs, and their dosages, titrating them every month, or even adding insulin if there is a poor response to the drugs. Elevated blood sugar is just a sign of the underlying condition called insulin resistance. Perhaps diabetes is a very late manifestation of insulin resistance that is often neglected in the first place. Treating the blood sugar with insulin or insulin secretagogues without reducing insulin resistance actually accelerates the disease process and the patient may develop complications earlier particularly, cardiovascular complications like heart attacks, strokes, and peripheral artery diseases.

Are the Current Diagnostic Criteria and Management of Diabetes, Proactive?

Diabetes is diagnosed by elevated blood glucose levels. The blood sugar level goes up only when the high insulin levels (a compensatory response) is no longer able to compensate for the underlying insulin resistance. Insulin resistance and elevated insulin levels (hyperinsulinemia) are two sides of the same coin. The early spectrum of insulin resistance is characterized by normal glucose levels and high insulin levels. This early spectrum is most often asymptomatic and it spans over a period of 5-15 years before a person becomes diabetic.¹ The diagnosis of pre-diabetes or diabetes is usually made in a very late stage, since it manifests only in the late spectrum of insulin resistance when the elevated insulin is no longer able to compensate for the underlying insulin resistance (decompensated) and the glucose levels start raising.² Interestingly, the complications of diabetes particularly the macrovascular complications start to develop, even before the diagnosis of diabetes due to insulin toxicity (long-term exposure to high levels of insulin).³

Aren't we Missing the Golden Period?

Normally, in a healthy insulin-sensitive person, both the blood glucose & the insulin levels are within normal limits. When a person starts developing insulin resistance, at least in the initial 5-15 years the patient has high insulin levels (elevated even up to 3-7 times the normal limits) as a compensatory response by secreting more insulin from beta cells of the pancreas. This compensatory response depends on the insulin reserve. At this stage, the blood glucose levels are absolutely normal. We are highly misled by the glucose numbers because we often correlate metabolic health or insulin sensitivity with glucose levels. Normal glycemic status does not reflect the true nature of metabolic health. Even annual health checkups or master health checkups fail to take fasting insulin levels (a measure of insulin resistance) and the medical fraternity is focussed only on the total cholesterol levels and the LDL-Cholesterol in the lipid profile & if found elevated,



there is a tendency towards the reflexive prescription of statins (cholesterol-lowering drugs) and low-fat diet recommendations. The atherogenic dyslipidemia (elevated triglycerides and reduced HDL-Cholesterol) which is actually a measure of ectopic fat from the liver is often ignored and neglected. What we have to worry about is actually 'Dyslipidemia' and not the total or LDL-Cholesterol, because it carries a greater risk for heart disease, as per the recent scientific research studies.⁴ Dyslipidemia is a 'silent scream' from the liver. It is a surrogate marker of insulin resistance.⁵ Unfortunately, the early spectrum of insulin resistance remains asymptomatic for several years before manifesting in terms of metabolic dysfunctions. If we are able to diagnose insulin resistance by simply looking at the fasting insulin (>6 m IU/L) or the triglyceride-HDL ratio (TG:HDL-C >1.3), it is possible to prevent every single case of type 2 diabetes from manifesting in the first place. Isn't it really fascinating?

"No person in the world deserves type 2 diabetes because we as healthcare professionals (when empowered with adequate knowledge) can prevent diabetes from manifesting in the first place by nearly 100%".

A great confusion in formulating a diet

Our literature is greatly influenced by the West. The dietary protocols are not an exception. The West blames carbs as the reason for metabolic syndrome, especially diabetes. To be honest, the West has no idea about the traditional Indian diet, the variety of grains, pulses, lentils, and beans. Moreover, the spices we use in our diet are rich in micronutrients, aids in digestion, assimilation as well as in metabolism. For example, black pepper (rich in Vanadium) aids in carbohydrate metabolism, ginger in protein metabolism, and long pepper in fat metabolism. Well-formulated high fiber diet with complex carbs, moderate proteins and healthy fats is as good as Ketogenic diet. Tropical climatic conditions throughout the world favor agriculture throughout the year. Since we have a constant supply of food throughout the

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SIX MAJOR TRIALS	CARDIOVASCULAR EVENTS
ACCORD	Higher mortality
Action to Control Cardiovascular Risk in DM	Intensive therapy group – stopped the trial
VADT Veterans Affairs Diabetes Study	Weight gain & Sudden death
DCCT	Weight gain , high BP & abnormal Lipid
Diabetes Control & Complications Trial	profile , CAD risk
TRACE Study	Increased mortality following Myocardial
Trandolapril Cardiac Evaluation	Infarction
ADVANCE Collaborative Group	No significant effect
Action in Diabetes & Vascular Disease	Hypoglycemia more common
VACS Veterans Affairs Co-operative Study	Worsening with Intensive Control group

year which can be easily stored for several months, our cuisine is based on complex carbs. The very reason why the people in the East, especially South Asians including Indians have less Personal Fat Threshold (PFT) as compared to the West. We don't have to store large amount of fat to face adversity over thousands of years because of the favourable climatic conditions and prosperous soil. Whereas the Western countries, in the temperate regions have mostly cold climate with good sunlight exposure limited only to 3-4 months in a year, which necessitates increased storage of energy in the form of fat, primarily for survival (increased PFT). The West except in the last 100-150 years, till industrialization and globalization were highly dependent on animal-based diets for thousands of years. This is the very reason, why people in the West have higher Personal Fat Threshold, even though they may be overweight and obese, metabolic complications start at a later date comparatively.⁶ This could be compared to the same story of Goat (lean) vs Sheep (fat) in terms of adaptation to climatic conditions with different body composition. Embracing cultural habits in formulating a diet is an art to be learnt and practiced in clinical practice.

How about Medications for Type 2 Diabetes?

Healthcare professionals are treating diabetes as if blood glucose is the only problem (Glucose-centric paradigm). Hence, they often fail to address the underlying insulin resistance. The sensible way to treat diabetes is to reduce insulin resistance and normalize it if possible. Blood glucose numbers are just a reflection of insulin resistance. If the insulin resistance is reversed, then diabetes can be kept in remission lifelong.

History repeats if we fail to learn!!!

Conventionally, it was thought that if we were able to control glucose levels with medications or insulin, the complications of diabetes could be reduced drastically. Surprisingly, all six major trials suggested that intensive glucose control with insulin or drugs often resulted in increased cardiovascular events and mortality.7-8 This is not a paradoxical response because the intensive groups were given more insulin and insulin secretagogues for strict glycemic control but it actually increased the insulin toxicity. It is worthwhile to remember that fasting insulin (Insulin Resistance) is the most important predictor of heart disease.9 Hence, ACP guidelines recommend to achieve the target of HbA1c of 7-8 rather than intensive control (6-6.5) when treated with drugs. However, it should be noted that strict glycemic control is encouraged when the patient is treated with lifestyle modifications rather than drugs.

The optimal approach to type 2 diabetes is to reduce the insulin levels or in other words, the insulin resistance. Lifestyle modifications (diet rich in proteins, and healthy fats along with micronutrients and fibers) focussing on the body composition is of utmost importance and should always be the first line in the management of diabetes. Drugs such as Metformin, SGLT-2 inhibitors, and GLP-1 analogs have better cardiometabolic profiles compared to other drugs but they are not without side effects.¹⁰ Insulin should be given only for acute glycemic control in times of stress like medical emergencies or surgical for the short-term. Routine prescription of Insulin and insulin secretagogues like sulfonylureas and meglitinides actually increase the already existing insulin toxicity. These drugs can be selectively used in minimal doses, in patients with advanced cases of diabetes with insulinopenic response for achieving optimal glucose levels. The whole population should be sensitized enough about the possibility of achieving higher rates of remission in the initial years and the patients should be encouraged to achieve and maintain remission as soon as the diagnosis of type 2 diabetes is made. However regular and frequent follow-ups are necessary even after achieving remission to prevent re-reversal of diabetes. Generally, with a holistic approach for type 2 Diabetes (particularly in the early stage), "Reversal is the rule rather than the exception."

Take Home Message

- The Golden period of 'pre-pre diabetes' should be diagnosed with fasting insulin levels or the Triglyceride/ HDL-C ratio.
- For Diabetes, Prevention should be the key rather than early diagnosis.
- Glucose-centric paradigm of diabetes management worsens the clinical outcome.
- Insulin-centric paradigm gives the possibility of achieving remission of type 2 diabetes.
- Knowledge is power, let's empower society to combat NCDs and lead the best possible life.

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METABOLIC SYNDROME

Fructose and Insulin Resistance: Understanding Metabolic Pathways and Dietary Implications

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I recently came across a video that suggested that people with diabetes can safely consume plenty of mangoes, which prompted me to write this article. Experts in nutrition and metabolic health are constantly studying the effects of different sugars on the body. Fructose, a type of simple sugar found in many plants, has been scrutinized for its potential role in the development of insulin resistance, a precursor to various metabolic syndromes, including diabetes. Unlike glucose, which is used by every cell in the body, fructose is primarily metabolized in the liver, which can lead to unique and potentially harmful effects. This is because fructose relies on specific liver enzymes, such as fructokinase and aldolase B, which are not present or present only in minute quantities in other parts of the body. Moreover, unlike glucose, fructose does not require insulin for metabolism. This unique pathway allows fructose to bypass the insulinmediated glucose metabolic system and go straight to the liver, where it can be efficiently processed. While mangoes are considered a low to moderate glycemic index food (with a score of 51-56), they have a very high insulin index (112).

Fructose Metabolism: A Liver-Centric Process

Glucose and fructose, while both simple sugars, have significantly different pathways in the body. Glucose is essential for cellular energy and is metabolized by nearly all cells in the body. It stimulates the release of insulin, which helps cells absorb glucose and use it for energy. This process keeps the blood sugar levels stable and ensures that the cells receive the fuel they need.

Fructose, on the other hand, bypasses this usual pathway. It is primarily metabolized in the liver. The liver converts fructose directly into triglycerides (a type of fat), uric acid (which can lead to gout), and glucose (Gluconeogensis, by product of fructose like dihydroxy acetone phosphate and glyceraldehydes). This conversion process can strain the liver, particularly when consumed in high amounts, and lead to a build-up of liver fat, which is a key component of non-alcoholic fatty liver disease. High consumption of fructose, especially from sources like high fructose corn syrup found in many processed foods and drinks, has been linked to an increase in liver fat, which in turn contributes to NAFLD.¹⁻³

Fructose, Uric Acid, and Insulin Resistance

One of the significant byproducts of fructose metabolism in the liver is uric acid. High levels of uric acid are associated with gout and kidney stones, and emerging research suggests that uric acid may also play a role in developing insulin resistance. There are several mechanisms through which elevated uric acid levels can lead to insulin resistance. Firstly, it triggers inflammation, which can disrupt insulin signaling.¹ Secondly, it causes endothelial dysfunction, which reduces insulin delivery to tissues.1 Thirdly, it induces oxidative stress that impairs insulin receptors. Fourthly, it affects fat metabolism, which can worsen conditions such as obesity which is linked to insulin resistance. Uric acid can also directly decrease the number and effectiveness of insulin receptors on cells, further impairing glucose uptake. Therefore, it is crucial to manage uric acid levels through appropriate interventions to mitigate its impact on insulin sensitivity.

The Role of Whole Fruits Versus Juices

An important distinction in the dietary sources of fructose is the difference between whole fruits and fruit juices. Whole fruits contain fiber, which slows the absorption of sugars, including fructose, and helps moderate its effects on the liver and insulin levels. Fiber also promotes a feeling of fullness, which can help control overall calorie intake.

On the other hand, fruit juices, even those without added sugars, lack significant fiber. This means that the fructose in juices is absorbed more quickly, leading to sharper spikes in the liver metabolism of fructose and potentially exacerbating the pathways that lead to insulin resistance. Therefore, while fruits are healthful, their consumption should be moderated, and preference should be given to whole fruits over juices.²

Benefits of Fiber: Gut Microbiome and Cholesterol Metabolism

The fiber in whole fruits not only moderates the impact of fructose but also provides significant health benefits related to the gut microbiome and cholesterol metabolism. Dietary fibers serve as prebiotics, feeding beneficial bacteria in the gut. A healthy gut microbiome can improve digestion, enhance immune function, and may even modulate body weight and insulin sensitivity. Moreover, soluble fibers found in fruits like apples, berries, and citrus can help reduce blood cholesterol levels by binding with cholesterol particles in the digestive system and removing them from the body. This process helps in preventing the buildup of plaques in arteries, thereby reducing the risk of heart disease.²⁻³

Moderation is Key

Despite the risks associated with high fructose consumption, it remains a natural component of many healthy foods, including fruits, some vegetables, and honey. The key is moderation. A balanced diet that includes whole fruits can provide the benefits of fructose, such as enhanced palatability, and the provision of nutrients, without the significant risks posed by excessive consumption.³

Conclusion

To effectively manage blood glucose levels, particularly for individuals with diabetes, it is advisable to incorporate a diverse array of whole fruits into one's diet. Opt for fruits like berries, cherries, plums, pears, apples, kiwis, and oranges, and enjoy tropical fruits like mangoes, papaya, and pineapple in moderation. Prioritize consuming whole fruits rather than fruit juices to take advantage of their higher fiber content, which can help minimize blood sugar spikes. Additionally, combining fruits with proteins and healthy fats during meals can further aid in stabilizing blood glucose levels by reducing the overall glycemic impact.

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Celiac & Metabolic Syndrome

Deepa Rajani, Certified Health and Wellness Coach, Anti-Inflammatory Diet Expert and Author, Mumbai

Metabolic syndrome is like a package deal of health risks that can lead to serious problems such as diabetes, heart disease, or stroke. It is a combination of factors, including high blood sugar, high blood pressure, excess body fat around the waist, and unhealthy cholesterol levels. When you have metabolic syndrome, it's like having multiple red flags waving about your heart and overall health. Therefore, it's essential to monitor these factors and take steps to manage them through a healthy lifestyle.

What Causes Metabolic Syndrome?

Metabolic syndrome is closely linked to overweight or obesity, a sedentary lifestyle, and a condition called insulin resistance. Normally, when you eat, your body breaks down food into sugar, which is used for energy. Insulin, a hormone made by your pancreas, helps this sugar get into your cells to be used for fuel.

However, in people with insulin resistance, their cells don't respond well to insulin, so sugar can't easily enter the cells. This leads to high blood sugar levels because the sugar stays in the bloodstream instead of being used by the cells. The body produces more insulin to compensate, but even that might not be enough to keep blood sugar levels in check.

Genetic predisposition, aging, and certain fat distribution patterns can also contribute to metabolic syndrome. Essentially, it's a perfect storm of factors that make your body less efficient at using and managing sugar, leading to health risks like diabetes, heart disease, and stroke. Maintaining a healthy weight, being physically active, and watching your diet are crucial to lowering the risk.

Metabolic Syndrome Involves a Group of Factors

- High blood pressure
- High blood sugar levels
- Excess body fat around the waist

- High triglyceride levels
- Low HDL (good) cholesterol levels.

When these factors occur together, they create a perfect storm for health issues like diabetes, heart disease, and stroke. It's crucial to address these factors through lifestyle changes such as healthy eating, exercise, and weight management to reduce the risk of developing these serious conditions.

Metabolic Syndrome and Common Consequences

Imagine your body is like a house, and metabolic syndrome is a sneaky burglar trying to break in. Here's what can happen if it succeeds:

- Type 2 diabetes
- Heart disease
- Stroke
- Kidney disease
- Fatty liver disease
- Peripheral artery disease.

Diagnosing Metabolic Syndrome

A person can diagnose metabolic syndrome by checking for the presence of at least three of the following criteria:

- Abdominal obesity: Waist circumference of more than 40 inches (102 cm) in men or more than 35 inches (88 cm) in women.
- High blood pressure: Blood pressure of 130/85 mmHg or higher, or taking medication for high blood pressure.
- High blood sugar levels: Fasting blood glucose of 100 mg/dL or higher, or taking medication for high blood sugar.
- High triglycerides: Triglyceride levels of 150 mg/dL or higher, or taking medication to lower triglycerides.
- Low HDL cholesterol levels: HDL cholesterol of less than 40 mg/dL in men or less than 50 mg/dL in women, or taking medication to increase HDL cholesterol.

- Increased blood clotting: Higher levels of plasma plasminogen activator and fibrinogen, which cause blood to clot.
- Insulin resistance: Having type 2 diabetes, impaired fasting glucose, or impaired glucose tolerance.

Preventing Metabolic Syndrome

A commitment to a healthy lifestyle can prevent the conditions that cause metabolic syndrome. A healthy lifestyle includes:

- Doing 30 minutes of physical activity most days
- Eating plenty of fruits, vegetables, fruits, whole grains, and lean protein
- Limiting the consumption of saturated fat and salt in your diet
- Maintaining a healthy weight
- Not smoking
- Following a low carbohydrate diet and incorporating periods of fasting.

Suggested Readings

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METABOLIC SYNDROME

Rethinking Weight Loss: Beyond the Scale

Kiiran Patel, Nutritionist, Mumbai



"There is more to good health than the numbers on a weighing machine", says Functional Nutritionist Kiiran Patel

In the pursuit of better health, weight loss often takes center stage. Many embark on a mission solely fixated on shedding pounds, adopting the mantra of "calories in, calories out" without considering the broader implications on their wellbeing. However, this singular focus on the scale can lead to detrimental outcomes, including loss of muscle mass, decreased energy levels, hormonal imbalances, and metabolic dysfunction. Moreover, it frequently culminates in a cycle of temporary success followed by regaining even more weight.

The obsession with the number displayed on the scale permeates not only individual mindsets but also the guidance provided by trainers and dietitians, exacerbating the stress associated with the weight loss journey. Yet, relying solely on the weighing scale to gauge progress is deeply flawed. Through my experience working with clients, I've observed numerous pitfalls associated with this approach.

One of the most glaring issues is the lack of correlation between weight loss and fat loss. Many individuals, despite following a plan aimed at reducing body fat and improving overall health, witness minimal changes in weight. It is not uncommon to encounter cases where individuals drop a dress size or lose inches around their waist without a significant change in weight. This disparity arises because body weight encompasses more than just body fat; it also includes muscle mass, hydration levels, and the weight of various bodily components such as organs, bones, and blood.

Therefore, fluctuations in weight may not accurately reflect changes in body composition. Factors like increased hydration levels can lead to temporary weight gain, skewing the interpretation of progress based solely on the scale. Moreover, aggressive weight loss tactics often result in the loss of essential minerals and nutrients, further compromising overall health.

Instead of allowing the weighing scale to dictate one's perception of progress and success, it is crucial to adopt a holistic approach to health and fitness. Rather than fixating on a single metric, individuals should prioritize nourishing their bodies with the right balance of calories and nutrients to support optimal metabolism and overall wellbeing. This entails focusing on sustainable lifestyle changes that promote long-term health rather than short-term weight loss.

So, while the scale may serve as a convenient tool for measuring weight, its limitations in capturing the complexities of health and fitness underscore the need for a more comprehensive approach. By shifting the focus away from the scale and towards holistic health practices, individuals can cultivate a more balanced and sustainable relationship with their bodies, ultimately achieving lasting wellbeing beyond mere numbers on a scale.

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Interesting Facts

We exercise at least 36 muscles when we smile.



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The Sweet Spot of Diabetes Care

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FUTURE TREND IN DIAGNOSTICS

The Pivotal Role of Diagnostics in Functional Medicine

Dr. Arjun Dang, MD (Pathology), CEO & Partner, Dr. Dangs Lab LLP

In the landscape of healthcare, functional medicine stands as a beacon of innovation, offeringpersonalizedtreatmentforamyriad of health conditions. Rather than merely addressing symptomatic manifestations, functional medicine represents a holistic paradigm in healthcare, emphasizing the identification and management of the root causes of diseases. It weaves an intricate mosaic of patient history, lifestyle choices, genetic predispositions, and biochemical uniqueness. The objective is to enhance the body's optimal functionality, striving for peak health and equilibrium.

Diagnostics: Navigating the Path to Health

Within functional medicine, diagnostics act as the navigational tools guiding the journey to health. It transcends the conventional role of disease detection, serving as a window into each patient's unique biochemical milieu. This insight is indispensable for personalized treatment strategies that cater to individual health requisites.

The role of diagnostics in functional medicine extends beyond standard testing protocols by incorporating advanced methodologies to assess health comprehensively. These encompass extensive blood analyses, hormone evaluations, genetic profiling, microbiome assessments, and more. Such tests offer profound insights into the body's systemic operations and can unveil imbalances that might complement conventional diagnostics.

Precision diagnostics, characterized by high specificity and sensitivity, is vital in functional medicine's commitment to treating the individual rather than the disease label. These tests can uncover subclinical conditions, forecast health trajectories, and gauge the impact of therapeutic interventions. Armed with accurate diagnostics, practitioners can make enlightened decisions regarding treatment modalities, such as nutritional modifications, supplementation, pharmaceuticals, or lifestyle alterations, and monitor the patient's progress over time.

Demonstrating the Efficacy of Diagnostics

The transformative potential of diagnostics in functional medicine is evidenced through numerous tests that can reveal various functions of the human body. Here are some diagnostic tests that prove valuable in the practice of functional medicine:

- Organic Acid Testing: Organic acid analysis measures the levels of metabolic byproducts, indicating health conditions like metabolic disorders. The Organic Acids Test (OAT) assesses organic acids from a urine sample, offering a detailed overview of the metabolic pathways and providing insights into various imbalances and the individual's nutrient needs.¹
- The GI Effects Comprehensive Profile (GIFx) is a series of advanced stool tests that target the core of gastrointestinal issues. By analyzing digestion, infection, inflammation, and microbiome health, GIFx provides crucial insights, enabling tailored treatments to enhance gut health and overall well-being.
- Small Intestinal Bacterial Overgrowth (SIBO) is a condition marked by symptoms like bloating, gas, and IBS. Associated with various health issues, including IBD and diabetes, SIBO is diagnosed through non-invasive breath tests that measure hydrogen and methane after a lactulose challenge.²
- EndoSelect is a salivary hormone test that enables precise assessment of endocrine biomarkers, offering a more convenient alternative to blood tests. It can be self-administered at home and helps diagnose hormonal imbalances manifesting as fatigue, weight gain, and mood swings.³
- H. Pylori Breath Test provides a noninvasive and reliable method for detecting Helicobacter pylori, which is linked to peptic ulcers and gastritis. It replaces the need for endoscopies with a quick and comfortable procedure, suitable for individuals experiencing chronic digestive discomfort or those at increased risk due to certain

medications. Additional testing options include H. pylori antigen stool test and blood tests for H. pylori antibodies IgA & IgG.⁴

- Heavy Metals Testing: Exposure to heavy metals like mercury, lead, cadmium, aluminum, and arsenic can lead to toxicity and disrupt organ systems. Essential for diagnosis, our test measures these metals in urine, blood, stool, and hair samples, aiding healthcare providers in choosing the right treatment path.⁵
- ImuPro IgG-based test identifies food intolerances by detecting immune reactions to proteins in common foods like milk, wheat, and yeast. This detailed analysis helps individuals understand their body's responses, guiding them toward dietary adjustments for better health.⁶
- Allergynius Dx revolutionizes allergy diagnosis with its IgE-based Molecular Allergy Diagnostics test. Utilizing nanotechnology and micro-array, it detects 163 allergens and 294 components, offering unprecedented precision in identifying allergies, and also for assessing immunotherapy outcomes.^{7,8}
- Adrenocortex Stress Profile is a salivary test that evaluates the HPA axis by measuring levels of Cortisol and DHEA. This non-invasive method identifies hormonal imbalances linked to various health issues, including cardiovascular and gastrointestinal diseases, metabolic disorders, and mental health conditions.⁹
- Essential & Metabolic Fatty Acids Analysis: Assesses the balance between Omega-6 and Omega-3 fatty acids, indicating dietary modification needs.¹⁰
- Reverse T3 Reverse T3 test measures the inactive form of thyroid hormone, which can indicate thyroid function. It's used to diagnose thyroid issues and assess how the body uses thyroid hormones. High rT3 levels may suggest the conservation of energy during stress or illness.¹¹

FUTURE TREND IN DIAGNOSTICS

- Zonulin Test: Monitors Zonulin levels, associated with leaky gut syndrome and other inflammatory diseases.¹²
- Intestinal Permeability Test: Measures intestinal permeability, linked to various health conditions including autoimmune disorders.¹³
- Gut Microbiome Test: Analyzes the composition and diversity of microorganisms in the gastrointestinal tract.¹⁴
- Advanced Vitamins & Minerals Profile: Tests for deficiencies of essential vitamins and minerals related to various health complaints.
- NeuroSpot Test: Identifies stress levels by checking key stress hormones and messenger chemicals through urine and saliva tests.
- METACHECK: Genetic metabolic analysis providing personalized nutrition guidance based on individual genetic makeup.¹⁵
- Histamine Intolerance Test (DAO-Diamine Oxidase): Measures DAO activity to diagnose histamine intolerance and guide dietary modifications.¹⁶

Future Trends

The prospects for diagnostics in functional medicine are promising, with ongoing technological advancements heralding more precise and comprehensive testing capabilities. The incorporation of artificial intelligence and machine learning is poised to amplify the predictive power of diagnostics, potentially transforming personalized healthcare.

Conclusion

In the vanguard of healthcare, functional medicine emerges as a transformative patient approach, redefining care through its commitment to personalized, root-cause treatment. The pivotal role of diagnostics in this field cannot be overstated. It is the linchpin that unlocks the potential for truly individualized therapy. By harnessing the power of advanced diagnostic tools, functional medicine practitioners are equipped to decipher the complex interplay of factors that contribute to a patient's health status. enabling them to tailor interventions with unparalleled precision.

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The Significance of Coherent Water

Madhusudan Rajagopalan, CEO, Water and Light Applications, India

"Water is the driving force of all of nature" – Leonardo da Vinci

Have you ever wondered how intricately water is associated with every aspect of our life? When we talk about our body, it is present in our brain, blood, saliva, urine, lungs, and even in our bones and muscles.

We are generally aware that the human body is made up of 60% of water in terms of body weight. An average man weighs around 70 kg, out of which 60% is water which is around 42 litres. This is almost equal to 3 buckets full of water or around 168 glasses of water but this amount changes slightly with changes in age and sex. In comparison, females, due to their higher body fat, contain less percentage of water (around 57%) than males. We are approximately 90% water by body weight during birth declining to 50-70% by death. Also, hydration levels i.e. how much water you drink, affect the amount of water in your body.

But did you know that water constitutes around 99% of the molecules in our body? The table below illustrates this clearly.

This statistic shines a totally different light on the significance of water for our health. Water plays the most essential role in energy production and metabolism of the cell, and in delivering nutrients and removing toxins & unwanted minerals through sweat, sebum, and urine. The brain and spinal cord are bathed in a 99%

Molecule	Percent by Mass	Mol. Weight (in Daltons)	Number of Molecules	Percent of molecules
Water	65	18	1.74 x 10 ¹⁴	98.73
Other Inorganics	1.5	N/A	1.31 x 10 ¹²	0.74
Lipids	12	N/A	8.4 x 10 ¹¹	0.4475
Other organics	0.4	N/A	7.7 x 10 ¹⁰	0.044
Protein	20	N/A	1.9 x 1010	0.011
RNA	1.0	N/A	5 x 107	3 x 10°
DNA	0.1	1 x 1011	46	3 x 10 ⁻¹¹

Source: https://en.wikipedia.org/wiki/ Composition_of_the_human_body water solution called the cerebrospinal fluid. Other organs such as the lungs, the heart, and other sensitive tissues are all covered by several layers of protection, and fluid containing mainly water is filled in cavities between them. On average, our brain and kidneys consist of most of our body water (80-85%) while our teeth have a minimum concentration of 8-10%. Even our skeletal system needs water-based systems for lubricating and cushioning our joints.

From the smallest activity like moving a finger to vital systems such as the beating of the heart, every action in the body requires water. It is an incredible

solvent that surrounds every molecule that enters or exits the cell. Even our genetic material inside the nucleus of the cell is surrounded by water.

Therefore, it goes without saying that the quality of water we drink determines the quality of life. The water in our body is mostly composed of structured water. Our approach to physiology, biology, electrochemical processes general health (or the lack of it), and aging, all have to factor into this understanding of the salience of structured water in our body

Contrary to common knowledge, the quality of water isn't just restricted to its mineral content, pH levels, and purity. Serving the critical role of communication within our bodies, water has this amazing property that it absorbs and responds to energy, both positive and negative; in fact, some scientists have described water as a broadband absorber of information.



Renowned scientists, such as Giorgio Piccardi and Simon Shnoll, have shown through long-term experiments that water absorbs energy from the environment, not just from the sun but from the cosmic background of space as well. Dr Jeffrey Pollack, a renowned contemporary water scientist, has demonstrated in his laboratories that light energy, particularly infrared, leads to water getting structured and to the formation of exclusion zones in water. The double Nobel laureate, Linus Pauling, spoke about water in 1935; he said that one of water's most amazing properties is that water rearranges its structure of molecular arrangement in order to encode, transmit, and integrate new information, akin to storing 'memory'. Modern science has now begun to reaffirm many of these longheld theories and practices. Water is now understood as a broadband receiver, absorber, and transmitter of information.

WELLNESS WITH WATER



Going one step further, water scientists have recognised that the molecular structure of water is changeable in response to man-made and outside influences, such as chemicals, electromagnetic fields, and a range of other negative, as well as positive, stressors (even thoughts). They know that water has a memory of the energies to which it has been exposed. However, the real challenge has been about how



to demonstrate the negative effects on communications in water from manmade technologies and activities; or to restore water's natural communications capabilities, once damaged, so it once again connects to and communicates with the larger ecosystem.

Analemma Water's research team has developed a proprietary process whereby damaged water, with impaired communications, may be restored to its

> communications potential. This water is called Full Spectrum Coherent Water. Through multidisciplinary systems research on natural electromagnetic fields found in nature, we have been able to document 24-hour communications occurring in water on Earth in all of life (soil, plants, trees, humans, etc.), and between life on Earth and the Sun, Moon, and quantum fields. Full spectrum coherent water has been developed in a harmonic, natural way, without using any chemical or electrical aids. The coherence in this water has been shown to hold up under pressure from multiple environmental stressors over long periods of time, including stressors from 3G, 4G, and 5G electromagnetic fields.

> Over the years, Analemma has

conducted substantial research across Europe, USA, and India to demonstrate the extraordinary impact of coherent water on overall health, aging, and long-term quality of life by creating a coherence inside our bodies and minds. Some indicative results from the studies:

- Boost in energy levels: Increase in ATP levels of study participants 20% higher than for the placebo group, after two months of regular consumption of Coherent water.
- Reverse your biological age: A GlycanAge study showed that the majority of participants who consumed coherent water for three months experienced between 1 and 12 years of biological age revitalization
- Balance your gut: Daily consumption of coherent water enhances the state of the gut microbiome by improving the balance between the beneficial and potentially pathogenic bacteria. Our study showed an improvement of 16% in the dysbiosis index
- Harmonise your brain: Brain scans have shown a remarkable balancing of the brain wave patterns between the left and right hemispheres of the brain, within minutes of drinking coherent water. This manifests as lower anxiety, better mental clarity, and higher focus.
- Protective effect against radiation: We have seen that using coherent water makes your body resist most forms of man-made radiation.

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FUNCTIONAL MEDICINE NEWS UPDATE

Biomarkers in Blood to Predict Liver Cancer

Summary: Early detection has the potential to transform treatment and outcomes in cancer care, especially for cancers like liver cancer, which is typically diagnosed at a late stage with limited options for cure. A new study suggests that proteins detectable in the blood could improve predictions about risk of liver cancer years before typical diagnosis.

Date: May 1, 2024 Source: Mass General Brigham https://www.sciencedaily.com/releases/2024/05/240501125752.htm

Hormones have the Potential to Treat Liver Fibrosis

Summary: Researchers have discovered previously unknown changes in a specific type of liver cells, potentially opening avenues for a new treatment for liver fibrosis, a potentially life-threatening condition. Currently, there are no drugs available to treat liver fibrosis.

Date: November 16, 2023 Source: University of Southern Denmark https://www.sciencedaily.com/releases/2023/11/231116140941.htm

New Study Advances Search for Accurate Blood Markers for Acute Kidney Injury

Summary: Using cells from kidney biopsies, researchers report progress in the search for more accurate and easier-to-obtain markers to help predict, manage and assess treatment of acute kidney injury (AKI). Marked by serious inflammation, AKI can lead to sudden loss of kidney function, and clinicians have long searched for markers that alert them to AKI status without the need for invasive kidney biopsies.

Date: December 14, 2023 Source: Johns Hopkins Medicine https://www.sciencedaily.com/releases/2023/12/231214131751.htm

... Cont'd from page 1

From the President's Desk

use of pesticides, industrial chemicals, and heavy metals can lead • to chronic liver disease. These toxins can enter the body through contaminated food, water, and air, putting a significant strain on the liver's detoxification processes. Heavy metals such as lead, mercury, and arsenic are particularly harmful as they can cause significant liver damage over time.

There is a rising prevalence of diabetes in India and it is increasing at an alarming rate. Diabetes is closely linked to liver diseases, particularly NAFLD. High blood sugar levels and insulin resistance, common in diabetic patients, can lead to fat accumulation in the liver, causing inflammation and fibrosis. Without proper management, diabetes can progress to more severe liver conditions such as cirrhosis and liver cancer.

Genetic factors also play a role in the susceptibility to liver diseases. Certain populations in India may have genetic predispositions that make them more vulnerable to liver conditions. Understanding these genetic factors is crucial for developing targeted prevention and treatment strategies.

Addressing the rising incidence of liver problems in India requires a multifaceted approach that integrates modern medical advancements with traditional practices and functional medicine principles. Here are key strategies that we can adapt:

 Public Awareness and Education: Educating the public about the importance of liver health and the impact of lifestyle choices is essential. Campaigns should promote balanced diets, regular physical activity, and the dangers of excessive alcohol consumption.

- Environmental Policies: Implementing and enforcing stricter environmental regulations to reduce pollution and chemical exposure is crucial. Policies should aim to protect individuals from harmful toxins that can damage liver health.
- Encouraging regular health check-ups, including liver function tests, can help detect liver issues early. Early detection and intervention are key to preventing the progression of liver diseases.
- Combining functional medicine with traditional healthcare practices can provide comprehensive liver health strategies.
 Personalized health plans that consider diet, lifestyle, environment, and genetics can promote optimal liver function and prevent disease progression.
- Continued research into the genetic factors and underlying causes of liver diseases is necessary. This knowledge can lead to more effective prevention and treatment methods tailored to the unique needs of Indian patients.

As functional medicine practitioners, it is our responsibility to stay informed about the latest research, continually refine our approaches, and work collaboratively with patients to foster long-term liver health and overall well-being. By taking a proactive and integrative approach, we can combat the rising incidence of liver problems and promote a healthier future for all Indians.

Dr. Priti Nanda Sibal

President, Indian Association of Functional Medicine (IAFM)

MUNCHING YOUR WAY TO HEALTH

Eating in Harmony with Nature in Summer

Our bodies are always striving for balance and working to achieve homeostasis. Through our way of life and food habits we directly influence this very process. By adapting to our circumstances and the seasons we enhance our body's resistance and innate immunity. Maintaining a diet in accordance with the seasons has been practiced in most traditional cultures for thousands of years. Our actions today influence our health tomorrow. The bitter taste in foods and plants is a sign of their cooling action. Therefore, emphasis is placed on them in the summer. Bitter medicines have been used traditionally for i.e. fevers, digestive issues and to cure any heat-related illness, i.e. heatstroke, or liver congestion.

Below are a few recipes designed for summer to cool us internally and to assist our bodies in balancing themselves, to be operating at their peak levels, as well as to be prepared for the next season. Enjoy!

Sesame-Lotus Root Salad

Ingredients:

- 2 tbsp Vinegar
- 2 Lotus roots
- Brown sesame seeds 1 tbsp,
- Dark sesame oil 2-3 tsp,
- Fresh ginger 2 inch piece
- Garlic 2 cloves,
- Green onions, chopped into 1/4 inch pieces, roots, and ends cut off,
- 1 tbsp soy sauce

Method:

- Place enough water in a bowl to cover the lotus root and add the vinegar.
- Peel the lotus root, remove and discard the knobby ends, and slice the root

so the lotus root does not discolor. Heat the sesame oil in a frying pan or wok. Add the ginger and garlic and cook until

thinly across the width, placing each

slice in the vinegar mixture immediately

- fragrant (10 seconds to 1 minute).
 Drain the lotus root slices, then add them to the wok and cook, stirring frequently and making sure both sides get browned, over medium-high heat until the lotus root slices begin to look translucent about 3 minutes.
- Add the white part of the green onion, and cook for another 2 minutes or until the lotus root is done.
- Add the soy sauce, sesame seeds, and the remainder of the green onion and stir well. Serve and enjoy!

Note:

Lotus root is used as a tonic in traditional medicinal systems as it is a rich source of polyphenolic compounds, alkaloids, vitamins, and minerals which have multiple health benefits ranging from anti-inflammatory to anti-oxidative, and hypoglycemic properties.

The presence of potassium in lotus root makes it a great vasodilator, which helps in reducing the bad cholesterol in our blood. The presence of pyridoxine helps in managing the homocysteine levels in the blood to keep the heart healthy. Lotus roots are a good source of dietary fiber, low in cholesterol and saturated fats.

For its anti-inflammatory properties, lotus root finds its use in the treatment of hemorrhoids, tissue inflammation, cancer, and chronic liver-related disorders.

It also helps lower blood sugar levels and increases glucose tolerance due to a high concentration of dietary fiber and antioxidants, hence also recommended for Diabetics.

Watermelon Gazpacho

Ingredients:

- ½ small seedless watermelon (cubed) 6 cups
- 1/2 cup cucumber (peeled, seeded, and finely diced)
- 1/4 red bell pepper (finely diced)
- 1/4 yellow bell pepper (finely diced)
- 1 stalk celery (finely diced)

- 2 Tb shallots (finely diced)
- 2 Tb fresh basil (finely chopped)
- 2 Tb fresh parsley (finely chopped)

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- 4 Tb lime juice (1 lime)
 1 Tb red wine vinegar
- 2 Tb extra virgin olive oil
- 1/4 teaspoon sea salt
- Pinch cayenne

Simple Seaweed Salad

Ingredients:

- 1 Cup dried seaweed, such as wakame (available on Amazon)
- 1-2 cloves garlic, minced
- 1 tsp rice vinegar,
- 3 tsp soy sauce,
- 2 tsp dark sesame oil,
- 1 tsp toasted sesame seeds, white or black or both

Method:

- Cover the seaweed with cold water for 10 minutes, drain, and press out, then cover with boiling water for 5 minutes.
- Combine the garlic, rice vinegar, soy or tamari sauce, and sesame oil in a bowl.
 Drain the hot water from the seaweed and squeeze out any excess.
- Combine the liquid ingredients with the seaweed, mix, and garnish with sesame seeds. Enjoy!

Note:

This recipe is very heat-clearing due to the large volume of seaweed. It also helps rid the body of unwanted toxins.

Method:

- Remove the rind and cut the watermelon into large pieces. Do this on a plate so you catch all the juices. Purée chunks and juice in a blender until smooth. Set aside.
- In a large bowl, toss all remaining ingredients.
- Pour watermelon purée over vegetables, cover, and refrigerate until well chilled, at least 1 hour.
- Taste and season with more salt, lime, and cayenne as desired. Serve very cold.

Note:

Watermelon gives this soup a gorgeous color and a sweetness that works well with onion, pepper, and lime juice. Watermelon is very cooling and helps excrete toxins through the kidneys.

> By Dr. Adriana Knezevic-Gans, ND Artwork by Mayadevi

> > _____



IAFM EVENTS UPDATE

Indian Association of Functional Medicine (IAFM) organized THYROID SUMMIT on 21st April 2024. The online Thyroid Summit was specially crafted for Patients, Doctors, and Health Coaches learnings. Below are the topics covered with their links:



Cancer - Management and Prevention

Dr. Priti Nanda Sibal in conversation with Dr. Sakeena Harmsen, Chief Medical Officer, Doctors Beyond Medicine, Eastern Cape, ex-Cape Town South Africa discussed cancer and its prevention & management. They discussed fundamental and common-sense principles are at the foundation of overcoming and curbing the upward spiral of the global cancer pandemic, in addition to preventing it. Also, discussed findings, solutions, and successes through the approach.

Link: https://www.youtube.com/live/SZjak8JLkwA?si=qXg7s PQFc2mlDAcD



Choosing the Supplements the Right Way



Dr. Priti Nanda Sibal in conversation with Jayant Bhattacharjee, Dr. Gilles Froment, Danijel Cekic, and Tim Mikasa of NUTRASWISS AG & NUTRASWISS Nahrin AG

In the talk, the R&D Group of Team NUTRASWISS, Switzerland's largest Wellness Company, shared facts, data, and information related to the selection of top protein supplements. Known for its Health Supplements, 5-Star Wellness Resorts, Clinique NutraSwiss, and other Therapies, NUTRASWISS ensures a comprehensive approach to Wellness. The 360° approach enabled the creation of Protein Magik, the world's most optimized protein supplement. By leveraging their extensive expertise and holistic wellness philosophy, NUTRASWISS guarantees the highest quality and effectiveness in Protein Supplementation.

Link: https://youtube.com/live/uAedJNIDGwU?feature=share

NEW JOINEES AT IAFM >>>

Puja Karnani Agarwal

Dr Parul Gupta

Gh Rasool MaliK

Liver disease can also arise from...

[B]



*First correct answer will get 30 gms of Cordyceps tea packs complimentary [A] Acetaminophen

Mushrooms

- [C] Statins
- [D] All of the above

G The good physician treats the disease; the great physician treats the patient who has the disease

— William Osler



Let's all come together and join our hands to achieve the goal of creating a community of healing and caring. To keep continuing with our mission, keep sharing your articles, case studies, latest updates, etc. for the newsletter at:

editor@iafm # 9818090200

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