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Nº4

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Mr. Alex Sokol
President and CEO

Whether you're a new patient or an old friend, I am truly excited to introduce you to AMC! From our beginnings, AMC has held a simple goal: to design and structure our clinics and care model with you and the patient experience at its core. For over 30 years we have sought to provide patient care with excellence, without compromise. As a regional healthcare network with over 150 professionals, 10 locations, and nearly 20,000 patient visits per year, we know we're just beginning.

In this issue, I am thrilled to welcome Dr. John Quinn, AMC's new Chief Medical Advisor, and some of our brilliant new physicians throughout the group. Last year, AMC added 3 new markets to its network, and we will be announcing exciting new openings very soon. We are also hugely proud to introduce this summer AMC Online—a global subscription and on-demand or by appointment Tele-med and Chat App that gives you seamless AMC physician care both online and through an ever-expanding specialist and diagnostic referral network.

Now in Europe, AMC continues to expand its insurance and TPP assistance relationships, creating unique and beneficial referral and in-clinic collaborations with local and global healthcare partners. Finally, our online and in-clinic health services development remains a top priority as we continue to invest in existing and greenfield sites and our technology platforms.

At AMC we are inspired by a collective drive of helping patients and motivated through earning their trust and confidence, in exceeding our patient's expectations—showing by example that helping people live healthier lives is wonderfully contagious—a domino effect of sorts that truly is at the core of our AMC mission.

Any goal means little without purpose and the right intention. At AMC, we seek nothing less than to be your preferred health partner, in clinic or online. Confident and humble in our mission, I invite you to visit an AMC clinic or our new AMC App and see how we're different and why good care truly matters. From all of us at AMC, wishing you positivity and good health!

Yours Sincerely,

R. Alex Sokol,
President and CEO
asokol@amcenters.com





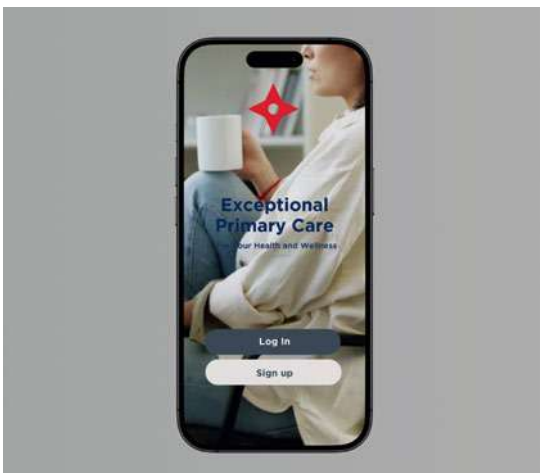
Hello AMC Central Europe!

We are overjoyed to announce the opening of three new beautiful AMC health and lifestyle clinics in central **Warsaw, Prague, and Bratislava!** Staffed with US Board Certified and European licensed physicians, AMC brings the same personalized quality care you expect, with same day appointment convenience, direct insurance billing, 24-hour accessibility, home nursing, and a first in its class service standard. We invite you to visit us and learn more about AMC health and lifestyle programs.



Welcome Dr.Quinn

AMC Welcomes **Dr. John Quinn as Chief Medical Advisor.** Dr. Quinn is an American National and Licensed MD with a Masters of Public Health from the University of Illinois and PhD in Preventative Medicine. Dr Quinn brings 15 years of international experience to AMC. He has worked on medical assignments in Peru, Jordan, Iraq, United Kingdom, Ireland, and Ukraine, working for such esteemed organizations as the World Health Organization, NATO, and various Global Health initiatives among others. In addition, Dr. Quinn has over ten years of Online Doctor start-up administration and management experience. Based in Prague, AMC welcomes Dr. Quinn as a non-resident Chief Medical Advisor to drive AMC in its European expansion of health, lifestyle, and online Telehealth services.



AMC Online App—Coming Soon!

This summer, AMC is proud to introduce our new 24-hour on demand and subscription telemedicine App, AMC Online. Access GP visits within minutes or schedule an online appointment at your convenience, all from the comfort of your mobile phone. AMC Online will work with your AMC Health Plan, FFS, or your insurance, wherever you are, whenever you need us., 24/7. To learn more about the new AMC App or to subscribe when available, email us at online@amcenters.com.



Dr. John Quinn
Chief Medical Advisor

As the Chief Medical Advisor at American Medical Centers, I am pleased to welcome you to AMC's *Your Health* 2025 edition.

Benjamin Franklin's famous saying, "An ounce of prevention is worth a pound of cure," holds profound meaning in today's healthcare landscape. As we look to the future, it's clear that lifestyle medicine, concierge medicine, and personalized healthcare are becoming critical tools in maintaining wellness. Whether it's focusing on a balanced diet, regular exercise, or early detection through routine check-ups, the emphasis must be on preventing illness before it takes hold and catching it early when it already has. Prevention is not just a matter of clinical care; it must be a way of life.

However, prevention is not effective without strong, clear communication between patients and their healthcare providers. At American Medical Centers, we believe the relationship between physician and patient is built on trust and communication. This partnership is key to understanding your health needs and developing a personalized healthcare plan.

With clinics and centers across multiple regions and countries, AMC is uniquely positioned to offer patient-centered care that prioritizes prevention. Our approach ensures that your health comes first, and that prevention is always at the heart of our clinical practice. Whether you are considering lifestyle changes, managing chronic conditions, or looking for ways to protect your family's health, we are here to support you.

As we step into this new season, I encourage you to take proactive steps to safeguard your health. Prevention is the cornerstone of well-being, and now is the perfect time to schedule an appointment and explore how lifestyle medicine, preventive care, and personalized healthcare can make a lasting difference. Together, we can work toward reducing preventable illnesses and improving the overall health of our community.

Wishing you a healthy and prosperous year ahead.

John Quinn, *Chief Medical Advisor*
American Medical Centers



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YOUR HEALTH CONTENTS

04	AMC News 2025
10	How Nutrigenomics May Impact The Way You Eat
12	Metabolism Plays A Major Role In Weight Loss
15	Surprising Findings About Metabolism And Age
16	The Truth About Your Metabolism
18	In The Gut Microbiome, At Least, It's Nurture, Not Nature
20	Microbiome Tests: What To Know
22	How Your Gut Microbiome Impacts Your Health
24	Healthy Food For Kids
28	What Does The Future Look Like For New Medicines?
30	Life In 2050: A Glimpse At Medicine In The Future
32	Wearable Health
35	PET/ CT scan
38	Healthcare Short-cuts
42	Functional Medicine Assessment
44	Interview With Dr.Quinn
46	What We're Reading...
46	Vitamins & Minerals
48	Health & Detox Retreats
54	How Does Diabetes Affect Children And Teenagers?
56	Common Behavioral Disorders In Children
58	Infertility Causes
60	Sexual Dysfunction
63	Job Dissatisfaction Has Negative Health Effects By Age 40
64	What To Do When Menopause Comes Early
66	Menopause And Memory: Know The Facts
68	Empty Nest Syndrome
70	Midlife Crisis: Signs, Causes, And Coping Tips
72	Are Your Drinks Getting Stronger, Or Are You Just Getting Older?
75	Social Activity In Your 60s May Lower Dementia Risk By 12%
76	AMC Health Plans



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PART 1

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METABOLISM

•
MICROBIOME

•
HELPING A CHILD
MAKE HEALTHY FOOD CHOICES



How Nutrigenomics May Impact the WAY YOU EAT

Choosing what to eat and the steps you need to take to achieve your health goals can be overwhelming. With so many diets out there and numerous experts who all have different opinions, how can you determine what'll work for you? Nutrigenomics provides some clarity.

Nutrigenomics is a way to zoom in on what will help you reach your goals based on what we know about your genes and how they interact with the food you eat.



WHAT IS NUTRIGENOMICS?

Nutrigenomics – or nutritional genomics – is the study of how genes and nutrition interact. Variants (differences) in your genes predict how your body will likely respond to certain nutrients.

For instance, variants on your FTO gene are related to metabolism, energy expenditure and energy balance; they impact weight management and body composition. Your FTO gene variants reveal how your body metabolizes fat and protein. With guidance from a dietitian, you can use that knowledge to choose an eating plan that works well with your genetic makeup.

The results from nutrigenomic testing can help inform your everyday decisions. For example, your genetic variants may signal that you're more likely to:

- **Develop high blood pressure or cholesterol:** Knowing this, you can take steps to prevent these conditions from occurring. For example, you can reduce your sodium or saturated fat consumption.
- **Crave sweets:** You can create a game plan to counter your cravings and avoid eating too much sugar. The results may prevent you from developing Type 2 diabetes.
- **Get jittery when you drink caffeine:** Now you know why you feel so shaky after having

caffeine! You may feel inspired to skip it for good.

- **Lose weight on a high-protein diet:** You can confidently stick to an eating plan knowing how your body responds to macronutrients like carbohydrates, fat and protein.
- **Burn more fat with strength training or cardio:** Zeroing in on your most efficient system for fat burning means you can see faster results.

HOW DOES NUTRIGENOMIC TESTING WORK?

The DNA test for nutrigenomics is a simple swab of the inside of your mouth. That's sent off to a lab for analysis, and you get the results a few weeks later. Labs may analyze 70 or more different genes.

HOW CAN NUTRIGENOMICS IMPACT YOUR DIET?

Nutrigenomics lets you pinpoint the parts of your diet that have the most impact on your health and can reduce disease risk factors. Research also shows that when people have genetic information about themselves, it strengthens their motivation to work on health goals.

Take high blood pressure. It's one thing to know it runs in your family, and it's another to see the solid, genetic evidence of risk. But just because you have the variant for it doesn't mean it's inevitable. And that's where the empowering part of nutrigenomics comes into play. Working with a dietitian, you can create an actionable plan – like looking for ways to lower sodium – to live your healthiest life.

IS NUTRIGENOMICS THE FUTURE OF NUTRITION?

Personalized nutrition – recommendations based on your genetics, preferences and predispositions – may well replace one-size-fits-all advice in the future. As people learn more about their genetic makeup, I think nutrigenomics will become a routine part of making nutrition choices.

Genetic tendencies are forecasts, not guarantees. And nutrigenomics can't eliminate all of the trial-and-error when it comes to diet, supplements and workout routines. But nutrigenomics does give you a more targeted approach to figuring out what steps you can take to feel your best.



Violetta Sokol

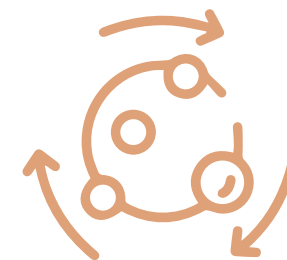
Psychologist, Certified Integrative Health and Functional Medicine Coach
AMC Kyiv

"Nutrigenomics is a way to zoom in on what will help you reach your goals based on what we know about your genes and how they interact with the food you eat."

Doctor's Opinion

METABOLISM PLAYS a Major Role in Weight Loss

It seems like 99.9% of Americans want to shed a few pounds right now. There also seems to be an endless number of diets to choose from - keto, intermittent fasting, delivered - to-your-door meal plans. How can you possibly know which weight loss path is right for you? And why is it so darn hard to get started?



METABOLISM 101

Weight loss occurs when you burn more calories than you consume. Simply put, weight loss occurs when you consume fewer calories or exercise more, preferably both.

The term often used to describe your body's metabolic set point is BMR or basal metabolic rate. There's no perfect formula to determine BMR, but online calculators can give you a good estimate by considering your gender, height, weight, age and activity level.

To lose weight in a healthy way, you need to make lifestyle changes that work for the long

haul while your body's hormones adjust. It's reasonable to lose one or two pounds a week. Any more than that is tough to sustain.

EXERCISE IS A METABOLISM BOOSTER

Exercise is a key component of weight loss because when you build lean muscle mass, your body has to use more energy to maintain it. Ultimately, this means you're burning more calories when resting. While food plays a huge role in weight loss, adding in muscle-building exercises can be a game-changer.

A proven fat-burning form of exercise is high-intensity interval training (HIIT). HIIT uses short intervals of high-intensity exercises to burn fat and build lean muscle.

Remember that it's a journey. If you're very inactive, start slow - aim for 5,000 steps a day. Gradually increase the goal to 10,000 steps a day. Then build up to exercising three to four times a week for 30 to 60 minutes. Use a stepwise approach and find activities that fit your lifestyle and schedule, so you don't lose motivation.

THE KEY TO SUSTAINABLE WEIGHT LOSS IS ACCOUNTABILITY

Studies have shown that there isn't one superior diet - popular diets all result in the same amount of weight loss. Diets work because they hold you accountable. Regardless of the diet plan you pick, if you stick with it, you'll probably lose weight.

Dr. Avadhanula says to stay away from diet plans that seem like a magic pill for weight loss. Those diets are dangerous and unrealistic. Whether too strict or too expensive, people end up quitting the diet and feeling discouraged. Weight gain often follows.

I urge people to stay away from fad diets because most of them aren't sustainable. Focus on lifestyle changes - exercising more, choosing lean meats and eating fruits and veggies. Stay motivated by pairing up with a family member or friend so you can hold each other accountable. It's easier to lose weight if someone has your back.

COUNT CALORIES AND HIDE YOUR SCALE

"Few people realize that it takes a deficit of 3,500 calories to lose just one pound."

Since many people underestimate how many calories they eat throughout the day, she recommends using a food log to track everything you put in your mouth. Strive to take in fewer calories and be more active.

"I also tell patients to hide their scale when they start a weight loss journey. Don't pay attention to your weight for the first three to four weeks. People often lose weight initially then the weight loss tends to slow down. Many people get discouraged at this point and give up."

The three or four-week mark is a good time to step on the scale and see your progress. There will be daily fluctuations, but the goal is an overall downward trend.

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SURPRISING FINDINGS about Metabolism and Age

According to recent findings published in Science, metabolism reaches its peak much earlier in life and slows down much later than we previously thought. Before delving into the details of the new research, let's define a few terms.

Metabolism is the combination of all the chemical processes that allow an organism to sustain life. For humans, this includes conversion of energy from food into energy for life-sustaining tasks such as breathing, circulating blood, building and repairing cells, digesting food, and eliminating waste.

The minimum amount of energy needed to carry out these basic processes while an organism is fasting and at rest is known as the basal metabolic rate, or BMR, which can be calculated using a variety of online calculators that take into account an individual's height, weight, age, and sex. BMR is often referred to as resting metabolic rate, or RMR. Total energy expenditure (TEE) is a combination of BMR, plus energy used for physical activities and energy used to digest food (known as dietary thermogenesis). For sedentary adults, BMR accounts for about

50% to 70% of total energy output, dietary thermogenesis for 10% to 15%, and physical activity for the remaining 20% to 30%.

WHAT ARE THE TAKE-HOME POINTS OF THIS STUDY?

This study challenges previously held beliefs that metabolism correlates closely with organ-specific metabolic activity throughout growth and development, such that it is very high in infancy, childhood, and adolescence, and progressively declines throughout adulthood and old age. Instead, the authors observed that BMR was 30% higher than would be expected based on body and organ composition in children 1 to 20 years old, and 20% lower than expected in adults 60 and above. These deviations in expected TEE and BMR in childhood and old age support the notion that age-related metabolic changes may play a more important role than we previously gave them credit for. What's more, these results strongly suggest we may no longer be able to blame weight gain in middle age on a slowed metabolism.

WHAT CAN INDIVIDUALS DO TO PROMOTE WEIGHT MANAGEMENT

We must also acknowledge there are individual variations in energy expenditure that may affect a person's weight trajectory or response to weight management strategies. However, the study findings do not negate our current understanding of how to achieve and maintain a healthy weight throughout life.

Evidence strongly supports:

- Eating a healthy, balanced diet consisting primarily of whole foods in the form of fruits, vegetables, lean protein, and whole grains
- Maintaining an active lifestyle with a goal of at least 150 minutes of physical activity a week, including strength training to increase or maintain lean muscle mass
- Getting adequate rest, which for most individuals is seven to eight hours of sleep daily
- Managing stress through mindfulness, meditation, or other relaxing activities.

The **TRUTH** about **YOUR** Metabolism

You no doubt have heard of metabolism and may even have a vague idea of what it is. But there are a lot of myths related to the impact metabolism has on your health, especially in terms of weight loss.

In simple terms, metabolism is the internal process by which your body expends energy and burns calories. It runs 24/7 to keep your body moving, even

when you're resting or sleeping, by converting the food and nutrients you consume into the energy your body needs in order to breathe, circulate blood, grow and repair cells, and everything else it does to survive.

This process works at different intensities in different people. How fast your metabolism works is determined mostly by your genes. People might have fast, slow, or average metabolism, regardless of their body size and composition.

Age also affects metabolism, as it can slow over the years, even if you start out with a fast metabolism. Differences in metabolism speed are evident in how easy or hard it is for people to gain or lose weight. A slow metabolism burns fewer calories, which means more get stored as fat in the body; that's why some people have difficulty losing weight by just cutting calories at fast metabolism burns calories

at a quicker rate, which explains why some people can eat a lot and not gain extra pounds.

But you can't entirely blame a sluggish metabolism for weight gain. The reality is that metabolism often plays a minor role. The greatest factors as you age are often poor diet and inactivity.

REV UP YOUR ENGINE

Is it possible to speed up a naturally slow metabolism, or rev up one that has become sluggish over time?

"You can manipulate your metabolism to a degree. It is often a small change that may help you burn more calories. That, along with adopting a healthier diet and making sure you get enough exercise, may give people the extra push they need to lose and maintain weight."



Dr. Aisana Aubekerova
General Practitioner, AMC Almaty

"Your metabolism increases whenever you eat, digest, and store food, a process called thermic effect of food. Protein has a higher thermic effect compared with fats and carbohydrates because it takes longer for your body to burn protein and absorb it."

PICK UP THE PACE.

Add some high-intensity interval training to your regular routine. After a period of interval training, your metabolism can stay revved up for as much as a full day. For example, when you're walking or jogging on a treadmill or outside, speed up for 30 to 60 seconds, and then slow to your usual pace; repeat the cycle for eight to 12 minutes.

1. DRINK GREEN TEA.

Studies have found green tea contains a compound called epigallocatechin gallate, which may increase the calories and fat you burn.

A 2024 meta-analysis published in Obesity Reviews found that consuming about 250 milligrams of epigallocatechin gallate (the amount in about three cups of green tea) helped boost metabolism enough to burn an average of 100 extra calories a day.

2. EAT PROTEIN AND DO WEIGHT TRAINING.

Your metabolism increases whenever you eat, digest, and store food, a process called thermic effect of food. Protein has a higher thermic effect compared with fats and carbohydrates because it takes longer for your body to burn protein and absorb it.

Studies suggest the best approach is to combine adequate protein intake with weight training, which increases muscle mass - and that also can boost metabolism. Use this online calculator to determine your exact daily amount of protein.



In the Gut Microbiome, at Least, It's NURTURE Not Nature

We are what we eat, and so are our microbiomes. A new study shows that alterations in diet, along with other environmental factors, had a major impact on gut biomes over time as animals were domesticated.

In a process that closely tracks changes in the human diet since industrialization, this shift had implications on the health of domesticated animals - and possibly on humans as well.

The question that challenged our scientists was one of nature vs. nurture. Effects of domestication on the gut microbiota are parallel those of human industrialization. Evidence in humans and many animals to this point suggests that, surprisingly, genetics plays a small role compared to environmental influences.

To analyze and prove the nature vs nurture concept in this context we looked at nine different pairs of wild animals and their domesticated descendants, such as wolves and dogs, wild boars and pigs, and wild European rabbits alongside the domestic variety. Though the pairs differed profoundly from one another, the tame counterparts have encountered many common environmental changes during domestication, including shifts in population density, physical activity, patterns of reproduction, medical interventions such as exposure to antibiotics, and human contact.

In addition we've changed their diets. For example, many domesticated animals are eating

foods originally cultivated for human use, in processed forms that are relatively easily digestible, and that tend to be richer in fat. While the microbiomes of wild and domesticated animal pairs resembled one another, the process of domestication shifted the divergent microbiomes of these different species in a common direction. In other words, we were able to detect a global signature of domestication.

The fact that environment rather than genetics drove that shift became apparent as researchers switched a single environmental variable between wild and domesticated pairs - feeding wolves dog chow, for example, and raw meat to dogs. We used diet as one example of an environmental factor that we know has changed with domestication and with industrialization in profound ways.

The researchers then sampled and sequenced the microorganisms in the animals' fecal matter. With just a short-term diet change, the wolves' gut microbial community became dog-like, and the dogs' wolfish. This discovery confirmed earlier work done in Carmody's lab with mice and humans that revealed how diet not only changed the gut biome but did so relatively quickly. Within 24 hours of seeing a new diet, the gut microbiome looks and behaves very differently.

To bring the study closer to home, researchers also looked at the closest parallels in human evolution, comparing chimpanzees' gut biomes with those of modern humans. While the evolutionary distance between chimps and humans is greater than that between, say, wolves and dogs, the same kinds of changes were seen. Notably, the shifts were clearest in humans living in industrialized societies, who have experienced the greatest changes in diet, population density, physical activity, antibiotic use, and other

factors that were also involved in animal domestication.



The implications are considerable. We know that the gut microbiome has really important effects on human health. Indeed, this internal environment has been linked to a range of human diseases, including metabolic diseases like atherosclerosis and Type 2 diabetes, cancer, neurodegenerative diseases, and autoimmune disorders.

In some ways, it's great news that the gut microbiome is so sensitive to environmental conditions, as this means we can manipulate it more easily to improve human health. But it's a double-edged sword, as all the changes our recent lifestyles have had on the microbiome may create opportunities for mismatch with human biology, which changes on much slower timescales.

This study also raises important questions about how we think about health. Domestic animals are a major source of pathogens and antibiotic-resistance genes, so understanding what makes their microbiomes the way they are may help us reduce the risk of transmission to humans. In addition, because of the parallels, the study shows between gut microbes in animals and humans, it may be that domestic animals are particularly useful for studying human-microbe interactions and their implications for health.



MICROBIOME TESTS:

What to Know

A microbiome test examines the gut flora in a sample of an individual’s stool. People may take a microbiome test to identify the different kinds of bacteria in their GI tract. However, they should not use these tests for diagnosis. If a person has any concerns over the health of their GI tract, they should contact a doctor for advice.

WHAT DO MICROBIOME TESTS MEASURE?

Microbiome testing measures the different levels of microorganisms present in the GI tract. More than 200 types of bacteria, viruses, and fungi are present in the human GI tract. Research suggests that these microorganisms may play a role in chronic conditions such as:

- inflammatory bowel disease (IBD)
- type 2 diabetes
- cardiovascular disease
- colorectal cancer

Different tests may offer varying levels of analysis. For example, some tests may give a broad overview of gut bacteria. Others may offer a deeper analysis, differentiating different subtypes of bacteria.

HOW DO MICROBIOME TESTS WORK?

The tests that different commercial microbiome testing companies offer may vary, but they will generally test a person’s stool sample.

There are two types of fecal testing that a company may offer. The first type looks for markers that may indicate illness or a condition, and the second involves extracting DNA.

Healthcare professionals may take a sample of a person’s stool and grow the bacteria that they find on it in a lab. This process should allow them to determine what type of bacteria is causing certain symptoms, such as diarrhea, and inform the treatment options that they recommend.

However, commercial testing is

more likely to use DNA analysis. By extracting the DNA from the stool sample, healthcare professionals can find out the types and number of bacteria in the stool.

WHO MIGHT TAKE A MICROBIOME TEST?

A person does not need to have a digestive condition, such as IBD or irritable bowel syndrome (IBS), to purchase a microbiome test. Testing companies say that people who want to learn more about their digestive tract may wish to purchase a test. Anyone who suspects that they may have a chronic condition should consult a doctor for testing and diagnosis.

HOW TO CHOOSE A MICROBIOME TEST

Before purchasing a microbiome test, it is advisable to ensure that the company and product meet the following criteria:

- **Analysis:** People should check that the test offers the depth of analysis they require.
- **Explanation:** Some companies may offer test results that are easier to understand than those of other companies.
- **Privacy:** Those who want to ensure that their information remains confidential should only purchase tests from companies that have a robust privacy policy.

A PERSON CAN TAKE THESE STEPS TO HELP MANAGE THEIR GUT HEALTH:

- Take probiotic supplements or consume probiotics in yogurt, kombucha, and kimchi
- Limit the consumption of sugar and processed foods
- Get enough sleep
- Manage stress
- Quit smoking
- Keep hydrated

RECOMMENDED STRATEGIES FOR SUPPORTING DIGESTION:

- Adding more fiber to the diet
- Drinking water, which can help soften stool and ease its passage through the digestive system
- Avoiding spicy foods, if these cause stomach upset



Doctor's Opinion

Dr. Nino Khoperia
General Practitioner
AMC Tbilisi

“More than 200 types of bacteria, viruses, and fungi are present in the human GI tract. Research suggests that these microorganisms may play a role in chronic conditions such as IBD, Type 2 Diabetes, and Cardiovascular Disease.”

How Your Gut Microbiome Impacts YOUR HEALTH

WHAT IS THE GUT MICROBIOME?

You may think your gut microbiome is in your stomach, but it's located in your large and small intestines. It contains all the microbes that reside within our intestinal tract. And those microbes are comprised of bacteria, fungi, yeast and viruses. And we're not talking about a few hundred microbes – it's estimated that about 100 trillion microbes are found inside the human body, with many of them residing in our gut.

As you ingest food, the gastric acid found in your stomach destroys a lot of the pathogens you consume. We are consuming microbes all the time through our food and water. But the ones that escape that gastric acid then move down to your intestinal tract. The goal is to have a healthy gut microbiome. Factors like your diet, infections and certain medications can affect its balance. Having an unhealthy gut microbiome can lead to certain diseases and affect your mental health.

IMPORTANCE OF YOUR GUT MICROBIOME

Your intestinal tract is your largest immune system organ, with about 80% of your immune-producing cells living there. What we've learned over the years is that

there's a lot of crosstalk between your gut microbiome and your body. Your gut microbiome plays a role in digestion, metabolism and inflammation. As an infant, your gut microbiome helps develop your gut immune system, and then as an adult, it helps maintain it.

There are certain gut microbes that can produce small molecules and that can also help synthesize certain vitamins, enzymes and hormones that are needed in our body. Research is ongoing on how the gut microbiome works in tandem with parts of the body like your brain, heart, liver and lungs.

HOW TO IMPROVE YOUR GUT MICROBIOME?

EAT A VARIETY OF COLORFUL FRUITS AND VEGETABLES

Start by focusing on eating a variety of fruits and vegetables. You want to have "microbial diversity," which will lead to better gut health.

So, how do we achieve that?"It's really looking at variety in our diet. If someone tells me they eat kale all day, I think that's a great habit to have but it's only one color. It's only one type of nutrient they're getting with the kale. So, we need to add more color to our diet. We need to add more variety.



Think about having a plate full of colorful produce. For example, make a salad that includes kale with other vegetables and fruits like peppers, tomatoes and berries.

ADD FIBER TO YOUR DIET

Another vital part of your diet is making sure you're eating enough fiber. It's recommended that women eat 25 grams of fiber per day and men 35 grams of fiber per day.



Fiber helps keep your bowel movements regular, but also helps lower cholesterol and keeps your blood sugar levels from spiking. High-fiber foods include whole-wheat pasta, chickpeas, lentils and berries.

You want to have soluble and insoluble fiber. Soluble fiber swells in water, for example, oats from oatmeal. And insoluble fiber like nuts don't swell. We want both of those types of it.

We also suggests eating a diet low in animal meat and simple sugars and watching how much processed foods and refined sugar you consume.

EAT FERMENTED FOODS



Consider adding fermented foods like yogurt, kimchi and kombucha to your diet. These fermented foods help introduce good bacteria into your gut microbiome and can lower your intestine's pH level. By doing so, it can decrease the chance that bad bacteria survive. By having good bacteria in your gut microbiome, it also produces essential vitamins like B12 and K.

REDUCE STRESS

Your stress level can impact your gut health. We're learning more how stress can impact the gut microbiome. That means psychological stress, physical stress and metabolic stress.

How can you work on reducing your stress levels? Turn to

relaxation techniques like deep breathing and meditation to help lower your stress and anxiety. You can also try to exercise regularly and prioritize sleep.



MAINTAIN A REGULAR EATING SCHEDULE

In addition to eating a well-balanced diet, it's also important when you eat. You have a circadian rhythm, but your microbiome has a circadian rhythm, too. If you're eating late at night, your microbiome is not likely geared up to metabolize those nutrients as well. Try to stick to eating your meals at the same time each day.



AVOID TAKING CERTAIN MEDICATIONS LONG TERM

Sometimes, taking antibiotics is unavoidable. But antibiotics will destroy the pathogens and attack the good microbes in the gut, too. I also warn against taking over-the-counter acid-reducing agents long-term. By doing so, you elevate the pH in your stomach. That allows any ingested pathogens to have a better chance to survive, which can alter the microbiome.

CONSIDER PROBIOTIC AND PREBIOTIC SUPPLEMENTS

You can get the benefits of probiotics and prebiotics from the foods that you eat. But you can also use a supplement. Prebiotics, which can be found naturally in artichokes, apples and green bananas, are a type of fiber that supports the growth of healthy bacteria.



Probiotics are live good bacteria that can maintain or help get to a healthy, balanced gut microbiome. There are two popular types of bacteria commonly found in supplement form: Lactobacillus and Bifidobacterium. It's important to know that these supplements are fragile. Many require refrigeration to protect them from heat, oxygen, light and humidity, which can break down their effectiveness.

Overall, researchers are just beginning to understand how vital your gut microbiome is in relation to how the rest of your body functions. Even small changes in your diet and lifestyle can have a positive effect on your gut health.

You have to look at where you are, what you're willing to do in order to improve gut health. A lot of times what happens is you feel the benefits so quickly that it's easy to go on to the next step.

HEALTHY FOOD for Kids

THE BENEFITS OF HEALTHY FOOD FOR KIDS

Peer pressure and TV commercials for junk food can make getting your children to eat well an uphill struggle. But switching to a healthy diet can have a profound effect on your child's health, helping them to maintain a healthy weight, stabilize their moods, sharpen their minds, and avoid a variety of health problems. A healthy diet can also have a profound effect on your child's sense of mental and emotional wellbeing, helping to prevent conditions such as depression, anxiety, bipolar disorder, schizophrenia, and ADHD.

Eating well supports your child's healthy growth and development into adulthood and may even play a role in lowering their risk of suicide. If your child has already

been diagnosed with a mental health problem, a healthy diet can help them to manage the symptoms and regain control of their health.

The sooner you introduce wholesome, nutritious choices into a child's diet, the easier they'll be able to develop a healthy relationship with food that can last them a lifetime.

ENCOURAGE HEALTHY EATING HABITS

Whether they're toddlers or in their teens, children develop a natural preference for the foods they enjoy the most. The challenge is to make nutritious choices appealing.

1 Focus on overall diet rather than specific foods.

Kids should be eating more whole, minimally processed

food – food that is as close to its natural form as possible – and less packaged and processed food.

2 Be a role model.

The childhood impulse to imitate is strong so don't ask your child to eat vegetables while you gorge on potato chips.

3 Disguise the taste of healthier foods.

Add vegetables to a beef stew, for example, or mash carrots up with mashed potato, or add a sweet dip to slices of apple.

4 Cook more meals at home.

Restaurant and takeout meals have more added sugar and unhealthy fat so cooking at home can have a huge impact on your kids' health. If you make large batches, cooking just a few times can be enough to feed your family for the whole week.

5 Get kids involved in shopping for groceries and preparing meals.

You can teach them about different foods and how to read food labels.

6 Make healthy snacks available.

Keep plenty of fruit, vegetables, and healthy beverages (water, milk, pure fruit juice) on hand so kids avoid unhealthy snacks like soda, chips, and cookies.

7 Limit portion sizes.

Don't insist your child cleans the plate, and never use food as a reward or bribe.

MAKE MEALTIMES ABOUT MORE THAN JUST HEALTHY FOOD

Making time to sit down as a family to eat a home-cooked meal not only sets a great example for kids about the importance of healthy food, it can bring a family together!

Regular family meals provide comfort. Knowing the whole family will sit down to eat dinner (or breakfast) together at approximately the same time every day can be very comforting for kids and enhance appetite.

Family meals offer opportunity to catch up on your kids' daily lives. Gathering the family around a table for a meal is an ideal opportunity to talk and listen to your kids without the distraction of TV, phones, or computers.

Meal times enable you to “teach by example.” Eating together lets your kids see you eating healthy food while keeping your portions in check and limiting junk food.

Meal times let you monitor your kids' eating habits. If your teen's choices are less than ideal, the best way to make changes

is to emphasize short-term consequences of a poor diet, such as physical appearance or athletic ability.

LIMIT SUGAR AND REFINED CARBS IN YOUR CHILD'S DIET

Simple or refined carbohydrates are sugars and refined grains that have been stripped of all bran, fiber, and nutrients – such as white bread, pizza dough, pasta, pastries, white flour, white rice, and many breakfast cereals. They cause dangerous spikes in blood sugar and fluctuations in mood and energy. Complex carbs, on the other hand, are usually high in nutrients and fiber and are digested slowly, providing longer-lasting energy. They include whole wheat or multigrain bread, high-fiber cereals, brown rice, beans, nuts, fruit, and non-starchy vegetables.

A child's body gets all the sugar it needs from what is naturally occurring in food already. Added sugar just means a lot of empty calories that contribute to hyperactivity, mood disorders, and increase the risk for obesity, type 2 diabetes, and even suicidal behaviors in teenagers.

BE SMART ABOUT FAT

Kids need healthy fats – and plenty of them – in their diet. Healthy fat helps kids fill up (and stay full), concentrate better, and improves their mood.

Healthy fats:

- **Monounsaturated fats**, from olive oil, avocados, nuts (like almonds, hazelnuts, and pecans), and seeds (such as pumpkin, sesame).
- **Polyunsaturated fats**, including Omega-3 fatty acids, found

in fatty fish, such as salmon, herring, mackerel, anchovies, and sardines, or in flaxseed and walnuts.

Unhealthy fats:

Trans fats, are found in vegetable shortenings, some margarines, crackers, candies, cookies, snack foods, fried foods, baked goods, and other processed foods made with “partially hydrogenated” vegetable oils (even if they claim to be trans-fat-free). No amount of trans fat is safe.



Dr. Karina Sultankulova
General Practitioner
AMC Almaty

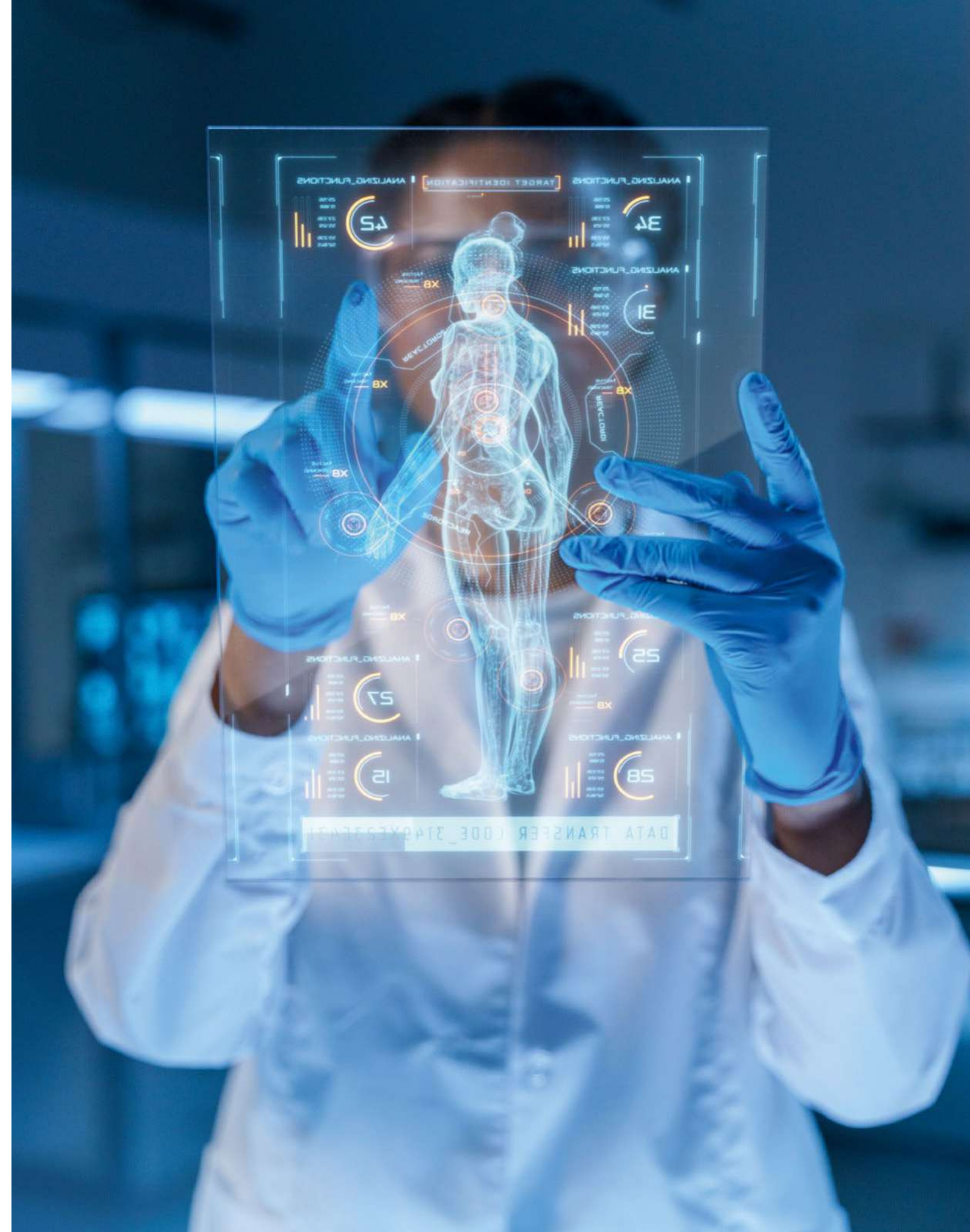
“Making time to sit down as a family to eat a home-cooked meal not only sets a great example for kids about the importance of healthy food, it can bring a family together!”

Doctor's Opinion

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PART 2

•
THE FUTURE OF MEDICINE
•
WEARABLES AND DIGITAL MEDICINE
•
PREVENTION





What Does the Future Look Like for New Medicines?

Medical care will be increasingly personalized, digital and data-driven. These changes are already well underway but look set to take off dramatically by the mid-century. This is in large part thanks to innovations in artificial intelligence (AI) as well as increasingly economically viable routes toward personalized and gene therapeutic approaches to medicine.

PREDICTING THE FUTURE OF MEDICINE

Although it is impossible to predict the future, it is possible to envisage change from a vantage point. In this sense, many of the changes we'll see are already underway though still in their infancy. Then again there are predilections for innovations that we remain hopeful of but for whose fate is yet unknown. Will there ever be a cure for cancer? Will humans and AI merge and facilitate "the singularity" – otherwise known as the technological singularity – the point at which the growth of technology is rendered beyond human control and irreversible.

Those aspects of futuristic medicine that we can be sure of concern innovations in diagnostics, patient care and drug development. Here are some of the categories for which changes are anticipated: personalized medicine; nanoscale medicine; big data, biometrics and the internet of things (IoT); machine learning, AI and advanced analytics; stem-cell medicine; digital health; genetic engineering and bioprinting; gene therapy and editing; "internals," robotics, nanorobotics, and bionics. Other pioneering research efforts to look out for include the problem of antibiotic resistance: scientists are currently looking for ways to fortify our antimicrobial armory.

DIGITAL HEALTH, ROBOTICS AND SENSORS

In recent years there has been a revolution in wearable technology in association with the growth of the internet. People can self-monitor their own heart rate, blood pressure, dietary habits, the number of steps taken daily, and calories burned during exertion. Cutting-edge technologies hold great future promise for innovation

in medicine and healthcare. In the wake of the Covid-19 pandemic, we had a taster of how smartphones and computers could be harnessed to anticipate outbreaks of infectious disease. These technologies will play an important role in the future. As well as carrying technologies externally, we will also likely see patients wearing them internally too.

The use of sensors called 'smart bodies,' which are connected to the internet and reside inside the body, will likely play an important role in feeding back physiological information, such as blood pressure. These will function as an early warning system for impending disease. Robots will be able to perform surgery. It is even predicted that surgeons will be able to undertake procedures from a remote location.



GENE THERAPY AND GENE EDITING

Medical science will hold DNA sequencing data for tens of millions of patients, and this will better our understanding of disease. Moving toward the mid-century point, it is predicted that there will be routine DNA sequencing for every newborn baby. In the coming years, individual patient DNA analysis will likely enable the personalization of drug therapeutic approaches. Gene editing – whereby genes are deactivated or rewritten – is currently a contested area of research. But the advent of CRISPR-Cas genome editing harbors the promise of the widespread use of gene therapy in addition to a big, but currently under-realized, part to play in drug discovery.

STEM CELL TECHNOLOGY

Future scientists will likely be manipulating cells at the molecular level, and this will further tap into opportunities for a personalized approach to medicine. When it comes to stem cell medicine the technology is still in its infancy, but it is predicted to play an important role in the future of medicine. By taking 3D printing into the clinic, the advent of bioprinting with the utilization of stem cell technology could entail the manufacture of new biological materials. Human organs could be grown in the laboratory and the need for organ donation would be negated.



Dr. Pavol (Paul) Hnilica, M.D.

Medical Director,
Internal Medicine Specialist
AMC Bratislava

"Some of the categories for which changes are anticipated: personalized medicine; nanoscale medicine; big data, biometrics and the internet of things (IoT); machine learning, AI and advanced analytics; stem-cell medicine; digital health; genetic engineering and bioprinting; gene therapy and editing; "internals," robotics, nanorobotics, and bionics."

Doctor's Opinion

LIFE in 2050:

A Glimpse at Medicine in the Future

BIG DATA & PERSONALIZED HEALTH CARE

If we could give every individual the right amount of nourishment and exercise, not too little and not too much, we would have found the safest way to health. Today, this reasoning is the very foundation of self-care and health monitoring, something that is getting easier with time.

This is due in no small part to the explosion in wearable technology, coupled with the growth of wireless internet connections. From apps on your smartphone to fitness tracking devices, people are able to measure their heart rate, blood pressure, eating habits, the number of calories they've burned, and the number of steps they've taken in a day.

In future "smart homes," all of this data will be at a person's fingertips. As soon as they wake up, health diagnostics and/or recommendations will be available. People will be told how they are doing in terms of achieving or maintaining certain health goals. And if there's a problem, they will be alerted and told to notify their doctor immediately — or perhaps, their doctor will be automatically notified.

AI-ASSISTED MEDICINE

With the massive volumes of medical data health authorities and practitioners will have to contend with, advanced analytics and machine learning (aka. AI) will be relied on to monitor it all. On the more localized end of things, AIs will be used to analyze patient data for signs of possible health conditions and predict future ones.

This will give healthcare practitioners the ability to detect problems in advance and diagnose cases with greater speed and efficiency (and with less risk of misdiagnosis). Patient histories will also be much more up-to-date and detailed, and real-time patient monitoring will be readily available for the elderly and people who are at-risk for stroke, heart attack, etc.

FROM WEARABLES TO "INTERNALS"

Health monitoring is also expected to advance by leaps and bounds as embedded electronics (aka. "internals") become commercially available. These will consist of flexible electronic patches that can be grafted directly to muscles and organs to monitor heart rate, liver function, kidney function, digestion, respiration, and brain activity for signs of irregularities.

These same devices could also release medication as needed, which would be especially helpful for patients suffering from diabetes or neurological disorders. Between internal sensors that provide regular health monitoring and those that can administer medications, people will be able to personalize their health care in a way that was never before possible.

VIRTUAL CHECKUPS AND DOCTORS

Thanks to the growth of broadband internet access, it's also possible that doctors and patients won't even need to meet in person by mid-century. While face-to-face consultations will still exist and will be the preferred method in serious cases, "teleconsultations" will replace regular checkups to a large extent.

Using their household sensors, wearables, and internals, patients could simply send their health care data to a doctor who would interpret it (possibly with help from an AI) and dispatch medical advice in return. Over time, these consultations will likely become more sophisticated, moving from a reliance on devices and apps like Skype or Zoom, to eventually include the use of immersive virtual reality. When paired

with advancements in machine learning and AI, patients may not even need a flesh and blood doctor to dispense advice at all.

GENE EDITING & BIOPRINTING

In the coming decades, improvements in genome editing are expected to lead to "drag and drop" genetic engineering and the elimination of many genetic diseases. Meanwhile, gene therapies are anticipated to become commercially available that will be able to restore sight and hearing loss, and cure Alzheimer's, Parkinson's, paralysis, and other conditions and degenerative diseases.

Other treatment options that will become commonplace by mid-century include stem cell therapy. In fact, stem cell pharmacies, which dispense tissue therapies, are expected to become commercially available in the developed world by the early 2030s, offering affordable, personalized, and targeted treatments for regenerating body parts, organs, and restoring abilities.

The growing availability of stem cells will also have drastic implications when it comes to bioprinting. As a medical application of 3D printing (additive manufacturing), bioprinting involves using stem cells to manufacture biological materials, including replacement skin, bones, organs, and replacement body parts.

As bioprinting becomes more readily available, it will be possible for people to walk into a clinic or hospital, provide a DNA sample, and have a culture of stem cells based on their genome prepared in no time. These stem cells could then be used to fashion whatever the person needs, be it a new kidney, a skin graft, or new blood vessels.



WEARABLE HEALTH

With the emergence of new wearable health technologies, more and more patients can receive the care they need from the comfort of their own homes. The latest innovations offer enhanced patient monitoring and real-time data, among numerous other benefits, which mean better health outcomes for both patients and providers. From continuous glucose monitors to smartwatches with advanced health metrics, these innovations are changing healthcare for the better.

1 Continuous Vital Sign Collection

Continuous vital sign collection via wearable devices is a huge leap forward in remote care. Advanced sensors on these devices provide real-time data on patients' health, ensuring timely intervention and personalized care. This constant monitoring minimizes gaps in observation, empowering clinicians to offer proactive support and patients to manage their well-being more effectively.

2 Wearable ECGs

Wearable electrocardiogram, or ECG, devices have transformed remote cardiac care. They come in different forms, be it smartwatches, patches or Holter monitors. These devices also pair with apps that store ECG data, allowing physicians to review the data remotely. This enables proactive health management and the early detection of stroke risks. They also promote self-awareness, leading to healthier lifestyles.

3 Continuous Glucose Monitoring

Continuous glucose monitoring (CGM) offers real-time insights into blood sugar levels, crucial for diabetes management. CGM empowers patients to monitor their health proactively, leading to better self-management and reducing the need for frequent clinic visits.

4 Integration With EHRs

The integration of wearable health technology and electronic health records (EHRs) can contribute valuable data to health systems via real-time insights and data generation, providing a comprehensive view of patient health while ensuring data accuracy and addressing privacy concerns effectively. Through these wearables, users can track various metrics, including heart rate, calories, sleep quality, steps, Covid-19 symptoms and so on.

5 Wearable Biosensors

Wearable biosensors that detect subtle changes in biomarkers, like cortisol levels, offer promising avenues for stress management. By providing real-time data and personalized insights, they empower patients to proactively manage their well-being while enabling healthcare providers to offer targeted interventions, ultimately improving patient outcomes.

6 AI-Powered Robotic Prostheses

There is an incredible intersection of research that applies AI to robotic prostheses. These smart prosthetic devices use reinforcement learning to learn about the person wearing the device. It continues to adapt, change and improve its performance as the person uses it, effectively transforming daily life for people with limb differences and empowering them to live the life they want to live.

7 Smartwatches for Cardiac Care

Smartwatches capable of performing electrocardiograms and detecting irregular heart rhythms offer a big step forward in remote care by enabling continuous, real-time health monitoring. For patients, it means early detection of potential heart issues and enhanced preventative care. Providers also benefit from receiving timely data, improving diagnostic accuracy and patient management.

8 Hyper-Personalized Technology

Hyper-personalization in wearable health technology, powered by AI and ML, has transformed user experiences. The systems analyze data from wearables to offer tailored recommendations and feedback based on individual health goals and preferences. Leveraging ML and behavioral science, they motivate users to make healthier choices, improve adherence to wellness plans and achieve superior health outcomes.

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A Total Body CT provides a snapshot of the human body, and it allows a physician to gain a clear and detailed look at the body.



A Total Body CT scan is a useful tool for doctors and as well as gaining a clear overall picture of the body, specifically targets the lungs, heart, and the abdomen to detect anything that may be wrong with the patient such as a malignant nodule or something else.

WHAT ARE TOTAL BODY SCANS?

Total body scans are useful imaging procedures that give the doctor a full and clear picture of what is going on in a patient's body. It is a good idea to have a total body scan when the cause of symptoms are unknown and further investigation of the body might be needed. This is especially useful when detecting the signs of dangerous diseases such as cancer or heart disease.

Total body scans are carried out by using magnetic resonance imaging (MRI) or computed tomography (CT) and both of these techniques are able to view inside the body. A CT scan is often faster than an MRI and this is why it is a top choice for many people. It is important to note.

that a CT scan uses radiation to gain that clear view of the body.

The X-rays that travel through the human body during a total body scan will be absorbed by organs, and any unabsorbed rays will reach the detector at the other side of the machine. This is how an image is created as the parts of your body which absorb the X-rays will light up.

SHOULD YOU GET A TOTAL BODY SCAN?

It is important when considering taking a scan to find out what your ailment is that you do your research and inform yourself about the techniques used. A full body CT scan can be incredibly useful for you and allows the doctor to quickly identify a problem area of the body and rule other things out. Consider that you have a bunch of symptoms and you cannot identify what part of the body is the issue. Instead of having to go for blood tests and other tests – a CT scan can find the answer quickly and will allow treatment to get under way without any delay.

Of course as with any procedure there are risks, and due to the use of radiation for a CT scan it is important for you to be sure that this is the right decision for you and your body. When considering the total body CT scan for yourself, the benefits much outweigh concerns and you can get a clear cut answer in a non-invasive procedure and begin the treatment for your illness as soon as it arises.

SHOULD YOU GET A TOTAL BODY CT SCAN?

There are many great reasons to get a total body CT scan and

often the reasons you should go for an annual one will actually depend on your age and your health status. As we know, everyone has different medical needs and higher risks to certain diseases, and we want to guide you through some of the reasons and signs you should get an annual body scan to ensure you are healthy.

You should get an annual total body CT scan if:

- You have a family history of aneurysms
- You have a family history of coronary artery disease
- You are over 45 years old
- You have diabetes
- You have high blood pressure
- You are obese
- You are sedentary
- You smoke

The reason why you need to consider a scan with any of these criteria is because as we mentioned before the total body CT scan will focus on the lungs and the heart as well as the whole body. If you are obese or have high blood pressure for example, your heart will be under more stress and this can lead to complications and medical issues. If you smoke, you should do this to ensure that you haven't developed scar tissue in the lungs or even lung cancer.

If you are feeling unwell or you simply want to look after your health in a more proactive way – asking for a total body CT scan is a great idea and it will allow you to see how healthy you are and gain a real idea of what is going on.

It is important to look after your body and to know what is happening within you, and by choosing to get a total body CT scan you can gain all of the benefits of this treatment and have peace of mind.

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HEALTHCARE Short-Cuts

HEALTH CARE APPROACHES

Holistic, functional, and integrative medicine are three different medical modalities. While each of these three modalities uses a specific approach and pedagogy, they also contain a consistent mindset of mental and physiological interconnectedness and an

emphasis on whole-person health. Because of this, holistic, integrative, and functional medicine have a natural cohesion.

WHAT IS INTEGRATIVE MEDICINE?

Integrative medicine is an evidence-based approach to merging multiple systems

of medicine. The integrative approach believes that all forms of evidence-based medicine can work together to provide the best health care possible while minimizing unnecessary invasiveness. Although integrative medicine prefers less-invasive interventions when possible, it doesn't exclude conventional invasive treatments when they are determined to be the best course of treatment.

WHAT IS HOLISTIC MEDICINE?

Holistic medicine is a healing-oriented mindset that focuses on the full range of physical, emotional, mental, social, spiritual, and environmental influences that affect a person's health. It considers health not only of the physical body, but also evaluates thoughts, emotions, and life stressors in the context of their chemistry and physiology. In holistic medicine, natural remedies are preferred. However, conventional treatments will be used if they are determined to be the best course of treatment.

WHAT IS FUNCTIONAL MEDICINE?

Functional medicine believes in uncovering the underlying cause of conditions, with an understanding that systems – bodily as well as mental and emotional – are interconnected through chemical, biological, and physiological. While conventional Western medicine categorizes organ systems as separate and specialized, functional medicine views all organ systems as integrated and considers how they work together rather than separately. Functional medicine focuses on treating the cause of the condition rather than focusing primarily on suppressing symptoms.

HOW ARE FUNCTIONAL, INTEGRATIVE, & HOLISTIC MEDICINE DIFFERENT FROM CONVENTIONAL MEDICINE?

Conventional medicine is characterized by a process of diagnosing and treating

symptoms. It relies heavily on the use of synthetic medications as well as procedures such as surgeries or invasive procedures. It also views the body as a set of largely independent organ systems, often with medical specialists for each system or organ. Conventional medicine has seen some great advancements over the past century in fields such as emergency medicine, infectious disease, surgical interventions, and more. However, it is sometimes considered more of a reactive care system than a preventative or healing approach. Medical practitioners who encompass holistic, functional, and integrative medicine often focus on creating a long-term health partnership between the doctor and patient instead of being called upon only when the patient is sick.



YOUR PARTNER IN HEALTH

One of the defining characteristics of holistic, functional, and integrative medicine is that the patient and practitioners are partners in the healing process. They will work together to understand the root causes of any current symptoms or disorders. They will also evaluate areas of holistic health that may be improved to promote healing and healthy living.

WHOLE-BODY FOCUS

Holistic, functional, and integrative medicine consider all physiological, biological, and chemical factors that influence health and wellness. This includes the mind and emotions as well as the body. Health is

considered the body's natural state. Your practitioner will focus not only on eliminating any negative symptoms you may be experiencing, but also restoring and maintaining a healthy mind, body, and spirit.

UNDERLYING CAUSE OF HEALTH ISSUES

Rather than focusing only on eliminating current symptoms, holistic, functional, and integrative medicine focuses on identifying the underlying cause of any existing health issues. This means understanding as much about what factors may be causing the disease as much as understanding what kind of disease the patient has.

PREVENTATIVE CARE

Prevention is a primary focus of holistic, functional, and integrative healthcare. Therefore, a care provider is not only seen when the patient is experiencing negative health symptoms, but for regular maintenance visits as well. Your healthcare provider will become your partner in restoring and maintaining whole-body, mental, and emotional health.

WHEN YOUR DOCTOR BECOMES A DETECTIVE.

If you've never heard of functional medicine (FM) before or don't know how it differs from conventional medicine, you're not alone. Behind functional medicine is a wonderfully simple philosophy that treats the body as a whole, an interconnected system that looks at mind, body, and spirit as contributing elements to a person's overall state of health. Functional medicine is evidence-based medicine and seeks to identify the root cause of disease by probing into the unique history

of a patient's life and genetics, as well as environmental and lifestyle factors.

In contrast, conventional medicine can be one-dimensional and often results in treatment by medication. In acute cases, this may be very appropriate, but because we are not one-dimensional beings in most cases there is much more to the story. When it comes to complex, chronic diseases, many physicians are, unfortunately, not adequately trained – and often don't have time – to assess what may be the underlying cause(s) and apply diet, nutritional supplementation, exercise, and awareness of lifestyle stressors that are contributing to their patient's illness.

As FM practitioners, we look upstream to assess the interactions of the patient's history, physiology, lifestyle, and unique genetic makeup that affect the function of the body as a whole.

WHAT DOES THIS LOOK LIKE IN AN INITIAL EVALUATION?

A functional medicine practitioner would start by asking what their story is and often that story starts with "I was fine until..." This is when we need to put on our detective hats and go back in time to reveal clues that may typically be overlooked; sometimes even going as far back as the time of mom's pregnancy! For example: What was your mom's pregnancy like? Was there a Caesarean section or vaginal birth? Were you breast or bottle-fed? Were there a lot of antibiotics used in childhood? The answers to these questions may indicate alterations of the microbiome in the gut (the bacteria that support our immune system). This is immensely important as research

is uncovering a multitude of new data that shows how deeply interconnected our immune system is with the gut.


Other questions may include: Were there traumatic events in childhood or later? Was there ever exposure to environmental toxins like mold in the living or working environment? Were there ever infectious exposures or injuries? What are the patient's diet, exercise regimen, sleep, and emotional support system like? Is there ongoing stress at work or in your personal life? Every answer peels away another layer of mystery.

Besides a comprehensive history, there are a number of functional medicine diagnostic tests that may be necessary.

- This could include a
- sleep study, digestive testing (stool, urine, breath)
 - saliva testing to assess cortisol (which can indicate stress or inflammation) thyroid and other hormone testing
 - nutritional testing mold, heavy metalsWW
 - Infections like Lyme or Epstein Barr

Fortunately, medicine as a whole is moving in the direction of functional medicine, but this approach takes time and **a commitment in partnership between a patient and their physician.**





Doctor's Opinion

Dr. Vilena Uliamaeva
General Practitioner
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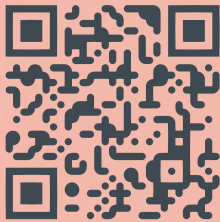
"Functional medicine believes in uncovering the underlying cause of conditions, with an understanding that systems – bodily as well as mental and emotional – are interconnected through chemical, biological, and physiological."

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Functional Medicine ASSESSMENT



FUNCTIONAL MEDICINE PHYSICIANS ASSESS SIX MAJOR AREAS OF HEALTH

In looking for clues that may be contributing to symptoms of illness or disease we systematically assess and optimize the following six major areas of health:

1 Immune system

We look for signs of inflammation and auto-immune diseases (including Hashimoto's thyroid disease, lupus, multiple sclerosis, inflammatory bowel disease, pain, allergies/sensitivities, etc.).

2 Energy systems

We assess for factors that may be depleting your body's energy, including your mitochondrial (energy part of cells) health, nutrient deficiencies and excesses.

3 Heart and metabolic systems

We evaluate for signs of heart and vascular disease and abnormal blood sugar values.

4 Hormone systems

For women, we assess for signs of PMS, fibroids, perimenopause and menopause, estrogen dominance, and other conditions of hormone imbalance; and for men, we assess for signs of loss of motivation, focus, low libido, andropause (low testosterone), erectile dysfunction, poor work-out recovery, poor exercise endurance, fatigue, and other conditions of hormone imbalance.

5 Detoxification system

We assess for signs of toxin overload or the inability to release toxins from your liver and body. This system is key for optimal health of the body as well as maintaining a youthful appearance and vitality.

6 Gastrointestinal/digestive systems:

We look for signs of inflammation in the gut, food sensitivities, and infections. This system is also vital to all other systems operating effectively and preventing autoimmune diseases, weight gain, and inflammation throughout your body (joints, sinuses, lungs, thyroid, etc.).

WHAT A FUNCTIONAL MEDICINE ASSESSMENT ENTAILS

- Listening to what your concerns are and asking questions that help and reveal any issues.
- Performing an exam to assess for any physical signs of deficiencies or signs of excess that may be supporting disease in your body.
- Ordering tests that will look at how effectively your body is performing certain functions. Some tests include: saliva tests to evaluate your body's ability to respond to stress and

maintain healthy sleep and energy levels.

- Hormone tests that show if your body is releasing optimal amounts of hormones to support your energy, mood, sexual health, brain clarity, bones, focus, energy.
- Thyroid tests that can demonstrate if you are producing the proper levels of thyroid hormones to support mood, energy, weight, skin/hair/nails, brain clarity, and more.
- Stool analysis that reveals if your gut and immune system are sufficient to support your digestive and immune system needs.
- Food sensitivity and allergy testing that may uncover an unhealthy gut and foods that are contributing to brain fog, bloating, constipation/diarrhea, IBS, weight gain, and more.
- Lipid profile that assesses if you have the type of cholesterol molecules that lead to cardiovascular disease.
- Inflammation profiles that evaluate the level of inflammation that your body is dealing with.

WHY WOULD YOU DO A FUNCTIONAL MEDICINE ASSESSMENT IF YOU'RE HEALTHY?

- Because of its whole health approach, an FM assessment and its recommendations can help prevent illness while optimizing your current state of health, so you can;
- Enjoy vitality, longevity and a youthful appearance at every age;
- Maximize your energy and mobility to live the life you choose;
- Prevent unnecessary weight gain;
- Maintain healthy heart function;

- Allow smooth transitions into each phase of life, i.e., young adult years, reproductive years, retirement years, menopause/andropause, etc.;
- Maintain hormone and thyroid health;
- Support your immune system to prevent illnesses;
- Optimize your gut health to support your immune system, weight, and tolerance to different foods and prevent disease;
- Support healthy mood and mental health;
- Encourage healthy sleep and rejuvenation;
- Prevent metabolic disorders like diabetes and insulin resistance.

WE'VE GATHERED ALL OF THIS INFORMATION, NOW WHAT?

Functional Medicine's approach is patient-centered and patient-directed; once we've gathered all of your information, we listen to you. Together we'll discuss and prioritize your unique wellness goals. Once those are established we can start working towards the areas that will best help your major wellness goal first, then systematically addressing all other issues, as supporting longevity and wellness relies on improving all facets of your health.

This approach typically utilizes several modes of treatment, including stress reduction & management, mind-body tools, improving nutrition, healing your gut, supporting detoxification, exercise, acupuncture, herbs/botanicals, supplements, manual medicine, and when needed, medication.



Dr. Quinn, welcome to AMC. In the fall of 2024 you took on the position of Chief Medical Advisor at American Medical Centers. Help us get to know you.

My first engagement with American Medical Centers (AMC) began nearly 15 years ago when I served as a Medical Director for an agricultural firm in Western Ukraine.

During that time, I frequently sent patients for consultation with AMC doctors in the United States. I was deeply impressed by the high level of service, the attention to detail, and the evidence-based, personalized approach provided by AMC. The commitment to cutting-edge, evidence-based medicine stood out as exemplary.

Since then, my career has allowed me to practice Emergency Medicine in the United Kingdom and Ireland, and I have been fortunate enough to work in the pre-hospital and Emergency Medicine sectors across Central and Eastern Europe, as well as the Middle East, for over two decades.

The level of excellence demonstrated by AMCs, especially in the diverse settings and locations within their network, has been a constant source of inspiration in my own practice.

With your extensive global experience, how has practicing medicine in different countries shaped your perspective on healthcare Delivery?

Practicing medicine in different countries and working across various cultures has been an incredibly rewarding experience. It has provided me with a broader understanding of diverse healthcare systems, different approaches to medical treatment, and various preventative strategies.

Each AMC country offers a unique perspective on healthcare delivery, which has not only enriched my clinical skills but also prepared me to navigate a wide range of healthcare networks and sectors.

This experience has been particularly valuable in my ability to cater to the specific needs of business travelers, temporary expats, and others seeking both primary and specialized healthcare.

Cultural adaptability is absolutely essential in these contexts, as it enables me to connect with patients and colleagues, ensuring that I provide the right support and medical care at the right time, in the right place. The ability to understand and respect cultural differences plays a pivotal role in delivering the most effective, patient-centered care across diverse settings.

With such a diverse career, what's a moment or experience that stands out as particularly transformative for you?

One experience that stands out as particularly transformative for me was my time working at the Damage Control Resuscitation Center in Missoula, Iraq, during the ISIS campaign. We had a diverse international medical team working within the World Health Organization hospital, alongside local Iraqi and Kurdish teams whom we trained and practiced with.

The level of trauma and medical conditions we encountered—ranging from pediatric to elderly patients—was often overwhelming, with many cases simply horrific.



What made this experience particularly transformative was not only the opportunity to lead teams in reducing preventable morbidity and mortality but also the chance to serve a community that had long been under-served, addressing not only extreme trauma but also longstanding medical issues that had gone unaddressed for far too long. The ability to make a tangible difference in both acute and chronic medical care in such a challenging environment was an immensely rewarding and defining moment in my career.

In today's healthcare landscape, there's A growing emphasis on the whole-body approach. AMC seeks to marry conventional medicine with a more integrative, personalized approach. How do you integrate this philosophy into your practice?

In my practice, I firmly believe that the best form of medicine is prevention. The most effective way to prevent illness is through a holistic approach that combines conventional medicine with integrative, whole-body care.

This philosophy of blending both perspectives is something I embrace wholeheartedly, though I recognize that it can be challenging to put into practice.

However, American Medical Centers (AMC) have been highly successful in doing so. At AMC, the approach extends beyond simply addressing the medical issues that patients present with. It involves anticipating potential health concerns and actively working to prevent them through personalized care. This includes supporting lifestyle medicine and promoting prevention across all stages of life. Integrating conventional medicine with these proactive strategies truly enhances the overall health of patients, ensuring they receive care that not only treats current conditions but also works to prevent future health issues.

In a world of diverse patient needs and global health challenges, how do you approach tailoring care to individuals while addressing larger systemic health issues? How do labs, imaging, and other diagnostic tools play a role in creating tailored care plans for your patients?

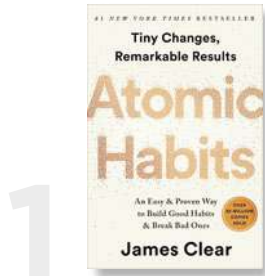
I approach care by recognizing the unique circumstances and backgrounds of each individual. Tailoring care to the patient starts with understanding their specific needs—whether that's related to their lifestyle, culture, medical history, or personal preferences. This personalized approach allows me to address not only their

immediate health concerns but also to anticipate future risks, considering the broader context of their health.

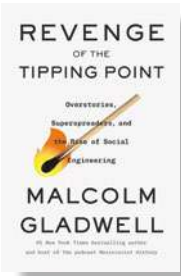
When it comes to addressing larger systemic health issues, it's crucial to balance individual care with a recognition of broader health trends and challenges. This means staying informed about population health issues, whether that involves chronic health conditions, infectious diseases, or socio-economic factors that influence health outcomes. We collaborate with teams, use population health data, and ensure that individual care is aligned with best practices for managing public health.

Diagnostic tools, such as labs and imaging, play a crucial role in creating tailored care plans. At AMC, we have broad access to several Diagnostics and Diagnostics Centers. They provide objective, accurate data that help identify specific health issues, track progress, and make informed decisions about treatment. By combining this data with a thorough clinical evaluation, we can develop a personalized care plan that is both precise and effective. These tools allow me to customize treatments based on the patient's unique condition, ensuring that we not only address their immediate symptoms but also consider long-term health outcomes.

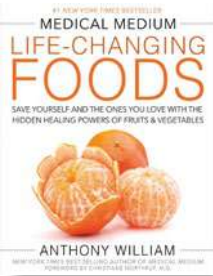
What We're **READING...**



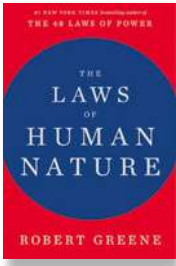
1 Packed with evidence-based strategies, Atomic Habits will teach you how to make small changes that will transform your habits and deliver amazing results.



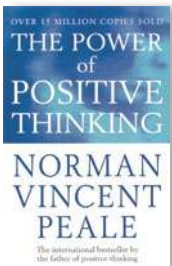
2 Malcolm Gladwell returns with a brand new volume that reframes the lessons of The Tipping Point in a startling and revealing light.



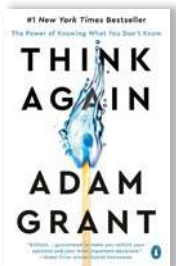
3 Unconventional advice about 50 foods, the symptoms and conditions they can help relieve, and recipes.



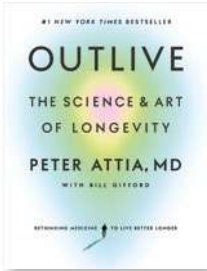
4 Whether at work, in relationships, or in shaping the world around you, The Laws of Human Nature offers brilliant tactics for success, self-improvement, and self-defence.



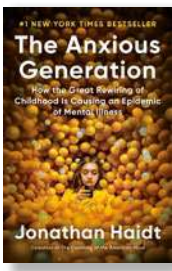
5 THE POWER OF POSITIVE THINKING is a practical, direct-action application of spiritual techniques to overcome defeat and win confidence, success and joy.



6 An examination of the cognitive skills of rethinking and unlearning that could be used to adapt to a rapidly changing world.



7 A look at recent scientific research on aging and longevity.






















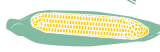
8 A co-author of "The Coddling of the American Mind" looks at the mental health impacts that a phone-based life has on children.



9 Bestselling author Dr. Mark Hyman presents the definitive guide for reversing disease, easing pain, and living younger longer.

Vitamins & Minerals

Vitamins and minerals are nutrients your body needs in small amounts to work properly and stay healthy.

VITAMINS	A		Retinol	<ul style="list-style-type: none">• Growth• Night vision• Immune function
	B ₁		Thiamine	<ul style="list-style-type: none">• Glucose metabolism• Nerve & muscle growth
	B ₂		Riboflavin	<ul style="list-style-type: none">• Healthy skin, mouth & eyes• Adrenal function
	B ₆		Pyridoxine	<ul style="list-style-type: none">• Brain function & development• Formation of haemoglobin• Reduces tiredness
	B ₉		Folic Acid	<ul style="list-style-type: none">• Healthy red blood cells• Healthy growth of unborn babies
	B ₁₂		Cobalamin	<ul style="list-style-type: none">• Healthy Nerves• Releasing energy from food
	C		Ascorbic Acid	<ul style="list-style-type: none">• Protection of cells• Healthy skin, blood, bones & cartilage• Wound healing
	D		Calciferol	<ul style="list-style-type: none">• Regulation of calcium & phosphate• Bones & teeth
	E		Alpha-tocopherol	<ul style="list-style-type: none">• Defence against illness & infection• Skin & eyes
	K		Phylloquinone	<ul style="list-style-type: none">• Blood clotting & healing• Liver function
	Ca		Calcium	<ul style="list-style-type: none">• Strong bones & teeth• Blood clotting
	Cu		Copper	<ul style="list-style-type: none">• Iron metabolism• Making red blood cells
MINERALS	Fe		Iron	<ul style="list-style-type: none">• Making red blood cells• Transporting oxygen
	I		Iodine	<ul style="list-style-type: none">• Thyroid hormones• Healthy metabolism
	K		Potassium	<ul style="list-style-type: none">• Maintaining a steady heartbeat• Lowering blood pressure
	Mg		Magnesium	<ul style="list-style-type: none">• Muscles & nerves• Blood pressure regulation
	Mn		Manganese	<ul style="list-style-type: none">• Fat metabolism• Helps form bones
	Na		Sodium	<ul style="list-style-type: none">• Balancing fluid in the body• Muscle contractions
	P		Phosphorus	<ul style="list-style-type: none">• Part of DNA & RNA• Converts food into energy
	Se		Selenium	<ul style="list-style-type: none">• Regulating thyroid hormone activity• As an antioxidant

Health&Detox RETREATS



Digital Detox at Pine Cliffs Resort (Algarve, Portugal)

Upon arrival, your phone will have a retreat of its own in a “sleeping bag” in the care of staff! Pine Cliffs Resort is a stunning retreat that offers a sanctuary away from one of the most popular spots in Western Europe. The retreat offers an ayurvedic massage, crystal healing face therapy, and a detoxifying body scrub. In addition, enjoy time in the jacuzzi, sauna, and steam room! You’ll forget your smartphone even existed!



Goodwood (England)

Set on the renowned Goodwood Estate, this five-day retreat offers a gut-health overhaul, blending nutritional advice, complementary therapies, and an organic diet to heal and re-energise you. Created by the Duchess of Richmond, gut-health nutritionist Stephanie Moore, and complementary therapist Elaine Williams, the retreat aims to restore both body and mind. Following the estate’s field-to-fork philosophy, expect organic, locally sourced food that supports gut health while satisfying your taste buds.



Wellbeing Sabbatical at Kamalaya (Thailand)

Discover Thailand like never before at Kamalaya, a haven of wellness and creativity. This retreat blends relaxation with exciting activities, offering treatments like oil massages, infrared saunas, traditional Asian foot massages, and tension-relief therapies. A phone-free sabbatical immerses you in Bali’s beauty, freeing your mind from distractions.



Six Senses Ibiza (Spain)

The setting might be signature Ibiza style - wooden terraces and crisp white linen - but for your biohacking program it’s pure high tech. Expect hyperbaric chambers, electromagnetic thrones, DNA testing and cryotherapy. There are of course some bohemian touches, like daily breakfast at the Farmer’s Market and ‘energy treatments’ to realign, but this is mostly about utilising science to better and lengthen your health and life.



Six Senses Fort Barwara (India)

Don’t be deceived by its militaristic exterior! Originally built in the 14th century to fend off invaders, this Rajasthani fortress was reborn as a Six Senses sanctuary in October 2021. Its five-foot-thick walls now shield guests from modern stressors. The wellness program features Ayurveda, yoga, and spa treatments with regional ingredients like saffron and mogra. Beyond the spa, enjoy Hindu rituals at the temple or rewinding walks to spot native wildlife like birds, leopards, and jackals, as horticulturists work to restore the ecosystem.



Aro Hā Wellness Retreat (Glenorchy, New Zealand)

Perched above the stunning Lake Wakatipu in New Zealand’s Southern Alps, the 20-room Aro Hā Wellness Retreat offers eco-friendly luxury amidst sapphire lakes and snowcapped peaks. Its Wellness Adventure programs combine yoga, hiking, and wholesome veggie cuisine for a rejuvenating experience. Beyond physical renewal, Aro Hā teaches mindfulness techniques to keep you present long after you’ve left—though the breathtaking views might still invade your daydreams. With its intimate setting and sustainable focus, Aro Hā is the perfect escape for a fresh start to the New Year.



Daylesford Organic (England)

Daylesford Organic’s wellness retreats in the Cotswolds offer more than a typical wellbeing escape. Held a few times a year, these mid-week mini-breaks combine indulgent nutrition, restorative pampering, and healing for a peaceful mind and body. Perfect for using annual leave, they invite you to fully embrace the lifestyle of this luxury organic brand, founded in Gloucestershire’s idyllic countryside. Ideal for food lovers, these retreats leave you feeling nurtured and revitalized while living the Daylesford Organic ethos.



Nature’s Embrace at Chiva Som International Health Resort (Thailand)

This retreat is an experience unlike any other, and there are over fifteen all-star holidays to choose from! Based in Thailand, we believe a nature-based retreat is just what the doctor ordered when it comes to a digital detox! Envelop yourself in the raw beauty of Thailand through the seemingly infinite activities Chiva Som has to offer, such as forest excursions with hilltop meditation, organic garden tours, oriental foot rituals, and even a bamboo massage! You don’t always need to take a photo of beauty to experience it, and the plush gardens and natural scenery of this retreat will be etched into your head for years to come!

CAULIFLOWER STEAKS

with CITRUS DRESSING



INGREDIENTS

1 head cauliflower
1 egg
1 ½ tsp salt
½ tsp black pepper
½ tsp paprika
¼ cup cilantro, chopped
Cilantro Dressing:
½ cup cilantro, chopped
Juice of 1 lime
Zest of 1 lime
1 tbsp olive oil
½ tbsp apple cider vinegar
Pinch of salt

METHOD

1. Preheat oven to 190. Trim stem on cauliflower.
2. Cut long “steaks” about 1 inch thick and place on a baking sheet.
3. Whisk egg in a bowl and brush onto each steak. Sprinkle with salt, pepper and paprika.
4. Roast for 15-20 minutes or until edges begin to brown and cauliflower is soft.
5. Remove from oven and place on a platter.
6. Sprinkle with fresh cilantro.
7. Blend all dressing ingredients in a blender or food processor. Enjoy!



For more ideas and recipes follow AMC on @american_medical_centers, Dr Mark Hyman @drmarkhyman or New York Times Cooking.

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Marriott.com/tbssi
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PART 3

•
CHILDHOOD and ADOLESCENCE

•
20s and 30s

•
40s and 50s

•
Over 60s





How does Diabetes Affect CHILDREN and TEENAGERS?

Diabetes rates are rising in young people. Early detection and treatment in children and teenagers can improve their health and wellness throughout life. Type 1 diabetes is much more common in young people than type 2 diabetes. However, the rates of both types in young people are increasing.

Young people who develop diabetes have a higher risk of health challenges throughout their life. This article will provide an overview of diabetes in children and teenagers, including the symptoms, causes, and treatment options.

TYPE 1 DIABETES

Type 1 diabetes in children, previously called juvenile diabetes, occurs when the pancreas is unable to produce insulin. Without insulin, sugar cannot travel from the blood into the cells, and high blood sugar levels can occur. People can develop type 1 diabetes at any age, from early childhood to adulthood, but the average age at diagnosis is 13 years. An estimated 85% of all type 1 diagnoses take place in people aged under 20 years. Treatment involves lifelong insulin use and blood sugar monitoring, as well as diet and exercise management, to help keep blood sugar levels within the target range.

TYPE 2 DIABETES

Type 2 diabetes is less common in young children, but it can occur when insulin is not working correctly. Without enough insulin, glucose can accumulate in the bloodstream. The chance of developing type 2 diabetes increases as people get older, but children can also develop it. The rates of type 2 diabetes are increasing along with increases in childhood obesity. Having a parent or sibling with type 2 diabetes is

linked with an increased risk. Sometimes, the person will need medication. However, people can often manage type 2 diabetes by:

- changing the diet
- getting more exercise
- maintaining a moderate weight

TYPE 1 DIABETES SYMPTOMS

- Increased thirst and urination
- Hunger
- Weight loss
- Fatigue
- Irritability
- A fruity smell on the breath
- Blurred vision

Weight loss is a common symptom before diagnosis. Yeast infections in females can also be a symptom of diabetes. Some people will be experiencing diabetic ketoacidosis (DKA) at the time of diagnosis. This occurs when the body begins to burn fat for energy due to a lack of insulin. This is a serious condition that requires treatment.

TYPE 2 DIABETES SYMPTOMS

- Urinating more often, especially at night
- Increased thirst
- Tiredness
- Unexplained weight loss

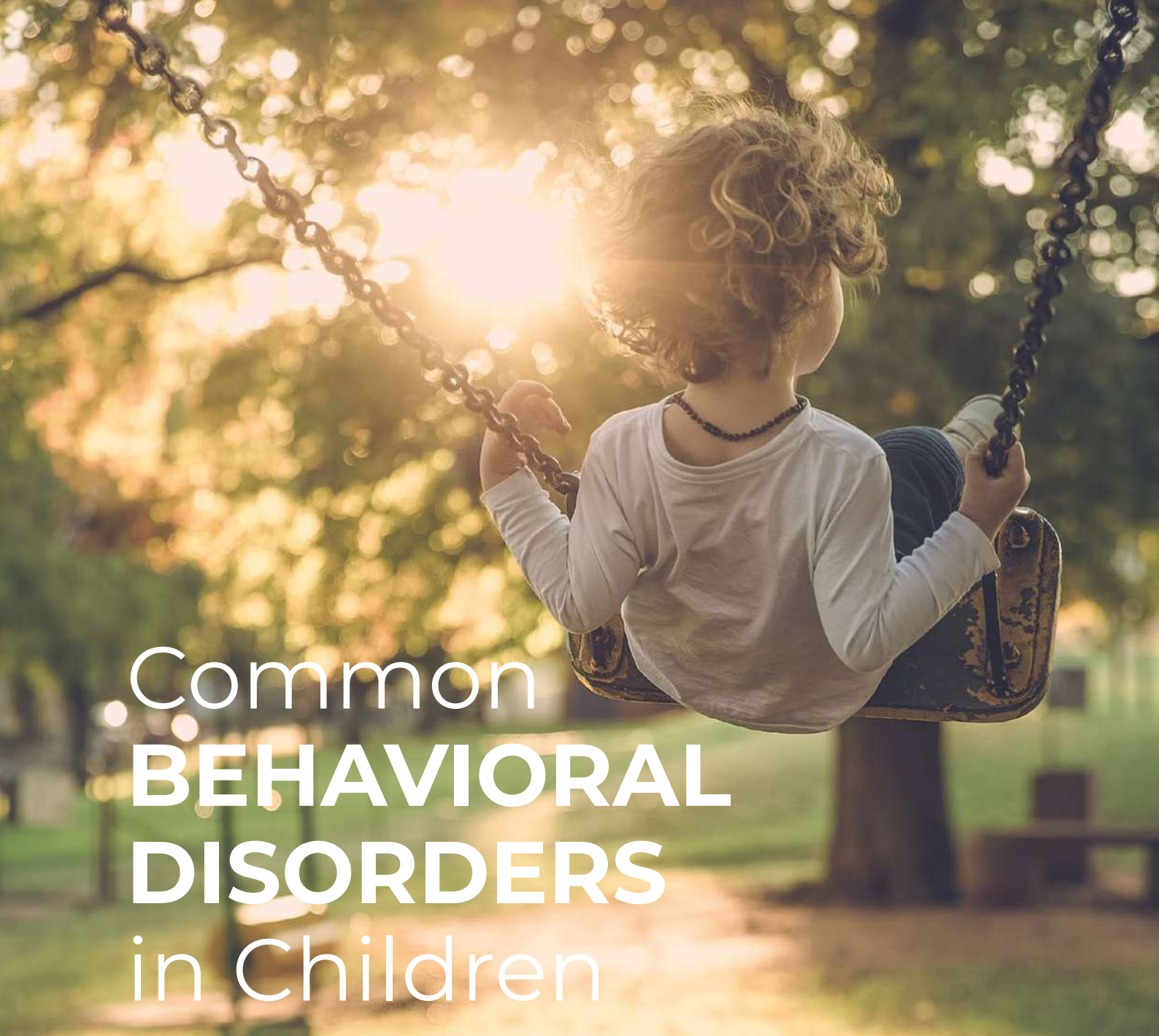
- Itching around the genitals, possibly with a yeast infection
- Slow healing of cuts or wounds
- Blurred vision as a result of eye dryness

PREVENTION

It is not currently possible to prevent type 1 diabetes, but type 2 diabetes is largely preventable. The following steps can help prevent type 2 diabetes in childhood:

- **Maintain a moderate weight:** Being overweight increases the risk of developing type 2 diabetes, as it increases the chance of insulin resistance
- **Stay active:** Keeping physically active reduces insulin resistance and helps manage blood pressure.
- **Limit sugary foods and beverages:** Consuming lots of foods that are high in sugar can lead to weight gain and problems with insulin function. Eating a balanced, nutrient-rich diet - with plenty of vitamins, fiber, and lean proteins - will lower the risk of type 2 diabetes.





Common BEHAVIORAL DISORDERS in Children

All young children display impulsive or defiant behavior occasionally. Sometimes, this is part of a normal emotional reaction. But if these behaviors are extreme or outside the norm for their level of development, it could be a sign of a behavioral disorder. The most common behavioral disorders in children are:

- Attention deficit hyperactivity disorder (ADHD)
- Oppositional defiant disorder (ODD)

WHAT IS A BEHAVIORAL DISORDER?

Behavioral disorders are described by specialists as involving “a pattern of disruptive behaviors in children that last for at least 6 months and cause problems in school, at home, and in social situations”. This is different from the challenging behaviors children sometimes display. Almost all children

will have tantrums, or act in aggressive, angry, or defiant ways at some point. While challenging, these behaviors are a normal part of childhood development. Often, they are the result of strong emotions that the child is expressing in the only way they know how. As a result, healthcare professionals only diagnose a behavioral disorder when the disruptive behaviors are severe, persistent, and outside the norm for the child’s developmental stage.

ATTENTION DEFICIT HYPERACTIVITY DISORDER

There are three ADHD subtypes, with the diagnosis depending on the symptoms the child displays most often. The subtypes are:

- Inattentive type
- Hyperactive-impulsive type
- Combined type

A child with inattentive type ADHD may:

- Find it difficult to pay attention
- Become easily distracted
- Have difficulty focusing on tasks, particularly long tasks such as reading
- Start tasks but forget to finish them
- Appear not to listen to instructions or to forget them

A child with hyperactive-impulsive type ADHD may:

- Find it difficult to stay still or remain seated
- Fidget a lot by tapping the hands, feet, or moving around in their seat
- Run around or climb things when it is not appropriate
- Frequently interrupt conversations or games
- Have difficulty waiting for their turn
- Have trouble talking or playing quietly

OPPOSITIONAL DEFIANT DISORDER

Children and adolescents with ODD display an ongoing pattern of hostile behavior toward authority figures, such as parents, caregivers, or teachers. Unlike conduct disorder, children with ODD tend to violate minor rules, rather than major rules and social norms. The potential signs of ODD include:

- Temper tantrums and irritability
- Argumentative behavior, such as constantly questioning rules
- Persistent stubbornness, which may manifest as a refusal to follow instructions or apologize for behavior
- Provocative behavior, such as intentionally annoying or upsetting others
- Spiteful or vindictive attitude



WHAT INFLUENCES BEHAVIORAL DISORDERS?

Brain structure and chemistry: Evidence suggests that changes in brain structure, development, and neurotransmitter levels may influence behavioral disorders. For example, areas of the brain that control attention are less active in children with ADHD. Low serotonin and high sensitivity to cortisol, a stress hormone, may also play a role in aggression. Additionally, conditions that affect learning ability may have an impact, as children with intellectual disabilities are twice as likely to have a behavioral disorder.

Genetics:

Behavioral disorders can run in families. This could indicate a genetic predisposition for some people to develop them. But in the case of ODD, scientists have not identified a specific gene that could explain this. Older studies have shown that people with ADHD, ODD, and CD share similar genetic traits, but none were unique to these disorders.

Trauma:

Psychological trauma is a complex emotional and physical response to severe or chronic stress. Early exposure to trauma can impact child development. Any experience that causes significant distress can be traumatic, but common examples that may affect children include:

- An unstable home life
- Difficult relationships with parents or caregivers
- Inconsistent or harsh discipline
- Physical or emotional abuse

Behavioral disorders are more common in people from low-income backgrounds, which may be due to increased levels of stress. It is also possible to confuse child-traumatic stress with a behavioral disorder, as they have overlapping symptoms.

SUMMARY

Most children have temper tantrums or display impulsive or defiant behavior at some point. These are usually a normal part of child development.

But in cases where the behavior is persistent and constant, or outside the norm for the child’s age and level of development, it may be a sign of a behavioral disorder.

With early and appropriate treatment, families can learn to manage the behaviors.

INFERTILITY Causes



WHAT IS INFERTILITY?

Healthcare providers consider a couple infertile if they try but fail to get pregnant within one year.

When the woman is older than 35, the amount of time trying to conceive drops to six months for an infertility diagnosis. In women over 40, immediate evaluation is warranted.

Infertility does not include miscarrying or being unable to carry a baby to childbirth.

HOW COMMON IS INFERTILITY?

An estimated 1 in 10 women between the ages of 15 and 44 have trouble conceiving.

WHAT ARE THE TYPES OF INFERTILITY?

Types of infertility include:

- **Primary:** A woman who was never pregnant and who can't conceive after one year of not using birth control.
- **Secondary:** Secondary infertility occurs when a woman can't get pregnant again after having at least one successful pregnancy.

SYMPTOMS AND CAUSES

What are risk factors for female infertility?

- Abnormal menstruation.
- Blocked fallopian tubes.
- Celiac disease.
- Kidney disease.
- Past ectopic (tubal) pregnancy.
- Pelvic inflammatory disease.
- Pituitary gland disorders, such as Cushing's syndrome.
- Polycystic ovary syndrome (PCOS), ovarian cysts and primary ovarian insufficiency.
- Sickle cell anemia.
- Uterine problems, including endometriosis, uterine fibroids and uterine polyps.
- Thyroid disease.

What are risk factors for male infertility?

- Enlarged veins (varicocele) in the scrotum, the sac that holds the testicles.
- Genetic disorders, such as cystic fibrosis.
- High heat exposure to testicles from tight clothing or frequent use of hot tubs and saunas.
- Injury to the scrotum or testicles.
- Low sperm count or low testosterone (hypogonadism).
- Misuse of anabolic steroids.
- Premature ejaculation or retrograde ejaculation (semen flows back into the bladder).
- Testicular cancer and treatments.
- Undescended testicles.



DIAGNOSIS AND TESTS

How is female infertility diagnosed?

- **Pelvic exam:** Your provider will perform a pelvic exam, including a Pap smear to check for structural problems or signs of disease.
- **Blood test:** A blood test can check hormone levels, including thyroid hormones.
- **Transvaginal ultrasound:** Your doctor inserts an ultrasound wand into the vagina to look for problems with the reproductive system.
- **Hysteroscopy:** Your provider inserts a thin, lighted tube (hysteroscope) into the vagina to examine the uterus.
- **Saline sonohysterogram (SIS):** Your provider fills the uterus with saline (sterilized salt water) and conducts a transvaginal ultrasound. A full uterus makes it easier to see inside the uterus.
- **Hysterosalpingogram (HSG):** X-rays capture an injectable dye as it travels through the fallopian tubes. This test looks for blockages.
- **Laparoscopy:** Your provider inserts a laparoscope (thin tube with a camera) into a small abdominal incision. Female pelvic laparoscopy helps identify problems like endometriosis, uterine fibroids and scar tissue.

How is male infertility diagnosed?

Semen analysis: This test checks for problems with sperm, such as low sperm count and poor mobility. Some men need a needle biopsy to remove sperm from the testicles and test it. For most men, this is the only test that will be needed in the workup of infertility.

- **Blood test:** A blood test can check testosterone, thyroid and other hormone levels. Genetic blood tests look for chromosomal abnormalities.
- **Scrotal ultrasound:** An ultrasound of the scrotum identifies varicoceles or other testicular problems.

MANAGEMENT AND TREATMENT

How is female infertility treated?

- **Medications:** Fertility drugs change hormone levels to stimulate ovulation.
 - **Surgery:** Surgery can open blocked fallopian tubes and remove uterine fibroids and polyps. Surgical treatment of endometriosis doubles a woman's chances of pregnancy.
- ### How is male infertility treated?
- **Medications:** Medications can raise testosterone or other hormone levels. There are also drugs for erectile dysfunction.
 - **Surgery:** Some men need surgery to open blockages in the tubes that store and carry sperm. Varicocele surgery can make sperm healthier and can improve the odds of conception.

WHAT IS FERTILITY PREVENTION

How can I prevent infertility?

- Eat a well-balanced diet and maintain a healthy weight.
- Don't smoke, misuse drugs or drink excessively.
- Get treated for STDs.
- Limit exposure to toxins.
- Stay physically active, but don't overdo exercise



Maya Kipiani
Regional Medical Director
AMC Group

Doctor's Opinion

"Healthcare providers consider a couple infertile if they try but fail to get pregnant within one year. When the woman is older than 35, the amount of time trying to conceive drops to six months for an infertility diagnosis. In women over 40, immediate evaluation is warranted."



SEXUAL Dysfunction

Sexual dysfunction can be any problem that prevents a person or couple from experiencing satisfaction from sexual activity. Some 43% of women and 31% of men report some degree of sexual dysfunction.



OVERVIEW

What is sexual dysfunction?

Sexual dysfunction is a problem that can happen during any phase of the sexual response cycle. It prevents you from experiencing satisfaction from sexual activity.

The sexual response cycle traditionally includes excitement, plateau, orgasm and resolution. Desire and arousal are both part of the excitement phase of the sexual response. It's important to know women don't always go through these phases in order.

While research suggests that sexual dysfunction is common, many people don't like talking about it. Because treatment options are available, though, you should share your concerns with your partner and healthcare provider.

What are the types of sexual dysfunction?

Sexual dysfunction generally is classified into four categories:

- **Desire disorders:** lack of sexual desire or interest in sex.
- **Arousal disorders:** inability to become physically aroused or excited during sexual activity.
- **Orgasm disorders:** delay or absence of orgasm (climax).
- **Pain disorders:** pain during intercourse. at are the types of sexual dysfunction?

Who is affected by sexual dysfunction?

Sexual dysfunction can affect any age, although it is more common in those over 40 because it's often related to a decline in health associated with aging.

SYMPTOMS AND CAUSES

What are the symptoms of sexual dysfunction?

In men:

- Inability to achieve or maintain an erection (hard penis) suitable for intercourse (erectile dysfunction).
- Absent or delayed ejaculation despite enough sexual stimulation (retarded ejaculation).
- Inability to control the timing of ejaculation (early, or premature, ejaculation).

In women:

- Inability to achieve orgasm.
- Inadequate vaginal lubrication before and during intercourse.
- Inability to relax the vaginal muscles enough to allow intercourse.

In men and women:

- Lack of interest in or desire for sex.
- Inability to become aroused.
- Pain with intercourse.

What causes sexual dysfunction?

- **Physical causes:** Many physical and/or medical conditions can cause problems with sexual function. These conditions include diabetes, heart and vascular (blood vessel) disease, neurological disorders, hormonal imbalances, chronic diseases such as kidney or liver failure, and alcoholism and drug abuse.
- In addition, the side effects of some medications, including some antidepressant drugs, can affect sexual function.
- **Psychological causes:** These include work-related stress and anxiety, concern about sexual performance, marital or relationship problems, depression, feelings of guilt, concerns about body image and the effects of a past sexual trauma.

DIAGNOSIS AND TESTS

How is sexual dysfunction diagnosed?

In most cases, you recognize something's interfering with your enjoyment (or a partner's enjoyment) of a sexual relationship. Your provider usually begins with a complete history of symptoms and a physical. They may order diagnostic tests to rule out medical problems that may be contributing to the dysfunction. Typically lab testing plays a very limited role in the diagnosis of sexual dysfunction.

An evaluation of attitudes about sex, as well as other possible contributing factors – fear, anxiety, past sexual trauma/abuse, relationship concerns, medications, alcohol or drug abuse, etc. – helps a clinician understand the underlying cause.

of the problem and recommend the right treatment.

MANAGEMENT AND TREATMENT

How is sexual dysfunction treated?

Medication: When a medication is the cause of the dysfunction, a change in the medication may help. Consult with your doctor on which medication would be best for you.

Sex therapy: Sex therapists can help people experiencing sexual problems that can't be addressed by their primary clinician. Therapists are often good marital counselors, as well. For the couple who wants to begin enjoying their sexual relationship, it's well worth the time and effort to work with a trained professional.

Behavioral treatments: These involve various techniques, including insights into harmful behaviors in the relationship, or techniques such as self stimulation for treatment of problems with arousal and/or orgasm.

Psychotherapy: Therapy with a trained counselor can help you address sexual trauma from the past, feelings of anxiety, fear, guilt and poor body image. All of these factors may affect sexual function.

A NOTE FROM AMC

Please know that mild dysfunction that's related to stress, fear or anxiety often can be successfully treated with counseling, education and improved communication between partners. To improve your sexual health, it's important to be motivated and take an active role in your health care, in collaboration with your medical provider.

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Job Dissatisfaction has Negative Health Effects **BY AGE 40**

Many people strive to have a fulfilling, rewarding job, but the reality does not always meet the expectation. New research shows the jobs you have in your 20s and 30s can affect your overall health in your 40s onward.

A new study conducted at the Ohio State University, by Jonathan Dirlam, a doctoral student in sociology, was set up to investigate the long-term health effects of job satisfaction, or lack of it, earlier in people's careers.

MENTAL HEALTH PARTICULARLY AFFECTED BY JOB SATISFACTION

All participants reported a number of health issues after they reached the age of 40. The researchers used the consistently high job satisfaction group as a control. Their health problems were compared with the other

groups. People in the consistently low satisfaction group reported much higher levels of depression, sleep problems, and excessive worry, as well as scoring lower on mental health measures.

Those in the group who started with high job satisfaction, but had a downward trend, were more likely than the consistently satisfied group to report trouble sleeping and excessive worry and had lower mental health scores. However, they did not fair worse on depression or emotional problems. The group that started with low job satisfaction early on, but trended upward, did not see any extra health problems compared with the control group.

ADVERSE HEALTH EFFECTS MITIGATED BY UPWARD TREND IN JOB SATISFACTION

The direction of the trend in job satisfaction – better or worse –

has an influence on health later in life. However, those individuals who were initially low, but got better over the course of their early career, did not experience the health problems associated with consistently low or declining job satisfaction.

No ill effects were observed in mental and physical health for those participants with upward trending job satisfaction. We found that there is a cumulative effect of job satisfaction on health that appears as early as your 40s.

A person does not have to be at the end of their career to see the health impacts of job satisfaction on mental health. Also to be noted is that the study participants were examined while in their 40s. The study ended before the Great Recession. The recession almost certainly increased job insecurity and dissatisfaction, and that could have resulted in more negative health effects.





What to Do When MENOPAUSE COMES EARLY

Menopause isn't something you have to think about until you're in your 40s and 50s, right? For most women that's a true statement. However, for some, menopause can happen much earlier than expected – even in their 30s or 20s. When menopause starts before age 40, that's called primary ovarian insufficiency (Previously it was also called premature menopause or premature ovarian failure).

CERTAIN WOMEN ARE MORE LIKELY TO HAVE POI

During the process of menopause, the ovaries slow down production of estrogen and no longer release eggs every month, so you don't have your monthly periods. You officially reach menopause when you go 12 consecutive months without a period, indicating that your ovaries are no longer releasing eggs.

A number of factors can cause this to happen earlier than expected in some women, including:

- Autoimmune conditions.
- Genetic disorders such as
- Fragile X syndrome.
- Hysterectomy or other pelvic surgery.
- Viral infection.
- Cancer treatments including chemotherapy and radiation.
- Family history of POI.

SIGNS AND SYMPTOMS

Women who have POI might experience some combination of missed periods and/or the typical physical symptoms you would expect with menopause. Some women get hot flashes, vaginal dryness and mood changes but still have an occasional period. Others don't have menopause

symptoms but stop having periods.

TESTING

Your doctor will want to test the amounts of **estradiol** (a type of estrogen mostly produced by the ovaries) and **follicle-stimulating hormone** (a hormone the ovaries need to function) in your blood. They may also want to do a **genetic analysis** to see if you have any chromosomal abnormalities.

minimize the cardiovascular risks and cognitive changes.

A NOTE FROM AMC

When menopause starts between the ages of 40 and 45, it's considered early menopause. This is much more common than POI, and it may or may not warrant treatment. But, it's still recommended that you see your Ob/Gyn if you have symptoms of menopause before age 45.

WHAT HAPPENS NEXT?

Your doctor will work with you to come up with a treatment plan that meets your individual goals and needs. For most women, that plan will include **hormone-replacement therapy**. Your reproductive hormones support your brain, bones, heart and other tissues, so if your body isn't producing them, you could be at increased risk of:

- Osteoporosis.
- Neurological decline.
- Heart disease.

Hormone-replacement therapy supplements the body with adequate levels of these hormones. It also helps alleviate symptoms such as hot flashes, sleep disturbances, vaginal dryness and mood changes.

While POI can impact some important aspects of your life, it shouldn't interrupt your everyday activities. And there are some other things you can do in your day-to-day life to minimize the risk of complications. It's important to make sure that you're getting adequate amounts of calcium in your diet and talking to your doctor about bone health – maybe even checking vitamin D or doing a bone density test earlier than usual. It's also important to get plenty of exercise and keep your weight in a healthy range to minimize the cardiovascular risks and cognitive changes.



By 2050, 13.8 million people in the US alone will likely have Alzheimer's disease, and two-thirds will be women. The economic cost is staggering, as it is estimated to rise to more than \$2 trillion.

Women are at the epicenter of this because the economic threat is especially dire for women, given they are an increasingly powerful element of our global economy and the vast majority of unpaid caregivers. Thus, maintaining intact memory starting early in midlife with the transition to menopause is critical not only for women themselves, but also for their families, society, and our economic health.

PREVENTING MEMORY DECLINE STARTS IN EARLY MIDLIFE

The decline in cognitive ability is not limited to neurodegenerative diseases like Alzheimer's disease (AD), but also part of healthy aging, with consequences for our quality of life. Most studies of aging and cognitive decline, particularly studies of AD, begin in people in their 70s. However, understanding factors that happen earlier in life, and how they impact age-related brain changes, is critical for

developing prevention strategies for one of the major public health challenges of our time.

WHAT HAPPENS TO WOMEN'S BRAINS THROUGH THE TRANSITION INTO MENOPAUSE?

In addition to chronological aging, women undergo reproductive aging in early midlife: menopause, during which they experience a depletion over time of ovarian hormones such as estradiol, the primary form of estrogen that works in the brain. Our research team and others have demonstrated that estradiol directly relates to changes in memory performance and reorganization of our brain circuitry that regulates memory function.

Thus, women and men undergo different aging processes, especially in early midlife when reproductive aging is more critical for women than chronological aging. However, cognitive aging is rarely considered a women's health issue. This is essential, because viewing brain aging as beginning in early midlife, and understanding the impact of menopause on the brain, will allow for development of strategies to prevent memory loss for women.

On average, women perform better than men on measures of verbal memory, beginning as early as post-puberty. However, women's advantage for verbal memory performance is reduced with menopause. Many women report increased forgetfulness and "brain fog" during the menopausal transition.

All women eventually undergo menopause, but there is a large age range for when it begins

(from late 40s to early 60s), and substantial variation in women's experience of its impact.

Over the last 15 years, an increasing number of studies are mapping out the intricate ways in which menopause affects the brain and what helps maintain intact memory. For example, menopause can affect how brain cells are generated, connect with each other, and even die, and these processes impact brain regions that are critical for memory.

Menopause also lowers the level of glucose in the brain, the primary fuel used by brain cells.

The brain then looks to other metabolic sources to provide the necessary fuel to function - that is, the brain adapts to a new hormonal environment in order to maintain functioning. Further, women with other medical conditions like diabetes and hypertension are at increased risk for cognitive decline.

CAN HORMONE REPLACEMENT TREATMENT HELP?

Research shows that timing matters. Initiation of hormone replacement (HR) in perimenopause (roughly four to eight years before menopause) or early menopause may have positive effects on brain activity and memory function, although systematic HR trials have not been conducted during perimenopause. Initiation of HR in late menopause may have adverse effects on the brain, and increase risk of disorders like Alzheimer's disease.

Further, to date much of the HR research has been conducted in healthy women, and little is known about its impact in women with chronic diseases such as diabetes and hypertension. Finally, there may be differences

in responses in women who are genetically at high risk for brain disorders, like AD, that show increased benefits for using HR. Research shows us that one size does not fit all, and precision medicine is needed to identify which women may benefit the most. One example is for women with bilateral removal of the ovaries, particularly at a young age, for whom HR has been found to be very beneficial for brain function.

WHAT CAN WOMEN DO TO MAINTAIN BRAIN HEALTH?

There are three major pillars for maintaining intact memory: effortful physical activity, effortful cognitive activity, and social contact. Research shows that the first two of these have direct beneficial effects on the brain, even at the level of cellular function. Social contact is another form of keeping our brains active by external stimuli, novel experiences, and perspectives outside of ourselves. Dietary habits (such as the Mediterranean diet, or intake of omega-3 fatty acids like in fish oil) have also had beneficial effects on memory function.

The good news is that these are modifiable lifestyle habits, which may be particularly important for women with hypertension or diabetes who are at higher risk for cognitive decline.

Finally, adequate sleep (currently suggested as seven hours a night) is critical for brain health. Research has shown that during certain periods of sleep, learning is consolidated; that is, sleep plays a key role in storing and maintaining what we learned during the day, and even helps in clearing the brain of amyloid, one of the markers of potential AD pathology.

EMPTY NEST Syndrome

Your nest may be empty, but your life can still be full. There are ways to deal with empty nest syndrome.

Your kids may have left the family home for college, marriage, or a new job. You might find yourself with feelings of loss and sadness. You could be finding it hard to focus and work. You may be experiencing empty nest syndrome.

WHAT IS EMPTY NEST SYNDROME?

Empty nest syndrome refers to the feelings of sadness, anxiety, and loss of purpose that some parents and caregivers feel when their grown children move out of

the family home. Research shows that empty nest syndrome can lead to mental health issues, such as depression and anxiety, or engaging in behaviors that can have a negative impact such as financial risk-taking or substance use disorders. The symptoms aren't always negative. Relief and excitement about a new life chapter can also be part of the empty nest experience.

WHAT ARE 3 KEY CHARACTERISTICS OF EMPTY NESTERS?

1 Grief.

Empty nesters can feel a deep sadness and may even begin to experience the five stages of grief

2 Emptiness.

You may feel adrift like a boat without a rudder. Your life can suddenly feel empty.

3 Fear and worry.

You might be uncertain and afraid of your life ahead. You may be preoccupied with your child's well-being, too.

EMPTY NEST SYNDROME SYMPTOMS

- **Restlessness:** You may not be able to focus like you used to. For example, you might start to write a work report and your mind starts to wander about how your young adults are doing
- **Loneliness:** You may have a partner, friends, and co-workers, but you still feel lonely. You might've just called your child this morning, but tears well up as you pass by their old room.
- **Irritability:** You snap at your mate over something that's not important. It's not about them. It's about you. You may be frustrated that you feel as if you can't seem to control anything.
- **Languishing:** You don't exactly feel bad, but something feels off. You have less energy and less motivation to do the things you used to do. This is called languishing, and it's sometimes a symptom of empty nest syndrome.
- **Re-examining roles and relationship:** You and your partner no longer need to parent daily. Questions naturally arise. So what do you talk about? Do you really have anything in common anymore? You likely do. This can lead to an opportunity to redefine your relationship. It can be a chance to rediscover yourself apart your kids. You can explore interests and connect with people – activities you may not have been able to do as much or at all while you were rearing your children.
- Laughing more. Finding ways to laugh with others, such as telling stories or watching a funny movie together, can be helpful. Laughter can help lift your spirits, and it has health benefits, too.
- Discovering your values.
- Speaking your values aloud or writing them down in a journal can be helpful in re-examining what matters to you in life. It also helps find new outlets that align with your core values.
- Getting to know your (now adult) kids. Finding new ways to communicate with your kids can be mutually beneficial.
- Asking them what works can be a good starting point. Texting? Phone calls? That allows them to let you know.
- Exercising regularly. Exercise can perk up your spirits.
- Research trusted source shows it may improve your life
- satisfaction and your ability to

- perform daily activities as you age.
- **Investing in yourself.** Imagining yourself as a stock portfolio can be helpful in understanding your value. How would you invest in yourself? Start a new business or hobby? Go on a long-delayed vacation? Spend time with family and friends? Having more time and energy can allow you to invest more in your overall well-being.
- **Practicing self-care.** Taking care of yourself is important. This can be the ideal time to do just that. You can eat well. Enjoy yourself. Get massages. Whatever it takes to restore
- your mind, body, and soul, being an empty nester can provide the time.

WHAT TO DO ABOUT EMPTY NEST DEPRESSION OR ANXIETY?

Feeling mildly anxious or depressed during the first few weeks of empty nesting can be expected. If your sadness extends longer than that or begins to affect your daily functioning, you might consider getting help from a mental health professional.

NOTE FROM AMC

When your children leave home, your life may seem suddenly void. You may feel sad, worried, or restless. You might experience new marital conflict. This may be empty nest syndrome, and the good news is it's usually short-lived. Finding new interests and new ways of communicating with your adult children can help you adjust to your new situation. Pretty soon, you'll find yourself looking forward to the new chapter of your life. If the symptoms linger, therapy is available.

MID-LIFE CRISIS:

Signs, Causes, and Coping Tips

WHAT IS A MID-LIFE CRISIS?

“Mid-life” takes place approximately between the ages of 40 and 60, give or take a few years. One common belief about this stage of life is that you should expect to face inner turmoil about your identity, life choices, and mortality – in other words, a mid-life crisis.

SIGNS OF A MID-LIFE CRISIS

- **Deep sadness and regret.** Perhaps you ruminate over perceived missed opportunities in relationships or employment. This leads to a deep unhappiness with the present and a tendency to overlook the good aspects of your life.
- **Restlessness and daydreaming.** You might feel bored or exhausted with your daily routine, whether that includes your work schedule or other responsibilities. Perhaps you start daydreaming about what life would be like if you had followed a different career path or married a different partner.
- **Irritability.** Feeling like your past decisions have boxed you in or limited your potential can lead to sudden bouts of anger. You might grow annoyed with your spouse, aging parents, or closest friends for minor infractions.

- **Impulsive and indulgent behavior.** You might start making big purchases or increase alcohol and drug use to cope with feelings of discontentment. Some people start indulging more in food, overeating out of boredom or stress.
- **Changes in sexual desire.** Some people experience a spike in sexual desire, while others have a decreased interest in sex. You might entertain thoughts of infidelity or engage in infidelity as you have doubts about your current relationship. Thoughts of dating someone younger might be tied to your own insecurities about aging.
- **Changes in ambition.** You might suddenly feel motivated to make changes to your life, such as moving to a new area, buying a new home, or attaining a higher position at work. On the other hand, you might feel less motivated to reach for other goals as you begin to question the purpose of your life.

CAUSES OF MID-LIFE CRISIS

Physical changes

Maybe you're not as spry as you used to be. You might even be more susceptible to illnesses or diagnosed with a condition like high blood pressure. These physical changes can make you feel disheartened or fearful of the future. Women will experience menopause, which comes with a variety of symptoms, such as hot flashes, changes in mood,

and difficulty sleeping. Men may experience a gradual decline in testosterone as they age beyond 30 or 40 years old. Low testosterone can lead to distressing symptoms such as depression, low sex drive, erectile dysfunction, and difficulty sleeping.

Changing family dynamics

In mid-life, many parents experience empty nest syndrome – a feeling of grief tied to their children moving out of the house. You might experience loneliness or feelings of emptiness as you reassess your role as a parent and refocus on yourself. A divorce is another event that might contribute to a tumultuous mid-life. Separating from a long-time partner can lead to conflicting emotions such as sadness, anger, and confusion. If you have children, divorce can also complicate your family dynamics.

NAVIGATING A MID-LIFE CRISIS

Tip 1: Accept change

An adaptive approach to life will help you adjust to changes and cultivate emotional resilience.

- **Acknowledge your feelings.** Suppressing your emotions can lead to unhealthy coping strategies and increase stress. Instead of burying your feelings, find ways to process them.

- **Identify and accept circumstances that are beyond your control.** Accept your limitations, and try to narrow your focus to things that are within your control.
- **Ease into new situations.** It's easy to feel overwhelmed by big changes and new roles. Take time to map out the road ahead and break large challenges down into small steps.

Tip 2: Maintain a sense of purpose

Situations like divorce, job loss, or an empty nest might leave you searching for a sense of purpose as you reach middle age. Use the following suggestions to find meaning in midlife and beyond.

- **Try out something new.** Experiment with a new hobby, such as photography or creative writing. Or challenge yourself with a foreign language class. Doing so will help keep your brain sharp, expand your social circle, and give your life a new purpose.
- **Engage old interests.** Take some time to reflect on past interests and neglected hobbies. This is a good way to build a sense of purpose, boost your self-esteem, and meet new friends.

Tip 3: Prioritize self-care

It's important to dedicate a little extra time to developing and maintaining healthy habits.

- **Set realistic exercise goals.** Don't fall into the habit of comparing your current abilities to your past abilities. Instead, focus on reaping the benefits of exercise: sharpens cognitive functioning; reduces risk of anxiety and depression;

improves sleep; aids in weight loss or management; reduces risk of cardiovascular disease, type-2 diabetes, and some cancers; slows loss of bone density; strengthens muscle.

- **Reassess your diet.** As you enter mid-life, it's more important than ever to replace bad eating habits with healthier alternatives. Swap out refined carbs with whole-grain foods as well as fruits and veggies that offer plenty of fiber.
- **Get enough sleep.** Keep your bedroom dark, cool, and quiet. Experiment with pre-bed rituals, such as reading a book or taking a relaxing bath. Make a note of what seems to work best for you.

Tip 4: Adjust your perception of mid-life and aging

If you focus exclusively on the negatives, you'll find plenty of reasons to be unhappy in midlife. But remember that every stage of life comes with its share of ups and downs.

- **Practice gratitude.** Take time to appreciate the people in your life and the circumstances you find yourself in.
- **Look to your accomplishments.** For some people, midlife is a time of reflecting on missed opportunities. Counter these thoughts by making a list of your accomplishments.

Ask yourself, “How have I grown?” Take time to appreciate your growth while accepting that there is still room for improvement.

Reframe setbacks as opportunities for growth. Whether or not you consider yourself in the midst of a mid-life crisis, you'll experience all sorts of setbacks in adulthood. However, when viewed in an optimistic light, setbacks can be opportunities to learn and grow.



Are Your **DRINKS** Getting Stronger, or Are You Just Getting Older?

The way we process alcohol changes after age 65. Does it seem like you're getting more sensitive to alcohol as you age? You're not imagining things. The basic process by which alcohol is metabolized doesn't change, but after age 65, several factors can alter the way you process it.



HOW ALCOHOL IS METABOLIZED

What happens when you drink a beer, glass of wine, or cocktail?

- The alcohol you swallow moves from your stomach into your small intestine without being digested.
- It is absorbed through your small intestinal walls, then travels to your liver.
- The liver does the lion's share

of processing alcohol; a series of enzymes breaks it down into chemicals (some harmless, some not).

- These chemicals move through your circulation to your heart, lungs, brain and other organs, and simultaneously into your lean muscle mass.
- Unless you drink too much or too fast, most chemicals eventually morph into harmless carbon dioxide and water, which are easily eliminated.

HOW AGING AFFECTS THIS PROCESS

After age 65, your circulation starts slowing down. Less blood is flowing through your liver, so the process slows, and more toxic metabolites may accumulate. And because we lose lean muscle mass with age, a higher concentration of alcohol remains in the bloodstream. So you feel more effects from the same amount of alcohol. By this time, you've probably also developed a few chronic conditions. Needing lots of medication for different conditions can cause lots of interactions with alcohol. Alcohol competes with medicines for processing by your liver – and wins. As a result:

- Sedatives, taken for anxiety or insomnia, become far more potent.
- Blood pressure medications don't control hypertension, and risks of stroke and other problems increase.
- Alcohol augments the effect of blood thinners, increasing the risk of serious bleeding.

Alcohol also compounds the sleep difficulties that are common after age 65. Many people use alcohol to fall asleep, he says, not realizing that it interrupts sleep, makes sleep less restful and causes earlier awakenings. As we age, we're also more prone to falling. The

consequences of alcohol-related falls tend to be more serious after age 65. Tripping on a stair and hitting your head is far more likely to cause significant injury when you are older.

THE TOXIC EFFECTS OF DRINKING TOO MUCH

It takes longer for your body to metabolize alcohol than to absorb it. So excessive drinking keeps alcohol in your bloodstream longer. This allows a toxic chemical into which alcohol is processed, called acetate, to build up in your liver. Over time, acetate damages your liver tissues, causing cirrhosis. In addition, if you "drink" more calories than you eat, that puts you at risk for nutritional deficiencies, which are also more common among the elderly. The consequences of nutritional deficiencies range from minor to major. Folate deficiency causes anemia in adults, but thiamine deficiencies can trigger delirium.

DRINK MODERATELY (IF AT ALL)

It's best to follow the guidelines for moderate drinking – but, unfortunately, few people do. Currently, the recommendation is that after age 65, men and women should have no more than seven alcoholic drinks per week. If you're otherwise healthy and follow these guidelines, drinking shouldn't be an issue. It's overuse that's the problem. Nevertheless, as you're given more prescription medications in your late 50s and 60s, be aware of how they interact with alcohol. And to enjoy good health over time, maintain your cardiovascular health, control your blood pressure and cholesterol, and exercise to preserve your lean muscle mass.

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Social Activity in Your 60s May Lower DEMENTIA RISK

The link between having a rich social life and brain health has received much attention in the scientific community.

Some studies have suggested that levels of social interaction can predict cognitive decline and even dementia, while others have shown that group socializing can prevent the harmful effects of aging on memory. New research examines the link between social

contact and dementia in more depth.

Numerous findings have suggested that frequent social contact can protect the brain, either by helping to build a "cognitive reserve," or by reducing stress and promoting more healthful behaviors.

Many longitudinal studies have found an increased risk of

dementia and cognitive decline in people with a smaller social network or less frequent social contact. However, the authors note, most of these studies had a follow-up period of fewer than 4 years. Furthermore, a lot of these observational findings could be biased by reverse causation, which means that social isolation may be an effect rather than a cause of dementia.

FRIENDS MAY LOWER DEMENTIA RISK BY 12%

Some of the latest studies found that more frequent social contact at age 60 with friends, but not relatives, correlated with lower dementia risk. Specifically, a person who saw friends almost every day at the age of 60 had a 12% lower risk of developing dementia later on, compared with someone who only saw one or two friends once every few months. People who are socially engaged are exercising cognitive skills, such as memory and language, which may help them to develop cognitive reserve - while it may not stop their brains from changing, cognitive reserve could help people cope better with the effects of age and delay any symptoms of dementia.

NOTE FROM AMC

In broad strokes, the concept of cognitive reserve refers to the brain's flexibility and capacity to use resources in novel ways to solve new problems and challenges. Things like education and finding out new information can help build cognitive reserve. Spending more time with friends could also be good for mental wellbeing and may correlate with being physically active, both of which can also reduce the risk of developing dementia.

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