Up To Here campaign urges Americans to seek treatment for undiagnosed thyroid disease.

ALSO IN THIS ISSUE:
TED Talk: An Update on Thyroid-Associated Eye Disease
NASCAR Driver Austin Theriault: My Thyroid Disease Journey
Perspective: Which Diet is Good for Your Heart?
EVERYDAY MAGIC EVERY DAY

No matter the age, those with type 1 diabetes and their families can find allies within a cast of characters including Coco, Mickey Mouse’s friend who is a monkey with type 1 diabetes; teens from novels and videos; as well as real-life families who are dealing with their own days—just like you. Whether you’re reading a blog, watching a video, browsing recipes, or creating a craft, you can find fun on T1everydaymagic.com.

Never miss out on information about new Lilly Diabetes products and resources by joining Lilly Diabetes and Me. www.lillydiabetes.com/type-1-diabetes
Greetings from the Editors

Up to Here
Fatigue, unexplained weight changes, hair loss, depression or anxiety, inability to concentrate... when you’ve “had it up to here” with not feeling right, it may be time to have your thyroid checked.

Radiation and the Thyroid
Be aware of radiation’s link to thyroid cancer and other thyroid diseases.

TED Talk: An Update on Thyroid-Associated Eye Disease
Up to half of patients with autoimmune thyroid disease (AITD) will develop thyroid-associated eye disease (TED).

Thyroid Disease Won’t Slow Him Down!
NASCAR driver Austin Theriault’s personal thyroid disease journey.

Perspective: Which Diet is Good for Your Heart?
Can what you eat make you more heart healthy?

High cholesterol in children – What you need to know
Learn the importance of early diagnosis in children for this life-threatening disorder that can lead to early heart attacks and strokes.

No, You Do Not Have Adrenal Fatigue
A dubious diagnosis that may lead patients astray.

Table of Contents

2 Greetings from the Editors
3 Up to Here
Fatigue, unexplained weight changes, hair loss, depression or anxiety, inability to concentrate... when you’ve “had it up to here” with not feeling right, it may be time to have your thyroid checked.
6 Radiation and the Thyroid
Be aware of radiation’s link to thyroid cancer and other thyroid diseases.
7 TED Talk: An Update on Thyroid-Associated Eye Disease
Up to half of patients with autoimmune thyroid disease (AITD) will develop thyroid-associated eye disease (TED).
8 Thyroid Disease Won’t Slow Him Down!
NASCAR driver Austin Theriault’s personal thyroid disease journey.
10 Perspective: Which Diet is Good for Your Heart?
Can what you eat make you more heart healthy?
11 High cholesterol in children – What you need to know
Learn the importance of early diagnosis in children for this life-threatening disorder that can lead to early heart attacks and strokes.
12 No, You Do Not Have Adrenal Fatigue
A dubious diagnosis that may lead patients astray.

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Greetings from the Editors

Dear Reader,

As winter is slowly settling in, we hope you are keeping warm. We would like to thank you for picking up EmPower Magazine, the American Association of Clinical Endocrinologists’ and the American College of Endocrinology’s voice to you. It is dedicated to promoting the art and science of clinical endocrinology to improve patient care and public health. We want to empower you to take charge of your health and help provide you with resources to live healthy and fulfilling lives.

The articles in EmPower Magazine are written by a diverse group of experts in the field, focusing on a variety of timely endocrine topics. Through this magazine, we will help you stay up to date and informed on topics important to you.

We are excited about this issue of EmPower Magazine, which is dedicated to promoting thyroid disease and heart health awareness. Here, you will read about how radiation can affect your thyroid and get an update on thyroid eye disease. Featured in this issue is also the personal story of race car driver Austin Theriault who has thyroid disease, that we hope inspires and empowers you! In addition, you will read about preventing heart disease at an early age and about cardiovascular benefits and diabetes prevention and reversal with diet. Finally, we have included a follow up article on myths debunked regarding the adrenal gland.

We sincerely hope that as you read this issue, you will feel empowered to live a healthier lifestyle. As always, we welcome your feedback.

Stay warm. Be healthy. EmPower!

Sincerely,

Editor-In-Chief

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For more information, visit us at www.empoweryourhealth.org
To coincide with Thyroid Awareness Month, the American Association of Clinical Endocrinologists (AACE) launched the #UpToHere campaign to raise awareness across the U.S. of thyroid diseases and to help people recognize symptoms, risk factors and when to seek treatment. More than 10% of Americans will develop a thyroid disease during their lives, yet many of those affected remain unaware of their condition.

The thyroid is a butterfly-shaped endocrine gland located at the base of the front of the neck. It produces hormones that influence all system organs of the body, including the heart, brain, liver, kidneys, skin and eyes. Many people with thyroid diseases are up to their necks in frustrating symptoms, such as gaining weight, feeling sad or not getting enough sleep. Many of the symptoms associated with thyroid issues are often mistaken for other conditions, misidentified as a normal part of aging or blamed on lifestyle habits.

“Thyroid hormone impacts almost every organ of the body and can affect every possible aspect of a person’s life,” said Cheryl Rosenfeld, D.O., FACE, FACP, ECNU. “Most thyroid diseases can affect abilities to perform daily tasks, such as concentrating at work or interacting with loved ones. If you suspect you’re at risk for thyroid disease, make an appointment to see an endocrinologist.”

Talking with your doctor or making an appointment with an endocrinologist (a physician specializing in endocrine glands and hormones) are the first steps to ensure that your thyroid gland is healthy and functioning properly.

Learn more about thyroid health at thyroidawareness.com.

(Continued on page 4)
The thyroid is a small, butterfly-shaped gland located at the base of the neck just below the Adam’s apple. It produces important hormones that can influence almost every organ in your body including the heart, brain, liver, kidneys and skin. Although the thyroid is small, it plays a huge role in maintaining the function of these organs.

Up To Here With These Symptoms? It Could Be Your Thyroid

- Fatigue or trouble sleeping
- Depression, anxiety or feelings of irritability
- Changes in memory or ability to concentrate
- Irregular menstrual periods
- Fast or irregular heartbeat
- Joint/muscle pain or weakness
- Unexplained changes in weight
- Fast or irregular heartbeat
- Changes in memory or ability to concentrate
- Irregular menstrual periods

What Your Thyroid Does For You

The thyroid is vital for the growth, development and regulation of the body. Several different disorders can arise when your thyroid produces too much hormone (hyperthyroidism) or not enough (hypothyroidism).

When Things Go Wrong

The thyroid is vital for the growth, development and regulation of the body. Several different disorders can arise when your thyroid produces too much hormone (hyperthyroidism) or not enough (hypothyroidism).

Common Thyroid Disorders:

- Hyperthyroidism
- Hypothyroidism
- Graves’ Disease
- Hashimoto’s Thyroiditis
- Thyroid Nodules
- Thyroid Cancer
- Thyroid Eye Disease

Millions Are Affected By Thyroid Disease – And Don’t Even Know It

More than 19 million Americans will develop some form of thyroid condition and of those with thyroid disease are unaware of their condition. Millions of women are more likely to suffer from hypothyroidism with thyroid disease have eye symptoms that may impair their vision.

Find an endocrinologist in your area:

aace.com/find-an-endo

Learn more about your thyroid:

thyroidawareness.com

Sources

The thyroid is a small, butterfly-shaped gland located at the base of the neck just below the Adam’s apple. It produces important hormones that can influence almost every organ in your body including the heart, brain, liver, kidneys and skin. Although the thyroid is small, it plays a huge role in maintaining the function of these organs.

**Up To Here With These Symptoms?**

- Fatigue or trouble sleeping
- Unexplained changes in weight
- Changes in memory or ability to concentrate
- Depression, anxiety or feelings of irritability
- Fast or irregular heartbeat
- Joint/muscle pain or weakness
- Irregular menstrual periods

**What Your Thyroid Does For You**

The thyroid is vital for the growth, development and regulation of the body. Several different disorders can arise when your thyroid produces too much hormone (hyperthyroidism) or not enough (hypothyroidism).

**COMMON THYROID DISORDERS:**
- Thyroid Nodules
- Thyroid Cancer
- Thyroid Eye Disease
- Hyperthyroidism
- Hypothyroidism
- Graves’ Disease
- Hashimoto’s Thyroiditis

**Millions Are Affected By Thyroid Disease – And Don’t Even Know It**

More than 30 million Americans will develop some form of thyroid condition. Up to 60% of those with thyroid disease are unaware of their condition. Women are 5x more likely to suffer from hypothyroidism. 30-50% of patients with thyroid disease have eye symptoms that may impair their vision.

**Are You At Risk?**

Common risk factors associated with thyroid disorders:

- Type 1 diabetes
- Past radiation treatment to the head or neck area
- Family history
- Recent pregnancy

**Don’t Let Your Thyroid Condition Go Untreated**

Undiagnosed thyroid disease may put you at risk for other serious conditions:

- Weight loss
- Heart disease
- Weight gain
- Infertility
- Osteoporosis

**If you’ve had it up to here**

Find an endocrinologist in your area: aace.com/find-an-endo

Learn more about your thyroid: thyroidawareness.com

If you’ve had it up to here, with these symptoms or suspect you are at risk for thyroid disease, make an appointment to see an endocrinologist.

Thyroid Awareness and thyroidawareness.com are provided to you by the American Association of Clinical Endocrinologists (AACE).

**Sources**
The thyroid gland is very sensitive to radiation. Exposure to radiation is an established risk factor for thyroid cancer (most commonly papillary thyroid cancer) and other thyroid diseases, including benign thyroid nodules (lumps), hypothyroidism (underactive thyroid) or hyperthyroidism (overactive thyroid). The risk of developing thyroid disease due to radiation depends on the patient age at exposure, radiation dose to the thyroid and time since radiation exposure.

Most radiation exposure occurs as part of treatment for different cancers, such as lymphoma, brain tumors, etc, or at the time of stem cell transplants. Additionally, the radiation used in x-rays and CT scans represents a significant source, with radiation doses from CT scans being much larger than those for x-rays. In the 1950s, radiation was used to treat benign diseases such as acne, but this practice is no longer employed. Accidental exposure to radiation can also occur, such as that seen after nuclear power plant accidents, for example after Chernobyl (1986 in Ukraine), Three Mile Island (1979 in Pennsylvania) and Fukushima Daiichi (2011 in Japan). Finally, we are also exposed to small amounts of radiation from the environment, including space.

The most common thyroid disease seen after radiation exposure is hypothyroidism, or an underactive thyroid gland. It affects up to 30% of patients given radiation therapy to the neck region, often within the first five years after treatment. This is because the radiation destroys thyroid tissue. How severe the hypothyroidism is depends on the radiation dose. It’s important that people wear protective shields over their thyroid gland during any radiation treatment involving the head and neck.

Hyperthyroidism (overactive thyroid gland) can also occur due to high doses of radiation exposure, but is often temporary. Rarely, this can develop many years after radiation exposure, particularly in Hodgkin disease survivors.

Both thyroid nodules and thyroid cancer can occur after radiation exposure. Thyroid cancer is the most common endocrine cancer, and thyroid cancer cases have increased at a rate faster than any other cancer in the United States over the past few years. The most commonly seen cancer is papillary thyroid carcinoma. Thyroid cancers that occur following radiation exposure don’t seem to be more aggressive compared to those in patients who don’t have a history of radiation exposure. However, radiation-induced thyroid cancers are more likely to have lymph node spread.

It should be noted that children are especially sensitive to the effects of radiation because their tissues are growing, and cells are dividing more rapidly. Therefore, children exposed to radiation therapy (childhood cancer survivors) may be at an increased risk for thyroid cancer for up to four decades and probably for their lifetime after exposure. Thus, lifelong monitoring is recommended as thyroid diseases can develop decades after radiation therapy in these patients.

Protecting the thyroid gland from the effects of radiation is very important. Tests involving radiation should be used only when absolutely necessary, and people that receive radiation to the neck or that work in places with radiation exposure (such as radiology technicians) should wear thyroid shielding. Tests that do not involve radiation, like ultrasounds, should be used when possible.

By Medha Joshi, MD, and David Lieb, MD, FACE, FACP

The risk of developing thyroid disease due to radiation depends on the patient age at exposure, radiation dose to the thyroid and time since radiation exposure.
TED Talk: An Update on Thyroid-Associated Eye Disease

By Jill Feffer, MD

Autoimmune thyroid disease is among the most common autoimmune disorders. In such conditions, the body inappropriately produces proteins called antibodies, which are supposed to be directed against “invaders” but instead target the body itself. There is growing awareness of the symptoms of hyperthyroidism (overactive) or hypothyroidism (underactive) and patients often know to monitor for adverse effects on many body systems, including hair and skin, cardiovascular, gastrointestinal, gynecologic and neuropsychiatric. However, many do not realize that their eyes are also at risk from autoimmune thyroid disease (AITD).

Up to half of patients with AITD will develop thyroid-associated eye disease (TED). This is most likely in patients with autoimmune hyperthyroidism, known as Graves’ disease, but has also been observed in patients with autoimmune hypothyroidism. Additionally, it has even been observed in a few patients who have normal thyroid function but are considered at risk to develop AITD based on elevated blood levels of antibodies targeting the thyroid. Risk factors known to increase the likelihood of developing TED include female sex, older age, history of diabetes mellitus, uncontrolled hyperthyroidism, history of treatment with radioactive iodine - especially if followed by uncontrolled hypothyroidism - and smoking. Thus, it is critical that patients with Graves’ disease who smoke immediately and permanently quit and all patients should avoid secondhand smoke. We do not yet have a clear understanding of why an individual patient develops TED nor do we have means to prevent it. Therefore, a patient’s vigilance and regular follow-up with an ophthalmologist are key.

TED results from inflammation around the soft tissues behind the eye and the muscles that control eye movements.

TED results from inflammation around the soft tissues behind the eye and the muscles that control eye movements. Symptoms and signs of TED include dryness, excessive tearing, eyelid swelling, being able to see the white area all the way around the colored part of the eye instead of overlapping with the eyelid (“bulging eyes”), pain with lateral gaze, double vision or vision loss. Most cases will be classified as mild and the majority of these will spontaneously resolve. Management for symptomatic relief may include artificial tears or ointment for lubrication.

Moderate and severe cases can currently be treated with immune-modulating medications including steroids (usually oral prednisone or intravenous methylprednisolone) or a monoclonal antibody targeting B cells in the immune system called rituximab. The newest addition to our armamentarium has been undergoing expedited review by the Food and Drug Administration in the United States as of September 2019: teprotumumab is a monoclonal antibody targeting the receptor for a protein stimulated by human growth hormone called IGF-1.

Of note, the 2016 American Thyroid Association Guidelines for the Diagnosis and Management of Hyperthyroidism recommend that hyperthyroid patients with Graves’ disease and moderate TED who plan to receive radioactive iodine ablation (RAI) should be prophylactically treated with glucocorticoid steroids to prevent worsening of TED. Alternatively, they advocate against RAI use for patients with severe TED and counsel them to instead choose either thyroidectomy or medical management with the thyroid-slowing medication methimazole. Severe cases that do not respond to medical management or reveal an urgent threat of vision loss can be treated with surgical decompression.
NASCAR Driver Austin Theriault: My Thyroid Disease Journey

By EmPower Staff

This is an abbreviated version of EmPower’s interview with professional race car driver Austin Theriault, who is sharing his journey as a person with thyroid disease. For the full interview, please visit empoweryourhealth.org.

EmPower: Tell us a little bit about yourself.

AT: My name is Austin Theriault. I turn 26 in January 2020. Ever since I was a kid, basically 13-years-old, I was a race car driver. When I turned 18, I started chasing the dream of becoming a professional race car driver. Since 2013 I have been in North Carolina pursuing NASCAR as a career.

EmPower: How did it all start? Did you race go-carts at first?

AT: I started in “middle age” compared to some of the other drivers. I was 13, while some start at eight or nine, and that would be go-carts. Coming from a rural part of the state of Maine, we didn’t have those types of opportunities. I had to wait until I was eligible (by age) to race at the local short tracks.

EmPower: Were you driving full size cars at 13?

AT: I was driving older production cars like Dodge Neon and Pontiac GrandAm, older model Ford Mustangs. That was the early days.

EmPower: So, you are an up and coming race car driver, then life brings out the caution flag, so to speak, when you were diagnosed with a thyroid condition. How old were you?

AT: It was more recent for me. I was diagnosed in 2016. After the diagnosis, I started asking questions. Questions not only about myself but about my family. I asked, “Are there people in my family that might be suffering from this?” And I come to find out that my grandmother may have even had her thyroid removed. So, a lot of struggles in the family when it comes to thyroid and autoimmune issues.

EmPower: Even as your symptoms started to emerge it wasn’t noticed as a family trait?

AT: No, and I always pride myself on doing research, and the diagnosis came a fair amount of time after my symptoms had started. Looking back, I think I had suffered symptoms for about a year or two before (diagnosis).

EmPower: What were those symptoms you mentioned that made you realize there was something wrong?

AT: I think for a lot of people (with thyroid conditions) it is kind of a never-ending fatigue where you may feel good then all of a sudden you have a 100-pound weight, either on your shoulders or you’re dragging behind you... afternoons are very difficult. Keep in mind I am also racing when all of this is happening... there is such an amount of stress and pressure and expectations... part of me was like, “Maybe this is just coming with the territory.” Around those years, too, I was moving up through NASCAR and getting major opportunities with a lot of expectations and pressure.

Along with that, brain fog was another issue. Another thing that comes up from time to time... people either have anxiety or depression. Some of those symptoms come up from time to time... I think it’s because your body is out of whack and trying to figure out what’s going on.

Luckily, in the scheme of things I caught it pretty early.

EmPower: How frustrating was it? You’re an athlete in a very physically demanding role and position, probably eating right and exercising so you think what is up?

AT: It was very frustrating, the thing I experienced (was) being right on the edge of the diagnosis. If I look back at other yearly physicals where they did happen to take TSH, I was right below the threshold of being able to be diagnosed for that span of 3-4 years. Finally, when it started to get really bad in 2015-2016, I finally went to the doctor, and I was substantially higher than that threshold. So the question is, could I have been diagnosed back then? (That) makes me wonder if there are other people on that sort of borderline where they are symptomatic but it’s not enough for a diagnosis.
EmPower: At some point in your journey you were seeing 1 or 2 doctors, were you referred to an endocrinologist?

AT: I was diagnosed initially by my family physician. I asked for a recommendation to an endocrinologist because I understand that those doctors specialize in thyroid. The doctor referred me to someone close to where I live. So I made that visit and had conversation a little more in depth around how the whole system works, TSH, T3, T4... I think it’s important for people to at least consider that.

EmPower: It sounds like getting that information and being able to sit down to talk with somebody, even if just learning the basics, is pretty important?

AT: I think it goes back to why I’ve been successful in racing, because whether it’s the mechanics of the car or the mechanics of how to go faster, it’s like sometimes a light bulb goes off in my head when I understand something and its explained in a different way. I think that can be the case for a lot of other people. Just that understanding of maybe what’s at stake in how your body works.

EmPower: How do you plan to manage your thyroid disease going forward?

AT: During the summer months, I was finding that when I would race, it was so hot. We know that the thyroid does have an effect on your body temperature, so I was having issues with being able to handle the temperatures inside the car. Having that conversation with my doctor, we were able to switch around the timing of when I would take the hormone and that really did help.

Obviously, it’s a lifelong thing... so what I have to do is try to eat as healthy as possible which can be hard on the road, 3-4 days in hotel. A little bit of cardio to make sure that I felt good. I think that took care of some of the fatigue. I’m going to have to take a blood test every so often, if not once a year, the fact that I’m controlled on the medication now may be once a year. I don’t like the label of saying I have a chronic disease but at the end of the day feeling like I’m not alone in that, like not only are there millions others who have a thyroid condition but there’s perhaps over 100 million in the US that have some sort of chronic condition.

EmPower: What advice would you have for anybody experiencing symptoms like this?

AT: Well the first thing to realize ... - and it’s why I got involved and why we are talking today... - the biggest thing for people to understand is they are not alone and it’s okay. The second thing... I think is really important... I’m not sure it gets talked about enough... is being your own advocate. It’s okay to educate yourself a little bit and ask questions – here’s how I’m feeling, telling the doctor that you are willing to do whatever it takes to get a diagnosis. (And) after getting the diagnosis at least feel like there was a light at the end of the tunnel... to wake up every day and realize you have a support group around you or somebody behind you in the medical field that has your back.

Austin Theriault is a professional race car driver on the NASCAR circuit. Follow Austin at www.austintheriault.com/, on Facebook www.facebook.com/austintheriaultracing, YouTube www.youtube.com/channel/UC_fr5VeCl9gDZuytHwTSth-A and Twitter @AustinTheriault

Advance preparation is a key defense for chronic disease management during emergencies.

Being caught unprepared during natural disasters and emergency situations can be potentially life-threatening to a person with diabetes. The My Diabetes Emergency Plan is a convenient checklist that contains all of the essential items those with diabetes need to have readily available in the event of an emergency.

On the website, you can download the plan in English or Spanish and view a step-by-step video of how to create your kit.

Visit mydiabetesemergencyplan.com
Perspective: Which Diet is Good for Your Heart?

By Chris Guerin, MD

Why is it so hard to reach a consensus on this topic? In the 1980s and 1990s, the American Heart Association (AHA) recommended a low-fat diet. Over the years, the AHA recommendations have changed and gradually increased the amount of fat in the diet, but only mono- and poly- unsaturated fats; saturated fats and trans fats are still not recommended. Fortunately, trans fats are now rarely used in this country due to government regulation. The incidence of heart disease in this country is decreasing, but is it because we are changing our diet habits, or do we have better methods to detect and/or treat heart disease?

Some cardiologists promote an extremely low-fat, cholesterol-restricted, plant-based diet, as some data suggest that it works! Particularly, the LIFESTYLE Heart trial looked at treating patients with comprehensive lifestyle changes without using medications. It was found that 82% of patients had regression of atherosclerosis, as opposed to the control group, in which 53% had progression of atherosclerosis. Some people have attributed these results to the non-diet aspects of the program, such as meditation and exercise.

Another very well-known diet, the Mediterranean diet, has been touted as the best diet for cardiovascular disease (CV) prevention. It is certainly well proven to be better than the Standard American Diet (SAD - notice the irony of this acronym!) and sustainable. It has been assumed that the benefit comes from replacing most fats, such as butter and cream, with extra virgin olive oil and canola oil margarine. People who advocate for the Mediterranean diet still recommend cheese and allow occasional red meat. In one recent study, there was a 25% decrease in cardiovascular events in those following the Mediterranean diet.

Another study, that I found personally encouraging, included nearly 200 patients who were advised to follow a whole food, plant-based, very low-fat diet. Over a course of 3.7 years, 0.6% of those who were adherent to this regimen had cardiovascular events compared to 66% who did not follow the diet. Even our most powerful lipid lowering medicines cannot come close to replicating these types of results!

In the popular press, there are cardiologists and cardiac surgeons who claim they have the answers. One popular program suggests that lectins and beans are undesirable, and they have a proprietary formula for sale. Lectins are proteins that bind to sugars and can decrease nutrient absorption. Multiple other books demonize grains. Time magazine claimed, “Butter is Back!” on its cover in one of its issues. There are many other examples, but how can we have so many people and authorities with such diverse solutions? No wonder everyone is still confused.

Part of the problem is that it’s hard, and/or unethical, to do long-term studies and compare diet interventions on groups of people. For one thing, we can’t have patients in locked rooms for decades while we manipulate and observe what they consume! Another issue is that certain populations are genetically more likely to get heart disease, diabetes, cancer, obesity, etc. Lastly, it is possible that a “one size fits all” approach may not be the answer. There are other factors that play a role such as food allergies, celiac disease, etc., that one must consider when recommending a certain diet.

Here is my own personal story, and how it has evolved over the last 15 years. Being an endocrinologist, I was devastated to diagnose myself with type 2 diabetes mellitus at age 50! On top of that, I had a coronary artery calcium score (EBCT) that indicated atherosclerosis. My BMI was 26, which put me in the overweight category, despite exercising vigorously and eating what I thought was a healthy diet. Many of my family members died prematurely of strokes and heart attacks from their late 40’s to early 60’s. (My dad developed his diabetes at age 38 and was dead from a stroke at age 51). I was aware that I had all the markers of insulin resistance, with elevated triglycerides, low HDL (good cholesterol), and excess small, dense LDL (bad cholesterol.) I was disheartened that it looked like I would follow the same path as my family members. Around that time, one of my patients gave me the book, The China Study. This book brought to the forefront many of the problems of the Western diet, and showed from an epidemiologic standpoint what happens to heart disease, diabetes, cancer, and
obesity as our diet becomes more processed (spoiler alert—it’s not good!). Since I grew up in the Midwest and consumed a lot of meat and dairy, I wasn’t sure I could really implement what would be a drastic lifestyle change for me. However, I had two young children, so I decided to give it a try for three weeks. Surprisingly, I began to appreciate vegetables and fruits that I wouldn’t have tried previously, and I was always full! I lost over 20 lbs of weight the first year, and I have kept it off for 15 years. Initially, I didn’t even tell people about my new diet as I was afraid that I might have developed cancer or some other disease, which caused the weight loss.

I have to be honest. From 2004-2013, I mostly followed a whole food, plant-based diet 98% of the time. I would occasionally have a bite of salmon, or a slice of pizza with cheese, but otherwise stayed the course. What happened in 2013? I attended a lecture and read articles by Stanley Hazen from the Cleveland Clinic, who brought to the forefront his work on trimethylamine N-oxide (TMAO). TMAO is formed in the gut from meat and dairy and leads to atherosclerosis. It has always bothered me that 2/3 of patients who are on cholesterol-lowering medications such as statins will still get strokes and heart attacks. This persistent danger is known as “residual risk.” Too many people (doctors included) think they can eat whatever they want if they are on a statin, and they are surprised when I bring up the topic of residual risk. In the case of TMAO, it is really the type of bacteria in our colon that promotes health or disease. We have ten times the number of bacteria in our body than the number of human cells. Probiotics are advertised to change the gut microbiome, but I think this is wishful thinking. It is what we eat day in and day out that make a difference.

Despite being older at age 65, I think I am much healthier now than 15 years ago. My hemoglobin A1c (HbA1C), which denotes the average blood sugar for the past 3 months, decreased from 6.7% (within diabetes range) to 5.3% (within non-diabetes range) and my lipid panel is markedly improved. I take vitamin B12, vitamin D3, metformin 1000 mg, and rosuvastatin 5 mg daily. I kept my weight stable and my BMI is now 23 instead of 26. I have also become much more aware of the environmental and ethical aspects of not eating meat and dairy. I don’t proselytize, but I do share my experiences with my friends, family, and patients when they ask me about why I am a “vegan.” First of all, I let them know I don’t like that terminology; you can be a junk food vegan, and still have cookies, sodas, and fries! I prefer the designation plant-based, whole food. If people want more information, I encourage them to watch “Forks Over Knives” or go to Dr. Greger’s website www.nutritionfacts.org as a good place to start to learn about this and get motivated.

So, in summary, I think a whole food, plant-based diet is a diet to consider. It has been shown to be helpful in preventing and mitigating heart disease, diabetes, cancer and obesity. I personally know it works, and encourage you to give it a try!

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High cholesterol in children – What you need to know

By Carissa M. Baker-Smith, MD, MPH, MS, FAHA, FAAP

Hypercholesterolemia, or higher than normal levels of “bad” cholesterol and total cholesterol, is a risk factor for premature coronary artery disease (CAD) – that can lead to a heart attack before 55 years of age in men and before 65 years of age in women. Our cholesterol levels are determined by what we eat but also by our body’s ability to clear cholesterol that is made in our bodies. Having a body mass index (BMI) greater than the 95th percentile (obesity) and diabetes are significant risk factors for the development of high cholesterol and for the development of premature CAD. More specifically, the more uncontrolled the diabetes, the worse the “bad” cholesterol can become, leading to hypercholesterolemia.

Another cause for high cholesterol is familial hypercholesterolemia (FH). FH is a genetic condition that is passed down through families and results in very high LDL (“bad” cholesterol) and total cholesterol levels, that can be in the thousands. This is due to a mutation in one of the genes that controls the way cholesterol is cleared by our bodies. In this condition, cholesterol accumulates in the blood and can build up in the walls of arteries, causing hardening or atherosclerosis.

It is recommended that all youth undergo a non-fasting lipid panel beginning at age 9- to 11- years. If there is a family history of FH; however, then screening should begin at 2- to 3- years of age. The diagnosis of FH is made based upon lipid panel testing and family history of premature CAD (before the age of 55 years in men and before the age of 65 years in women). FH should be suspected when the LDL cholesterol is above 190 mg/dl in adults and above 160 mg/dl in children without cholesterol-lowering medication. The diagnosis can also be confirmed with genetic testing. Early diagnosis is critical as this can be a life-threatening disorder that can lead to early heart attacks and strokes. It is also important that all family members of an affected individual are screened for the disease.

Even though lifestyle modifications and diet are important for heart health, for individuals with FH, diet alone is not effective. Youth with FH require treatment with cholesterol-lowering medications which can dramatically reduce the risks associated with the disease. Current recommendations for children with FH are to begin these medications around the age of 8.
No, You Do Not Have Adrenal Fatigue

By Vishnu Garla, MD, Ricardo Correa, MD, Sina Jasim, MD, Michael Irwig, MD, and Irina Bancos, MD

“Adrenal fatigue” — you have probably come across this term online or in an advertisement that features a diet or supplement that claims to improve your quality of life and relieve all the “symptoms” associated with adrenal fatigue. A precursory internet search for the word “adrenal fatigue” reveals over a million results, and there are several hundred adrenal supplements for sale on the web. In this article, we explore the problematic issues surrounding this dubious diagnosis and what you can do about your symptoms.

Myths about adrenal fatigue:

• Constant high stress makes the adrenals fatigued and unable to produce enough cortisol.

There is no evidence to suggest that high levels of “stress” in everyday life impair the ability of adrenal glands to produce cortisol. In fact, in sick patients, adrenal glands produce more cortisol in response to stress.

• Diagnosis of adrenal fatigue can be made by answering questionnaires and laboratory tests.

None of existing questionnaires or laboratory tests have been evaluated rigorously using standard research protocols. Furthermore, these tests are not even remotely consistent (<50%), even in patients labeled as having “adrenal fatigue.”

• Dietary supplements can revive the adrenal glands naturally.

Various dietary supplements have been touted for “adrenal support,” but none of these have proven efficacy or a pathophysiological basis. Barring a few exceptional cases, most patients do not have a deficiency of these so-called supplements. In fact, adverse events detailed below can cause more harm than good.

Your symptoms are real; adrenal fatigue is not.

We understand that you may have seen multiple providers and are frustrated as there have not been any clear answers regarding your symptoms. The symptoms purported to be secondary to adrenal fatigue are quite non-specific. They overlap with a variety of disorders (see previous EmPower article in volume 11, issue 2). Due to this, several referrals and extensive testing may be needed before a diagnosis is made. A few tips to expedite the process are:

• Creating a “symptom diary,” where you detail the onset, duration, and variability of the symptoms. This may be very helpful in making a diagnosis.

• To avoid redundancy, make sure previous medical records are sent to the provider’s office before your appointment.

Adverse effects of untested over-the-counter supplements:

• Several of the marketed adrenal supplements contain varying amounts of steroids and/or steroid precursors or thyroid hormone. The safety of these supplements is unknown. Besides their adverse effects on health and ineffectiveness, these supplements and the associated laboratory tests can be very expensive.

• Also, investing in these unproven therapies may delay the finding of an actual medical condition and could adversely affect prognosis.

If you have any doubts, please consult your physician for more information.
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