EMPOWER
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TEN QUESTIONS
To Ask About Your Thyroid Health

Special Thyroid Section

ALSO IN THIS ISSUE:
• ALL ABOUT HASHIMOTO’S THYROIDITIS
• THE THYROID, HORMONES AND BODY WEIGHT ISSUES
• INFERTILITY AND THE ROLE OF A REPRODUCTIVE ENDOCRINOLOGIST

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AACE recently adopted the universal endocrine logo design (left), which is intended to serve and be recognized by the scientific community and the public at large as an international symbol of recognition of all areas of the specialty of endocrinology (academic/research/clinical).

In its simplest form, the logo represents a continuous loop that conveys the concept of endocrine science, education, communication, safety, and overall good endocrine health; lay focus groups identified “balance” and endocrinologists identified “feedback loop” – both are desired interpretative attributes.

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ACE is the scientific, charitable and educational arm of the American Association of Clinical Endocrinologists (AACE). ACE is dedicated to promoting the art and science of clinical endocrinology for the improvement of patient care and public health.

AACE is a professional medical organization with more than 6,000 members in the United States and more than 90 other countries. Founded in 1991, AACE is dedicated to the optimal care of patients with endocrine problems. AACE initiatives inform the public about endocrine disorders. AACE also conducts continuing education programs for clinical endocrinologists, physicians whose advanced, specialized training enables them to be experts in the care of endocrine diseases such as diabetes, thyroid disorders, growth hormone deficiency, osteoporosis, cholesterol disorders, hypertension and obesity.

For more information, visit us at www.empoweryourhealth.org
Dear Reader,

Thank you for your interest in EmPower Magazine, a quarterly patient education publication created by the American College of Endocrinology (ACE) that focuses on medical conditions that endocrinologists take care of.

The first issue of 2015 commemorates our 21st consecutive Thyroid Awareness campaign. It features a special thyroid health section, which includes: questions you should ask your doctor and pharmacist if you are diagnosed with a thyroid condition; information about the leading cause of hypothyroidism, an autoimmune disorder known as Hashimoto’s thyroiditis; a patient’s story highlighting examples of life-altering but readily treatable conditions that may be seen with Hashimoto’s, such as pernicious anemia and Addison’s disease; the link—or lack thereof—between thyroid disorders and weight gain; and valuable information about advances in the diagnosis of thyroid cancer.

This edition of the magazine also features informative pieces about the field of reproductive endocrinology, focusing on the role of a reproductive endocrinologist in the evaluation and treatment of infertility, the latest tool used to help figure out the likelihood of having an osteoporosis-related fracture even before osteoporosis is diagnosed, as well as an inspiring story of someone with diabetes.

EmPower Magazine is just one of many patient education programs created by ACE in conjunction with the American Association of Clinical Endocrinologists (AACE). To read more about thyroid conditions, we invite you to visit www.thyroidawareness.com. And you can learn more about our other patient programs as well as read past issues of the magazine at www.EmPowerYourHealth.org.

We hope that these materials prove to be helpful to either you or a loved one.

Here’s to your good health!

Sincerely,

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Dr. Dace Trence is Director of the Diabetes Care Center and Professor of Medicine at the University of Washington Medical Center in Seattle. She is also the University of Washington Endocrine Fellowship Program Director and Director of Endocrine Days, a medical education program for endocrinologists practicing in the Pacific Northwest. She is on the American College of Endocrinology Board of Trustees and chairs the CME Committee and is also chair of the AACE Publications Committee.

Dr. Jeffrey R. Garber is a member of the Beth Israel Deaconess Medical Center and Brigham and Women’s Hospital endocrine divisions, in addition to serving as Harvard Vanguard Medical Associates’ endocrine division chief. He has taken an active role in promoting and reviewing AACE’s publications and has served in a number of clinical areas, most notably those pertaining to thyroid disease in various arenas such as FDA hearings.
When your thyroid, the small, butterfly-shaped gland located low in the front of the neck below your Adam’s apple, doesn’t produce enough or sufficient hormones, it can throw off your body’s entire chemical balance, resulting in a condition called hypothyroidism – the term used to describe an underactive thyroid gland.

The most common cause of hypothyroidism is Hashimoto’s thyroiditis, named after Japanese physician Dr. Haruko Hashimoto, who first described the illness in 1912.

Also called chronic lymphocytic thyroiditis or autoimmune thyroiditis, Hashimoto’s is an autoimmune disorder in which the body’s disease-fighting immune cells mistakenly detect the body’s thyroid gland as being foreign material and attack healthy thyroid tissue, thus impairing its ability to make enough thyroid hormones for your body to function properly (see related story on page 14). Depending on the severity of the disease, symptoms of Hashimoto’s typically develop unnoticeably or slowly over several years, however, most will eventually experience some degree of hypothyroidism that worsens over time.
Hashimoto’s thyroiditis does not discriminate. It can affect anyone at any age, but occurs most commonly in women over age 40 and may occur with increased frequency in those with a family history of thyroid disease or other autoimmune disease, especially type 1 diabetes or adrenal insufficiency, a condition in which the adrenal glands located on top of the kidneys don't produce adequate amounts of steroid hormones. Adrenal glands are necessary to combat medical stress and for otherwise being healthy.

To better understand the impact of Hashimoto’s, it’s important to be familiar with how the thyroid works.

The thyroid gland has many functions and through the hormones that it produces influences almost all of the metabolic processes of the body. The thyroid is regulated by the pituitary gland, which sits in the brain and monitors many hormones. When your thyroid is overproducing hormones (hyperthyroidism), the pituitary gets a signal and shuts down thyroid production. Conversely, if your thyroid isn’t making enough hormones (hypothyroidism), your pituitary signals the thyroid gland to make more.

Symptoms people can experience when they have an excess of thyroid hormone, or an overactive thyroid, include feeling hot, a racing heart, tremors and weight loss, whereas those with an underactive thyroid may experience low energy, weight gain and fatigue. Other common symptoms include feeling cold, dry skin and hair, constipation and menstrual irregularities.

Hyperthyroidism and hypothyroidism aren’t the only complications associated with Hashimoto’s thyroiditis. In some people, the condition can also cause a painless enlargement of the thyroid, commonly known as goiter. The larger the goiter the more likely it is to be visible. A goiter, particularly a large one, may also cause symptoms such as difficulty swallowing. When this occurs you will have to undergo additional testing to determine if surgery to remove all or part of the goiter is necessary.

**DIAGNOSIS AND TREATMENT OF HASHIMOTO’S**

Since Hashimoto’s is one of many possible causes of an underactive thyroid, it’s important to tell your physician about your family health history, especially about recent infections, recent imaging tests in which medical dyes that contain iodine were used (which can affect the function of the thyroid), any new medications you are taking, both prescription and over-the-counter, and any family members with thyroid conditions.

If your doctor suspects that you have Hashimoto’s because you have low thyroid hormone levels, goiter or, in some cases, repeated miscarriages without explanation, you will most likely undergo blood tests looking for antibodies to the thyroid (anti-thyroglobulin, or TgAb, and anti-thyroidperoxidase, or anti-TPO). These tests are positive in 95 percent of patients with Hashimoto’s thyroiditis. Therefore, it’s unusual for there to be no antibodies in the blood. Once antibodies are determined to be present, they are diagnostic of Hashimoto’s thyroiditis and do not have to be monitored.

(Continued on page 6)
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www.ThyroidAwareness.com
Also, your medical team may monitor your TSH (thyroid-stimulating hormone) blood level. If your thyroid is not producing enough hormone, your pituitary gets the message and starts releasing TSH to stimulate the thyroid gland. People with hypothyroidism will have an elevated TSH. Levels are monitored in order to make sure there is enough hormone for the body. This is reflected in a TSH level which may be different in the elderly or pregnant women than in the rest of the population, where it’s usually around 1.0.

Once a diagnosis of Hashimoto’s is confirmed, the only treatment that is often necessary is to replace the thyroid hormone that your body is no longer able to produce. Your doctor may prescribe a generic (levothyroxine, T4) or a brand-name hormone replacement medication which should be taken on an empty stomach, ideally one hour before eating or four hours after your last meal.

Approximately six weeks after starting the medication, more blood work will be needed to see if adjustments in dosage are necessary. For women, it’s important to inform your doctor if you are intending on becoming pregnant, as your dose may change or thyroid medication may need to be started in order to assure a successful pregnancy.

Because of the generally permanent and often progressive nature of Hashimoto’s thyroiditis, it’s a condition that usually requires daily medication throughout one’s lifetime. Medicine dose requirements may have to be adjusted from time to time.

A FEW WORDS ABOUT “NATURAL” THYROID MEDICATIONS

Before active thyroid hormone was discovered, dried animal thyroid (such as Armour® thyroid extract) was used to treat hypothyroidism. There are several potential issues with these medications, which is why physicians typically do not recommend their use. These “natural” remedies have chemical compounds used to hold them together. And they are not “natural.” Plus, the natural release of thyroid from the functioning thyroid gland is different than the stored thyroid within the gland found in such “natural” thyroid extracts. Thyroid hormones come in two forms, T4 and T3. The T4 is converted naturally in the body to T3. Too much T3 causes palpitations and bone thinning. These so-called “natural” thyroid preparations have too much T3 compared to what the body normally secretes. It’s much better to let the body make the T3 that it needs by providing just the T4 (levothyroxine). Lastly, taking T3 during pregnancy can throw off the balance of T4 and T3 levels that appear to be necessary for normal fetal brain development.

For more information about Hashimoto’s, visit: www.thyroidawareness.com/sites/all/files/Hashimotos-Thyroiditis.pdf

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Ask the average American what they know about their thyroid gland and chances are they’ll tell you they’re pretty sure they have one. Beyond that, a surprising number of people are uninformed about the gland’s crucial activities, which influence the proper operation of everything from the heart and brain to the liver, kidneys and skin.

It’s only when thyroid function goes awry that many people become aware of its importance. And that includes an estimated 26 to 28 million Americans with thyroid disease, half of whom are unaware of their condition.

A diagnosis of a thyroid disorder may be delayed or missed entirely because symptoms such as nervousness,
irritability, fatigue, weight gain or loss, muscle aches and weakness can be vague, mild or appear gradually. These symptoms (and others) also can be easily attributed to other conditions or circumstances, or the side effects of certain medication.

And once diagnosed, the treatment regimen can sometimes be confusing. With thyroid replacement hormone, for example, certain other medications can interfere with its effectiveness. For that reason, thyroid medication typically needs to be taken one hour before or three to four hours after other medication.

The American Association of Clinical Endocrinologists (AACE) is working to improve patient knowledge of thyroid health with its straightforward list of “10 Questions To Ask About Your Thyroid Health.” The cornerstone of AACE’s 2015 thyroid awareness efforts, the five questions to ask your doctor and five to ask your pharmacist is a jumping-off point to engage thyroid patients in an open dialogue with their healthcare professionals and to arm them with the information needed to become their own thyroid health advocates.

“Because so many people are unfamiliar with the thyroid’s function, common symptoms of a thyroid condition and the importance of proper treatment, we wanted to provide a simple tool that would help them more easily navigate their way through a diagnosis of thyroid disease,” said Dr. R. Mack Harrell, a thyroid expert and president of AACE. “Thyroid problems can dramatically increase your risk of obesity, heart disease, infertility and a host of other health problems, so it’s vital that you become knowledgeable and proactive to protect your health.”

For a downloadable PDF of AACE’s “10 Questions To Ask About Your Thyroid Health” to present to your primary physician, endocrinologist (a physician who specializes in endocrine disorders such as thyroid disease) and your pharmacist, or for comprehensive information regarding the thyroid gland, we invite you to visit www.thyroidawareness.com.
The Thyroid, Hormones and Body Weight Issues

BY JEFFREY ZIGMAN, M.D., PHD

As an endocrinologist specializing in both the management of persons with thyroid disorders and the mechanisms underlying complex eating behaviors, it’s not uncommon for me to hear concerns from patients, relatives, friends and others regarding body weight, in particular, concerns that a thyroid problem is either causing weight gain or preventing effective weight loss.

Many people hold such a notion. However, while it’s true that abnormal thyroid hormone levels can, in some cases, contribute to body weight issues, the majority of us do not have altered thyroid hormones.

So, just how does the thyroid affect body weight, and what other hormones affect body weight and the ability to lose weight?

The relationship between the thyroid hormone and body weight affects metabolism in adults. Marked untreated, overproduction of thyroid hormone (hyperthyroidism) will often increase not only hunger and eating, but also one’s basic metabolic rate, causing more energy stores to be “burned off” than usual, resulting in weight loss despite an increased appetite.

The same can be true if someone with normal thyroid function inappropriately takes, or is given, thyroid hormone supplements, which may also increase the risk of osteoporosis, irregular heart rhythms and stroke.

On the other hand, a marked underproduction of thyroid hormone (hypothyroidism) is associated with decreased metabolic rate. Typically, the weight gain that might result in this type of thyroid issue rarely exceeds more than five to 10 pounds and is fairly rapidly resolved upon appropriate thyroid hormone replacement. Hypothyroidism also often leads to fatigue, achiness and effects on mood, which limits capacity and desire to exercise, an essential component of any weight-maintenance or weight-loss strategy.

There are other hormones produced in our bodies that influence body weight, although disorders in the
production of these hormones are uncommon. One of these is the steroid hormone cortisol, which is produced by the adrenal glands (endocrine glands that rest on top of each kidney). When the body makes too much cortisol, it results in a condition known as Cushing’s syndrome. Among the many clinical symptoms of Cushing’s syndrome is obesity that presents as a rounded or “moon” face, deposit of a mound of fat in the upper back and an obese abdomen that also has wide, purplish stretch marks on the overlying skin. This condition also can arise with the chronic use of prescription steroid hormones such as prednisone, which is used to treat a variety of conditions.

Another hormone that has an effect on body weight is leptin, which is made by adipose (fat) tissue. Some of the beneficial actions of leptin include increasing the burning of fuels and decreasing food intake. Although the discovery of leptin in the early 1990s did not result in the cure of obesity due to the fact that obese individuals become resistant to the otherwise anti-obesity actions of leptin, ongoing studies are determining if yet other hormones or agents can reverse that so-called leptin resistance.

Other hormones that influence body weight and appetite include those produced by the gastrointestinal tract and nearby organs. These include glucagon-like peptide-1 (GLP-1), peptide YY (PYY) and oxyntomodulin, all produced by the small intestine. Ghrelin is produced mainly by the stomach and small intestine, while pancreatic polypeptide is synthesized by the pancreas in neighboring cells to those that make insulin.

WHAT CAN BE DONE TO COMBAT OBESITY?

Several prescription-only drugs that represent long-acting forms of GLP-1 are now available and work to combat some of the body weight-related hormones. While the initial use of these so-called GLP-1 “analogs” is for the management of diabetes mellitus, they have also been shown to be effective in decreasing hunger and causing weight loss and are often prescribed for patients who have both diabetes and obesity.

Last December, the FDA approved one version of the GLP-1 analog specifically for the treatment of obesity, even in patients without diabetes. However, that’s not the case for most of the hormones with known effects on eating and body weight. Endocrinologists are just beginning to understand how many of these hormones work with each other, where they work and what other processes they contribute. Most of them are not yet ready for prime-time drug therapy.

However, there are other measures that can be used to control levels of these potentially obesity-producing hormones that don’t require the use of prescription drugs. For example, studies have shown that as one of the main hormones that stimulate hunger, ghrelin stimulates the appetite and often contributes to the type of increased comfort-food eating that occurs in people under stress. Ghrelin levels have been shown to stay elevated in those who get insufficient amounts of sleep, reinforcing other studies that indicate poor sleep may lead to the development of obesity. While there is no standard lab test to measure an individual’s ghrelin level, nor is there yet a pill to decrease it, these findings suggest that de-stressing and getting adequate amounts of sleep may go far in helping with your efforts to lose excess body weight.

Still, the tried and true mainstay of body weight control and weight loss continues to be a reduction in caloric intake and an increase in exercise. While it may be easier said than done, it’s not impossible. Evaluate your eating habits and choices – make healthier food choices and try to reduce portion sizes and snacking. Simple measures such as choosing to take the stairs instead of the escalator, parking your car a little farther away from the front door and working with your health care professional can go a long way in helping you succeed.

Some internists and endocrinologists have special interests in weight loss and can assist you with your efforts, including many with official certification from the American Board of Obesity Medicine. Plus, there are several prescription drugs that are available for weight-loss management in certain cases, while weight-loss surgery is another option for more severe obesity.

Still, the best way to manage your weight is to respect your body’s needs and work on ways to get more rest and minimize your stress. Exercise goes a long way in improving mood, decreasing stress, improving general health and burning excess fuels.
Hyroid nodules or lumps are often found in the butterfly-shaped thyroid gland that sits low on the front of the neck below the Adam's apple. Most times, these nodules are found by feeling the thyroid or by chance when radiologic imaging such as CAT Scan, MRI, or ultrasound are performed that include the neck. Many patients, especially women, will at some point in their lifetime be diagnosed with a thyroid nodule. The good news is that very few thyroid nodules are cancerous as five to 15 percent of nodules are malignant, at most.

Finding out whether a nodule is malignant or benign often starts with a trip to the endocrinologist or thyroid surgeon. An ultrasound is usually performed and then a small needle is used to retrieve cells from three or four different regions of the nodule. This procedure is called FNA or fine needle aspiration biopsy. The cells from the FNA are then sent to a cytopathologist, a specialist in analyzing cells and tissue samples to diagnose various conditions. The cytopathologist examines and evaluates the pattern of the cells under the microscope. This technique is the “gold standard test” for distinguishing whether a nodule is benign or malignant.

For most body parts (such as the breast, colon and skin), biopsy results are usually clearly defined; either the cells looks obviously cancerous or benign, and the treatment path forward is very clear. Unfortunately, however, in the case of endocrine organs (hormone-producing organs such as the thyroid, adrenal and pancreas) identifying distinctions between benign and cancerous cells can be challenging. In thyroid biopsies, approximately 20 percent of cases the test results will be “indeterminate,” that is, the pathologist is not able to definitively make a determination. Even if there are enough cells from which to make a diagnosis, the pattern is not clear. This so-called gray area or “indeterminate biopsy” often (and understandably) leads to extreme anxiety for patients and leads to a simple question: “What do you mean you can't tell whether I have cancer?”

Experienced thyroid specialists realize that for patients “not knowing” the outcome of their biopsy is more
anxiety-provoking than knowing, even when facing a diagnosis of thyroid cancer. Generally, a thyroid specialist would recommend patients in this situation have half of their thyroid removed, thus removing the nodule in its entirety along with surrounding healthy tissue. This was typically a difficult decision for both patients and doctors, because only one out of five patients turned out to have cancer.

To help make the difficult decision about whether or not to undergo surgery many new genetic and molecular tests have been developed and tested in the past few years to help patients in this gray zone. Many people are aware of the “DNA revolution,” which includes dramatic advances in using molecular genetics and genomic science, the study of all of a person’s genes (genome). These tools are now being used to help further categorize indeterminate thyroid nodules. Through the use of these new tools, some patients may find out they have thyroid cancer and can undergo definitive treatment while others may find out they have benign nodules and can be watched instead. These new tools are not perfect, and they do not provide a clear answer for every patient in the “gray zone” of thyroid biopsies, but almost half might be helped. Since molecular testing is so new, it is a rapidly-evolving technology. Thus, it’s important to discuss them in detail with your own doctor.

Generally, molecular tests are performed on a separate biopsy sample that preserves DNA and RNA, the genetic material that is present in the nuclei of thyroid cells. Therefore, your doctor may ask you to come in for a second biopsy.

Two kinds of tests are currently being used to help patients diagnosed with indeterminate nodules:

a) Since the National Institutes of Health’s multimillion dollar human genome project “Cancer Genome Atlas” has led to the discovery of genetic changes (mutations) in about two-thirds of thyroid cancers, it is now possible to test the DNA and RNA in thyroid cells to see if any of these important mutations are present. These special tests look for mutations and rearrangement in select important genes. It is important to note, the presence of mutations does not always equate to malignancy, but will lead to a recommendation to have surgery. Make sure to carefully discuss the results with your physician, including the extent of surgery (removing one or both sides of your thyroid) you should have.

b) Gene expression profiling uses computer analysis to identify “gene expression” patterns that are produced by the “code” of RNA material found in the cells of thyroid nodules. This complex analysis simultaneously looks at the products of numerous genes. Currently, the most widely known and clinically validated system is the Veracyte Afirma test, which compares the thyroid cells from an FNA to a bundle of 167 RNA codes that tend to “express” together when nodules are benign. When a “benign” expression pattern is found it will be accurate 92-94 percent of the time. Only one large study of this technology has been performed, but it seems that about 40 to 50 percent of the indeterminate “gray zone” samples can be accurately classified as benign nodules, hence potentially avoiding unnecessary diagnostic surgeries in many patients. Unfortunately, this test is only helpful if the result is a benign expression pattern. If the tests comes back as “suspicious,” surgery may be needed. Keep in mind that does not necessarily mean a diagnosis of cancer in the patient.

With their recent development and validation, DNA, RNA and gene expression profiling systems are starting to be integrated into thyroid nodule evaluation as a viable option. This is an important new development for patients who find themselves without a definitive diagnosis. However, it is important to remember that molecular profiling is just one of many steps that might be undertaken in the evaluation of a thyroid nodule. Sometimes just a second biopsy without genetic testing will help pinpoint a diagnosis.

The best evidence suggests that these new molecular tests may improve the accuracy of current diagnostic standard FNA and minimize unnecessary surgeries. It’s important to remember that for now and the foreseeable future, the use of molecular testing can only supplement, and not replace, comprehensive evaluation which includes a thorough physical exam, ultrasound, cytopathologic evaluation and -- ultimately -- the treating physician's experience and judgment.

Dr. Sareh Parangi is an endocrine surgeon at Massachusetts General Hospital and Associate Professor of Surgery at Harvard Medical School in Boston. She focuses her clinical efforts on endocrine surgery and applies her basic science knowledge and expertise to tumor progression in thyroid cancer. She is one of a handful of thyroid surgeons with expertise in molecular biology and has over 70 publications, many on thyroid cancer therapeutics. She has been a council member for the American Association of Endocrine Surgeons and is a member of American Association of Clinical Endocrinologist and The American Thyroid Association.
Lita Newdick has long been defying convention.

The 84-year-old Cambridge, Massachusetts resident and native New Yorker worked as a copywriter for a number of Madison Avenue ad agencies during the “Mad Men” era, working for clients in women’s categories such as fashion and home furnishings before her award-winning skills led to assignments alongside male counterparts on mainstream consumer brand accounts. “It was a rather ‘segregated’ work environment, but the only place where a woman could make decent money and get recognized,” she said.

Newdick continued to ply her trade at international powerhouse ad agency BBDO after a move to Boston with her husband in 1966, even continuing to work part-time during pregnancy, until she discovered – quite by chance (and long before HGTV) – her next occupation: real estate developer.

Inspired by the old, bow-front brownstones in the upper-class Manhattan neighborhood of Murray Hill “that we couldn’t afford at that time,” Newdick and her husband purchased a fixer-upper in Boston’s distressed South End and got to work restoring not only the family home, but the neighborhood buildings around it. “We had to work like dogs to restore that home and improve other properties around it that were in a state of decline, but it was a wise move and revived the neighborhood,” Newdick said.

Given that type of backstory, it’s no surprise a sudden change in her health in 1995 didn’t follow an ordinary path.

“I began to feel bad, like a flower that needing watering,” Newdick recalled. “I was fatigued, had no energy, had lost all of my appetite and slowly just kept getting worse and worse.” Down to 95 pounds after several months and suffering from debilitating depression, she was urged on by concerned friends to seek help. Newdick visited several doctors and underwent a number of medical tests, but results were inconclusive. And while the illness mystified her doctors, “I was going down the drain, and fast,” she said. It was only when she was waiting to be checked into an inpatient psychiatric facility for her depression that the facility’s intake healthcare personnel noted Newdick’s darkened skin (called hyperpigmentation) and alarmingly low sodium on her most recent blood test.

She was immediately transported to the emergency room of a nearby hospital where, after a workup, doctors diagnosed her on the spot with Addison’s disease. Rare and potentially life-threatening, Addison’s is most often caused by an autoimmune disorder and occurs when the body produces insufficient amounts of certain hormones produced by the adrenal glands, such as life-sustaining cortisol. Cortisol affects many different body systems and plays a role in blood pressure control, nervous system function, metabolism of fats, carbohydrates and protein, stress response and immune system function.

It already had been discovered in 1989 that she had pernicious anemia, an autoimmune disorder in which the body fails to make enough healthy red blood cells because it doesn’t have enough B-12. Plus, in 1993, she had been diagnosed with an underactive thyroid gland (hypothyroidism) caused by Hashimoto’s thyroiditis (see related article on page 4), meaning she was suffering from three distinct autoimmune diseases, a condition called polyglandular autoimmune (PGA) syndrome type II. PGA is a rare autoimmune disorder in which there is a steep drop in production of several of the body’s hormones by the glands that secrete these hormones. Since the combination of affected glands differs from patient to patient, the signs of this disorder are diverse.
Newdick was admitted to the hospital and stayed there for two weeks while doctors stabilized her condition with the administration of hydrocortisone to replace the normal levels of cortisol the body should have been producing. “There was a team of doctors that would come around to see me while I was there, because it’s a very rare disease and one that’s so often misdiagnosed,” Newdick noted.

The good news? Her conditions were all treatable. Newdick takes daily thyroid hormone replacement medication plus hydrocortisone to help mobilize nutrients and stimulate her liver to raise her blood sugar. She also takes fludrocortisone, which enables her to retain salt and water levels that affect blood pressure and volume, and gets a B-12 shots once a month to battle the anemia. Although she admits her energy level has diminished somewhat over the years, this fit-as-a-fiddle octogenarian says she puts a lot of work into staying healthy, eating a healthy diet, doing resistance training at her apartment community’s 24-hour fitness center, playing tennis as often as possible and “being at peace with myself and others.”

“Even though the illness doesn’t affect me much, I know that my medication is keeping me alive,” Newdick said. “I am really very, very fortunate to have led and to be able to lead the life I have.”

More About Addison’s Disease and Adrenal Insufficiency

Exceedingly uncommon, Addison’s disease affects only 110 to 144 of every one million people in developing countries according to the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

The symptoms of Addison’s disease develop gradually and may have become established before the condition is recognized and diagnosed. The most common ones are:

- Muscle weakness and fatigue
- Lightheadedness upon standing or difficulty standing
- Muscle weakness
- Fever
- Weight loss/decreased appetite
- Anxiety
- Depression
- Nausea/vomiting/diarrhea
- Headache
- Sweating
- Changes in mood or personality
- Joint and muscle pains

Some patients have cravings for salt or salty foods due to the loss of sodium through their urine. Hyperpigmentation, or darkening of the skin, also can occur in Addison’s disease, particularly when the patient lives in a sunny area.

In most cases, symptoms of adrenal insufficiency become serious enough that people seek medical treatment before the problem becomes life-threatening. However, under certain circumstances, the condition may progress to acute adrenal failure or Addisonian crisis, a severe illness which may include very low blood pressure, coma and even death. The signs and symptoms of an Addisonian crisis may include:

- Pain in the lower back, abdomen or legs
- Severe vomiting and diarrhea, leading to dehydration
- Low blood pressure
- Loss of consciousness
- High potassium (hyperkalemia)

What you must know if you are at risk for adrenal failure:

- Always carry identification that describes your condition in the event of an emergency. This should alert emergency medical personnel about the need to inject cortisol if you are found severely injured or in a condition where you are unable to answer questions. A medic alert bracelet or neck chain to alert emergency personnel can be helpful.
- A person with adrenal insufficiency should carry a corticosteroid injection at all times and make sure that others know how and when to administer the injection, in case the person becomes unconscious.
- Physical stress, such as an injury, infection or illness, or emotional stress can worsen the condition of a person with Addison’s disease since their bodies lack the natural stress response hormones. Because of this, they should increase medication during periods of stress or infection to mimic the kind of hormonal response that the adrenal glands would normally have.
- Immediate medical attention is needed when severe infections or vomiting or diarrhea occur. These conditions are a stress on the adrenals. Normally functioning adrenals can put out the needed extra hormones to keep the body going – abnormal glands cannot. You may require injections of hydrocortisone.©
What do you call kids who don’t let type 1 diabetes stand between them and their dreams? At Lilly, we call them every day heroes.

It takes a special type of kid to handle the rigors of high school, manage the daily demands of type 1 diabetes, and grow into great young adults. That’s why at Lilly, we’re proud to support the Diabetes Scholars Foundation, offering scholarships to help them pay for college.

To learn more about these scholarships, visit diabetesscholars.org/Lilly. And take this page to discuss with your healthcare provider. For more information about all the helpful programs Lilly offers families with type 1 diabetes, visit lillydiabetes.com.
Iron Maiden

By Mary Green

A spirited rider takes on diabetes and one of the world’s most demanding motorcycle rides.

Kate Johnston doesn’t let challenges rule the way she lives her life. In fact, the 36-year-old from Riegelsville, Pennsylvania, uses them as motivation.

Diagnosed at the age of six with type 1 diabetes after a routine blood test, Johnston was immediately admitted to the hospital to be monitored and to learn how to manage her condition. She was otherwise healthy at the time and exhibiting few of the telltale symptoms of the disease.

“I remember really being upset and shocked when I was diagnosed, because my life was going to change overnight, and also scared, because I didn’t know what to expect,” said Johnston.

After being trained how to manage her diabetes, Johnston’s mother initially administered her daily shots, “but over time she made it easier for me to become active in the management of my disease, because she made it a tough love kind of learning experience,” Johnston recalled. “She basically said ‘You can’t go to a sleepover until you’re able to give yourself a shot.’”

“I practiced on oranges and remember vividly the first time I gave myself a shot, because I was so nervous,” she continued. “It really was tough love at first, but I wanted to go outdoors more and we had discussed what needed to happen for me live an active, normal childhood, so we went about doing that, and I tried my best to keep up with it.”

Although there were stumbling blocks along the way that tested her mettle – Johnston suffers from a particularly difficult-to-manage form of the disease that causes blood sugar to spike and drop at rapid rates and also had to overcome a serious sweet tooth (Jolly Ranchers were her favorite) – she says her childhood

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years were fairly active and included plenty of soccer, softball, swimming and basketball.

Her love of an active lifestyle continued into adulthood, with free time spent skiing, swimming, boating and travelling extensively, from Spain, France, Italy and Austria to Poland, Belgium, Holland and England. But it is her recently acquired hobby of motorcycling that has led to Johnston conquering one of her biggest challenges to date.

Johnston’s boyfriend Anthony Mills introduced her to motorcycling five years ago after renewing his own interest in the sport, and after a few years of trips where Johnston hitched a ride as his backseat passenger, he suggested that their road trips could be longer if she was riding her own motorcycle. “Having grown up in a family that didn’t ever ride motorcycles, this was a scary idea for me,” Johnston said. “But he suggested I take a motorcycle class, where you learn so much, and that takes as many of the unknown factors out of the equation as possible.”

Once again, Johnston conquered her fears and with some training under her belt bought her first motorcycle – a Honda Rebel 250 beginner bike – and quickly learned the ropes, getting her feet wet as a member of the Iron Butt Association, an organization dedicated to safe, long-distance riding, by completing a 1,000-mile ride in 24 hours.

It was through fellow members of the organization that she heard about the group’s more ambitious rides, including John Ryan, who also had diabetes. “He had done a ride called The Ultimate Coast to Coast, which was from Prudhoe Bay, Alaska to Key West and that really got my attention, because he was a person with diabetes as well,” said Johnston, “and I had seen that a couple of women had completed that run. Beyond that is The Ultimate Coast-to-Coast-to-Coast Insanity ride. No woman had ever done that, so it was of interest.”

The grueling ride requires the motorcyclist to go from Key West, Florida to Prudhoe Bay, Alaska and back to Key West, all within 60 days. It is the ultimate test of stamina, challenging even the most experienced riders, not to mention a relatively novice rider who also had a medical condition requiring constant monitoring.

Whatever concerns Johnston might have had about taking on the Insanity challenge were quickly dispelled once she viewed “Long Way Round,” a television documentary series which followed British actors Ewan McGregor and Charlie Boorman on a 20,000-mile ride across 12 countries and 19 time zones in 115 days. “After watching that movie, that was it,” said Johnston. “The light bulb went off in my head and I said, ‘I can do this,’ ” Johnston recalled. “‘I have the tools to do it, to conquer anything.’"
She prepared for the ride for a year, buying a BMW dual-sport adventure motorcycle, collecting the riding tools and accessories she would need and reaching out to Ryan for tips. “He gave me a lot of useful information about riding long distance, the things to eat, the foods to take, basically what you need to do to stay healthy,” she said.

Johnston set off from Pennsylvania to Key West in July 2014, armed with “excessive amounts” of medical supplies and a can-do spirit. “I had my diabetes under control throughout the trip, because I was aware of how my body would react going from hot weather to cold weather and knew how to adjust my medication,” she explained. “The weather affected how much insulin I had to take. I had become far more sensitive to insulin in hot weather and needed less, while in cold weather, I needed more.” She also had to predict when she needed to adjust her insulin dosage due to the exertion of the long ride. “Luckily, I was on a pump and a continuous glucose monitor by that time, so it was a lot easier to manage,” Johnston said.

All told, she rode 10,767 miles in 24 days (not including the 2,800 miles she traversed to and from her home), traveled through temperatures ranging from 101 degrees in Tennessee to 34 degrees in snowy conditions with a 30-mile-per-hour crosswind, and encountered chewed-up bike chains, multiple tire replacements and a charging wolf in the wilderness of Alaska on her way to becoming the first female solo rider in history to complete The Ultimate Coast to Coast to Coast Insanity ride.

Although the epic experience has left her with a multitude of memories, she recounts her completion of the Dalton Highway leg as the most extraordinary moment of the ride. The 414-mile highway parallels the Alaskan pipeline and stretches from north of Fairbanks to its terminus within a few miles of the Arctic Ocean. One of the most isolated roads in the United States, the mostly gravel highway is familiar to fans of the History channel’s TV show, “Ice Road Truckers.” Services on the Dalton are few and far between, and signs warn of everything from steep grades to avalanches. “That was by far the most difficult part of the trip, and I was new to riding off-road, so that was quite an accomplishment.”

With her name in the record books and on to her new gig as an IT (internet technology) “hero” with motorcycle gear retailer RevZilla, Johnston looks back with fondness on the challenge of the Insanity ride...and life in general. “I wanted to go on a grand adventure, and this is kind of the ultimate adventure,” she said. “So the fact that I was the first woman to do it and I did it while managing a chronic disease is just like a little cherry on the cake.”

To read more about Kate’s journey, visit: [www.loffkat.com](http://www.loffkat.com)
A reproductive endocrinologist, sometimes referred to as an RE, is an obstetrician/gynecologist (OB/GYN) physician specialist who has completed a three-year fellowship of intense training in various aspects of endocrine disorders related to the reproductive system in both males and females. One area in which these doctors apply their skills is infertility.

By definition, a woman under 35 years of age is experiencing fertility problems if she has been unable to conceive after one year of trying. If a woman is 35 years or older, infertility is diagnosed if conception has not occurred within six months. This age-sensitive guideline is due to the profound loss of fertility potential that occurs as a woman ages, caused by a steady decline over time in the number and quality of eggs present in the ovaries.

Women with fertility issues should meet initially with an OB/GYN or medical endocrinologist to ensure they’re on the right path to pregnancy. The physician may recommend measures such as quitting smoking, losing weight, or gaining weight if the patient is too lean (described as a body mass index, or BMI, less than 18; for example, a 5’ 4” woman who weighs less than 105 pounds). Smoking reduces embryo implantation and increases miscarriage rates, while eating in excess or losing too much weight may cause ovulatory problems. The physician will also review a patient’s current medications to assess if they’re safe for a woman trying to conceive and/or adjust the medications prior to conception.

Before fertility problems can be treated, the source of the problem must be identified. Most OB/GYNs and endocrinologists will likely check for blood sugar and thyroid abnormalities and conduct an ovarian reserve fertility test, a blood test usually done on the third day of a patient’s menstrual cycle. This test measures the level of follicle stimulating hormone (FSH), the main hormone involved in producing mature eggs in the ovaries; estradiol [es-trā-di’ōl] (E2), a female sex hormone that is the predominant estrogen throughout a female’s reproductive years; and anti-Müllerian hormone (AMH), which can predict remaining reproductive lifespan. The levels of these
hormones can be crucial in predicting the success of reproductive efforts and whether or not a reproductive endocrinologist should be seen.

Additional tests may include a semen test of the male partner and an X-ray of the uterus and fallopian tubes, called a hysterosalpingogram, to determine if the tubes are open and healthy. An X-ray also shows if there are any abnormal structures in the uterus, such as a fibrous growth (fibroid) or polyp that distorts the cavity of the uterus, thus compromising the ability to become pregnant.

Other symptoms to take note of include the following.

- Irregular menstrual cycles
- Unwanted hair growth on face, trunk or limbs
- Acne flare-ups, especially prior to a menstrual period
- Two or more pregnancy losses (miscarriages)
- Prior surgery on the uterus, fallopian tubes or ovaries
- Any surgical procedure on the cervix (mouth of the uterus) due to an abnormal PAP test such as a Loop Electrosurgical Excision Procedure (LEEP) or other process that clears away the abnormal cells.

- A family member with premature menopause (i.e., menopause before the age of 40)
- Certain cancers in the family, for example, female family members under 50 with breast or ovarian cancer or two or more family members with breast, ovary, pancreatic or prostate cancer
- Personal history of any sexually transmitted disease (STD) treated in the past

Some are indicators of conditions such as polycystic ovary syndrome (PCOS), which can affect fertility and may be associated with blood sugar problems that can range from having normal blood sugar levels to borderline blood sugar levels or even diabetes.

Depending on the diagnosis, either oral drugs or surgery performed by a reproductive surgeon may be used as a first attempt to help the couple achieve pregnancy. For example, fertility tablets taken for five days each month may be helpful if periods are not regular. These tablets, clomiphene (Clomid), work by stimulating the growth and release of the egg in a timely fashion. It may take several cycles to find the right dose to stimulate ovulation. If Clomid doesn’t work, more powerful, injectable hormones can be used to stimulate ovulation.

Based on the fertility guidelines mentioned earlier, a woman under 35 typically will start seeing an RE after 12 months of trying to conceive, while women over 35 would start seeing an RE at six months of unsuccessful conception efforts. For others, it’s time to see an RE if conception does not occur after evaluation and treatment by an OB/GYN or medical endocrinologist.

Reproductive endocrinology is a branch of medicine that identifies and treats infertility in both men and women.

The most common surgical procedures performed in reproductive medicine are laparoscopy, hysteroscopy and abdominal myomectomy (removal of uterine fibroids). Laparoscopy is an operation performed in the abdomen or pelvis through small incisions with the assistance of a laparoscope attached to a camera which projects to a screen. It can either be used to inspect and diagnose certain conditions or to surgically correct an abnormality such as removing scar tissue or repairing a damaged fallopian tube. Hysteroscopy is the inspection of the uterine cavity through the cervix by a hysteroscope attached to a camera which projects to a screen. Through this technique, the surgeon can diagnose abnormalities such as fibroids or polyps within the uterine cavity and, using narrow instruments that run through the hysteroscope, remove or correct the great majority of these abnormalities.

Reproductive endocrinologists also carry out and prescribe a variety of fertility tests and treatments, including intrauterine insemination (IUI), which is more

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commonly called artificial insemination. A relatively simple infertility treatment, IUI consists of purifying the male’s sperm sample and transporting it directly into the female’s uterus through a small tube. The RE also can perform IVF, or in vitro fertilization, which literally means “in lab conception.” The most advanced form of infertility treatment, IVF consists of fertilizing the female patient’s egg with the male partner’s sperm in a petri dish. Typically, many eggs are retrieved from the biological mother, as not every egg will fertilize and not every fertilized egg will become a usable embryo. A few days after fertilization, the RE will transfer the best embryo (or embryos) to the mother or surrogate’s uterus via a catheter through the cervix.

The good news is that conception may occur at any time once the basic tests are encouraging, and the treatments available today through a reproductive endocrinologist can help the majority of patients within one to two years and often sooner.
Everything you like about this magazine...

and (much, much) more.

EmPowerYourHealth.org

EmPower Magazine’s online home.

The internet’s most comprehensive source for endocrine health information, written by endocrinology experts for you.

SCAN and CONNECT!

Connect with EmPowerYourHealth.org on your mobile device.
For those suspected of suffering from poor bone health, the Fracture Risk Assessment Tool, also called FRAX®, is a valuable and cost-effective diagnostic technique for evaluating future risk for fractures.

Developed by the World Health Organization Task Force in 2008, FRAX® provides guidance to physicians treating patients with osteoporosis [ostē-ō-pō-rō-sis] (osteο=bone, porosis=porosity or thinness), a condition involving a gradual loss of calcium resulting in bones becoming thinner, more fragile and more likely to break – particularly the hip, spine and arm. It’s a common condition that typically affects postmenopausal women and the elderly and can severely affect quality of life.

FRAX® is an easy-to-use computer program that can predict the probability of an osteoporotic fracture – a low-impact fracture – within a 10-year period in patients. FRAX® determines how dense one’s bones are through a bone mineral density (BMD) test in combination with other factors, including where a patient lives and their ethnic background. Additional risk factors considered along with a medical history and physical exam include:

- Age – older adults are at a greater risk of fractures than younger adults
- Body weight and height – a slender frame or being underweight increases risk
- Prior fracture
- A family history of fracture
- Use of steroid medications like prednisone, particularly in high doses and for more than several months
- Rheumatoid arthritis or other conditions known to cause osteoporosis
- Smoking tobacco
- Drinking too much alcohol
The more clinical risk factors there are, the greater the risk of having a fracture.

**PRE-FRAX® TESTING**

Before FRAX®, the most common and accurate way to assess the risk of a person having a fracture was through BMD testing, which measures the density of calcium in the bones through a dual energy X-ray (DEX) absorptiometry scan. A person’s BMD value is compared to the ideal or peak BMD of a healthy 30-year-old of the same gender to determine the risk of developing a fracture. The differences in the BMD results are measured in units called standard deviations. The more standard deviations below zero (indicated as negative numbers), the lower your BMD and the higher your risk of fracture.

BMD test results are typically given a T-score and Z-score. A T-score of 0 means your BMD is equal to that of a healthy young adult, and the score is within the normal range if it is -1.0 or above. A score between minus one and minus 2.5 is classified as having osteopenia (low bone mass), while a score below minus 2.5 (more negative) is defined as osteoporosis.

The Z-score reflects the amount of bone you have compared with others in your age group who are of the same size and gender. If the score is unusually high or low, it may indicate a need for further medical tests.

While FRAX® is not a replacement for BMD testing, it is another resource to help identify risk factors. It provides a framework for physicians to calculate a patient’s susceptibility for a fracture risk and determine if a BMD test and/or treatment will be needed.

**WHY USE FRAX®?**

Several diseases, such as diabetes and hypertension, are defined by measuring clinical risk factors. For example, hypertension is diagnosed by measuring blood pressure levels as a means of assessing the risk of stroke. Elevated blood glucose (sugar) helps define the risk of diabetes. And increased blood cholesterol is used to help assess the risk of a heart attack.

With osteoporosis, a BMD measures the degree of bone mass or density, and a low or very low value helps provide information on bone fracture risk. Fracture risk increases with bone loss and is highest when the BMD is in the osteoporosis range. However, more than half of all fractures affect women with only mild bone loss (osteopenia) due to the presence of other risk factors for fracture. BMD only captures one aspect of fracture risk, i.e., bone density, or how thin the bone is, and defining the risk of a future fracture is improved using FRAX® technology. The use of FRAX® provides additional information to assist doctors in assessing fracture risk and to help determine when drug treatment should be recommended.

**HOW SHOULD FRAX® BE USED?**

FRAX® is not intended for use in persons who have BMD values in the osteoporosis range or for those who have had a previous hip or spine (vertebral) fracture, as they are already candidates for treatment. Also, FRAX® should not be used for patients already receiving osteoporosis medications.

The FRAX® algorithms give the 10-year probability of hip fracture and the 10-year probability of a major osteoporotic fracture (clinical spine, forearm, hip or shoulder fracture). It’s important to note that not all additional risk factors for fractures, such as frequent falls, are represented in the FRAX® score.

Postmenopausal women and men with FRAX® clinical risk factors should contact their doctor to see if they are candidates for a BMD measurement. Physicians can also use the FRAX® tool in patients with a BMD value in the osteopenia range to calculate a 10-year fracture risk score and help assess if medication is indicated to reduce future fracture risk.

If your bone density is lower than normal, you can increase bone density and strength by exercising, lifting weights or using weight machines, getting sufficient calcium and vitamin D, and taking some medicines.

*The FRAX calculation tool is available at [http://www.empoweryourhealth.org/](http://www.empoweryourhealth.org/) or by searching the web for the term FRAX®.*

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mPower’s focus on thyroid awareness in this issue serves as a good reminder about the importance of self-management and regular health care visits.

If you have a chronic disease such as thyroid disease or diabetes — or if you care for someone with a chronic disease — the National Diabetes Education Program (NDEP) has valuable information to help make visits with your health care team productive.

A great place to start is the NDEP’s Diabetes HealthSense video series, available at YourDiabetesInfo.org/HealthSense or youtube.com/ndepgov. The NDEP’s “Getting Ready for Your Diabetes Care Visit” video featuring James R. Gavin III, M.D., Ph.D. shares the following tips to help you have a useful visit with your health care team:

- Come prepared for the visit by bringing a list of any recent health problems you have had or any health issues you have questions about.
- Provide a list of all your medications — including vitamins, dietary supplements and non-prescription medications — and how often you take them.
- Talk to your health care team about the best ways to manage your disease.
- Make sure to talk to your health care team about all of your health-related concerns so they can help you.

Another resource to help guide the visit with your health care team is the Informed Medical Decisions Foundation’s “I Wish I Had Asked That!” tip sheet. You can use the information in this tip sheet to help remind you of things to consider and ask during your visit with your health care team. This resource is available at http://informedmedicaldecisions.org/wpcontent/uploads/2012/12/Patient_Visit_Guide.pdf. Following these tips can make your time with your health care team more useful and productive.

For more information from the National Diabetes Education Program, please visit YourDiabetesInfo.org.

The U.S. Department of Health and Human Services’ National Diabetes Education Program is jointly sponsored by the National Institutes of Health (NIH) and the Centers for Disease Control and Prevention (CDC) with the support of more than 200 partner organizations.
This season’s must-have accessory.

Designed to make your life a little easier, the newly created AACE diabetes bag conveniently stores diabetes supplies you need to stay on point with your care while supporting the work of the American College of Endocrinology Foundation (ACEF). For $10 you’ll receive the bag and a complimentary subscription to the American College of Endocrinology’s popular patient publication, EmPower Magazine.

And that’s a trend-setting move.

Simply visit
http://www.empoweryourhealth.org/product-inquiry
FROM NECESSITY TO ACCESSORY: Making it easy to managing diabetes wherever you go

BY STACEY O’DONNELL, MS, RN, CNL, CDE

Managing diabetes is a full-time job – taking all your medications, checking your glucose levels, eating at the same time every day and working in some exercise can sometimes make it difficult to get through a busy day.

However, being organized, planning ahead and having the right “accessories” makes all the difference in helping you stay on track and manage your diabetes.

TOOLS OF THE TRADE

Some of those accessories or tools to help you stay organized and better manage your diabetes include specialty cases, device sleeves, bags and pouches. These accessories come in a variety of styles, colors and shapes, all with the intention of making it easier to carry supplies, track your blood sugar levels or “hide” insulin pumps and/or continuous glucose monitoring devices. All can be found with a simple internet search.

One new accessory designed to make your life easier is the AACE diabetes bag that conveniently stores supplies and more. For $10, the bag includes a complimentary subscription to the American College of Endocrinology’s (ACE) popular patient publication, EmPower Magazine. Proceeds of the bag support the work of ACE’s foundation. To order, visit:

http://www.empoweryourhealth.org/product-inquiry

ON THE GO, STAYING SAFE AND NOT SORRY

Whether you get your insulin from a pump or through an injection, items on the list below will help ensure you always have what you need to be prepared if an emergency arises:

- Blood glucose meter and strips with lancing device
- Insulin and syringe, or insulin pen with pen needles
- An extra infusion set and reservoir or pod
- Glucose tablets or other type of hypoglycemia treatment
- Extra pump batteries
- Ketone strips
- Copy of current pump settings
- Glucagon emergency kit for type 1 diabetes
- Extra sensors if using continuous glucose monitoring devices

TIPS FOR TRAVELERS

Diabetes doesn’t have to slow you down. Follow these steps for carefree and healthy travels.

- See your diabetes team four weeks prior to your travel date to make sure your diabetes and other medical conditions are under control.
- Carry a letter saying that you are required to carry supplies such as syringes, insulin, medications, etc.
- Always have a copy of all your prescriptions for medicines, syringes, pens or pen needles. Include generic names of medications because brand names vary from country to country.
- Take extra diabetes supplies.
- If traveling overseas, find out if you will need immunizations and schedule them.
- Ask your diabetes team for the name of a doctor who practices in the area that you are visiting. Also, you may contact the American Diabetes Association (www.diabetes.org) or the U.S. Embassy in the country you’re visiting.
- In an emergency, always go to the nearest hospital.
- If travelling across time zones, check on whether and how to adjust pump settings as well as when to take insulin injections and other medications.

  -- Learn how to take insulin in the event of pump failure
  -- Check with your pump company about “loaner” programs
- The best way to handle airport security is to wear identification stating that you have diabetes. You can find medical ID bracelets, necklaces, tags or even a card that can fit in your wallet at pharmacies or various websites.
From diabetes and thyroid disorders to obesity and osteoporosis, the ongoing programs offered by the American College of Endocrinology and supported by the American College of Endocrinology Foundation (ACEF), are vital components in advancing your endocrine health and preventing endocrine-related disease.

Our programs to keep you, the endocrine patient, informed and engaged include:

• **EmPower® Program** A one-stop source for endocrine disease information, featuring EmPower Magazine and its associated website, www.empoweryourhealth.org

• **Blood Sugar Basics: Get to Your Goals** A simple, step-by-step plan designed to help patients with diabetes work with their physician-led diabetes team to understand the importance of achieving and maintaining personal A1C and blood sugar goals

• **My Diabetes Emergency Plan** A comprehensive resource that helps patients prepare in advance for unexpected emergencies and crises

• **Thyroid Awareness** The patient thyroid resource, www.thyroidawareness.com

To learn more about the ACEF or to make a tax-deductible contribution to support these life-improving programs, we invite you to visit: www.aace.com/acef/about.
The American College of Endocrinology (ACE) and the American Association of Clinical Endocrinologists (AACE) would like to thank AbbVie and Lilly Diabetes for their support of the EmPower initiative.

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