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WINTER 2017

the magazine

USA Olympic
swimming champion
Michael Phelps battled
depression and now is
helping others.



Dealing with Depression

Plus, in this issue!

Beating Breast Cancer | Putting a Pause in Pain | Navigating Menopause

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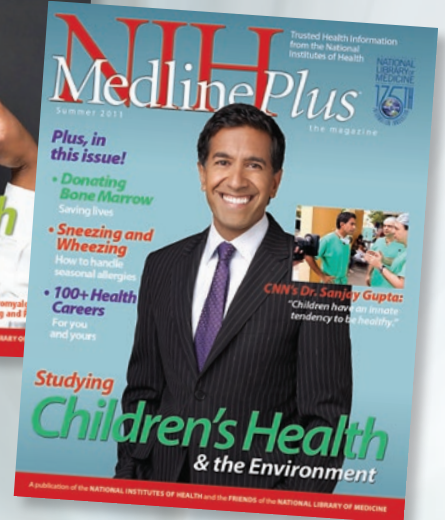
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Writer-Editor, NLM

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407 Norwalk St., Greensboro, NC 27407
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Bill Moore, President

Richard Krisher, Senior Editor

Terri Poindexter Smith, Managing Editor

Jan McLean, Creative Director/Designer

Linda Lowe, Web Designer/Developer

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USA Olympic swimming champion Michael Phelps battled depression and now is helping others.



Dealing with Depression

Michael Phelps is a sports icon. The most decorated Olympian of all time, he won 28 career medals, including an amazing 23 gold. He shattered many world records over the course of his career. However, despite his incredible success in competitive swimming, away from the pool he was among the many people who deal with depression. He's using his platform to help others with the condition. He recently spoke with **NIH MedlinePlus** magazine.

You have recently spoken out about challenges you faced with depression. Can you tell us about that?

Very few people knew who I really was and I took some wrong turns and found myself in the darkest place you could ever imagine that I hope nobody ever goes. I still remember the days locked up in my room, not wanting to talk to anybody, not wanting to see anybody, really not wanting to live. I was in a downward spiral on the express elevator to the bottom floor, wherever that might be.

I literally had no self-esteem, no self-love. I thought of myself as just a swimmer and nobody else. I was lost and pushing important people out of my life.

For me I think I had to reach my absolute rock bottom in order to get a wakeup call. I just decided something had to change. But I got help and the life that I live now is a dream come true.

“I got help and the life that I live now is a dream come true.”

You've helped your long-time friend and fellow Olympic swimmer Allison Schmitt battle depression. How did your personal experiences aid with that?

I've joked that Allison is my “sister from another mother.” I knew she was struggling. When I first raised it with her I said, ‘Hey, I know you're not yourself, I know maybe you're going through things. I've been through a lot, and I'm here for you if you need help.’

I said to her about going to see a therapist—people do it and instead of holding it inside of you, get it out and when it is out of you, you're not carrying it around. That was from my own experience.

When you're in a place like that, you just kind of continue going into a dark hole. I didn't want to see her go through some of the things I went through.

I'm glad I was there to put my hand out, and I'm glad she accepted it. Accepting the emotions she had in her body, and talking about them and expressing them, really made a big impact on her.

What is your message to others who face similar challenges?

I'd like to see us normalize the conversation about mental health, especially among children, and encourage kids, young adults, and adults alike to talk with people about their problems.

I think Allison summed it up the best when she said, “It's OK to not feel OK.” I think that is an important message for all of us. It's OK to be vulnerable, and it's OK to ask for help.

I know opening up is easier said than done, but I also know what it's like to be in a dark place and feel like you have nobody else around. Yet all along, the people that could help me the most were the people that were right in front of me all along, the very same people I had pushed away. If not for them, their love and support, I couldn't have worked through my challenges. We are all human, we all have our struggles. Some are greater than others, but that doesn't lessen the impact or burden we feel. We are not alone, we just need to ask for help.

FastFacts

- ✓ An estimated 19 million teens and adults in the United States have depression—feelings that do not go away and interfere with everyday life.
- ✓ Depression can affect people of all ages and is different for every person.
- ✓ Nearly 90 percent of those with severe depressive symptoms reported difficulty with work, home, or social activities.
- ✓ There are effective treatments for depression, including antidepressants, talk therapy, and other treatments. Talk with your health care professional if you feel you may have depression.
- ✓ Medications that treat depression usually take two to four weeks to work. Patients often have to try several antidepressants to find one that helps.

Depression Strikes... Anyone

Anyone can suffer from depression. And almost everyone has a friend or family member who has or had depression—whether they know it or not. That definitely includes famous people, many of whom have spoken out to reduce depression's lingering stigma.

Illustration: iStock

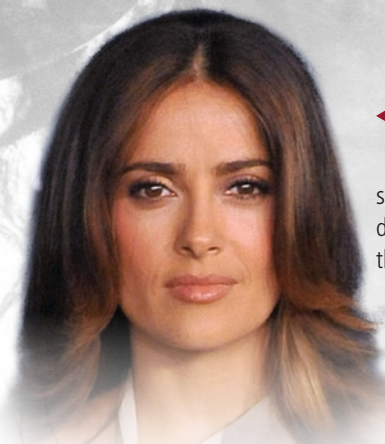
► **Bruce Springsteen**

"It was like all my notorious energy, something that had been mine to command for most of my life, had been cruelly stolen away."



◀ **Selma Hayek**

"This acne was so bad it sent me into severe, severe depression. I couldn't leave the house."



◀ **Kerry Washington**

"Therapy helped me realize that maybe it's OK for me to communicate my feelings."



► **Dwayne "The Rock" Johnson**

"I found that, with depression, one of the most important things you could realize is that you're not alone."



▲ **Demi Lovato**

"I was conquering the world, but then I would come crashing down, and I would be more depressed than ever."



Photos: Shutterstock

Sources: *Born to Run*, Simon & Schuster (Bruce Springsteen); *Lucky* magazine (Selma Hayek); BuzzFeed (Wayne Brady); *Oprah's Master Class*, OWN (Dwayne "The Rock" Johnson); *20/20*, ABC television (Demi Lovato); *ESPN the Magazine* (Michael Phelps); *Essence* magazine (Kerry Washington)



For the First Time, Life Seems Worth Living

*Drug in research
shows promise*

Beck first tried to commit suicide when she was just 12 years old. It wasn't her last attempt.

Over the next decade, Beck (not her real name) sought help for what was diagnosed by psychiatrists and other health professionals as extreme depressive disorder, post-traumatic stress disorder (PTSD), and generalized anxiety disorder.

"All through adolescence, I had feelings of hopelessness," she says. Although she became a talented musician and an artist, she could feel no pleasure or fulfillment in any of her accomplishments.

"I have been able to navigate through the world, for the most part, without being seen as a sick person."

But none of the medications and other treatments she underwent over the years made any difference in her severe depression, suicidal thoughts, and feelings of worthlessness. Finally, she approached the National Institute of Mental Health (NIMH) at NIH, desperate for help. Now in her mid-20s, she was admitted into a research study run by Dr. Carlos Zarate (see accompanying story) that was testing a medication called ketamine.

"I got an intravenous infusion of ketamine, which took a couple of hours. After the experience, I felt very neutral and calm—kind of cleaned out a little bit. The first moment that I felt ketamine had acted as an antidepressant was when I felt proud of having gotten through the infusion.

"I've accomplished a lot of things in my life, but I've never really felt proud of myself before. That was a really unique experience," she says. "And I could tell there was something a

"I have been able to navigate through the world, for the most part, without being seen as a sick person."

little different in my brain after that. The week after the infusion, I felt self-esteem for the first time. There were moments when I wasn't thinking anything at all, rather than having a non-stop barrage of negative thoughts. Those were important experiences for me, and ones I hope to build on."

It's unlikely that ketamine, in its current form, will become a practical treatment for most cases of depression. It must be administered through infusion (intravenously), requiring a hospital setting, and can potentially trigger adverse side effects. Patients also typically relapse after treatment ends. But research is continuing.

Dr. Carlos Zarate: “The research on ketamine is very exciting.”

Carlos A. Zarate, MD, is a pioneer and award-winning expert on developing novel medications for treatment-resistant depression and bipolar disorder.

He is Chief of the Experimental Therapeutics and Pathophysiology Branch and Section on the Neurobiology and Treatment of Mood Disorders at the National Institute of Mental Health, and Clinical Professor of Psychiatry and Behavioral Sciences at George Washington University.

Dr. Zarate spoke recently to *NIH MedlinePlus* magazine about depression and the promising treatment of the drug ketamine.

What should people do if they think they or a loved one might suffer from depression?

If someone just has a sad mood or if something bad happens, but their low mood doesn't last longer than a few weeks, it might not be depression. If someone has persistent symptoms, for more days than not for several weeks, then they may need to seek help.

How do you seek help? There are many places to get information, including the web. One place with information you can trust is the National Institute of Mental Health, of course.

For the most part, everyone should have a primary care provider. They are trained to identify symptoms of depression, and have questionnaires. So, you should feel free to bring up the topic of depression with your primary care provider. Your health care professional will evaluate you to see if the symptoms need evaluation.

Tell us about ketamine, which has been seen to be a fast-acting medicine for those with severe clinical depression?

The limitation of our current psychotherapy and medications for depression is that there is a considerable lag—weeks, if not months—for the full effects to take place. Many people do benefit, but it takes a long time, and not everybody gets better.

We've been studying ketamine for about a decade. It's an anesthetic, but in very low doses ketamine works as a rapid



Carlos A. Zarate, MD

antidepressant. This discovery fundamentally changes our understanding of how an antidepressant mechanism works.

When ketamine works—and it doesn't work for everybody—the patient responds within a few hours. It also has rapid anti-suicidal effects. Within 40 minutes, suicidal thoughts seem to be gone or rapidly improved. It also seems to have an effect on anhedonia (a form of depression that robs a patient of any pleasure in life). If we just focus on depression and suicide, ketamine's reactions for patients within a few hours to a day, at most, is remarkable.

If it's so remarkable, what is the issue with ketamine? As an anesthetic agent, it has to be closely monitored, because it may cause changes in blood pressure and pulse. Also, during the infusion of ketamine, people experience symptoms of dissociation; you are disconnected from your senses. So, smells, light, and sounds might be distorted. The patient might hear voices or see things that are not there. Also, if not used correctly, there could be a potential of abuse with ketamine.

Despite that, there has been a surge of worldwide ketamine use with very ill patients. The research on ketamine is very exciting. And we are working to develop a safer form of ketamine, without ketamine's side effects.



Dr. Carlos Zarate of the National Institute of Mental Health (right) and a colleague monitor a patient participating in research from a MEG scanner control room. MEG scans can lead to a better understanding of brain functioning.

Photo: NIMH

Understanding Depression

Depression is one of the most common and serious mental disorders in the U.S. Also called major depressive disorder or clinical depression, it causes severe symptoms that affect how you feel, think, and handle daily activities, such as sleeping, eating, or working. Current research suggests that depression is caused by a combination of genetic, biological, environmental, and psychological factors.

Types of depression

Depression can present itself in a variety of forms. No two people are affected the same way by depression and there is no “one-size-fits-all” for treatment. To be diagnosed with depression, the symptoms must be present for at least two weeks. It may take some trial and error to find the treatment that works best for you.

The major categories are:

- **Persistent depressive disorder** is a depressed mood that lasts for at least two years.
- **Perinatal depression** is much more serious than the “baby blues,” relatively mild depressive and anxiety symptoms that typically clear within two weeks after giving birth. Women with perinatal depression experience full-blown major depression during pregnancy or after delivery (postpartum depression).
- **Psychotic depression** occurs when a person has severe depression plus some form of psychosis, such as having delusions or hallucinations.
- **Seasonal affective disorder (SAD)** is characterized by the onset of depression during the winter, when there is less sunlight.
- **Bipolar disorder** is different from depression, but it is included in this list because someone with bipolar disorder experiences episodes of extremely low moods that meet the criteria for major depression (called “bipolar depression”). But a person with bipolar disorder also experiences extreme high — euphoric or irritable — moods called “mania” or a less severe form called “hypomania.”

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Signs and symptoms

If you have been experiencing some of the following signs and symptoms most of the day, nearly every day, for at least two weeks, you may be suffering from depression. The signs and symptoms include the following.

- Persistent sad, anxious, or “empty” mood
- Feelings of hopelessness, or pessimism
- Feelings of guilt, worthlessness, or helplessness
- Loss of interest or pleasure in hobbies and activities
- Difficulty concentrating, remembering, or making decisions
- Difficulty sleeping, early-morning awakening, or oversleeping
- Thoughts of death or suicide, or suicide attempts

For more information on signs and symptoms, see the Find Out More box on page 7.

Treatment and Therapies

Depression, even the most severe cases, can be treated. The earlier treatment can begin, the more effective it is. Depression is usually treated with medications, psychotherapy, or a combination of the two. If these treatments do not reduce symptoms, electroconvulsive therapy (ECT) and other brain stimulation therapies may be options to explore.

Medications

Antidepressants are medicines that treat depression. They may help improve the way your brain uses certain chemicals that control mood or stress. You may need to try several different antidepressant medicines before finding the one or ones that improve your symptoms and have manageable side effects.

Antidepressants take time—usually two to four weeks—to work, and often, symptoms such as sleep, appetite, and concentration problems improve before mood lifts.

Research Update

Big Data Can Guide Psychiatric Treatment

NIH grantee Dr. Roy Perlis at Massachusetts General Hospital is pursuing innovative research using data science to find new treatments for depression.

Pooling large amounts of data from electronic health records, doctor’s medical notes, and simple surveys, the data are added to existing knowledge about which genes may predict patients at risk for developing depression. Dr. Perlis and his collaborators found they could make better predictions about discharged hospitalized patients who would benefit from a range of possible interventions, such as medication, occupational therapy, or a phone call or web-based follow-up for lower-risk patients.

This novel research approach is seen as a complement to large scale clinical studies, and has the promise to save time and money, and to benefit patients. It is an example of what NIH seeks to accomplish with its new “All of Us” Research Program (www.nih.gov/research-training/allofus-research-program).

Mental Health Institute Seeks Speedier Depression Relief

Rapidly-Acting Treatments for Treatment-Resistant Depression (RAPID) is an NIMH-funded research project that promotes development of speedier therapies for severe, treatment-resistant depression. The initiative is supporting researchers, led by Maurizio Fava, MD, of Massachusetts General Hospital, who are identifying and testing promising treatments that lift depression within a few days.

By contrast, current antidepressant medications usually take a few weeks to work—and half of patients fail to fully respond. While a proven brain stimulation technique, electroconvulsive therapy (ECT), works faster, it runs a risk of cognitive side-effects and requires anesthesia and a surgical setting. The urgent need for improved, faster acting antidepressant treatments is underscored by the fact that severe depression can be life-threatening, due to heightened risk of suicide.

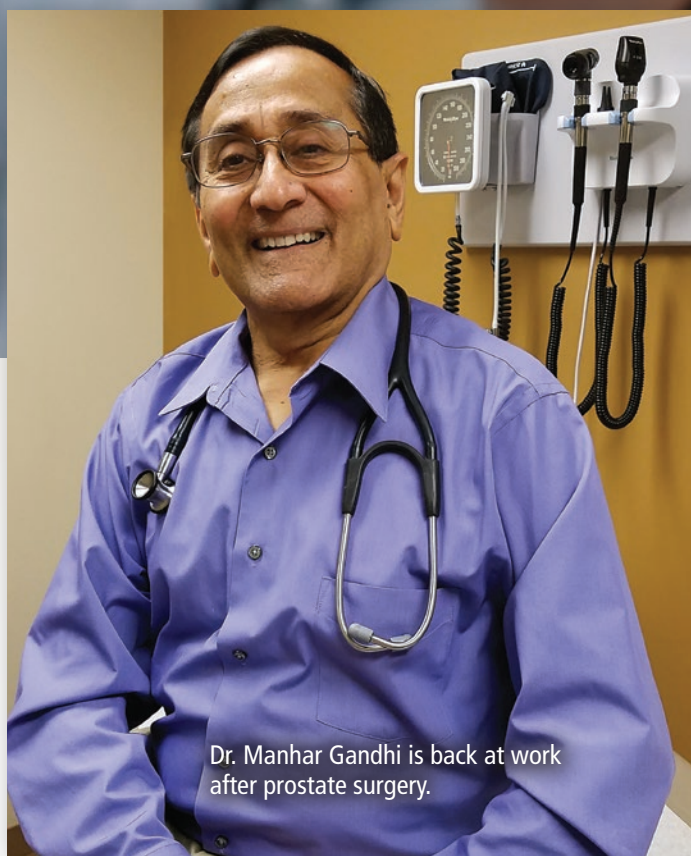
Recent research provides clues to potential fast-acting antidepressant brain mechanisms, and the RAPID team is collaborating with investigators in NIMH’s Intramural Research Program, who have pioneered studies of fast-acting antidepressant mechanisms in trials of ketamine and scopolamine. The project aims to translate such evidence into practical treatments.

Find Out More

- ✓ **National Institute of Mental Health (NIMH):** nimh.nih.gov/health/topics/depression
- ✓ **MedlinePlus:** medlineplus.gov/depression.html
- ✓ **NIHSeniorHealth:** nihseniorhealth.gov/depression/aboutdepression/01.html
- ✓ **Clinical Trials:** clinicaltrials.gov
- ✓ **National Alliance on Mental Illness:** www.nami.org

Treating the Problem Prostate

What you can do for this common aging-male condition



Dr. Manhar Gandhi is back at work after prostate surgery.

In his mid-60s, pediatrician Dr. Manhar Gandhi was treated for an **enlarged prostate**.

Photo: iStock

As they age, many men may experience unusual and unwelcome changes in the part of their reproductive system known as the prostate gland.

Sometimes, they suddenly and urgently need to urinate—often many times a night. Other times, they may have trouble starting to urinate or only produce a dribble rather than a normal stream. Even worse, sometimes a loss of bladder control means urinary incontinence—urinating before making it to a toilet in time.

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Photo: Courtesy Dr. Manhar Gandhi

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Signs of the Condition

When Dr. Manhar Gandhi was in his mid-60s, he had some of these common symptoms of an enlarged prostate. A Memphis, Tenn., pediatrician for the past 38 years, Dr. Gandhi knew he needed help.

“A couple of years ago, I began having trouble with an increase in the frequency of my need to urinate. Especially during the night,” he says. “At the same time, the stream of urine was low—a dribble. I realized from these symptoms that I was not able to empty my bladder completely when I urinated.”

“Every man should go to his primary care provider once a year to be checked,” Dr. Gandhi says.

His primary care physician had been following these symptoms, as well as the results of annual PSA tests. PSA (prostate-specific antigen) is a protein produced by cells in the prostate. Dr. Gandhi’s PSA results had been up and down. This suggested that all was not right with his prostate.

Seeing a Specialist

It was time to bring in a urologist—a doctor who specializes in urinary tract and male reproductive system conditions. A biopsy of tissue from the prostate ruled out cancer. Dr. Gandhi’s physician diagnosed the condition as a non-cancerous enlarged prostate, or benign prostatic hyperplasia (BPH).

Dr. Gandhi was prepared. One of his best friends is a urologist, as is his son, who practices in Virginia.

Dr. Gandhi started taking Flomax (tamsulosin), an often-prescribed medication that relaxes the muscles in the prostate, making it easier to urinate.

But Dr. Gandhi’s symptoms worsened. He experienced complete urinary blockage and multiple trips to the emergency room to use a catheter to release the trapped urine.

Surgical Procedure

After considering another medication, both urologists agreed it was time for TURP—a minimally invasive surgery used to remove the inside part of the prostate and allow a restored free flow of urine. Carried out in early October 2016, the TURP surgery has so far been effective for Dr. Gandhi.

“I already have a strong flow during urination,” he says. “I can feel that I am able to empty the whole bladder. Now, I’m fine.

“Every man should go to his primary care provider once a year to be checked,” Dr. Gandhi says. “And, if called for, go to a urologist. Don’t put it off.”



Photo: Courtesy Dr. Manhar Gandhi

Dr. Manhar Gandhi, a Memphis, Tenn., pediatrician for 38 years, examines 6-year-old Jamarius Herron.

FastFacts

- ✓ The prostate is a walnut-shaped gland that is part of the male reproductive system.
- ✓ Benign prostatic hyperplasia—also called BPH—is a condition in which the prostate gland is enlarged and not cancerous.
- ✓ BPH is the most common prostate problem for men older than age 50.
- ✓ As many as 14 million men have BPH.
- ✓ Lower urinary tract symptoms associated with benign prostatic hyperplasia may include frequent and urgent urination, trouble starting a urine stream, urinary incontinence, and other symptoms.

Understanding Prostate Enlargement

Benign prostatic hyperplasia (BPH)

The prostate is a walnut-shaped gland that is part of the male reproductive system. The prostate goes through two main growth periods as a man ages. The first occurs early in puberty, when the prostate doubles in size. The second phase of growth begins around age 25 and continues during most of a man's life. Benign prostatic hyperplasia (BPH) often occurs with the second growth phase.

As the prostate enlarges, the gland presses against and pinches the urethra. The bladder wall becomes thicker. Eventually, the bladder may weaken and lose the ability to empty completely, leaving some urine in the bladder. The narrowing of the urethra and urinary retention—the inability to empty the bladder completely—cause problems associated with BPH—a condition in men in which the prostate gland is enlarged and not cancerous.

A common condition

The cause of BPH is not well understood; however, it occurs mainly in older men. BPH is the most common prostate problem for men over age 50.

In 2010, as many as 14 million men in the United States had lower urinary tract symptoms suggestive of BPH.

Symptoms

Symptoms of BPH most often come from a blocked urethra or a bladder that is overworked from trying to pass urine through the blockage. Symptoms that suggest BPH may include:

- Urinating eight or more times a day
- Inability to delay urination
- Trouble starting a urine stream
- A weak or an interrupted urine stream
- Dribbling at the end of urination
- Frequent urination during periods of sleep
- Urinary retention
- Incontinence—the accidental loss of urine
- Pain after ejaculation or during urination
- Urine with an unusual color or smell

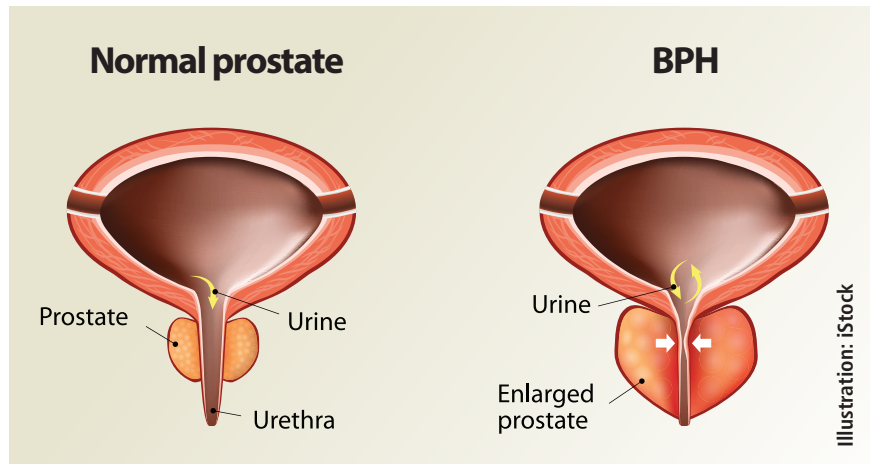


Illustration: iStock

Diagnosis

A health care provider diagnoses BPH based on a personal and family medical history, a physical exam, and medical tests, including:

■ Rectal exam

A rectal exam is a physical exam of the prostate. The exam helps the health care provider see if the prostate is enlarged or tender, or has abnormalities that require more testing.

■ Medical Tests

A health care provider may refer men to a urologist—a doctor who specializes in urinary problems and the male reproductive system—though the health care provider most often diagnoses BPH on the basis of symptoms and a digital rectal exam.

■ Urinalysis

Urinalysis involves testing a urine sample.

■ PSA Blood Test

Prostate cells create a protein called PSA. Men who have prostate cancer may have a higher amount of PSA in their blood. However, a high PSA level does not necessarily indicate prostate cancer. In fact, benign prostatic hyperplasia, prostate infections, inflammation, aging, and normal fluctuations often cause high PSA levels. Much remains unknown about how to interpret a PSA blood test.

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Treatment

Lifestyle Changes

A health care provider may recommend lifestyle changes for men whose symptoms are mild. Lifestyle changes can include:

- Reducing intake of liquids, particularly before going out in public or before sleeping
- Avoiding or reducing caffeinated beverages and alcohol
- Avoiding or monitoring medications such as decongestants, antihistamines, antidepressants, and diuretics
- Training the bladder to hold more urine for longer periods

Medications

A health care provider or urologist may prescribe medications that stop the growth of or shrink the prostate or reduce symptoms associated with benign prostatic hyperplasia:

- **Alpha blockers.** These medications relax the smooth muscles of the prostate and bladder neck to improve urine flow and reduce bladder blockage.
- **Combination medications.** Several studies, such as the Medical Therapy of Prostatic Symptoms (MTOPS) study, have shown that combining two classes of medications, instead of just one, can more effectively improve symptoms, urinary flow, and quality of life.

Surgery

For long-term treatment of BPH, a urologist may recommend removing enlarged prostate tissue or making cuts in the prostate to widen the urethra—the tube that carries urine and semen from the bladder or the ejaculatory ducts.

Surgery for enlarged prostate includes:

- Transurethral resection of the prostate (TURP)
- Transurethral incision of the prostate (TUIP)
- Laser surgery
- Open prostatectomy

A urologist performs these surgeries using the transurethral method, except for open prostatectomy. Men who have these surgical procedures require local, regional, or general anesthesia and may need to stay in the hospital.

TURP is the most common surgery for BPH. A urologist inserts a resectoscope with a wire loop through the urethra to reach the prostate and cuts pieces of enlarged prostate tissue. Special fluid carries the tissue pieces into the bladder, and the urologist flushes them out at the end of the procedure.

TUIP is a surgical procedure to widen the urethra. The urologist inserts a cystoscope and an instrument that uses an electric current or a laser beam through the urethra to reach the prostate. The urologist widens the urethra by making a few small cuts in the prostate and in the bladder neck.

With **laser surgery**, a urologist uses a high-energy laser to destroy prostate tissue.

In an open prostatectomy, a urologist cuts through the skin to reach the prostate. The urologist can remove all or part of the prostate through the incision.

Find Out More

- ✓ **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK):**
bit.ly/2hqzmOQ
bit.ly/2gxnLMI
- ✓ **MedlinePlus:** medlineplus.gov/enlargedprostatebph.html
- ✓ **Clinical Trials:** medlineplus.gov/enlargedprostatebph.html#cat27

Dr. Ziya Kirkali: Managing BPH

Ziya Kirkali, MD, is Program Director of the Division of Kidney, Urologic, and Hematologic Diseases at the NIH's National Institute of Diabetes and Digestive and Kidney Diseases. He spoke to **NIH MedlinePlus** magazine about BPH.

Does the presence of BPH mean that a man is at a greater risk for prostate cancer?

As men age, the prevalence of both BPH and prostate cancer increase. For men in their 70s and 80s, both conditions are very common. But, there is no real evidence to show there is causation between BPH and prostate cancer.

Some men may be concerned that even minimally invasive procedures to ease the urinary problems of BPH will have sexual side effects.

BPH, in itself, may not cause a lot of sexual dysfunction. However, some medical or surgical treatments may impact sexual aspects of health. Some medications and surgical treatments used to treat BPH may cause erectile dysfunction (ED) or ejaculatory problems.

What are the differences between two of the most common treatments for BPH—TURP and TUIP? Between the two, is there a clear favorite among patients and doctors?

Transurethral resection of the prostate (TURP) is the classic standard treatment. We put a resectoscope inside the man's urethra. (See Treatments in accompanying story.) In TURP, we



Ziya Kirkali, MD, Program Director, Division of Kidney, Urologic, and Hematologic Diseases, NIDDK

Photo: Ernie Branson

remove prostate tissue in small bits with the resectoscope and wash it out through the bladder. In the transurethral incision of the prostate (TUIP), there is an incision at the bladder neck. So, that really cuts the muscles there. Of course, we don't remove any tissue in TUIP. So, in terms of selection, most surgeons do a standard TURP. When the prostate is rather small, some urologists prefer TUIP.

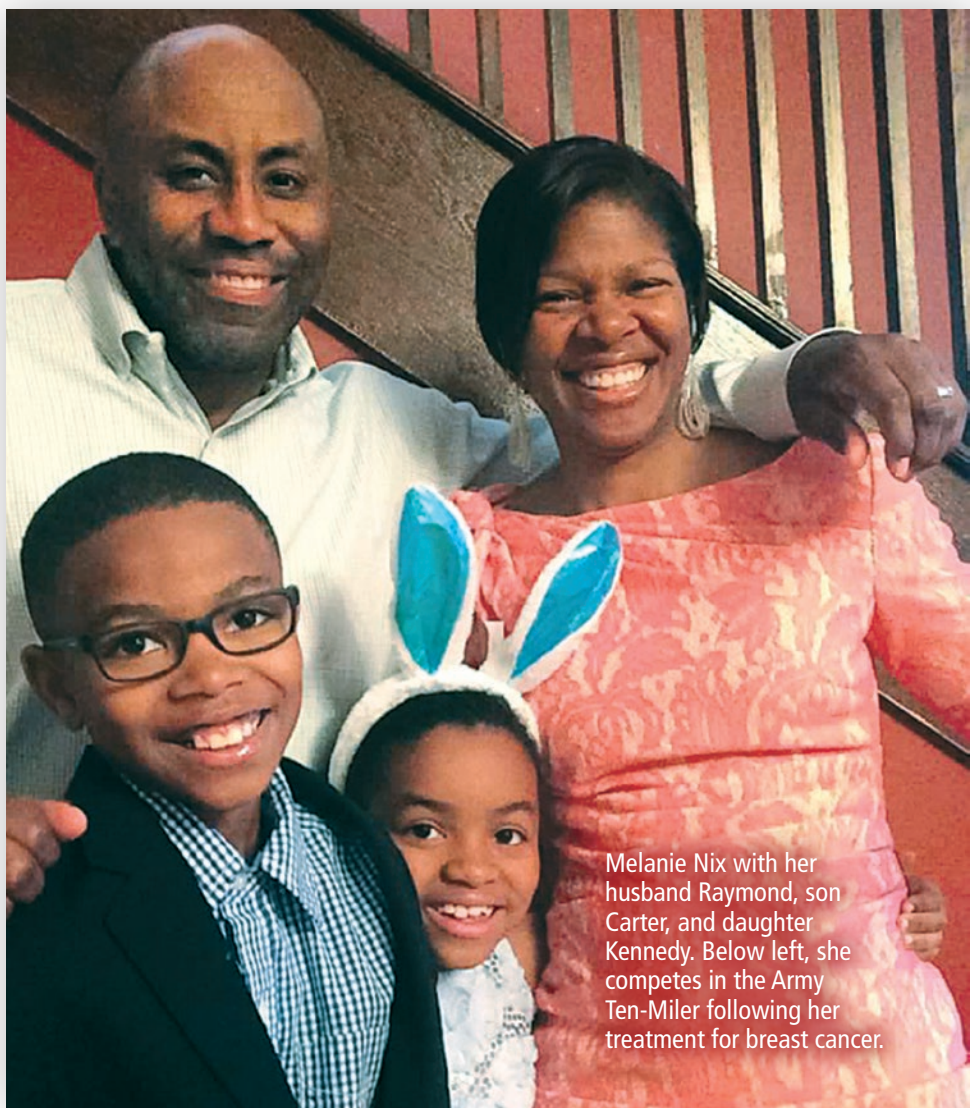
In the past, TURP was a more invasive procedure. The most common complication after TURP is bleeding. It's a pretty safe operation these days. Technology is evolving, so bleeding rates and other complications are much lower than in the past.

What risks do men run if they ignore this problem?

Sometimes men ignore symptoms, thinking they are a normal part of aging. And they are. But, some patients who ignore symptoms may experience urinary retention—be unable to release their urine. In that case, they may need emergency care to have a catheter put into their bladder to release the urine.

Beating Breast Cancer

Survivor Melanie Nix shares her experience with **NIH MedlinePlus** magazine.



Melanie Nix with her husband Raymond, son Carter, and daughter Kennedy. Below left, she competes in the Army Ten-Miler following her treatment for breast cancer.



Photos: Courtesy Melanie Nix

Melanie Nix was determined to head off cancer before it did her any harm. Her mother had died at age 49 of breast cancer after three battles with the disease. Ovarian cancer had recently shown up for a second time in her aunt.

So in the summer of 2008, at age 38, the Maryland resident shared her family history of cancer with her doctors.

Aggressive Approach

"I really wanted to be aggressive with my screenings," Nix recalls. "I took a test and it was determined that I carried the BRCA1 genetic mutation."

BRCA1 and BRCA2 are genes that make proteins that help prevent the growth of tumors. When either of these genes is mutated or altered, its protein product may either not be made or function incorrectly.

"I was diagnosed on Nov. 21, 2008. In the subsequent days and weeks, I learned that it was triple negative breast cancer," she says. "It was stage 1, grade 3, which is the fastest growing."

An Overwhelming Experience

Nix had already been discussing preventive surgery with her doctors before her breast cancer diagnosis. But the diagnosis was overwhelming.

"For my husband and me—at the time, my daughter was one; my son was four—always at the forefront was the thought of doing everything we can to fight this so we can watch our kids grow up," she recalls.

Nix opted to have both of her breasts removed, which took place in mid-December 2008. The cancer was in her left breast and she chose to also have her right breast removed for prevention.

Due to her family history and age, and because of her type of cancer, her doctors advised her that chemotherapy would be an additional safeguard.

"By the end of June, when I had finished chemotherapy, we all felt like I was in great shape," Nix shares. She was free of cancer.

But because she learned the BRCA1 mutation carries a higher risk of ovarian cancer as well as breast cancer, she also decided to have her ovaries removed for prevention in July 2009.

Advocacy Role

Nix has become an advocate for those with the disease. She is featured in a National Cancer Institute (NCI) "Lifelines" video (www.cancer.gov/news-events/media-resources/multicultural/lifelines/breast-cancer/lifelines-melanie-nix). She also helped launch the Breast Cancer Genetic Study in African-Ancestry Populations initiative in July 2016.

What does Nix tell women who are newly diagnosed with breast cancer?

"Arm yourself with information," she says. "The NCI website has great information. Speak with doctors about your specific diagnosis. Really make sure you have a true understanding of your diagnosis and all the treatment options that are available."



Damali Martin, PhD,
MPH, Program Director
of NCI's Genomic
Epidemiology Branch

Photo: Bill Branson

Addressing Breast Cancer's Unequal Burden

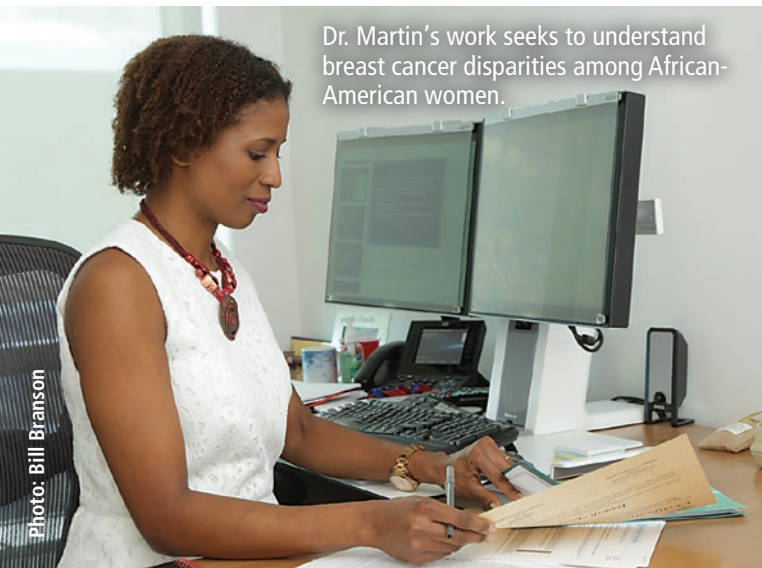
NIH research seeks answers to why death rate is highest in African-American women.

The Breast Cancer Genetic Study in African-Ancestry Populations initiative is the largest-ever study of breast cancer genetics in African-American women. The five-year effort began in July 2016 and is funded by the National Cancer Institute (NCI). Damali Martin, PhD, MPH, Program Director of NCI's Genomic Epidemiology Branch, spoke with **NIH MedlinePlus** magazine about breast cancer in African-American women and how the initiative will benefit all women.

What are trends in African-American women and breast cancer?

Breast cancer is the most commonly diagnosed cancer in African-American women, and they experience the highest death rate compared with other races or ethnic groups. Diagnosis of breast cancer in African-American women increased rapidly during the 1980s, largely due to increased

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Dr. Martin's work seeks to understand breast cancer disparities among African-American women.

Can you tell us more about the Breast Cancer Genetic Study in African-Ancestry Populations initiative?

We will gain greater knowledge of the genetics and other biological factors that contribute to the risk of breast cancer in African-American women. The study includes a comparison with white women to see how these factors may vary between those populations. It will also compare the data on genetic and other biological factors with other information, such as environmental or clinical factors, to better understand how all these factors work together to increase risk of breast cancer among African-American women. Once the study is completed, we can use the data on genetic factors to develop new treatments or ways to identify women who are at higher risk for breast cancer and perhaps help prevent it. This will eventually be useful for all women.

How will the study work?

The initiative will gather data from 18 smaller studies. While some of these studies were able to gain insights regarding genetic risk of breast cancer, their success was limited due to the small numbers of African-American women enrolled in them. The combined data will create one large study that includes 20,000

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detection by mammography screenings. Since then, breast cancer cases among African-American women have continued to increase, but at a slower rate. According to the American Cancer Society, just over 30,000 new cases were expected in 2016.

Breast cancer death rates among African-American women increased from the mid-1970s until about 1991. They declined after that as early detection and treatment improved. However, the large increase in breast cancer cases during the 1980s coupled with a slower decline in death rates has put a heavy burden on African-American women.

How does it compare with other races and ethnic groups?

African-American women and white women are diagnosed with breast cancer at about the same rates in proportion to the overall population. Survival among women with breast cancer has improved, but not equally across all populations. African-American women die at a rate 42 percent higher than white women. Only about half of the breast cancers in African-American women are diagnosed at the local stage (before they have spread to other parts of the body).

Black women may be diagnosed at later stages because they have mammograms less frequently. There's also evidence that African-American women diagnosed with breast cancer more often have aggressive tumor characteristics compared to other racial and ethnic groups. Other factors contributing to higher death rates among African-Americans may include genetics, comorbidities, and access to health care and high-quality cancer treatment. Studies haven't found clear answers for how all these things work together to contribute to disparities.

We can use the data on genetic factors to develop new treatments or ways to identify women who are at higher risk for breast cancer and perhaps help prevent it.

African-American breast cancer patients and 20,000 African-American women without breast cancer. This collaboration and the data sharing that has been done by these investigators can serve as a model for future cancer research among minority populations.

What causes the lower participation rate among African-American women in breast cancer studies?

Historically, trust has been a key issue in terms of recruitment and retention of minority populations for studies. Also, when you're diagnosed with breast cancer, you're focused on how to deal with the disease.

I believe the African-American community has become more educated about these types of studies and what they can do. There are many African-American breast cancer survivors who are working to educate their communities about the importance of participating in clinical or epidemiology studies and to offer guidance on how women can seek out information for themselves.

NCI is also encouraging minority populations to participate in clinical trials and these types of epidemiologic studies. Researchers could also play a role in educating their communities and looking for ways to share results from their studies.

Breast Cancer Research Update

Extended Drug Therapy Benefits Some Women with Breast Cancer

Results from a recent clinical trial showed that extending adjuvant therapy with an aromatase inhibitor up to 10 years after initial treatment can benefit postmenopausal women with early-stage hormone receptor-positive breast cancer. The longer treatment improved five-year disease-free survival and decreased the women's risk of developing cancer in the opposite breast.

Tamoxifen, which blocks the activity of the hormone estrogen, has been the adjuvant therapy drug of choice for preventing breast cancer recurrence since the 1980s. It is still used by many clinicians, often in combination, or sequentially, with aromatase inhibitors.

Tailoring treatment to individual patients will be important, according to Jo Anne Zujewski, MD, of the National Cancer Institute (NCI) Division of Cancer Treatment and Diagnosis. Dr. Zujewski says clinicians need to talk with their patients about the risks of side effects with aromatase inhibitors, namely bone-related effects such as fractures, and appropriately manage them in women taking these drugs.

The findings were published in the *New England Journal of Medicine* in June 2016 and presented at the American Society of Clinical Oncology annual meeting.

Vitamin D Deficiency May Promote Spread of Some Breast Cancers

A deficiency in vitamin D is associated with tumor progression and metastasis in breast cancer, a recent study suggests.

The study, primarily using cell lines and mice, identified an association between vitamin D levels and the expression of ID1, an oncogene that has been associated with tumor growth and metastasis in breast and other cancer types.

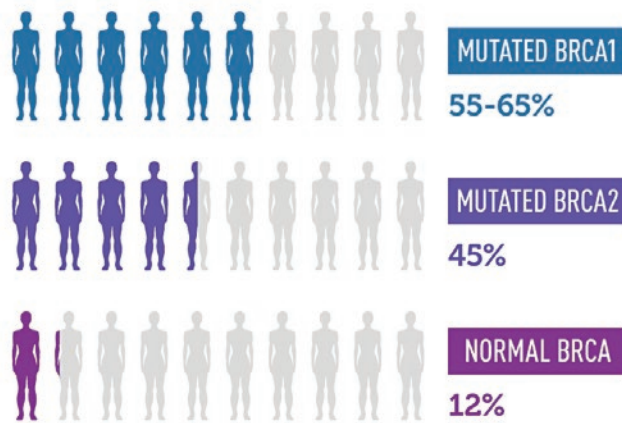
Vitamin D, which is obtained from food and supplements or produced by the body in response to sun exposure, is converted into the hormone calcitriol in several different body tissues, including breast tissue. Calcitriol, in turn, binds to the vitamin D receptor, which regulates some genes associated with cancer.

Stanley Lipkowitz, MD, PhD, Chief of the Women's Malignancies Branch in NCI's Center for Cancer Research, said the study's findings were "provocative," but that there are still important questions. Further work is needed, he said, to more definitively show the findings are generalizable to humans.

The study findings were published in the journal *Endocrinology* in March 2016.

NATIONAL CANCER INSTITUTE CHANCES OF DEVELOPING BREAST CANCER BY AGE 70

Specific inherited mutations in the BRCA1 and BRCA2 genes increase the risk of breast and ovarian cancers. Testing for these mutations is usually recommended in women without breast cancer only when the person's individual or family history suggests the possible presence of a harmful mutation in BRCA1 or BRCA2. Testing is often recommended in younger women newly diagnosed with breast cancer because it can influence treatment decisions and have implications for their family members.



www.cancer.gov/bcrca-fact-sheet

BRCA Testing Rates High in Young Women with Breast Cancer

Testing for genetic mutations strongly associated with an increased breast cancer risk has risen dramatically among women younger than age 40 who are diagnosed with the disease, according to a recent study.


Overall, within a year of their diagnosis, 87 percent of the women in the Young Women's Breast Cancer Study were tested for mutations in the BRCA1 and BRCA2 genes. Mutations in either of these genes increase a woman's lifetime risk of breast cancer, her risk of developing breast cancer at a younger age, and her lifetime risk of ovarian cancer.

The percentage of women who underwent testing gradually increased over the seven-year study period, from approximately 77 percent of those diagnosed in 2006 to nearly all women in 2013.

The research findings were reported in *JAMA Oncology* in February 2016.

Find Out More

- ✓ **National Cancer Institute:** cancer.gov/types/breast
- ✓ **MedlinePlus:** medlineplus.gov/breastcancer.html
- ✓ **Clinical Trials:** clinicaltrials.gov
- ✓ **American Cancer Society:** cancer.org/cancer/breastcancer/detailedguide/breast-cancer-what-is-breast-cancer



Putting a Pause in Pain

A personal journey for this teen

Hannah Moore, shown with Katie Kitchen, clinical research coordinator of the FIT Teens program, is feeling much better and learning to live her life in spite of her pain.

Hannah Moore walks down the halls of Walton-Verona High School in Northern Kentucky with an extra confidence and bounce. A fan of Chilean poet Pablo Neruda, she's working on the yearbook staff and eager to get to her journalism class. Earlier, she walked her dog Jensen. When she gets home, she'll walk him again, do homework, and ride her trendy recumbent bicycle.

Typical? Yes, but not for this 16-year-old. "Two years ago, I started to dislocate things; I could hardly move without popping a joint out of place or straining it," she says. "I was struggling with severe pain, including daily migraines. Things just kept piling on. GI (gastrointestinal) problems cropped up."

Hannah's pain got worse—the dislocations—more than two a month. She could no longer attend school, so she had to take classes online. Relief finally came eight months later when Hannah's fibromyalgia and Ehlers-Danlos syndrome (EDS) were diagnosed.

"At least then we knew what it was," says Hannah's mom, Beth Moore-Glover.

Fibromyalgia is a condition that causes chronic muscle pain, fatigue, and sleep problems. EDS is a genetic condition that causes very flexible joints that are prone to dislocation and loose, thin skin that is easily bruised and wounded. Together, the pain had taken over, and Hannah was also very depressed.

Fast forward to today, and Hannah seems like any other active teenager. She's back in school—pain and mobility issues no longer define her. Last spring, Hannah joined FIT Teens—a clinical study offered through Cincinnati Children's Hospital Medical Center and supported by the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). "Our research focuses on how complementary mind-body treatments can be used by children and teens who suffer from chronic pain," says Susmita Kashikar-Zuck, PhD, who leads the study.

The program combines 45 minutes of special neuromuscular exercise training with 45 minutes of cognitive behavioral therapy (CBT). These include mental coping exercises that retrain the brain

Healing and Preventing Pain

Complementary and Integrative Approaches

When we feel pain, some of us reach for a pain remedy—something quick and easy. While popping a pill may offer fast relief, other options may be better for our long-term health. For instance, we know that opioid use for chronic pain isn't always the best remedy. In fact, it can lead to other health problems, including addiction and overdose.

Meet the NCCIH

The National Center for Complementary and Integrative Health (NCCIH) conducts and supports research and provides reliable information about medical and health care systems, practices, and products that are not generally considered part of conventional medicine.

Perhaps you've seen the words "complementary" and "integrative" but don't understand what they mean.

- Health approaches with origins outside of conventional Western medicine—such as yoga, acupuncture, and massage therapy—are called **complementary**.

- Bringing conventional and complementary medicine together in a coordinated way is called **integrative**.

NCCIH researchers study complementary and integrative approaches to health and wellness. They explore the benefits of these approaches in many situations, including chronic pain management.

Although some pain and painful conditions may only last a few days or weeks, millions of Americans suffer with chronic (long-term) pain. Painful conditions—such as back, neck, or joint pain—are the most common reasons why U.S. adults use complementary health approaches.

What the Statistics Say

About 40 million American adults experience severe pain. Americans spend more than \$30 billion out-of-pocket annually on complementary approaches.

- In 2012, the National Health Interview Survey found that about 25.3 million adults have daily pain—that is, they reported they had pain every day in the three months before the survey.

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using distraction, imagery, and relaxation. It also includes exercises that are focused on improving body biomechanics and preventing injury. The teens come to the sessions twice a week for eight weeks.

"We've learned that pain impacts the life of the child and indeed the whole family," Kashikar-Zuck says. "Children with chronic pain often feel isolated and not understood by their peers. Parents are unsure about how best to support their child while trying to maintain a normal life."

Hannah says the trial has "been really cool" and helped her learn to cope. "I use the CBT exercises a lot. I can redirect my thoughts and not give my mind over to the pain. The physical exercises have also been helpful, by teaching my muscles what I can safely do."



Hannah Moore is much more in control of her pain and her life since joining FIT Teens.

She went from having about two dislocations per month to only one in eight months. "I still have limits," says Hannah, who will join another similar study at Cincinnati Children's Hospital. "I can't go to a concert one night and to the mall the next day like other kids my age. But, I've learned my body, what I can and cannot do, and it's completely changed my approach to life."

Hannah's mom says that FIT Teens has been a godsend. "Hannah now understands that while she's a fragile person, she knows how her body works with her brain, and she's able to live in her own body with much more ease."

Hannah's bright smile says it all. The depression has subsided, and she's well on her way to leading a full and active life.

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About 23.4 million adults reported having a lot of pain. Adults with more severe pain had worse health, used more health care, and had more disability than those with less severe pain.

- A June 2014 report in *JAMA Internal Medicine* showed a high rate of chronic pain—44 percent—among U.S. military members after combat deployment, compared to 26 percent in the general public.

“Finding relief for millions of Americans is very important to help ease their pain and lift the heavy burden on the health care system,” says Josephine Briggs, MD, the director of NCCIH. “We currently have a number of research projects aimed at this purpose.”

What Research Says About Complementary and Integrative Choices for Pain

Effective management of pain is a major medical challenge in the United States. While low-back pain usually gets better over time, if it persists, an individual can miss a substantial amount of time from work, have high treatment costs, turn to surgery, and/or even become disabled.

Studies suggest complementary health approaches may help in the treatment and management of chronic pain. It’s also important to better understand how to integrate complementary options into care and how to get the best outcomes for patients.

Here are a few approaches to help with pain:

- **Spinal manipulative therapy** (often performed by chiropractors) in managing back pain has been the subject of several trials and many reviews. Guidelines from the American Pain Society and the American College of Physicians suggest spinal manipulation can bring about small to moderate short-term benefits for acute (fewer than four weeks) back pain and moderate benefits for chronic (more than four weeks) back pain.
- There is evidence **acupuncture**, **massage**, and **yoga** are also good for chronic low-back pain. Acupuncture and **tai chi** may help with osteoarthritis of the knee, **massage** therapy may be useful for people with neck pain, and **relaxation** techniques may provide benefit for people with severe headaches, including migraines.
- Studies on therapeutic **massage** show that it helps relieve low-back pain and pain from fibromyalgia.
- Practices that combine movement and meditation, such as **yoga**, **tai chi**, and **qi gong**, are already being used in health care settings across the country with many benefits.

National Institutes of Health
National Center for Complementary and Integrative Health

Pain in the U.S.



25.3 million
American adults
suffer from daily pain



23.4 million
American adults
report a lot of pain

Nahin FL. Estimates of Pain Prevalence and Severity in Adults: United States, 2012. *Journal of Pain* (2015). doi: 10.1016/j.jpain.2015.05.002.



nccih.nih.gov/health/pain

In light of the human and economic costs of chronic pain, as well as evidence that many people who have chronic pain turn to complementary health approaches for relief, NCCIH places a high priority on pain-related research.

“Much remains to be understood about the nature of chronic pain, its many causes, people’s different responses, and the value of various approaches—both complementary and conventional,” Dr. Briggs says. “The goal is to build an evidence base that can guide pain management decisions tailored to individuals. These decisions often mean combining treatments in cost-effective ways that do the best job of helping people reduce pain, carry out everyday activities, and improve their quality of life.”

Find Out More

- ✓ **National Center for Complementary and Integrative Health:** nccih.nih.gov/health/pain
- ✓ **MedlinePlus:** medlineplus.gov/pain.html
- ✓ **NIH Pain Consortium:** painconsortium.nih.gov
- ✓ **Clinical Trials:** clinicaltrials.gov

Pain Gains

for Complementary and Integrative Medicine

Dr. Josephine Briggs, director of the National Center for Complementary and Integrative Health (NCCIH), spoke with *NIH MedlinePlus magazine* about research and complementary approaches to pain management.

What can you tell us about NCCIH's work and what you've learned about pain?

We see all sorts of clinical problems with conventional treatments for pain; both problems with opioids, and treatments that do not adequately address pain for some patients. Those problems have become a big driver of our work around pain management.

An interesting thing about pain is the impact emotions have on our perception of pain. Everyone is somewhat aware of the emotion and fear of pain from their own personal experience. It is clear that as one becomes more fearful, it can make the pain worse.

Like many of your readers, I do a bit of yoga. Sometimes in a yoga posture, something might hurt a bit, and it's uncomfortable. The teacher is saying "concentrate on your breathing," and that distracts me. There are ways in which your mental state can turn a little discomfort into lots of pain or the other way around. Pain is very susceptible to that.

What kinds of research is NCCIH currently doing on pain?

The Division of Intramural Research at NCCIH conducts basic, clinical, and translational research focusing on the role of the brain in perceiving, modifying, and managing pain. Our scientists are looking at the role of the brain in pain processing and control, and how factors such as emotion, attention, environment, and genetics affect pain perception.

For instance, evidence from a recent NCCIH-funded study suggests that regular and long-term practice of yoga may improve pain. This type of research is going very well.

There is also some evidence about the relationships between sleep disturbance and pain, and depressive disorders and pain, but the nature of these relationships is not well understood. Ongoing research is examining them further.

In 2014, NIH and the Department of Veterans Affairs (VA) funded 13 5-year studies to address pain and related conditions



Josephine Briggs, MD, director of NCCIH, takes a moment to review recent data with Mark Pitcher, MSc, PhD, who is leading research on the analgesic effects of exercise.

Photo: Bryan Ewsichuk, NCCIH

using non-drug approaches in U.S. military personnel, veterans, and their families. We are now getting ready to move forward with new plans to work with the VA and the Department of Defense (DoD) to do more research on pain management. We expect to launch these efforts very soon. Both the VA and the DoD are very eager to continue working with us on pain trials.

We're also very involved with various consortiums within NIH to develop a national strategy for pain. NCCIH led in the development of standards for back pain research. For instance, recently, a panel of experts on back pain determined what data need to be collected in clinical trials around back pain. These are usable across multiple studies.

How might the medical community change in the future as a result of some of this research on pain?

I think we all recognize as physicians that we haven't learned to use opioids in a way that helps people develop personal strategies for pain. I'm hoping that five or 10 years from now, we'll have the evidence that will contribute to more effective approaches.

Americans do turn to complementary practices for pain management. We know from data that many people living with pain try these various approaches for pain and many use them quite extensively. That includes relaxation techniques like breathing and meditation. It includes chiropractic, massage, and acupuncture. While we recognize that they are helpful to people, we really do not see them as integrated into conventional care yet to improve pain management. The evidence makes it promising, but we aren't quite there yet.

Melanie Modlin feels lucky to have taken part in a clinical trial related to menopause several years before she herself experienced the menopausal transition.

From *Hot Flashes* to *Cool Insights!* Menopause

Researching “the menopause transition”

Hot flashes, weight gain, night sweats, insomnia, and moodiness—these are just a few of the symptoms that come to mind as women approach “the menopausal transition.” But every woman is different.

Melanie Modlin, Deputy Director, Office of Communications and Public Liaison at the National Library of Medicine, was interested in helping researchers learn more about these differences. Therefore, she volunteered for a clinical trial studying the impact of changing hormone levels on thinking ability and sleep.

“I wanted to contribute in some small way, and taking part in the trial was a gift I was happy to give.”

While it’s a normal part of aging, the menopausal transition feels anything but normal for some women. It most often begins between ages 45 and 55. It usually lasts about seven years, but can last as long as 14 years. During this time, your body begins to produce varying amounts of estrogen and progesterone, the two hormones made by your ovaries.

Photo: Fran Sandridge

Treatment Tips From the National Institute on Aging

Possible Symptoms

You may experience no symptoms or you may have one or more of the following:

- Hot flashes
- Disturbed sleep
- Mood swings
- Depression
- Anxiety
- Vaginal dryness
- Loss of interest in sex
- Aches and pains
- Headaches
- Heart palpitations

It's important to understand your treatment options if symptoms are a problem for you.

Hot Flashes

Hot flashes are uncomfortable and can last for many years. When they happen at night, they're called "night sweats." The earlier in life they start, the longer you may have them.

There are a number of lifestyle changes that may help:

- Carry a portable fan.
- Avoid alcohol, spicy foods, and caffeine.
- If you smoke, quit.
- Maintain a healthy weight.
- Keep your bedroom cooler.
- Drink small amounts of cold water before bed.
- Layer your bedding so it can be adjusted as needed.
- Try mind and body practices like meditation, yoga, and tai chi.

Non-hormone Options for Treating Hot Flashes

If lifestyle changes are not enough to improve your symptoms, you may consider medications. The Food and Drug Administration (FDA) has approved the use of a low-dose antidepressant called paroxetine (Paxil) to treat hot flashes. While this is the only non-hormonal medicine approved for the treatment of hot flashes, researchers are currently studying the effectiveness of other antidepressants for this purpose.

Treating Hot Flashes with Hormone Therapy

During the menopausal transition, hormones like estrogen and progesterone decline over time. Hormone therapy steadies the levels of these hormones in the body. Hormone therapy is an effective treatment for women with severe hot flashes, but only in those who are able to take it. **There are risks associated with hormone therapy, including increased risk of heart attack, stroke, blood clots, breast cancer, gallbladder disease, and dementia.**

What About the Risks with Hormone Therapy?

In 2002, a study that was part of the Women's Health Initiative, funded by NIH, was stopped early because some participants taking estrogen with progesterone were found to have a higher risk for stroke, heart attacks, breast cancer, dementia, urinary incontinence, and gallbladder disease. The research suggested an increased risk in women older than 60.

This study raised concerns at the time and left many women afraid of using hormone therapy. The use of estrogen dropped by 71 percent from 2001 to 2009. Research has continued and newer treatment options offered since 2002 may reduce the risks of using hormones. **For instance, we now know that hormone therapy should be used at the lowest dose and for the shortest period of time.**

Beware of Unproven, Non-scientific “Treatments”

Perhaps you’ve heard about black cohosh or soy isoflavones to treat hot flashes. These products are not proven to be effective and some carry risks, including liver damage. Studies are ongoing to learn about the benefits and risks. Talk with your doctor before taking any herb or supplement to relieve your hot flashes or other menopausal symptoms.

Getting a Good Night’s Sleep

Many women who suffer with hot flashes get them during the night. These night sweats can disturb sleep. Not getting enough sleep can affect many aspects of your life and health. To improve your sleep through the menopausal transition and beyond:

- Follow a regular sleep schedule.
- Avoid napping in the late afternoon or evening.
- Develop a bedtime routine.
- Try not to watch television or use your computer or mobile device in the bedroom.
- Keep your bedroom at a comfortable temperature.
- Exercise at regular times each day but not close to your bedtime.
- Avoid eating large meals close to bedtime.
- Stay away from caffeine late in the day.
- Avoid alcoholic beverages.

Vaginal Pain and Dryness

When your ovaries produce fewer hormones, it can affect the vagina. The result can be a tightening of the vaginal opening, burning, itching, and dryness. Also known as vaginal atrophy, this condition can cause dyspareunia (painful intercourse) and lead to vaginal and urinary tract infections. It can also have an adverse emotional effect on you and your sex partner. Fortunately, there are options to address these issues.

You may find that a non-prescription (over-the-counter) **vaginal moisturizer** can help, especially if your symptoms

3 Stages of the Menopausal Transition

- 1. Perimenopause:** When hormone levels first start to change and hot flashes and other symptoms may begin. For some women, perimenopause begins as early as age 40.
- 2. Menopause:** When ovaries stop making hormones and menstrual periods stop. Typically occurs around age 51. Menopause happens 12 months after a woman’s final menstrual period.
- 3. Postmenopause:** Follows menopause and lasts the rest of a woman’s life.

Early menopause may be triggered by a hysterectomy or surgical removal of the ovaries, which produce hormones, although it can be genetic.

are mild. Your health care provider may also recommend you use a water-based **vaginal lubricant** during sexual activity.

Local vaginal hormone treatments, such as **estrogen creams, rings, or tablets**, provide lower hormone doses to the rest of the body than a hormone pill or patch. But hormones are not the only option.

The FDA has approved two non-hormone medicines, **ospemifene** and **prasterone**, to treat moderate to severe vaginal changes that occur with menopause. Your doctor can talk with you about the risks and benefits of these medicines.

What’s Right for Me?

Whether and how to treat your menopausal symptoms is a very personal decision. Discuss your symptoms with your health care provider. No matter what you decide, continue to see your doctor every year to talk about your treatment plan and discuss any changes.

Menopause Mayhem

A personal story leads to new job in support of women

Karen Giblin was 40 years old when, like many women, a hysterectomy plunged her headlong into menopausal symptoms that appeared quickly after her surgery. Hot flashes, night sweats, heart palpitations, fatigue, and forgetfulness were just a few of her symptoms.

"This was 1991, and to my surprise, I could only find one book on the subject," says Giblin, of

Ridgefield, Conn. "At that time, menopause was not spoken about and I was even embarrassed to carry the book openly in my arms, so I covered it up with magazines when I went to the checkout counter to buy it."

While Giblin's symptoms appeared rather abruptly, her experience was not unlike what happens to many women before, during, and after menopause. Episodes of hot flashes worsened during the night and caused her to lose sleep.

"I became irritable and fatigued and had trouble concentrating," says Giblin, then the town manager. "I remember reading a town ordinance and not remembering a thing. Just think ... I could have abolished garbage collection."

Even though Giblin now has a sense of humor about her symptoms, at the time, she was very concerned about the lack of information available. "Women heard about my surgery and called me for menopause advice," Giblin says. "They wanted information, they wanted to talk about their concerns, and they wanted to make informed treatment decisions."

Seeing that the menopausal transition could be a difficult and confusing time, Giblin went to her local nursing association for

"The symptoms can make women feel like their bodies and minds are malfunctioning."



Photo: Red Hot Mamas

Karen Giblin, founder of the Red Hot Mamas®, has made a career of providing women with information and a place to connect with others during the menopausal transition.

help in hosting an educational program. They agreed, and 50 women attended the first meeting. The organization quickly grew to more than 600 members.

Soon, other hospitals began calling Giblin to develop programs. So Giblin founded Red Hot Mamas® to provide menopause education and support programs. Red Hot Mamas programming is now offered through 250 hospitals in the U.S. and Canada.

"The symptoms can make women feel like their bodies and minds are malfunctioning," Giblin says. She tells women to "keep a sense of humor and stay connected with other women. Above all, remember that menopause is a normal event that may bring challenges, but it can also be an exciting time of your life."

She should know. Giblin's postmenopausal career change led her to a brand-new vocation. She now dedicates her life to providing women and their health care providers with the menopause health information and support they need.

Weighing Your Treatment Options

Not a light decision, according to this expert

Andrea Z. LaCroix, PhD, professor and chief of epidemiology and director of the Women's Health Center of Excellence at the University of California, San Diego, has specialized in the health of older women for more than 30 years. She's a lead researcher with the MsFLASH (Menopause Strategies: Finding Lasting Answers for Symptoms and Health) Trials funded by the National Institute on Aging.

She's also a senior investigator for the Women's Health Initiative (WHI) program funded by the National Heart, Lung, and Blood Institute (NHLBI). She recently shared insights from her research with **NIH MedlinePlus** magazine.



Andrea Z. LaCroix, PhD

Photo: Kyle Dykes, University of California, San Diego

What led you to study older women and menopause?

I started studying women's health many years ago as a public health nurse taking care of women. I did my dissertation at UNC-Chapel Hill on women's health, and I've always been interested in keeping women healthy.

In 1991 when NIH introduced the Women's Health Initiative (WHI), I felt it was a perfect fit for me. I said to myself, "Wow, that's a ship I have to get on." I was appointed as a project director and co-principal investigator for what was to become paradigm-shifting research when it comes to taking estrogen for menopause transition symptoms.

What drew you to your current research in the area of non-hormonal therapies for menopause?

In 2002, the WHI found that there were harms in hormone therapy and there was a compelling need for women to have alternatives. Taking oral estrogen around menopause or after was causing many more problems than we ever thought. Of

course, there were nuances in those findings. But ultimately, we realized that taking menopause hormone therapy (MHT) wasn't just a little decision. It was a big decision, as it could affect many parts of your body.

Afterward, we had the opportunity to bring together a network of investigators from across the country to learn more about menopause treatment options. Our goal is to give women effective alternatives and have them ask the right questions. It's not to remove hormone therapy altogether.

Why is this research so significant for women's health?

WHI showed that hormone therapy may increase risks of many diseases like heart attacks, strokes, pulmonary embolism, breast cancer, and dementia in some women. The risks are greater for estrogen taken with progestin (synthetic progesterone) and for women over age 60. What it amounts to with breast cancer, if you do the math, is that estrogen plus progestin hormone therapy is linked to about 15,000 excess cases of breast cancer in the U.S. per year. To some, the increased risk is a small percentage of all treated women. To me, that's a large number.

It turns out that some of the alternatives we've tested work as well and sometimes even better than hormone therapy for improving menopause-related quality of life.

What research outcomes can you share?

Low-dose hormone therapy is the most effective therapy for reducing the number of hot flashes. But if the goal is improving quality of life, some alternatives work about as well as hormone therapy.

Among the most promising include **escitalopram** (an antidepressant medication) and **cognitive behavioral therapy** for insomnia, delivered by trained telephone counselors. Both of these interventions improve menopause-related quality of life about the same amount as low-dose hormone therapy.

MsFLASH research also showed that a specially designed **yoga practice** was

effective at improving quality of life. Trials outside of the MsFLASH network suggest that **hypnosis** and **mindfulness meditation** are helpful as well. Thus, if women want to manage their menopause symptoms without taking drugs, there are effective options worth trying. This is especially true if improving quality of life, and not just reducing hot flashes, is the ultimate goal.

I'm 59, so I've had a very personal experience with the menopause transition and experienced hot flashes during the day and at night for over five years. Taking up yoga worked well for me. We're not talking about the kind where you put your leg behind your head. It's a restorative practice that includes slow movements or guided imagery. It's meant for cooling. Our research suggests that this type of yoga, and mindfulness in general, can be very helpful.

What is your advice to women facing the menopause transition?

I'd ask women to keep in mind that menopause is not a disease. It's a natural part of growing older.

Hormone therapy, at the lowest doses possible, may be appropriate for women if symptoms are really tough. But hormone therapy has risks, especially when used long-term or by women over age 60. My best advice is to be your own advocate and find out as much as you can about all of the options available to you, and then try the methods that feel like the best fit for you.

Find Out More

- ✓ **National Institute on Aging:** nia.nih.gov/health/publication/menopause-time-change/introduction
nia.nih.gov/menopause-treatments
nia.nih.gov/health/publication/menopause
- ✓ **National Center for Complementary and Integrative Health:** nccih.nih.gov/health/menopause/menopausesymptoms
- ✓ **MedlinePlus:** nlm.nih.gov/medlineplus/menopause.html
- ✓ **Women's Health Initiative:** whi.org
- ✓ **Clinical Trials:** medlineplus.gov/menopause.html#cat27

More Reasons to Exercise



Photo: iStock

Research is showing that exercise can improve your mood and maybe even your memory.

How can this be?

Researchers supported by NIH are discovering more about how exercising our bodies can help our brain.

They have found that exercise releases a brain-healthy protein called cathepsin B.

Working in the lab, Hyo Youl Moon and Henriette van Praag of NIH's National Institute on Aging identified cathepsin B as a factor released from muscle cells.

The cells were grown in a tissue-culture dish after applying a compound that activates energy metabolism.

They measured cathepsin B in mice and in monkeys after exercise training and found elevated blood levels of cathepsin B.

In addition, the researchers collaborated with researchers at the German Center for Neurodegenerative Diseases. The

German researchers compared cathepsin B levels in people after four months of regular exercise to people who didn't exercise.

The study showed a significant increase in blood cathepsin B levels with regular fitness training. They also found a relationship between increases in cathepsin B and the ability of participants to recall and draw a complex picture of lines and shapes, which is often used to test visual memory.

Researchers will continue studying cathepsin B and its role in the brain and the rest of the body. And we can continue exercising!

Find Out More

Exercise & Physical Activity (National Institute on Aging): nia.nih.gov/alzheimers/publication/exercise-and-physicalactivity

Benefits of Physical Activity (National Heart, Lung, and Blood Institute): www.nhlbi.nih.gov/health/health-topics/topics/phys/benefits

Henriette van Praag (Intramural Research Program, National Institute on Aging): <https://irp.nih.gov/pi/henriette-van-praag>

NIH Support: National Institute on Aging

Pregnant and Sick in the Morning?

This might be a good sign!

During the first few months of pregnancy, many women have "morning sickness." This nausea and vomiting may be positive news. A recent NIH study links morning sickness to a lower risk of pregnancy loss among women with a prior pregnancy loss.

How might morning sickness actually lower the risk of miscarriage? We don't know and future research is needed to understand this more.

Although morning sickness might be a good sign, it doesn't promise a healthy pregnancy. Every pregnancy is different, and not feeling nauseous or vomiting shouldn't be taken as cause for concern.

If you are pregnant and have questions, it's always best to talk with your health care provider.

NIH Support: Eunice Kennedy Shriver National Institute of Child Health and Human Development

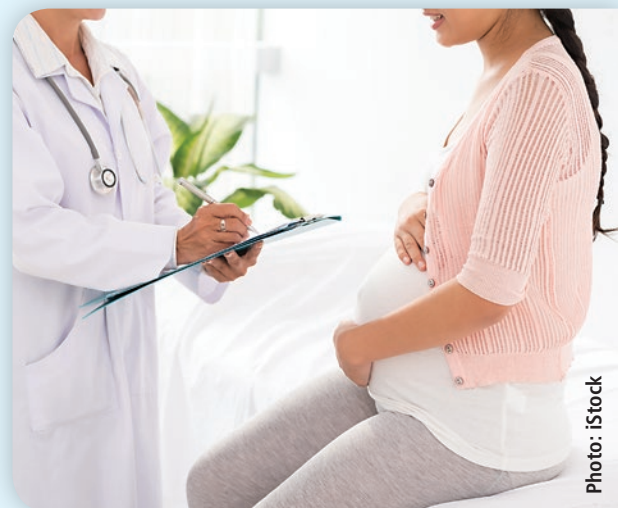


Photo: iStock

NIH Is Here to Help

Institutes

- **National Library of Medicine (NLM)**
www.nlm.nih.gov
1-888-FIND-NLM (1-888-346-3656)
- **National Cancer Institute (NCI)**
www.cancer.gov
1-800-4-CANCER (1-800-422-6237)
- **National Eye Institute (NEI)**
www.nei.nih.gov | (301) 496-5248
- **National Heart, Lung, and Blood Institute (NHLBI)**
www.nhlbi.nih.gov | (301) 592-8573
- **National Human Genome Research Institute (NHGRI)**
www.genome.gov | (301) 402-0911
- **National Institute on Aging (NIA)**
www.nia.nih.gov
Aging information 1-800-222-2225
Alzheimer's information 1-800-438-4380
- **National Institute on Alcohol Abuse and Alcoholism (NIAAA)**
www.niaaa.nih.gov | (301) 443-3860
- **National Institute of Allergy and Infectious Diseases (NIAID)**
www.niaid.nih.gov | (301) 496-5717
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)**
www.niams.nih.gov
1-877-22NIAMS (1-877-226-4267)
- **National Institute of Biomedical Imaging and Bioengineering (NIBIB)**
www.nibib.nih.gov | (301) 451-6772
- **Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)**
www.nichd.nih.gov | 1-800-370-2943
- **National Institute on Deafness and Other Communication Disorders (NIDCD)**
www.nidcd.nih.gov
1-800-241-1044 (voice)
1-800-241-1055 (TTY)
- **National Institute of Dental and Craniofacial Research (NIDCR)**
www.nidcr.nih.gov | (301) 480-4098
- **National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)**
www.niddk.nih.gov
Diabetes 1-800-860-8747
Digestive disorders 1-800-891-5389
Overweight and obesity 1-877-946-4627
Kidney and urologic diseases
1-800-891-5390
- **National Institute on Drug Abuse (NIDA)**
www.nida.nih.gov | (301) 443-1124
- **National Institute of Environmental Health Sciences (NIEHS)**
www.niehs.nih.gov | (919) 541-3345
- **National Institute of General Medical Sciences (NIGMS)**
www.nigms.nih.gov | (301) 496-7301
- **National Institute of Mental Health (NIMH)**
www.nimh.nih.gov | 1-866-615-6464
- **National Institute on Minority Health and Health Disparities (NIMHD)**
www.nimhd.nih.gov | (301) 402-1366
- **National Institute of Neurological Disorders and Stroke (NINDS)**
www.ninds.nih.gov | 1-800-352-9424
- **National Institute of Nursing Research (NINR)**
www.ninr.nih.gov | (301) 496-0207

Centers & Offices

- **Fogarty International Center (FIC)**
www.fic.nih.gov | (301) 402-8614
- **National Center for Complementary and Integrative Health (NCCIH)**
www.nccih.nih.gov | 1-888-644-6226
- **National Center for Advancing Translational Sciences (NCATS)**
www.ncats.nih.gov | (301) 435-0888
- **NIH Clinical Center (CC)**
<http://clinicalcenter.nih.gov> | (301) 496-2563
- **Office of AIDS Research (OAR)**
www.oar.nih.gov | (301) 496-0357
- **Office of Behavioral and Social Sciences Research (OBSSR)**
obssr.od.nih.gov | (301) 402-1146
- **Office of Rare Diseases Research (ORDR)**
rarediseases.info.nih.gov
Genetic and Rare Disease Information Center
1-888-205-2311
- **Office of Research on Women's Health (ORWH)**
orwh.od.nih.gov | (301) 402-1770

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