YALE RESEARCHERS TACKLE CANNABIS USE, OBESITY, OVARIAN CANCER, AND HEART ATTACKS

CANNABIS USE
Dr. Kelly Cosgrove, Associate Professor of Psychiatry, Radiology and Biomedical Imaging, and Neuroscience, will receive the Wendy U. and Thomas C. Naratil Pioneer Award to examine how smoking cannabis affects the brain in women and men. As Cosgrove notes, there are differences in the ways males and females initiate use of cannabis, progress to dependence, and experience withdrawal symptoms. Her focus will be to determine the sex-specific mechanisms underlying the drug’s rewarding properties and the potential for addiction.

“Cannabis is generally thought of as a safe drug despite a substantial number of studies showing negative, potentially long-term effects on the brain, including cognitive dysfunction and a possible trigger for mental illness,” Cosgrove said. “Over the past 30 years, cannabis has become increasingly potent, with its major psychoactive ingredient, THC, increasing from an average of 1.5 percent before the 1980s to current strains that contain upwards of 25 percent.”

Over the last 20 years, 24 states and the District of Columbia passed laws making cannabis legal for medical or recreational use, even as it remains illegal under federal law. Moreover, cannabis is the most commonly used illicit drug in the United States, with about 22 million people reporting having used it in the previous month. While use of other drugs has declined in recent years, cannabis use has grown.
Women’s Health Research at Yale was founded in 1998 with initial funding from The Patrick and Catherine Weldon Donaghue Medical Research Foundation. Women’s Health Research at Yale is a program within Yale School of Medicine. Yale University is a 501(c)(3) nonprofit organization.

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Women’s Health Research at Yale is pleased to acknowledge the many important gifts from our Society of Friends, who support the vital mission of our program and provide much needed resources to secure the continuation of research in women’s health.

A complete list of all of our friends for the 2015-2016 year can be found on our website: www.yalewhr.org.

We value each and every gift. Thank you for your continued generous support.

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Every Cell Has a Sex
X AND Y AND THE FUTURE OF HEALTH CARE

Thomas Jefferson declared that all men are created equal, and he was mostly correct.

All males are about 99.9 percent identical when it comes to their genomes, the biological entities that carry the codes for traits passed down through generations of parents and their children. That means that any two males differ by only 0.1 percent at the genetic level, and these differences account for all of the variety preset in males before they begin to develop in their mothers and then the outside world.

Of course, despite the lofty language and democratic philosophy, the country’s Founding Fathers made some notable exemptions in their conception of equality and inalienable rights for the new nation’s citizens. And even as women continue to fight for equality in many aspects of society today, they are less like men than even Jefferson knew, sharing only 98.5 percent of their genetic makeup with men. That’s 15 times greater than the difference between any two human males, who are about as genetically similar to a male chimpanzee as to a human female.

“A LONG TIME AGO, IN A GAMETE FAR, FAR AWAY…

Life on our planet began with single-cell organisms such as bacteria that reproduce asexually. There isn’t a mother and a father. A cell simply reproduces its genetic material and divides into two or more cells that are genetically identical to the parent cell.

About three or four billion years ago, these single-cell organisms without a distinct nucleus (prokaryotes, or bacteria) began exchanging genetic information in a limited fashion. Then about two billion years ago, organisms such as yeast, with distinct cellular nuclei and specialized structures called organelles (eukaryotes), put their genes in pairs so that they could be divided into two structurally identical gametes (one-cell reproductive units called spores in the case of yeast) and reassembled to create a new organism. This special kind of cell division is called meiosis.

At a Grand Rounds presentation in May sponsored by the Women’s Behavioral Health Division of Yale School of Medicine’s Department of Psychiatry, Page traced the origin of the human X and Y chromosomes that determine each individual’s sex and argued that researchers and health care practitioners need to fundamentally change how they approach the study and treatments of disease to reflect differences between males and females that exist within every cell of their bodies.

“Until and unless we arrive at an appreciation of how males and females read their genomes differently — we will continue to be surprised every time we encounter a sex difference in disease incidence, severity, or response to therapy,” Page said. “And I think we have to do something about that.”
Around 600 million years ago, animals began to evolve specialized gametes — structurally different single-cell units for females (eggs) and males (sperm). Sperm cells fertilize an egg, which then combines the genes of both parents. But such animals, including modern-day turtles, had no specialized sex chromosomes that determine the sex of the offspring. Males and females were genetically identical, and the sex was determined by the temperature at which the egg is incubated.

And finally, starting about 300 million years ago, our ancestors began to evolve sex chromosomes.

In humans, there are 23 pairs of chromosomes, which are structures found within the nucleus of every cell containing the tightly packed molecules known as deoxyribonucleic acid (DNA), the material that carries the genetic code.

One pair of the 23 chromosomes, known as sex chromosomes, determines at conception whether a fertilized egg will develop into a male or female. Today, human females have one pair of identical X chromosomes. Human males, instead of a matched pair, have one X and one smaller Y chromosome. A human egg contains only an X chromosome. A human sperm contains either an X or a Y chromosome, thereby determining the sex of the offspring after fertilization. XX = female. XY = male.

Dr. Page and his colleagues have spent the better part of the last two decades reconstructing the evolutionary origins of the human X and Y chromosomes. They have traced the origins of these sex chromosomes to ordinary chromosomes called autosomes in evolutionary ancestors that humans share with birds.

“We have been distracted and deceived for the last 50 years by the existence of our sex chromosomes,” Page said. “Most genes that are actually involved in making the different anatomies of human males and females are not on the sex chromosomes. Most of them are on the autosomes. They are exactly the same in males and females. It’s just that the autosomes are read differently in males and females because of the sex chromosomes, just as the entirety of the genome is read differently in males and females.”

According to Page, about 300 million years ago, humanity’s reptile ancestors had only ordinary chromosomes that, as in today’s turtles, did not determine a newly conceived organism’s sex. Eventually a mutation arose on a member of one of these ordinary pairs of chromosomes that became what lives on today as the sex-determining gene on the Y chromosome known as SRY.

Then, Page said, first in the immediate vicinity of SRY and then over a larger region, what were slowly becoming the X and Y chromosomes stopped swapping information. The X chromosome continued to trade genetic information with other X chromosomes through female meiosis. But during male meiosis, the Y became isolated. And damaging mutations that would have ordinarily been purged through the natural sharing process began to accumulate, leaving the Y chromosome smaller and with fewer surviving genes from that earlier ancestor.

Using computer simulations, Page’s team has identified 639 genes that existed on the autosomal ancestor of the X and Y chromosomes humans shared with birds 300 million years ago. Today, the human X chromosome
GOING BEYOND THE GONADS

Dr. Page called for medical schools to study the differences between XX and XY cells at a more fundamental level.

For the last 50 years, students have been taught that outside the gonads — reproductive organs where sperm and eggs are produced — cells with XX and XY pairs are functionally equivalent because there is nothing on the Y chromosome that acts outside the testes. They’ve been taught that hormones secreted by the testes and the ovaries, where eggs are produced, are entirely responsible for making the body more masculine or feminine.

But Page argued that there are intrinsic biochemical differences between XX and XY cells that affect tissues and organs across the entire body and have a significant impact independent of sex hormones. And medical practitioners must understand these differences to properly treat their patients.

“If you’re going to surgery and your surgeon has never been instructed in the anatomical differences between men and women,” he said. “Would you sign the consent form?”

The same concept holds for understanding the biology of disease.

Page points to dilated cardiomyopathy, a genetic defect in which the heart balloons dangerously and kills men.

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WHRY Funds Four New Studies

PILOT PROJECT PROGRAM

(Continued from front cover)

According to a 2014 national survey, 4.2 million Americans have a marijuana use disorder, defined as use that causes significant problems with health or the ability to meet responsibilities.

Cosgrove’s team has developed a way of using a type of brain scan to show sex differences in the neurochemical response to smoking a tobacco cigarette. They plan to adapt this method and scan men and women smoking cannabis, expecting to see a faster reward response in women at the brain’s suspected hub of drug reinforcement.

“Neurochemical sex differences have been documented for tobacco smoking and alcohol dependence, and we need to find out if there are sex differences in the neurochemistry of cannabis use in humans,” Cosgrove said. “We need to investigate these differences so people can understand what cannabis does to their brains and — for people who become addicted — allow for the development of gender-sensitive treatments.”

OBESITY

More than one-third of adults in the country are considered obese. Combining obese adults (those excessively overweight for their height) with less severely overweight adults, 69 percent of the nation’s people are at an unhealthy weight.

While obesity can be found in about equal numbers of women and men, obese women suffer up to eight times greater rates of obesity-related conditions, such as heart disease, stroke, and type 2 diabetes. It’s not clear why.

Dr. Matthew Rodeheffer, Associate Professor of Comparative Medicine and Molecular, Cellular and Developmental Biology, will also receive a Wendy U. and Thomas C. Naratil Pioneer Award to determine if the molecular pathways driving the growth of fat cells are fundamentally different in females. If so, this would identify a key mechanism that links increased fat mass to metabolic disease in women.

ABOUT THE INVESTIGATOR —

Dr. Kelly Cosgrove earned her Ph.D. and B.A. degrees in Psychology from the University of Minnesota. She completed a post-doctoral fellowship at Yale School of Medicine’s SPECT Brain Imaging Laboratory and since 2013 has been an Associate Professor in the Department of Psychiatry.

A trained clinical psychologist, Dr. Cosgrove’s research has focused on understanding the neurochemical, behavioral, and cognitive components of addiction, particularly tobacco smoking and alcohol dependence.
Rodeheffer plans to continue research he first advanced with a 2011 WHRY grant that focused on how women’s body fat increases in obesity.

In that previous research, Rodeheffer’s team showed that obese female mice generate more under-the-skin fat cells (which mostly accumulate around the butt and thighs) while obese male mice do not, suggesting mice could be used to model sex differences in fat distribution. In addition, they showed that removing estrogen from female mice causes them to gain weight in a male pattern (mostly in the stomach).

The new study aims to define how fat cell production is increased in female obesity and determine if the increase in under-the-skin fat cells affects the onset of obesity-associated diseases in females.

“We have learned that females develop fat in different patterns,” Rodeheffer said. “But there is still much to learn about the molecular mechanism driving this difference and how it relates to metabolic disease. We hope to reach a better understanding of this difference and find sex-specific diets and medicines to treat obesity-associated diseases that disproportionately affect women.”

**OVARIAN CANCER**

Dr. Anthony N. van den Pol, a Professor of Neurosurgery and Psychiatry, aims to test a virus that is able to completely eliminate brain tumors in animals to see if it can have similar success with treating chemotherapy-resistant ovarian cancer.

“Based on our very promising preliminary data, we expect that the virus will not only selectively infect and destroy ovarian cancer cells but lead to a dramatic increase in the lifespan of test animals beyond conventional chemotherapy,” van den Pol said.

About one in every 60 women in the United States will develop ovarian cancer. It is the eighth most common form of cancer for American women and the fifth leading cause of cancer death.

In many women, ovarian cancer cells mutate and become resistant to chemotherapy, often leading to death. In collaboration with Dr. Gil Mor, Professor of Obstetrics, Gynecology, and Reproductive Sciences, and Dr. Alfred Bothwell, Professor of Immunobiology, van den Pol plans to test whether a virus containing genes from Lassa and vesicular stomatitis viruses can infect and kill ovarian cancer cells. The group hopes this new, safe virus can provide a significant development in the standard treatment of ovarian cancer.

“Even if the virus works only a quarter as well in humans as our preliminary data suggest it does against human ovarian cancer cells in mice, this could be a giant step forward in the treatment of this life-threatening malady,” van den Pol said.

**ABOUT THE INVESTIGATOR —**

Dr. Matthew Rodeheffer earned his Ph.D. from Emory University and a B.S. degree from the University of Washington. Since 2015 he has been an Associate Professor of Comparative Medicine and an Assistant Professor of Molecular, Cellular, and Developmental Biology.

Dr. Rodeheffer’s research focuses on determining how the body regulates fat tissue mass as a means to better understand and treat obesity.

Dr. Anthony N. van den Pol earned his Ph.D., M.S., and M.Phil. degrees from Yale and his B.A. from Occidental College. He has been a Professor in Yale School of Medicine’s Department of Neurosurgery since 1990.

For the last 16 years, Dr. van den Pol has worked with viruses to treat brain tumors, research that he now hopes to apply to ovarian cancer.
HEART ATTACKS

Dr. Erica S. Spatz, Assistant Professor of Medicine, will test a method of classifying women who have heart attacks into more specific categories to allow for more targeted treatment based on the diverse ways in which the disease develops and is seen by medical professionals.

Every year in the United States, 40,000 women are hospitalized for acute myocardial infarction (AMI), the technical name for a heart attack, when blood flow to the heart is blocked so as to damage the muscle and potentially cause death.

Young women have a greater risk for complications and death than younger men and older women with heart attacks, but about one in five young women do not show evidence of a plaque rupture or a blood clot in an artery — the typical mechanism for causing a heart attack.

Although women have diverse presentations (i.e., symptoms) and mechanisms of disease development, they are grouped together under broad classification systems, possibly obscuring important differences and limiting research that could help reveal these variations, better inform patients about the aspects of their specific diseases, and develop more targeted treatments, Spatz said.

To help remedy this problem, Spatz and her colleagues created a system for grouping young women into five unique categories based on the various ways in which they might develop problems that lead to a heart attack. This approach could transform how medical professionals classify AMI in young women, the researchers said. But there are still questions to answer about the system’s validity for other groups of women and men.

In the new study, the team will use various patient databases to apply their classification system and assess treatment outcomes for women of different ages, races, and ethnicities and between women and men.

“For example, our prior studies have shown that women of African descent more commonly present with non-classic heart attack characteristics and have worse health outcomes than women of European descent,” Spatz said. “By expanding our investigation into more diverse groups, we can advance a more personalized, precision-based approach to diagnosing and treating women who display different kinds of evidence of heart attacks.”

ABOUT THE INVESTIGATOR —

Dr. Erica S. Spatz earned her M.D. from Ben Gurion University in Israel, an M.H.S. from Yale School of Medicine, and a B.S. from Vanderbilt University. She is a general cardiologist and has been an Assistant Professor of Medicine at Yale since 2013.

Dr. Spatz leads large research teams comparing cardiovascular outcomes among health systems and studies the factors that contribute to variation in outcomes with particular attention to socioeconomic disparities.

The Women’s Health Research at Yale Pilot Project Program is supported in part by the Maximilian E. and Marion O. Hoffman Foundation, the Seymour L. Lustman Memorial Fund, The Seedlings Foundation, and anonymous donors.

Dr. Mazure Receives Psychology Award

WHRY Director Carolyn M. Mazure, Ph.D., received the Sidney J. Blatt Award at a June ceremony for graduates of Yale School of Medicine’s Fellowship in Clinical and Community Psychology.

This is the highest honor bestowed by the Psychology Section for excellence in clinical care, teaching, and research, named in memory of the former Chief of Psychology within the Department of Psychiatry.

For over 50 years, Dr. Blatt maintained a vibrant psychotherapy practice, trained hundreds of psychologists and physicians, and pursued empirical research on psychodynamic theories and interventions.

In a keynote address, Dr. Mazure spoke of how she first met Dr. Blatt when interviewing for the fellowship and how she was eager to learn from him because of his foresight in recognizing and conceptualizing gender differences in depression and his flexibility in integrating diverse approaches to understanding and treating the disorder.

“And just as Dr. Blatt never stopped learning and attempting integration of ideas, and just as many of us here have followed that tradition, I encourage you to do the same,” she said.
A MESSAGE FROM THE DIRECTOR

Mona Gregg’s Retirement Leaves a Lasting Legacy

As many of you well know, to meet Mona Gregg is to be greeted with genuine warmth, sincerity, and a drive to advance the efforts of our center.

As our Executive Administrator for 18 years, Mona fostered a welcoming environment that focused on respect, teamwork and productivity. She forged partnerships with our staff, faculty, advisory council, and the community that helped me build Women’s Health Research at Yale into a national model. Her efforts enabled us to consistently exceed our goals, and her contributions have ensured a stable foundation for WHRY to thrive for decades to come.

I will be forever grateful for the impact she has had on the success of Women’s Health Research at Yale.

I hope you will join me in wishing all the best for Mona and her family. Thanks to her indelible contributions, Women’s Health Research at Yale will forever remain her family as well.

Sincerely,
Carolyn M. Mazure, Ph.D.
Norma Weinberg Spungen and Joan Lebson Bildner Professor of Psychiatry and Psychology
Director, Women’s Health Research at Yale

ADVANCING WOMEN’S HEALTH RESEARCH AT YALE

We Are All in This Together

I wish to extend my personal appreciation to everyone who helped us once again exceed our fundraising goals for the fiscal year that ended on June 30th. Thank you so much for your generosity!

Through the Annual Appeal and The Great Give our dedicated donors contributed support that allow us to continue working toward a healthier and more productive future for everyone.

As always, investing in Women’s Health Research at Yale makes a real difference by enabling funding of new pilot studies on pressing women’s health concerns, engaging the public and professional communities with new gender-specific health information, building research partnerships to respond to crucial health questions facing women, and providing a national voice on women’s health that informs public policy.

As covered in this newsletter, gifts received in the last fiscal year will fund four new pilot studies, allowing our researchers to begin answering questions vital to improving women’s health and uncovering sex and gender differences to benefit everyone.

Questions currently under investigation include: Do women’s brains make them more susceptible to cannabis addiction? How can health care providers better diagnose and treat women who present different signs of having a heart attack than men? Can a virus that has been shown to eliminate a type of brain tumor also be effective in treating ovarian cancer? And what can understanding the sex-specific formation of fat deposits in females reveal about their risk for obesity and developing diabetes, heart disease, and cancer?

These are projects seeking preliminary data to attract larger external grants — projects that without your support would otherwise struggle to get off the ground. A small investment can have a huge impact. Over 18 years, WHRY has provided $4.8 million in seed grants that have gone on to generate more than $73 million in external funding. This represents more than a 1,400 percent return on investment. Pretty good!

So thank you once again for your interest in and dedication to our shared mission. We must continue to ask important questions about the health issues that affect us all to better understand what makes us different. Together we can achieve a better and healthier future for everyone.

Sincerely,
Bobbi Mark
Philanthropy Chair
WHRY Welcomes Three New Advisory Council Members

“We are so grateful to have these three women join our team. Both their exceptional professional expertise and enthusiasm for advancing women’s health will be great assets as we work toward a happier and healthier future for everyone.” — ADVISORY COUNCIL CHAIR CAROL ROSS

As a partner and Deputy General Counsel at the New York law office of Holland & Knight, RUTH LANSNER has focused much of her career on diverse aspects of business law.

And as a long-time supporter of Women’s Health Research at Yale, Lansner aims to help WHRY negotiate a change in available scientific knowledge concerning women’s health.

“It is astonishing to me that we aren’t further along in our understanding of the influence of sex and gender on health,” she said. “We need to keep pressing this issue to develop more targeted treatments for men and women and to help people make better-informed health decisions.”

Like council member Roslyn Milstein Meyer, Lansner was a pioneer, graduating in 1971 with Yale’s first coed class.

Since then she has lectured and moderated panels in the United States and Europe and testified before Congress on behalf of the Anti-Defamation League in support of the Civil Liberties Act of 1985, which provided reparations to Japanese-Americans interned during World War II, and in support of the Comprehensive Anti-Terrorism Act of 1995, which provided capabilities for the United States to combat terrorism.

For LAURIE BENJAMIN, being part of a community means personal, active efforts to help others.

“When I was in college, I volunteered with health care and community-based programs,” Benjamin said. “My parents always volunteered. I was reared that way.”

Benjamin earned a master’s degree in public health at Columbia University before conducting research in cardiovascular disease and hypertension at Cornell Medical School. She moved to California in 1983, advancing her work at the Stanford Heart Disease Prevention Program. For the last 10 years, she has coordinated oncology and hematology clinical trials in a private practice in Monterey, Calif.

Benjamin currently serves as Chair of the Women’s Forum and Health Committee at Community Hospital of the Monterey Peninsula, where she helped lead a multi-million-dollar fundraising campaign for the hospital’s Breast Care Center. She has served on the hospital’s Board of Trustees and currently is a member of its Institutional Review Board.

Having served on numerous nonprofit boards, Benjamin and her husband, David (Yale Class of ‘69), were awarded the Community Foundation of Monterey County’s Distinguished Trustee Award. She is currently working on a book about a breast cancer vaccine with a Yale graduate of the Class of ’71.

After spending 30 years advising health care organizations on strategy and financial analysis, SUSANNA KRENTZ is eager to help WHRY tackle challenges to improve everyone’s health and well-being.

“The focus of Women’s Health Research at Yale gets at the lack of scientific understanding of the differences between men and women and how diseases and conditions affect them differently,” Krentz said. “It’s something that needs explicit attention or it doesn’t happen.”

Krentz, a graduate of the Yale Class of ’80, founded and serves as President of Krentz Consulting LLC in Chicago. A frequent speaker and author, Krentz has served as a board member for the Society for Healthcare Strategy and Market Development of the American Hospital Association, receiving the organization’s Award for Individual Professional Excellence in 2000.

She has served as a member of the Association of Yale Alumni (AYA) Board of Governors, including as Chair, during which she led the development of the organization’s first strategic plan to establish a bold vision for alumni relations and identify new and innovative initiatives.

Also at Yale, she is a founding member of The Women’s Intercollegiate Sports Endowment and Resource (WISER) and serves on the board of Yale Alumni Publication Services. She received a Class Of 1980 Award in 2005 and The Yale Medal in 2010, the highest award presented by the AYA for outstanding individual service to the University.
What We Don’t Know

In June, the U.S. Senate Committee on Appropriations approved a bill for the Senate’s consideration that would increase the National Institutes of Health budget by $2 billion. This would be in addition to a $2 billion increase in last year’s budget, which came after more than a decade when the agency’s purchasing power had decreased by 25 percent.

A House panel proposed a slightly lower increase in July.

These two moves represented a rejection of President Barack Obama’s proposal to cut the NIH budget by $1 billion, replace those discretionary funds with dedicated revenue streams like a new tax or the sale of oil reserves, and increase the agency’s spending overall by another $825 million. Discretionary funds are set each year by Congress through appropriations bills, as opposed to the required funding of entitlement programs like Social Security.

So far, this seems promising. Congressional Democrats and Republicans generally support the NIH, the world’s single largest funder of biomedical research. Both sides can often agree on the importance — and the political expedience — of spending money on research that can lead to treating diseases that affect so many people. And they are reluctant to give up their discretionary spending authority for mandatory funding mechanisms that they cannot control through the normal appropriations process.

But the country is currently embroiled in an unprecedented presidential election campaign featuring two candidates of vastly different temperaments and resumes. Who knows what may or may not happen between now and Election Day in November? Not to mention what might happen when we have a new president in January.

It’s possible that Congress will pass a continuing resolution to fund the federal government — including the NIH — at the current level past the current deadline of Sept. 30 and wait for either the lame duck session after the election or for the new Congress and the new president to hash out a full-year plan when they take office in January. It’s also possible that a newly elected, divided government will fail to reach a compromise, resulting in even more uncertainty and leading the NIH to clamp down and not fund as many studies as it might if its leaders had a complete funding picture.

Uncertainty leads to stagnation. And in biomedical science, stagnation means fewer studies with fewer findings and fewer practical applications that can help people live longer, more productive lives.

When it comes to women’s health, the state of science is already woefully short of where it should be. It has only been 23 years since a federal law required the inclusion of women in NIH-funded trials. And even now, when females are included in studies, researchers often toss all of the data together regardless of sex, leaving potentially vital differences obscured.

We don’t know what we don’t study. And if we don’t look at the differences of sex and gender found in every one of our cells, we are discarding crucial clues in favor of guesswork.

And if we don’t adequately fund studies designed and carried out by researchers who understand and appreciate the differences between men and women, we are abandoning the promise of a future built with tools that offer the best individual treatment that solid science can provide.

Continued: Partners in Progress

The Seymour L. Lustman Memorial Fund, named after the renowned Professor of Psychiatry who worked with the Yale Child Study Center for more than 20 years, has helped WHRY carry on Dr. Lustman’s dedication to supporting clinical care with solid, evidence-based research.

The Werth Family Foundation, another exemplary family coming together for the public good, supports local organizations in Connecticut dedicated to improving their communities.

The Grace J. Fippinger Foundation, named after the first woman to serve as an officer in the Bell System, focuses on support for programs offering the opportunity for measurable progress in medical research and human development.

The Seedlings Foundation has shown a longstanding dedication to our shared mission of enhancing physical and mental health while fostering an educated and engaged public.

“We are delighted to extend our support to Women’s Health Research at Yale,” said Seedlings Foundation President Karen Pritzker, echoing sentiments shared by all of WHRY’s partners. “We share a strong desire to help build a future in which women and men can rely on health care best suited for their individual qualities.”
Women’s Health Research at Yale

135 College Street, Suite 220
New Haven, CT 06510

Women’s Health Research at Yale generates research on women’s health and sex and gender differences, dedicated to improving well-being for all through scientific knowledge translated into medical and personal practice.

To learn more, visit our website:
www.yalewhr.org

Email us:
WHRResearch@yale.edu

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HELP WITH THE HEADLINES

According to a recent study, working long-hour schedules over many years increases the risk of heart disease, non-skin cancer, arthritis, and diabetes — particularly among women.

For more information on this and other health topics in the news, join our email list or visit our website: www.yalewhr.org.

Educational and outreach activities are made possible through the generous support of:

- The Community Foundation for Greater New Haven
- The Grace J. Fippinger Foundation
- Maximilian E. & Marion O. Hoffman Foundation, Inc.
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- The Werth Family Foundation
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PILOT PROJECT PROGRAM
Women’s Health Research at Yale Funds Four New Studies, p. 1

GRAND ROUNDS
Every Cell Has a Sex, p. 3

FACULTY NEWS, P. 8

A MESSAGE FROM THE DIRECTOR, P. 9

ADVANCING WOMEN’S HEALTH RESEARCH AT YALE, P. 9

COUNCIL NEWS
WHRY Welcomes Three New Advisory Council Members, p. 10

PRESS NOTES, P. 11