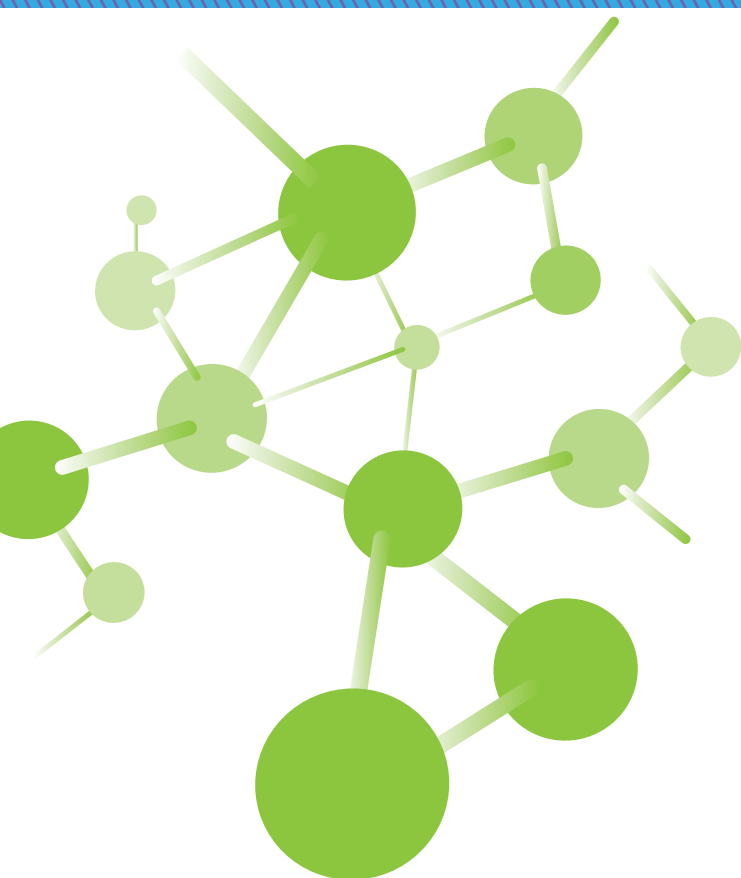


INNOVATION ENGINES AT NORTHWESTERN MEDICINE

WOMEN'S HEALTH RESEARCH INSTITUTE



WOMEN'S HEALTH RESEARCH INSTITUTE AT NORTHWESTERN MEDICINE

As an Innovation Engine at Northwestern Medicine, the mission of the Women's Health Research Institute is to create the world's leading institute in women's health research and care. As new technology is enabling scientific advancement and healthcare reform is extending care to more Americans, research on sex-based differences across all body systems must become the norm. When we look at research and care through a sex-inclusive lens, our research investments will accelerate discovery and improve the quality of care for men and women.

Why and How

When it comes to health, women and men are different in ways beyond anatomy. Sex differences have been discovered in such diverse areas as autoimmune diseases, obesity, sleep disorders, digestive diseases, cancers, depression, drug interactions, and musculoskeletal issues. In some cases, such as cardiovascular disease, sex differences have been well documented. In other diseases, the differences have neither been properly described nor studied. This knowledge gap is undermining patient care. The reason for the gap can be attributed to longstanding societal traditions of not including females in research studies. Most medical research to date has been skewed to male physiology, putting women at risk for missed

opportunities for prevention, misdiagnoses, inadequate treatment, morbidities, and even death.

The passage of the National Institutes of Health (NIH) Revitalization Act of 1993 was a critical milestone that mandated the inclusion of women in clinical research to improve healthcare for all people. Unfortunately, nearly two decades later, only 37% of clinical human studies include women. Also, only 10% of pre-clinical studies using rodents indicate the sex of the animals used. As a society, we have work yet to be done to ensure that sex inclusion begins at the earliest stages of the research paradigm. We must guarantee that both male and female cells, animals, and humans are studied. And, the results of these studies also must include a report by sex.



"We are poised to create the world's leading institute in women's health research and sex differences research. Good, well-documented research into sex differences across all diseases will benefit all of us—men and women. It is the next step on the path to truly personalized medicine."

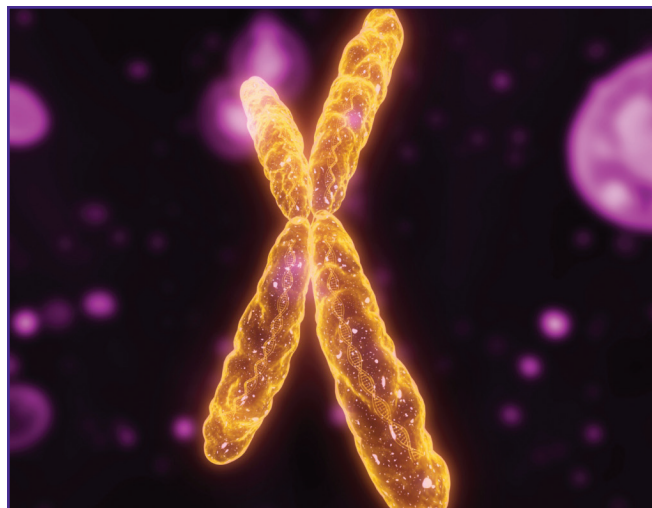
Teresa K. Woodruff, PhD, Director, Women's Health Research Institute,
Thomas J. Watkins Memorial Professor of Obstetrics and Gynecology and
Chief of the Division of Fertility Preservation



Therefore, clinical trials—beyond those that target female-only conditions—must enroll adequate numbers of women. Strides have been made. In 2016, the NIH implemented a landmark policy requiring investigators to consider sex as a biological variable. This policy encourages investigators to conduct their research in both males and females or provide strong justification as to why studying one sex would be more appropriate. By requiring scientists to consider sex as a biological variable, women's health is made a priority from the bench to the bedside.

Now

Undeterred by the statistics, the Northwestern Medicine Women's Health Research Institute, under the leadership of Dr. Teresa Woodruff, has been filling the knowledge gap by facilitating sex-based biomedical research across all disciplines. In 2008, the Institute launched a clinical research tool, the Illinois Women's Health Registry, which has recruited more than 7,000 women to report on their health status; 23% have been matched to participate in clinical research studies. On the education front, the Northwestern Medicine community of healthcare professionals is actively engaged in Women's Health Research Forums that connect more than 200 professionals on a monthly basis. Additionally, to increase the STEM pipeline, the Institute provides a tuition-free science education mentoring program that engages high school girls from underserved Chicago communities in hands-on science lab experiences. The successful program has been replicated in San Diego, Oregon, and Philadelphia. In 2010, the Institute received The Presidential Award for



Excellence in Science, Mathematics, and Engineering Mentoring. Finally, the advocacy efforts of the Institute in calling for more comprehensive sex-based biomedical research have captured the attention of key government officials. The Institute now leads the national media discourse on sex equity and research.

The groundwork that the Institute has laid provides the ideal ecosystem for interdisciplinary, sex-based health research studies to thrive across Northwestern Medicine departments. Under the guidance of a cross-disciplinary Leadership Council that includes academics, clinicians, and researchers, the Institute is transforming the Northwestern research pipeline to include females at every stage. Simultaneously, the Institute assists members of the Northwestern community who are interested in conducting sex-based research but may need additional training, guidance, or resources. In 2016, the Institute created "Sex Inclusion at NU," an on-line toolbox which provides detailed information about how biological sex can be examined in both a biomedical and clinical context. In addition, the Institute hosts monthly seminars, distributes monthly newsletters, and generates a variety of multimedia content that highlight cutting-edge sex-based research and its impact on health and well-being. Together, these initiatives help make Northwestern a national leader in sex-inclusive science.

At Northwestern, we recognize that every positive contribution we make to women's health research is made possible by donors who entrust us with their philanthropic support. We invite interested friends to join us in advancing the Institute through gifts of outright support and endowment.

THROUGH NORTHWESTERN MEDICINE, WE ARE CREATING A NATIONAL EPICENTER FOR HEALTHCARE, EDUCATION, RESEARCH, COMMUNITY SERVICE, AND ADVOCACY.

NORTHWESTERN MEDICINE

Northwestern Memorial HealthCare and Northwestern University Feinberg School of Medicine comprise Northwestern Medicine. Together we aspire to be the destination of choice for people seeking quality healthcare. We are building support to advance that care through leading-edge treatment and breakthrough discoveries. Our commitment to transform healthcare and to be among the nation's top academic medical centers can only be accomplished through innovation and excellence as displayed by the Women's Health Research Institute.

Through the Women's Health Research Institute at Northwestern Medicine and a sex-based understanding of disease, we will advance the studies of our exceptional clinician-scientists and basic investigators. We will establish an international model for improving the outcomes, overall health, and quality of life of men and women.

For more information about the Women's Health Research Institute and giving opportunities please contact:

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Donate: www.womenshealth.northwestern.edu/support-whri

