



THE GREAT DIVIDE

SEX & GENDER SCIENCE

The Djavad Mowafaghian Centre for Brain Health - the largest integrated brain centre in Canada - was an ideal setting for the launch of a new organization with an ambitious vision in the emerging field of sex and gender science. In early January, a cross section of accomplished individuals from various disciplines gathered for the inaugural meeting of the Canadian Organization for Gender and Sex Research (COGS).

THE ORGANIZATION ASPIRES TO “CREATE NEW UNDERSTANDINGS AND KNOWLEDGES THAT IMPROVE THE HEALTH, WELLNESS, AND EQUITY OF ALL.”

COGS was founded by Dr. Gillian Einstein, an international leader in sex and gender research, who currently holds the Wilfred and Joyce Posluns Chair in Women's Brain Health and Aging at the University of Toronto.

It was an endeavour that Dr. Einstein had been considering for years and was thrilled when it ultimately came to fruition. “It was a fantastic meeting,” she told Mind Over Matter®. “Those of us who study sex and those who study gender should be talking to each other.”

There were not only scientific researchers in attendance, but also people from the social sciences and the humanities, along with a funder and a former deputy minister from Health Canada. The Founder and President of Women's Brain Health Initiative (WBHI), Lynn Posluns, gave a speech in which she spoke about the many ways that WBHI shares the latest brain health scientific findings with the general public.

“Dr. Einstein has been such an important leader in this field, and it was inspirational to see her bring so many brilliant people together to talk about the way forward,” said Posluns.

Many of the attendees have been campaigning for years to change mindsets in the research community, where projects traditionally have focused on males and neglected to consider the differences between the sexes. Fortunately, progress is being made on several fronts and now Dr. Einstein wishes to deepen the conversation and increase collaboration among individuals from a wide variety of disciplines. As Dr. Einstein explained,



COGS RIGHT NOW IS FOR SHARING INFORMATION, NETWORKING, AND STARTING CONVERSATIONS. THE IDEA IS TO HAVE PEOPLE WORKING ACROSS ALL DISCIPLINES TO DEVELOP A UNIFIED THEORY AND SOME PARADIGM SHIFTS AS WE THINK ABOUT PEOPLE IN THE CONTEXT OF THEIR LIVES.

The meeting quickly produced a potential collaboration between a

neuroscientist and a social scientist to study the impact of stigma on stress in the LGBTQ+ community - a collaboration that might not have happened if they had not been brought together to discuss how their respective specialties could complement each other.

“I’d like to see more of that,” said Dr. Einstein. “We want to give students a home. There are a lot of students being trained now in sex and gender, but they are still working in silos that don’t really recognize that. And they’re really asking for a place to be recognized and a place that sees things the way they do and where they can learn.”

WHILE THE WORDS “SEX” AND “GENDER” ARE OFTEN USED INTERCHANGEABLY, THE TWO TERMS HAVE DISTINCT MEANINGS.

The Canadian Institutes of Health Research notes that sex refers to a set of biological attributes in humans and animals and is primarily associated with physical and physiological features (including chromosomes, gene expression, hormone levels and function, and reproductive/sexual anatomy). Gender, by contrast, refers to the socially constructed roles, behaviours, expressions, and identities of girls, women, boys, men, and gender-diverse individuals.

Dr. Einstein felt that it was important to use both terms in the name of the organization.

“It’s a reciprocal relationship that needs to be thought about in all domains, not just health, but also in economics, industrial design, and politics,” she noted.

As COGS was springing to life, a major research project was launched by the Canadian Institutes of Health Research (CIHR). CIHR announced that it was funding 15 “Sex and Gender Science Chairs.” Researchers from across the country were each awarded \$700,000 over a four-year period.

“The Sex and Gender Science Chairs represent a cadre of groundbreaking, world-leading scientists,” said Dr. Cara Tannenbaum, Scientific Director of the Institute of Gender and Health, the arm of CIHR that is leading the project. “I’m excited to see how this new, emerging science area evolves. Canada will be the hotspot to watch in sex and gender science.”

CIHR’s official announcement summarized a primary goal of sex and gender science: to advance the development of personalized treatments, interventions, policies, and programs that respond to the unique needs of all individuals - across sex, gender, and other intersecting-identity factors.

Because it is an emerging field, there is a need to develop and refine research methods. →

IMPORTANTLY, SCIENTISTS ARE NOW RECOGNIZING THAT SEX AND GENDER NO LONGER MEANS SIMPLY FEMALES AND MALES; INDIVIDUALS WHO IDENTIFY AS TRANSGENDER, NON-BINARY, OR TWO SPIRIT MUST ALSO BE CONSIDERED – ALL OF WHICH ADDS NEW COMPLEXITIES AND SENSITIVITIES TO RESEARCH PROJECTS.

Dr. Tannenbaum said that a significant portion of the funding is directed towards sharing lessons on how to most effectively study sex and gender. “The goal is not only to grow the science, but also to promote best practices. And that’s a unique combination that we rarely see,” she said.

Dr. Tannenbaum further noted that CIHR is preparing to announce a related funding initiative for research projects on sex and age. “This shows the interest and excitement in every area in science.”

CIHR is also partnering with the Gendered Innovations project, an important international initiative based out of Stanford University in

California. Gendered Innovations was launched in 2009 by Stanford Professor Londa Schiebinger with the goal of “provid[ing] scientists and engineers with practical methods for sex and gender analysis.”

“The issue here is how we do good research,” said Schiebinger in an interview with Mind Over Matter® from her home in California. She is a historian of science and can speak at length about the many and varied ways that women have been excluded as scientists and neglected by researchers for centuries. She remembers well her graduate school days at Harvard University where there were no female professors.



THE FAILURE TO CONSIDER THE DIFFERENCES BETWEEN WOMEN AND MEN HAS NOT ONLY LED TO IMPERFECT SCIENCE, BUT ALSO LETHAL CONSEQUENCES, AS WHEN DRUGS DEVELOPED WITH ONLY MEN IN MIND HAD LIFE-THREATENING IMPACTS ON WOMEN. DOING RESEARCH WRONG COSTS LIVES AND MONEY.

TRANSGENDER is an umbrella term for individuals whose gender identity and/or gender expression differs from what is typically associated with the sex they were assigned at birth.

NON-BINARY is a term used by some individuals who experience their gender identity and/or gender expression as falling outside the categories of “woman” and “man.” They may define their gender as falling somewhere between woman and man, or they may define it as wholly different from these terms.

TWO SPIRIT is a term found in some North American Indigenous cultures and refers to a person who identifies as having both a masculine and feminine spirit and is used by some Indigenous individuals to describe their sexual, gender, and/or spiritual identity.

For a summary of the work being conducted by each of the Sex and Gender Science Chairs, please see page 22.



Gendered Innovations produces peer-reviewed case studies, demonstrating how researchers can find new, deeper understandings if they explore sex differences. The first study centred on heart disease, which has been chronically under- and misdiagnosed among women. It highlighted, amongst other things, how women and men suffering heart attacks can present differently and called for additional research to better understand the differences.

Studies being released this year cover a wide range of issues. One focuses on the necessity to explore sex differences when developing new drugs, another discusses the ways in which facial-recognition technologies can discriminate based on gender and/or race, and a third points out that

studies of species affected by climate change frequently neglect to consider sex differences.

“Scientists and engineers were never trained in sex and gender analysis. I wanted to develop measures that made sense to them,” said Schiebinger. Since founding Gendered Innovations, there has been tremendous progress in the U.S., with the National Institutes of Health (NIH) now requiring that researchers seeking funding consider the biological differences between women and men. However, she observed that medical education still needs to catch up and do a better job of teaching the next generation of doctors the significance of sex differences.

“This is very important and that’s why I’ve devoted my life to it.” 🌍

