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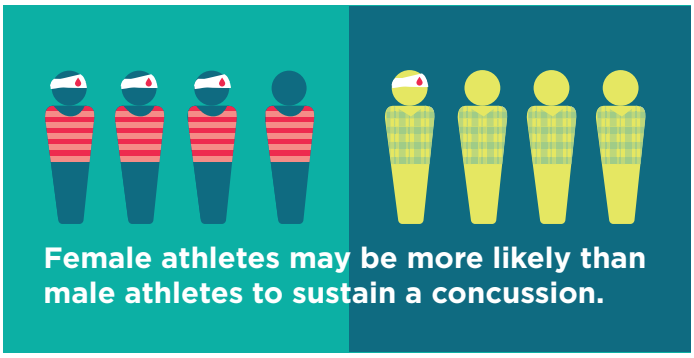
SCIENCE FACT OR SCIENCE FICTION: TRAUMATIC BRAIN INJURY: DOES GENDER MATTER?

A number of high-profile concussion lawsuits in professional sports such as hockey and football have brought increased attention to the serious problem of traumatic brain injury (TBI). TBI is the leading cause of death for young men, who are more likely to sustain such an injury than women.[1] As a result of this increased risk, researchers have tended to focus primarily on men's experiences with TBI, or to ignore the influence of sex and gender entirely. Has the issue of TBI among women been overlooked? What do we know about the influence of sex and gender on TBI – and why does this matter for diagnosis, prevention and treatment?

SEX AND GENDER DIFFERENCES IN DIAGNOSIS AND RECOVERY

TBI is a global epidemic, causing death or disability in approximately 10 million people worldwide each year.[2] The fact that men are up to three times more likely than women to sustain a TBI has led to "a dearth of literature on girls and women with TBI," according to Dr. Angela Colantonio, Principal Investigator at the University of Toronto's Acquired Brain Injury Research Lab. While it's true that the overall rate of TBI is higher in men than women, the overall frequency of injury means that millions of women are also injured annually—making TBI a health priority for both men and women. Researchers have also recently identified sub-groups of women who are at increased risk for TBI. Female athletes, for example, may be more likely than male athletes to be concussed and to have poorer outcomes following a concussion.[3] A recent examination of workplace injuries in Ontario led by Dr. Colantonio found that while men were overall about 8 percent more likely than women to report sustaining a brain injury at work, women were at greater risk in several industries.[4]



Female athletes may be more likely than male athletes to sustain a concussion.

A growing body of evidence is also uncovering important sex and gender differences in the experiences of men and women following a TBI. For example, women who have sustained a TBI report experiencing more headaches and dizziness than men.[5] Evidence is still mixed in terms of exactly how and why women's and men's experiences tend to differ following a TBI, but researchers have speculated that physiological factors, including differences in size and reproductive hormones, may affect injury severity and recovery.[1] Social factors also affect experiences and outcomes after TBI. Among older adults who have sustained a TBI, women are much more likely than men to move to a long-term care facility, rather than a home setting.[6] Some women have also reported foregoing personal care or rehabilitative treatments in order to fulfil domestic obligations—despite experiencing significant physical and mental symptoms. This suggests a need to further investigate how traditional gender roles may impact recovery from TBI.[7]

THE CASE FOR MORE RESEARCH ON TBI IN WOMEN

In 2010, the Acquired Brain Injury Research Lab, led by Dr. Angela Colantonio, brought together researchers, clinicians and women affected by TBI for *Women and Traumatic Brain Injury: Advancing the Agenda for*

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>
> *– Dr. Angela Colantonio*

Health—the first international workshop focusing on the health and quality of life of female TBI survivors. Women with a history of TBI advocated for increased support for female-specific health problems, such as the hormonal changes often following TBI that can lead to osteoporosis and hirsutism (increased hair growth in a male pattern).[8] Female survivors also reported having negative interactions with healthcare providers, including feeling stigmatized by the medical community and encountering clinicians who trivialized their recovery goals, such as regaining the ability to walk in high heels. Clinicians emphasised the need to train healthcare providers and to counsel women and girls with a history of TBI about intimate partner violence.[8] Not only does TBI often go undiagnosed in women seeking medical treatment for abuse,[9] but a history of TBI also puts women at greater risk for abuse.[8] Overall, participants highlighted the need for more research exploring the effects of TBI in women on cognition, physical health, mental health and social wellbeing.

CONCLUSION

TBI in men remains a crucial area for health research, but we're only telling half the story. According to Dr. Colantonio, we're still at a point where "very little is known about how brain injury affects a woman's body." The good news is that women's experiences with TBI are starting to get some attention. Building on the needs identified in the 2010 Women and Traumatic Brain Injury Workshop, researchers at the Girls & Women with Acquired Brain Injury Lab are working to fill critical knowledge gaps related to TBI, sex and gender. The Lab recently completed a study exploring the health care needs and experiences of Canadian female survivors of TBI, with a focus on barriers to accessing care. Research that helps us better understand the relationship between sex, gender and TBI is a crucial step in developing more targeted health policy and training that improves prevention, diagnosis, and treatment of TBI for both men and women.

ABOUT THE RESEARCH

Led by Dr. Angela Colantonio, the Girls & Women with Acquired Brain Injury Lab is working to improve the health and quality of life for women and girls with TBI. As one of nine CIHR Research Chairs in Gender, Work and Health, Dr. Colantonio is leading a program of research on gender, work and traumatic brain injury to address gaps in occupational health and safety research, policy and practice.

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