

# Logbook-Calgary Youth Science Fair

By: Spencer

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Date (attempted to do every week)	Progress
December 8th 2024	Signed up for the science fair club officially, and want to figure out a psych project. Starting with Ideas -Female Aggression? -Schizophrenia - peer pressure experiment (hard to set up and get participants) -Placebo +why it occurs
December 15th 2024	Continued looking into potential project ideas. Consulted teacher rep -Spencer: likes Female aggression
December 19	Paused project, going on break.
Jan 8th	Studying for finals, so less time altogether. Found some cool sources for two front -Want to talk about neurological impacts -Start researching the neurological implications.  Men and women even show some neurologically distinct differences in how their brains are activated during moments of stress and in reactions to threatening situations. The amygdala is an almond-shaped subcortical structure in the temporal lobe. For many years, it was largely believed that the amygdala was associated primarily with fear responses; our understanding of this area of the brain is becoming more varied to represent different behavioral outputs. In one study, women were shown to have more

	<p>persistent activation of the limbic system, primarily the amygdala.</p>
<p>jan 12 2025</p>	<p>-Talked to teacher rep. Decided on Female aggression + started researching.</p> <p>Progress with the ACC and AIC parts of the brain.</p> <p>The anterior insula cortex (AIC) and the anterior cingulate cortex (ACC) have been suspected to have a major role in aggression. These structures monitor basic bodily needs, including thirst, and are also activated in response to a range of emotions, primarily fear and anger. It has been proposed that the AIC monitors the internal neural and visceral state, often coined as interoception, and the ACC mediates the subjective experience of emotion. This means that the AIC makes individuals primarily think about their physical survival, and how these events affect their actual bodily systems; on the other hand, the ACC relates to emotional trauma and responses to these events. Women generally have greater amounts of grey matter within their brains and higher blood flow towards the ACC. Additionally, Multiple studies examining sex differences in neural activation to emotional stimuli have also found that women often show larger activation in the ACC and men in the AIC. In response to specifically negative stimuli, women showed greater reactivity than men in the ACC, suggesting that women process stimuli in terms of subjective emotional state. Men have also been seen to have more activation in the AIC compared to women. This suggests that women process stress and fear in a more subjective emotional lens, whereas men process these events through a physiological interoceptive state.</p>
<p>Jan 20th</p>	<p>Started researching using <a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC2538724/">https://pmc.ncbi.nlm.nih.gov/articles/PMC2538724/</a> <a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC6939635/">https://pmc.ncbi.nlm.nih.gov/articles/PMC6939635/</a></p> <p>Officially set hypothesis:</p> <p><b>Hypothesis:</b> Women already have neurological mechanisms for relational aggression over physical aggression. Evolutionary factors like childbirth, infant mortality, and overall survival shaped the female brain to prioritize certain displays of aggression. Today,</p>

	<p>societal systems have honed a model in which women are condemned for physical aggression and have turned to relational aggression, which is often overlooked by the majority.</p>
Feb 6th	<p>Kept compiling research and sources.</p> <p>Looked into social media usage.</p> <p>-Exacerbates responses.</p>
Feb 7th	<p>Slight freak out over getting everything set up.</p> <p>-Finished main write-up/ research, now need to formalize everything.</p>
Feb 21st	<p>Questions to consider for project-leading questions.</p> <p>-Why do women act like this?</p> <p>-Evolutionary factors?</p> <p>-Societal factors?</p> <p>-How to lay out a project.</p>
March 1st	<p>Did citations:</p> <p>Sarah Blaffer Hrdy. <i>The Woman That Never Evolved: With a New Preface and Bibliographical Updates</i>. Harvard University Press, 1981,  <a href="https://books.google.ca/books?hl=en&amp;lr=&amp;id=pICPOwf3lMsC&amp;oi=fnd&amp;pg=PR11&amp;ots=GW4Ine7-mQ&amp;sig=0242sB4LXoPXcdAb3vodey3oTg4&amp;redir_esc=y#v=onepage&amp;q&amp;f=false">https://books.google.ca/books?hl=en&amp;lr=&amp;id=pICPOwf3lMsC&amp;oi=fnd&amp;pg=PR11&amp;ots=GW4Ine7-mQ&amp;sig=0242sB4LXoPXcdAb3vodey3oTg4&amp;redir_esc=y#v=onepage&amp;q&amp;f=false</a>. Accessed 03 03 2026.</p> <p>Campbell, Anne. "The evolutionary psychology of women's aggression - PMC." <i>PMC</i>,  <a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC3826207/">https://pmc.ncbi.nlm.nih.gov/articles/PMC3826207/</a>. Accessed 3 March 2026.</p>

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	<p>ubt-on-male-centred-theories-of-aggression. Accessed 3 March 2026.</p> <p>Vaillancourt, Tracy. "Do human females use indirect aggression as an intrasexual competition strategy?" <i>PMC</i>, <a href="https://pmc.ncbi.nlm.nih.gov/articles/PMC3826209/">https://pmc.ncbi.nlm.nih.gov/articles/PMC3826209/</a>. Accessed 3 March 2026.</p> <p>Weir, Kirsten. "Social media brings benefits and risks to teens. Psychology can help identify a path forward." <i>American Psychological Association</i>, 1 September 2023, <a href="https://www.apa.org/monitor/2023/09/protecting-teens-on-social-media">https://www.apa.org/monitor/2023/09/protecting-teens-on-social-media</a>. Accessed 3 March 2026.</p>
March 2nd	<p>-Editing + Method explanation.</p> <p>-Multifaceted research approach.</p>
March 4th	<p>Conclusion:</p> <p>In conclusion, female aggression is far more complex than is largely given credit for. While male aggression has been the baseline and accepted portrayal of aggression, research shows us that female aggression still exists, but not in as obvious ways. Relational aggression and social hierarchies are cornerstones of female portrayals of aggression. Hormonal differences between men and women, and the neurological and structural differences in men's and women's brains, also serve to give some additional context. Research also indicates that the vast complexities of evolution have deterred women from physical forms of aggression.</p> <p>Cultural barriers and expectations of women have further cemented these forms of relationships among</p>

	<p>women. Societal expectations condemn women for using physical aggression, which is seen as “non-feminine.” The glamorization and sexualization of relational aggression, being seen as “catfights,” results in a further misunderstanding of women. It becomes clear that policymakers, educators, and psychologists need to become better acquainted with this study and identify these patterns within women and broader social systems.</p> <p>Overall, it is clear that female aggression is a combination of multiple factors. Most notably womens neurological and evolutionary disposition away from physical violence and towards relational competition. However, this is also partially manifested by the sociological factors in our everyday lives. Societal conditioning of young girls and what is perceived to be feminine and non-feminine has allowed for discrete aggression between girls to fester. Resulting in heightened levels of social shame, isolation, and mental health problems among young girls. This confirms my initial hypothesis about the intersection of evolutionary, societal, and neurological factors.</p>



