The Effects of Covid-19 are Sex-Dependent

Abstract:
- Covid mortality is twice as high in men.
- Sex-related immune system differences are responsible for the different levels of susceptibility and mortality of Covid-19 in men and women.
- Twice as many men are sampled in Covid research, causing women to be underrepresented. This may lead to ineffective treatments or vaccines.

The Female Immune System is Stronger

- T cells
- T helper
- B cells
- NK cells
- Adaptive Immunity
- Innate immunity
- Inflammatory response
- Response to vaccines/infections
- Macrophages
- Phagocytes

Over 79% of Covid vaccine side effects are from women.

Men have increased Covid-19 susceptibility and mortality rates

<table>
<thead>
<tr>
<th>Global Deaths:</th>
<th>Global Cases:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male: 60%</td>
<td>Female: 40%</td>
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<tr>
<td>Male: 53.8%</td>
<td>Female: 46.3%</td>
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</tbody>
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Male patients are 30% more likely to die due to Covid-19.

Results:
- Women have a stronger antibody response to viral infections, lowering mortality.
- Men are more susceptible to Covid because they lack an additional X chromosome and have testosterone.
- Women produce a stronger response to Covid vaccines and produce more antibodies.

Females have a lower Covid-19 mortality/susceptibility rate.

Conclusion:

- One Covid study shows that men made up 86% of the sample size, deeming women underrepresented. Vaccines may be too strong for women, triggering adverse side effects or less effective for men leading to a greater severity/mortality rate.
- Through equal data samples we can mitigate vaccine side effects for females and increase male antibody/T cell production.
- This will reduce the male mortality/severity rate of Covid-19.