

# The trials and tribulations of being left-handed

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As 13 August is recognised worldwide as International Left-Handers Day, there has been an increased focus over the past week on the biological and genetic causes of left-handedness in humans, as well as the health, social and economic ramifications of being a 'southpaw'.

Approximately 10 - 12 % of the world's population (this author included) are left-handed. Famous lefties include Leonardo Da Vinci, Marilyn Monroe, Lewis Carroll, David Bowie, Kurt Cobain, Jimmi Hendrix, Julius Caesar, Neil Armstrong, Winston Churchill, Barack Obama, Bill Clinton, Napoleon Bonaparte and Bart Simpson. However, left-handed people throughout history have also encountered discrimination and social stigma, as well as having to endure the practical difficulties of living in a right-handed world.

## Between right and left

Many researchers believe that genetics play a key role in determining left-handedness.

A 2013 study in *PLOS Genetics* pinpointed genes and genetic mutations that could reportedly influence 'left-right asymmetry' development. Another 2013 study undertaken by the University

of St. Andrews found that left-handed people share the same genetic abnormality as those with the condition of situs inversus (where the major organs of the body are mirrored from their usual positions, a condition that affects around one in 20 000 people), reinforcing the claim that genetics play a crucial role. Other researchers argue that genetics probably account for only around 25 % of what determines handedness, with the other 75 % still to be determined.

Whatever the physical or genetic reasons behind left-handedness, other studies have shown that there is no major difference between right-handed and left-handed people when it comes to personality traits such as emotionality, extraversion, affability, responsibility and acceptance of new experiences. However, there is evidence of some more subtle differences between southpaws and the right-handed majority. Many of the world's greatest creatives have been left-handed and lefties have been shown to have a documented advantage in one area of creativity – divergent (out-of-the-box) thinking, the ability to generate creative ideas by exploring many possible solutions.

A 2009 study from Stanford University also found that lefties think differently from right-handers. When shown two columns of abstract illusions and asked to identify which ones were positive, right-handed participants tended to pick those on the right whilst left-handed ones chose the ones on the left. The study authors thought this might influence certain social decisions, such as which candidates people prefer when watching debates (based on where they're standing in relation to the individual) or how voting on ballots are conducted.

## Cognitive and economic factors

However, left-handers have been shown to be more susceptible to mental health problems than right-handers. Researchers from Yale University have found that left-handers are more likely to

suffer from psychotic disorders such as schizophrenia, in comparison to mood disorders, such as depression or bipolar syndrome, where there is no noticeable correlation with handedness. Additionally, around 30 % of lefties have no dominant hemisphere in their brain, which means that they are more at risk of cognitive learning impairments from an early age.

From an economic perspective, studies have also shown disadvantages to being left-handed. In 2014, Harvard professor Joshua Goodman published a paper that left-handed people earn significantly less than right-handers and are less likely to finish university. He found that left-handed people's median earnings are about 10 % lower than those of right-handers. The reason behind this, he theorised, was the statistically higher chance of left-handers suffering from cognitive problems whilst progressing through their school careers.

### **A sporting advantage**

More positively, lefties have been shown through a number of studies to have a distinct edge in sports, especially in one-on-one sports such as tennis. This is because left-handed athletes tend to train against right-handed opponents and can thus better adapt when facing other lefties. Right-handed athletes are at a greater disadvantage due to not having to compete so often against left-handed players.

In times gone by, these advantages could also have benefited left-handers in hand-to-hand physical combat, which is the source of yet another theory as to why left-handedness persists in humans - that it bestows an evolutionary advantage over the right-handed majority.

Whether any such physical advantage of being left-handed (outside the sporting arena) still exists in modern society, scientific debates will no doubt continue to abound between researchers surrounding one of the more unusual but enduring [human](#) traits.

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