



75.3% of **MZ** twins are both right handed. 21.7% are discordant (slightly support nurture arguments). 3% of MZ twins are both left handed. (McManus, 1992)

In **DZ twins** the percentages are almost identical.

Handedness and Cerebral Lateralisation

Handedness in Twins

Handedness in Animals

50:50 Split in Mice

Some suggest 60-65% right dominance in Chimpanzees. (Measured through ant-'fishing' observations).

Why?

Plato "It is due to the folly of nurses and mothers that we have all become limping, so to say, in our hands... By habitually using them in a wrong way we have made them different" **NURTURE**

Aristotle "The right hand is superior to the left by natural distinction" **NATURE**

When?

Most fetuses that suck their right thumb are right handed at five years old and vice versa (Hepper, 1991)

Handedness in Families suggests that two right handed parents will have 9.5% left handers, mixed will have 19.5% left handers and two left handers will have 26.1% left handed children.

This can be explained using **Mendelian Genetic Models** McManus et al. (1992) argued for a genetic model of handedness, with their being two alleles (similar to A and B for blue and green eyes). The first is **D** (dextral) and the other is **C** (chance). D is dominant and C is recessive. Two D's in parents predicts 100% right handedness, DC predicts p(right) as .75.

Also supported in studies of **grandparents** (study ICM) where having two right handed grandparents predicted 10.40% left handed children whereas having one or more left handed grandparents predicted between 15 and 20% left handedness.

Handedness is your writing hand. This has no correlation with which way you grasp your other hand or how you fold your arms however. These are examples of **behavioural asymmetries**.

The Left Hand

The **Waltham Forest (1996)** study states that 9.9% of children (drawn from a sample of 3000) aged 6-15 were **left handed**. McManus states that about 10% of people are left handed.

Men & Women there is a 5:4 ratio of left handedness in men to women.

Culturally Asian people have less left handers (from a meta-analysis of 100 studies).

Not more intelligent (mean IQ 99.5)

Coren et al. (1977) found that 90% of people have used their right hand, historically (ranging from pre-3000BC). This was found using historical artefacts, palaeolithic records and ethnographic records.

Toth (1985) found that early ancestors 1.5-2mn years ago had right dominance. Measured using trajectory of rock hammering.

The Right Dominance

18.6% of American presidents have been left handed (including Obama, Clinton and Ford).

Slightly more variable though. Over represented at both ends of distribution. This is partly due to **pathological left handedness**.

They tend to be more **musical** and often found amongst **high-level mathematicians**.