9 2 7	95 2 8 18 32 25 8 2	8 2 6	92 2 8 18 32 21 9 2	16 2 8 6
F	Am	O	U	S
Fallibroome	Academy Magazine	of	Unbelievable	Science

Aspects of humanity: exploring language and birth





Womb Transplant UK



By Oliver Cope and Lizzie Groenewald

Language Beyond Humans

Language is an essential part of being human. Whole civilisations are built by language and the ideas it transmits. Language lets you read this right now. Language seems unique to us too - the so called “father of modern linguistics”, Noam Chomsky said : “Human language appears to be… without significant analogue in the animal world”. Yet recent analysis of the songs of humpback whales suggests that skill in speech may not be isolated to homo sapiens; their communication patterns resemble ours greatly, surprising given that our last common ancestor lived 90M years ago. It might be time to admit language is not a unique part of the human condition after all.

There are two discoveries about whale speech which cast doubt on the idea that language is solely human. Firstly, that the prevalence of common ‘words’ in whale song drops off in a very predictable way, like in human speech. Secondly, the most common whale ‘words’ are short, just as the most common human words are. But the very first challenge that researchers had to tackle was : what is a ‘word’? Even in human language, unless a sentence is written, it is hard to identify the end of one word from the start of the next. This is exemplified by listening to a foreign language - when they speak, there are no clear cut pauses between words - it is one long sequence of sound. In fact up until the 7th century, in our writing, English used ‘scriptio continua’ before finally adding spaces between words. This same idea applies to whale speech. Thus, for the researchers to identify words, they used a technique which human babies use : transitional probability. This is where you can deduce a ‘word’ by seeing the probability that some sounds are found together. E.g. in the phrase ‘fluffy pillow’, regardless of its meaning, using thousands of samples, you would find that the sounds ‘fluf’ and ‘y’ are more frequently combined that ‘fy’ and ‘pil’.

Secondly, they remarkably found that the link between the frequency of a word and its ranking in prevalence (the nth most common word) was very similar for both species: frequency is inversely proportional to the prevalence. For instance, the 1st, 2nd, and 3rd most common English words are : ‘the’, ‘be’, and ‘to’. Therefore, ‘be’ second in the ranking, has a frequency 1/2 that of ‘the’. And ‘to’ ‘s frequency a 1/3rd that of ‘the’. Not only did this trend hold true for whale language, so did the trend in word length. The top 10 most common words in English are ‘the’, ‘be’, ‘to’, ‘of’, ‘and’, ‘a’, ‘in’, ‘that’, ‘have’, ‘I’. They are all short, one syllable sounds. In fact the most common 2 syllable word in English, ‘about’, is 45th down the ranking of most common words! Again, this is a pattern present in the speech of whales as well.

This research might not have elucidated the meanings of words used by humpback whales. But it does suggest that animals can learn language the same way as we do - culturally. And the very idea that whales might have a culture suggests there is much more that unites us and animals, that which separates.

The World of Uterine Transplants

At the age of 19, Grace Davidson was given a diagnosis that would change the course of her life more than she could've ever known: she had MRKH.

MRKH syndrome or Müllerian agenesis is a condition where a woman is born with an underdeveloped or missing uterus (the organ that carries a baby). It affects around 1 in 5000 biological females, and people are usually diagnosed in their late teens after failing to start their periods. MRKH is a tough condition for many - for Grace her diagnosis felt like her "hopes of dreams of becoming pregnant [and] having a large family … were already being taken off the table". However, there are treatments available for those with MRKH and similar infertility conditions, one of which has only become a reality in the past decade or so - womb transplants.

Womb transplants are complicated and intensive procedures that require a lot of preparation and testing of the uterus donors and those receiving them. They can be done with donations from those who have passed away, but are more typically done with donations from living people, such as family or friends. For Grace, she and her husband Angus entered a medical trial in 2015 to receive a uterus donation from a deceased person. However, after three long years of waiting the couple decided to use a living donor instead. Her mother was initially tested, but it was found that the risk of failure of a transplant using her mother's womb would be too high. Eventually, Grace's two sisters decided to step in, and in 2019 Grace's sister Amy was found to be a match.

After years of delays due to Covid, Grace's transplant finally took place in 2023. It was a long process lead by senior surgeons Isabel Quiroga and Richard Smith, who are both heads of the surgical team of experts from the charity Womb Transplant UK. In fact, Richard Smith has been leading research in uterine transplants since the late 1990's and is a founding member of WTUK. The charity not only raises money for its continued important research, but also for the 15 transplants they aim to carry out in future from both living and deceased donors. Each transplant costs around £25,000, and so far they have raised an amazing £200,000. WTUK does this mainly through donations, and they hope to raise a further £300,000 to reach their goals.

Finally after over 25 years of research and ten years of waiting for Grace, it all culminated on the 27th of February 2025 when Amy Isabel Davidson was born from cesarean section. Amy Isabel marks the first successful birth from a womb transplant in the UK - a massive scientific and medical milestone. Even though the field of uterine transplants is still new, it is developing rapidly. As stated by WTUK, as of the 1st of March 2025, there have been over 135 transplants recorded worldwide, with over 65 babies born so far. Womb transplants have now become a genuine option for those with infertility, and will continue to change lives just as it did for Grace.

Science competition

Answer the questions below to enter the competition
Email your answers to Mr Downing to enter (dow@fallibroome.org.uk)
1st correct entry wins a prize for the form!

What is the style of writing called when there are no spaces or separation between words?

……

What is the cost of a single uterine transplant surgery?

……

Why is the chemical symbol for lead Pb on the periodic table?

……

What is the closest galaxy to the Milky Way called?

……

Scientist of the month

Year 7 - Tyler Orme

Year 8 - Ronan Copestake

Year 9 – Lucy Lenton

Year 10 - Henry West

Year 12 - Harry Billington

Come and collect your prize from:

Mr Downing in **A43**

