

## Men who use mobile phones face increased risk of infertility

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Men who use mobile phones could be risking their fertility, warn researchers.

A new study shows a worrying link between poor sperm and the number of hours a day that a man uses his mobile phone.

Those who made calls on a mobile phone for more than four hours a day had the worst sperm counts and the poorest quality sperm, according to results released yesterday at the American Society for Reproductive Medicine annual meeting in New Orleans.

Doctors believe the damage could be caused by the electromagnetic radiation emitted by handsets or the heat they generate.

The findings suggest millions of men may encounter difficulties in fathering a child due to the widespread use of mobile phones and offers another possible explanation for plummeting fertility levels among British males.



Phone the doctor: Men who use mobile phones could face increased risk of infertility

Sperm counts among British men have fallen by 29 per cent over the past decade, a drop which has also been blamed on increasing obesity, smoking, stress, pollution and 'gender-bending' chemicals which disrupt the hormone system.

The latest study backs up previous research which indicated a link between mobile phone use and sperm quality, but it is the biggest and best designed to date.

US researchers in Cleveland and New Orleans, and doctors in Mumbai, India, looked at more than 360 men undergoing checks at a fertility clinic who were classified into three groups according to their sperm count.

Men who used a mobile for more than four hours a day had a 25 per cent lower sperm count than men who never used a mobile.

The men with highest usage also had greater problems with sperm quality, with the swimming ability of sperm - a crucial factor in conception - down by a third.

They had a 50 per cent drop in the number of properly formed sperm, with just one-fifth looking normal under a microscope.

Professor Ashok Agarwal, director of the Reproductive Research Centre at the Cleveland Clinic, Ohio, who led the study, said "Almost a billion people are using cell phones around the world and the number is growing in many countries at 20 to 30 per cent a year.

"In another five years the number is going to double. People use mobile phones without thinking twice what the consequences may be.

"It is just like using a toothbrush but mobiles could be having a devastating effect on fertility. It still has to be proved but it could have a huge impact because mobiles are so much part of our lives."

Altogether 361 men in the study were divided into four groups, with 40 never using a mobile, 107 men using them for less than two hours a day, 100 men using them for two-four hours daily and 114 making calls for four or more hours a day.

The main finding was that on four measures of sperm potency - count, motility, viability and morphology, or appearance - there were significant differences between the groups.

The greater the use of mobile phones, the greater the reduction in each measure. Prof Agarwal said "This was very clear and very significant. Many in the lowest group for sperm count would be below normal as defined by the World Health Organisation."

The WHO says a normal sperm count is above 20 million per millilitre of seminal fluid. "There was a significant decrease in the most important measures of sperm health with cell phone use and that should definitely be reflected in a decrease in fertility" he said.

Motility measures the swimming ability of sperm, viability measures whether non-swimming sperm are still alive while morphology is the appearance compared to the norm.

Although the men were seeking fertility treatment at a clinic in Mumbai, not all would have had a problem - it could be their partners, he added.

Prof Agarwal said the most likely mechanism was damage to sperm-making cells in the testes caused by electromagnetic radiation or heat, although a fall in hormone production could also affect sperm motility and sperm DNA.

He said: "These cells in the testes have been shown to be susceptible to electromagnetic waves in previous research in animals.

"Somehow electromagnetic waves may be causing direct damage to these cells and that perhaps causes a decrease in sperm production."

Mobiles may also increase temperature in the groin, if a man was wearing it on a belt or carrying it around in a pocket.

Prof Agarwal said it was too early to advise men trying to start a family about whether they should limit their mobile phone use. He said "We still have a long way to go to prove this but we have just had another study approved."

More than 40 million people in Britain are thought to use mobile phones. Alasdair Philips, director of the consumer pressure group Powerwatch said "It's a plausible link between the amount of time spent using a mobile phone and a possible effect on male fertility.

"The eyes, breasts and testicles are the areas of the body most likely to absorb the energy and many men carry their mobiles attached to their belt."

Sending text messages uses less power than talking but it can be a more intense emission of radiation, especially on trains, he said.

"I've seen men on trains spending two or three hours continually texting with their mobile phones held in their laps, and they press Send in the same position when it starts to seek a signal.

"This needs a considerable amount of power within what is effectively a metal box. We advise people to send a text with their arm outstretched next to the window when travelling on a train" he added.

He said local heating of the groin triggered by a mobile phone might also be involved in affecting sperm quality.

"Sperm is very temperature sensitive as shown by many studies, and a short-term rise in temperature could be responsible" he added.

However, Dr Allan Pacey, senior lecturer in andrology at the University of Sheffield, said "This is a good quality study but I don't think it tackles the issue.

"If you're using your phone for four hours a day, presumably it is out of your pocket for longer. That raises a big question: how is it that testicular damage is supposed to occur?"

He said mobile phone use may be a marker for other lifestyle factors known to affect sperm quality.

"Maybe people who use a phone for four hours a day spend more time sitting in cars, which could mean there's a heat issue. It could be they are more stressed, or more sedentary and sit about eating junk food getting fat. Those seem to be better explanations than a phone causing the damage at such a great distance" he added.