

Girls' autism link to grandmothers who smoked

By **Sarah Knapton** SCIENCE EDITOR

GRANDMOTHERS who smoked during pregnancy may have triggered autistic traits in their granddaughters, a new study suggests.

Scientists at the University of Bristol followed 14,500 participants in the Children of the 90s study, and found that if a girl's maternal grandmother smoked during pregnancy, the girl was 67 per cent more likely to suffer poor social communication skills and repetitive behaviours.

It also increased the risk of her being diagnosed with autism by 53 per cent.

The incidence of autism has risen in recent years, and while that is partly down to improved diagnosis, the researchers believe that environmental factors, such as smoking in pregnancy may also be playing a role.

Around one in 100 people has autism, with men more affected than women.

The smoking effect, however, was only seen in girls, leading scientists to believe smoking may damage mito-

chondrial DNA – the batteries of the cell, which are only passed down the female line.

Prof Jean Golding, the study's author, said "We already know that protecting a baby from tobacco smoke is one of the best things a woman can do to give her child a healthy start in life.

"Now we've found that not smoking during pregnancy could give their future grandchildren a better start too."

Co-author Prof Marcus Pembrey, added: "In terms of mechanisms, there are two broad possibilities. There is DNA damage that is transmitted to the grandchildren or there is some adaptive response to the smoking that leaves the grandchild more vulnerable to ASD [autism spectrum disorder].

"We know smoking can damage the DNA of mitochondria.

"The initial mitochondrial DNA mutations often have no overt effect in the mother herself, but the impact can increase when transmitted to her own children."

The research was published in the journal *Scientific Reports*.