

# Gene research sheds light on timing of menopause

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13 new regions of the genome associated with the timing of menopause have now been discovered.

(Medical Xpress) -- An international team of researchers has discovered 13 new regions of the genome associated with the timing of menopause.

These genes shed light on the biological pathways involved in reproductive lifespan and will provide insights into conditions connected to [menopause](#), such as breast cancer and heart disease.

Menopause is a major hormonal change that affects most [women](#) when they are in their early 50s. The timing of menopause can have a huge impact on fertility, as well as influencing the risk of a range of [common diseases](#) such as breast cancer. It has been known for some time that [genetic factors](#) influenced the [onset of menopause](#), however until

recently very few genes had been identified.

In the new study, published in the journal *Nature Genetics* on 22 January 2012, Dr Anna Murray, University of Exeter, Peninsula College of Medicine and Dentistry (PCMD) Dr John Perry, PCMD and WTCHG, University of Oxford, and dozens of international collaborators, examined the genomes of over 50,000 women. They identified 13 [novel gene](#) regions associated with menopause onset, and confirmed four previously identified. Most of the 17 regions include genes related to DNA damage/repair or the immune system, whilst others are linked to hormonal regulation.

Dr Perry said: “The new findings highlight biological pathways not previously associated with reproductive lifespan, and may provide insights into the other conditions connected with menopause age, such as cardiovascular disease and breast cancer.”

The association with breast cancer is related to the length of time a woman menstruates in total and is thought to be related to oestrogen exposure over a lifetime - in fact earlier menopause is protective for [breast cancer](#). Cardiovascular risk is increased in post-menopausal women compared to pre-menopausal and reduced oestrogen is thought to be a key component of this increased risk. Genetic studies will be beneficial in working out exactly what the relationships are between these conditions.

Dr. Murray added: “Menopause is a process most women go through, yet we know very little about what governs the timing of this key event in a woman’s life. By finding out which genes control the timing of menopause we hope to be able understand why this happens very early to some women, reducing their chances of having children naturally.”

The authors said they expected further research will identify additional

genes, and also assess the impact of these genetic regions on related reproductive disorders. The research team are currently investigating women who had very early menopause, before 45 years, to determine whether the new menopause genes play a role in this clinically important condition which affects over five per cent of women.

Besides Dr Murray and Dr Perry, senior authors on the study include Professor Kathryn Lunetta and Dr Joanne Murabito at the Boston University schools of Public Health and Medicine, and Jenny A. Visser, a scientist at Erasmus Medical Center in Rotterdam (Netherlands).

Provided by University of Exeter

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