**Shift work and heavy lifting may reduce women’s fertility, study finds**

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Researchers say women who work nights and irregular shifts have fewer eggs capable of developing into healthy embryos than those who keep regular daytime hours

Women who work at night or do irregular shifts may experience a decline in [fertility](http://www.independent.co.uk/topic/fertility), a new study has found.

[Shift and night workers](http://www.independent.co.uk/news/science/night-shift-patterns-rotating-night-shift-coronary-heart-disease-chd-death-us-nurses-health-study-a7002366.html) had fewer eggs capable of developing into healthy embryos than those who work regular daytime hours, according to researchers at Harvard University.

There was also a reduction of around 15 per cent in the number of eggs ready for fertilisation in women with jobs requiring heavy lifting, including nurses and interior designers, they said.

The study, which involved two groups of women undergoing [IVF](http://www.independent.co.uk/topic/ivf), examined egg quality among 313 women who had completed one IVF cycle as well as the total number of eggs in the ovaries of 473 women at a fertility clinic.

Co-author Audrey Gaskins told *The Independent*women whose jobs involved shift work or heavy lifting “had fewer eggs in total [that] the fertility specialists were able to retrieve. Among the eggs they were able to retrieve, a lower number were of good enough quality to progress further”.

While the scientists were unable to assess the potential impact of several factors including working hours, testosterone levels or childhood exposure to [smoking](http://www.independent.co.uk/topic/Smoking) on the participants' fertility, they suggested stress caused by a shifting body clock or physical exertion could explain the findings.

Dr Gaskins said shift work could cause a reduction in fertility through “disruption in circadian rhythm that’s affecting normal hormone production and menstrual cycling, particularly for women who switch between day and night time work”.

She said it was difficult to say why jobs involving heavy lifting might reduce fertility, but suggested the body’s response to repetitive physical stress could affect a woman’s ability to produce good-quality eggs.

More than 3.1 million people in the UK work nights, a figure which has risen in recent years, according to a [study by trade union TUC](http://www.independent.co.uk/news/uk/home-news/one-in-eight-employees-work-night-shifts-tuc-study-a7385016.html).

Women account for more than two thirds of the growth, according to the study, following an increase in night shifts worked by care workers and nurses.

“We already know that physical exertion and stress can inhibit the female reproductive system and make periods less regular or even absent,” said Channa Jayasena, a senior lecturer in Endocrinology at [Imperial College London](http://www.independent.co.uk/topic/ImperialCollegeLondon).

“Workers are increasingly moving away from a traditional 9 to 5 model, and we still know very little about how this could affect our health.”

The participants, who had an average age of 35, were part of an ongoing Harvard study looking at the factors that might affect fertility called Environment and Reproductive Health (EARTH), which started in 2004.

Nine in 10 worked normal office hours, while 22 per cent said their jobs were moderately to very physically demanding and 40 per cent of women reported lifting or moving heavy objects at work.

Among women with physically demanding jobs, a greater difference in the number of eggs ready to be fertilised emerged between women who were overweight or over 37 years old and those who had a healthy weight or were younger.

Dr Jayasena said the study, published in the journal [Occupational and and Environmental Medicine](http://oem.bmj.com/lookup/doi/10.1136/oemed-2016-103953.pdf), was too small to rule out the potential impact of varying circumstances such as social conditions and diet.

Ying Cheong, Professor of Obstetrics and Gynaecology at the University of Southampton, told *The Independent* the research was “useful and interesting”.

“This is the first time research has looked at how many eggs a woman has got. That’s useful and interesting,” she said. “What’s lacking is what actually happens to births. Ultimately there may be no significant difference.”

“We’re really just at the tip of the iceberg here,” said Professor Cheong, who suggested similar employment stress factors could also affect male fertility. “Modern life has changed the way our body perceives time and rhythm. It’s about addressing how we could minimise this risk.”

Professor Cheong led similar research which found almost a third of women who worked night shifts had an increased rate of miscarriage, and 22 per cent who worked changing shifts had menstrual disruption, which can lead to fertility problems.

“Current research, including this study, is still not able to separate out some of the confounding factors like diet, amount of sleep, activity – it’s such a complex area,” she said. “This could lead to, with more evidence, more awareness and policy changes with regard to general health.”

Innovations such as glasses which filter wavelengths of light that affect the body clock, or making better use of sleep-tracking devices, could potentially be used in future to lessen any negative effect of working patterns on fertility, said Professor Cheong.

Susan Bewley, Professor of Complex Obstetrics at King’s College London, told *The Independent*it was difficult to “sort out cause and effect” from the data in the study and said more research was needed before doctors could give advice on the basis of the findings.

But Darren Griffin, Professor of Genetics at the University of Kent, said women trying to conceive “may wish to take the study into account, perhaps avoiding heavy lifting and unsociable work hours as much as is possible during this time, especially if they are not falling pregnant within the first year of trying.”

“We only asked [the participants] about their current job, not how long they had been working in that job or shift,” said Dr Gaskins. “Next it would be interesting to look at what happens if a woman changes her occupational exposure, so stopped working non-daytime shifts.

“Would we see an improvement? That would be a very strong recommendation or conclusion that could provide help for policy makers and guidelines."