



### Oral contraceptive pills in preventing ovarian cancer

**Overview:** Ovarian cancer is the sixth most common cancer in women in the UK ([ONS 2012](#)). The survival rate for ovarian cancer is low, with only 44% of women surviving to 5 years ([National Cancer Intelligence Network 2012](#)), because most women present with advanced disease. Mortality rates have, however, fallen over the past few years, from around 12 per 100,000 female population in 1989–2002 to 8.8 per 100,000 in 2010.

Evidence suggests that the risk of developing ovarian cancer may be related to the number of ovulations during a woman's lifetime ([Webb et al. 1998](#)). Any event that inhibits or prevents ovulation – such as child bearing, breast feeding, early menopause and use of oral contraceptive pills – may be protective against ovarian cancer.



See the NICE Evidence Services topic page on [ovarian cancer](#) for a general overview of this condition.

**Current advice:** The NICE guidance on [ovarian cancer](#) does not cover preventive strategies. The Faculty of Sexual and Reproductive Healthcare, a branch of the Royal College of Obstetricians and Gynaecologists, has guidance on [combined hormonal contraception \(NICE accredited\)](#). The guidance recommends health professionals should be aware that use of combined hormonal contraception is associated with a reduced risk of ovarian cancer that continues for several decades after stopping the drug.

The NICE Pathway on [ovarian cancer](#) brings together all related NICE guidance and associated products on the condition in a set of interactive topic-based diagrams.

**New evidence:** [Havrilesky et al. \(2013\)](#) conducted a systematic review and meta-analysis of 55 controlled studies of 100 or more women that reported a quantitative association between exposure to oral contraceptive pills and incidence of ovarian cancer or mortality.

In a random-effects analysis of 24 case-control studies, women who used oral contraceptive pills had a lower incidence of ovarian cancer than women who had never used oral contraceptives (OR=0.73, 95% CI 0.66 to 0.81, p value not reported). The association between use of oral contraceptive pills and risk of ovarian cancer was duration dependent, with the greatest reduction in ovarian cancer incidence seen in women taking oral contraceptive pills for more than 10 years (OR=0.43, 95% CI 0.37 to 0.51, p<0.001). Women who were younger than 20 years at first use had the greatest risk reduction (OR=0.63, 95% CI 0.45 to 0.89, p<0.018), whereas the reduction was less in those aged 20–30 years and not significant in those aged older than 30 years. The risk was not affected by the oestrogen or progesterone dose in the oral contraceptive used.

This evidence suggests that use of oral contraceptive pills is associated with duration-dependent reductions in ovarian cancer incidence in the general population. However, substantial heterogeneity

was observed among the studies analysed and no randomised prospective trials were included, which may introduce bias.

**Commentary:** “This latest systematic review and meta-analysis confirms the well-established reduction in the risk of ovarian cancer associated with use of oral contraceptive pills. Greater benefit was seen with longer use of oral contraceptive pills and earlier age at first use. However, as the authors note, the latter is difficult to separate from duration of use.

“The primary analysis was limited to studies published since 2000. This approach, together with the finding that risk reduction seemed to be independent of oestrogen and progesterone dose, suggests that the benefits seen in this study may be extrapolated to newer low dose formulations of oral contraceptive pills. However, caution must be applied in extrapolating the reduction benefits to newer low-dose oral contraceptive pills. Ovarian cancer is a disease of older women and the newer preparations were introduced in the 1990s, so the exposure time has not been sufficient to determine the effects of the newer preparations. The other major limitation of this study is the lack of randomised controlled trials, so the strength of evidence for use and duration of use of oral contraceptive pills is only moderate and for other relationships is low.

“No guidance is available on use of oral contraceptive pills to prevent ovarian cancer, although the additional benefits of oral contraceptive pills are detailed in [patient guidance on contraceptive use](#).” – **Dr Michelle Griffin, Honorary Clinical Fellow; Dr Aleksandra Gentry-Maharaj, Senior Research Associate; and Professor Usha Menon, Head, Gynaecological Cancer Research Centre, Women’s Cancer, Institute for Women’s Health, University College London**

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