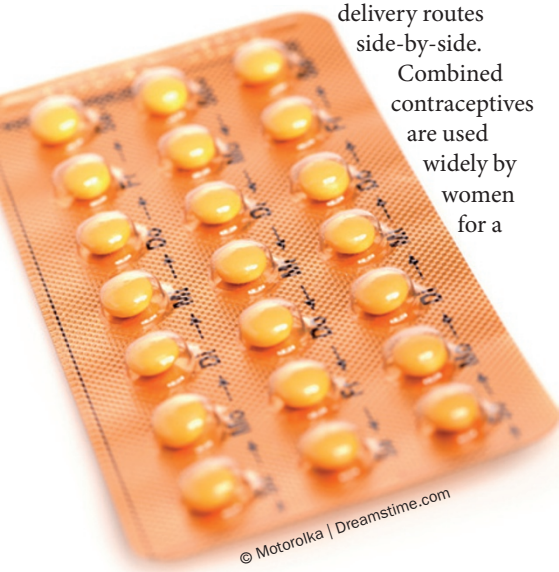


 SEXUAL MEDICINE

Combined contraceptives— which delivery route is best?

Oral, transdermal and vaginal combined contraceptives, which contain oestrogen and progesterone, impair glucose tolerance and induces markers of chronic inflammation according to a new study in *Human Reproduction*. The study is the first to compare the three commonly used delivery routes side-by-side.

Combined contraceptives are used widely by women for a



number of reasons aside from preventing pregnancy, including to treat menstrual disorders, hirsutism and endometriosis. However, several studies have shown that these contraceptives might increase the risk of cardiovascular disease and impair glucose tolerance. In this study, the authors randomly assigned 42 healthy, normal-weight women to one of each type of contraception for continuous 9-week use (three cycles). Several factors were regularly measured during the study that are related to androgen secretion, glucose metabolism and the lipid profile of the woman.

Overall, all three contraceptive delivery methods equally decreased androgenicity (reflected in a decrease in 17-hydroxyprogesterone and increased sex hormone-binding globulin levels). All methods increased the levels of insulin from baseline—although this increase was only significant in the women taking oral contraceptives and using the vaginal ring—which was accompanied by decreased fasting insulin sensitivity

index in all three groups. Serum total cholesterol was unaffected by the combined contraceptives but high-density lipoprotein cholesterol and triglycerides increases significantly over time in each study group. Finally, C-reactive protein, a marker of inflammation, was increased in all groups.

Although this study was short and had few participants, the results suggest that combined contraceptives might have negative health consequences, particularly for women who might be at increased risk of cardiovascular disease or diabetes mellitus. Indeed, an expanded study that examines the metabolic and inflammatory effects over longer periods is warranted.

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Original article Pittonen, T. et al. Oral, transdermal and vaginal combined contraceptives induce an increase in markers of chronic inflammation and impair insulin sensitivity in young healthy normal-weight women: a randomized study. *Hum. Reprod.* doi:10.1093/humrep/des225