

# Study finds injectable and oral birth control do not adversely affect glucose and insulin levels

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Fasting glucose and insulin levels remain within normal range for women using injectable or oral contraception, with only slight increases among women using depot medroxyprogesterone acetate (DMPA), commonly known as the birth control shot, according to new research from the University of Texas Medical Branch (UTMB Health) in Galveston.

The study, published in the January 2011 issue of *Obstetrics and Gynecology* and conducted over three years, is the largest to measure fasting glucose and [insulin levels](#) among women using DMPA, oral (desogestrel) [contraception](#) and non-hormonal (bilateral tubal ligation, condom or abstinence) methods. Researchers found that DMPA users' [glucose levels](#) increased steadily during the first 30 months of use, with the greatest increase occurring during the first six months. The observed increases, which were less than those reported in previous studies, were not significant enough to cause concern.

There are 62 million women of reproductive age in the United States. More than two million American women use DMPA, including approximately 400,000 teens, and more than 11 million use oral contraception.

"Previous studies were limited in scope and offered conflicting results, which led physicians to question whether hormonal contraception could lead to diabetes," says lead author Dr. Abbey Berenson, professor,

Department of Obstetrics and Gynecology and director of the Center for Interdisciplinary Research in Women's Health. "Further studies are needed to determine how women with diabetes are affected by DMPA and oral contraception, but these results are reassuring for non-diabetic women already receiving the shot or on the pill."

## **A Body of Research on the Effects of Contraception**

The findings are the fourth in a series of UTMB Health studies published in Obstetrics and Gynecology that add to the growing literature enabling physicians to better counsel women accurately about the positive and adverse side effects associated with widely used forms of contraception.

Other studies included in the series examined the effect of contraception on weight gain and bone density loss. All of the studies followed a sample of 703 African-American, Hispanic and white women between the ages of 16 -33 years-old from 2001 through 2004 who chose their own contraception method. Researchers also examined such variables as: race and ethnicity, age, parity, duration of use, previous use of contraceptive method, lifestyle behaviors like diet, smoking, drinking and physical exercise, and socioeconomic status.

### **Findings include:**

#### **Contraception and Bone Loss**

In a study published in January 2010, Berenson and UTMB Health co-author Dr. Mahbubur Rahman, assistant professor, Department of Obstetrics and Gynecology and Center for Interdisciplinary Research in Women's Health, examined the relationship between contraception and bone mineral density (BMD) loss. They found:

- Nearly half of women using DMPA experienced high BMD loss in the hip or lower spine within two years of beginning the contraceptive.
- Women using DMPA who smoke, have low levels of calcium intake and never gave birth were at the highest risk for BMD loss.
- High-risk women continued to experience significant loss in BMD during the third year of DMPA use, especially in the hip – the most common fracture site in elderly women.
- Age, race or ethnicity, previous contraceptive use and body mass index (BMI) were not associated with higher BMD loss.

## **Contraception and Weight Gain**

In two separate studies on weight gain and contraception use, published in March and August 2009, Berenson and Rahman found:

Women using DMPA gained an average of 11 pounds and increased their body fat by 3.4 percent over three years.

- Women who switched from DMPA to non-hormonal contraception began to slowly lose the weight and fat mass they gained – nearly four pounds over two years, while those who used oral contraception after the shots gained an average of four additional pounds in the same time span. The amount of weight gained was dependent on length of time DMPA was used, as the rate of weight gain slowed over time.
- Twenty-five percent of DMPA users whose weight increased by

five percent within the first six months of use, called "early gainers," were at risk for continued, excessive [weight gain](#). The remaining 75 percent ("regular gainers") gained only a small amount of weight or did not observe any change in their weight.

- Early gainers – who went on to gain an average of 24 pounds over three years – exhibited three major risk factors: a body mass index under 30; having children before starting DMPA; and a self-reported increase in appetite after six months of DMPA use.
- On average, early gainers increased their body weight an average of 19 pounds more than the regular gainers, who saw an average increase of five and a half pounds over three years.

## **A More Informed Physician-Patient Relationship**

"Taken together, this body of research helps dispel myths surrounding birth control and shed light on side effects that had been anecdotally reported but not yet proven," says Berenson. "Physicians can now better explain the risks and benefits of various birth control methods and take appropriate action to protect patients' long-term health, which may include switching to another contraception method."

Provided by University of Texas Medical Branch at Galveston

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