

plus ICS groups than ICS alone (OR=3.7; 95% CI, 1.4-9.6).

Only one of the 7 trials was included in the 2013 Cochrane review. The others were excluded because the control groups used different doses of ICS than the LABA-plus-ICS groups. In one trial, for example, the ICS group used 4 times the dose of budesonide used in the LABA-plus-ICS group. The difference in outcomes may therefore reflect the variation in ICS dose rather than the presence or absence of LABA.

Because of these conflicting results, the US Food and Drug Administration has mandated continued evaluation of LABAs by manufacturers.<sup>3</sup> Five clinical trials that are multinational, randomized, double-blind, and lasting at least 6 months will evaluate the safety of LABAs plus fixed-dose ICS compared with fixed-dose ICS alone. A total of 6200 children and 46,800 adults will be enrolled in the studies, whose results should be available in 2017.

JFP

#### References

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## Q/ Do hormonal contraceptives lead to weight gain?

### Evidence-Based Answer

**A** | It depends. Weight doesn't appear to increase with combined oral contraception (OC) compared with nonhormonal contraception, but percent body fat may increase slightly. Depot-medroxyprogesterone acetate injection (DMPA) users experience weight gain compared with OC and nonhormonal contraception (NH) users (strength of recommendation: **B**, cohort studies).

#### DMPA users gain more weight and body fat than OC users

A 2008 prospective, nonrandomized, controlled study of 703 women compared changes in weight, total fat, percent body fat, and central-to-peripheral fat ratio in 245 women using OC, 240 using DMPA, and 218 using NH methods of birth control.<sup>1</sup> Over the 36-month follow-up period, 257 women were lost to follow-up, 137 discontinued par-

ticipation because they wanted a different contraceptive method, and 123 didn't complete the study for other reasons.

Compared to OC and NH users, DMPA users gained more actual weight (+5.1 kg) and body fat (+4.1 kg) and increased their percent body fat (+3.4%) and central-to-peripheral fat ratio (+0.1;  $P<.01$  in all models). OC use wasn't associated with weight gain compared with the NH group but did increase OC users' percent body fat by 1.6% ( $P<.01$ ) and decrease their total lean body mass by 0.36 ( $P<.026$ ) (TABLE<sup>1</sup>).

#### DMPA users gain more weight in specific populations

For 18 months, researchers conducting a large prospective, nonrandomized study followed American adolescents ages 12 to 18 years who used DMPA and were classified as obese (defined as a baseline body mass index [BMI]

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**Weight doesn't appear to increase with combined oral contraception compared with nonhormonal contraception, but percent body fat may increase slightly.**

**TABLE**

## Estimated changes in weight and other measures by contraceptive method over 36 months<sup>1</sup>

	OC	DMPA	NH	P value
Weight (kg)	+1.5	+5.1	+2.1	NH vs OC: .168 NH vs DMPA: <.001 OC vs DMPA: <.002
Total body fat (kg)	+1.9	+4.1	+1.2	NH vs OC: <.01 NH vs DMPA: <.001 OC vs DMPA: <.001
Body fat (%)	+1.6	+3.4	+0.51	NH vs OC: <.01 NH vs DMPA: <.001 OC vs DMPA: <.003
Central-to-peripheral fat ratio	0.0	0.10	0.0	NH vs OC: .135 NH vs DMPA: <.001 OC vs DMPA: <.001
Total body lean mass	-0.36	1.16	-0.24	NH vs OC: <.026 NH vs DMPA: .996 OC vs DMPA: <.016

DMPA, depot-medroxyprogesterone acetate injection; NH, nonhormonal methods; OC, oral contraception.

>30 kg/m<sup>2</sup>) to determine how their weight gain compared with obese combined OC users and obese controls.<sup>2</sup>

Obese DMPA users gained significantly more weight (9.4 kg) than obese combined OC users (0.2 kg; *P*<.001) and obese controls (3.1 kg; *P*<.001). Of the 450 patients, 280 (62%) identified themselves as black and 170 (38%) identified themselves as nonblack.

In another retrospective cohort study of 379 adult women from a Brazilian public family planning clinic, current or past DMPA users were matched with copper T 30A intrauterine device users for age and baseline BMI and categorized into 3 groups: G1 (BMI <25 kg/m<sup>2</sup>), G2 (25-29.9 kg/m<sup>2</sup>), or G3 (≥30 kg/m<sup>2</sup>).<sup>3</sup>

At the end of the third year of use, the mean increase in weight for the normal weight group (G1) and the overweight group (G2) was greater in DMPA users than in DMPA nonusers

(4.5 kg vs 1.2 kg in G1; *P*<.0107; 3.4 kg vs 0.2 kg in G2; *P*<.0001). In the obese group (G3), the difference in weight gain between DMPA users and DMPA nonusers was minimal (1.9 kg vs 0.6 kg; *P*=not significant).

One limitation of these 2 studies could be that the women under investigation were from defined populations—black urban adolescents and a public family planning service. **JFP**

### References

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