



Commentary

Weight change among women using intramuscular depot medroxyprogesterone acetate, a copper intrauterine device, or a levonorgestrel implant for contraception did not influence early discontinuation

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A recent study published in *EClinicalMedicine* by Mags Beksinka and colleagues reported findings from a large randomised trial conducted in four Sub-Saharan African countries to assess weight variations among users of levonorgestrel-contraceptive implant [LNG-implant], depot medroxyprogesterone acetate [DMPA] injection, both contraceptives without estrogen, and the copper-intrauterine device [Cu-IUD]. Follow up was from baseline to 18 months after initiation of use. The results evidenced that DMPA injection and LNG-implant users gained 3.5 and 2.4 kg, respectively, compared to 1.5 kg among Cu-IUD users [1].

Previous studies have presented evidence on weight gain among users of progestin-only contraceptives. A randomised trial conducted in Brazil, Chile, Dominican Republic, Hungary, Thailand, Turkey and Zimbabwe compared users of two models of contraceptive implants with copper-IUD and showed that LNG-implant users gained 2.9 kg at 36 months of follow-up [2], similarly to the weight gain observed by Beksinka and colleagues [1]. Further, other previous studies showed a weight increase of 6.6 kg up to 10 years of use [3] in DMPA users and an annual average weight change of 1.1 kg among LNG-implant users was also reported [4]. An important finding from the study from Beksinka et al [1], is the fact that only 19, 7 and none women (among more than 2000 in each group) discontinued the use of DMPA, LNG-implant or Cu-IUD, respectively, due to weight increase. This means that weight increase does not necessarily correlate with the request of discontinuation in clinical practice.

A common complaint reported by users of progestin-only contraceptives and one of the most frequent reasons for early discontinuation is weight gain or loss, that may be real or based on a subjective

perception of women [4]. Although it was described that overweight women have a trend of weight increase when compared to thinner women; this situation was not observed in the study by Beksinka and colleagues [1].

Among users of DMPA injection, there are several explanations for weight gain and the most common reasons described were high appetite associated to an increase of leptin, increased serum lipids, fat mass deposition, anabolic effect and fluid retention caused by the steroid and ethnic differences in metabolism [5].

It has been described that many adult women gain weight independently of the use of hormonal contraceptives and this is a plausible explanation for weight gain among users of copper-IUD [6]. The reasons given for weight increase in non-users of hormonal contraceptives were related to aging, life circumstances, excessive (and unhealthy) food intake, fat mass and central body fat distribution, sedentary life, energy loss and chronic or degenerative diseases [7]. Users of the Cu-IUD presented weight gain in the study under comment as well as in previous publications in which the authors reported a 0.6 kg/year over seven years of use and an increase of 4.9 kg up to 10 years of use [3,8].

Beside efficacy, availability and affordable cost, the choice of a contraceptive methods depends on many factors, including knowledge about side effects and, in many cases, on the lack of knowledge about non-contraceptive benefits of the methods [9,10]. It is important for healthcare providers to take into account that contraceptive methods are an important tool in the prevention of unplanned pregnancy which still accounts for approximately 50% of the total number of pregnancies in many developed and developing settings. The use of modern contraceptives brings benefits to women and families and contributes to the reduction of abortions and maternal and child morbidity and mortality. Additionally, Cu-IUD users have a lower risk of endometrial and cervical cancer and DMPA injection users have a decreased risk of endometrial cancer, less dysmenorrhoea, menstrual flow, endometriosis-associated pain and less joint pain in women with sickle cell anemia [10].

The strength of the study is the prospective design and that it was controlled with non-hormonal contraceptive users; however, the short time of follow-up, the lack of control of physical activity and food intake among other variables were limitations. The high

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contraceptive effectiveness and the non-contraceptive benefits provided by DMPA injection, the LNG-implant and copper-IUD outweigh any potential side effects including weight gain. When healthcare providers counsel women about contraceptives, it is important they convey the information that not all women will present weight increase during use. For women with weight gain complaint related to contraceptive use, it is desirable that healthcare providers also take into account women's life style including food habits intake and physical activities to evaluate some of the potential causes of weight gain. Findings from the study might provide additional information for healthcare providers to consider when advising women about these contraceptives.

Author contribution

LB prepared this comment.

Declaration of Competing Interest

None

References

- [1] Beksinska ME, Issema R, Beesham I, et al. Weight change among women using intramuscular depot medroxyprogesterone acetate, a copper intrauterine device, or a levonorgestrel implant for contraception: findings from a randomised, multi-centre, open-label trial. *EclinicalMedicine* 2021 [10.1016/j.eclinm.2021.100800](https://doi.org/10.1016/j.eclinm.2021.100800).
- [2] Bahamondes L, Brache V, Ali M, Habid N. for the WHO study group on contraceptive implants for women. A multicenter randomized clinical trial of etonogestrel and levonorgestrel contraceptive implants with nonrandomized copper intrauterine device controls: effect on weight variations up to 3 years after placement. *Contraception* 2018;98:181–7.
- [3] Modesto W, dos Santos Pde N é S, Correia VM, Borges L, Bahamondes L. Weight variation in users of depot-medroxyprogesterone acetate, the levonorgestrel-releasing intrauterine system and a copper intrauterine device for up to ten years of use. *Eur J Contracept Reprod Health Care* 2015;20:57–63.
- [4] Sivin I, Alvarez F, Mishell Jr. DR, Darney P, Wan L, Brache V, et al. Contraception with two levonorgestrel rod implants: a 5 year study in the United States and Dominican Republic. *Contraception* 1998;58:275–82.
- [5] Espey E, Steinhart J, Ogburn T, Qualls C. Depo-Provera associated with weight gain in Navajo women. *Contraception* 2000;62:55–8.
- [6] Gallo MF, Legardy-Williams J, Hylton-Kong T, et al. Association of progestin contraceptive implant and weight gain. *Obstet Gynecol* 2016;127:573–6.
- [7] Batista GA, de Souza AL, Marin DM, et al. Body composition, resting energy expenditure and inflammatory markers: impact in users of depot medroxyprogesterone acetate after 12 months follow-up. *Arch Endocrinol Metab* 2017;61:70–5.
- [8] Hassan DF, Petta CA, Aldrighi JM, Bahamondes L, Perrotti M. Weight variation in a cohort of women using copper IUD for contraception. *Contraception* 2003;68:27–30.
- [9] Coombe J, Harris ML, Loxton D. What qualities of long-acting reversible contraception do women perceive as desirable or undesirable? A systematic review. *Sex Health* 2016. doi: [10.1071/SH15189](https://doi.org/10.1071/SH15189).
- [10] Bahamondes L, Valeria Bahamondes M, Shulman LP. Non-contraceptive benefits of hormonal and intrauterine reversible contraceptive methods. *Hum Reprod Update* 2015;21:640–51.