The Next Generation in Contraceptives: How Do They Fare?

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Contraceptive options in Canada

Canadian women now have a wide range of contraceptive options available to them, allowing them to choose the most appropriate method for them at various stages in their reproductive years. Options include:

- hormonal contraceptive methods,
- intrauterine devices,
- barrier methods,
- natural family planning methods and
- sterilization (male or female).

This article will focus on new contraceptive options in Canada, including a new oral contraceptive pill (OC), the contraceptive patch, the vaginal contraceptive ring and the levonorgestrel-releasing intrauterine system (LNG-IUS).

Combined hormonal methods

Combined hormonal methods contain estrogen (usually ethinyl estradiol) and a progestin. Low-dose OCs contain between 20 mcg and 35 mcg of ethinyl estradiol. A number of progestins are used, including newer progestins, such as drospirenone. Currently, there are several OCs available in Canada. The transdermal contraceptive patch and the vaginal contraceptive ring are also available in Canada.

New combined oral contraceptive pill (OC)

Drospirenone/ethinyl estradiol (EE-DRSP) contains 30 mcg of ethinyl estradiol and 3 mg of drospirenone. Drospirenone is a new progesterone

Meet Jessica

- Jessica, 41, presents with painful, heavy menses. She has always struggled with this problem but it has become worse over the last year and a half.
- A pelvic ultrasound and an endometrial biopsy are negative for pathology.
- She is a smoker, but is otherwise healthy.
- Her father passed away from a fatal myocardial infarction at the age of 58.
- Jessica is in a new relationship and requires effective contraception; however, she declines permanent sterilization.

What contraceptive options would you present to Jessica? Go to page 78 to find out.

FAQ

Can intrauterine devices (IUDs) be used in nulliparous women?

Yes, nulliparity is not a contraindication to IUD use. Occasionally, it can be more difficult to insert through a nulliparous cervix; however, cervical prepping with misoprostol often overcomes this problem.

that has both anti-androgenic and antimineralocorticoid properties. The efficacy of EE-DRSP is similar to that of other OCs (Pearl Index = 0.57), as are rates of breakthrough bleeding. Although it has gained a reputation as the weight-loss pill, studies do not report significant weight reductions (0 kg to 0.6 kg over 13 cycles).[1]

Studies have looked at the effect of EE-DRSP on premenstrual syndrome (PMS) and have found a decrease in mean scores for symptoms such as:

- negative effect,
- water retention and
- premenstrual appetite (Figure 1).[2]

Due to its anti-mineralocorticoid properties, caution should be used when prescribing EE-DRSP to women with tendencies towards electrolyte imbalances (*i.e.,* those with renal, adrenal or hepatic dysfunction) and women taking medications that increase serum potassium (*i.e.,* angiotensin-converting enzyme inhibitors, angiotensin receptor blockers, potassium-sparing diuretics, heparin, aldosterone antagonists and chronic, non-steroidal anti-inflammatory drug use). Otherwise, contraindications for EE-DRSP are the same as those for other OCs (Table 1) and the side-effect profile is similar.

The contraceptive patch

The transdermal contraceptive patch, delivers a daily dose of 150 mcg of norelgestromin and 20 mcg of ethinyl estradiol into the bloodstream. It is a very effective method of reversible contraception (Pearl index = 0.88).[3]

Its mechanism of action is similar to the OC, but it is less compliance-demanding due to its once-a-week dosing schedule. The patch is applied on the same day of the week, every week for three weeks. The fourth week is a patch-free week. There is limited evidence suggesting that the effectiveness of the patch may be less for women weighing 90 kg or more.[3-4] Pending further evidence, contraindications to patch use are the same as those for the OC (Table 1). With the exception of application site reactions, patch side-effects and risks are similar to those experienced by OC users (Table 2).[3]

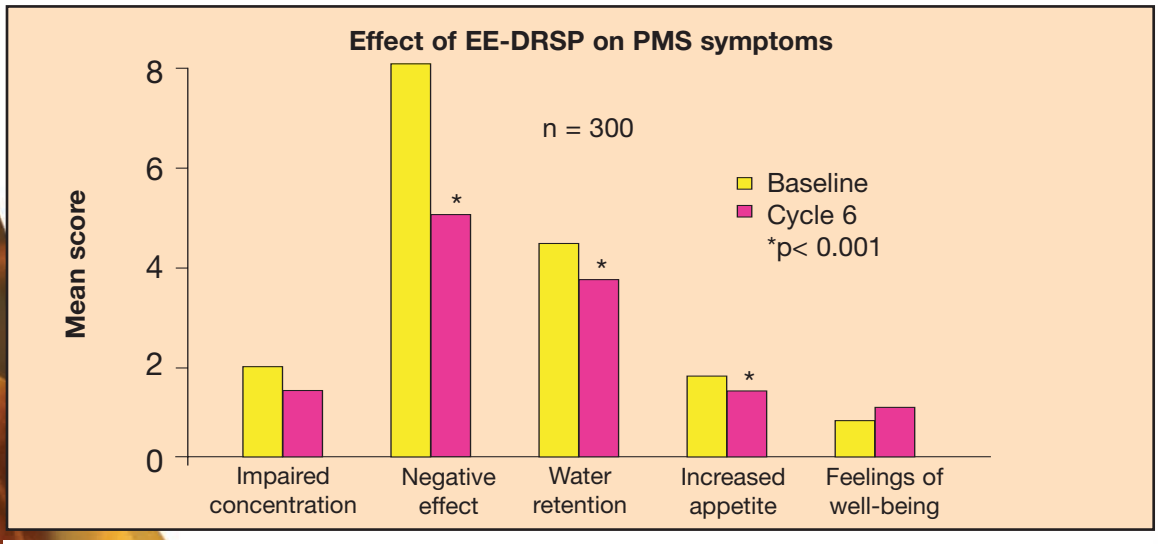

Figure 1. Effect of drospirenone/ethinyl estradiol on PMS symptoms.[2]

Table 1

Absolute contraindications to contraceptive methods[9]

	Combined hormonal contraception (OC, patch, ring)	Intrauterine devices (copper IUD, LNG-IUS)
Absolute contraindications	• < 6 weeks postpartum, if breast feeding • Hypertension (SBP >160 or DBP >100) • VTE (current/past) • Ischemic heart disease • History of CVA • Complicated valvular heart disease • Migraine headache with focal neurological symptoms • Migraine without aura over the age of 35 • Smoker over the age of 35 (>15 cigarettes/day) • Known thrombophilia (Factor V Leiden; prothrombin mutation; protein C, protein S, and antithrombin deficiencies) • Breast cancer (current) • Diabetes with end-organ involvement • Severe cirrhosis • Liver tumor • Active viral hepatits • Pregnancy	• Current, recurrent, or recent (< 3 months) STI or PID • Puerpal sepsis • Immediate post-septic abortion • Unexplained vaginal bleeding • Severely distorted uterine cavity • Cervical or endometrial cancer (awaiting treatment) • Malignant trophoblastic disease • Current breast cancer (for LNG-IUS) • Copper allergy (for copper IUD)

LNG-IUS: Levonorgestrel-releasing intrauterine system
VTE: Venous thromboembolism
STI: Sexually transmitted infection
PID: Pelvic inflammatory disease
CVA: Cerebrovascularaccident

Table 2

Side-effects of the contraceptive patch and the OC[3]

	Patch		OC	
	Overall	**Treatment limiting**	**Overall**	**Treatment limiting**
Breast discomfort	19%	1%	6%	0.2%
Headache	22%	1.5%	22%	0.3%
Application site reaction	20%	2.6%	N/A	N/A
Nausea	20%	1.8%	18%	0.8%
Abdominal pain	8%	0.2%	8%	0.3%
Dysmenorrhea	13%	1.5%	10%	0.2%

FAQ

Can combined hormonal contraceptive methods (*i.e.*, ring, OC, patch) be used by women over the age of 35?

Healthy, non-smoking women can continue to use combined hormonal contraception up until menopause.

FAQ

Do IUDs increase the risk of ectopic pregnancy?

No. IUD users have a lower risk of ectopic pregnancy than women not using contraception; however, if a pregnancy occurs with an IUD in situ, ectopic pregnancy must be ruled out.[7]

Jessica's Options

- The LNG-IUS would be an appropriate contraceptive option for Jessica. It would provide her with effective and reversible contraception and she would have the added benefit of the potential relief of her dysmenorrhea and menorrhagia.
- Estrogen is contraindicated as she is a smoker over the age of 35, so she is not a good candidate for the patch, the vaginal ring or the OC.
- Jessica should also be counselled on the use of condoms for the prevention of STIs and HIV.

FAQ

Will the patch stay on during exercise or hot weather?

The patch has excellent adhesive properties under a wide range of conditions and climates. Patch detachment requiring replacement occurs in less than two per cent of patch users.[3-4]

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The vaginal contraceptive ring

The vaginal contraceptive ring releases a constant rate of 15 mcg of ethinyl estradiol and 0.120 mg of etonorgestrel per day, absorbed through the vaginal mucosa.

The contraceptive effect is primarily through inhibition of ovulation and it has a Pearl index of 0.65.[5] Each ring is used for one cycle, which consists of three weeks of continuous ring use, followed by a one week ring-free interval.

The ring may be particularly suited for women who prefer a method of contraception that requires less compliance due to the once a month dosing.

Pending further evidence, absolute contraindications to ring use are similar to those for the OC.

Uterovaginal prolapse, or vaginal stenosis, may be considered to be relative contraindications if they prevent retention of the ring. Both vaginal spermicides and miconazole can be safely used with the ring, in situ, without affecting contraceptive efficacy.[6]

Hormonal side-effects are similar to those observed with the OC. Ring-specific side-effects include:

- vaginitis (5.6%),
- leukorrhea (4.6%) and
- vaginal discomfort (2.4%).[5]

The Intrauterine device

Currently in Canada, there are two types of intrauterine devices (IUD) available: two copper IUDS and an LNG-IUS. The LNG-IUS releases 20 mcg of levonorgestrel daily, for over five years and it provides highly effective contraception (Pearl Index = 0.1).[7]

Non-contraceptive benefits include: a decrease in menstrual blood loss of 74% to 97% and high rates of amenorrhea. LNG-IUS may thus be used for women with:

- menorrhagia,
- dysmenorrhea and
- endometriosis.[8]

Table 3
Characteristics of new contraceptive options

	EE-DRSP	Patch	Ring	LNG-IUS
Effective	Yes	Yes	Yes	Yes
Office visits	Rx	Rx	Rx	Insertion and removal
Easily reversible	Yes	Yes	Yes	Yes
Dosing frequency	Daily	Weekly	Every three weeks	Five years
User controlled	Yes	Yes	Yes	No

This form of contraception may be particularly suited for women who are seeking long term birth control, a method of contraception that is less compliance demanding and for women with contraindications to estrogen use.

Hormonal side-effects may occur in spite of the fact that systemic levels of levonorgestrel are extremely low.[7] Functional cysts may occur in 30% of LNG-IUS users and bleeding irregularities may occur, particularly in the first few months after insertion.

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Take-home message

- Canadian women and their partners may now choose from a wide range of contraceptive options.
- A woman's contraceptive needs may change over the course of her lifetime and it is important that health care providers take a careful history to help her choose the contraceptive option that is most appropriate for her.
- Contraindications should be ruled out and instances where women may benefit from the non-contraceptive advantages of a particular birth control option should be identified. In this way, a contraceptive choice can be tailored to meet a woman's lifestyle, health, and reproductive needs.
- Health care providers should also remember to encourage their patients to use condoms (dual protection) to protect themselves against STIs and HIV.