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A practical guide to contraception. Part 1: Contraceptive pills and vaginal rings

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The shorter-acting contraceptives – the combined hormonal methods (combined oral contraceptives and the vaginal ring) and the progestogen-only pill – are discussed in this first article in a three-part series on contraception. Other contraceptive methods will be discussed in subsequent articles.

Key points

- **Combined hormonal contraceptives (CHCs), which contain an oestrogen and a progestogen, are available as combined contraceptive pills and the vaginal ring.**
- **The advantages of CHCs include beneficial effects on acne, decrease in menstrual pain and bleeding and the ability to manipulate menstrual cycles.**
- **CHC use is associated with some serious risks but the absolute risk is low for most women of reproductive age.**
- **No serious risks have been associated with use of the progestogen-only pill, although evidence is limited.**
- **The option of long-acting reversible contraceptives (intrauterine devices and subdermal implants) should be discussed with women renewing CHC scripts.**
- **Contraceptive methods requiring consistent action (condoms and pills) are less effective than long-acting methods requiring minimal ongoing action on the part of the user (implants and intrauterine devices).**

Contraception allows women, and couples, to determine if and when to have children. This series of three articles provides the latest evidence-based information about the various forms of contraception available. This article discusses the shorter-acting methods, namely combined hormonal contraceptives (CHCs; available as pills and vaginal rings) and progestogen-only pills (POPs). The second article will discuss long-acting reversible contraceptives (LARCs; contraceptive implants, intrauterine methods and depot injection); and the last article will cover barrier methods, permanent methods and fertility awareness-based methods, and also emergency contraception.

CHOOSING THE CONTRACEPTIVE METHOD

The role of the clinician is to facilitate the most appropriate contraceptive choice for the woman or couple during the consultation. Some women may present with a long list of possible options that the clinician needs to 'narrow down'. Others may ask for a repeat script of a contraceptive pill that they have been taking for many years, and the role of the clinician in this instance is to 'broaden out' the consultation by providing balanced information about possible alternatives.

Contraceptive choice for women is determined by several factors, including the presence of medical conditions, concurrent medications, relationship status and personal preferences. Taking a thorough medical and social history is essential, and the key points of this are highlighted in the box on page 19.

The Medical Eligibility Criteria (MEC) tables for contraceptive use are an internationally recognised system to guide clinicians in the safe provision of contraceptive methods. MEC tables are available for use in Australia, adapted from the UK and WHO tables.[1-3] These guidelines

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CONTRACEPTIVE CHOICE: KEY POINTS IN HISTORY TAKING

- Previous pregnancies and outcomes
- Unintended pregnancies and whether a contraceptive method was used at the time
- Previous difficulty with maintaining a regular pill-taking schedule, such as shift-work
- Menstrual history
- Previous gynaecological procedures
- Risk of sexually transmitted infections
- Current relationship status
- Frequency of sex
- Medical history including:
  - factors that increase the risk of coronary artery disease or cerebrovascular disease: migraine with aura, past or family history of stroke, transient ischaemic attack or coronary artery disease, smoking, hypertension, diabetes, hyperlipidaemia
  - factors that increase the risk of venous thromboembolism (VTE): past or family history of VTE, known thrombogenic mutation, immobilisation, obesity
  - hepatobiliary disease
  - hormone-dependent cancer
- Concurrent use of medications
- Lactation
- Conditions that might benefit from the use of hormonal contraception:
  - heavy menstrual bleeding
  - dysmenorrhoea
  - acne
- Plans for future pregnancies
- Value placed on method efficacy in preventing pregnancy
- Ability to pay for contraception and attend for repeat visits
- Need to conceal use of contraception
- Ability to cope with nonscheduled bleeding or amenorrhoea

categorise the risk of the various contraceptive methods used concomitantly in women with specific medical conditions. Conditions affecting eligibility for the use of each method are classified under one of the four categories listed in the box on page 20, an MEC 1 condition being one for which no restrictions exist and an MEC 4 condition representing an absolute contraindication.

As well as taking a relevant history, the clinician's role is to provide the woman or couple with accurate information about the various contraceptive methods. Information will include the following:

- how effective the method is when used 'perfectly' and 'in real life'
- the risks and side effects of the method
- costs
- how to start the method and how long it will take to work
- how easily is it reversed
- information on the effect on menstruation, where relevant
- how the method works
- what to do if 'things don't go according

MEDICAL ELIGIBILITY CRITERIA (MEC) CATEGORIES FOR CONTRACEPTIVE METHODS*[3]

- **MEC Category 1:** A condition for which there is no restriction for the use of the contraceptive method
- **MEC Category 2:** A condition where the advantages of using the method generally outweigh the theoretical or proven risks
- **MEC Category 3:** A condition where the theoretical or proven risks generally outweigh the advantages of using the method. The provision of a method requires expert clinical judgement and/or referral to a specialist contraceptive provider, since use of the method is not usually recommended unless other more appropriate methods are not available or acceptable
- **MEC Category 4:** A condition that represents an unacceptable risk if the contraceptive method is used

*Adapted from: WHO. Medical eligibility criteria for contraceptive use. 4th ed. Geneva: WHO; 2010.[3]

TABLE 1. CONTRACEPTIVE CHOICES AND ESTIMATED FAILURE RATES[4]

Method	Percentage of women having an unintended pregnancy in the first year of use	
	Typical use*	Perfect use†
Progestogen-only etonogestrel implant	0.05	0.05
Vasectomy	0.15	0.10
Levonorgestrel intrauterine system (IUS)	0.2	0.2
Female sterilisation	0.5	0.5
Copper intrauterine device	0.8	0.6
Depot medroxyprogesterone acetate (DPMA) injection	6	0.2
Oral contraception (combined contraceptive pill or progestogen-only pill)	9	0.3
Combined hormonal ring	9	0.3
Male condom	18	2
Fertility awareness methods	24	0.4 to 5
Withdrawal	22	4
Female condom	21	5
Diaphragm	12	6
None	85	85

Adapted from Trussell J. Contraception 2011; 83: 397-404.[4]
* Typical use includes failures due to 'user error' and is based on data from the USA National Surveys of Family Growth and may apply only to US women.
† Perfect use refers to efficacy achieved under research conditions and is based on various international published trial data.

to plan', such as missed pills or late insertion of a vaginal ring
- advice to double up the contraception with condoms if there is a risk of sexually transmissible infections (STIs)
- the availability of emergency contraception.

Contraceptive effectiveness is presented as the number of pregnancies occurring among 100 women who use the method over a one-year period. 'Perfect use' effectiveness applies to research type conditions, and 'typical use' effectiveness to real life settings. Methods such as condoms (which require consistent application at the time of intercourse) and contraceptive pills (which require daily intake) are less effective than long-acting implants and intrauterine methods (which require minimal ongoing action on the part of the user). The perfect and typical use effectiveness of LARC methods is almost identical (Table 1).[4] Inclusion of information about the benefits of LARC methods is important in all contraceptive consultations.

This article includes important information to consider when initiating combined contraceptive pills, the combined hormonal vaginal ring or POPs as well as some of the common clinical issues that arise during their use, including a missed pill or late ring insertion. Other contraceptive methods will be covered in subsequent articles in this series.

COMBINED HORMONAL METHODS

Hormonal contraceptives containing an oestrogen and a progestogen are available as combined contraceptive pills ('the pill') and the vaginal ring, with oral contraceptives being the most commonly used method in Australia (Figures 1 and 2).[5]

The contraceptive vaginal ring provides slow release of ethinyloestradiol and etonogestrel into the circulation from a soft ring made of ethylene vinyl acetate. The ring is inserted into the vagina by the woman, left there for three weeks and then removed and a new ring inserted after

Figure 1. Combined contraceptive pills.

Figure 2. The vaginal ring.

IMAGES REPRODUCED WITH PERMISSION FROM FAMILY PLANNING NSW. © FAMILY PLANNING NSW.

another seven days, giving a ring-free break of seven days during which a withdrawal bleed usually occurs.

Combined hormonal transdermal patches (used weekly for three weeks with a patch-free week) and monthly injections are available in other countries.

Mechanism of action and efficacy

CHCs all work to suppress ovulation and have a failure rate of 0.3% when used perfectly, but nine out of every 100 users are expected to conceive during the first year of use, largely because of user error.[4] This includes deviations from the pill or ring schedule, such as missed pills or late ring insertion, as well as running out of supplies. Prescribing the maximum allowed quantity of pills and rings is important to maximise continuation rates.[6,7]

Initiating combined hormonal methods

CHCs can be initiated in women of any age and, if there are no medical contraindications, can be continued until the age of 50 years, after which another method of contraception is recommended.[8] Packaging of combined contraceptive pills in Australia is varied. Some newer pill packaging directs women to start with an 'active hormone pill', and traditional packaging directs women to start with either a placebo pill or an active pill depending on the timing of their menses.

The combined contraceptive pill (if starting with an active pill) and the vaginal ring are effective immediately when initiated on day one to day five of the menstrual cycle and also in certain other situations, as listed in the box on this page.

Initiation of CHCs at other times using the 'quick start' method (starting a method outside the recommended time, such as on the day of the consultation) requires seven days of active hormones to be administered before contraceptive protection is achieved. This is sometimes known as the 'seven-day rule' and is based on the understanding that seven days of hormone administration are required to suppress ovulation. If pregnancy cannot be excluded at the time of initiation, the woman should be advised to have a pregnancy test in four weeks' time, even if she has a scheduled withdrawal bleed.[1]

Women using a pill pack that directs starting with a placebo pill rather than an active pill may need to wait for up to 12 days for their pill to become effective as a contraceptive method (up to five days taking placebo pills plus seven days of active pills).

TIMING OF EFFECTIVENESS OF CONTRACEPTIVE PILLS AND RINGS

The combined contraceptive pill, vaginal ring or progestogen-only pill will be effective immediately in the following situations:*

- when started on day 1 to 5 of a normal menstrual cycle
- when started on day 1 to 5 of the menstrual cycle in women previously using a copper or hormonal IUD and having a regular menstrual cycle
- when changing from a contraceptive implant inserted in the previous three years or a DMPA injection given in the previous 14 weeks
- when started within five days of an abortion or miscarriage.

ABBREVIATIONS: DMPA = depot medroxyprogesterone acetate; IUD = intrauterine device.

* The combined contraceptive pill is only immediately effective if initiated with an active pill.

Examination and investigations

In users of CHCs who are well, a blood pressure check and measurement of body mass index are required at initiation and annually. No routine investigations are necessary.[1] Review three to four months after initiation can be helpful to check for side effects or other method-related issues.

Benefits

CHCs offer several advantages, including a beneficial effect on acne, a decrease in menstrual pain and bleeding and an ability to manipulate menstrual cycles. They also decrease the risk of ovarian, endometrial and bowel cancer.[9]

Side effects

Many side effects are attributed to the pill but evidence is limited. Weight gain is a frequent concern but it has not been demonstrated in studies of low-dose pills containing 35 µg or less of ethinyloestradiol.[10] The following side effects have been

TABLE 2. CONDITIONS POSING A HEALTH RISK FOR CHC AND POP USE (MEC CATEGORY 3 AND 4 CONDITIONS)[2]

Condition		MEC category	
		CHC	POP
Personal characteristics and reproductive history			
Postpartum: breastfeeding	< 6 weeks	4	1
	≥ 6 weeks to 6 months, fully or mostly breastfeeding	3	1
Postpartum:* nonbreastfeeding	< 21 days, no additional risk factors for VTE†	3	1
	< 21 days, with additional risk factors for VTE†	3/4	1
Smoking and age ≥35 years	< 15 cigarettes/day	3	1
	≥ 15 cigarettes/day	4	1
	Stopped smoking < 1 year ago	3	1
Obesity	BMI ≥ 35 kg/m^2	3	1
Arterial disease and risk factors			
Multiple risk factors for cardiovascular disease	For example, older age, smoking, diabetes, hypertension and obesity	3/4	2
Hypertension	Adequately controlled	3	1
	Consistently elevated systolic between 140 and 159 or diastolic between 90 and 94 mmHg	3	1
	Consistently elevated systolic ≥ 160 or diastolic ≥ 95 mmHg	4	1
	Vascular disease	4	2
Past history of ischaemic heart disease, stroke or TIA		4	2
Develops ischaemic heart disease, stroke or TIA during use		4	3
Complicated valvular and congenital heart disease‡		4	1
VTE and risk factors			
History of VTE		4	2
Current VTE (on anticoagulant)		4	2
VTE in first degree relative at age < 45 years		3	1
Major surgery with prolonged immobilisation		4	2
Immobility, unrelated to surgery		3	1
Known thrombogenic mutation		4	2

continued on next page

reported by users of CHCs:[11]

- headache
- nausea
- breast tenderness
- unscheduled bleeding
- amenorrhoea
- acne (usually improves)
- bloating
- mood changes
- reduced libido
- weight gain
- melasma (also known as chloasma).

Additional device-related side effects reported by users of the vaginal ring are:

- increased vaginal discharge
- device discomfort
- expulsion of the ring
- discomfort for either partner during sex.[12]

General side effects from CHCs often settle with time. There is, however, a small increase in the risk of gall bladder disease.[13]

Serious risks

Although there are some serious risks associated with CHC use, the absolute risk for most women of reproductive age is low.

Venous thromboembolism

All CHCs increase the risk of venous thromboembolism, with the highest risk being in the first year of use.[11] When prescribing pills containing desogestrel, gestodene, cyproterone acetate or drospirenone, it is important to be aware that although these pills may have a higher risk of venous thromboembolism than pills containing levonorgestrel or norethisterone, the absolute risk remains low and less than the risk in pregnancy and the postpartum period.[14-16] The limited information available on the risk of venous thromboembolism in users of the vaginal ring indicates that the risk is at least that of users of levonorgestrel- and norethisterone-containing pills.[16]

Ischaemic stroke and myocardial infarct

CHC use is associated with approximately double the risk of ischaemic stroke and

TABLE 2. CONDITIONS POSING A HEALTH RISK FOR CHC AND POP USE (MEC CATEGORY 3 AND 4 CONDITIONS)[2] continued

Condition	MEC category	
	CHC	POP
Neurological conditions (stroke risk)		
Migraine without aura (during use)	3	2
Migraine with aura	4	2
Past history of migraine with aura, none for 5 years	3	2
Breast and reproductive tract conditions		
Undiagnosed breast mass (at initiation for CHC)	3	2
Carriers of known gene mutations associated with breast cancer	3	2
Current breast cancer	4	4
Previous breast cancer with no evidence of disease for ≥ 5 years	3	3
Endocrine conditions		
Diabetes with nephropathy/retinopathy/neuropathy or other vascular disease	3/4	2
Gastrointestinal conditions		
Gall bladder disease: medically treated or current	3	2
History of cholestasis: related to past CHC use	3	2
Acute episode or flare viral hepatitis (at initiation for CHC)	3/4	1
Severe (decompensated) cirrhosis	4	2
Hepatocellular adenoma and malignant liver tumour	4	2
Raynaud's disease and SLE		
Raynaud's disease with lupus anticoagulant	4	2
SLE with positive (or unknown) antiphospholipid antibodies	4	3
Concurrent use of liver enzyme-inducing medications	3	3
For other rare conditions such as porphyria, insufficient evidence is available for inclusion in the MEC tables and individual advice should be sought.		

Adapted from: Faculty of Sexual and Reproductive Healthcare. UK medical eligibility criteria for contraceptive use 2009. London: Faculty of Sexual and Reproductive Healthcare, RCOG; 2009.[2]

ABBREVIATIONS: BMI = body mass index; CHC = combined hormonal contraceptive (combined contraceptive pill and vaginal ring); MEC = medical eligibility criteria; POP = progestogen-only pill; SLE = systemic lupus erythematosus; TIA = transient ischaemic attack; VTE = venous thromboembolism.

* Based on recent update to WHO medical eligibility criteria.
† Relevant additional risk factors for VTE are: immobility, transfusion at delivery, BMI > 30 kg/m^2, post-partum haemorrhage, immediately post-caesarean delivery, preeclampsia, relevant family history or smoking.
‡ Congenital heart disease with pulmonary hypertension, atrial fibrillation, history of subacute bacterial endocarditis.

two to five times the risk of myocardial infarction compared to nonuse, although the absolute risk is very low for most women of reproductive age.[17-21] Risks are highest in older women and in those with additional risk factors for cardiovascular disease (see Table 2).[22]

Cancer

There is a small increase in the risk of cervical cancer in users of CHCs.[23] Although there may be a small increase in the risk of breast cancer, there is no evidence of an increase in mortality from breast cancer in users.[24,25]

Contraindications

It is important to take a medical and family history that will identify those women who have contraindications to oestrogen-containing contraceptive methods. The contraindications for the vaginal ring are the same as those for the combined contraceptive pill.

Contraindications are mostly related to risk factors for arterial and venous disease. MEC 3 and 4 contraindications include migraine with aura, a history of breast cancer and the concurrent use of liver enzyme-inducing medications.[2] Table 2 summarises the important MEC 3 and 4 conditions.

Other important considerations when considering the use of hormonal contraceptives include difficulties in taking tablets on a regular basis (e.g. shift workers) or inserting a ring at the correct time, as well as being able to access an ongoing contraceptive supply.

Choosing a combined hormonal contraceptive

There is a large and sometimes confusing choice of combined contraceptive pills. Those available in Australia are listed in Table 3.

It is important to be aware that although some pills have brand-specific indications in addition to contraception, this is based on comparison with placebo rather than with other pills. For example,

TABLE 3. COMBINED HORMONAL CONTRACEPTIVES AVAILABLE IN AUSTRALIA

Pill/ring trade name	Oestrogen	Progestogen	PBS listing*
Femme-Tab 20/100 ED Loette Microgynon 20 ED Microlevlen ED	20 µg ethinyloestradiol (EE)	100 µg levonorgestrel	Only Femme-Tab 20/100 ED PBS listed
Logynon ED Trifeme 28 Triphasil Triquilar ED	6 x 30 µg EE 5 x 40 µg EE 10 x 30 µg EE	6 x 50 µg levonorgestrel 5 x 75 µg levonorgestrel 10 x 125 µg levonorgestrel	PBS listed
Femme-Tab ED 30/150 Levlen ED Microgynon 30 ED Monofeme Nordette	30 µg EE	150 µg levonorgestrel	
Microgynon 50 ED	50 µg EE	125 µg levonorgestrel	
Brevinor 21 and 28 Norimin 28	35 µg EE	500 µg norethisterone	
Brevinor-1 21 and 28 Norimin-1 28	35 µg EE	1000 µg norethisterone	
Improvil 28 Synphasic 28	7 x 35 µg EE 9 x 35 µg EE 5 x 35 µg EE	500 µg norethisterone 1000 µg norethisterone 500 µg norethisterone	
Norinyl-1 21 and 28	50 µg EE (mestranol)	1000 µg norethisterone	
Marvelon 28	30 µg EE	150 µg desogestrel	Not PBS listed
Femoden ED Minulet ED	30 µg EE	75 µg gestodene	
Brenda-35 ED Carolyn-35 ED Diane-35 ED Estelle-35 ED Juliet-35 ED Laila-35 ED	35 µg EE	2 mg cyproterone acetate	
Isabelle Yasmin	30 µg EE	3 mg drospirenone	
YAZ Yaz Flex	20 µg EE		
Valette	30 µg EE	2 mg dienogest	
NuvaRing	15 µg EE	120 µg etonogestrel	
Qlaira	Oestradiol valerate 2 x 3 mg 5 x 2 mg 17 x 2 mg 2 x 1 mg	Dienogest 5 x 2 mg 17 x 3 mg	
Zoely	1.5 mg oestradiol	2.5 mg nomegestrol acetate	

* PBS listing correct as of 1 July 2013.

some combined pills have an indication for acne yet a recent Cochrane review concluded that 'Few important and consistent differences were found between COC [combined oral contraceptives] types in their effectiveness for treating acne'.[26]

First choice

A low-dose pill containing 35 µg or less ethinyloestradiol and either levonorgestrel or norethisterone is the recommended first choice.[1] Most of these low-dose pills are subsidised under the Pharmaceutical Benefits Scheme (PBS); the exceptions are three of the four available brands of pills containing 20 µg ethinyloestradiol and 100 µg levonorgestrel (see Table 3).

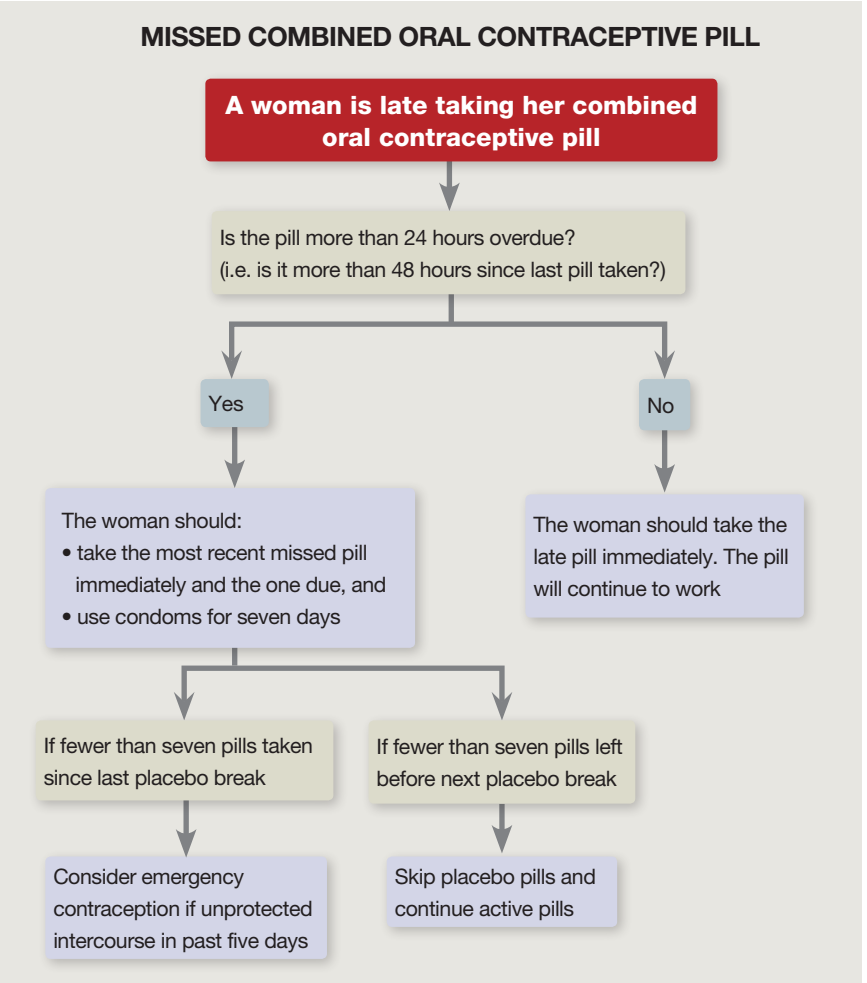
Users of these low-dose pills have two to three times the risk of venous thromboembolism compared with nonusers.[27,28] Ethinyloestradiol plus levonorgestrel pills in particular have been extensively studied and have had similar discontinuation rates to other CHCs when compared in head to head trials.

Alternative first choices

The vaginal ring. The vaginal ring offers an alternative delivery system to the pill that may be preferred by some women. Compared with the combined pill, the ring's lack of need for daily activity may improve compliance, it offers an advantage when malabsorption might be an issue and its use may be associated with less unscheduled bleeding.[29-33] The ring is not subsidised by the PBS.

Pills containing 20 µg ethinyloestradiol. Compared with pills containing 30 to 35 µg ethinyloestradiol, some 20 µg ethinyloestradiol-containing pills have a lower risk of venous thromboembolism and general side effects, although this is unproven for formulations available in Australia.[27,28,34] The lower-dose ethinyloestradiol pills are also associated with a higher rate of unscheduled bleeding, which can lead to early discontinuation.[34]

Newer progestogens. Over the past few decades, new progestogens (including



CASE STUDY. A PILL WITH AN ANTIANDROGENIC PROGESTOGEN HELPS A WOMAN WITH ACNE

Marita is an 18-year-old information technology worker who is using condoms with her boyfriend. She wants an additional method of contraception. She has acne and would like to be able to skip periods.

She has no contraindications and is started on a pill containing ethinyl-oestradiol 30 µg and levonorgestrel 150 µg. Six months later she is reasonably happy with her pill, but had been hoping for more improvement in her acne.

After some discussion she switches to a pill containing ethinyloestradiol 20 µg and drospirenone 3 mg that is packaged for use with a programmed electronic dispenser. On review in four months she is happy with her choice.

dienogest, drospirenone, desogestrel, gestodene and cyproterone acetate) have been developed with the aim of reducing metabolic impact and enhancing the beneficial effects on acne and hirsutism.[35] Some have been designed with additional potential benefits – for example, drospirenone is a spironolactone analogue and has a mild diuretic effect.[36] There is insufficient clinical evidence to preferentially prescribe newer progestogens over the older levonorgestrel and norethisterone. However, although evidence is lacking, logically the pills containing an antiandrogenic progestogen (i.e. dienogest, drospirenone and cyproterone acetate) can be considered for women with acne and hirsutism, particularly if there has been a limited response to a pill containing levonorgestrel- or norethisterone pill (see the case study on this page).

Pills with fewer placebos. Packs with fewer placebo pills are the oestradiol–nomegestrol pill Zoely and the 20 µg ethinyloestradiol–drospirenone pill YAZ. These pills may provide a greater margin for error if the first active pills in the cycle are missed.[37,38] Pills with fewer placebos may also reduce hormone withdrawal symptoms, headache and pelvic pain in the pill-free break.

Pills with oestradiol and oestradiol valerate. Until recently all CHCs contained ethinyloestradiol, a synthetic hormone that closely resembles, but is not identical to, the oestradiol produced by the ovaries. Since 2010, pills containing oestradiol or its pro-drug oestradiol valerate have become available. They have theoretical but unproven benefits in terms of venous thromboembolism risk.[39-41]

Special situations

Drug interactions

With the exception of rifampicin and rifabutin, antibiotics do not decrease the efficacy of CHCs and additional precautions are not needed during concurrent use. Liver enzyme-inducing medications reduce the effectiveness of the combined contraceptive pill and vaginal ring, and it is recommended that women taking liver enzyme-inducing drugs, which include many of the antiepileptic drugs, the antibiotics rifampicin and rifabutin, and the herbal remedy St John's wort, use either depot medroxyprogesterone acetate or an intrauterine method.

Women wanting to use a combined contraceptive pill will require a higher dose and an extended regimen (see the box on page 30).[42] The vaginal ring is not recommended owing to its inflexible dosing regimen.

COMBINED CONTRACEPTIVE PILLS AND LIVER ENZYME-INDUCING MEDICATIONS

Higher doses of oestrogen and extended regimens are necessary to give a contraceptive effect when the combined contraceptive pill is used in women taking liver enzyme-inducing medications in the long term.

Women should be advised to:

- Take daily either
  - two 30 µg ethinyloestradiol-containing pills, or
  - one 20 µg plus 1 x 30 µg ethinyloestradiol-containing pills, and
- run together three cycles (63 days) of the active pills only from three packets (without placebo pills), and
- have a four-day placebo break after each three-packet cycle of 63 active pills

Missed pills and incorrect ring use

Advice for women when a pill is missed is summarised in the flowchart on page 29. The advice is based on international guidance and may differ from package information. It is important to remember that a pill is not missed until it is more than 24 hours late (which means it is 48 hours since the last pill was taken). The most 'risky' pills to miss are the first seven after the placebo break, when the chance of breakthrough ovulation is highest.

The same advice can be used in the case of a vaginal ring that has been inserted more than 24 hours late or has fallen out during use and not been re-inserted within 24 hours. It is important to discuss doubling up with condoms and access to emergency contraception in all pill and ring users.

Extended cycles

Combined contraceptive pills and vaginal rings can be used continuously without a placebo break, with rings being replaced up to four-weekly. This regimen may be chosen for convenience or to avoid symptoms associated with the withdrawal bleed. There is no upper limit to the number of placebo breaks a woman can miss, provided she remains amenorrhoeic.

Although many women achieve amenorrhoea with continuous use of CHCs, unscheduled bleeding can be a problem.[43] This bleeding is best managed by taking a placebo break of four to seven days. A recent flexible regimen that utilises an electronic dosing device has proven acceptable to women.[44] This allows a four-day break at any time, provided the woman has taken at least 24 pills previously.

TABLE 4. PROGESTOGEN-ONLY ORAL CONTRACEPTIVES AVAILABLE IN AUSTRALIA

Pill trade name	Progestogen	PBS listing
Microlut	Levonorgestrel 30 µg	PBS listed
Locilan 28 Micronor Noriday 28	Norethisterone 350 µg	PBS listed

THE PROGESTOGEN-ONLY PILL

Two POPs are available in Australia: one containing levonorgestrel 30 µg and the other norethisterone 350 µg (Table 4). The POP is often used in women who are intolerant of or have a contraindication to oestrogen.

Mechanism of actions and efficacy

POPs containing levonorgestrel or norethisterone primarily act by thickening cervical mucus and affecting the luteal phase of the menstrual cycle.[45] The effect varies between women and between cycles.[46]

There is limited evidence on the efficacy of POPs, and it is considered the same as that of CHCs: a failure rate of 0.3% in perfect use and 9% in typical use.[4] However, the POP is considered to have a more vulnerable efficacy, and strict adherence to taking the pill within a daily three-hour timeframe is important for maximum efficacy.[47] Failure rates are lower in women aged over 40 years than in younger women.[48]

Initiating the progestogen-only pill

POPs can be initiated in women of any age, and can be used until menopause if there are no contraindications. All POP pill packs have 28 active pills and no placebo pills. POPs are immediately effective in the same situations as CHCs, as outlined in the box on page 21, and also when initiated immediately after delivery. In most other situations, they are effective after three tablets have been taken.

Examination and investigations

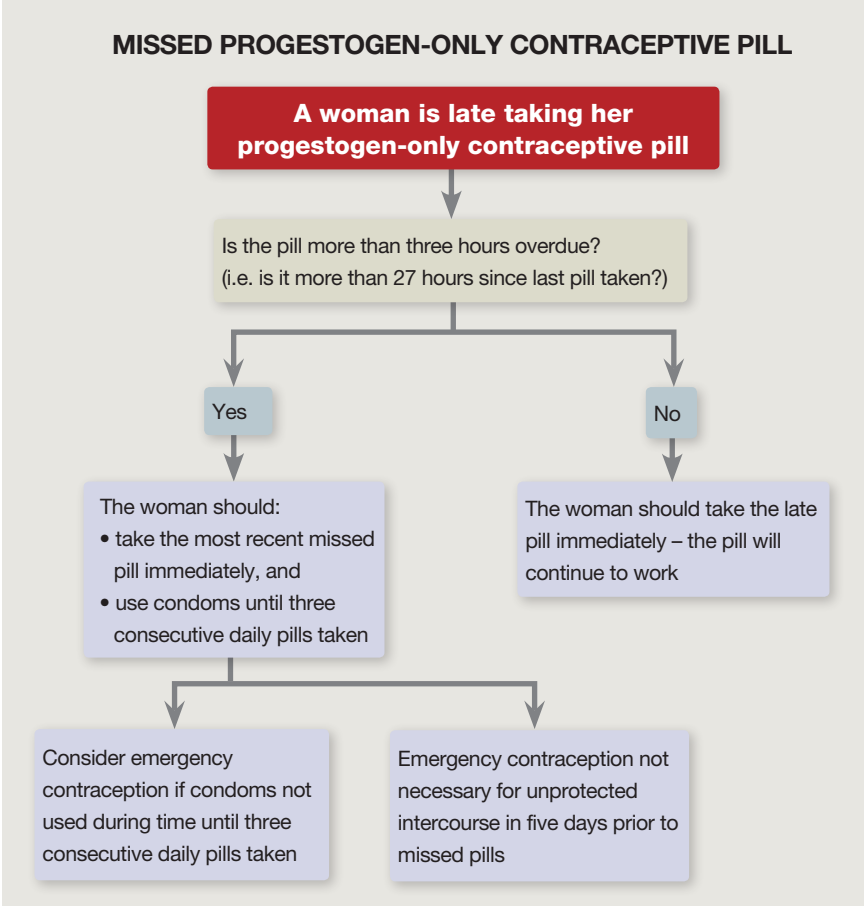
Although it is good medical practice to check blood pressure, no examination or investigation is necessary before initiating the POP in a woman who is well.

Side effects and serious risks

No serious risks have been associated with use of the POP, although evidence is limited. The most common side effect is irregular bleeding, with around 20% of those taking POPs experiencing amenorrhoea, 40% experiencing irregular bleeding and 40%, regular cycles.[49]

Contraindications

The POP is generally considered safe, and the only MEC 4 contraindication to its use is breast cancer active in the previous five years. The important MEC conditions are summarised in Table 2.



Choice of POP

There is no evidence that assists in the choice of POP. Either the levonorgestrel or norethisterone POP can be initiated as first choice.

Special situations

Drug interactions

As with CHCs, POPs can be safely used in women taking non-liver enzyme-inducing drugs but are not recommended for women taking liver enzyme-inducing drugs.

Missed pills

A POP is considered to be a missed pill when it is three hours late. The woman should use condoms until she has taken three consecutive daily pills and should consider emergency contraception if she has unprotected sex during this time (see the flowchart on this page). Emergency contraception is not required for sexual intercourse that has occurred in the five days prior to the missed pills as the cervical mucus effect is not lost until pills are missed.

Bleeding irregularities

For women with bleeding irregularities while taking a POP, a change of formulation or a double dose may be considered. There is no evidence to support either option, and although the latter is 'off label', it is unlikely to cause harm.

CONCLUSION

The combined contraceptive pill is the most popular method of contraception in Australia. This and the other available form of combined hormonal contraception, the vaginal ring, offer several benefits to women, including a beneficial effect on acne and the ability to manipulate cycles. Although most women can safely use CHCs, history taking with reference to the MEC framework is extremely important, so that women at higher risk of venous thromboembolism, stroke and ischaemic heart disease can be offered alternative methods. The POP is a very low-dose option and is safe to use in most situations. Strict timing of pill intake is important to maintain contraceptive efficacy. MT

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References are included in the pdf version of this article available at www.medicinetoday.com.au.

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A practical guide to contraception. Part 1: Contraceptive pills and vaginal rings

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