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Editorial

Dear Colleagues

Contraceptive use is constantly changing as women re-evaluate their needs according to their particular life circumstances. Deciding factors are the start or end of a relationship, changing jobs, dissatisfaction with a current method, and concerns about co-existing medical conditions. Life style changes emerging from internet-driven professional and social communication are also impacting contraceptive behaviour.

Today's health care professionals must respond to modern demands for tailored methods to suit individual women's relationship and health care requirements. They must also be able to respond when a woman's changing needs demand adjustment to her contraceptive regimen. After all, a woman requires contraception for around 30 years of her life. The woman herself needs to consider whether to use a hormonal or non-hormonal method; whether she can commit to methods requiring daily, weekly, monthly, or less frequent attention; which potential side effects she finds acceptable; her desired bleeding pattern; how she would feel about unscheduled bleeding; how discreet she wants her method to be; and her future childbearing plans.

To ensure adherence and method continuation it is crucial to provide a woman seeking contraception with objective, up-to-date and appropriate information about the methods available. The aim of counselling should be to fill any knowledge gaps about correct contraceptive use and typical side effects in order to improve the woman's understanding of the method and the consequences of inaccurate use. In doing so it is important to dispel any misperceptions she may have regarding contraceptive methods. Within the first year of starting a method up to 25% of women stop using contraception for reasons that could have been addressed during counselling, including side effects and health concerns related to the method chosen.

This issue of Gynaecology Forum addresses women's changing attitudes towards menstruation and contraceptive choice, and their impact on the patient–doctor relationship. It is with great pleasure I invite you to share this interesting and entertaining issue on the myths and realities of modern contraceptive choice.

Sven O. Skouby
Editor

Attitudes to contraception and menstruation in the 21st century

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When the combined oral contraceptive pill was first developed in the late 1950s, Pincus and his co-workers felt that a monthly, cyclical pattern was optimal for several reasons [1]. They realized that very few women understood female reproductive biology and so would not understand how a daily pill could prevent pregnancy. They also understood that it was important to reassure women they were not pregnant. The contraceptive methods used until then (mostly barriers, withdrawal and the rhythm method) were not particularly reliable, and rapid pregnancy tests were not yet available. Women were accustomed to waiting for their monthly bleed for reassurance that they were not pregnant. A monthly bleed was especially important for the early high-dose combined oral contraceptive pill, since some of the side effects in the first months of use were similar to those of early pregnancy — nausea, breast tenderness and occasional bleeding.

The 7-day pill-free interval was chosen to ensure that the majority of women would start to bleed before they were due to start their next packet. The high doses of hormones used at that time meant that it took several days before the hormone levels fell sufficiently to cause the bleed. Nowadays, with combined oral contraceptives containing considerably lower doses of hormones, the 7-day pill-free interval is almost certainly too long, with increasing evidence of follicular activity [2–4].

"With combined oral contraceptives containing considerably lower doses of hormones, the 7-day pill-free interval is almost certainly too long."

Nancy Loudon proposed a tricyclic regimen for the first time in 1977. She recruited 200 women, who were already taking the contraceptive pill, from her family planning clinic into a study of a tricyclic regimen and found that the majority of them liked it [5].

Nevertheless, in 1988, an Australian questionnaire study found that 83% of patients thought a monthly bleed was necessary while taking the contraceptive pill [6]. Indeed, 60% of female doctors, who also filled in the questionnaire, agreed. However, when asked what would be their ideal, around half said they would prefer to bleed every 3 months or not at all. Moreover, when questioned about what they actually did, around 45% of women in both groups had occasionally used the contraceptive pill to postpone a withdrawal bleed — but only for two to three cycles.

A database analysis from general practices in England in 2000 found striking seasonal variations in the prescribing of norethisterone 5 mg by general practitioners, with the peaks always occurring at the time of the summer holidays [7]. The authors titled their paper 'Is norethisterone a lifestyle drug?', as it was obvious it was being used to postpone periods in the summer. However, again, these women were just using it in the short term.

"Young women are more likely to want individual solutions to their contraceptive needs that fit in with their lifestyle, including postponement of bleeding."

Interestingly, the results of two similar health care professional surveys from 2004 and 2008 in the United States suggest that attitudes have changed significantly even in that relatively short time [8]. There was an increase in the prescription of extended regimen oral contraceptives from 81% in 2004 to 92% in 2008. Also, the percentage stating that they 'frequently' recommended extended regimens in their practices increased from 29% to 54%. This coincides with the appearance on the market in some countries of a

greater number of licensed extended regimen products, which no doubt gives prescribers greater confidence in their use.

The articles in this issue also show how times and attitudes are changing. Mary O'Flynn looks at the (lack of) evidence for the need for monthly periods, while Lucinda Farmer gives us an insight into the myths and folklore surrounding menstruation. Unfortunately, these still exist today, and not just in developing countries. The lack of health education and knowledge in all societies is astounding. Verena Kuen discusses how lifestyle changes in the last decade impact on contraceptive choices: young women are used to customizing products and increasingly download information onto a variety of electronic devices. They are more likely to want individual solutions to their contraceptive needs that fit in with their lifestyle, including postponement of bleeding. A recent pan-European market research survey still shows a wide geographical variation in attitudes to the postponement of bleeding, with women in the northern European countries generally more interested in this than those in southern countries (Pan-European FC Study. Data on file. Bayer HealthCare Pharmaceuticals, 2009). Contraceptive choice and compliance are the subject of the article by Teresa Bombas and Joaquim Neves, providing suggestions on how counselling can be improved and tailored to the individual. Finally, the modern management of menstrual bleeding is covered by Dagmar Makalová.

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Is there any real scientific evidence for the need for monthly periods?

Mary O'Flynn

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Background

The old adage that doctor knows best is no longer feasible in the delivery of modern medicine. Generally speaking, we are now seeing a better educated patient who uses the internet and who may well be aware of the term 'amenorrhoea' without knowing the significance and difference between primary and secondary amenorrhoea.

Primary amenorrhoea is defined as the absence of menarche beyond 16 years of age. The causes include congenital and genetic abnormalities or the lack of a hypothalamic-pituitary-ovarian axis. Investigation of this condition may raise the issue of sexuality and in turn a patient's concerns regarding femininity. This association may well be the reason why historically women have expressed a preference for regular menstruation.

> ***"The association with sexuality and femininity may well be the reason why historically women have expressed a preference for regular menstruation."***

Secondary amenorrhoea is defined as the absence of menstruation for 6 consecutive months in a female who has previously had at least one menstrual cycle. While it has hitherto been associated with morbidity of the hypothalamic-pituitary-ovarian axis (e.g. hyperprolactinaemia, which may not always be due to adenomas but more frequently due to trauma, burns, severe stress, anaesthesia or medications), other associated conditions such as psychogenic eating disorders and excessive exercise, polycystic ovarian syndrome and even premature ovarian failure appear to have become more prevalent. However, this perceived increase may be due to the fact that modern women may be more likely to seek professional medical help for these matters.

Iatrogenic causes of amenorrhoea, such as chemotherapy and radiation, are accepted by the woman with a malignancy — but only with sadness due to the loss of fertility and associated femininity. Benign amenorrhoea associated with hormonal contraception has taken years to be accepted by doctors, patients and even often patients' partners.

Evolutional data would indicate that women are born to breed. Until the early 20th century their life span rarely extended into the menopause, and during their fertile years they might well have experienced anything from 10 to 20 pregnancies, all with associated amenorrhoea. In addition, surviving infants were generally breast fed, again resulting in amenorrhoea. As the term 'elderly primigravida' was unheard of at a time when many women first conceived in their teens, it is quite possible that a woman might only menstruate over a length of time lasting fewer than 5 years in total. Little wonder that without knowledge of or access to contraception women expressed such fear of amenorrhoea, and so grew so many of the myths surrounding it.

Why induce amenorrhoea with modern contraception?

In 1981, the World Health Organization published the findings of a cross-cultural study of women's perceptions about menstruation that had been undertaken in the previous decade [1]. It was hoped that knowledge of women's attitudes towards changes in their bleeding patterns as a result of contraceptive use might influence their decisions regarding both choice and compliance with a method. Some extraordinary beliefs were reported in this study *(Table I)*. Many expressed the view that not only should intercourse be avoided during menstruation but also bathing, hair washing, cooking or even visiting female friends or relatives, especially if they were pregnant. It was extrapolated from the data collected that the most acceptable contraceptive would:

Table I: Percentage of women in the 1970s unwilling to accept amenorrhoea, less bleeding, or more bleeding. Adapted from [1].

Women unwilling to accept	Egypt	India		Indonesia		Jamaica
		Hindu high caste	Hindu low caste	Javanese	Sundanese	
A contraceptive causing amenorrhoea	60	81	85	61	65	69
Less bleeding	91	83	90	77	81	67
More bleeding	78	75	87	67	78	62

- Not result in amenorrhoea.
- Neither reduce nor increase the amount of blood loss.
- Ensure that bleeding episodes were of relatively short duration and occurred on a regular basis.
- Allow the fairly accurate prediction of when bleeding is likely to occur.
- Not result in the production of blood of lesser consistency than, or of a different colour from, 'normal' menstrual blood.

The results of this World Health Organization study correlated with those of a later German study [2], taking into account that the contraceptive pill was not yet extensively used in those countries surveyed in the 1970s. In fact it is widely reported, also in his biography [3], that John Rock, one of the inventors of the oral contraceptive pill in 1960 and a member of an Irish American Catholic family, conceived the idea of a monthly withdrawal bleed to give the impression of regular monthly menstruation, mimicking a natural (non-medicated) cycle, in a bid to appease the Vatican. Interestingly, when contraception was denounced by the Pope, Rock abandoned Catholicism, only returning on his deathbed.

While the regular monthly menstrual bleed failed to placate the Catholic Church, it did find favour with women. For the first time, they could take responsibility for family planning and be reassured each month that they were not pregnant. However, there is no scientific evidence that cyclic oral contraceptive regimens were designed to have a physiological purpose in preparing the uterus for pregnancy by regular withdrawal bleeds — a total anomaly, given that they were used to prevent pregnancy.

A small pill that changed the world forever

Did the launch of the contraceptive pill in the early 1960s accelerate female emancipation? Perhaps the opposite also holds true — a better educated and more outspoken woman began to realize that she need not endure the tyranny of regular menstruation and instead accept the role that hormonal contraception could play.

The first reported use of extended oral contraceptive regimens showed that 80% of women studied wished to continue with withdrawal bleeds only every 3 months [4]. However, their doctors were less enthusiastic: while 55% of female doctors desired freedom

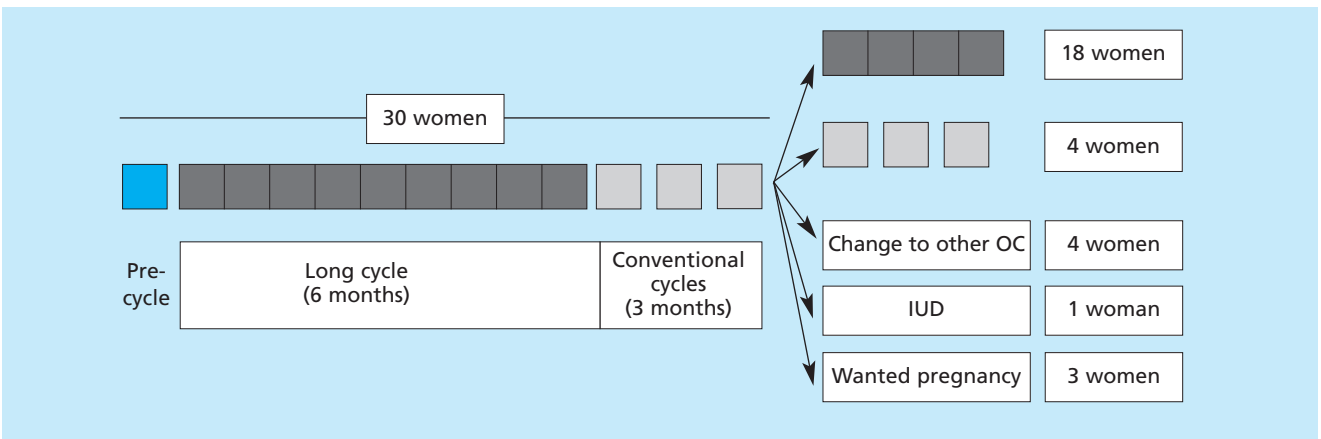

Figure 1: *Attitudes to amenorrhoea in 30 women in 2004. Continuous treatment for 6 months with 30 μg ethinylestradiol + 2 mg dienogest was followed by a 7-day hormone-free interval and three conventional 21/7 cycles with the same preparation. The women were then asked how they would like to continue: 18 chose to continue with the long-cycle regimen, four with the conventional 21/7 regimen, five chose to switch to another oral contraceptive (OC) or intrauterine device (IUD), and three stopped contraception because they wished to become pregnant. Adapted from [2].*

from monthly bleeds, 55% also feared undesirable side effects.

Change in attitudes did not occur overnight. Even in 1988 Rutter et al. [5] reported a study of 158 women's attitudes to withdrawal bleeding and their own and their doctor's knowledge and beliefs about the oral contraceptive pill. Here, 83% believed it was necessary to bleed monthly and 69% believed that continuous use of active medication was undesirable; 46% of patients and 55% of young female doctors would choose to bleed at intervals of 3 months or more if they could determine their own oral contraceptive pill regimen. The authors expressed the view that negative media attention regarding the oral contraceptive pill had frightened women and that the safety factors needed to be promoted more widely.

"There does not appear to be any evidence for the need for monthly periods. On the contrary, monthly bleeds are associated with extensive morbidity."

By 2004, a German study of 1195 women revealed that only 26–35% (aged 15–49 years) preferred monthly bleeding, while 37–46% wished never to bleed [2]. Reasons for this included fewer menstrual symptoms, better hygiene, better quality of life and better health (especially less anaemia with reduced blood loss). Those who wished to bleed monthly cited reasons such as fear of pregnancy, infertility and adverse effects. After continuous use of a combination of 30 μg ethinylestradiol and 2 mg dienogest for 6 months, the majority of women preferred the long-cycle regimen despite some irregular bleeding *(Figure 1)*. Surveyed gynaecologists preferred to limit long-cycle use to 3 months and then primarily for medical reasons such as dysmenorrhoea, endometriosis and premenstrual dysphoric disorder. Archer [6] continued this theme of reducing the morbidity associated with menstruation but also concluded that the available evidence suggested that continuous use of oral contraception offered comparable contraceptive efficacy and safety to cyclic oral contraceptive regimens.

Data on the safety of extended cycles had been confirmed in a 2005 Cochrane review [7]. Why, then, were health professionals so slow to accede to the wishes of female patients, or indeed their needs, as in the case, for example, of those women suffering migraine in the pill-free week? One must suppose that concerns at prescribing packets of then available combined oral contraceptives back to back, in an unlicensed manner, could have been an issue. Certainly since the 28-day packet has been licensed and launched on the market, prescribers are happier to help women cope better with a busy modern lifestyle.

There does not appear to be any evidence for the need for monthly periods. On the contrary, monthly bleeds are associated with extensive morbidity (e.g. dysmenorrhoea, premenstrual syndrome, migraine, asthma attacks). Modern women have embraced the concept of controlled amenorrhoea. However, strangely, many health professionals are slower to approve. To those, I would ask that they read our guest editor's excellent article 'Sisters doing it for themselves' [8] and truly make a difference to someone's life.

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Myths surrounding menstruation

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Introduction

The English word 'menstruation' is derived from the Latin *menstruatus* meaning 'monthly courses'. A myth is a story (usually fictional) taken by society to be a true account about a natural phenomenon. Many of the myths surrounding menstruation date back decades and are handed down from one generation to the next. They are kept alive by half-truths, fear and misunderstanding, and over time have evolved to accommodate the advent of modern day contraceptives. Oral contraceptive pills can significantly alter bleeding patterns and thus impact on a woman's health belief system regarding her menstrual cycle. Myths remain relevant, as they can influence a woman's choice of contraception and crucially the correct use of that method. Importantly, they may also influence the provider's perception of what is suitable and therefore affect the type of contraception that is offered to women.

"Myths remain relevant, as they can influence a woman's choice of contraception and crucially the correct use of that method."

Menstruation as a curse

To those who believe a woman's body was created for the purpose of making babies, the presence of menstruation will signify repeated reproductive failure and it will generate an obviously negative perception. Indeed there is much to be found in the literature pertaining to the negative connotations associated with menstruation. Pliny the Elder in AD 77–79, for example, wrote that: 'Contact with the monthly flux of women turns new wine sour, makes crops wither, kills grafts. ... Dogs who taste the blood become mad, and their bite becomes poisonous ... as in rabies.'

To many people today the ideas expressed by Pliny will seem extreme and are not to be taken literally. However, the idea that menstrual blood is polluting and impure is expressed through terminology still in use today. In India, for example, some women use the word *avadi* (polluted) and, in Indonesia, Javanese women use the term *kotora* (dirt) [1]. Even in societies where folklore is not a major influence on current thinking, many myths still exist that centre around the concept of a woman sullying certain procedures simply because she is menstruating *(Table I)*.

In industrialized nations, women today experience fewer pregnancies, breast-feed for shorter periods of time and have a later menopause. The resultant increase in the number of lifetime menses means that menstruation has become an almost obligatory feature of women's life, and this is reflected in the euphemistic terms used. In the UK, menstruation is sometimes referred to as 'the curse', implying the necessary burden that women identify themselves as carrying. In French- or Spanish-speaking countries, it is referred to as *règles* or *reglas* — which literally translates as 'rules', reflecting the perceived compulsory nature of this monthly event [2].

Menstruation as a blessing

There is no medical advantage to menstruation; indeed there is considerable morbidity associated with it, in the form of dysmenorrhoea and menorrhagia. Nevertheless, research repeatedly suggests that many women welcome menstruation. To some it represents the epitome of femininity and is a sign of health, vitality or fertility. For others it provides welcome certainty of not being pregnant [1, 3].

Table I: *Some menstrual myths identified through a Google search of do's and don'ts.*

- Hair washing should be avoided during menstruation
- Fruits or vegetables canned by a menstruating woman will spoil in the can
- You can't go swimming during a period
- Mayonnaise that a menstruating woman has a hand in producing will not come together but will curdle
- Visits to the dentist should be put off until after 'the curse' has passed, because fillings put in during this interval will fall out

Table II: *Typical bleeding patterns seen with female contraceptive methods [5, 6].*

Method	Bleeding pattern	Level of discontinuation due to bleeding pattern
Combined hormonal contraception	Monthly withdrawal bleed Manipulation of cycle possible through extended-use regimens Irregular bleeding in up to 20% in first 3 months	
Progestogen-only pill (not Cerazette®)	10–15% amenorrhoea 50% regular bleeds 30–40% irregular bleeds	
DMPA	Up to 35% amenorrhoea at 3 months and 70% by 1 year Approximately 10% experience prolonged and sometimes heavy bleeding	Around 50% overall discontinuation rate for all reasons at 1 year 30–40% discontinuation rate due to bleeding problems (such as persistent bleeding)
Progestogen implant	20% amenorrhoea Approximately 50% will experience infrequent (30%), frequent or prolonged (10–20%) bleeding Dysmenorrhoea significantly reduced Bleeding patterns are unlikely to change with time, i.e. they are likely to remain irregular over time	The most common reason for discontinuation is bleeding disturbances 33% request early removal within 2 years due to irregular bleeding
Copper IUD	Heavier and/or painful bleeding 5% menorrhagia 25–48% dysmenorrhoea	50% stop using the IUD within 5 years, most commonly for unacceptable vaginal bleeding and pain
LNG-IUS	65% amenorrhoea or oligomenorrhoea at 1 year 90% reduction in menstrual blood loss over 1 year Irregular bleeding and spotting common during first 6 months following insertion	60% overall cumulative discontinuation rate at 5 years 25% discontinuation due to amenorrhoea
Female barrier	No effect on menstrual pattern	N/A
Tubal ligation	No effect on menstrual pattern	N/A

In many cultures it is perceived as a way to cleanse the body; hence, a lack of menses is seen as detrimental to health with potentially serious consequences, including mental illness, cancer and heart disease [1]. In a recent survey conducted in Spain, when asked what they liked about menstruation, over a third of women associated it spontaneously with statements such as 'it makes me feel good' or 'it's a way to get rid of toxins'; 'if you do not menstruate there is a build-up of bad blood' [4].

"There is no medical advantage to menstruation; indeed there is considerable morbidity associated with it, in the form of dysmenorrhoea and menorrhagia."

The impact of contraception

The mythology surrounding menstrual beliefs has taken on a whole new perspective through the advent of modern-day contraceptives, with most female contraceptive methods having the potential to alter a woman's vaginal bleeding patterns in some way. Of these, progestogen-only methods are the biggest culprits. The mechanism of action determines the predominant bleeding pattern, which is largely dependent on the degree of suppression of ovarian activity. Thus, if ovulation occurs consistently (as it does with most progestogen-only pills), a woman will experience menstrual bleeds at a frequency that is characteristic of her non-medicated cycle. If both ovulation and follicle development are completely suppressed (e.g. with depot medroxyprogesterone acetate, DMPA), amenorrhoea will result. If ovulation or follicular development sufficient to stimulate endometrial growth occurs irregularly, bleeding will be erratic and unpredictable (desogestrel-only pill or implants) unless there is endometrial atrophy (e.g. with the levonorgestrel-releasing intrauterine system, LNG-IUS; Mirena®) when, regardless of the effect on ovarian activity, amenorrhoea is common *(Table II)* [5].

The presence of irregular bleeding may be a minor

nuisance or a major inconvenience, depending on the level of restriction that the presence of menstrual blood imposes upon daily activity. Many women, for example, will avoid sexual intimacy during bleeding spells. For some, this constraint is a matter of personal choice, or it may stem from hygiene or aesthetic reasons, with many women finding the idea of sexual activity at this time 'repulsive' or 'abhorrent' or 'just not right' [1]. For others, sexual intimacy may be forbidden by their religious beliefs. In the Jewish faith, the Bible teaches that: 'When a woman has a discharge of blood ... Anyone who touches her will be unclean until evening. If a man sleeps with her ... He shall be unclean for seven days' (Leviticus 15:19–30). Similarly, for Muslims, the Qur'an teaches: 'They will ask you about menstruation ... It is harmful, so keep away from women during it. Do not approach them until they are purified of it' (Qur'an 2:222).

"The presence of irregular bleeding may be a minor nuisance or a major inconvenience, depending on the level of restriction that the presence of menstrual blood imposes upon daily activity."

For others still, it is folk-beliefs that drive their sexual abstinence. For example, in Zimbabwe, many women are reluctant to have sexual intercourse during menses, believing that it will prolong menses or cause erectile dysfunction or swollen testicles in the male [7]. If bleeding spells are frequent, however, the curtailment in sexual activity may start to impact on the couple's relationship. Indeed in the Zimbabwean cohort, many women feared that not having sex with their husbands when they were menstruating would result in his infidelity.

What about methods that have the potential to stop bleeding altogether? The acceptability of methods that induce amenorrhoea has been studied extensively [1, 3, 4, 8, 9]. Familiar themes emerge of women reluctant to accept a method that is 'unnatural' or prevents the 'outlet of dirty blood' [1]. Several studies suggest there are women in both Western and developing countries who prefer to have regular monthly cycles. Even amongst women who identify negative symptoms associated with menstruation, many have no desire to use a method that would prevent it. For example, when a group of Spanish women were asked 'What do you dislike about menses?', over half associated it with menstrual-related symptoms such as dysmenorrhoea; 80% considered it a 'necessary natural event'; and over two-thirds expressed no interest in using a contraceptive method that would allow them to suppress menstruation [4]. Among HIV-positive women, too, where HIV can affect the perception of menstruation by heightened concerns for transmission to partners, there is an even split between those preferring amenorrhoea and preservation of menses [9]. Studies have varied enormously in their findings of the proportions of women who were interested in induced amenorrhoea, ranging from as little as 10% to nearly 75% of those surveyed [1, 3, 4, 8, 9].

Table III: *Myths held by the medical profession.*

- Most women have a regular 28-day cycle
- Women on the COC need to have 3–4 bleeds per year
- Regular bleeds on the COC provide reassurance that the user is not pregnant
- Breakthrough bleeding on hormonal contraception is a sign of reduced contraceptive efficacy
- Women do not like methods that induce amenorrhoea
- Women love methods that induce amenorrhoea

Myths held by the medical profession

It would be presumptuous to assume that myths surrounding menstruation thrive in the lay, non-medical world only. Indeed, many are propagated by health professionals too *(Table III)*, starting with the most basic of concepts: the menstrual cycle. There are several examples within the medical literature where the predictability of the menstrual cycle is implied. In the UK, the Faculty of Sexual and Reproductive Healthcare (FSRH) 2010 guidance on 'Quick starting contraception' recommends that an intrauterine device (IUD) may be inserted up to 5 days after the earliest date of ovulation, i.e. 'up to and including day 19 in a regular 28-day cycle, assuming ovulation on day 14' [10]. In reality, however, only a minority of women will consistently experience 28-day cycles or ovulate on day 14 [11]. Yet many women and health professionals are taught to expect that menstrual cycles will be regular, so that when a variation is seen it is viewed as abnormal and pathological.

This deeply rooted belief extends to women using contraceptive methods. It is widely documented that the most common reasons for discontinuing use of contraceptives involve changes to bleeding patterns [5]. Any deviation away from the norm is treated with suspicion and is not acceptable. The development of side effects, especially those related to menstruation, causes many women to feel that their general and reproductive health is being threatened [12].

Table IV: *Factors that alter the effectiveness of a contraceptive method [18].*

- Efficacy
- Continuation rates over time
- Compliance/adherence
- Fecundity (ability to conceive)
- Coital frequency and timing

A woman's perception of blood loss and its impact are important aspects when starting a new contraceptive method. Several studies across different cultures have shown that counselling about potential changes in bleeding pattern results in fewer method discontinuations at 1 year [13, 14]. This is significant because continuation rates over time can alter the effectiveness of a method *(Table IV)* [15].

"The development of side effects, especially those related to menstruation, causes many women to feel that their general and reproductive health is being threatened."

When the combined oral contraceptive pill (COC) was first introduced, the idea of a 'normal' 28-day menstrual cycle was so deeply ingrained that the 21-day pill schedule was developed to mimic it and make the COC more acceptable to its users [2]. Many women still believe that monthly bleeding is necessary on the COC [16], and some clinicians are reluctant to advocate extended-use regimes of the COC, feeling it is important for women to have a withdrawal bleed while using contraception [8]. This myth may arise from the mistaken belief that women on the COC require at least three bleeds per year in order to shed the endometrium and prevent the development of endometrial hyperplasia and carcinoma. Whereas this holds true for women with polycystic ovarian syndrome who are not using hormonal contraception [17], the same concept does not apply to users of COCs.

Additionally, many women using COCs, and their clinicians, view the monthly withdrawal bleed as evidence that pregnancy has been prevented [2]. This is not necessarily true, however, and UK FSRH guidance reminds us that: 'Women should be informed that bleeding during hormonal contraception is not the same as a natural period, and even regular withdrawal bleeds may not be a reliable indicator that a woman is not pregnant' [10].

In the same way that regular withdrawal bleeds are taken to be confirmation that the contraceptive method is working effectively, unscheduled bleeding often prompts concerns about the reliability of the method. We can be reasonably reassured by the FSRH guidance which states that: 'As long as the method has been used consistently and correctly, unscheduled bleeding is not associated with increased risk of contraceptive failure' [6]. In other words, bleeding patterns are not a measure of hormonal contraceptive efficacy. Equally, for the non-hormonal IUD, a cohort study reported that complaints of bleeding were not associated with a misplaced IUD demonstrated by ultrasound scan [18].

Ask any medical student what makes for an ideal contraceptive and many will answer 'one which is highly effective'. When we look at the pattern of contraceptive use in the UK, however, the most effective methods (IUD/LNG-IUS/implant) are not at the top of the list [19]: clearly, women have other priorities when it comes to selecting their contraceptive method. Indeed, a UK study found that many were more concerned about adverse effects (especially bleeding irregularities) than about effectiveness [20].

It is crucial to bear this in mind. When helping a woman select her contraceptive method, it is important to try and elicit any ideas, concerns or expectations she may have. Determine whether she has any misconceptions; ask about any myths she may have heard. Unless fantasies are challenged they might grow and pose an obstacle to adherence, which can also affect the effectiveness of the method [15]. It is important too that clinicians are aware of their own prejudices and avoid letting these affect the way they describe various methods. In a study of the acceptability of methods of contraception that confer amenorrhoea, clinicians thought that having a regular period was important to their patients, yet the women themselves did not feel that it was important [21]. This mistaken belief could lead to some clinicians withholding certain forms of contraception in which they assume their patients would not be interested.

Conclusion

This article has discussed some of the myths surrounding menstruation. The value in doing so is not so that we may put a label on certain groups, but rather that we may appreciate the diversity of opinion and remember that this can impact enormously on contraceptive choice and continuation. Remember too that contraceptive choice is not only affected by the woman's own health beliefs but also by the beliefs of her provider which can be equally diverse and, at times, just as misinformed.

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Three major consumer trends and their potential impact on future contraceptive choices

How simplicity, individuality and flexibility play an increasing role in the lifestyle of today's women

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Introduction

Compared with 10 years ago, the lifestyle of women around the world has changed dramatically. There is no doubt that the internet has completely turned around the way they access information. Not only this, it has brought an end to mass markets and a growing trend towards individualization of products. This evolution is nicely described by Chris Anderson in his bestselling book *The long tail: why the future of business is selling less of more* [1].

Modern women are determined to combine career, family and relationships successfully. Their busy lifestyle increasingly demands products and services that make life easier. In particular, the new generation of so-called 'millennials' (those born between 1982 and 2002 [2]) value more flexibility in different aspects of their life, such as work schedules, to enable them to balance personal life, family and even exercise routines more effectively.

"Compared with 10 years ago, the lifestyle of women around the world has changed dramatically."

In a recent trend survey conducted among 314 women, aged between 15 and 49 years, in Germany, the United States and Brazil, participants were asked about their lifestyle, attitudes and general preferences. The study design was qualitative, comprising a self-administered questionnaire followed by a series of telephone interviews surveying women about 19 lifestyle, media and communication trends (Trend survey. Data on file. Bayer HealthCare Pharmaceuticals, 2010).

This article focuses on three selected themes of the survey that are the most relevant to contraceptive usage: simplicity, individuality and a strong desire for flexibility. As the survey did not focus on contraception as such, but captured women's behaviour in a broader sense, some conclusions are drawn at the end of the article on the potential impact of the three behaviour patterns on contraceptive choice.

Simplicity

The survey shows that the desire for simplicity does not tend to vary by age *(Table I)*. Women of all age groups are attracted to various aspects of simplicity: 81% seek products and services that will save them time or simplify their life. Examples of such products and services are online banking, home delivery, online travel booking and mobile parking to name but a few. About 60% in all age groups appreciate a minimalist design look and 41% prefer products that are multifunctional because they simplify daily routines: for instance, 2-in-1 shampoo; a combined printer, scanner and copier; a cell phone with an integrated camera. Products that can enhance quality of life by removing obstacles or complications on a daily basis are very appealing, as they create time for more desirable activities.

Ultimately, convenience plays an important role for everyone who takes medication on a daily basis. The goal is to integrate pharmaceutical products into daily routines [3].

Table I: *Participation in 'simplicity' activities. The trend survey was carried out between August and October 2010 by Bayer HealthCare Pharmaceuticals and featured 314 women aged 15–49 years.*

Activity	Activity participants (%)				
	Overall (*n* = 314)	15–19 years (*n* = 25)	20–29 years (*n* = 129)	30–39 years (*n* = 117)	40–49 years (*n* = 43)
Seek out products that simplify life	81	88	79	83	77
Prefer minimal packaging	59	60	60	62	49
Like to buy products that are multifunctional	41	32	40	44	47

Table II: *Attitudes and behaviour with regard to customization. The trend survey was carried out between August and October 2010 by Bayer HealthCare Pharmaceuticals and featured 314 women aged 15–49 years.*

Attitude/behaviour	Those who agree with attitude/behaviour (%)				
	Overall (*n* = 314)	15–19 years (*n* = 25)	20–29 years (*n* = 129)	30–39 years (*n* = 117)	40–49 years (*n* = 43)
Like to buy unique or custom-made products	58	88	58	57	44
Would customize a mobile phone cover	68	88	67	70	49
Would pay more for health and beauty products specific to their needs	60	48	64	59	56
Prefer to shop at specialized stores	47	44	48	44	51
Have customized an online purchase	21	44	23	19	9

Individuality

'Fewer and fewer people nowadays feel the need to fit in with social norms. We are increasingly happy to stand out from the crowd' [4]. Consumers in general are more individualized than ever, expecting products, services and experiences to address their unique wishes.

> ***"Consumers in general are more individualized than ever, expecting products, services and experiences to address their unique wishes."***

This trend is clear from the survey: when women were asked about their attitudes and behaviour with regard to customizing their purchases *(Table II)*, more than half said they preferred to buy custom-made or unique products. Almost 70% would, for instance, customize their mobile phone covers. The health care industry is already responding to this desire: one example is a customizable medical device for young diabetes patients. Individual design foils for a glucometer make it easier for young patients to deal with their condition (www.bodytel.com/youniik) [5].

Sixty percent of women surveyed would pay more for health and beauty products that were specific to their individual needs. About half prefer to buy things in specialized stores and almost half of the teenagers surveyed said they had already customized an online purchase.

Flexibility

'The growing number of women in the workforce forced employers to be more flexible. Women needed time off to collect children from school, to take family members for hospital visits, and to do all the other tasks that had been expected of them before they entered the workforce in bulk. They did not expect to work fewer hours than men; they merely expected them to be less rigidly predetermined' [6].

The survey shows that the demand for flexibility not only refers to more flexibility at work but also to other daily activities, such as the way women access information and entertainment *(Table III)*. A broad variety of digital devices as well as online platforms

Table III: *Devices and services on which content is received. The trend survey was carried out between August and October 2010 by Bayer HealthCare Pharmaceuticals and featured 314 women aged 15–49 years.*

Device	Those who have received content on the device in the past year (%)				
	Overall (n = 314)	15–19 years (n = 25)	20–29 years (n = 129)	30–39 years (n = 117)	40–49 years (n = 43)
TV	96	96	95	97	98
Laptop or notebook computer	64	92	76	55	40
DVD player	68	84	65	72	56
YouTube or other video-sharing service	53	88	57	51	28
Digital video recorder (DVR)	19	16	19	21	16
Mobile phone or smartphone	21	40	21	19	14
On-demand TV or online entertainment service	10	4	10	13	2
Games console	18	20	20	19	9
iPad or other tablet computer	5	4	5	5	0

and services enable them to access information and entertainment whenever and wherever they choose. 'About 30% of the time I use the internet on my mobile phone', says a survey participant from Brazil.

"The survey shows that the demand for flexibility not only refers to more flexibility at work but also to other daily activities."

Table III shows a variety of devices and services on or through which content (e.g. movies, videos) is received and to what extent women in different age groups are using them.

'Moreover, technologies are being developed to help people to self-monitor their health from any location, tracking and delivering basic biometric data and performance statistics' [7]: 13% of women in the trend survey are already monitoring health-related issues (e.g. sleep, mood and stress levels) digitally.

In recent years, online shopping has become very popular, as it makes us less dependent on opening hours by giving access to purchasing facilities 24/7. Almost 40% of all women who participated in the survey shop online at least once a month.

More flexibility is also a topic when it comes to communication. Today, people would rather give up their email than their social network, which has become the most popular activity on the web [8]. Facebook users can reach all their contacts at the same time with one status update as well as have a live conversation through the chat function. Social networks are widely used: 80% of teenage women in the survey visit Facebook at least once a week, whilst 36% of the same group use another social network on a regular basis.

Other lifestyle aspects of flexibility are an increasing willingness to travel, global mobility, and the growing number of long-distance relationships and single households.

What does all this mean for contraceptive use?

The trend survey, as well as the other information sources referenced above, clearly shows that simplicity, individuality and flexibility play an important role in the life of today's women. In drawing some conclusions from the three phenomena for the use of contraceptives, there are clearly some implications of these behaviour patterns on contraceptive expectations.

Contraception and simplicity

The Pill is the most widely used contraceptive method worldwide. Some women, however, find it difficult to remember to take it every day. Those women would certainly appreciate all kinds of services, such as trackers, smartphone applications, alarms, reminders, or maybe even an intelligent dispenser to help them remember to take their daily pill. Other options to increase compliance and convenience are long-acting contraceptive methods.

Contraception and flexibility

A study of 25,590 women aged 15–49 years from 19 European countries shows that 40% of oral contraceptive users have already postponed their menstruation by extending their pill intake. The two main reasons for this were either a special event where they did not want to bother with their menstruation or simple convenience (Pan-European FC study. Data on file. Bayer HealthCare Pharmaceuticals, 2009). Greater flexibility when it comes to monthly periods therefore seems very appealing.

Contraception and individuality

The trend survey shows that women prefer individual solutions when it comes to health products, and a majority are willing to pay more for a solution that fits their individual needs. The opportunity to postpone menstruation could potentially be taken a step further with a contraceptive pill that helps to manage the bleeding and finishes with a very individual bleeding rhythm. An on-demand contraceptive that is only taken when needed would be another option for future improvement, especially when the couple is in a long-distance relationship or the woman is single. Contraceptives with different kinds of added benefits present another way to meet women's individual needs. Last, but not least, individualized pill packs similar to the example for diabetes patients mentioned above would be a good way to personalize contraceptives and make them more discreet when carried in public.

Conclusion

Women's lifestyles have changed over time and have led to different demands including with regard to contraception. Even if currently available contraceptives are already meeting most of women's needs, there is still room for improvement, especially when it comes to addressing individual needs by increasing flexibility and convenience.

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Women's perceptions and attitudes towards menstrual bleeding

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Introduction

Regular monthly menstrual bleeding is a relatively recent phenomenon; today, women in developed societies will experience more periods by the age of 50 years (as a result of earlier menarche, longer life span and fewer pregnancies) compared with their ancestors [1]. However, in cultures which still have the traditional 'hunter–gatherer' lifestyle, for example the Yąnomamö tribe in the Amazon, menstruation is not expected to be monthly, nor indeed frequent. In these societies, constant pregnancy and breastfeeding result in women seeing very few periods during their reproductive lives [2]. Women in developed countries have become accustomed to having a monthly bleed, in part due to the existence of the traditional 21/7 oral contraceptive regimen. This regimen was designed to mimic the non-medicated menstrual cycle of women in developed societies [3], with a 'withdrawal bleed' during the 7-day pill-free interval, in the belief that it would encourage acceptance of oral contraception.

Changing attitudes to menstruation

For many women menstrual bleeding is both uncomfortable and inconvenient. In the 50 years since the introduction of the oral contraceptive pill, studies have shown that the proportion of women preferring less frequent bleeding seems to increase with time, at least in developed countries [4–10]. In addition, when women are better informed about the mechanism and origin of the 'withdrawal bleed', they are less likely to feel that it is necessary [3].

Intercultural differences in the perception of menstrual bleeding are very striking in all studies [8]: some women are influenced by religion [11]; others by myths and misconceptions which still abound throughout the world today. It is often thought that these are much less frequent in the developed world, but it is interesting to note that in 1878 the *British Medical Journal* carried a series of letters that claimed a menstruating woman could cause bacon to go bad [12]. Indeed, a popular euphemism for periods is 'the curse'. So, it is interesting to ask, in this new millennium, do European women still want to have a monthly menstrual bleed?

> ***"It is interesting to ask, in this new millennium, do European women still want to have a monthly menstrual bleed?"***

Pan-European market research study into women's contraceptive use, behaviour and attitudes

A pan-European market research study was carried out in 2009 among a representative sample (according to age, education, income and regional distribution) of women aged 15–49 years (Pan-European FC Study. Data on file. Bayer HealthCare Pharmaceuticals, 2009). The study assessed over 18,000 women's attitudes towards contraception, menstrual bleeding and postponing menstrual bleeding in 18 countries within Europe. In most countries the study was conducted online (France, Germany, Italy, Spain, UK, Russia, Austria, Poland, Switzerland, Netherlands, Czech Republic, Denmark, Norway, Sweden), but in Turkey, Portugal, Greece and Ukraine the study was carried out using face-to-face interviews.

Women who had used the oral contraceptive pill were asked whether they had ever themselves postponed their bleeding. *Figure 1* shows that there was enormous variation in the responses. Overall, 39% had postponed their bleeding, but this ranged from 85% in the Netherlands to 10% in Turkey.

Those women who had postponed their bleeding were then asked their reasons for doing so. These were more consistent, with the majority of women postponing their bleed for a special occasion or for convenience, such as a holiday. In this respect, the

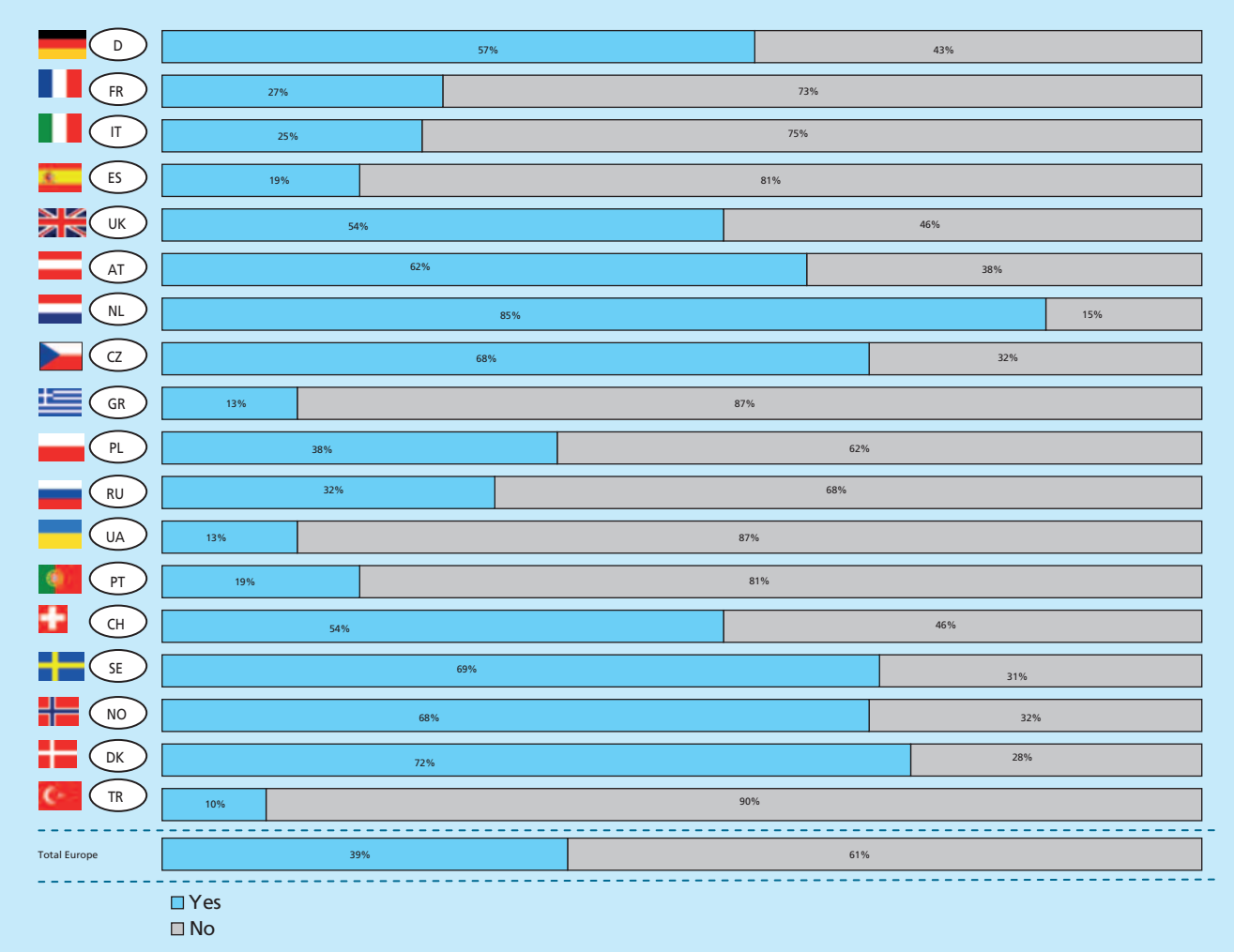

Figure 1: *Percentage of ever-users of the oral contraceptive pill who had used it to postpone bleeding.*

Ukraine was an outlier, as approximately a third of women had done so on the recommendation of their doctor.

> ***"It would appear that if women were better informed, more would opt to change the frequency of their bleeds."***

The women were next asked how often they had postponed their bleeding. Here the results were reasonably consistent, with around 80% saying they had only postponed their bleeding once or twice a year *(Figure 2)*.

Women who said they had never postponed their bleeding were asked to give their reasons for this. Unsurprisingly, the most common reasons were that they thought it was not natural or it was not healthy to do so. However, interestingly, although they thought this, in general only around 30% stated that they were satisfied with the current bleeding pattern. It would therefore appear that if these women were better informed, more would opt to change the frequency of their bleeds.

Clearly there are limitations to this market research: online surveys can only be completed by people who have access to the internet and are computer literate. It is an interesting coincidence that in the four countries where the interviews were conducted face-to-face (Greece, Portugal, Turkey and Ukraine) women were least likely to have ever postponed their bleeding (13%, 19%, 10% and 13%, respectively; *Figure 1)*. One can speculate on the reasons for such a difference, but it is possible that there were some demographic differences between them and the women who went online. Face-to-face interviews also allow a

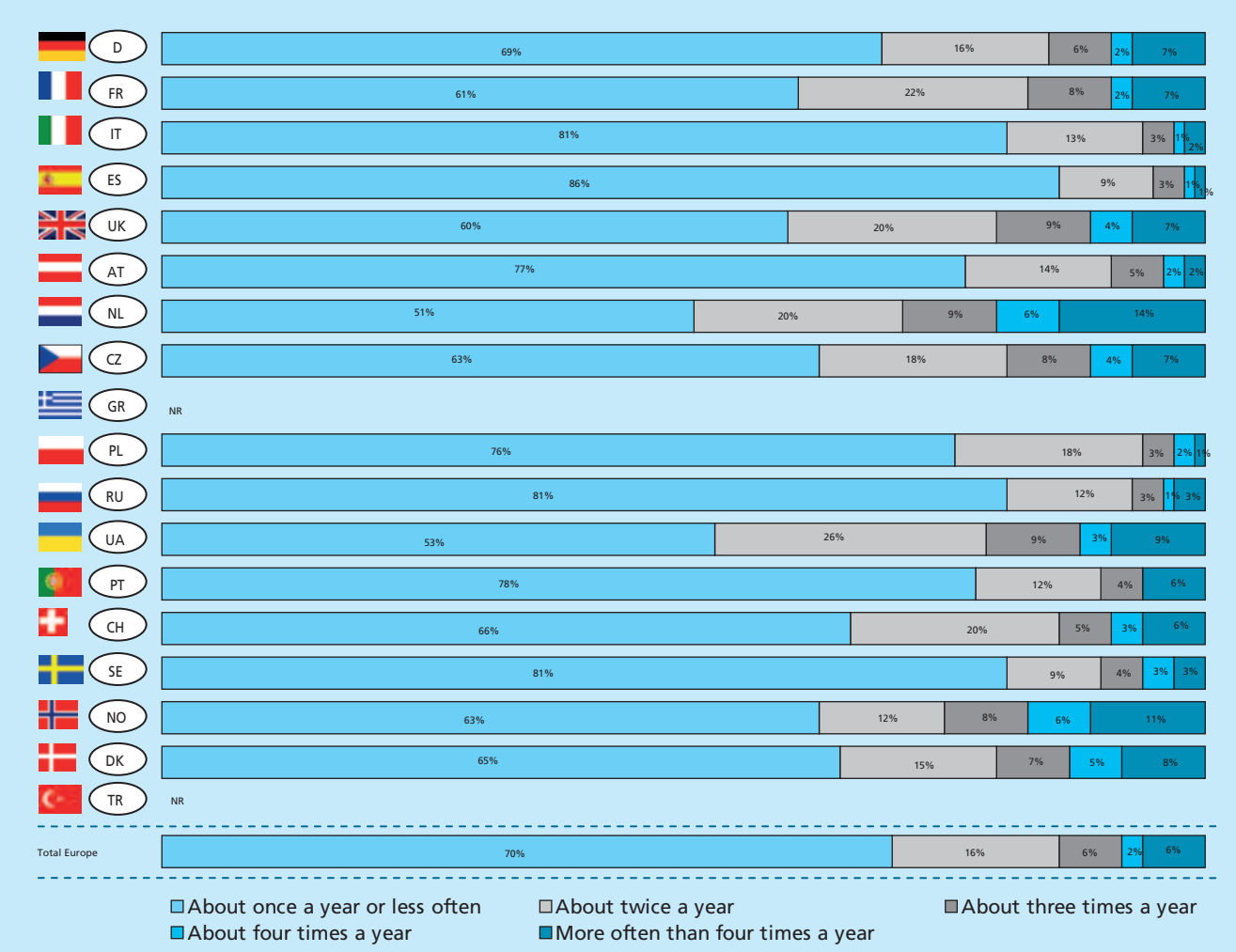

Figure 2: *Frequency (%) of postponing bleeding in oral contraceptive pill users. NR, Not reported*

degree of discussion and interpretation which is not possible in a fixed-answer online survey.

Nevertheless, it is important that we continue to study women's attitudes to menstruation. Ascertaining women's preferences will help health care providers to prescribe the most appropriate contraceptive methods to suit women's needs and lifestyle.

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How can we improve compliance with oral contraceptive use?

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Introduction

Throughout the last half century, millions of women have benefited from the advantages of combined oral contraceptives — their high efficacy and rapid reversibility, as well as their numerous non-contraceptive health benefits. Today, combined oral contraceptives are the most popular and widespread form of contraception worldwide [1]

Contraceptive effectiveness

Contraceptive effectiveness (how well a method works in a given population) is influenced by five main factors:
1. Efficacy (theoretical ability to prevent pregnancy).
2. Correct use, or compliance (also termed adherence).
3. Continued use.
4. Fecundity (a woman's ability to conceive).
5. Coital frequency.

Greater efficacy and correct and continued use increase clinical effectiveness. Fecundity and coital frequency have an opposing effect [2]. When correctly used, the efficacy of combined oral contraceptives is high: ovulation is rare and, even if it should occur, other contraceptive mechanisms such as cervical mucus changes are operative. However, correct and continued use is not always optimal and this can result in the risk of an unplanned pregnancy and abortion.

Contraceptive failure is a subject of great interest because there continues to be a high number of unplanned pregnancies. In the United States about half of all pregnancies (over 3 million) are unplanned. In 2002, about 53% of these occurred in women who reported using a contraceptive method. Teens are at even greater risk of experiencing a contraceptive failure than are older women [3]. Similar rates of unplanned pregnancies are reported in Europe [4–6].

The importance of correct, consistent and constant use of contraception is attested by Trussell's table of contraceptive efficacy, which compares perfect use with failure rates among typical users in the United States [7, 8]. Eight percent of typical users experience an unplanned pregnancy during the first 12 months of use.

Importance of making an informed choice

Studies show that consistency of use is far from optimal. However, compliance is difficult to study. A recent article by Hall et al. [9] concluded that the interpretation and comparability of results are severely hindered by a lack of uniformity and coherence in relation to terminology and evaluation methodologies.

Discussion of compliance is relatively recent and is associated with the need to improve the prevention of unplanned pregnancies. To improve compliance proper counselling is vitally important. Counselling must consider the lifestyle and individual profile of the woman as well as the characteristics of the method [10].

"Contraceptive behaviour is influenced by a woman's lifestyle, her motivation to avoid pregnancy, the occurrence of side effects, and also by her personal views and concerns about the methods available."

The choice of contraceptive method must be shared between the health professional and the woman or couple. Contraceptive behaviour is influenced by a woman's lifestyle, her motivation to avoid pregnancy, the occurrence of side effects, and also by her personal views and concerns about the methods available. These beliefs are frequently due to poor information or prejudice [11].

The TEAM-06 Spanish cross-sectional study revealed that convenience, frequency of use and lower probability of inadvertent omission were the primary determinants of contraceptive choice rather than the woman's demographic profile. Hence, a thorough knowledge of the available options appears to be crucial in making an informed choice [12].

Factors associated with poor compliance

In a study of 6676 European women between the ages of 16 and 30, Rosenberg et al. [13] found that 19% generally missed at least one pill per cycle.

Some women are very good at taking the contraceptive pill and never forget: for these women combined oral contraceptives are a good option. Women who admit missing a pill 'occasionally' or even 'several times a month' may consider other hormonal contraceptive methods such as the vaginal ring or skin patch, as well as long-acting reversible contraceptives. Some women, frequently of a younger age, routinely forget to take their first pill after the pill-free interval. These women may be well advised to switch to a 24/4 regimen or to a tailored (flexible), continuous regimen. Women opting for the latter must be informed that they can stop if they want to have a menstrual period or in the case of spotting.

Adopting an individualized approach to counselling

The ideal contraceptive would be 100% effective, with no health risks or side effects, independent of sexual intercourse, easily and completely reversible, easily administered and used without the intervention of health professionals. However, no such method exists; instead there is a trade-off between efficacy and safety. Methods that are very safe, such as barriers or natural family planning, unfortunately are not very effective. Meanwhile, the very effective methods, hormonal oral and intrauterine contraception, can raise concerns about health risks and side effects [14].

Side effects are one reason often cited for discontinuation of a method. The first step for the health professional is to explain to the patient which side effects are temporary and which are more lasting. The estrogen dose of modern combined oral contraceptives is very low. The most frequent side effects that cause discontinuation of a method are nausea and menstruation-related symptoms such as headache. In those cases contraceptive pills with even lower doses of estrogen may be discussed, or, alternatively, the progestogen-only pill or long-acting reversible contraception. Women should be assured that breast tenderness, for example, is temporary and is not related to breast disease. They must be informed that if they have any doubts, questions or complaints they should revisit or telephone the family planning centre, and that they should not simply stop the method on impulse. Easy accessibility is, for this reason, an essential precondition for effective counselling.

One main worry about oral contraceptive use is weight gain. However, weight is also clearly influenced by factors other than pill use, such as physical activity, dietary habits and ethnicity [15]. Therefore counselling should consider this question from a broader perspective, addressing in a comprehensive way the woman's lifestyle and avoiding focusing on weight gain as an isolated and specific side effect of the method.

Comorbidities, disease risk, smoking, professional and leisure activities are other factors that should be carefully considered when choosing a contraceptive method [16].

In the end, a shared and well-informed choice, tailored to the needs of the individual, will be more likely to be successful. To achieve this goal the health professional must have a thorough knowledge of all the methods available, convey adequate information and adapt the method and route of administration to the individual user, to ensure that the chosen method has a positive impact on the woman's life.

"A shared and well-informed choice, tailored to the needs of the individual, will be more likely to be successful."

Explaining the non-contraceptive health benefits

The non-contraceptive health benefits of oral contraceptives should be clearly explained during counselling. Their positive impact has been demonstrated, for instance in dysmenorrhoea, androgen excess and premenstrual syndrome [17, 18]. Coutinho and Segal [19] proposed that although menstruation may be culturally significant it is not medically important, suggesting that suppression of menstruation has health advantages. Menorrhagia has an adverse impact on the quality of life of many women: menstrual blood loss can be reduced and even amenorrhoea induced by hormonal contraception. The new class of dienogest-containing oral contraceptives or the levonorgestrel-releasing intrauterine system may be options in women with menorrhagia. Amenorrhoea may be a concern only if the woman has not been properly counselled [20].

Oral contraceptive use has been found to protect against some medical conditions such as ovarian and endometrial cancer [21, 22].

Different needs, different options

The health professional should discuss with the woman the likely need to change her contraceptive method over the course of her reproductive life, for instance when she wishes to start a family or in response to any developing health issues.

Puerperal counselling should be initiated as soon as possible, ideally during prenatal care, to ensure that timely and adequate contraception is in place after delivery. Here also, individual characteristics and needs may differ and this should be taken into account.

Widespread and easy access to a chosen contraceptive method is a fundamental factor to enable its immediate use.

It is critical that health professionals adequately meet the specific needs of each woman requesting contraception. Improving the quality of counselling, receiving and giving information, and sharing the process of choosing (i.e. focusing clearly on the user rather than prescribing from a professional perspective) are mainstays of compliance and increase the effectiveness of a chosen method.

The main focus of a contraceptive method remains pregnancy prevention, but the broader challenge is to improve women's quality of life.

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Current methods of managing menstrual bleeding

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Introduction

Menstrual bleeding accompanies a woman for the whole of her reproductive life. The average age at menarche is 12 years and at menopause 51.5 years. In industrialized countries the average woman lives to be 81.7 years old [1]. It can thus be said that nearly half of every woman's life is affected by menstrual bleeding. Based on the model of a regular, natural and unmodified menstrual cycle — excluding pregnancies and time spent breast-feeding — the average woman will have more than 500 menstrual periods. Usually, menstrual flow occurs once a month (most cycles are between 24 and 34 days) and lasts about 4–7 days. The average length of a menstrual period is 5 days, which equates to 2500 days of bleeding during an average woman's lifetime. Blood loss in a normal menstrual cycle averages between 35 and 40 ml. Blood loss in excess of 80 ml during one menstrual period is considered pathological. The amount of blood loss can be estimated by counting the number of sanitary pads or tampons used per day.

Physicians (mainly in the West) are increasingly being asked by women to help them modify their periods in some way: by reducing the amount or shortening the length of blood flow, postponing bleeding, or temporarily eliminating bleeding in the short or long term. Such requests usually occur in the context of lifestyle needs, for example for career or travel reasons. Clearly some means of modifying the character of menstruation would be appreciated by many women.

Pathological bleeding disorders

The menstrual cycle is usually defined by its regularity/irregularity, and the length and intensity of bleeding. Yet, although gynaecologists all over the world treat bleeding disorders, there is still no unified nomenclature accurately to describe the symptoms [2, 3].

Terms such as primary and secondary amenorrhoea and polymenorrhoea are relatively well established and widely used by physicians. Terms such as intermenstrual spotting and intermenstrual bleeding are also well understood and defined. However, there is less consensus in describing heavy and/or prolonged menstrual bleeding: the terms dysfunctional uterine bleeding and abnormal uterine bleeding, as well as idioms such as metrorrhagia, menorrhagia, epimenorrhoea and hypermenorrhoea, usually refer to the same thing [4].

"Although gynaecologists all over the world treat bleeding disorders, there is still no unified nomenclature accurately to describe the symptoms."

Dysfunctional uterine bleeding (heavy or prolonged menstrual bleeding) has a high prevalence and can cause morbidity [5]. The symptomatology is variable:

— The terms used for bleeding abnormalities say nothing about the aetiology. Bleeding abnormalities may be due to:
  - organic reasons (e.g. endometrial tumours and pathologies, ovarian tumours, cervical pathologies, uterine fibroids, pathological gestation, pelvic inflammatory disease),
  - internal and haematological aetiology (e.g. altered liver function, von Willebrand disease, hypertension, systemic lupus erythematosus, vitamin deficiency, endocrine disorders),
  - iatrogenic reasons (e.g. use of anticoagulants or steroids, kidney dialysis, etc.) [6].

— After eliminating organic and other non-hormonal reasons, a broad group is referred to as having dysfunctional uterine bleeding [7].

Table I: Current therapies used for managing disorders of menstrual bleeding.

Non-hormonal	Hormonal	Surgical
Tranexamic acid	LNG-IUS	Ablation
NSAIDs	Combined oral contraceptives	Endometrial resection
	Progestogens	Hysterectomy
	Hormone therapy	
Not all therapies are licensed for the treatment of dysfunctional uterine bleeding.		

— Physicians should consider all the possible reasons that may be the cause of the abnormality and not omit to take an adequate history of the patient as well as carry out detailed clinical, sonographic and laboratory examinations.

"Physicians should consider all the possible reasons that may be the cause of the abnormality and not omit to take an adequate history of the patient as well as carry out detailed clinical, sonographic and laboratory examinations."

Non-pathological bleeding disorders

Beyond bleeding pathologies even regular menstrual cycle bleeding can cause discomfort and prompt a woman to seek help. The most common complaint is dysmenorrhoea and premenstrual syndrome, which has a wide range of symptoms. In hypermenorrhoeic or polymenorrhoeic patients, blood loss may also be significant and thus have consequences.

There are several different methods and approaches to treating menstrual bleeding disorders *(Table I)*. The main aim in treating dysfunctional uterine bleeding is to exclude organic and non-hormonal causes [8].

Non-hormonal treatment of dysfunctional uterine bleeding may be either surgical or pharmacological. Surgical treatment is usually performed only in urgent cases and comprises curettage, endometrial ablation and resection. The latter, however, is not appropriate for all patients depending on age. Furthermore, its reliability and durability are uncertain. Pharmacological treatment may be carried out with non-steroidal agents and steroid hormones. Mefenamic acid can be used in cases of urgent bleeding, but its use is limited by contraindications. Non-steroidal anti-inflammatory drugs (NSAIDs) are widely used, but their effect on bleeding intensity is doubtful and their use is mainly targeted at the treatment of dysmenorrhoea.

Oral contraceptives are widely used as a first-choice treatment for bleeding complaints and far exceed their primary task as a contraceptive [9]. The decision to use a certain medicinal product is determined by several factors:

— Clinical efficacy.
— Safety (adverse events).
— Factors related to patient care (e.g. impact on fertility, reversibility, convenience of use, presence of contraindications).

It is always necessary to bear in mind the requirement to heed any contraindications and recommendations for care. Unfortunately, in most European countries there are no specific guidelines, and therapy is usually provided 'off label'.

Therapy is mainly based on the prescribing physician's experience of using combined oral contraceptives, intrauterine systems and progestogen-only pills. The decision to opt for a certain product depends on its properties. In the case of combined oral contraceptives it depends on:

— The dosing regimen (monophasic, triphasic or dynamic dosing regimen).
— The method of administering the product (21/7 or 24/4 dosing regimen, dynamic dosing, continuous administration without a pill-free interval).
— The amount of estrogen compound, which can range between 15 and 35 μg ethinylestradiol, and the type of estrogen used (ethinylestradiol or estradiol valerate).
— The properties of the progestogen component.
— The estrogen–progestogen interaction, which influences the results of treatment.

Certain properties of progestogens also influence the physician's decision, among them their receptor affinity, partial androgenic or antiandrogenic properties, antimineralocorticoid effects, affinity to sex hormone binding globulin and albumin, half-life etc. *(Tables II and III)*. The patient's medical situation and history, as well as needs and desires, should also be considered:

Table II: *Pharmacological properties of progestogens. Adapted from [10].*

	Elimination half-life (h)	Plasma binding (%)	
		Albumin	SHBG
Nortestosterone derivatives			
Norethisterone	7.6	61.0	35.5
Levonorgestrel	14.8	50.0	47.5
Gestodene	11.2	24.1	75.3
3-keto Desogestrel	11.2	63.5	32.0
Dienogest	11.0	90.0	0.0
Progesterone derivatives			
Cyproterone acetate	43.9	96.0	0.0
Drospirenone	30.0	95.0	0.0
Progesterone	25–50[a]	54.0	0.0

SHBG, Sex hormone binding globulin.
[a]Half-life varies depending on formulation and route of administration.

Table III: *Pharmacological properties of progestogens. Adapted from [11].*

	Progestogenic	Antiandrogenic	Androgenic	Antimineralocorticoid
Nortestosterone derivatives				
Levonorgestrel	++	–	+	–
Gestodene	++	–	+	+
Norgestimate	++	–	+	–
Desogestrel	++	–	+	–
Dienogest	++	++	–	–
Progesterone derivatives				
Cyproterone acetate	++	++	–	–
Drospirenone	++	++	–	++
Progesterone	++	+	–	++

++, Activity; +, negligible activity at therapeutic dosages; –, no activity.

— Contraindications (e.g. presence of risk factors for venous thromboembolism, presence of a sexually transmitted infection, fibroids, cervical dysplasia).
— Future pregnancy wishes (the likely length of time before she envisages starting a family).
— Preferred administration (daily or less frequently).
— Desire for a certain type of product (estrogen-free, ethinylestradiol-free).
— Need for contraception.
— Desire for regular or no monthly bleeding.

In managing dysfunctional uterine bleeding and bleeding in general, several contraceptive products seem particularly suited to the task. Estradiol valerate/dienogest administered in a dynamic dosing schedule (E_2V/DNG; Qlaira®) and the levonorgestrel-releasing intrauterine system (LNG-IUS; Mirena®) are widely used to enable a significant reduction in blood loss in women with heavy or prolonged menstrual bleeding.

E_2V/DNG and the LNG-IUS

Together with its reliable contraceptive effect, E_2V/DNG is the only combined oral contraceptive using natural estradiol, which reduces the haemostatic and metabolic effects. Dienogest is a well-tolerated progestogen with a strong endometrial effect, minimal binding to plasma globulins and excellent bioavailability. Its effects on ovarian tissue are more peripheral than central.

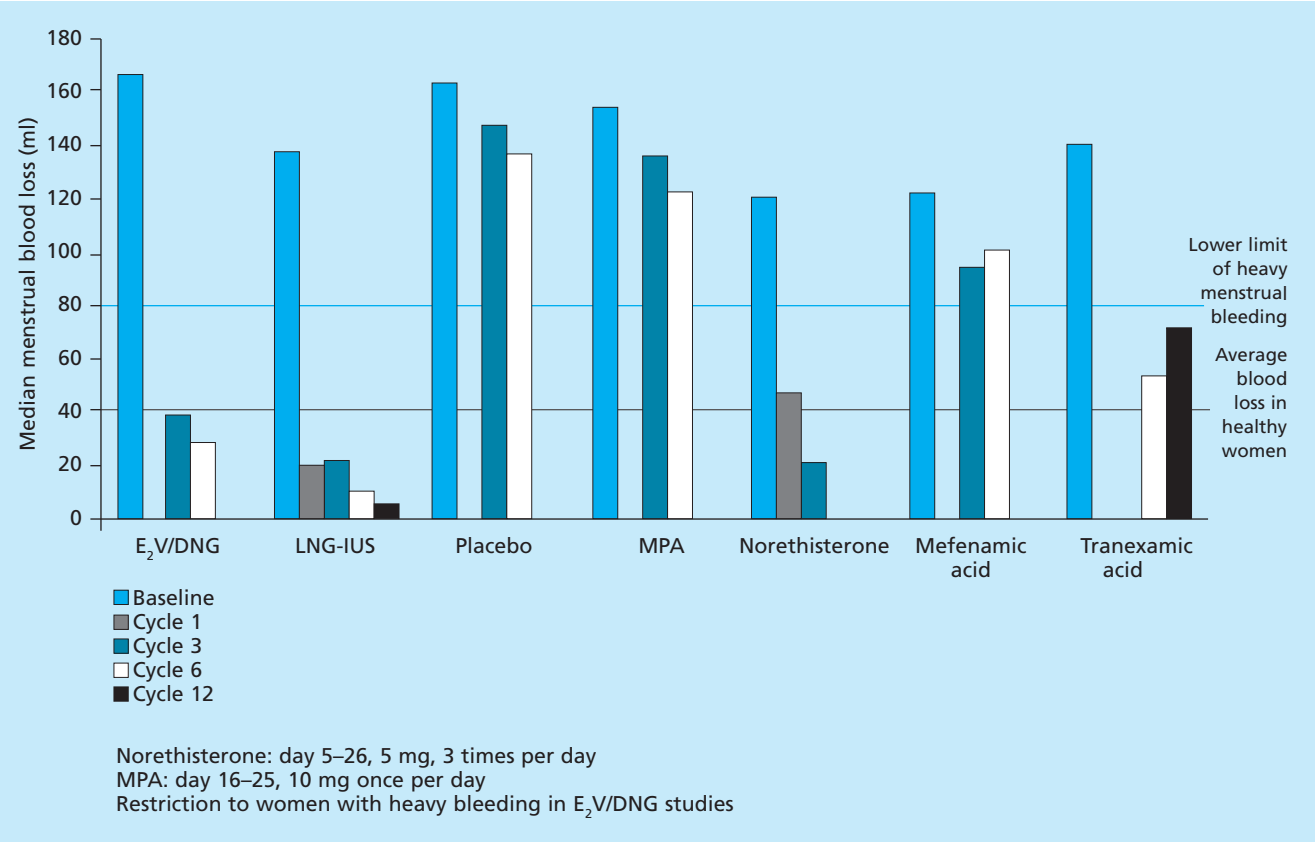

Figure 1: *Median menstrual blood loss recorded with a range of therapies. MPA, Medroxyprogesterone acetate.*

The two components, estradiol valerate and dienogest, are used together in a dynamic dosing schedule, comprising an estrogen step-down and a progestogen step-up during the cycle to enable endometrial stability and avoid unscheduled bleeding. These properties ensure acceptability and thus improve compliance. They also mean that E_2V/DNG is appropriate for a wide range of ages, from adolescence to the perimenopause. E_2V/DNG is licensed for the treatment of heavy menstrual bleeding in women with no organic pathology who desire oral contraception [12–14].

An alternative to daily pill intake is offered by the LNG-IUS, which is a unique intrauterine system that secretes levonorgestrel. The device is inserted by a physician and its effect lasts for up to 5 years. Continuous release of progestogen is mainly local (endometrial tissue, myometrium, ovary); there is thus minimal effect on other organs. The LNG-IUS can therefore be used in situations where combined oral contraceptives would not be well tolerated (e.g. certain concomitant chronic medications, gastrointestinal disturbances, some disorders that rule out estrogen use). The effectiveness of the LNG-IUS is user-independent. Off-label use in uterine fibroid growth reduction is an added benefit.

— Both products are highly effective treatments for heavy menstrual bleeding in the absence of an organic pathology.
— Both products decrease menstrual blood loss on average below the 80 ml level (limit for the indication of heavy menstrual bleeding/menorrhagia) and even below the average of a 'normal' menstrual period (40 ml/cycle) *(Figure 1).*

EE/drsp (20 µg/3 mg) in a 24/4 regimen

Thanks to its particular properties, another widely used oral contraceptive is 20 µg ethinylestradiol combined with 3 mg drospirenone in a 24/4 regimen [EE/drsp (20 µg/3 mg) 24/4; YAZ®]. Due to the long half-life of drospirenone (approximately 35 h) and the shortening of the hormone-free interval, it has an excellent Pearl index as a contraceptive.

Drospirenone has a slight antimineralocorticoid effect and is thus well tolerated in women suffering from symptoms of premenstrual syndrome (bloating, breast tenderness, swelling) [15]. The shortening of the hormone-free interval minimizes withdrawal effects (e.g. fatigue, mood changes, headache).

With its long half-life, EE/drsp (20 μg/3 mg) 24/4, together with a monophasic product containing 30 μg ethinylestradiol and 2 mg dienogest (Valette®/ Jeanine®), is ideal for continuous intake to postpone, shorten and reduce or eliminate withdrawal bleeding [10, 11, 13, 14, 16]. This off-label use is widely employed. A minimum number of 21 active pills must be taken and the hormone-free interval should be no longer than 7 days but may be less than 3–4 days. This guarantees contraceptive effectiveness and minimizes (often eliminates) withdrawal bleeding.

Summary

A number of contraceptive products have been developed also to improve well-being. Some are effective alternatives to surgery or to other uncomfortable procedures for women with bleeding abnormalities.

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Congress calendar

2011

17–20 November 2011
Paris, France
14th World Congress on Controversies in Obstetrics, Gynecology and Infertility (COGI)

30 November–3 December
Melbourne, Australia
14th World Congress on Human Reproduction (International Academy for Human Reproduction)

1–4 December 2011
Milan, Italy
14th Congress of the European Society for Sexual Medicine (ESSM)

8–11 December 2011
Hainan, China
15th World Congress on Controversies in Obstetrics, Gynecology and Infertility (COGI)

2012

19–22 February 2012
Jerusalem, Israel
Annual Meeting of the International Society for the Study of Women's Sexual Health (ISSWSH)

7–10 March 2012
Florence, Italy
15th World Congress of Gynecological Endocrinology (International Society of Gynecological Endocrinology, ISGE)

28–31 March 2012
Athens, Greece
9th European Congress on the Menopause and Andropause (European Menopause and Andropause Society, EMAS)

20–23 June 2012
Athens, Greece
12th Congress of the European Society of Contraception and Reproductive Health (ESC)

1–4 July 2012
Istanbul, Turkey
28th Annual Meeting of the European Society of Human Reproduction and Embryology (ESHRE)

19–22 July 2012
Singapore
16th World Congress on Controversies in Obstetrics, Gynecology and Infertility (COGI)

7–12 October 2012
Rome, Italy
XX World Congress of the International Federation of Gynecology and Obstetrics (FIGO)

8–11 November 2012
Lisbon, Portugal
17th World Congress on Controversies in Obstetrics, Gynecology and Infertility (COGI)

29 November–2 December 2012
Amsterdam, The Netherlands
15th Congress of the European Society for Sexual Medicine (ESSM)

2013

18–22 February 2013
Brussels, Belgium
10th Congress of the European Society of Gynecology (ESG)

22–25 May 2013
Copenhagen, Denmark
First Global Conference on Contraception and Reproductive Health

2014

1–4 May 2014
Cancun, Mexico
14th World Menopause Congress (International Menopause Society)

21–24 May 2014
Lisbon, Portugal
13th Congress of the European Society of Contraception and Reproductive Health (ESC)

3–6 September 2014
São Paulo, Brazil
12th World Congress on Endometriosis (World Endometriosis Society, WES)