Menstrual cup
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A menstrual cup is a type of feminine hygiene product which is usually made of medical grade silicone, shaped like a bell and is flexible. It is worn inside the vagina during menstruation to catch menstrual fluid (blood). About every 4–12 hours (depending on the amount of flow), the menstruating woman removes the menstrual cup from her vagina, empties the collected menstrual blood into a toilet or sink, washes the cup under running water and inserts it again. At the end of the monthly period, the cup can be sterilized, usually by boiling in water. Unlike tampons and pads, the cup collects menstrual fluid rather than absorbing it.\(^{[1]}\)\(^{[2]}\)\(^{[3]}\)

Manufacturers have different recommendations for when to replace the cups, but in general they can be reused for five years or so.

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Types

The menstrual cup is a bell-shaped cup made of rubber (latex), silicone or thermoplastic elastomer (TPE). It is reusable and designed to last for up to 10 years. Some brands recommend replacement each year, as it is a hygiene product. Other brands recommend replacement after 5–10 years, stating that women have been comfortable using them for up to 10 years. These bell-shaped silicone or rubber cups must be removed before penetrative vaginal sex.[4]

Sizing and selection

Most brands have a smaller and a larger size. The smaller size is normally recommended for women under 30 who have not given birth vaginally. The larger size is normally recommended for women who are over 30, have given birth vaginally, or have an unusually heavy flow. The menstrual cups with the smallest size diameter are recommended for teenagers, as well as menstruating women and girls who are more physically fit, as those with stronger pelvic floor muscles may find a larger cup uncomfortable. Length also needs to be considered: if a female's cervix sits particularly low, she may want to use a shorter cup. Capacity is important to women who have a heavier flow; however, all of the menstrual cups currently available have a larger capacity than a regular tampon.[5]
A final consideration in selecting a menstrual cup is firmness or flexibility. Some companies offer a range of firmness levels in their cups. A firmer cup pops open more easily after insertion and may hold a more consistent seal against the vaginal wall (preventing leaks), but many women find softer cups more comfortable.[6]

**Color**

Most menstrual cups come in colorless, translucent silicone. Several brands offer colored cups in addition to (or instead of) the colorless ones. Colored cups use a dye that is certified to be safe for food. Translucent cups lose their initial appearance faster than colored – they tend to get yellowish stains with use. The shade of a colored cup may change over time, though stains are often not as obvious on colored cups. Stains on any color of cup can often be removed or at least lightened by soaking the cup in diluted hydrogen peroxide and/or leaving it out in the sun for a few hours.

**Use**

The menstrual cup is first folded or pinched, and then inserted into the vagina. It will normally unfold automatically and create a light seal against the vaginal walls. In some cases, the user may need to twist the cup or flex the vaginal muscles to ensure the cup is fully open. In most cases, a menstrual cup will migrate upwards and sit against the cervix. If correctly inserted, the cup shouldn't leak or cause any discomfort, as with a tampon. Those who are familiar with inserting a non-applicator tampon should learn faster how to insert a cup, though there is still a

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https://en.wikipedia.org/wiki/Menstrual_cup
learning curve. There are a number of different folding techniques that can be used for insertion.[7] If lubrication is necessary for insertion, it should be water-based, as some lubricant ingredients can be damaging to the silicone.

After about 4–12 hours of use (depending on the amount of flow), the cup is removed by reaching up to the stem of the cup in order to find the base. Simply pulling on the stem is not recommended to remove the cup, as pulling it down will create suction. The base of the cup is pinched to release the seal, and the cup is removed. After emptying, a reusable cup should be rinsed or wiped and reinserted. It can be washed with a mild soap, and sterilized in boiling water for a few minutes at the end of the cycle. Alternatively, sterilizing solutions (usually developed for baby bottles and breast pump equipment) may be used to soak the cup. Specific cleaning instructions vary by menstrual cup. For disposable menstrual cups, after a single use the cup should be discarded and a new one inserted.

Safety

Menstrual cups are safe when used as directed and no health risks related to their use have been found.[8][9] However, no medical research was conducted to ensure that menstrual cups were safe prior to introduction on the market.[10]

One case report in the journal *Gynecologic and Obstetric Investigation* noted the development of endometriosis and adenomyosis in one menstrual cup user.[11] Additionally, one survey with a small sample size indicated a possible link; Associated Pharmacologists & Toxicologists and the Endometriosis Research Centre issued a combined statement that urged further research.[10] However, the U.S. Food and Drug Administration declined to remove menstrual cups from the market, saying that there was insufficient evidence of risk.[12]
One case report in the *Canadian Journal of Infectious Diseases & Medical Microbiology* noted a confirmed case of toxic shock syndrome (TSS) associated with the use of the DivaCup menstrual cup.[13] This report is the first to detail the association between a menstrual cup and menstrual TSS, making it very rare.

In 1962, Karl John, M.D., evaluated 50 women using a bell-shaped cup. He obtained vaginal smears, gram stains, and basic aerobic cultures of vaginal secretions. Vaginal speculum examination was performed, and pH was measured. No significant changes were noted. This report is the first containing extensive information on the safety and acceptability of a widely used menstrual cup that includes both preclinical and clinical testing and over 10 years of postmarketing surveillance.[14]

A 2011 randomized controlled trial in Canada measured urovaginal infection in a comparison of menstrual cup and tampon use, and found no significant difference in physician-diagnosed urovaginal symptoms between the two groups.[15]

**Toxic shock syndrome**

Toxic shock syndrome (TSS) is a potentially deadly bacterial illness. Scientists have recognized an association between TSS and tampon use, although the exact connection remains unclear.[16] TSS caused by menstrual cup use appears to be very rare to virtually nonexistent.[15][17] The probable reason for this is that menstrual cups are not absorbent, do not irritate the vaginal mucosal tissue nor do they change the vaginal flora in any measurable effect.[18] Conversely, vaginal dryness and abrasions may occur when women use tampons which are more absorbent than needed for the amount of their menstrual flow.[16] Research has shown that the cup has no impact on the vaginal flora, which means there is no effect on the presence of *S. aureus*, the bacterium that can cause TSS.[18]
risk of TSS associated with cervical caps used for contraception in the female barrier method is also very low.\textsuperscript{[19]} Cervical caps are similar to menstrual cups with regards to the material used: mostly medical grade silicone or latex.

**Acceptability studies**

A 2011 randomized controlled trial in Canada investigated whether menstrual cups are a viable alternative to tampons and found that approximately 91% of women in the menstrual cup group said they would continue to use the cup and recommend it to others.\textsuperscript{[15]} In a 1995 clinical study involving 51 women, 23 of the participants (45%) found menstrual cups to be an acceptable way of managing menstrual flow.\textsuperscript{[20]}

A randomized controlled feasibility study has been conducted among adolescent primary school girls in rural western Kenya, providing menstrual cups or sanitary pads over traditional menstrual care items, such as cloth or tissue. After six months of provision, researchers reported that menstrual cup users were free from embarrassing leakage, odor, and could engage in class activities and sport without humiliation and teasing.\textsuperscript{[21]}

**Beneficial aspects**

- Since they are reusable, menstrual cups help to reduce solid waste.\textsuperscript{[22]} Some disposable sanitary napkins and plastic tampon applicators can take 25 years to break down in the ocean and can cause a significant environmental impact.\textsuperscript{[23]} Biodegradable sanitary options are also available,\textsuperscript{[24]} but for these to decompose in a short period of time they must be composted, and not disposed of in a landfill.
Reusable menstrual products (including menstrual cups) are more economical than disposable ones; in the long run a user will save money by using a menstrual cup.\[15\]

When using a menstrual cup, the menstrual fluid is collected away from the cervix and held in liquid form as opposed to it being absorbed and held in semi-coagulated form against the cervix, as is the case with tampons.\[25\]

Menstrual cups collect menstrual fluid inside the vagina and may not leak (if emptied often enough). However, some women do experience leakage due to the improper use or size of their menstrual cups.

You may experience leakage when using a menstrual cup if the cup is not inserted correctly and does not pop open completely causing a suction.

If a user needs to track the amount of menses she is producing (e.g. for medical reasons) a cup can allow her to more accurately estimate this quantity. Some cups even have measuring marks on them.

Some women report that they bleed less or have shorter periods\[26\] or fewer cramps\[27\] when using a menstrual cup as opposed to tampons.

### Developing countries

The menstrual cup has been explored as a means of menstrual hygiene management in developing countries, including Kenya, Uganda, India and South Africa, where access to affordable sanitary products may be limited.\[21\][28][29] Menstruation can be a barrier to education for many girls, as a lack of effective sanitary products restricts girls' involvement in educational and social activities.\[30\][31] Often they do not attend school due to fear of leaking, shame or embarrassment, period pain or inadequate sanitation facilities that do not allow them to wash or change in privacy.\[32\] This applies mainly to schoolgirls from middle and low-income families, since disposable hygiene products are a monthly expense that many females simply cannot afford.\[33\] A lack of affordable hygiene products means inadequate, unhygienic alternatives are used, which can present a serious health risk.\[34\][35] Menstrual cups offer a longer-term solution than other feminine hygiene products because they do not need to be replaced monthly. The quality of the material also makes them a reliable and healthy menstrual hygiene solution if there is access to clean water.
Cultural, religious and traditional beliefs can lead to different restrictions that women or girls face during their period. Some of them do not wash their bodies, shower or bathe. In some communities they are not allowed to use water sources during menstruation. Even if they have access to toilets they might not use them because of the fear of staining them.[33] This impairs the use of menstrual cups.

In developing countries, solid waste management is often sorely lacking and therefore menstrual cups do not contribute to the solid waste issues in the communities.

Adequate sanitation facilities and menstrual hygiene products are just one part of the solution to menstrual taboos impeding women's progress in many developing countries. Knowledge is critical for girls to feel comfortable with menstruation and to gain a positive body awareness.[36]

**Potential drawbacks**

- Some women experience difficulty in inserting or removing the menstrual cup depending on previous experience and certain physical factors. Remedies for this include selecting a different size, shape, or material cup, using a water-based lubricant to ease insertion, changing the folding method for insertion, and practice.
- Some women find menstrual cups uncomfortable. This may lessen with practice inserting the cup.[15] Selecting a smaller or softer cup, and/or trimming the stem of the cup, if there is one, may also help.[37]
- Women with pelvic organ prolapse may not be able to use menstrual cups (or tampons) comfortably or safely.[38]
- Many companies recommend that women using IUDs for contraception consult their gynecologists before using menstrual cups. There have been
rare cases in which women have dislodged their IUDs when removing their menstrual cups; this can also happen with tampon use.

- Removing a menstrual cup can be messy. Sometimes menstrual blood can spill during removal, although many women remove the device while hovering over a toilet to prevent such spillage.
- Cleaning a menstrual cup in a public toilet can pose problems as the handwashing sinks are usually, though not always, in a public space rather than in the toilet cubicle. Some manufacturers suggest wiping out the cup with a clean tissue and cleaning the cup at the next private opportunity. The user could also carry a small bottle of water in her handbag to rinse the cup privately over the toilet. Another option is to use wet wipes. Since menstrual cups may only need to be emptied every 6–12 hours, many users do not have to empty them in public restrooms but rather in the comfort of their own home.

Developing countries

- Whilst menstrual cups can also be used by females in developing countries, a lack of clean water and soap for handwashing before inserting the cup can be a problem, especially in rural areas. Insertion requires diligent washing of the cup and hands so as not to introduce new bacteria into the vagina, which may heighten the risk of UTIs and other infections. Pads do not demand the same hand hygiene but may be more difficult to manage in low-resource settings because reusable pads need more water to clean.
- For females from low-income households in developing countries, the costs of menstrual cups and tampons often makes them unaffordable.
- Due to the fact that menstrual cups require boiling above certain temperatures once a month, they have faced criticism. In particular developing areas where there is a lack of water, sufficient hygiene may not always be guaranteed. However, the various other options, which many women around the world have no choice but to use (such as reused materials) are not hygienic and frequently cause infection.

Cultural aspects
Feminine hygiene products that need to be inserted into the vagina can be unacceptable for cultural reasons. There are myths that they interfere with female reproductive organs and that females lose their virginity.\[^{32}\] As an example of the latter, use of a menstrual cup can stretch or break the hymen, arguably even more than tampon use. Since some cultures value preservation of the hymen as evidence of virginity this can discourage young women from using cups.

Costs

A reusable menstrual cup currently costs around US$35, although one could expect the price to drop if they became used more widely.

One menstrual cup is usually more expensive than a package of sanitary napkins or tampons. However, menstrual cups can be used for many years, which makes them more favourable compared to tampons and pads in the longer term. Depending on the female's cycle and habits, within about six to 12 months a menstrual cup can start to save money compared to buying pads or tampons.\[^{26}\]

History

An early version of a bell-shaped menstrual cup was patented in 1932, by the midwifery group of McGlasson and Perkins.\[^{40}\] Leona Chalmers patented the first usable commercial cup in 1937.\[^{41}\] Later menstrual cups were patented in 1935, 1937, and 1950.\[^{42}\][^43]\[^{44}\] The Tassaway brand of menstrual cups was introduced in the 1960s, but it was not a commercial success.\[^{45}\] Early menstrual cups were made of rubber.\[^{8}\] Today, both silicone and rubber models are available. Most are reusable, though there is at least one brand of disposable menstrual cups currently manufactured.\[^{25}\]
In 1987, another latex rubber menstrual cup, The Keeper, was manufactured in the United States. This proved to be the first commercially viable menstrual cup and it is still available today. The first silicone menstrual cup was the UK-manufactured Mooncup. Most menstrual cups are now manufactured from medical grade silicone because of its durability and hypoallergenic properties, though there are also brands made of TPE (thermoplastic elastomer). Menstrual cups are becoming more popular worldwide, with many different brands, shapes and sizes on the market.[25]

While numerous companies all over the world offer this product it is still surprisingly little known. One reason might be that it is difficult for the companies to make much profit from this product as one single menstrual cup can last a girl or woman five years or longer. This limits the companies' advertising budget, so that most women who use menstrual cups learn of them through the internet or word of mouth. Some non-governmental organizations (NGOs) and companies have begun to propose menstrual cups to females in developing countries (for example in Kenya and South Africa) as a possible low-cost and environmentally friendly alternative to sanitary cloth, expensive disposable pads or "nothing" – the reality for many females in developing countries.[46][47]

See also

- Cervical cap
- Diaphragm (contraceptive)
- Culture and menstruation
- Menstrual taboo
- Environmental impact of menstrual cups

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