

Menstrual Tampon ^[1]

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Menstrual tampons are feminine hygiene devices, usually made of absorbent cotton, that are temporarily inserted into the [vagina](#) ^[3] for absorbing a woman's blood during [menstruation](#) ^[4]. In 1931, Earl Haas invented the menstrual tampon most commonly used in the twenty-first century. Later, Gertrude Tendrich produced the first commercial tampon brand, Tampax, using Haas's patented design. Tendrich and Haas's tampon was made of tightly compacted absorbent cotton, shaped like a bullet, and had a string attached at the base that allowed for easy removal from the woman's body. Some tampons had a plastic or cardboard applicator, while other digital tampons could be inserted with a finger. The invention of the tampon expanded women's options for efficient menstrual flow management solutions and allowed women to be more physically active while menstruating.

Most women experience [menstruation](#) ^[4] once every twenty-eight to thirty-five days when their uterine lining sheds to prepare the organ for support of a developing embryo. Menstrual blood leaves the [uterus](#) ^[5] and is expelled from the body via the vaginal canal. Before scientists invented the commercial menstrual tampon in the twentieth century, women across the world fashioned devices similar to tampons from various materials that they inserted into their vaginas to absorb menstrual blood. In ancient Rome, women made devices similar to tampons from wool, while ancient Indonesian women used vegetable fibers. Women in Africa made such devices from grass, and ancient Japanese women created similar devices from paper.

The word tampon originated from the medieval French word *tampion*, or a cloth stopper. Some of the earliest cotton tampons, made from a mass of cotton with a string attached, were first seen in Europe in the eighteenth and nineteenth centuries. Those tampons were used mostly as contraceptives and were thought to prevent or reduce the chances of [sperm](#) ^[6] entering a woman's reproductive tract to fertilize the [egg](#) ^[7]. In 1880, Paul Mundé, a doctor in the US, described eight distinct uses of a tampon in the [vagina](#) ^[3], though not one of them was the potential utility of a tampon in managing menstrual flow. Up until the invention of the modern tampon in 1931, the majority of women throughout the world used various forms of menstrual pads, or pieces of cloth that were placed in a woman's undergarments to absorb her menstrual blood. The menstrual pads are also called sanitary napkins. Pads often limited a woman's physical activity while menstruating and were considered an inconvenience by many women.

During the late 1800s, inventors created devices similar to tampons, however, it is unclear whether those devices were intended for menstrual flow management or for hygiene purposes by stopping the flow of non-menstrual vaginal discharge. In 1879 in England, *The British Medical Journal* published an article titled "Dr. Aveling's Vaginal Tampon-Tube," which describes the complex design of a tampon applicator made of glass and wood. The hollow applicator contained the tampon-like device, made of cotton and wool, saturated with chemicals, and tied together with a string. According to historian Ashley Fetters, it is unclear if a doctor, a midwife, or the woman herself would have administered the device. Fetters notes that the success of that device is unknown.

In the early twentieth century, *The Nurse's Dictionary of Medical Terms and Nursing Treatment Compiled for the Use of Nurses* defined tampons as plugs of antiseptic wool surrounded by gauze that could be inserted into the [vagina](#) ^[3] and had a string to aid in removal. During the nineteenth century, doctors prescribed some women tampons to absorb non-menstrual discharge from the [vagina](#) ^[3]. Tampons from the early twentieth century occasionally contained capsules of antiseptic liquid that medical professionals broke to permeate the whole plug before inserting the tampon into the woman's [vagina](#) ^[3]. Doctors used those tampons to treat gynecological infections or abnormalities in women. Generally, nurses sewed the tampons in hospitals. Usually tampons were not available for purchase outside of hospitals.

According to historian Jamie Schultz, in the 1920s, John Williamson allegedly pitched an idea for a tampon that was specifically intended to manage menstrual flow. Williamson was an employee at Kimberly-Clark, a company that manufactures and sells consumer products, including those for hygiene. According to Schultz, Williamson allegedly poked holes in a condom that he had stuffed with the absorbent portion of a Kotex menstrual pad. He explained his product idea to his father, a medical consultant for Kimberly-Clark, but his idea was eventually rejected.

In 1931, Earl Haas, a physician in Colorado, developed a cardboard applicator tampon that was meant to absorb menstrual blood. He made the tampon inside the applicator from tightly bound strip of dense cotton that was attached to a string for easy removal. According to Fetters, a female friend had shared with Haas that she inserted a sponge into her [vagina](#) ^[3] to manage her menstrual flow, and he decided to invent a disposable device to replace the bulky menstrual pads that women commonly used during the early twentieth century.

According to Fetters, during the 1930s there was common social discomfort with the idea of women touching themselves at all near their [vagina](#) ^[3]. At the time, many people, including physicians, believed that women touching their reproductive organs during tampon use would cause them to sexually pleasure themselves or break the hymen. The hymen is a membrane of tissue located at the opening of the [vagina](#) ^[3] that many people associate with a woman's virginity. At the time, in the US and many other parts of the world, a woman's virginity was considered sacred and kept the woman morally pure before marriage. According to Sherra Vostral, author of *Under Wraps: A History Of Menstrual Hygiene Technology*, some people considered the use of tampons to render a woman impure and thus some groups discouraged it. According to Fetters, Haas sought to design a tampon that could be inserted into the [vagina](#) ^[3] without the woman having to touch her sex organs directly. He modeled the applicator after telescope tubes, with one smaller tube fitting inside the other, bigger tube.

After Haas invented the commercial modern tampon, people continued to develop the device and it gained popularity. On 19 November 1931, Haas filed for a patent for his device and obtained it by 1933. Shortly after, he sold the patent to businesswoman Gertrude Tendrich for \$32,000. Tendrich expanded production from sewing tampons at home to creating the first commercial tampon brand, Tampax. The name for the company combined the word tampon with the term vaginal packs, which was used during the early 1900s to refer to [menstruation](#) ^[4] management devices. Within a year, other companies began producing similarly designed menstrual tampons. Throughout the 1930s, Tampax and other brands of menstrual tampons became available in stores for purchase.

During World War II, tampons became more popular and sales increased. Tampax tampons specifically were available for thirty-five cents and sales increased five-fold by the end of the war. During the early 1940s, Tampax tampons often came in discreet packages of ten and were delivered by mail. Prior to the invention of commercial tampons, most women wore menstrual pads or something similar that restricted their physical activity. Fetters speculates that the increase in tampon popularity during World War II was caused by women becoming more physically active as well as taking labor positions in factories. During that time, according to historian Nancy Friedman, tampons were also especially popular among female athletes, actors, models, and sex workers. However, the pad remained the most popular menstrual flow management device among women in general in the US. According to a survey from 1940 to 1944, only one quarter of women regularly used tampons in the US. By 1949, advertisements for Tampax tampons appeared in more than fifty magazines.

In 1945, Judith Esser-Mittag, a German gynecologist, developed a tampon that did not require an applicator, a digital tampon. Esser-Mittag's tampon was called a digital tampon because it could be inserted using one's finger, or a digit. The device was eventually named the O.B. tampon, standing for *ohne binde*. *Ohne binde* is a German term that means without napkins, signifying the replacement of sanitary napkins or pads with tampons. That style of tampon gained popularity in parts of the US as well as many other countries. That was partially due to it being considered more environmentally friendly because it did not have plastic or cardboard applicator that would be thrown in the garbage as additional waste. Esser-Mittag partnered with physician Carl Hahn to start the O.B. tampon company, which was eventually sold to a large consumer products company that eventually became Johnson & Johnson.

During the early history of the tampon, according to women's studies historian Carla Rice, some people, including physicians, had concerns about the use of the device. During the early to mid-twentieth century, some people objected to the use of menstrual tampons for religious and moral reasons, claiming the tampons would rupture a young woman's hymen that marked her virginity or cause young girls to experience sexual feelings. According to Fetters, physicians that were considered to be forward-thinkers embraced tampons and recommended them to their patients. Still, other physicians condemned tampons.

In the 1960s, companies released novel designs for tampons and their popularity increased. Fetters notes that many of those companies gave their tampons names that emphasized the secrecy of [menstruation](#) ^[4] and discreet concealment of a woman's menstrual period. Some of the common product names were Fibs, Lilletes, and Pursettes. During the 1970s, novel tampons containing deodorants and perfumes gained popularity, though concerns about their safety emerged when some women had allergic reactions to those tampons. In 1973, the company Playtex introduced the first plastic, dome-tipped applicator, which some women considered easier to insert into the [vagina](#) ^[3].

In the mid-1970s, Congress imposed stricter regulations on tampons made in the US. The Food, Drug, and Cosmetic Act categorized tampons as medical devices instead of cosmetics. That change required tampons to undergo more extensive testing before being marketed to the public. Unlike cosmetics, medical devices did not need to have a list of chemical contents. As of 2018, tampon manufacturers are not required to disclose a list of ingredients, while products like mascara and shampoo must have all ingredients listed on the label. In 1975, the commercial goods company Procter & Gamble developed a novel tampon device called Rely that, according to women could be replaced less frequently and could potentially stay inside a woman's body for the entire duration of the menstrual bleeding. At the time, most tampons on the market were only meant to stay inside the body for several hours. Rely contained pellets of carboxymethyl cellulose, or CMC, a chemical which made the tampon hyper-absorbent. Japan banned Rely for use due to its chemical ingredients, but the US did not. Procter & Gamble began testing a small sample of Rely tampons before the new legislation passed in 1976. Because of the shifting legislation, Rely did not have to undergo extensive testing under the new law and was available for sale in the US.

Though Rely experienced commercial success for some time, use of the product revealed the dangers of leaving a tampon inside the [vagina](#) ^[3] for an extended period of time. In 1978, the Berkeley Women's Health Collective accused Rely manufacturers of withholding information about the tampon's composition and safety. Despite that, during the late 1970s, nearly 25 percent of tampon users were using Rely or a similar hyper-absorbent tampon. By 1980, over 100 [menstruation](#) ^[4]-related cases of toxic shock syndrome were reported to the US Centers for Disease Control, or CDC. Toxic shock syndrome is a bacterial infection, which involves bacteria in the body releasing dangerous toxins. The infection is predominantly caused by leaving tampons inside the [vagina](#) ^[3] for too long. Toxic shock syndrome can cause fever, rash, skin peeling, low blood pressure, and can be potentially fatal if left untreated. Thirty-eight of the cases reported to the CDC by 1980 were fatal. In September of 1980, the CDC released a study that showed that the use of Rely and other tampons for extended use dramatically increased the risks of toxic shock syndrome. Procter & Gamble recalled Rely tampons shortly after the study was released.

By June of 1983, the CDC had received reports of over 2200 cases of toxic shock syndrome. A 1989 study by researchers Philip Tierno and Bruce Hanna revealed a link between toxic shock syndrome and the tampon ingredients CMC, polyester, polyacrylate, and rayon. The study showed that tampons made with synthetic fibers could pose a threat of toxic shock syndrome to women who did not change their tampons within the suggested time period. Throughout the 1980s, reproductive health advocates campaigned for tampon manufacturers to recommend women to use the minimum absorbency tampons and remove them as directed to prevent toxic shock syndrome. Following that advocacy and the findings of studies on toxic shock syndrome, tampon companies started printing warning labels on tampon boxes advertising the dangers of leaving tampons in the [vagina](#) ^[3] for extended periods of time. In 1989, the US [Food and Drug Administration](#) ^[8] required tampon companies to implement a system of distinct, labeled absorbency levels, or sizes. That differentiated some tampons as more absorbent than others so that women were more informed on how long they could leave their tampon inside. As of 2018, most menstrual tampons do not contain CMC, polyester, or polyacrylate, and some researchers have demonstrated that those chemicals amplify bacteria growth.

In the twenty-first century, the modern tampon design is generally similar across brands. The tampon itself is usually made of absorbent cotton and rayon, a synthetic fiber. The shape of the tampon is a small cylindrical bullet with a string attached at the bottom. Some tampons have a disposable plastic applicator barrel that holds the tampon inside and a disposable plastic plunger that pushes the actual tampon

out of the applicator when inserting it into the [vagina](#)^[9]. Tampons with a cardboard applicator have a similar design to those with a plastic applicator, but are considered more environmentally friendly because their cardboard applicators are biodegradable. Tampons are disposable and meant for one-time use.

To insert a tampon with a plastic or cardboard applicator, the entire applicator barrel is inserted into the [vagina](#)^[9] until the plunger component is the only part outside of the woman's body. The woman then applies pressure to the tampon plunger, inserting the tampon in the vaginal canal. Next, she removes the empty applicator. The tampon can remain in the body from four to eight hours, depending on the type, and some can stay in the [vagina](#)^[9] for even longer. As of 2018, tampons are generally separated based on the absorbances, or sizes. The most common names for the sizes are junior/slim/light, regular, super, super-plus, and ultra and they vary in the amount of fluid they can absorb. Women who have heavier menstrual flows can use the super, super-plus, and ultra absorbent tampons so that they do not need to remove and replace the tampons as frequently as they would with junior/slim/light or regular tampons.

Although many women have found tampons to be more convenient and comfortable alternatives to pads for managing [menstruation](#)^[4], there are some special risks associated with tampon use that do not apply to pads. When a woman leaves a tampon inside her body for longer than the recommended four to eight hours, she risks developing toxic shock syndrome. The condition can be treated by antibiotics and prevented if the woman only keeps the same tampon in her body for less than the time limit printed on the product label.

In the late 1990s, tampons received criticism from some feminist groups that accused manufacturers of selling tampons, which contained dioxin, a carcinogen, or a cancer-causing agent. In 2000, James Madison University in Harrisonburg, Virginia, hosted the first anti-tampon conference. In the late 1990s, most commercial tampon brands publicly switched from using chlorine bleaching methods that produced dioxin as a byproduct to a chlorine-free bleaching processes that did not produce dioxin. During the twenty-first century, some activists voiced concerns about the environmental impact of using tampons with plastic or synthetic applicators. As a result, tampon companies began producing more environmentally friendly tampon options. Some women began using sponges, organic cotton, and crochet tampons to manage their menstrual flow. As of 2020, it is estimated that seventy percent of US women who menstruate use tampons. Outside of the US, many women use digital tampons that do not require an applicator, although those are less common within the US.

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