

Menstrual Self Care Practices after Puberty

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Definition of puberty

Puberty represents an important period of human development during which individuals progress from childhood to adulthood. This stage involves significant physical and physiological changes, including the attainment of adult stature and body composition, the emergence of secondary sexual characteristics, and the development of reproductive function. The age at which puberty begins varies among individuals in the general population. In girls, the average onset of puberty is marked by Tanner breast stage 2 (B2), which typically occurs around 11 years of age. Nevertheless, the normal age range for the onset of breast development differs across ethnic populations and is generally considered to occur between 8 and 13 years (**Parent et al., 2022**).

Timing of puberty

In certain children, puberty begins earlier than the normal age range, resulting in precocious puberty, which has been linked to several unfavorable health outcomes. These include an increased risk of breast and endometrial cancers, obesity, type 2 diabetes mellitus, cardiovascular disease, reduced adult height, and higher overall mortality. Conversely, some individuals experience delayed activation of puberty, resulting in delayed pubertal development. Recent evidence from the UK Biobank study involving both males and females has demonstrated that late pubertal onset is also associated with significant adverse health effects that may persist into adulthood (**Day et al., 2025**).

Factors affecting timing of puberty

Nutritional change is a major determinant of the onset and progression of puberty. Research has demonstrated a significant association between childhood body size and the timing of pubertal development, especially in girls. This effect is mediated in part by leptin, a hormone produced by white adipose tissue that regulates energy stores and body weight and provides a permissive signal for pubertal initiation. In addition to leptin, other metabolic factors, such as ghrelin, neuropeptide Y, and various neuroendocrine signaling pathways, are thought to play important roles in coordinating nutritional status with the timing of pubertal development (**Sørensen et al., 2023**). Also, modern lifestyle factors, including higher consumption of processed foods, sedentary behavior, high animal protein intake and low dietary fiber consumption are linked to earlier menarche and puberty onset. Preventive healthcare access and nutrition education programs are important strategies for mitigating risk (**Nguyen et al., 2020**).

Endocrine-disrupting chemicals (EDCs) had effect on the timing of puberty and they had also been an ongoing concern. Many compounds, including polybrominated biphenyls, bisphenol A, herbicides and phthalates, have been implicated as potential EDCs, responsible for contributing to late puberty (**Mouritsen et al., 2024**).

Genetic control; Extensive research has been conducted to uncover the genetic factors that influence the timing of puberty. Investigators have applied genome-wide association studies (GWAS) to examine age at menarche among healthy populations, alongside next-generation sequencing methods to identify pathogenic genetic variants in individuals with disorders of pubertal development, including precocious, delayed, or absent puberty. Findings from large GWAS have demonstrated that pubertal timing is genetically complex, with nearly 400

identified genetic loci contributing to the age at menarche. Together, these loci explain about 7.4% of the variability in pubertal timing within the general population (**Day et al., 2022**).

Menarche

Menarche is defined as the first menstrual period in a female adolescent with the onset of ovarian estrogen secretion. It occurs on average 2 to 2.5 years after the onset of breast development. The age of onset of menstruation ranges between 10 – 16 years, in studies, worldwide the mean age of menarche was 12.1 years and in Egypt the mean age of menarche was 12.3 years, during the first-year post-menarche, menses are usually irregular and anovulatory. These early years are characterized by inconsistent ovulation and varying lengths of follicular and luteal phases. Ultimately, coordinated maturation of the hypothalamic, pituitary, and ovarian components occurs culminating in cyclic monthly ovulation (**Al Omari et al., 2024**).

Menstrual self care practices

According to **Sharma and Cuffee (2022)**, as the date of menstruation approaches, the rise and fall of hormones affect the levels of dopamine and serotonin, which are substances that affect mood. Some symptoms occur at varying degrees among girls (and may not occur at all), including: sadness, anxiety, irritability, sleep disturbances, and increased appetite. Other physical symptoms may also appear, such as bloating, a slight weight gain due to fluid retention and pain on touching the breasts. This is called premenstrual syndrome (PMS). The following is recommended to alleviate these common symptoms:

Promote rest and sleep

Some females report disrupted sleep during period and studies have found that sleep deprivation can increase cortisol levels. Cortisol is a hormone produced by the adrenal glands that can raise blood sugar which disturbs ovulation and period. Lowering room temperature can help regulate body's temperature which often rises due to hormonal changes during period. Stick to a schedule; going to bed and waking up simultaneously each day for 6-8 hours of sleep ensures getting rest that body needs. Create a peaceful environment; eliminate distractions by turning off anything with a screen (including cell phones) an hour before bed. Consider meditating, playing relaxing music or using a diffuser with essential oils like lavender to promote sleep and relaxation. Find a comfortable sleep position; sleeping on side or in the fetal position is recommended as these positions can help reduce cramps by taking pressure off the abdominal muscles (**Joshi and Mendhe**).

Heat Therapy

Heat pads have become synonymous with periods. That's because heat therapy is a traditional and effective pain reduction method. Heat therapy works for period-related pain because it relaxes muscles, increases blood flow and provides concentrated warmth to the uterus, helping ease cramps. Try a heating pad or heat wrap; applying direct heat to abdomen or lower back with a heating pad or heat wrap can provide soothing relief. Be mindful about regulating the temperature to prevent burns. Add layers; simply putting on warmer clothes or adding extra layers can help keep body warm, promoting muscle relaxation and comfort. Take a hot shower or bath to create a relaxing and restful environment. Drink a warm beverage; a big cup of tea or hot water is a quick way to warm up and some herbal teas may even help relieve menstrual symptoms (**Sood, 2022**).

Physical exercise

Physical exercise releases endorphins that may help alleviate premenstrual syndrome (PMS) and period symptoms. Getting the body moving boosts mood, improve blood circulation, reduce stress, and combat cramps, headaches, and anxiety. Try light cardio; engage in low-intensity cardiovascular exercises like walking or swimming to gently boost circulation. Strike a pose; Yoga and Pilates offer positions that combine stretching, breathing, and meditation exercises to relax both body and mind, helping to relieve pain and stress. Go running (or jogging; running is an excellent moderate-to-high-intensity activity that promotes circulation and can elevate mood. Be consistent; Sticking to a regular exercise schedule at least 30 minutes of activity 3-4 times per week can reduce stress and improve mood (**Tshivule et al.**).

Monitor Nutrition

Nutrition has a strong link to menstrual health for women and girls. Many women and girls in Egypt face nutritional deficiencies, particularly in iron and vitamins, which are critical for managing menstrual health. Egypt has the third highest incidence of anemia (63% in 2020) among children between 5 to 19 years old. Iron deficiency anemia, prevalent among adolescent girls, exacerbates menstrual pain and fatigue (**Abouhussein and Abdel-Tawab, 2023**).

Starchy carbs and sweets are common period cravings, but too much can lead to even more uncomfortable bloating, irritability, water retention, and poor concentration. A varied, nutritious diet can help you sleep better, energize and even support a healthier cycle. Women with heavier periods may also suffer from iron deficiency anemia, which can cause brain fog, tiredness, and mood swings. So, they should incorporate more iron into their diet. Fill up on fiber; fiber helps reduce bloating and promotes healthy digestion. Good options include almonds, apples, artichokes, beans, blackberries, sweet potatoes, and whole grains (**Global Health Council**).

Get the proper nutrients; incorporate foods and supplements rich in calcium, magnesium, iron, and vitamins E, B6, B12, and omega-3 to help relieve most period and PMS symptoms. Include protein-rich foods; lean protein helps stabilize blood sugar and reduce cravings. Try options like lean fish, meats, almond butter, and chickpeas. Hydrate properly; staying hydrated combats fatigue and dehydration while boosting brain activity, digestive regularity, and hormone regulation. The standard goal is eight 8 glasses of water per day, but may need more during period (**Centers for Disease Control and Prevention, 2024**).

Track and monitor period.

Menstruation comes once every 21 to 35 days, depending on several factors, the most important of which are regularity of menstruation, age, health, and psychological state. Upon reaching puberty, a girl needs to go through more than one menstrual cycle to know the average days of her period and the number of days between periods (which can naturally deviate between 3-5 days). For example, if the period comes on August 1st for a girl with an average cycle length of 28 days, the next period is expected to be on August 29th. Girls are encouraged to accurately track their menstrual periods to pay attention and prepare for the expected days of menstruation. Menstrual cycle is a valuable marker for overall health; irregular periods can be a sign of conditions like diabetes, thyroid problems, and celiac disease; track period on a calendar or with an app on phone designed for this purpose (**Devi and Jamali**).

Pain killer for painful menstruation

During menstruation and a few days before, some contractions occur in the uterus causing normal pain in the lower abdomen and/or back and thighs. This occurs because of the hormonal changes during menstruation and the increased secretion of chemicals that stimulate uterine contractions to expel menstrual fluid. This pain starts gradually and may last for a few hours or days, it may be tolerable or severe and may require taking a painkiller. The girl should consult a doctor about the appropriate painkiller to take immediately when the symptoms start to control pain (**Hassan et al., 2022**).

Hygiene practices

Wash hands before and after using the restroom and before and after using a menstrual pad. Wear lightweight, breathable clothing (such as cotton underwear); tight fabrics can trap moisture and heat, allowing germs to grow. Change sanitary pads every few hours, no matter how light the flow, change them more frequently if period is heavy. Change menstrual pads regularly; trapped moisture provides a breeding ground for bacteria and fungi. Wearing a pad or period underwear for too long can lead to a rash or an infection. Use unscented toilet paper or pads; scented hygiene products can irritate the skin and impact your natural pH balance. Discard used disposable menstrual pad properly; wrap them with toilet paper, a tissue, or other material and then toss in a trash bin. Do not flush menstrual pad down the toilet (**World Health Organization & UNICEF, 2024**).

Keep genital area clean; wash the outside of vagina (vulva) and bottom every day. When go to the bathroom, wipe from the front of toward the back. Use only water to rinse vulva. The vagina is a self-cleaning organ.

Changing the natural pH balance of vagina by washing or using chemicals to cleanse out the vagina can be harmful and may cause a vaginal infection, such as a yeast infection or bacterial vaginosis (**Menstrual Hygiene Day Secretariat, 2024**).

Take a shower during period as girls feel hot and sweaty at night during menstruation due to hormonal changes in the body. Therefore, taking a shower is very important to cope with the feeling of heat, maintain hygiene and get rid of any unpleasant odors. It is recommended to use water only to wash the sensitive areas (**Gena, 2020**).

When to see a doctor

A girl should just see a doctor when periods are prolonged or irregular, start before the age of 8 years, do not start by the age of 16 years and cause severe or unusual pain or pain occurs during any phase of the menstrual cycle (**Hassan et al., 2022**).

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