

Menopause and sleep

KEY POINTS

- Disrupted sleep during menopause is common; alterations in oestrogen and progesterone are contributing factors
- Hot flushes and night sweats can cause sleep disturbance; treatment of vasomotor symptoms may help sleep consolidation
- Sleep disordered breathing including snoring, and obstructive sleep apnoea (OSA) is more frequent in post-menopausal women
- Consider lifestyle modifications such as reducing alcohol and caffeine intake in the afternoon
- Cognitive behavioural therapy should be considered if vasomotor symptoms are treated and there are no other sleep disorders

One of the most common, and often frustrating, changes that many women experience during menopause is disrupted sleep. This can be experienced as difficulty getting to sleep initially, waking up at night or waking earlier than preferred. Some sleep disorders can also be more common during or after menopause which can also contribute to disrupted sleep.

Understanding normal sleep, how menopause can affect sleep, recognising these changes, and how these might be managed can be useful to maintaining good quality sleep during this transition.

Normal sleep is comprised of four stages, which cycle through the sleep period. Rapid Eye Movement (REM) sleep occurs about every 90 minutes during sleep periods, with each episode getting longer as the night progresses, and makes up about 20-25% of sleep. Story-like dreams occur during REM sleep. The remaining 3 stages (stages 1, 2 & 3) are collectively called non-REM sleep.

Stage 1 - sleep is a very light sleep, comprising 5% of total sleep time.

Stage 2 - sleep makes up about 50% of sleep time.

Stage 3 - sleep is deep sleep, which is difficult to wake out of and makes up about 20-25% of sleep time. The first period of stage 3 sleep is the longest of the night, and each subsequent period of stage 3 becomes shorter.

Waking during sleep is considered a normal part of the sleep period. A recent meta-analysis concluded normal adult women, on average, are awake 55 minutes during the attempted sleep period (men are awake slightly less – 51 minutes). As we age, this time awake increases, from ~30 minutes in early adulthood to ~80 minutes when elderly. ¹

Typical sleep cycles for an adults sleep period



In addition to these age-related changes, the menopause transition can further disrupt sleep due to physiological changes associated with this. **Some studies show more than 50% of post-menopausal women have disturbed sleep or a sleep disorder of some kind.**² The highest level of sleep disturbance has been reported to be those in the late perimenopausal period and those who have surgical menopause.³

Contributors to disrupted sleep

Hormone effects on circadian rhythm:

Changes in estrogen and progesterone levels can disrupt sleep patterns. **The circadian rhythm is less well-defined in post-menopausal women than in pre-menopausal women** which contributes to fragmented sleep.⁴ The circadian rhythm controls many aspects of our physiology (sleep/wake pattern, bowel movements, blood pressure, etc).

Oestrogen helps regulate sleep cycles. Lower levels can lead to difficulties falling and staying asleep. Likewise, higher levels of follicular stimulating hormone is associated with waking more often during sleep.⁵ **The rate of change in FSH and oestrogen has been found to be associated with poorer sleep** (i.e. a faster change was associated with more disrupted sleep).^{6,7} This is part of the explanation why **surgical menopause is often associated with more severe sleep disturbances** due to its associated rapid change in hormone levels.⁸

Hot Flashes & Night sweats:

Many women experience hot flashes and night sweats during menopause, which can cause waking from sleep and make it hard to get back to sleep. Hot flashes are more likely to occur during non-REM sleep than in REM sleep.

Sleep disordered breathing:

Snoring and obstructive sleep apnoea (OSA) are more frequent in post-menopausal women than pre-menopausal women.⁹ Snoring and OSA are caused by a blockage or partial blockage in the airway, which can lead to frequent awakenings. Lower levels of oestrogen and progesterone have been shown to increase the risk of sleep disordered breathing.¹⁰ One proposed reason is that changes in oestrogen can change where body fat is distributed, which may contribute to obstructed breathing during sleep. Common symptoms in women include daytime fatigue and reduced energy. **Many women with OSA present to their GP with insomnia-like symptoms.**¹¹

Restless Legs Syndrome (RLS):

Restless Legs Syndrome is a condition where there is an uncomfortable feeling in the legs, with an irresistible urge to move them. This is often more common in the evenings and can make getting to sleep difficult due to the need to move as walking is often the only action that can reduce the uncomfortable sensation. RLS is common toward the end of pregnancy and increases with age, with some studies showing women who have had children experiencing more RLS in later life than those who have not had children.

Mental Health:

There is often a bidirectional relationship with mental health, with mood swings, anxiety and depression being more pronounced with disrupted sleep, and disrupted sleep also making these worse.

Clinical assessment of sleep:

Basic clinical assessment of sleep can be performed by a variety of health professionals. Questions regarding the duration of time in bed versus time asleep, the pattern of sleep, and the duration of the difficulties in obtaining a consolidated sleep are suggested. Utilising a sleep diary can be useful, although some people may become focused on this and this may be counterproductive.

The following questionnaires are widely used and validated:

- Pittsburgh Sleep Quality Index is a useful tool to get an overall picture of sleep quality.¹²
- STOP-Bang questionnaire may be useful to assess if there is an increased risk of obstructive sleep apnoea; however, this questionnaire is less sensitive in women than in men.¹³

Obstructive sleep apnoea is often underdiagnosed in women. Women with OSA are more likely to report daytime fatigue, lack of energy, insomnia, and mood disturbance, rather than the male-predominant symptoms of someone observing them having pauses in breathing and snoring.

Oestrogen replacement has been shown, in a small clinical study, to reduce the consequences of sleep disordered breathing.¹⁴

Patients at risk of sleep disorders such as OSA, RLS or more complex sleep issues can be referred to a sleep physician via a GP referral for further assessment. Most major metropolitan public hospitals have a sleep service, and there are also many private providers. A sleep physician may refer the patient for an overnight sleep study (called “polysomnography”) for further investigation, which may be done at home or in a sleep laboratory.

Management of disturbed sleep:

Formulating a management plan is highly dependent upon clinical history, which includes sleep history, menopausal symptoms, and any other medical history. Refer the patient on to a sleep specialist if appropriate.

- Firstly, address any concerns regarding a sleep disorder such as obstructive sleep apnoea, restless legs syndrome, or unusual behaviours during sleep.
- Minimising vasomotor symptoms through mechanical or pharmaceutical can help with sleep as patients often report this is the main trigger of disturbed sleep.
- Lifestyle modifications can be useful. These include:
 - reducing alcohol (which increases awakenings during the night)
 - reducing caffeine intake in the afternoon/evening, this includes chocolate, tea, (including green tea), soft drinks, some snack bars, and some medications that include caffeine.
- Maintaining a strict wake-up time is essential (including on days off). Exposure to light at the start of each day re-establishes the circadian rhythm.
- Provide the patient with options for habits and behaviours that may help consolidate sleep. Perhaps allow the patient to choose one thing they can change, and gain commitment to make that change for several weeks. In the follow-up, ask if this was achievable. If the intervention is unsuccessful, try another behaviour change.
- If there is no other sleep disorder, vasomotor symptoms are controlled, and a patient has ongoing insomnia (>3 months) which causes distress, **the first-line treatment for chronic insomnia should be cognitive behavioural therapy for insomnia (CBTi).**

CBTi focuses on restructuring thoughts and feelings around sleep and provides practical behaviours and techniques such as sleep restriction and relaxation training. This is an evidence-based therapy, which has been shown to have long-term positive effects in improving sleep quality.¹⁵

- In person - This can be delivered through several sessions with a specialist psychologist, although this speciality is in high demand.
- Online - There are online CBTi tools available for health practitioners (through a partnership of the Australasian Sleep Association and the Australian Psychological Society) and for patients such as (This Way Up).
- Hypnotics should not be used apart from very short-term use for acute sleep issues.
- Melatonin may be helpful to re-establish an earlier sleep time. This should only be used for a short time if the patient has difficulty getting to sleep.

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