

Sleep and the older child

It is helpful for health visitors to ask about settling to sleep behaviour, sleep patterns and daytime naps when talking to parents of children aged one to five years.

There is growing evidence on the health impacts of lack of sleep; its importance to overall health and wellbeing has been recognised in the government's prevention consultation paper, "Advancing our Health: prevention in the 2020s". This highlights that insufficient or poor quality sleep is associated with physical and mental health problems, including: increased risk of obesity, strokes and heart attacks, and depression and anxiety. Lack of sleep may also have a negative impact on somebody's recovery from illness or surgery (DHSC, 2019).

Many sleep issues may be due to dependent sleep associations, such as sucking on a dummy, a bottle or requiring parental presence, to go to sleep. Supporting children to self-settle is an important self-regulation skill that will aid them in life. When there are dependent sleep associations that are causing family distress and sleep disruption, then resolving these will enable children to be happier and more settled. Improving children's sleep also helps families to function better and improves maternal mood, mental health and reduces perinatal mental health issues and fatigue. (Meltzer and Mindell, 2007).

The evidence (Mindell et al, 2017) clearly indicates that regular predictable bedtime routines enable children to fall asleep more quickly and easily. They result in less night waking and there is also a link between insufficient sleep and obesity in children (Carter et al, 2011, Liu et al, 2012). The research also indicates it improves a mother's mood and results in calmer, healthier parents which can lead to an improved couple relationship (Mindell et al, 2009). A study by Kelly et al (2013) of more than 10,000 children revealed that children's cognitive development is affected by inconsistent bedtimes, which disrupt circadian rhythms. Sleep deprivation and disrupted circadian rhythms can affect the brain's plasticity and the maintenance of homeostasis in the part of the brain that governs sleep. This has knock-on effects for daytime functioning and embedding new knowledge, memory and skills.

Health visitors and their teams can encourage regular, predictable, consistent day and night-time schedules and bedtimes to support the interactive nature of circadian rhythms and homeostatic process that govern sleep.

Regular nap times, wake-up times and bedtimes help to regulate infants' and children's circadian rhythms

Circadian rhythms help determine human sleep patterns and respond primarily to light and darkness in the environment. Light is the main cue influencing circadian rhythms which control patterns of sleep and waking, rest, activity, hunger, eating, hormones and fluctuations in body temperature.

People naturally run on a 24-hour cycle; without these regular daily cues we can quickly become unsynchronised. N.B. We can get out of sync without daily circadian setting – waking, feeding and sleeping etc.

For health and wellbeing, these need to be in harmony - having regular feeding, naps and bedtimes helps to regulate the body clock. Getting children up at roughly the same time each morning and providing a regular enjoyable relaxing bedtime routine, with the last part taking place in their bed or cot, all helps to ease and settle them to sleep. This is most vital for poor settlers and sleepers (Mindell et al, 2009).

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Comfort objects can help children sleep

Overall evidence indicates that non-parental sleep aids or comfort objects such as teddy bears and blankets can help infants and children to self-settle. These should not be used with babies under one year of age to comply with the safe sleeping guidance - a clear cot is a safe cot (Lullaby Trust, 2019). They are considered helpful by parents and do not adversely affect development (St James-Roberts, 2012).

The use of night lights may help some children

There is sparse evidence on the use of night lights but experts consistently recommend them to reduce night-time fears in young children. However, there have been no controlled studies on the efficacy of using night lights. As white and blue light (used in all screens) suppresses the sleep hormone melatonin, rooms should be kept dark and quiet. Only red night lights should be used. Red-based light has a much higher wavelength than white/blue/green light and research shows that red-based light does not inhibit melatonin and is least disruptive to circadian rhythms. However, if a child has additional needs they can sometimes find different types of light distributive to sleep. For further information, see Learning Disability Matters: <http://bit.ly/2NNvtso>

It is recommended that children are not exposed to screens and devices 60 minutes before bed as this also affects the quality and duration of sleep (RCPC, 2019).

Diet can affect children's sleep

Research has shown that a lack of docosahexaenoic acid (DHA) in children's diets is associated with temper tantrums, sleep problems, behavioural problems and learning problems (Montgomery et al, 2014). DHA is found in fish oils and breast milk.

What children eat can have a major impact on concentration, sleep, mood and brain development (Liu et al, 2012)

Sweeteners added to some soft drinks and sweet food can reduce tryptophan levels. Tryptophan is essential in producing serotonin, which stabilises mood. Low levels of tryptophan are associated with hyperactivity and aggressive behaviour. Some additives reduce dopamine and noradrenaline in the brain, resulting in hyperactive behaviour in some children.

Food rich in tryptophan helps induce sleep in children (Peuhkuri et al, 2012)

Tryptophan stimulates the production of the feel-good neurotransmitter serotonin and the sleep hormone melatonin. Foods rich in tryptophan are turkey, pasta, oily fish such as tuna, salmon or mackerel, green leafy vegetables, beans, seeds, banana and bread - these help aid sleep and alleviate hunger. Carbohydrates boost the effect of tryptophan, so serving some carbohydrates such as pasta, bread or rice, alongside tryptophan-rich foods stimulates insulin production, which aids the effect of tryptophan

(Diethelm et al, 2011).

Calcium has a calming effect and activates tryptophan, helping the brain produce melatonin (Diethelm et al, 2011)

Good sources of calcium, other than milk, include cheese and yoghurt, white bread, dried fruits, leafy green vegetables such as broccoli, cabbage, ready-to-eat figs, pulses and beans, sardines, fish with bones in and tinned fish, baked beans, dried apricots, ice cream and milk puddings.

Like bananas, milk contains the amino acids L-tryptophan, and 5-hydroxytryptophan (5-HTP) which is a by-product of L-tryptophan, a protein building block. Both of these amino acids are precursors of serotonin and cross the blood-brain barrier where they are converted into serotonin which has a relaxing and anti-depressant effect. Milk is also high in calcium and other minerals, known to have a relaxing effect. Calcium has a calming effect, so warm milk makes the perfect bedtime drink.

Magnesium is known to be a muscle relaxant and aids restful sleep by helping to decrease the stress hormone cortisol (Peuhkuri et al, 2012). It can be found in dark leafy greens, fish, beans, whole grains, nuts and seeds, shredded wheat, cocoa powder and soya. However, whole nuts should not be given to children under five due to the risk of choking or if the child has a known risk of developing a peanut allergy (due to a history of nut allergy in their immediate family). <https://bit.ly/2S27B2R>

Protein foods activate dopamine, a brain stimulant (Diethelm et al, 2011, Wurtman et al, 2003) so do not give a protein rich meal two hours before bed. Give the main meal at lunchtime and a lighter meal at tea time.

Health visitors and their teams can recommend that parents avoid giving their child sugary drinks several hours before bedtime. It is commonly acknowledged that, as blood glucose levels fall, there is a compensatory release of adrenaline which peaks about four hours after eating. A study by Jones et al (1995) showed that this adrenaline release occurs at higher glucose levels in children than it does in adults. The issue is not sugar per se but of highly refined sugars and carbohydrates that rapidly enter the bloodstream - these cause more rapid fluctuations in blood glucose levels in children that can lead to adverse behavioural and cognitive effects. Jones et al (1995) demonstrated that these effects were minimised when children had mixed meals of protein, fats, fibre and complex carbohydrates. There appear to be differing views in the literature on the effects that sugar may have on children's behaviour. However, sugar is harmful to teeth. Parents should follow the current advice to brush their children's teeth twice daily with fluoride toothpaste (1350-1500ppm), last thing at night and at least on one other occasion. After brushing, spit don't rinse.

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Top tips to support practice

- Lack of sleep is recognised as a form of torture by the WHO and has a massive impact on family relationships, health, mental health and wellbeing, and ability to function as a parent. Acknowledgement and support for how families are affected by this is crucial.
- Carrying out a thorough sleep assessment in partnership with the family is essential if any intervention is to be successful. Parents need to feel listened to and heard - the presenting symptom may not be the real issue.
- Supporting families to develop a realistic plan that they feel comfortable with and can implement is key – it helps if this is broken down into small achievable steps so they can achieve “quick wins” and feel encouraged to keep going.
- Helping families to understand why a child may have a sleep or settling issue, and the feelings that may lie behind this, is helpful.
- If a sleep intervention is going to be successful, it needs to be consistent and parents or key caregivers need to be united in their support for this and each other.
- Sleep issues are not solved overnight, and it may take some time – prepare families for this and stick with them, ongoing support is essential.
- Help families to identify and think through issues that may arise whilst doing a sleep intervention, help caregivers to plan the ways in which they might manage these.
- Writing down the plan and keeping a weekly sleep diary helps to monitor progress and is a useful tool in noticing patterns and progress. Work with families to agree a plan for regular support to review progress and make changes to the plan, if needed.

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