

Dyssomnias and Parasomnias in Children

On-the-spot management

INFORMATION FOR HEALTH PROFESSIONALS



Sleep Health
Primary Care
Resources

Dyssomnias

Dyssomnias (problems initiating or returning to sleep) and parasomnias (problems during sleep) are common problems in children, but are discussed in less than 20% of paediatric consultations with general practitioners. In infants and young children, bedtime problems and night wakings are the main presentations of insomnia. Poor sleep in a child frequently reduces the wellbeing and functioning of the child and family.

Primary care physicians and child health professionals such as maternal child health nurses are well placed to diagnose and support parents to manage sleep problems in children and to advocate for sleep education in the community.

Normal sleep and sleep requirements in childhood

Good quality sleep is essential for childrens' growth, development, learning and wellbeing. Like adults, children have different stages of sleep including wake, non-rapid eye movement sleep and rapid eye movement sleep (REM). The proportion of the different stages of sleep changes with age but in general, children have more REM sleep than adults. Both non-REM and REM sleep are important in children's physiological and neurocognitive development.

Sleep requirements change considerably during childhood. Average sleep times across different age groups have been derived from community surveys (table 1). The average newborn infant sleeps for 16-18 hours per day with a sleep-wake period in three

to four hour cycles throughout the day and night. Infants are generally capable of sleeping for more than 6 hours from approximately the age of 6 months.

By 18 months of age, children generally have two sleep periods per 24 hour cycle, including overnight and one long day time nap, usually around lunchtime or early afternoon.

For optimal health, it is recommended that children aged 3 to 5 years of age sleep 10-13 hours per 24 hour cycle (including naps) on a regular basis, children 6 to 12 years should sleep 9 to 12 hours per night and teenagers 13 to 18 years should sleep 8 to 10 hours per night.

Age	Sleep duration/patterns
Newborn to 4 months	16-18 hours per 24 hours (sleep-wake periods in 3-4 hours cycles through day and night)
Infants 4 months to 12 months	12-16 hours per 24 hours (including naps)
1-2 years (including naps)	11-14 hours per 24 hours
3-5 years	10-13 hours sleep per 24 hours (including naps)
6-12 years	9-12 hours sleep per day
13-18 years	8-10 hours sleep per day

Individual children and adolescents may benefit from longer sleep times than these average figures.

Regularly sleeping less than recommended is associated with attention, behaviour and learning problems, as well as long-term negative effects such as hypertension, obesity and depression.

Assessment of sleep in children

Assessment of sleep in children with suspected dyssomnias should include:

- A comprehensive sleep history- sleep screening questionnaires such as the BEARS (Bedtime problems, Excessive daytime sleepiness, Awakenings during the night, Regularity and Duration of sleep) can be useful tools (<https://mdbhipp.org/assets/bears-sleep-screening-tool.pdf>).
- Sleep diary – if the sleep history is unclear a sleep diary may be useful in providing a more accurate overview of sleep patterns. (<https://sleepforkids.org/pdf/SleepDiary.pdf>). Applications for smartphones (e.g., Kids Sleep Dr) can also be used.
- Video to capture the child's overnight sleep can be helpful if parents describe unusual movements/behaviour or symptoms that might be related to sleep disordered breathing.

Types of paediatric insomnia

The International Classification of Sleep Disorders (ICSD) 3rd Edition classifies three subtypes of paediatric insomnia including 1) Sleep-onset association, 2) Limit-setting type, or 3) mixed (both subtypes).

Sleep-onset associations

- A “child’s dependency on specific stimulation, objects, or setting for initiating sleep or returning sleep following an awakening; in the absence of these conditions, sleep-onset is significantly delayed.” (ICSD, 3rd Ed).
- Behaviours used to help children fall asleep at bedtime can become habits that the children will consciously or subconsciously attempt to re-create when they wake during the night in order to return to sleep (“sleep associations”).
- These include being rocked, cuddled or soothed by a parent. The child with sleep-onset associations often presents with frequent night

awakenings and they are unable to self soothe back to sleep after a spontaneous night awakening.

- Factors that may increase the likelihood of sleep-onset associations include breastfeeding, co-sleeping, acute illness, colic, changes in the sleep environment, and parental anxiety.
- Anxiety related insomnia may present as a sleep-onset association disorder and is a common cause of difficulties falling asleep in children. Asking the child what is happening in their head when they are laying in bed may reveal they are worried about the finishing/future day, or in younger children, fears of darkness, monsters, etc. The anxiety may require the parent to be present for the child to fall asleep.

Management of sleep onset association includes:

- Establishing a good sleep routine
- Promoting positive associations e.g., a comforting object (toy) that the child can bring to bed with them each night
- Extinction, graduated extinction and bedtime fading strategies can also be used (see below)
- In older children, anxiety can be reduced by writing or drawing their worries in a book and then closing the book on the worries for the night. Visual imagery and relaxation techniques are alternative methods.

Limit-setting type

- “Bedtime stalling or refusal that is met with and reinforced by inadequate limit-setting by caregiver.” (ICSD, 3rd Ed).
- This usually starts around 2 years of age when children are verbal and able to get out of bed. The child will stall or resist going to sleep at appropriate times. Bedtime stalling can include requests for another book, seeking a drink, repeated bathroom visits. Refusal may include refusal to get ready for bed, to stay in bed or to return to bed once they wake.
- Factors that can increase the risk of limit-setting disorders include the child sharing the parents’

bedroom, inadequate enforcement of bedtime by parents or conflicting parental disciplinary styles and family tension.

Management includes:

- Promoting good sleep practices with a fixed bedtime that ideally coincides with the child's natural sleep time and a relaxed, calm routine.
- Consistent parental limit-setting with clear rules and ignoring complaints around bedtime.
- Bedtime pass – This is suitable for children three years older to manage “curtain calls” - where the child is repeatedly getting out of bed to ask for something. The child is given a notecard or token/ticket (which they can be involved in decorating).
- If the child wishes to get out of bed or requests the parents' attention the bedtime pass is given up by the child. This can only happen once through the night. If the child attempts to leave the bed or calls out again the child should be returned to bed with minimal interaction and all other requests should be ignored. If the pass is not used overnight this can be exchanged for a sticker on a reward chart in the morning for positive reinforcement (see below)
- Bedtime fading – where bedtime is initially delayed until the child falls asleep within 30 minutes of being in bed. It is then gradually brought forward to the desired bedtime, to reduce struggles between bedtime and sleep onset.

Extinction therapy

The primary goal of extinction therapy is for the child to learn to self-soothe. There are different types of extinction therapy which include:

- **Unmodified extinction – “Cry it out”**

The child is put to bed and then ignored until the next morning, except to check for their physical wellbeing. This includes ignoring any extra requests beyond the routine. With this approach many children will begin to fall asleep on their own within a week. In about one third of children

the problem will come back for a few days between 5-30 days later. In this case an “extinction burst” (return to the same extinction method for a few days) may be required. Whilst effective, this procedure can be stressful for parents and therefore may not be suitable for all families.

- **Graduated extinction – “Controlled Crying or Sleep Training”**

This approach is often more acceptable to families. Parental intervention in sleep initiation is gradually limited. The child is put to bed and advised not to leave the room. Parents are instructed to ignore crying for a specified period (usually 5 minutes and extending gradually) before checking in. Check-ins are recommended to be brief and include minimal interactions between parent and child. This procedure is repeated until the child falls asleep on their own. This method is likely to take longer, but be less taxing emotionally.

- **Extinction with parental presence – “Camping out”**

The parent stays in the room, but not in the child's bed, whilst the child falls asleep. The parent is then advised not to respond to any inappropriate behaviour or the child's crying if the child wakes.

Once the child can fall asleep in this way, the parent's chair/mattress is gradually moved towards the doorway and then out of the child's room, using the same technique each time to get the child used to the gradual removal of the parent from the room. This may take several weeks.

Additional management

- **Parent education:** parent knowledge about expectations for their child's sleep at different stages is important to ascertain; realigning expectations may be warranted.

Helping parents to understand the importance of their child learning to initiate sleep independently and self-soothe following natural awakenings overnight is key.

- **Consistency is important:** parents should not give in and revert to old habits when the child becomes upset. It is often helpful to try and anticipate how the child will respond, and set up a programme that parents will be able to consistently follow. A consistent approach across caregivers is needed.
- **Sleep hygiene:** modifiable environmental and behavioural factors that promote good sleep. This includes:
 - consistent bedtime routines
 - quiet activities for 30-60 minutes prior to bed, avoiding stimulating activities.
 - avoiding electronics before bed and in the bedroom
 - keeping the bedroom dark and quiet
 - avoiding caffeine containing foods and drinks, especially in the afternoon
- **Pharmacological therapy:** Behavioural interventions are the first choice of treatment for

paediatric insomnia. Medication are second-line and should always be used in combination with non-pharmacological strategies.

There is limited evidence to support medication use for paediatric insomnia.

Melatonin is mainly used to aid sleep onset in patients with attention-deficit-hyperactivity-disorder (ADHD), autism spectrum disorder (ASD) and other neurodevelopmental disorders.

Treatment needs to be carefully monitored and prescribed by a health professional with experience in managing paediatric sleep problems in this population of children (e.g., developmental/general paediatrician, sleep specialist, psychiatrist).

- **Psychology support:** referral to a child psychologist with experience in management of sleep disorders may be beneficial if simple measures are not successful. This may be particularly indicated in children with anxiety related insomnia or sleep associations.

Parasomnias

Parasomnias (problems during sleep) are common in children and may consist of abnormal movements, behaviours, emotions and autonomic activity during transitions from sleep to wakefulness, or during arousals from sleep.

Common parasomnias include:

- **Sleep walking/talking** – Seen in 1-15% of children. Commonly occurs between 4-8yrs but can last into adulthood. Child has no recollection in the morning. Sleepwalking generally occurs in the first third of the night sleep.
- **Confusional arousals** – Occur within 3hrs of sleep and last 2-10 minutes. Characterised by mumbling, grimaces, disorientation. Child has no recollection in the morning.

- **Night terrors** – Seen in 1-6% of children. Can occur from as early as 18 months old and generally cease by school-age. Usually in the first half of the night where the child wakes suddenly from deep sleep, screaming and frightened. Child appears awake but has no recollection in the morning.
- **Nightmares** – Experienced by 25-50% of children especially 3-6yrs olds. Usually in the second half of the night in REM sleep. Child is fully awake from the episode and has good recollection of the event in the morning.
- **Rhythmic movement disorder** – Rhythmic movements at transition from wake to sleep are common in children less than 2yrs of age. Characterised by rhythmic muscle movements such as head banging, rolling or body rocking. Generally transient with spontaneous resolution by age 4, but rarely can persist into adulthood.

Night terrors vs nightmares

Parents and health care workers frequently have difficulty differentiating between these types of events. Key differentiating features between these types of events include:

Feature	Night terrors/ Confusional arousals*	Nightmares
Description of behaviour	Dramatic motor component with thrashing about in bed or getting up, vocalising/ agitation	Asleep during event, then distressed but consolable upon awakening
Usual timing	First third of the night	Middle to last third of the night
Stage of sleep	Deep sleep/ non-REM sleep	REM sleep
Awareness during event	Not responsive to parental presence or reassurance	Fully awake and aware of surroundings; reassured by parental presence
Number of events	Can occur more than once per night	Usually infrequent
Recall for events if woken	Amnesia	Vivid recollection of event
Family history	Common (terrors or other parasomnias)	None

Note: Confusional arousals are a milder form of sleep terrors; the child may vocalise and move about without progressing to a full night terror. Both night terrors and confusional arousals arise out of non-rapid eye movement sleep and can be thought of in a similar way to sleep walking in terms of triggers and treatment.

Factors that increase the likelihood of parasomnias include:

- Inadequate sleep times (e.g. late nights, a change in sleep habits while on holiday or a chronic habit of insufficient sleep)
- Settling to sleep in an aroused state (being very upset or excited at bedtime)
- Illness (especially fevers)
- Changes in the environment
- Some medications and certain conditions may also be contributing factors (e.g., montelukast, benzodiazepines)

The first priority in management of parasomnias is the safety of the child. If the child becomes mobile during the events (walking or running), ensure that outside doors and windows are secure and remove potential obstacles in the room. A gate may be used to prevent stair access.

If the events are frequent enough to require other intervention, some suggestions include:

- Establish consistent bedtime routines when first settling to sleep.
- Work towards an earlier bedtime so that the child gets a little more sleep; even 30 minutes extra may make a big difference.
- During events, ensure that the child is safe, but try not to touch or contain them since this can prolong the event. Children who are sleep walking are often able to be gently guided back to bed without being woken.
- Avoid discussing the events the next day, since this can make children worry about night time behaviours that they are not aware of and cannot control.

Specialist referral for dyssomnias and parasomnias

Children who have problematic night wakings that do not respond to these simple recommendations may benefit from referral to a paediatric sleep centre or psychologist specialising in sleep disorders in children. If a sleep disorder appears to be a manifestation of other psychological problems such as pervasive anxiety, or in the context of other medical or mental health disorders, they should always be referred.

DISCLAIMER: INFORMATION PROVIDED IN THIS FACT SHEET IS GENERAL IN CONTENT AND SHOULD NOT BE SEEN AS A SUBSTITUTE FOR PROFESSIONAL MEDICAL ADVICE

Further resources

Raising Children website:

www.raisingchildren.net.au

This Australian Government-funded website has a collection of articles on evidence-based management of common childhood sleep problems suitable for use by practitioners and parents.

Sleep with Kip:

www.sleepwithkip.com/strategies

This website developed by the Murdoch Children's Research Institute has click-on links to strategies (arranged by behavioural sleep problem presentation) that parents/carers can utilise

Videos: vimeo.com/user48274901

This series of short videos are useful for practitioners and parents, and cover common childhood sleep issues, including setting a good bedtime routine, establishing good sleep hygiene habits, night waking, night terrors & nightmares, and bedtime battlers and worriers.

Podcasts: www.mcricri.edu.au/impact/watch-listen-download/listen/sleep-podcast

This collection of podcasts helps parents identify sleep problems in children, and gives easy to follow steps to improve their sleep & overall health. The podcasts cover common sleep challenges.

Further reading

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- 9 Bygdell M, et al Psychiatric adverse drug reactions reported during a 10-year period in the Swedish pediatric population. *Pharmacoepidemiol Drug Saf* 2012; 21: 79-86

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