



Autism Spectrum Disorder and Sleep

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Problems sleeping – does it matter?

The short answer to this question is YES! Sleep problems in young children impact not only on the child but the whole family. Loss of sleep for parents usually causes fatigue, stress and difficulty coping with the tasks parents have to get through during the day. For the child, sleep problems can cause excessive daytime drowsiness, irritability, aggression, depression, hyperactivity and interfere with learning.

Many parents report that their young children with ASD have difficulty either getting to sleep, staying asleep or simply don't sleep very much at all. But not all children with autism have problems sleeping and it is not central to diagnosis.

Sleep problems in autism are probably best understood in light of what happens in typically developing children and those who have neurological problems, intellectual disability, or developmental delays, particularly given that autism is a neurodevelopmental disorder and also that about 80% of children with autism have developmental delays.

Richdale (1999) described the establishment of a “mature sleep-wake rhythm” as a “developmental phenomenon” (p 60), in other words, children learn how to sleep and wake in a routine as their brain develops and matures. Typically developing infants move from a pattern of sleeping and waking that is “polyphasic” when they are newborn to a more settled pattern of a longer night time sleep with 2 short naps at about 3 months and then on to one nap per day by 12 months of age. By 4 years of age most children have given up their daytime sleep. Children's sleep-wake rhythm is usually influenced by the light-dark cycle and the child's daily routines such as eating and social activities. Sleep problems in typically developing children may include difficulty settling down to sleep, waking during the night, night terrors or nightmares and occur in about 30% of pre-school aged children. Sleep improves during middle childhood

and continuing problems such as night waking or difficulty settling are usually treated behaviourally or with progressive rescheduling of the sleep-wake cycle.

Children who have intellectual disability (ID), particularly those with severe ID, are reported to experience higher rates of sleeping problems than typically developing children, (about 34-80%). They are also reported to present with these problems with greater frequency and severity. Studies that reported sleep onset and sleep maintenance problems in children with ID found that sleep problems are usually associated with other behavioural problems and communication difficulties that affect the development of and maintenance of sleep-wake routines (Richdale, 1999). It is thought that children with ID have difficulty in developing “the calming and necessary rhythms of rest and activity that allow synchrony with parents and carers” (Dorris et al., 2008, p. 1).

What about sleep problems in children who have autism?

Researchers have been investigating sleep problems in children with autism for some time now. It is accepted that sleep problems are more common in autism than most other developmental disorders but we still do not know why. Some think that is it because children with autism find it difficult to learn the normal sleep associations or respond to changes in their routine or environment. Some studies have found that parents of children with autism report that their children sleep long enough but that the quality of their sleep is different to other children. Another hypothesis is that the behaviour of children with autism “may affect the hypothalamic-pituitary-adrenal axis regulating basic circadian rhythms and alterations in hormone/neurotransmitter (melatonin/serotonin) production (Richdale and Prior, 1995). (Melatonin is secreted during darkness and makes us sleepy and is suppressed by exposure to light). The sleep-wake cycle is a circadian rhythm (light-dark cycle) but humans also use social cues to entrain circadian rhythms. For example, social cues and routine are thought to help infants develop the pattern of having the longest sleep at night (as for the rest of the family). For children with autism, it may be that the social and communication difficulties they have are influencing their ability to “read” the social cues and understand the instructions about going to bed and sleeping. Children with autism are often anxious. It may be that sleeping problems, particularly insomnia, are due to fears and anxiety in some children with autism.

Sleep problems seem to occur in children with autism at all IQ levels including those who do not have an intellectual disability. The sleep difficulties reported in children with autism include problems with: Sleep onset and maintenance, irregular sleep-wake patterns, poor sleep, early waking, alterations in sleep onset and wake times and night waking.

These problems tend to improve with age but older children with autism have been found to sleep less at night than other children. Some children with autism

have unusual routines for settling to sleep and may sleep walk and have nightmares more than other children.

What can we do?

Richdale (1999) stated that intervention must begin with history-taking including the parents giving a detailed description of the problem and keeping a sleep diary for 1 week to determine what factors may be leading to cycles of poor sleep. The sleep history should include an analysis of the current sleep problem, including:

- pre-disposing factors, (a clear developmental history can highlight pre-disposing factors for sleep problems)
- precipitating factors (a general health assessment is important to determine whether the problem may be associated with a medical condition; do you need to limit drinks before bedtime? is the sleeping problem related to food intake?, what does the child do immediately before bedtime?)
- perpetuating factors (where does the child sleep?, does he/she have several naps during the day?, do you stay in the room with him/her?)

as well as consequences of the sleep problems on the whole family.

Behavioural interventions are often used to treat sleeping problems. Putting bedtime routines in place, using reinforcement (rewards), effective instructions and partner support have been shown to be successful. A simple social story about going to bed and going to sleep may be helpful. (Examples of social stories can be found in Carol Gray *My Social Stories Book*, Jessica Kingsley Publishers, 2002). This could include information that everyone goes to bed and sleeps at night time.

If the sleeping problem is anxiety related, relaxation training (deep breathing, muscle relaxation, massage, a warm bath, soft music or story tapes) to reduce tension at bedtime together with teaching the child positive self-statements (to try to build the child's confidence that they can go to sleep by themselves) can be helpful. The Developmental Behaviour Checklist (Einfeld and Tonge, 2002) can be helpful to ascertain levels of anxiety and other emotional and behavioural problems (see Fact sheet 9).

If the sleeping problem is associated with circadian rhythm, sleep scheduling (setting a regular sleep/wake time with no daytime nap) can help. Also delaying bedtime can help reset the circadian clock so that the child goes to bed when he/she is very sleepy or tired. Melatonin has been shown to be effective for some children, particularly when combined with a behaviour intervention programme.

Sometimes a sleeping problem can be related to a sensory disturbance. For example some children may be disturbed by light, the breeze through an open window, the type of fabric of pyjamas or even the weight and type of bed linen and blankets. Sound sensitivity may also keep children awake at night. Careful observation and knowledge of the child's sensory profile may help to assess whether or not sensory issues may be contributing to the sleeping problem.

Improving 'sleep hygiene' is another popular intervention. This involves monitoring sleep routines before setting a specific time for going to bed and developing a bedtime routine that includes relaxing, quiet activities before going to bed and not playing in the bedroom so that it is associated with going to bed and sleeping rather than a place to play in.

Whatever the intervention, it must be tailored to suit the individual child and parents must be supported during the intervention phase. Care must be taken to ensure that the intervention is acceptable to the family and that parents understand the intervention and can commit to it.

References and further reading:

Dorris, L., Scott, N., Zuberi, S., Gibson, N. and Espie, C. (2008) Sleep problems in children with neurological disorders. *Developmental neurorehabilitation*. 1-20, *iFirst*

Richdale AL, Prior MR. (1995). The sleep-wake rhythm in children with autism. *European Child and Adolescent Psychiatry*. 4: 175-186

Richdale, AL. (1999). Sleep problems in Autism: Prevalence, cause and intervention. *Developmental Medical Child Neurology*. 41: 60-66

The National Autistic Society "Sleep and Autism: helping your child". <http://www.nas.org.uk> (Has examples of sleep diaries)