Sleep and Its Disorders in Children

By Jim Horne
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Normal Sleep
Wide natural variations are found in the daily sleep lengths of children within all age groups. For example, in week-old babies the mean daily sleep length is 16 hours (sd = 2 h). Thus, in a group of about 25, one will be sleeping almost twice the length of another. After a year the daily mean falls to about 12 hours (sd = 1.5 h), partly because sleep is more consolidated into the night. Some parents of shorter sleeping children may rationalise away the extra hours required to entertain their progeny with the belief that short sleep is a sign of a higher IQ. Alas, there is no evidence supporting this notion. Most infants wake at least once per night, and with the exception of (usually breast-fed) babies, usually return to sleep by themselves.

By about 18 months, sleep patterns are more stable, and daytime naps are part of the total daily requirement; the more a child sleeps in the day, the less it will sleep at night. Thus naps can add to difficulties in going to sleep at night (see below). Regular daytime naps tend to disappear by five years of age, when the average child will sleep about 10 hours a night (sd=about 45 min; no naps). In the 6-7 year-old the mean is approximately 9 hours (sd=1 h), for the 8-9 year-old, about 8.5 hours (sd=40 min), and for the 10-11 year-old 8 hours (sd=30 min). These figures are for the time asleep, and exclude the period from "lights out" to the onset of sustained sleep, which for 5-11 year olds changes little, and averages about 20 minutes (sd=about 12 min).

Because of these individual differences one cannot really prescribe an ideal amount of daily sleep for a particular age group. Nevertheless, many older children nowadays do not get enough sleep, usually because they stay up too late. The acid test of insufficient sleep in both the child and adult is difficulty in arising in the morning, with excessive daytime sleepiness and unscheduled dozes throughout much of the day. Although these symptoms are typical, they are not always the rule, as some children become irritable, unable to concentrate, and continually seek stimulation.

Difficulty in going to Sleep
Prevention is better than cure, and the recipe for successful sleep in infants and children, as well as for parental peace of mind at bed-time is a standard, unremitting pre-sleep routine set at the behest of the parents, that is only broken exceptionally. This period should be a time of progressive settling down, with the bedroom being seen by all concerned as primarily a place for peace and sleep rather than for fun and excitement. After the child is tucked up for sleep, the parent should retire from the bedroom and not be open to persuasion to stay by delaying tactics. It is prudent for the infant to become accustomed to reasonable levels of household sounds at this time, and not for the house to enter a "hushed" state. Whereas very young babies have to be almost asleep before being put successfully in the crib, by around six months of age they should be becoming used to being put in their cribs awake, and encouraged to self-sooth. To continue with the practice of waiting for the infant to fall asleep in one's arms beforehand is inviting future trouble. Many children are unable to entertain themselves to sleep, either at bedtime or during nighttime awakenings, and need an adult to be present until sleep onset. Often, the parent is conditioned by the child into enacting various time-consuming bed-time rituals, that in effect keep the child awake. This area presents one of the most common
sleep problems encountered in infants and children, and causes much parental frustration and anguish.

Sleeping tablets/elixirs are seldom indicated, and at best should not be given for more than a day or two. Behavioural approaches are generally more successful in solving most sleep problems, although it is essential that parents first reassure themselves that the disturbance is not due to genuine causes such as colic, milk intolerance (below) real fears of sleep or nightmares, which require different approaches. Probably the most effective behavioural technique is "systematic ignoring". Providing that the child has plenty of tender loving care during wakefulness, and knows this, then the method has much to recommend it. After tucking up the child at bedtime, and maybe having warned the neighbours, the parent leaves the bedroom, and resolves not to go back until the child is asleep, come what may. When the child awakes at night, the parent ignores this, or failing that, briefly enters the bedroom for reassurance that the child has no physical complaint, and leaves immediately. The first night is traumatic for all concerned, maybe the second night also, but thereafter success is usually obvious and progressive. The distress and poor sleep for the parents during the first few nights can be tempered by their realistic anticipation of a fairly rapid and dramatic improvement in the sleep of all concerned. Half-way measures, such as the parents allowing the child to cry for twenty minutes and then intervening, are counter-productive as the child just learns to cry for this time, in anticipation of the parent's arrival.

Clearly the success of this approach depends on whether the parents are prepared to let the child undergo a few nights of what appears to be traumatic crying. If not, then there is, for example, the protracted withdrawal technique whereby, over what can turn out to be many nights, the parent gradually withdraws physically and temporarily from the scene. For the child who wakes up in the night and demands that a parent accompany him/her back to sleep, then there is another approach, of "scheduled awakenings". This relies on the tendency for most of these children to wake at constant times. Here, the parent gently arouses the child about 30 minutes before the typical spontaneous awakening, and consoles their charge. The child should soon fall back to sleep again, and the usual awakening is precluded. The routine continues for several nights until all the spontaneous wakenings have disappeared, and all the child's awakenings are under the control of the parent rather than the child. The final step is gradually to eliminate these scheduled awakenings until the child no longer wakens and cries at night. A study of severe cases of children waking on average 14 times per night, found that over about six weeks the latter withdrawal method reduced nightly spontaneous wakenings to about 30% of the original level. This contrasted with "systematic ignoring" (above), which produced comparable reductions within one to two weeks.

Whoever is counselling the parents about these techniques must ensure they understand that none of the methods, although effective, is easy. Finally, objective assessment of the efficacy of these home treatments is now available through the use of small, non-invasive wrist-worn actigraphs, that record body movements (i.e. wakefulness and sleep disturbances) in the child for several weeks at a time.

Night-time Feeding
This is a controversial area, with much dogma, where it is difficult to delineate between what is normal and "abnormal". One key factor is whether an infant is breast or bottle fed, as there is good evidence that breast-fed babies sleep through the night at a later age than those bottle-fed, especially if they suckle mainly for comfort, many times a day. Nevertheless, by around six months a full-term infant should be able to obtain all of its food during the daytime only. An infant over six months, waking several times a night (eg more than 3-4 occasions) and requiring substantive feeds, is probably "abnormal", whereas an infant waking up once or twice for a short suck would not be. Large nighttime feeds can create or compound the problem, leading to wet nappies (diapers), discomfort and awakenings, as well as reduced food intake during the day. These feeds should be
minimised or stopped. Probably the best method is for this to be done gradually over, say two weeks, by decreasing the milk available (or breast feeding time), and increasing the acceptable time between feeds. Success is usually marked, and parents are often surprised by how quickly the infant adapts.

**Milk Intolerance**

Poor sleep habits of the types described above account for over half the referrals to pediatric sleep clinics. One study reported that of 146 children under five, referred to their clinic for persistent wakefulness and crying episodes at night, 58% had inappropriate sleep habits (i.e. problem really being that of parental anxiety, 5% had a poor physical sleeping environment, and 15% suffered from various parasomnias (e.g. nightmares) or physical conditions (e.g. oesophageal reflux and CNS lesions). However, for the remaining 12% (n=17, average age 13 months) no initial diagnosis could be made, despite the symptoms of persistent awakenings being confirmed. Cow's milk intolerance was then suspected, and they were taken off all milk products. In 15, sleep normalised within five weeks, with nighttime awakenings falling to nil or once per night. A subsequent milk challenge (double blind) induced the reappearance of insomnia in 14 children. They remained on the exclusion diet, and approximately one year later the challenge was repeated on ten; all but one reacted as before.

**Delayed Sleep Phase Syndrome and Sleep-Wake Rhythm Disorders**

The timing of sleep is strongly influenced by a circadian rhythm, which can become disordered, as in the "delayed sleep phase syndrome". This is not so much a problem of infants and children, but more in adolescents, when it usually starts after a period of progressively later bed-times. Whereas most teenagers compensate by having a few early nights, a minority are unable to do this, and develop a chronic inability to fall asleep until around 3-5 am. Sleep is usually of good quality but falls well short of a minimum if they have to be up within a few hours for school. They experience excessive daytime sleepiness and are typically moody and irritable. This state of affairs may have been going on for many months, and is usually unresponsive to sleeping tablets. Often, sufferers are viewed by their GPs as being anxious or even neurotic.

It is far easier to move the circadian clock forwards than backwards, by extending the day ("phase delay") rather than by shortening it ("phase advance"). Between 10 pm and midnight is often the time of their biological day when they are at their most alert, and the reason why forlorn attempts to sleep then, fail. The technique is to arrive at an earlier sleep time the long way round, by lengthening the day, ideally to 26-27 hours. This is accomplished by going to bed two-to-three hours later each day, for seven days. For example, if sleep onset is usually 4 am, then the successive bedtimes would be: 7 am, 10 am, 1 pm, 4 pm, 7 pm, 9 pm and ceasing at say 11 pm, with bedtime remaining at 11 pm thereafter. Up to eight hours sleep at a time is allowed during the treatment days. Sufferers usually have no difficulty in going to sleep at these later times during the treatment, and somewhat to their surprise, sleep onset usually stays at 11 pm, provided that they do not let bedtime slip further. The treatment is usually very effective. The main difficulties are finding somewhere quiet for daytime sleeping, and the curtailment of usual daytime activities. At Loughborough we have used this treatment many times, and have had very encouraging results (unpublished findings).

Delayed sleep phase syndrome sufferers have a regular underlying circadian rhythm, albeit out of phase, and they usually feel refreshed on awakening if they are allowed to have normal length sleep. However, some children, particularly adolescents have a sleep-wake rhythm that is "free-running" on a 25 hour clock and completely out of control. They may well be sleeping and waking up an hour later each day, unable to stop their internal clock at an appropriate bed-time. Until recently this has been very difficult to treat, but studies from Japan have found that vitamin B 12 daily can correct this circadian anomaly.

**Sleep Apnoea as a Cause of Excessive Daytime Sleepiness**

Excessive daytime sleepiness can have
causes other than those resulting from the disorders already outlined. The commonest sleep problem causing excessive daytime sleepiness in children has been known for over a century, but has mostly been overlooked until recently. For example, in 1889, in an article in the British Medical Journal (September 29th - p711-712) entitled, "On some causes of backwardness and stupidity in children", Dr William Hill stated that the "stupid looking lazy child who frequently suffers from headache at school, breathes through his mouth instead of his nose, snores and is restless at night, and wakes up with a dry mouth in the morning, is well worthy of the solicitous attention of the school medical officer".

Obstructive sleep apnoea is associated with heavy snoring and apart from enlarged tonsils, can be due to: small oropharynx, obesity (especially a fat neck), micrognathia, chronic upper airway infection, rhinitis and hayfever. There are other forms of apnea ("central" and "mixed). There are reports of a high incidence of excessive daytime sleepiness hyperactivity, and aggression in snoring children selected for adenotonsillectomy.

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(Part 2)
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REM (DREAMING) SLEEP AND ITS DISORDERS

Phenomenology
The newborn baby spends nearly half of sleep in rapid-eye movement (REM) sleep. In one-month premature babies this rises to 67%, and up to 80% at two-months prematurity. In the first year, REM sleep falls dramatically (in both relative and absolute terms), from around 8 hours a day in the first week to around half this level by the first birthday. Although one might argue that the decline is because of the overall drop in total daily sleep length over the year, this sleep is not halved as is REM sleep, but only reduced by about a quarter. Such findings are difficult to reconcile with the idea that the function of REM sleep is to consolidate the memories of the waking day. The first year of life must be one of the most intense periods of learning in our development. This, coupled with the lengthening of daily wakefulness, with the further potential for learning, suggest that if the memory consolidation idea has substance, then REM sleep ought to increase in this first year, not decrease. There is no qualitative change to REM sleep over this period and, for example, it does not become more intense.

The high levels of REM sleep in early life led to the Ontogenetic hypothesis. Within the uterus there is little of the sensory stimulation that the growing cerebrum needs to develop properly. So REM sleep is seen to be a substitute stimulation, which, to a lesser extent is also periodically necessary for the sleeping brain after birth. The key element of REM sleep providing the brain with stimulation seems to be the spike discharges of the pontine-geniculate-occipital (PGO) areas.

REM sleep is naturally accompanied by a paralysis of most muscles responsible for body and limb movements ("motor inhibition"), including the face and neck. This paralysis also prevents one from acting out one's dreams, although this does not always happen (see below).

Nightmares
For most children dreams are pleasant experiences of everyday events. Whilst nightmares ("mare" is an old english term for "demon") are infrequent, often very real, and soon forgotten, for some children they are
very disturbing, particularly if frequent or the child dwells on them for several days. That is: repetitive acting out of the nightmare with toys; a dread of sleep; struggling to stay awake etc. So the impact of nightmares should be weighed up with the effect these have on the child's life in general. Often, of course, the reverse is true, or there is a two-way interaction, with frequent nightmares being a sign of an unhappy mind or home. Nightmares tend to become a more serious problem when parents fail to confront and deal with their child's worries. Whether or not one should place much reliance on trying to analyse the content of the dream in these respects is a matter for debate. One should be circumspect about this approach as the result is often no more than inspired guesswork; the time might well be better spent in developing greater rapport with the child and delving into its conscious rather than unconscious mind. Tranquillisers should be no more than a stop-gap at best.

Lastly, some nightmares are not always what they seem and may turn out to be night-terrors (see below), or, if accompanied by repetitive stereotyped motor activity often of short duration, then epilepsy or nocturnal paroxysmal dystonia (see below) might be suspected.

**Sleep Paralysis**
Paralysis can occur in children when they wake up suddenly out of a nightmare and find that they can not move or call out for their parents. The motor inhibition of REM sleep is still active (see above), and may take from seconds to minutes to lift; all the sufferer can do is to breathe, move the eyes and possibly, moan. This is alarming and adds to the child's distress, especially if the dream imagery continues into this wakefulness, as can happen. Younger children may have difficulty in explaining these events and this adds to the parents' concern. Such experiences, which have a neurological basis, usually remit by early adolescence. True familial sleep paralysis is much rarer, and typically happens at sleep onset and/or on awakening, and may well be a symptom of narcolepsy, although, it can occur in isolation. However, narcolepsy seldom appears before adolescence. Both forms of sleep paralysis can often be terminated prematurely by sustained voluntary eye-movement or, if possible, by touch from someone else.

**REM Sleep Behaviour Disorder**
During REM sleep voluntary muscle are paralysed in order to stop dreams being enacted. In rare circumstances, the paralysis is absent, and if a dream is violent, then harm may come to the sleeper and nearby persons. Although these behaviours are usually correctly diagnosed by patients or their parents, as violent nightmares, they are misunderstood. This disorder has been more frequently reported in adults, but has been found in children. More careful examination usually discloses hindbrain lesions of REM sleep control mechanisms. The most effective treatment is by drugs, for example, non-sedating tricyclics (which suppress REM sleep) or by Clonazepam. But in children, at least, such approaches are not encouraged if the incidence is infrequent. Cases of serious assault by children during have been attributed to slow wave sleep (below), but in the absence of EEG records it is likely as not that the basis is a REM sleep behaviour disorder.

**Slow Wave Sleep and its Disorders**

**Phenomenology**
Slow wave sleep (SWS) is the deepest form of sleep, and consists of stages 3 and 4 sleep. The other sleep stages are 1 and 2 ("light sleep"), and REM sleep; there being five stages in all. Most of the daily output of growth hormone in a child is confined to sleep, and in particular to SWS. Thus it is often thought that SWS is essential to growth. But other hormones necessary for growth, such as insulin, show no sleep-related release. The role sleep has for growth is a contentious one, as the evidence is circumstantial. Nevertheless, children with chronic sleep disturbance, as in severe asthma and obstructive sleep apnea (see above), have retarded growth, as do emotionally deprived children who have little SWS. But whether these growth problems are due to the impaired sleep, is another matter. Often, for example, cortisol output is raised, which suppresses growth.

The organ for which sleep does seem vital is the cerebrum and this is clearly demonstrated by sleep loss studies.
Whereas most of the body can physically relax and recover in wakefulness, to levels similar to those of sleep, the cerebrum cannot do this. Even when the eyes are closed and the mind is blank, the waking brain remains in a state of high activity and quiet readiness. Waking cerebral metabolic rate is particularly high in the 3-8 year old child, which suggests that this organ may be in need of even greater recovery during sleep at this time. The type of sleep that seems most closely associated with cerebral recovery appears not to be REM sleep, as is commonly thought, but SWS. Again, the evidence is circumstantial. If a reduced cerebral metabolic rate of sleep is indicative of recovery, then SWS, not REM sleep is the better candidate, as in REM sleep this rate is as high if not higher than that of alert wakefulness. Recent findings with cerebral protein synthesis (an index of growth and repair) show it to be higher during SWS than in REM sleep.

**Sleepwalking**

When children are forcibly roused out of stage 2 sleep, a lighter form of non-REM sleep, "thinking" is often reported, which contrasts with the gross visual imagery, unreality, and more vivid actions of dreaming usually found (but not wholly) in REM sleep. Such thinking is less prevalent in SWS. Sometimes, more disturbing mental events can occur during SWS, with the most notable being sleepwalking (somnambulism) and night terrors (pavor nocturnus- see below), with the latter being quite distinct from the nightmares of dreaming sleep. These SWS phenomena can be found together. They mainly occur in childhood and tend have some hereditary basis. Sleepwalking peaks in adolescence, but declines rapidly by the late teens. Episodes are often triggered by anxiety; in susceptible children, the worry can be trivial - the loss of a favourite toy, or just a frustrating day. Only in serious cases, when sleepwalking occurs most nights, might there be severe distress and underlying emotional conflict, requiring intervention. One of the best treatments for children is simply to reassure the parents, as the more worried they become, the more this will be sensed by the child, the more anxious he or she gets, and the more sleepwalking will happen. If the child is given greater parental support, then the episodes often resolve themselves. Sometimes the sleepwalking just becomes a benign habit that can be broken by altering the child's sleeping circumstances, for example, by changing its bedroom for a few days.

Children are particularly difficult to arouse from SWS, and even very loud sounds of 123 dB can have no effect. It is difficult to wake up a sleepwalking child, and is unwise to do so, as distress or a wild and emotional outburst may set in. It is best to guide or carry them back to bed. As many sleepwalking episodes occur within the first two hours of sleep (when SWS is most prolific), parents are usually still up. Some unenlightened parents see their wandering child's unresponsiveness as disobedience, particularly if it does some unsocial act such as urinating on the floor, and may slap the child in return. The resultant commotion may then be seen as a tantrum, and the child is sent back to bed in disgrace. This not uncommon scenario, of course, only worsens the situation. The mind of a sleepwalker is unresponsive to what is going on around and seems steeped in thought. The sleepwalker behaves like an automaton with a limited repertoire of behaviour, but does not walk about with the hands out in front, as is commonly portrayed. There is no memory of the nocturnal activities the next day. Episodes can last up to 30 minutes, but usually average 5-15 minutes. Sleepwalking and night terrors, together with nocturnal bedwetting (enuresis), all reflect some form of disordered arousal from stage 4 sleep. But this conclusion is now strongly contested. Sleep EEG recordings of sleepwalkers show that they usually remain in SWS whilst sleepwalking, with few signs of arousal.

Typically, in a sleepwalking episode the child will sit up quietly, get out of bed and move about in a confused and clumsy manner. Although behaviour becomes more coordinated, the sleepwalker tends to remain in the bedroom, often preoccupied by searching for something in drawers, cupboards or under the bed. It is almost impossible to attract their attention; however, if left alone they normally go back to bed. Navigation is done mostly by memory of the layout of the room and house; the eyes are unseeing and usually it
is dark. If the sleepwalker is asked to repeat the act the next day, in wakefulness and blindfolded, then he or she will soon come to grief as recall of the household layout is now poor, but somehow heightened during sleep. Difficulties and sometimes injuries occur to sleepwalkers at night if they think they are somewhere else, when walls, doors, staircases and windows are not where they should be.

More adventurous activities may occur, such as dressing, going to the fridge for food or walking outdoors. But if the behaviour is more complex, with the individual seemingly alert and organised and, for example, able to get dressed, get on a bike and pedal off down the road, then this is not sleepwalking per se, but probably a confused, waking, amnesic state. It can also arise from stage 4 sleep. Such states, which are not sleepwalking episodes as such, can last for several hours, and are more common between 10 years of age and puberty.

**Night Terrors**

These are another phenomenon of deep sleep (SWS) and are sometimes associated with sleep-walking. They are quite distinct from the visually vivid, prolonged nightmare, and are not just bad dreams, but sudden and horrifying sensations accompanying fleeting mental images that shock the sleeper into immediate wakefulness. Night-terrors are also more common in older children than in adults, where, in the latter, the problem is more serious. Typically, the child sits abruptly up in bed, screams and appears to be staring wide-eyed at some imaginary object - maybe "a monster". When this part of the episode passes the child appears to awaken somewhat (the EEG studies are unclear about this, as there is so much artefact on the record) but is confused and disoriented. They may well remain like this for many minutes until sleep returns, having little or no recollection of the event next morning. Night terrors can be combined with sleepwalking, particularly in adolescence, when the terrified child may run around the house in an insensible and incommunicable state for many minutes; half an hour or more is not uncommon. Again, morning recollection is fragmentary at best.

If the child is otherwise untroubled, then

night terrors are seldom a matter for serious concern. One approach is one of pre-emption, by waking up the child before the night-terror. Initially, over a week or so, a record is kept of the exact time the night terrors occur, which is often around two hours into sleep and fairly constant. Then, for the next few nights the child is gently woken about 15 minutes beforehand, for about five minutes, and allowed to return to sleep. The likelihood of a night terror occurring on these nights is reduced and, with the pattern having been broken, it is claimed that the night-torers are less likely to return on the following nights when the child sleeps through the night without interruption. However, all that may happen is for the night-terror to re-schedule itself elsewhere in sleep.

**Epilepsy in Sleep**

Epilepsies have various bases and classifications, and in infants and children may well have an incidence of 1% or more. Many forms of epilepsy have a clear relationship with sleep. Attacks can occur throughout sleep but, depending on the form of epilepsy, more typically appear: during the first two hours of sleep, often associated with SWS; during lighter sleep towards the end of the night; or, within the first hour after awakening. Around half of febrile convulsions happen during sleep, and another 25% when falling asleep or awakening.

Most forms of epilepsy are not typified by "grand mal" (tonic-clonic generalised) convulsions but are more subtle, as in some complex partial seizures arising in the temporal lobe or supplementary motor cortex. These can be mistaken for bizarre types of dreaming, sleepwalking, night-terror, etc. For one reason or another, children with epilepsy often have additional emotional disturbances. Thus, sleep disturbances are fairly common among these children, and can confound the diagnosis of epilepsy. For this reason, a detailed and accurate clinical assessment of the child is essential in order to unravel these factors, and enable the appropriate treatments.

One other form of nocturnal epilepsy is termed a "complex partial seizure of frontal
origin", which is often bizarre and includes vocalisations (shouts, laughs, swearwords), facial gestures, leg movements (e.g. flexing and pedalling) and other automatisms. Although these are usually initially misdiagnosed as "nightmares", this can soon be ruled out as the events are typically very frequent, often happening several times a night and have a very abrupt onset and termination, with the whole episode lasting less than a minute. Whilst conventional EEG recordings are of limited value, in some patients recordings during sleep, emphasising frontal electrode placements, might be useful. These phenomena are not so rare as was first thought, and are referred to by some investigators as, "hypogenic or nocturnal paroxysmal dystonia". Although some doubt has been cast as to whether these episodes are a form of epilepsy, they usually are, and are often responsive to the antiepileptic drug Carbamazepine.

**Other Parasomnias**

**Headbanging, Headrolling and Bodyrocking**

Headbanging (Jactatio Capitis Nocturna) is the most common of this related trio, and is a forward-backward banging of the head into the pillow or mattress, or sometimes into a more solid object such as a wall or side of the crib (head protection may be needed). Head-rolling is a repetitive side to side head movement, and bodyrocking is usually performed on the hands and knees, with a backwards-forwards pushing of the head into the pillow. All usually occur at sleep onset and during light non-REM sleep stages (1 and 2), as well as in drowsiness, and sometimes in wakefulness. Although headbanging is more common among mentally retarded children, on its own it is not a sign of retardation, as it is found in healthy, normal infants.

These rhythmic events usually appear nightly, last around 15 minutes or less per bout (often with several bouts per night), and have a movement frequency of around 45/minute. They tend to appear around 8 months of age and probably have a neurophysiological rather than a psychiatric basis, usually spontaneously remitting by the age of four years. The activity seems to be a pleasurable experience and may be a form of vestibular stimulation that has become a learned habit. Most cases do not need treatment, although parental reassurance is necessary. But if any of these conditions persist well into childhood or adolescence, then the basis may well be anxiety or psychological distress, requiring specific behavioural treatment. Some forms of epilepsy (see above) do have symptoms that can be mistaken for these movements.

**Bedwetting**

Sleep-related enuresis is a common sleep-related problem of childhood. Children are not born with bladder control, but have to learn to acquire it. Therefore, whether bedwetting can be considered as a disorder depends on where one draws the line for the number of wet beds per month. In general, children should have full control over their bladders by the age of 4. Bedwetting occurs to what seems to be an abnormal degree in around 15% of children aged 5-6 years, with this level falling by about 2-3% per year thereafter. If one or both parents suffered from the disorder when young, then the incidence in the child increases by factors of about three and five respectively. But what exactly is inherited or acquired from the parents remains a matter for debate. Whilst bedwetting is commonly thought to have an emotional basis, this is usually not the case, unless it disappears for say, 6-12 months and then reappears in association with clear emotional upset. Often the emotion displayed by a bedwetter is a reasonable response to the bedwetting itself. Unusually, bedwetting can be a sign of urinary tract infection, diabetes, epilepsy and even sleep apnoea; disorders that should be eliminated initially.

Bedwetting occurs in all stages of sleep, and is not, as is sometimes thought, another example of an arousal disorder of stage 4 sleep, or due to a child’s unusually deep sleep. Sleep-enuretic children can have one or more of the following: a small bladder capacity; a weak external urethral sphincter; have not learned to recognise the signals from a distended bladder that should arouse the child. Psychological factors can be important, such as inappropriate toilet training, excessive teasing about the problem by siblings, or parents who inadvertently reinforce bladder immaturity by
continuing to keep an older child in a nappy (diaper) at night.

Treatment should be symptomatic, for example: bladder and/or sphincter training exercises; conditioning by the "pad and buzzer" technique to enable the sleeping child to recognise a full bladder; star charts for dry nights. Medication (e.g. Imipramine) is seldom the answer but could be an occasional adjunct during the treatment period (which can last several weeks) to give the child reassurance if sleeping away from home, for example.

Sleeptalking
This is the most minor of the peculiar mental events of sleep and is a muttering of jumbled words or phrases, with no real content, occurring in light sleep, which seldom has anything to do with dreaming (i.e. REM sleep). Sleeptalking, like sleepwalking, cannot normally occur in REM sleep because of the general paralysis of voluntary muscles (see above) at this time. Sleeptalking is common in adults and even more so in children. In fact, almost all children will do this if they are talked to during light sleep. Then there is some sort of confused reply that has little relevance to what was originally said. If two or more children share a bedroom, and one starts sleeptalking, then the curtain goes up on the bizarre theatre of the mind, as often the other sleepers will join in. But none of the participants will be listening to the ramblings of another, as each will be in a world of their own.

Toothgrinding
Bruxism is a minor disorder usually found in stages 1 and 2 sleep, and has a tendency to be related to anxiety and/or stressing days. It can occur in children soon after the first dentition has erupted and may lead to tooth damage and misalignment. For this reason a night-time rubber mouthguard is often used. If anxiety is indicated, then relaxation treatments can be successful.

Conclusions
Often, sleep problems in children are not of child but of the parents, who may have unwittingly created the problem in the first place, or worry unduly about a relatively minor matter that is inflated out of all proportion, or transmit their anxiety to the child whose sleep perturbation is exacerbated into a real problem. In these cases, it can be the parents rather than the child who really need the treatment (i.e. advice and reassurance). On the other hand, as has been seen, there are more serious sleep disorders that can all-too easily be dismissed by the parents as "nightmares" or "snoring", for example. It is remarkable how the more behavioural problems of children's sleep can be resolved so quickly, by the right approach, and frequently to the amazement of the parents who over months of anguish may have become desperate for a "good nights sleep" for themselves as well. Parents easily forget that infants and children are usually much more adaptable than themselves, and very forgiving of what may seem to be short but harsh treatments.

WE ARE NOT ABLE TO DEAL WITH INDIVIDUAL PROBLEMS - PLEASE CONTACT YOUR DOCTOR

http://www.lboro.ac.uk/departments/hu/groups/sleep/child.htm

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