

Sleep disorders

Sleep disorders can be divided into qualitative (somnambulism) or quantitative (insomnia, hypersomnia).

Sleep disorders

They are very common in the population.

- In many cases, a sleep disorder is only one of the symptoms of another disorder, mental or somatic
- Whether it is a sleep disorder or an accompanying symptom must be decided on the basis of the **overall clinical picture**.
- According to the current International Classification of Sleep Disorders (ICDS-2), sleep disorders are divided :

1. insomnia
2. sleep-related breathing problems
3. hypersomnia (excessive sleepiness)
4. circadian rhythm disorders
5. parasomnia
6. abnormal movements related to sleep
7. isolated symptoms and variants of the norm
8. other sleep disorders

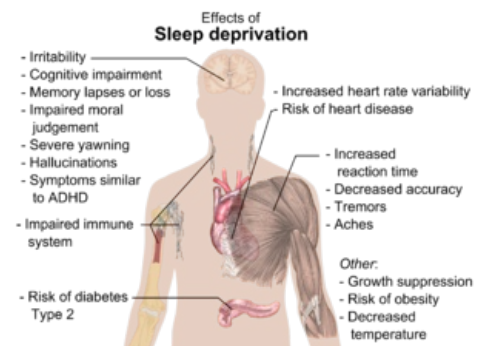
[1].

Examination

- **Anamnesis**
- **Physical, eventually neurological examination**
- **Hypnogram** – a graphic representation of the progress of sleep stages
- **Polysomnography** – EEG, electrooculogram and EMG of the chin muscles are recorded to distinguish non-REM sleep, REM sleep and wakefulness. It is usually performed throughout the night.
- **Multiple Sleep Latency Test** - serves to objectively quantify daytime sleepiness.
- A questionnaire, the so-called Epworth sleepiness scale, is used to assess excessive daytime sleepiness

Insomnia

- feeling of poor quality and unrefreshing sleep
- includes difficulty falling asleep, shallow sleep, frequent night awakenings, and early morning awakenings
 - **Transient insomnia and short-term insomnia**
 - several nights to 4 weeks
 - usually accompanied by stressful situations
 - *Treatment*: short-term non-benzodiazepine hypnotics (zolpidem, zopiclone), possibly benzodiazepines (alprazolam, bromazepam, midazolam, etc.)
 - **Chronic insomnia**:
 - complaint about *insufficient length or rest* during sleep for at least one month^[2]
 - it can be related to stress, poor sleep hygiene, or accompany anxiety states, depression and cognitive disorders
 - its cause can also be chronic diseases, such as osteoarthritis, COPD, nocturia, night headaches, Parkinson's disease, etc.
 - poor sleep hygiene includes inappropriate sleeping conditions, late dinners, lack of physical activity, excessive consumption of alcohol and caffeine
 - insomnia can also be caused by the use of certain drugs (beta-blockers, steroids, bronchodilators, methylxanthines, some antihypertensives, chronic abuse of hypnotics)
 - *Treatment*: regimen measures, hypnotics



Effects of sleep deprivation

Sleep-related breathing disorders

- **Sleep apnea syndrome** (snoring during sleep with apnoeic pauses):
 - inspiratory snoring during sleep with periodic apnoeic pauses,
 - apnoeic pauses last at least 10 seconds, repeat at least five times per hour of sleep and cause transiently reduced oxygen saturation^[3],
 - patients tend to be tired during the day, have headaches and lack of concentration^[2],
 - the prevalence of obstructive sleep apnea is estimated to be 10 %^[4].

Hypersomnia (excessive sleepiness)

A broad group of disorders characterized by excessive daytime sleepiness (EDS)

- inability to maintain alertness and attention during normal waking hours with unwanted episodes of drowsiness and/or sleep.
- primary - defined neurological sleep disorders
- secondary - accompanying other diseases, side effects of drugs, etc.
- **Narcolepsy:**
 - short-lasting bouts of imperative sleep
 - the patient falls asleep suddenly, without previous sleepiness, not only at rest but also during activity → wakes up after a few minutes and is completely refreshed,
 - often leads to disturbances in night sleep → awakening
 - it is probably a rare hereditary disease caused most likely by a deficiency of the neuropeptide hypocretin (orexin)^[2]
- **Idiopathic hypersomnia:**
 - this is an excessive need for sleep and very difficult to wake up.
- **Kleine-Levin syndrome:**
 - is a recurrent, periodic hypersomnia
 - *Manifestations:* long poor-quality sleep, bulimia, polydipsia and behavior disorders in terms of irritability, aggression and hypersexuality.
- **Cataplexy:**
 - is manifested by a *sudden disorder of muscle tone*,
 - typically occurs after an affect (intense laughter, anger, joy).
 - **Generalized cataplexy:**
 - falling to the ground with the impossibility of movement while fully conscious.
 - **Localized cataplexy:**
 - e.g. sagging at the knees, lowering of the raised upper limb, etc.
- **Sleep-wake rhythm disorders:**
 - most often in people who work shifts.
- **Jet lag syndrome:**
 - sleep disturbances due to traveling to other time zones.

Parasomnia

- is a heterogeneous group of sleep-related conditions
- motor, affective, cognitive, vegetative manifestations
- they divide according to which part of the sleep they are present in

Disorders related to falling asleep, event. to wake up

- Hypnagogic hallucinations:
 - more often in children, they can also occur in adults, where mostly provoked (sleep deprivation, stress, etc.)
 - visual pseudo-hallucinations that occur while falling asleep
- Hypnagogic twitches – are sudden, spontaneous, rapid twitches of the muscles of the limbs, possibly also of the trunk and head, which appear during falling asleep. About 60-70% of the population experiences this type of involuntary movement, which is harmless. The frequency and frequency of hypnagogic twitches can increase in periods of higher emotional stress, increased stress, excessive physical exertion or higher doses of caffeine.
- **Sleep paralysis:**
 - temporary inability to move any part of the body
 - a very unpleasant condition
 - preserved breathing and oculomotor
- early NREM
- **Somnambulism (sleepwalking):**
 - the individual wakes up at night and gets out of bed
 - it is a dissociated awakening from deep non-REM sleep,
 - he usually doesn't remember anything in the morning
 - appears more often in children,
 - safety protection against accidents and possibly benzodiazepines at night are recommended
- **Pavor nocturnus (night terror):**
 - it is a sleep disorder when the child wakes up in the first hours of sleep, suddenly sits up, cries and is frightened,
 - falls asleep again after calming down,
 - he doesn't remember anything in the morning
- **Nightmares:**
 - i.e. a terrifying dream tends to be in the second half of sleep (it can wake the individual up),
 - it can be remembered in the morning
- **Enuresis nocturna (bedwetting at night):**
 - most often in children in the first third of sleep
 - is likely due to immaturity of the CNS,
 - tends to be potentiated by a stressful situation,

- as a preventive measure, limited fluid intake in the evening before going to bed and preventive awakening and urination during the night are recommended,
- it is possible to administer an anticholinergic (oxybutynin)^[4].
- **Bruxism** (teeth grinding).

Abnormal movements

- **Restless leg syndrome:**
 - unpleasant sensations in the lower limbs, which appear especially at rest in the heat in the evening before falling asleep,
 - retreat when moving the limb,
 - frequent, underdiagnosed, many patients are unaware of their movements
 - they appear most often in older people, during pregnancy and sometimes also in neuropathies and nephropathies.
- **Periodic movements of the lower limbs during sleep:**
 - rhythmic, stereotyped flexion movements of the lower limbs, which are repeated most often after 20–40 sec,
 - they wake up the patient and thereby cause a feeling of sleeplessness and sleepiness during the following day.
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Sleep disorders associated with a somatics or mental disorder :

- Sleep disorders are a symptom of:
 - psychosis;
 - affective, anxiety or panic disorders;
 - alcoholism;
 - Parkinson's disease;
 - Alzheimer's disease;
 - sleeping sickness;
 - asthma;
 - other diseases

MKN-10 classification

- **Non-organic sleep disorders**
 - **F51.0 Non-organic insomnia:**
 - a state of insufficient quality and quantity of sleep, which persists for a certain period of time,
 - difficulty falling asleep, interrupted sleep or early morning awakening.

Excludes: insomnia (organic) (G47.0)
 - **F51.1 Non-organic hypersomnia:**
 - a condition of excessive daytime sleepiness and sleep attacks (which are not attributed to lack of sleep),
 - prolonged transition to full wakefulness upon awakening

Excludes: hypersomnia (organic) (G47.1), narcolepsy (G47.4)
 - **F51.2 Non-organic disorder of the sleep-wake cycle**
 - a lack of synchronization between the individual's sleep-wake cycle and the cycle preferred by the environment, resulting in complaints of either insomnia or excessive sleepiness
 - psychogenic inversion of circadian rhythm, nyctohemeral rhythm and sleep rhythm

Excludes: sleep-wake cycle disorders (organic) (G47.2)
 - **F51.3 Sleepwalking (somnambulism):**
 - a state of disturbed consciousness in which the phenomena of sleep and wakefulness are combined
 - during a sleepwalking episode, the individual usually gets out of bed during the first third of the night's sleep and walks around, with a reduced level of consciousness, reactivity and motor skills
 - after waking up, he usually does not remember the whole event
 - **F51.4 Night terrors (pavor nocturnus):**
 - nocturnal episodes of extreme terror and panic, associated with intense screaming, mobility and strong vegetative symptoms,
 - the patient sits up or gets up usually during the first third of the night's sleep with a panicked scream, very often bangs on the door and wants to run away, although he usually does not leave the room
 - after waking up, he usually does not remember the whole event
 - **F51.5 Nightmares:**
 - a dream experience, charged with anxiety or fear, with a very detailed memory of the dream content,
 - experience is very vivid and usually includes themes related to threats to life, safety or self-esteem,
 - there is frequent repetition of the same or similar threatening themes,
 - in a typical episode, there is some degree of vegetative accompaniment, but not distinct vocalizations or body movements,

- upon awakening, the individual is quickly fully oriented and alert.
- **Anxious dreaming**
- F51.8 **Other non-organic sleep disorders**
- F51.9 **Non-organic sleep disorders NS;**
 - **Emotional sleep disorders NS.**

- **Sleep disorders (organic)**
 - G47.0 **Disorders of falling asleep and staying asleep (insomnia)**
 - G47.1 **Disorders of excessive sleep (hypersomnia)**
 - G47.2 **Sleep cycle disorders**
 - **Delayed sleep-wake phase syndrome**
 - **Irregularity of sleep-wake rhythm**
 - G47.3 **Arrest of breathing during sleep (apnoea)** (sleep apnea: central or obstructive)
 - Excludes: Pickwick syndrome (E66.2), Neonatal sleep apnea (P28.3)*

- - G47.4 **Narcolepsy and catalepsy**
 - G47.8 **Other sleep disorders**
 - **Kleine-Levin syndrome**
 - G47.9 **Sleep disorders NS**

Links

Related articles

- Sleep disorders and sleep-related illnesses/PGS
- Sleep apnoea syndrome

References

1. <https://learn.aasm.org/Public/Catalog/Home.aspx?pid=101>
2. * AMBLER, Zdeněk. *Základy neurologie*. 6. edition. Galén, 2006. pp. 203-205. ISBN 80-7262-433-4. AMBLER, Zdeněk – RŮŽIČKA, Evžen – TICHÝ, Jiří. *Základy neurologie*. 6. edition. Galén, 2006. 351 pp. ISBN 80-7262-433-4.
3. HOBZOVÁ, Milada. *Zástavy dechu ve spánku - diagnostika a možnosti léčby* [online]. [cit. 2017-10-17]. <http://www.denspanku.cz/wp-content/uploads/2015/milada_hobzova-OSA.pdf>.
4. * NEVŠÍMALOVÁ, Soňa – RŮŽIČKA, Evžen – TICHÝ, Jiří. *Neurologie*. 1. edition. Galén, 2005. pp. 227-234. ISBN 80-7262-160-2.

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