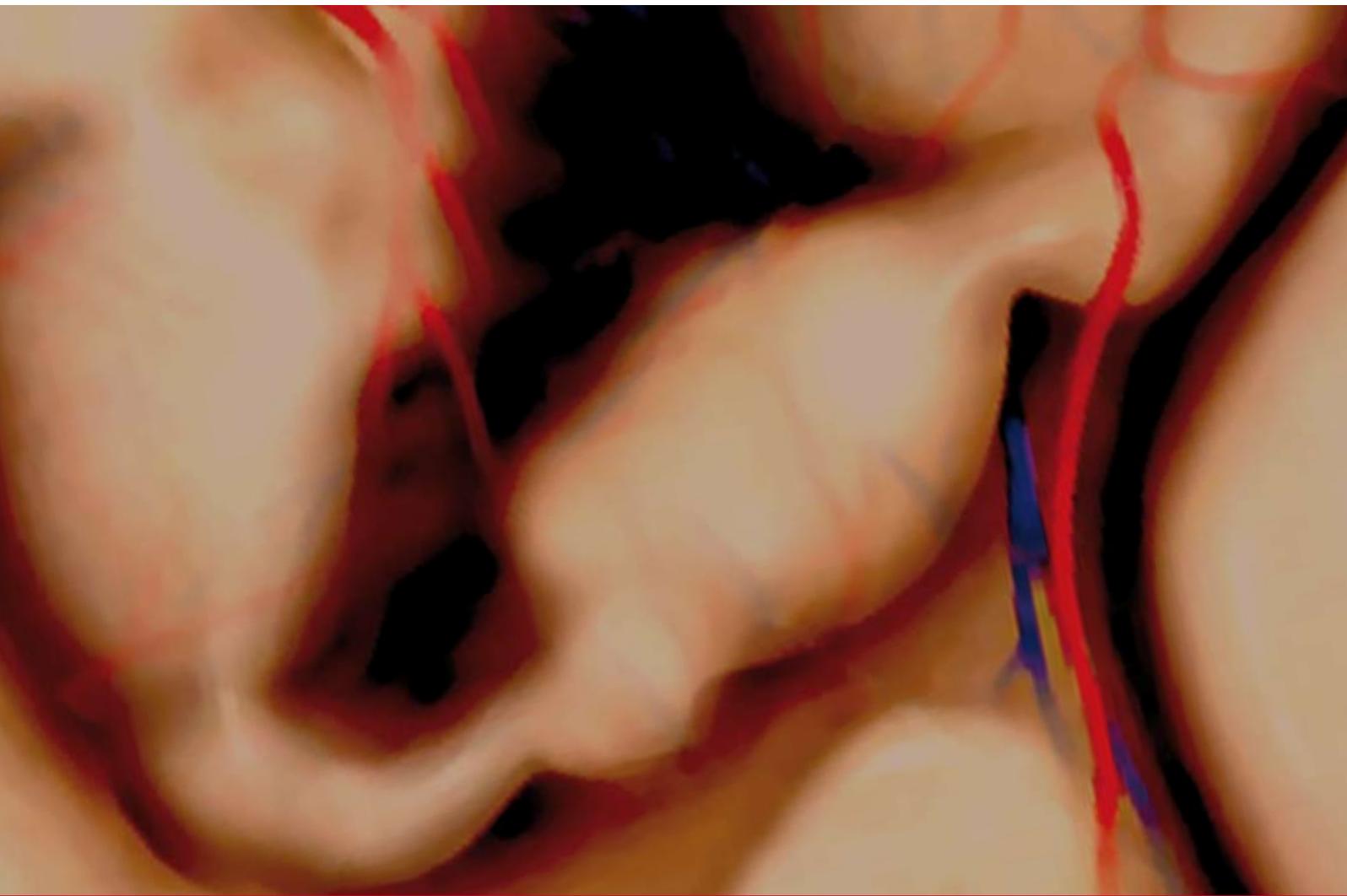


# Melatonin - Key for Successful Therapies

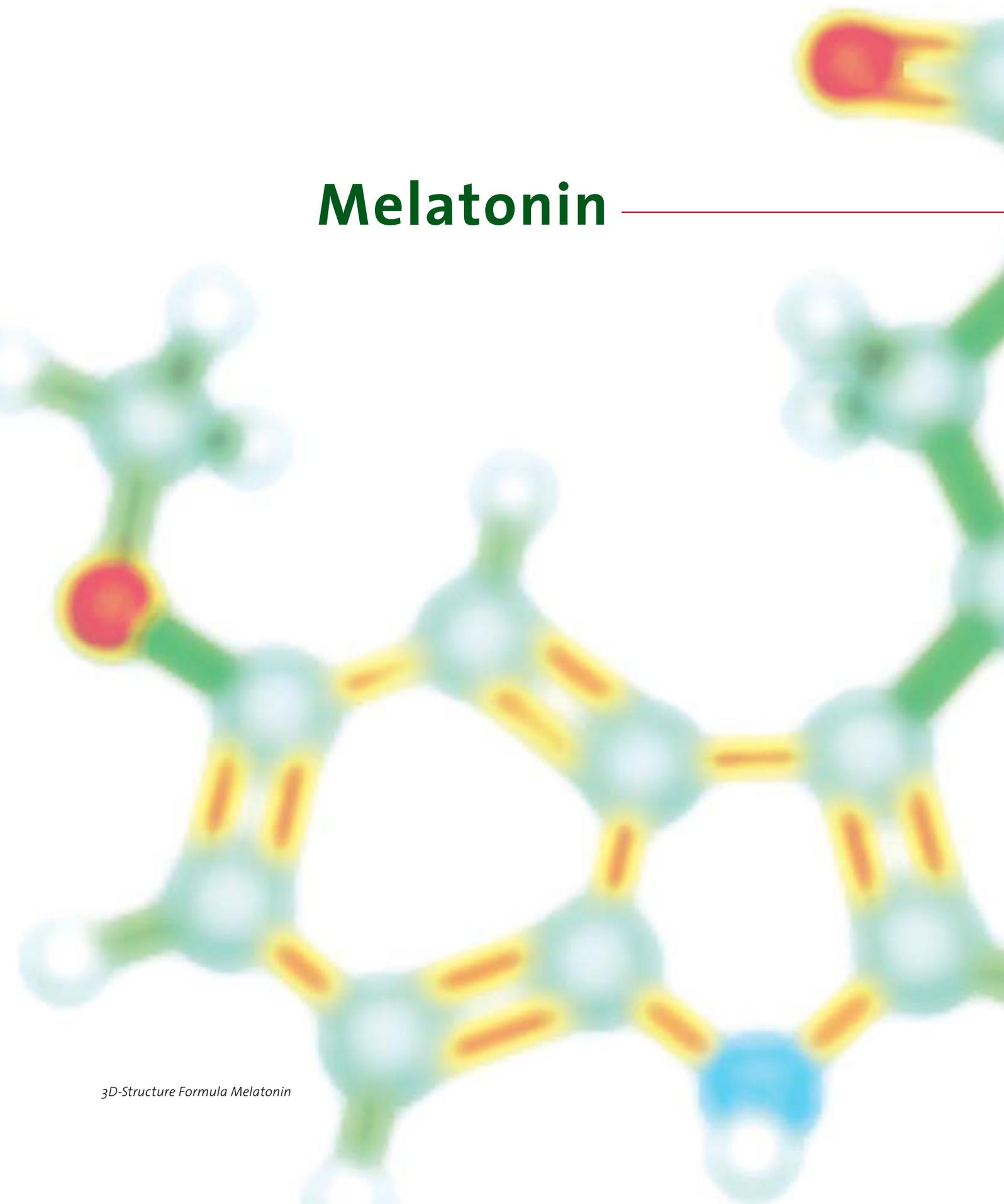


Sleeping Disorders, Burn-out,  
Jetlag and more

# Melatonin

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3D-Structure Formula Melatonin





***Melatonin – a hormone not to be underrated***

Melatonin is often called “**sleep hormone**” as its endogenous development depends on healthy sleep patterns. It is, however, not only important for healthy sleep (falling asleep and sleeping through without problems). The human “biological clock” is also set the aid of melatonin. Scientific studies in recent years show that melatonin is also significantly involved in the **metabolism of many organs.**

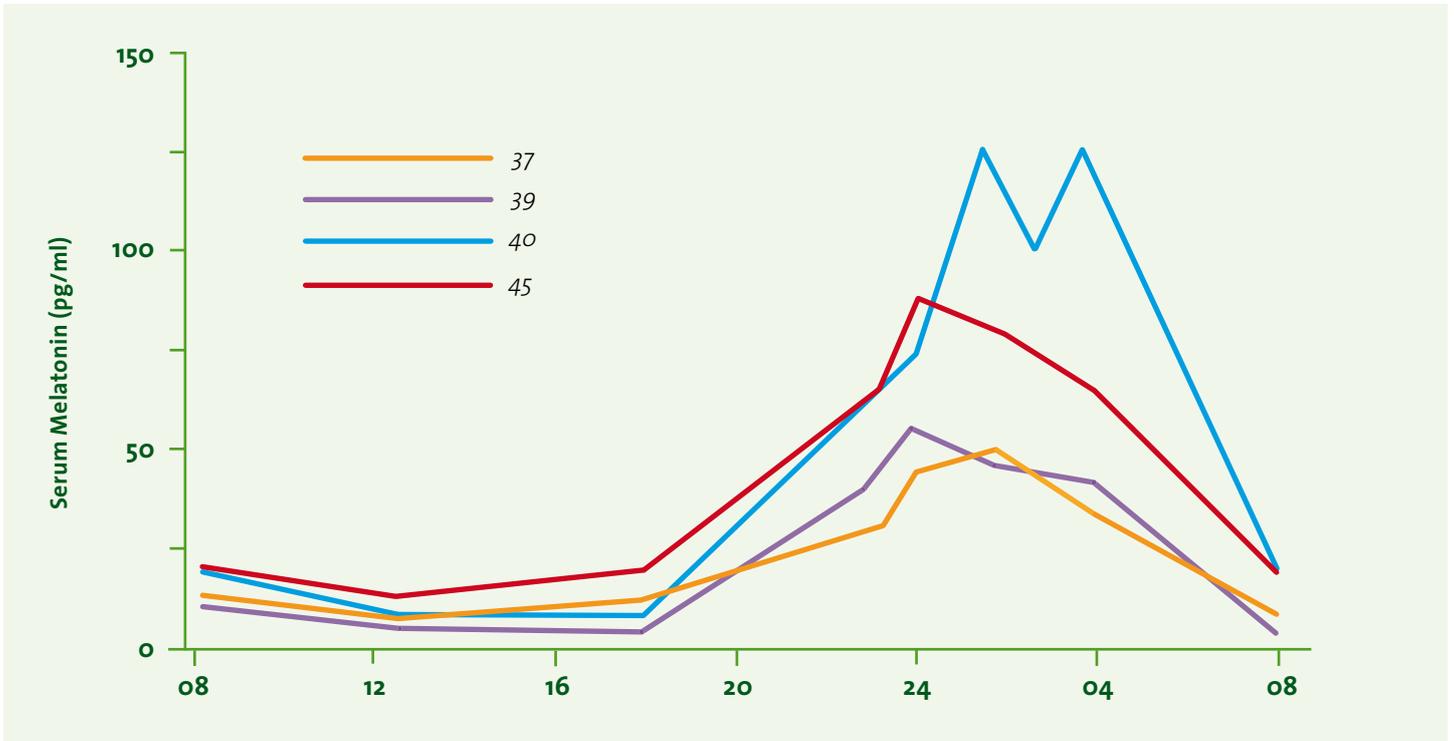


This is proven by the fact that melatonin receptors (docking sites) were found in cells of heart, liver, spleen, kidneys, thymus, retina and also in immune cells, thus providing for local melatonin activities. There are also other hormones, which need melatonin for their development – e.g. the growth hormone somatotrophin. It supports the **regeneration of the body** during the night. Furthermore melatonin positively influences inflammations in the body and not at last it is an **irreplaceable protection against oxidative stress**: Melatonin is much more effective in deactivating harmful radicals (especially peroxide and hydroxyl radicals) than other protective substances like glutathione or vitamins! Many good reasons to keep an eye on patients' melatonin levels!



## Darkness is required for melatonin production

Melatonin is mainly developed in the epiphysis (pineal gland, a brain structure). Darkness triggers the release of melatonin. The less daylight reaches the eye, the more melatonin is released by the pineal gland. The melatonin level reaches its highest values during the night – they may be up to ten times higher than during the day.



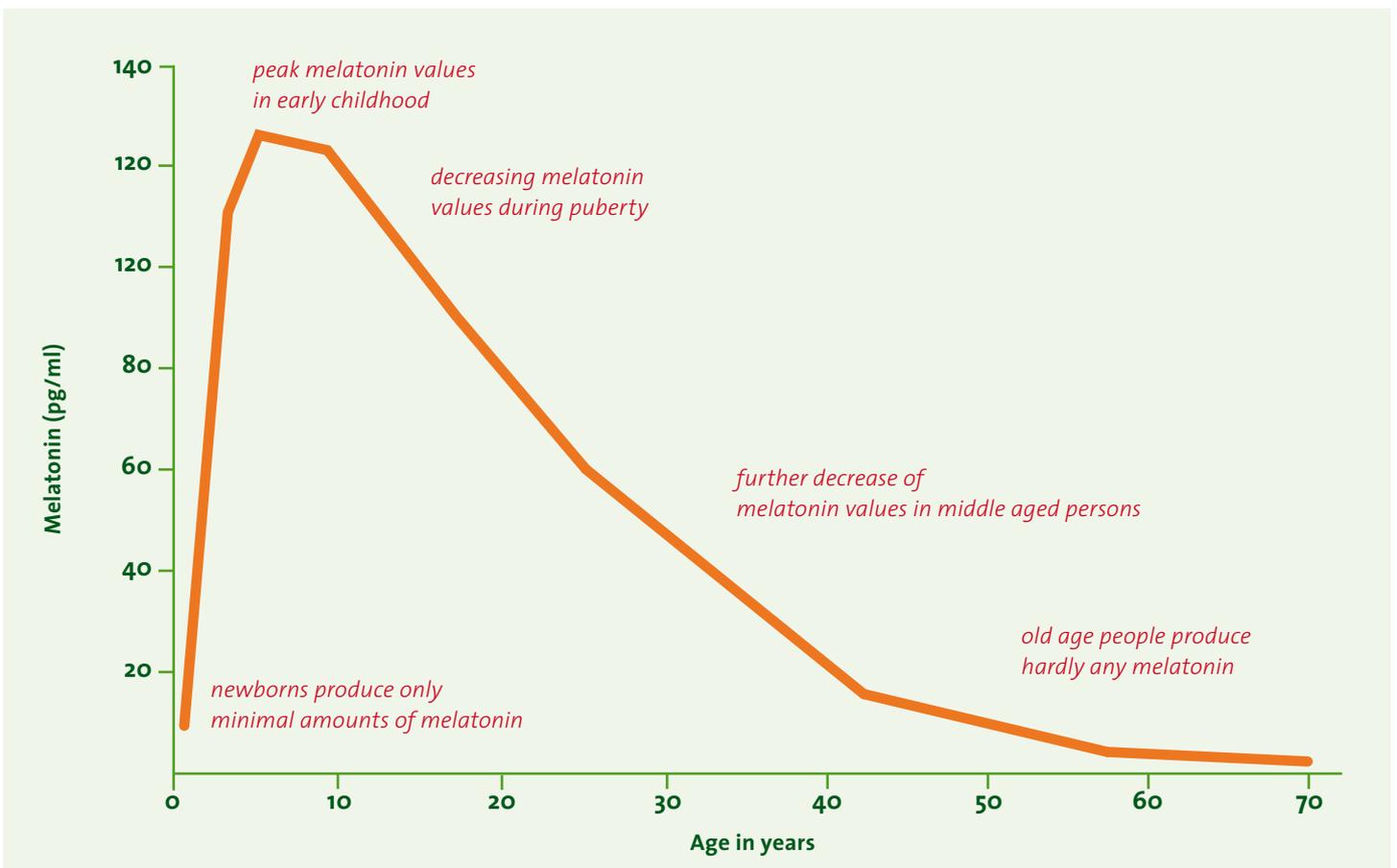
Picture 1:  
Diurnal Melatonin Release

Melatonin participates in the process of falling asleep. During dawn and darkness the melatonin level in blood increases. If for some reason or the other the melatonin release does not increase sufficiently, daily rhythm and sleep pattern are disordered: problems falling asleep in the evening, too little restful deep sleep or waking up during the night and not being able to go back to sleep. People concerned will be tired, tense and lack concentration during the day.

## There are many reasons for inadequate melatonin release:

### Age:

Melatonin development reduces with increasing age. Already at the age of 40 humans produce only 60 % of the melatonin developed by an adolescent. Therefore sleeping disorders in older age are often caused by low melatonin levels.



Picture 2: Melatonin Release in Individual Stages of Life

### Late Light:

Luminous stimuli in the evening or night may influence the release of melatonin. Especially blue-green light (460-480 nm wavelengths) prevents the release of the sleep hormone. Monitors emit high shares of this light. Computer work in the evening has a negative effect on melatonin development.



### **Light:**

Too little daylight or exclusively artificial light during the day may also lead to melatonin release disorders. True daylight during the day avoids sleep disorders during the night.



**Studies showed that the use of daylight lamps in old age homes improved sleeping disorders quickly.**



### **Time Change:**

Long distance flights crossing time zones will lead to the notorious jetlag; this is caused by the biological clock which remains set on the previous time zone. Over a period of several days after the flight melatonin release slowly resets the brain.

### **Shift Work:**

People working (possibly changing) shifts, always fight with their “biological clock”. Of course this also influences melatonin release and causes disorders of the natural rhythm.



### **Caffeine:**

Caffeine in coffee, tea or other drinks does not only stimulate circulation, it also reduces the melatonin level in blood. It is more difficult to fall asleep after drinking coffee.



## Nobody needs Bad Sleep

Sleep is very important for a healthy body. People suffering from sleeping disorders feel shattered, cannot concentrate, make mistakes and easily lose their temper. In the longer term lack of nocturnal recreation will lead to health problems: **cardiovascular complaints, headaches and high blood pressure may occur**, the **immune system** might be weakened and of course performance will fade.

Many burn-out patients also complain that bad sleep partly triggers the symptoms and undermines their present regeneration efforts.

In addition there is the lack of physical regeneration, which is normally provided by regular deep sleep phases during the night. In these sleeping phases, which are regulated by melatonin, larger quantities of the growth hormone somatotrophin are released. This ensures the healthy regeneration of somatic cells. **Good sleep, keeps young!** Melatonin plays an important role!

10 % of the German population suffer from severe sleeping disorders, which require treatment to avoid the listed complaints. The so-called “vicious circle of sleeping disorders” makes it even more difficult: To worry every evening that falling asleep might be a problem or sleep will be bad, may make sleeping impossible. The determination of the melatonin release can help to find the true malefactor and eliminate it with the aid of an appropriate melatonin therapy,

## If the diurnal rhythm is out of tune

Jetlag is unpleasant and may – especially during professional everyday life – lead to disadvantages: People, who have to fly a lot, may not be able to concentrate well during important meetings and negotiations for a few days. But jetlag does not have long-term effects on health, with the exception of **employees working in airplanes** and flying long-distance. They react similar to employees, who work under conditions, which constantly disturb the natural diurnal rhythm for years: Studies have shown that those shift workers have an increased **cancer risk**. The same of course applies for all people, who for other reasons suffer from disordered daily routine. For these groups of people the determination of the melatonin rhythm is helpful for starting well-aimed, health promoting “sleep hormone” therapies.

## Melatonin Deficiency – the Body Suffers

But not only daily rhythm and sleep are influenced by melatonin – this hormone has many other responsibilities:

The liver for example is the organ, which metabolizes melatonin in the body. During this process its metabolic products – just like melatonin itself – are strong **anti-oxidative protective substances** against destructive radicals. If the melatonin level is low, the liver can only metabolize small amounts and these protective substances are not available. Furthermore melatonin triggers the **development of enzymes**, which are responsible eliminating radicals in somatic cells. These enzymes are also reduced if the melatonin value is not high enough. In addition melatonin regulates the **DNA repair**. All these protective functions are impaired, if the melatonin value is reduced. **Increased cancer risk** – like found in case of shift workers – is the consequence.

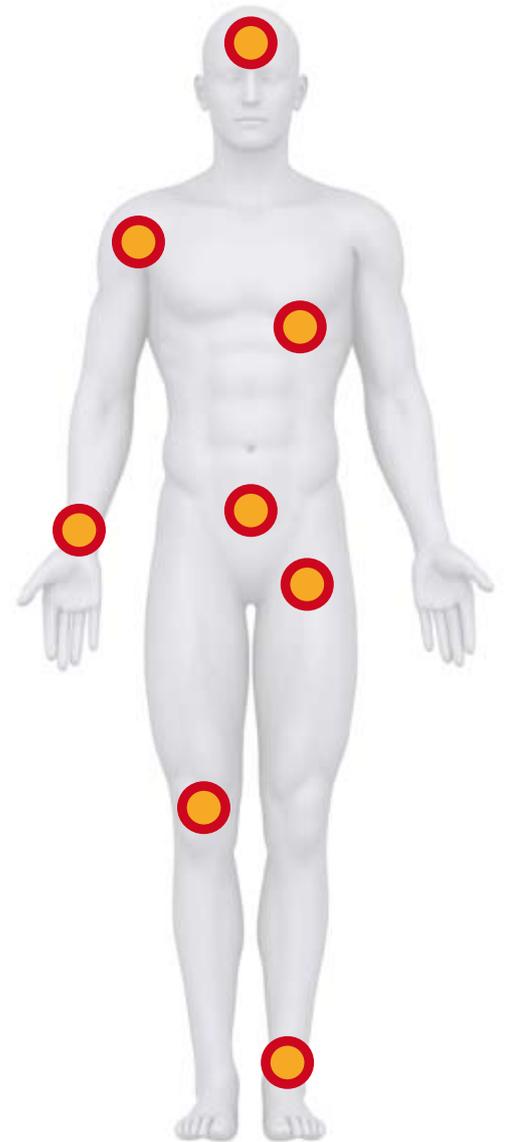
The effect of melatonin against radicals is also important for other organs. **Skin** needs melatonin for protection against **heat** and **UV-radiation**. The **eyes** use the hormone against **damaging influences of light**. Also the brain, which needs a lot of oxygen, protects itself with the aid of melatonin, as the hormone is able to pass through the **blood-brain barrier** and thus protects the **nerve cells** against oxidation. Also **nervous system** and **heart** are able to protect their cells against negative oxygen influences.

If the melatonin level in your blood is low you do not only lack sleep, but also all listed protective functions of the “sleep hormone”, in the long this may cause **serious diseases**.

## Melatonin Therapies

Patients suffering from following diseases may profit from melatonin determination and therapy:

- ▬ irritable colon
- ▬ burn-out
- ▬ headaches
- ▬ high blood pressure
- ▬ osteoporosis
- ▬ cancer
- ▬ and many more
- ▬ inflammatory diseases
- ▬ chronic fatigue syndrome
- ▬ nicotine withdrawal
- ▬ cardiac arrhythmia
- ▬ mitochondrial diseases
- ▬ psychic diseases



## Melatonin Analysis

If the body’s melatonin release rhythm is disordered or the blood concentration is below the normal level, it always severely influences the **quality of life and health**. Individual melatonin therapies will help in both cases. Deficiency as well as shifts of the diurnal rhythm can be detected and treated with the aid of melatonin analyses.

## The *biovis* Melatonin Test – Simple, Safe and Fast

*biovis* simply tests the melatonin release in saliva. The sample can either be taken in the surgery – or after short instruction – by the patient at home. This is of special importance if diurnal melatonin profiles (for which samples have to be taken during the night) are to be established to determine possible release rhythm fluctuations.

It is of great advantage that melatonin in saliva is very stable and no further sample processing is required (no centrifugation, no cooling, no light protection etc.). The patient can even send the samples directly to *biovis* by mail. The respective shipping bags are provided by *biovis*.

### The Advantages of the Biovis Melatonin Saliva Test:

- simple – no blood sample required
- comfortable – for you and the patient
- safe – melatonin in saliva is very stable, the sample does not have to be centrifuged or cooled.

**Do you have further questions?**

**Call us!**

**We gladly provide required information:**

**Tel. 06431-212480**

***biovis'***

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