

zu viel Lärm

🕒 Lesen 6 Minuten

What do high blood pressure, sleep disorders, cardiovascular diseases and constant irritability have in common? There are all possible consequences of too high a noise level in our environment.

Many people complain about noise, but only a few realize how harmful it can actually be. It is becoming increasingly clear that hearing loss and discomfort such as “ringing in the ears” in tinnitus are not the only things that should worry us about noise. After all, the evidence of non-auditory effects of noise on health is constantly increasing.

Wolfgang Babisch, a leading researcher in the area of environmental noise and senior researcher at the Federal Environment Agency, burdens noise - defined by scientists as “unwanted noise” - in addition to our ears, our heart and brain.

NOISE

In offices, disturbing sounds come from a variety of sources: air conditioners, intrusive ringtones, traffic noise, nearby construction sites, inadequate soundmasking systems, and especially the voices of others, explains Julian Treasure, executive director of The Sound Agency, an England-based consulting firm. Loud environments tend to get louder and louder, as people just speak louder as soon as the noise level around them increases (known as the Lombard effect).

The most common reaction to noise is annoyance. Babisch and this reaction is not at all as banal as it sounds. Noise brings us very easily out of the concept, because as humans we are programmed to pay attention to noises as a possible source of danger. This behavior dates back to the time when our ancestors in the wilderness were still confronted with many enemies. This sensitivity to noise is our neurobiological heritage – we are on permanent alert, so to speak, and noise easily upsets our balance. Laboratory studies in humans and animals have shown that noise levels irritate the nervous system, lead to high blood pressure and release stress hormones.

And as if these consequences were not bad enough, cognitive disturbances are another non-auditory problem that has been scrutinized by researchers. More than 20 studies in different countries have shown that environmental noise has a negative impact on the learning behavior of schoolchildren.

According to experts, the everyday noise in many offices without effective acoustic solutions has a significant negative impact.

First of all, it's about the nature of noise itself. Noise fluctuates, which according to Dr. Babisch is often perceived as more disturbing than a constant noise level and noise also includes conversations in the background that “distract more than broadband noise without any significant information content”.

“With regard to the cognitive aspect, there are currently many research projects that show that conversations between other people are among the most destructive sound images,” agrees Treasure. “The range of conversations in humans is about 1.6. That is, if you’re following a conversation along the way, you’re assuming a value of 1 out of the 1.6 range. Even if you did not want to listen, you can not prevent it, because unlike the eyes that you can close in doubt, your ears are always ready to receive. But that also means that you only have a value of 0.6 to listen to your inner voice. “

Even against the background of the work to be done, the noise level is an issue in most offices today. In a typical open-plan office, the frequency range of noises is between 60 and 65 decibels. At first, this seems little, if one compares this value that of a busy highway with 85 decibels or a refrigerator, which buzzes after all, with 40 decibels in front of him. Nevertheless, it is a volume that makes cognitively challenging tasks difficult. Against the background of these findings, the Association of German Engineers (VDI) has introduced nationwide noise emission standards for the various activities. While 70 decibels are for simple and largely transactional office work (ie activities with frequently recurring similar operations, for which no special expert knowledge is necessary), the threshold for “predominantly mental work”, as defined by the association, is 55 decibels. Tasks that fall under this definition are described by the VDI as highly complex and demanding tasks involving creative tasks, decision-making processes, finding solutions to problems, and effective communication – the kind of knowledge work that leading companies bring to the forums Bring the tip.

“Research shows that the biggest noise is caused by conversation.”

JULIAN TREASURE

The recommended noise level for mental work is for participation in interviews and meetings as well as for the execution of individual work. The VDI even recommends that office workers entrusted with teamwork or individual work with mental tasks have the same noise limits as doctors performing operations.

The usual noise level of 60 – 65 decibels in open-plan offices is not only too loud to concentrate, but it also inhibits efficient cooperation through acoustic overlays. Like Dr. As Babisch explains, the sound level of a conversation is about 60 decibels at normal volume and without raising the voice and at a distance of about one meter between the participants. This means that all other sounds within this range, such as a person speaking nearby, cause auditory impairments and thus not all words can be fully understood. He adds: “Nevertheless, a sentence can be understood due to cortical processes. However, this is an active process that can have negative long-term effects on chronic noise pollution.

“In other words, employees who are in a noisy environment with poor acoustics are always stressed to the same extent, regardless of whether they try to understand others or try not to hear others – an inescapable dilemma.

According to Treasure, the solution is to create a variety of work environments, each of which will be developed in the light of the activity and the people working in it. Work environments need not only be geared towards an outward appearance, but also to all senses, especially to the ear. "Sharpening our awareness of sound is a new tool in designing workspaces," says Treasure. "With good acoustics, environments are simply becoming more productive."

Solutions to noise problems in the workplace are not easy to find. Four walls and a door do not necessarily provide for good acoustics, because noise creeps like water through the smallest cracks. In all surrounding areas, noise emissions can either be sealed, absorbed or laminated. Each of these methods has advantages and disadvantages that must be carefully considered, as the control of noise emissions within permissible tolerance levels has become an absolute design requirement and important metric for overall room efficiency.

Expressway:

85db

Open-plan office : 60-65db

Fridge:

40db

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