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Deodorant challenge: abuse can seriously damage health

The “deodorant challenge” is a dangerous misuse of deodorants that is currently circulating on social media. Participation is seen as a test of courage, especially by young people, and is documented accordingly with photos and videos. Two versions of the aforementioned challenge are particularly widespread. The first one involves spraying the deodorant on the same patch of skin for as long as the person can endure. In extreme cases, temperatures can drop to as low as -30 °C within a few seconds. Depending on individual sensitivity, this can cause pain and, in the worst case, severe skin damage. The second version even encourages inhaling the deodorant spray, which can immediately lead to loss of consciousness, heart failure and respiratory paralysis. The media have since linked deaths of young people in Germany to the “deodorant challenge”. As a result, the German Federal Institute for Risk Assessment (BfR) advises all persons, regardless of their age, against copying these actions, which are highly dangerous to health and sometimes life-threatening.

In extreme cases, the deliberate, close and continuous spraying of the skin with deodorant can lead to the affected area of skin necrotising (“dying”) and having to be replaced since “cold burns” appear. The temperature reduction on the skin is not the result of a specific chemical effect, but a physical effect caused by the release of the compressed propellant. Cold burns are a special case of frostbite and display similar symptoms to “classic” burns. When a very cold substance comes into contact with the skin, the water in the affected skin cells freezes. Ice crystals form, which cause the proteins in this area to denature, in other words, to change their structure, meaning they can no longer perform their function. Pain receptors in the skin then no longer function, which leads to pain signals being unable to be transmitted to the brain and the spraying continues, although there might already be severe skin damage. It is not yet fully understood what other processes take place in the affected area and lead to damage. Tissue damage varies in terms of severity and depth depending on how long the very cold substance acts on the skin and how large the temperature reduction is. Skin grafts may also be necessary under certain circumstances.

The “deodorant challenge” can also call upon people to inhale aerosols from deodorants. This can have serious consequences depending on the composition. Skin is a good barrier for pollutants. Lung tissue, on the other hand, is a much less effective barrier (gas exchange between lung alveoli and blood vessels must be ensured).

After excessive intake via the lungs due to misuse, certain ingredients in the spray can enter the body in high concentrations, notably damaging the heart and brain. The spray can also displace the normal breathing air in the lungs, which can lead to a severe oxygen deficiency. In addition to rather mild symptoms, such as dizziness and vomiting, there can also be severe symptoms, such as respiratory dysfunction, epileptic seizures and circulatory failure. Severe cases can be fatal or lead to permanent brain damage.

Further information on the topic of chemical safety is available on the BfR website

Topic page on risk assessment of chemicals under REACH:

https://www.bfr.bund.de/en/reach___the_new_european_chemicals_legislation-9749.html

Topic page on the health assessment of cosmetics:

https://www.bfr.bund.de/en/health_assessment_of_cosmetics-570.html

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