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15 February 2024

# **OSHMed Health Magazine**

# THE CHEMISTRY HAS TO BE RIGHT: HOW LOVE IS CREATED

Additional: DONATION FROM THE SAFMED PHARMACY • NAVIGATING THE HIDDEN DANGERS OF CONFINED SPACES

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internationa

There are no words that can express our deepest regrets over the loss of our his Excellency Dr. Hage G. Geingob

We pray his memory will bring you peace and comfort over the coming months.

Our thoughts and prayers are with his Family and the people of Namibia

May his soul rest in peace. The team of E.M.A.



The E.M.A. nonprofit organisation received a donation from the Safmed Pharmacy at the Hidas Centres, Klein Windhoek.

At the hand over, Safoora Adam, Pharmacist of SafMed said important words: "E.M.A. plays a crucial role at the communities. However, the success of these organisations heavily relies on the support and contributions they receive from individuals and businesses as we did from then Safmed Pharmacy."



E.M.A. is a nonprofit organisation dedicated promoting Health Care development in the Windhoek community. Its mission is to raise awareness about health issues, provide Emergency Medical Care, and initiate projects that contribute to a healthier living environment. However, to achieve these objectives, support is essential.

Donations are vital for the E.M.A. nonprofit organisation. They the necessary financial resources to operate, implement programs, and fulfill the organisation's mission. Without donations, E.M.A. would struggle to make a meaningful impact and reach their goals., donations help build trust and credibility, attracting more supporters and volunteers to the cause.

The donation from Safmed Pharmacy, at the Hidas Centre, is a significant contribution to E.M.A.'s efforts. Firstly, the support allows the organisation to equip the emergency care programs to the public. It enables E.M.A. to assist the public for various of emergencies.

In addition to community engagement, the donation from Safmed Pharmacy strengthens E.M.A.'s organisational capacity.

Fabian Martens, 1st Chairman of E.M.A. said: "With every donation received, E.M.A. can enhance its efficiency and effectiveness in achieving its mission. Donations play a crucial role in supporting and financing our nonprofit organisations. It enables us to make a positive impact on society. Safmed Pharmacy's contribution serves the public and is highly appreciated."



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# The chemistry has to be right: How love is created

Good feelings have their own material basis. But dopamine and the like don't just decide who we want to give our heart to. They are also important for health.

Goethe called it "happiness without rest". Rilke called it a "shining with inexhaustible oil". And Plato, the ancient Greek philosopher, somewhat less romantically described "a mental illness". Love has not let and will not let go of poets and thinkers alike. And they are not alone.

#### Hormones

For love, the chemistry has to be right The majority of Germans believe in great love. Even more than half of singles are convinced that there is a person for them. That one person with whom they can – and want to – share happiness and joy for a lifetime. But for this to happen, it is not just the will or an attractive counterpart that is enough. The chemistry has to be right if two people are to find each other. To be more precise: the messenger substances have to dance!

The interaction of hormones leads to love These messengers include hormones and neurotransmitters. Anyone who thinks of sex and therefore testosterone and estrogen is not entirely wrong. Sex hormones are essential for the development of the body and important for pleasure in love. But love is more than sex.

It is exhilaration, tingling, passion, trust and not just literally an addiction. Among the messenger substances that accomplish all this, dopamine, oxytocin and serotonin play a central role. There are also stress hormones such as cortisol and adrenaline. Some substances are small and only occur in the nervous system. There they act as messengers between the nerve cells. They are called neurotransmitters. And there are the hormones that act on organs throughout the body, which of course also include testosterone and estrogen.



But what do these substances do, when do they do it – and what is their effect beyond feelings? Research into messenger substances as body regulators has been going on for decades. It is thanks to people like Professor Andreas Bartels that we now know more precisely how love and chemistry are connected. The neuroscientist was one of the first to



# WHAT IS LOVE?

look into the brains of lovers at University College London - together with his colleague Samir Zeki. "I was really amazed at how clear the results were, I wouldn't have expected that," says Bartels, who is now doing research at the university.

# Oxytocin makes the hearts of lovers beat faster

Bartels and Zeki asked couples to lie in a magnetic resonance imaging scanner for research. The selection of the participating teams was based on the intensity of love. The couples had been together for an average of two and a half years at the time of the study.

# Biology ensures love, whether with a partner or child

But such feelings are not the privilege of lovers. In Bartels' experiment, mothers looking at photos of their toddlers showed the same reactions. The neural networks fired like those in lovers and stimulated the production of oxytocin and another messenger, vasopressin.

For the neuroscientist, this is proof that he has discovered a general bonding mechanism: "Whether it's romantic love for your partner or your own child – biology ensures that two individuals bond with each other." That may sound almost sober, but that's what Bartels thinks not that at all. He still thinks love is "something magical."

Compliments activate the emotional center in the brain

Beate Ditzen, professor of psychology, is on the trail of the ingredients of this magic. She finds compliments particularly convincing. The researcher attests that they have "a very wonderful effect". The finding is based on a study for which the scientist developed a questionnaire that covered different facets of the relationship life of a partnership - such as



everyday life, leisure time, finances, sex. The couples were asked to think of what positive things they could say to each other about each of these sections.

Like Andreas Bartels before her, Beate Ditzen examined the play of messenger substances using an imaging technique, functional magnetic resonance imaging (fMRI). It shows which areas of the brain are particularly well supplied with blood and therefore particularly active. For the compliment study, the pairs were examined in parallel while one person praised the other.

"The result was impressive," remembers the researcher. The praising sentences illuminated parts of the brain that belong to the limbic system - a center for emotions. Interestingly, this was not only the case in the brains of those who received compliments, but also in the praisers themselves. "Apparently it is not only good to receive praise, but also to say it," says Ditzen. The professor suspects that compliments can have positive effects in all social relationships. "The prerequisite, however, is that they do not come across as empty phrases, but are credible."

# Dopamine, serotonin and oxytocin ensure satisfaction

The body's own pharmacy of happiness can be activated even without romance. Anything that triggers enthusiasm sets off control circuits in the brain that not only bring about feelings of exhilaration, but also health. For adventurers it may be a rocky mountain bike tour, for choir members it may be a big performance together, for grandparents it may be playing with their grandchildren - the processes in the body are similar.

Dopamine is created in anticipation of the good feelings; When what is hoped for occurs, serotonin and oxytocin also appear. In addition, the body can produce cannabinoids and endorphins, pain-relieving, partly calming, partly euphoric substances that arise from deep satisfaction with what has been achieved. All of these different messenger substances work together in a dynamic, networked system. As in a piece of music with different instruments, each material plays its part.

Love promotes health and combats stress The beautiful thing about love is that it promotes a love of life and joy. And she has a gift in her luggage: health. The neurobiological mechanisms that it sets in motion have a positive effect on physical and psychological well-being. Another messenger substance also plays a role in this: nitric oxide, a small chemical compound that dilates blood vessels, lowers blood pressure, relieves the cardiovascular system, calms overstimulated nerves and ensures relaxation throughout the body.

Positive feelings are, in themselves, a



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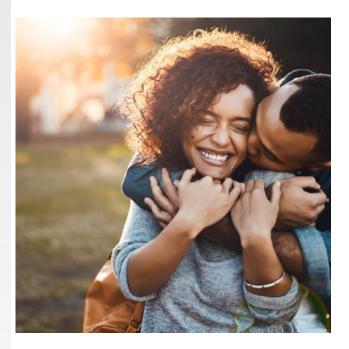


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mechanism with which we reduce stress and regain balance. Emotional wellbeing, experts have repeatedly observed, is associated with a lower risk of cardiovascular disease. The quality of sleep improves, stress hormones decrease and the chance of a longer life increases.



Research uses oxytocin in medications The pharmaceutical industry and medicine are also taking advantage of the knowledge about the health benefits of feel-good chemicals. Most modern antidepressants aim to increase the concentration of the messenger serotonin at the contact points of the nerve cells in the brain. Medications that increase dopamine levels are used to stabilize circulation.

Oxytocin is used to induce or increase contractions. However, research is now

trying to do much more with the bonding hormone. The focus is on psychological suffering that is characterized by social deficits: the cuddle hormone is intended to help people with autism, borderline personality disorder and schizophrenia to empathize with others or to socialize without fear.

Oxytocin can be administered as a nasal spray. Above all, dozens of studies have suggested that it will be difficult to imitate the finely tuned interaction of the hormone with other messenger substances by administering a daily spray into the nose.

Initial small-scale studies using such oxytocin doses showed that people with autism, for example, could benefit and interact better with others socially. However, large studies have long since disappointed this hope. A publicly funded study of almost 280 children with autism found no difference in the effects of oxytocin and a dummy drug. Nevertheless, the hormone is still used as a drug in so-called off-label use for the treatment of autism.

#### Oxytocin can have negative effects

The first concerns arose more than ten years ago that the effect of oxytocin might be viewed in a one-sided way namely, consistently positive. But what if the cuddle hormone also has a dark side?

Psychological tests on healthy men

indicated that oxytocin strengthens ties to one's own social group. This is the "prosocial" side. At the same time, and this was unexpected, the hormone increases the willingness to reject outsiders or to respond aggressively to them. And as a medication, the hormone also proved to have a surprisingly mixed effect: In people with borderline personality disorder, a study showed that the hormone can trigger the opposite instead of social rapprochement: those affected even increased their fear of loss.

# Everything that is fun produces happiness hormones

Although the cuddle hormone is being further investigated in research by Professor Ditzen, it is by no means suitable for self-experimentation and it is not for nothing that it requires a prescription. It's easier for healthy people to enjoy the feel-good substance in a completely natural way, says Ditzen. Whether alone or together, in partnership or friendship, just a nice, fun activity can stimulate the production of not only the cuddle hormone, but also all the other feel-good hormones. Because they always arise when we feel good, experience joy or surprises.

In short: Everything that is fun also produces happiness hormones - see info box below. They may not reach the level of those who are deeply in love. But the more imaginative and surprising the ideas are, the greater the chance of good feelings.

Inspiration for such experiences can be found not least in research. The psychologist Beate Ditzen, for example, recommends taking a look at the suspension bridge experiment from 1974. In it, the American psychologists Donald Dutton and Art Aron used an experiment on two pedestrian bridges over the Capilano Canyon in North Vancouver, Canada, to show that shared thrills increase the attraction of the Strengthens the other person.



A woman was perceived to be much more attractive on a rickety suspension bridge swaying over boulders in a storm at 70 meters than on a boring, stable bridge at low altitude. "If you want to woo someone, you could go on a climbing trip together," says Beate Ditzen and laughs. The combination of adrenaline and shared fun could create that special something.

Eye contact creates feelings of love But it can also be done a little less daringly. "The most effective way to



trigger a feeling of love is eye contact," says Professor Judith Mangelsdorf from the German University of Health and Sport in Berlin. This effect of eye contact is not only noticeable for couples in love. "Love is the brief moment of connection that we can feel with every person, even if they are actually strangers to us," says the positive psychology expert. Any encounter is suitable for this - whether with friends, colleagues or the cashier in the supermarket.

While you look at each other, a special feeling of connection arises. "It's a fascinating mechanism," says Mangelsdorf. The messenger substances in the head create a synergy for a moment. Then it doesn't matter whether there is romance involved or just a brief moment of togetherness. "The happiness of love always rests in the we."



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# Navigating the Hidden Dangers of Confined Spaces

Understanding the invisible dangers and the critical importance of preparedness in confined work environments.

Your workmate enters a confined space and collapses. What do you do? Most would follow their instinct and try to immediately rescue him. The problem is, would-be rescuers account for 60 percent of fatalities in confined spaces.

According to Certified Safety Professional Mark Cangemi, Senior Technical Training Specialist at Honeywell, an overall lack of training and hazard recognition contributes to these risks. He adds, "The No. 1 cause of fatalities in confined spaces is preventable atmospheric hazards." When a person collapses due to invisible hazards, the same dangers are present for those attempting a rescue, putting them at risk of succumbing to the same hazard as the initial victim.



The Occupational Safety & Health Administration (OSHA) defines confined space as any space that:

- 1. Has limited or restricted means of entry or exit
- 2. Is large enough for a person to enter to perform tasks
- 3. Is not designed or configured for continuous occupancy

OSHA mandates testing the confined space atmosphere in this order:

- For oxygen
- For combustible gases
- For toxic gases and vapors

Examples of confined spaces include wind turbines, sewers, manholes, storm drains, crawl spaces, septic tanks, silos, vats, boilers, pumping/lifting stations, ducts, pipelines and more. They are located across numerous industries and may be encountered in virtually any occupation. The main reason workers enter confined spaces is to perform their work functions of routine maintenance, repairs, and inspections of the confined space.

#### **Permit Spaces**

If confined spaces are present on a worksite, the employer must have a competent person determine whether the confined spaces are "permit spaces." A permit space has one or more of the following characteristics: (1) contains or has the potential to contain a hazardous atmosphere; (2) contains a material that has the potential for engulfing an entrant; (3) has an internal configuration such that an entrant could be trapped or



asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section; or (4) contains any other recognized serious safety or health hazard.

If employees are expected to enter permit spaces, the employer must develop a written permit space program and make it available to employees or their representatives. They must meet the guidelines established by either Federal or State safety standards and regulations. This may include issuing entry permits, assigning attendant(s), designating entrants, and ensuring a means of rescue.

Gaining a permit also requires testing the confined space atmosphere using equipment designed to detect chemicals and gases that may be present. Even once given the all-clear to enter, if a worker exits the space and later needs to re-enter, the atmosphere needs to be tested again.

Top Confined Space Hazards: Lack of Oxygen, Hydrogen Sulfide, Carbon Monoxide

If a workplace contains a permit space, the entry employer must protect its workers against the hazards present. Potential risks include explosions, loss of consciousness, drowning, asphyxiation, low oxygen levels and more. The protection that is required depends on the type and severity of the hazards present in the permit space.

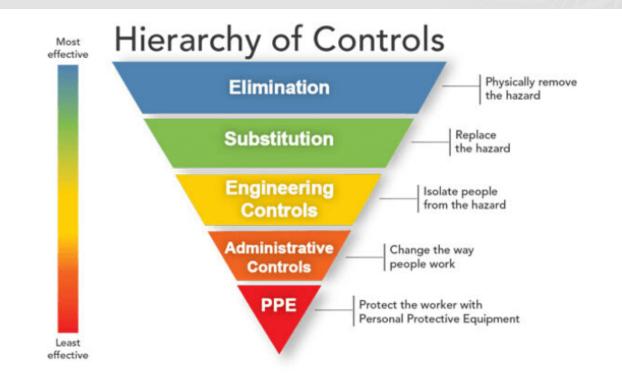
Since many serious and fatal hazards are invisible, confined space testing can mean the difference between life and death for workers. For example, a space that lacks oxygen is not readily apparent. In a rusty tank, the oxidation process, which creates rust reduces the level of oxygen in the air. Entering a rusty, confined space can be as deadly as entering a fuel tank.



According to OSHA and the National Fire Protection Association (NFPA), the atmosphere of a confined space is only safe for workers when:

- Oxygen concentration is 19.5 to 22 percent by volume.
- The concentration of a flammable vapor in the atmosphere is less than 10 percent by volume of its lower explosive limit.
- Any toxic materials in the atmosphere





- are within permissible concentrations at the time of inspection.
- The residues and chemicals remaining in the confined space are not capable of producing toxic material concentrations above that permissible level.

The effects of exposure to an oxygendeficient atmosphere are swift and can be irreversible, even fatal. From the moment a person enters that space, they're effectively impaired. The oxygen content within the blood starts to drop. This affects the brain, causing a loss of coordination and impairing judgment. The person likely will not be able to find his or her way out of the space, or could lose strength, fall and lose consciousness. This process can occur in less than six minutes, so there's little time for rescue. While it's not as common as low oxygen, too much oxygen (over 21 percent) is also dangerous to the occupants of a confined space. It increases the risk of fire or explosion and can be detected only by using a properly calibrated oxygen monitor.

Even if oxygen levels are normal, there may be hazardous contaminants in the air, like hydrogen sulfide (rotten egg smell) and carbon monoxide, which is odorless and colorless.

OSHA requires that all employees who enter and work in confined spaces be trained by their employer to perform all required duties safely. These spaces can present physical and atmospheric hazards that can be prevented if addressed prior to entering the space to perform work. The bottom line is that no confined space is safe to enter until it has been tested and determined to be safe by a competent person. An untested space is immediately dangerous to life and health (IDLH).

#### **Hazard Recognition**

The causes of most confined space entry incidents are simple: employers and workers fail to recognize and control the hazards associated with confined spaces, and they conduct inadequate or incorrect emergency responses, resulting in the death or injury of the initial entrant, the would-be rescuer, or both.

Pre-planning for confined space entry should include all pertinent parties and involve reviewing entry procedures as well as covering specific hazards inherent to the spaces being entered. Cangemi adds, "It's important for employers to recognize if their confined spaces require vertical or horizontal entry and access in order to determine the correct PPE for the application."

Individuals who work in confined spaces must be aware of the risks involved and how to prevent them. Hazards in confined spaces can be deadly because of the potential for engulfment, oxygen deficiency, oxygen enrichment, flammable gases or vapors, combustible dusts, toxic substances and other physical hazards. Other health hazards that could impact employee safety include electrical equipment, mechanical equipment, poor visibility, biohazards, claustrophobia, noise, radiation, and temperature.

#### Safety Training

Senior Technical Training Specialist Mark Cangemi points out, "In my opinion, the biggest problem is employers not fully understanding the risks associated with their specific confined spaces." He recommends companies invest the time and money to educate themselves on the particular hazards and proper solutions for their confined space workers.

Learning about and understanding confined spaces is crucial. Cangemi continues, "People die because of a lack of information; because there are no safety plans in place for rescue. Awareness is everything."

He also adds that employers should provide the most effective safety equipment and invest in the training to use that equipment properly to control the hazards. "And remember, a welldesigned and properly executed rescue plan is a must."

Confined space rescue and descent operations require top-level safety solutions to help keep workers safe. Enclosed spaces or working at height expose workers to high risks of fire, explosion, loss of consciousness, asphyxiation, or falling. Fall protection PPE and portable gas detectors are valuable tools in the effort to prevent



serious (and fatal) injuries. Possessing the appropriate safety products, tools, space rescue systems, descent devices and rope descenders are essential for helping to save lives in confined spaces.

Safety training also helps companies avoid penalties and injuries by ensuring the highest quality training

Who is required to take this training? 1.) People supervising confined space entry and 2.) Anyone entering and working within a confined space, along with attendants (those who are tasked with assisting with the entry, but not actually entering themselves).

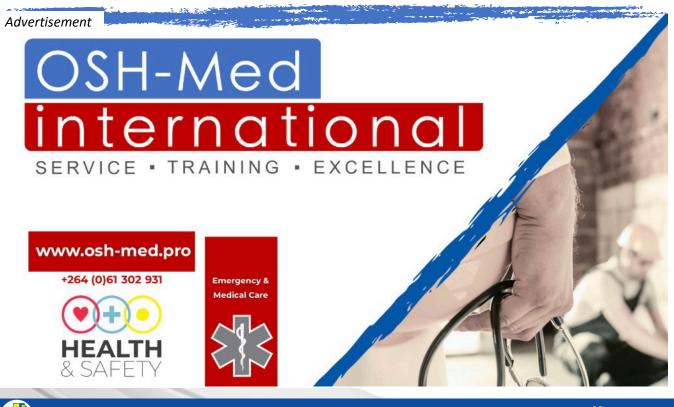
Circling back to the opening scenario, what should a person do if a workmate collapses in a confined space? Senior Technical Training Specialist Mark Cangemi concludes: "What you should do is follow the hierarchy of rescue, the steps of your company's exact rescue plan and procedures established for this specific confined space and work scenario. This plan needs to be developed, practiced, and reviewed for effectiveness."

His final advice for confined space employers and workers is simple: "Be safe. Be compliant."

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