

What is the relationship between stress and heart attacks?

Stress and heart attacks are strongly connected. However, this subject deserves closer attention. Nowadays, stress can mean many things: pressure and strain in every aspect of life; everything which requires an effort or is irritating is understood to be stress. In this sense, our everyday life would thus be a risk factor for heart attacks. But this is surely wrong.

The many faces of stress

As is well-known, a differentiation is made between positive and negative stress. Tension and effort, even when experienced over a longer period of time, that lead to success and make it possible to carry out important tasks or to solve personal conflicts, are clearly of a positive nature. They are necessary if one is to achieve personal satisfaction. Such stress has a positive effect on health.

It is different if one works like crazy and in the end all the work is in vain. It is particularly damaging if at the same time, one's self-esteem suffers. If, in a work situation, one has to take over the tasks of one or two colleagues, whose jobs have been axed due to savings cuts, wearing oneself out, doing overtime for fear of losing one's job, receiving no recognition and then finally to fail – this kind of negative psychosocial stress puts a great strain on health.

Stress is particularly a cause of illness when it is accompanied by a feeling of personal defeat, powerlessness, and a feeling of injustice and hurt. Unfortunately, heart patients often lack the necessary antenna to recognize such injury, be it experienced among colleagues or friends, in a partnership, or even in a competitive situation with one's own adolescent children. In his or her own subjective view of the world, the heart patient always has everything under control, so that the hurt remains bottled up inside, doing its damage from within.

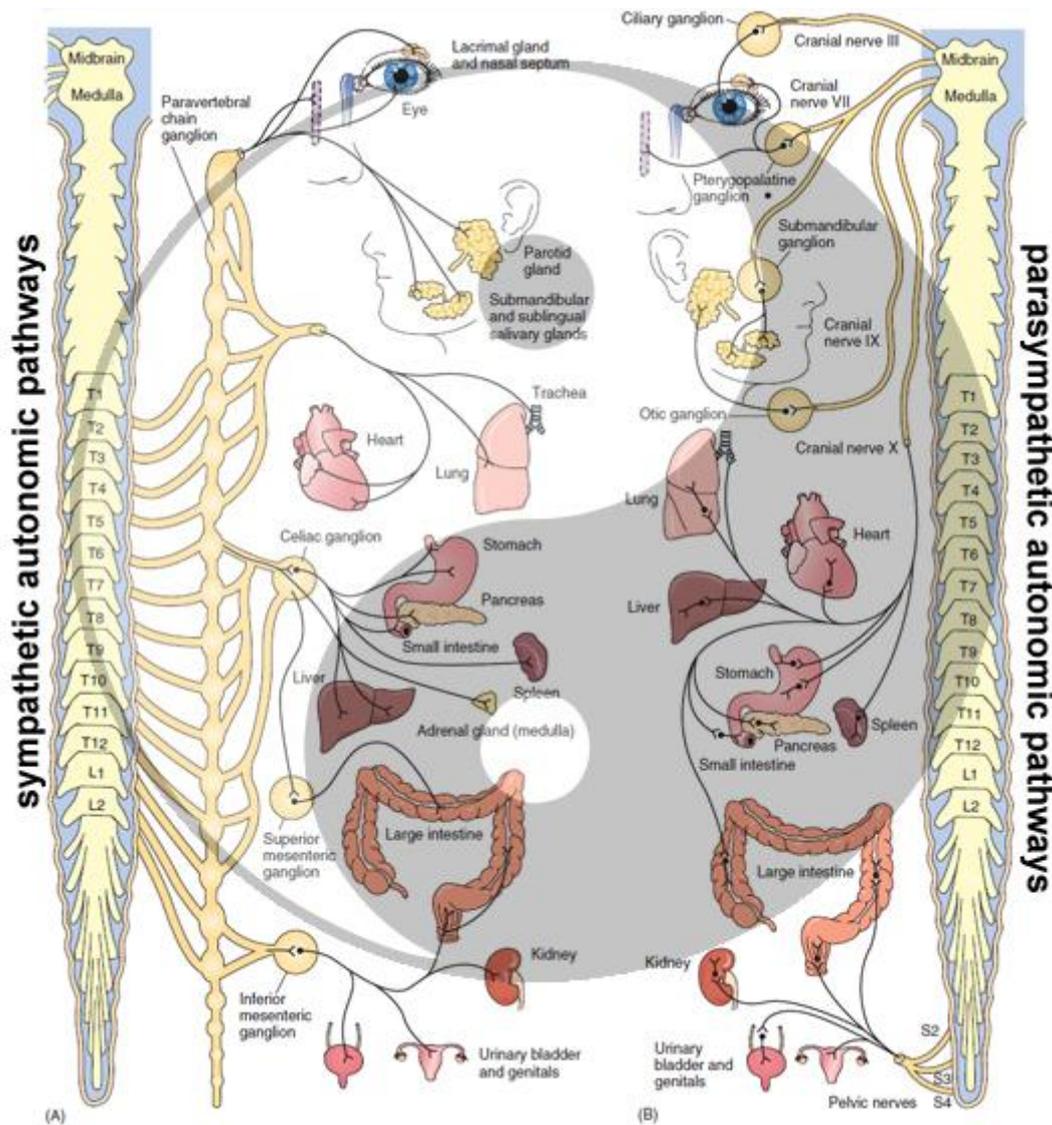
To make it clear how such stress can cause illness and may even lead to a heart attack, I must unfortunately go into greater detail. But this will not bore you! Among the general public there are only very simplified, and due to their simplicity, false conceptions of how the heart activity is regulated. A certain amount of knowledge is, however, essential, if one is to understand how heart attacks occur.

The interaction between “yin” and “yang”: “Sympathetic Nervous System (SNS)” – “Parasympathetic Nervous System (PNS)”

I think that most people have already heard of “yin and yang”, the basic principles of life and the universe in the classic Chinese view (for more details see Section 10). These symbols are well-fitted to gain an understanding of the regulation of the heart.

The cardiovascular system (heart blood circulation) is regulated by two poles: the “sympathetic nervous system (SNS)”, or “yang”, and its opposite number the “parasympathetic nervous system (PNS)” or “yin”. The “SNS” increases the activity of the

heart, raises the pulse and blood pressure. The “PNS” lowers the pulse and blood pressure and calms the heart. Both poles have their seat in the brain.



(A) The sympathetic division of the autonomic nervous system
 (B) The parasympathetic division of the autonomic nervous system.

All important physical functions such as breathing, blood circulation, digestion, and many other functions, are controlled by these two poles. The interaction of the SNS and the PNS is influenced by many factors, such as the day/night rhythm, the female menstrual cycle, our daily life, and of course, by our emotions. The interaction between “yin and yang” affects the whole of the human being – “body and mind”.

It is important to note that two poles are permanently active. Most people have already heard of the sympathetic nervous system. The overall belief is that the SNS stimulates activity, is active during the day and is at rest at night. But this is incorrect as there are always two control centers active; SNS and PNS interact continuously, day and night. In cardiology, it is almost always the SNS that is emphasized. Heart patients have usually never heard of the PNS, even after attending lectures during rehab. The role of the independent “yin pole”, the immense significance of the PNS in the development of heart disease, is largely overlooked by contemporary medicine.

According to Traditional Chinese Medicine (TCM): “Yang”: male, active, fight or flight, day and heaven; “Yin”: female, passive, calm and bonding, night and the earth. This schema is to a large extent understandable; however, in some aspects it is too schematic. Both poles interact and thus it is not always a simple case of “either-or”. When climbing the stairs, an active task, the SNS does not immediately take over and cause the pulse to increase. During the first flights of stairs the increase in the pulse rate is caused by a decrease of impulses sent by the PNS. The PNS causes the heart beat to slow down. Consequently, a reduction in the activity of the PNS means a rise in the pulse rate. During moderate to medium effort, the heart beat increases due to a downregulation of the PNS; it is not until about the 4th floor, when the maximum effort is reached, that the SNS joins in and adrenaline is released. When we concentrate on solving a Sudoku our heart beat increases; this is because the PNS heart control is downregulated. When we calm down and are inwardly relaxed, the pulse slows and become calmer because the PNS influence on the heart has increased. All our daily activities are regulated primarily by the “yin pole”. The male pole is then allowed to take a break.

“Mother earth” is the humus of life. Having feelings, being able to show and act on them, to enter into relationships and open one’s heart, to be happy, laugh and love – this is all dominated by the “yin” pole. What does this mean for the heart? Warmth and security during childhood play an important role in the development of a strong PNS pole, and vivid emotions and relationships are decisive stimuli with regard to the liveliness of the PNS. Chronic suppression of emotions and social isolation dry up this life-giving pole, thus leading to chronic weakness in PNS heart activity.



The female pole has a large amount of work to do: it controls daily life and dominates the night-time, ensures sleep, relaxation, recovery from stress and regeneration of energy reserves. And naturally, as in every household, the female is responsible for the economy. A strong PNS slows heart metabolism, so that the heart muscle does the same work more economically, using less oxygen and energy.

Every strong excitation of the SNS, every physical or psychological effort that takes one to one’s limits, that pushes the pulse up to dizzying heights, is tolerated by the organism as long as the “yin” pole or PNS remains intact. PNS control prevents the SNS excitation from getting out of hand and damaging the heart muscle. The complex interaction of “yin and yang” builds the basis of a healthy life. In my book “Herzinfarkt vermeiden” (11), I explain these relationships in more detail and provide the corresponding scientific references.

Loss of Inner Balance

In heart patients, the PNS heart control is chronically defective. Current scientific research acknowledges that in patients with coronary heart disease, the PNS impulses on the heart are chronically reduced in comparison to healthy people. This “yin weakness”, typical in heart attack patients, affects the heart. The metabolism of the heart suffers when the brake normally applied by the PNS is defect. The metabolism overheats easily and acid waste builds up in the heart muscle. In acute cases, heart seizures and heart attacks occur. For more details see Section 4.



“Yin reduction” prior to a heart attack

What lies behind this PNS reduction in heart patients? The PNS is most active during childhood, adolescence and young adulthood. Its activity diminishes with age in every man and woman. The “yin pole” is normally stronger in women than in men and is stimulated particularly every four weeks during menstruation. Being older and being male are factors known to increase the risk of a heart attack. Women are especially protected by menstruation up to the menopause. Physical activity strengthens the PNS; sitting around a lot weakens the PNS. Endurance sports promote the economic functioning of the heart and prevent heart attacks. The expression of emotions and lively social contacts benefit the PNS cardiac impulses. A satisfactory emotional life, good relationships, and love and sex all offer good protection against heart attacks. Constant suppression of feelings and social isolation promote the tendency to heart attack.

Stress and heart attack: Every stressful event downregulates the PNS; chronic stress can lead to long-term downregulation. If, after a long period of stress, a positive, satisfying result is achieved, the activity of the PNS again increases, accompanied by a feeling of wellness. The PNS is then stronger and more vital than before. During a period of negative stress, in which feelings of annoyance, anger and frustration remain, the temporary downregulation can result in a constant blockade of PNS activity. Such chronic psychosocial stress can result in damage to the heart.

However: Various factors must take place simultaneously before a dangerous blockade of the PNS occurs and a heart attack threatens. We all have to live with negative stress and we are capable of it. Only when risk factors accumulate, i.e. serious negative stress, lack of sleep, little physical activity, a lot of cigarettes, and one is a little older, then a dangerous situation is in the making.