The Winner Program

NeuroPhys Coaching

Veli Laurinsalo

Publisher; V.Laurinsalo T: mi Joukahaisentie 1, 15560 Lahti, Finland veli.laurinsalo@gmail.com

Only one can be the best

Musicians and athletes experience the same problem. To succeed in sports or playing instrument, you have to be good, and to win you have to be the best.

How to get there? That is the central issue of this program and the red thread.

Only one can win but all can evolve, which is our another key theme. Everyone can develop for the better, which is often its charm and driving force in the sport or playing the instrument.

This exercise program builds the motor foundation needed for playing an instrument and performing sports, and therefore this exercise program is suitable for anyone who engages in exercise. But competitive athletes in particular benefit from it because they struggle on an extreme level against another individual who is likely to have equally good coaching and a sport-specific background, meaning the struggle is extremely fierce and even. Then it is likely that the winner is the one who has a better motor foundation, stress tolerance, and precise control of the body.

In everyday fitness sports, hobby sports, or muscle training, one competes more with oneself, but even in that, improving the quality of exercise is an aspect that improves both the mind and the condition of the body, and at the same time also prevents physical injuries.

When traditional methods are no longer enough

Athletes today have access to top-level coaching nearly everywhere, athletes train for strength and oxygen uptake, and tactics are honed. But to win today, it may not be enough. Every year, thousands and thousands of athletes fight to win, and of course, only a few can achieve the first medal. And once again, athletes and coaches are pondering the reason for the poor success.

I, the author of this book, am not an athlete, but I have worked with several athletes and different sports. Even in my own family, my children have been active in sports, and everyone has achieved the level of national team coaching. In our family, the juniors have won Finnish championships and even European championships. It naturally requires commitment, enthusiasm for the sport and someone says that even good genes are necessary for the background. But they had something that others did not have, namely neurophysiological sports coaching and training. And now everyone can learn it.

So that's the name of this exercise program, and if you're interested in it, move on, learn the methods and do the exercises carefully, and taste the sweet nectar of success.

You may wonder is there anything new that could be used to improve the performance of athletes? Especially when top sports today are influenced by the best physiotherapists, doctors, the best coaches in the world, and all the background support that top sports currently hold. The answer to this question can be found in this publication. So move on.

My graduate degree in the University was in economics and national economics. Our family business operated in the field of therapy and that is why I started studying neurophysiological (brain) rehabilitation, focusing on the rehabilitation of learning and concentration problems. My wife and I studied under the guidance of the world's leading method developers of neurophysiological rehabilitation, for example in Sweden, England, Italy, and the USA. We studied the anatomy and function of the senses, and most importantly, how to rehabilitate and improve the brain functions, learning, concentration, motor skills, and wise and relevant thinking.

Perhaps the most renowned researcher of automatic reactions in the body was the English psychologist Peter Blythe (pictured), whose clinic we studied on several occasions in the 90s and 2000s. Peter Blythe and his wife, Sally Goddard-Blythe, have developed a research and rehabilitation protocol to find and rehabilitate reactions that interfere with motor skills and concentration. The

researchers found that quite common motor and learning problems in children were often caused, at least in part, by these mild developmental delays.

In the U.S. capital, Washington, we studied at the Harry Wachs Clinic. He was famous, for example, as a developer of methods for enhancing visual ability, motor skills, and logical reasoning. Harry Wachs was also a prominent figure in solving the problems of top athletes. He said that in the US, up to the top sports management, they recommended coaches to use all permitted methods to improve sports performance, and therefore the neurophysiological methods of brain rehabilitation was encouraged there. Harry Wachs listed numerous well-known athletes of different sports who had visited his reception. Similarly, NASA sent astronaut trainees there to train to enhance a sense or some area of perception.

Then, when working in Finland as a therapist with children, adolescents and adults, I developed this NeuroPhys Coaching program. It is an exercise program that helps and enables extreme performance as well as professionally demanding work situations. In practice, it is well-suited, for example, to athletes, musicians, and professionals who find themselves under extreme stress in their work and where failure can result in human or material losses and high costs. Such professions include, for example, pilots, air traffic controllers, industrial equipment and process monitors, civilian security and military professionals, etc. And there are certainly others who fall into this category. Yes, and of course athletes and musicians who are constantly pinching to the limits of their abilities.

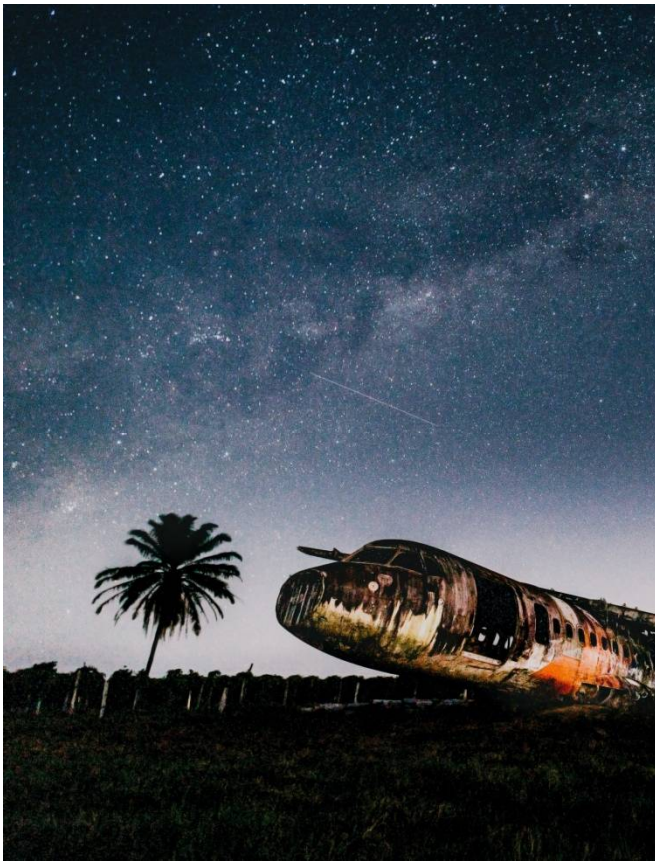
In sports, this method has achieved quite good results: In my home country, Finland, this method of strengthening the basics of motor skills has won Finnish championships, the European Championships in Olympic Athletics in 2000. according to the instructions.

No bad references, but what is it about? In short: in winning sports, the brain, the building of an appropriate neural network, the balanced functioning of the senses, and the ability to think quickly and react properly are very important qualities. So muscle training alone, good oxygen uptake, quality sports coaching, and a huge number of repetitions alone are not enough, as thousands and thousands of athletes have noticed bitterly.

Demanding work requires good stress tolerance

These same quality characteristics of brain function are also important in many demanding tasks.

There are countless cases in accident investigations where aircraft, ships, or facilities that cost lives and property have been lost due to human distress, lack of cause-and-effect comprehension, perceptual challenges, slow thinking, or incorrect response.



The professionals we have trained are for example working in demanding 3-D design, security professionals, professional musicians, and professional athletes.

A human is a psycho-physical entity

Human physical supply relies on e.g. memory, peripheral nervous system (sight, hearing, sensation), musculoskeletal and mental interaction. Behind the movement is still the cooperation of several different automation and reflexes that control and help motor skills. All the senses must support and give their share to this event, and the athlete's mind must be clean of all the negative that would be associated with and disrupting that sporting event. Well, that's the recipe, but let's break it down.

Building, maintaining, and caring for the musculoskeletal system is very generally well mastered, and this is taken care of by physiotherapists and sports masseurs.

Sports psychologists have developed good methods to purify the mind of fear of failure, which would otherwise be an obstacle to success.

Sports coaching is also mastered and the athlete remembers movements and demanding specialties of the sport through thousands of real repetitions. And sports equipment are constantly getting better.

Analytical sports coaching is thus able to minimize several obstacles to winning, such as good muscle strength building, oxygen uptake development, high-quality guided sport-type training, the development of the best possible motor and coordination skills, and good racing tactics planning. The sports psychologist then gets the psyche built strong and forgets about failures.

The performance of the race itself or the game is then still affected by situational stressors, creating a variety of uncertainties on the path to winning. Not everything can be predicted, and only the athlete's quick perception, quick thinking, and correct decisions will help.

And that's the area from which our U.S. teacher Harry Wachs (picture) gave numerous examples, namely rapid brain activity, lightning-fast updating of perception and snapshots, precise and seamless cooperation of the senses, and perfect harmony of body reactions. This rapid process is easily disrupted and prevents the athlete from achieving his or her theoretical excellence at a critical moment. And for this problem, I have developed this NeuroPhys Coaching method.

Background: As mentioned, In the 90's I studied neurophysiological rehabilitation e.g. in England under the direction of Peter Blythe and in the USA at the Harry Wachs Clinic in Washington, DC, where professional athletes of various sports also visited regularly, and even NASA sent astronaut trainees there to sharpen some aspect of the senses or perception. Whether the U.S. Olympic Committee encouraged sports federations to take advantage of these new neurophysiological and therapeutic methods to improve performance, and they did. Harry also mentioned several notable NHL players who went under his care. Unfortunately, Harry passed away at the age of 92 in 2016.

Neurophysiological rehabilitation involves strengthening the synaptic structures of the senses, sensory integration, appropriate activation of the nervous system, suppression of involuntary

processes that interfere with motor skills, and minimizing the causes of high background stress. Man is a psycho-physiological entity, and this entity is treated and supported by this method.

In addition, the sporting situation is indirectly affected by various aspects of past development, and even past gains and losses are easily haunted in the mind, i.e., the psychological burden is detrimental, as psychologists tend to say. And the more the psycho-physiological entity deceives, the higher the overall stress level and the easier it is for psychic factors to rise to disrupt the performance of the race. So everything affects everything.

This multifaceted entity can be analytically decomposed into parts such as:

Senses:

- a sense of hearing
- a sense of touch
- a sense of sight
- a sense of balance / balance management
- appropriate activation of the neural network
- automatic response system
- stress tolerance and factors affecting it
- learning ability and memory
- perceptual ability
- thought processing

Then there are still indirect developmental factors such as

- progression from childhood and deficiencies in poor development in some areas, which needs to be compensated, what increase brain load (increases stress levels and reduces stress tolerance), which in turn easily causes sensory over-sensitization problems and causes concentration and motor problems (we call this as Neural Stress),
- Insufficient sensory impairment or poor nerve integration impairs concentration and overall performance
- psychological effects of Neural Stress* impair both motor and cognitive learning, motor skills, memory, and self-esteem
- Increased stress also impairs social interaction skills and self-control

* Neural Stress = The extra work of the brain that compensates for poorly activated or poorly integrated senses, or the extra work required by an otherwise inappropriately developed nervous system.

The source and core of the problem can be found in any of the above areas and each athlete is always the sum of their characteristics. Accurate neurophysiological assessment can potentially identify these impairing issues for which remedial exercises are then planned.

So it’s not about any miracle, but about neurophysiology and the opportunities, it creates. It is descriptive that Finland's Olympic gold medal in the athletics year 2000 was achieved only as a result of careful training of one sense, what the therapist found in the assessment. Here, the ideology of the NeuroPhys Coaching method was realized: find the core of the problem and take care of it.

Each sport still has its characteristics, and at the same time, some nerve-muscle or brain area may be getting even too much training. This specific sports training, if continued for a long time, may lead to a difficult situation. Then sport-type training, training improving oxygen uptake, or muscle training no longer helps. Then the core of the problem needs to be found and corrected.

Occurrence tension

This is one of the worst situations for a musician and an athlete. A well-practiced performance or sporting performance can be ruined due to high tension.

It is normal to excite the occurrence situation. Elevated stress increases heart rate, increases blood flow to the brain and muscles, sensitizes the senses, and the person is well prepared to perform even difficult performance. But stress should boost performance, not ruin it.

However, for many musicians and many athletes, this stress of performance spoils the most important situation that has been carefully prepared, rehearsed, and trained. What is causing this?

This destructive excessive stress of performance often has its roots in early childhood, where some milestones in the development of infancy have somehow been missed. One stage of development maintains a strong fear reflex and excitement in new situations, which may then be present even as an adult. In practice, performance or competition may be ruined due to this reflexive tension. Other mild side pathways of early development, such as mild deficiencies in some senses, increase background stress, which also maintains higher than normal stress levels and at the same time impairs stress tolerance, which also impairs the artist's performance or athlete's performance.

Diagnosis: The fact is that very few doctors or physiotherapists recognize these root causes in adults. It is typical that tension is treated, for example, with drugs that limit the heart rate or sedatives, someone is treating themselves with alcohol or drugs. However, none of these affect the root causes, and the problem always comes back. At the same time, there is a risk that a musician or athlete will

get caught on drugs or alcohol. Therapists have developed treatments for these detrimental early developmental issues. The Winner program has a questionnaire analysis form that reveals whether you benefit from Winner's internship. You can find the free analysis form:

https://www.sensomoottori.com/free-materials

Questions and answers

Are the methods widely used?

They are used at the top level of professional sports. As I have already mentioned, in the United States, the Olympic Committee has even encouraged sports federations to make use of all permitted methods, and therefore these methods as well. Even now in European sports, the level of rewards is already starting to rise to a reasonable level, which encourages to look for new ways to win and get a better "salary".

Some top musicians also utilize neurophysiological methods to stay top. I once noticed an article in a Swedish newspaper telling that Sting visits and corrects yearly his hearing. I can say, that this is very important for sound formation.

Can musicians also be helped?

I have personally cared for singers, drummers, violinists, and dozens of cello players who have each had some problem disturbing quality playing or advancement. If even a small issue with sensory development, sensory integration, or "siding" of early development is found, correcting for this disadvantage has significantly improved players performance.

Practical examples of musicians:

1. The voice formation of a singer of a classical song developed so much that his teacher wanted to come to know me personally and hear how miraculously we had made progress. He had never heard of anything like it.

2. The professional violinist had suffered from intense performance tension, which is thus surprisingly common among musicians. He was completely relieved of his excitement due to a mild problem of early decay that had left him over the fear reflex. The problem was fixed, and the violinist said that for the first time, he played freely and artistically and was even able to communicate with his audience.

3. The drummer said he had improved so much that he was immediately wanted for a "better" orchestra.

4. The motor tension of many cello players decreased and the use of the entire sound field of the instrument improved.

Generally, motor tension is a significant drawback for all instrument players.

How fast can a result be generated?

The result naturally depends on the nature of the problem and it's root cause. Some exercises will help immediately, such as balance exercises, but in early development issues, it can take up to 12 months for everything to be corrected. However, you will notice a change for the better at the beginning of your training, although the final stages of your training may take longer.

Practical examples of athletes:

1. In the case of Arsi Harju (Olympic gold medal in shot put, 2000 Sidney) the core of the problem was found in one specific aspect of the sense of balance. This was followed by specific balance training and within a few weeks the problem was gone and the rest is sports history.

2. Another example was a professional hockey player for whom professional contract was no longer renewed. The crux of the problem was found in many quite small but disturbing and disruptive factors (these together increased anyway neural stress and made it some disturbance in motor areas). Based on the results of the assessment, an exercise program was designed for him to correct these findings. The NeuroPhys Coaching training changed the situation, the game performance of the rest of the season improved, a new contract was signed and many good successful hockey seasons continued in the professional league.

3. A third example can be found in golf. The athlete was 9-10th in the Finnish championship level. A careful study found mild motor disturbances for which an individual exercise program was designed. A few months of training already paid off and the athlete was the Finnish Championship winner that summer.

Does NeuroPhys Coaching always work?

As I mentioned, it’s not a miracle cure for performance. But if an athlete has issues that interfere with motor skills, perception, speed of thought, and wholeness in any area and he or she executes the training program carefully, it is rare that NeuroPhys training will not help.

Does NeuroPhys training help everyone?

There are exercises in the program that basically help everyone to better control their body and make training and playing more meaningful even at the hobby level.

In competitive sports, the level of difficulty rises, and there the use of this program is really meaningful and encouraging.

Who needs online coaching - who needs individual assessment and an exercise program?

At the hobby level, online coaching alone is often enough, but at the top level, it makes sense to consider implementing individual assessment and an individual exercise program should be designed. At the top, there are already significant financial incentives for many species, where a small sacrifice to this could lead to significantly better financial returns.

Where can I find more information about the NeuroPhys Coaching method?

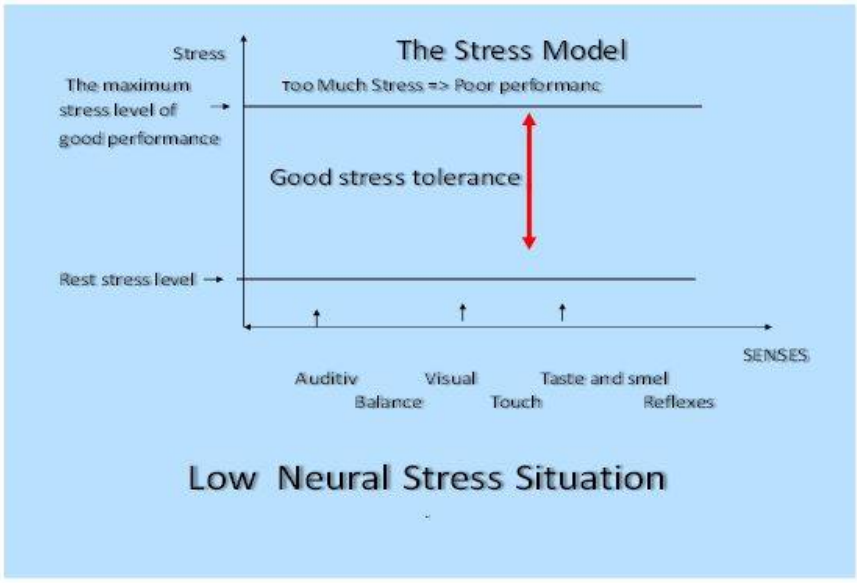
https://www.sensomoottori.com/sport

In the next section, I will go through the senses, nervous integration, and automatic systems that control and help the body's motor skills.

But let's start with one key problem first, namely, Stress, stress tolerance and factors affecting it.

Neural Stress - a new way to analyze stress

Every person has an individual state of basic alertness, we can call it Rest Stress or Background Stress. It is the state of sensory alertness at which the stress level is at its lowest. For each individual, it is an individual level that is affected by the functional accuracy of his or her senses, the construction and functioning of the neural network, and, of course, the state of health. Everything affects everything here. In the figure below, the senses and background stress are drawn in the same pattern.



Here is described the so-called good situation where, in principle, there is an appropriately developed nervous system and the senses are working well. The rest stress level is very low. The stress can increase quit a much

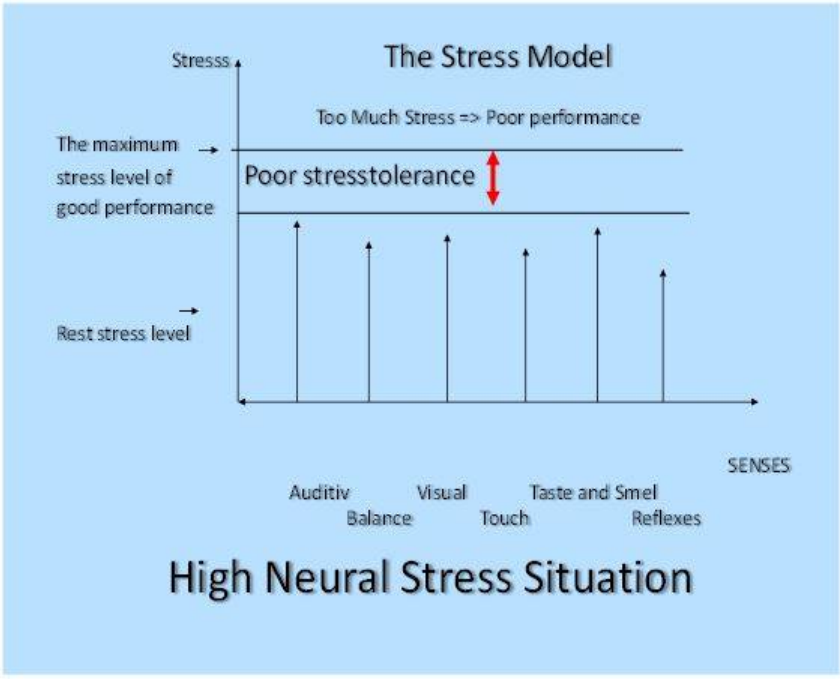
before over going the level of maximum stress level of good performance. If the stress increases to grow over this line, the overall performance, and sports results also will be weakened.

Here an individual can withstand a high amount of stress because he or she has good stress tolerance. So the chances of winning will be good.

The stress experienced by a person naturally raises this basic state of alertness and level of stress. What matters is how good a person's stress tolerance is. Stress in sports competitions, for example, may quickly rise to its very maximum level, where that stress tolerance is then indeed needed.

Stress can be external, that is, for example some irritation or condition, traffic, noise, excessive external demands, difficult social relationships, or any source of stress from outside the body.

Internal stressors can include, for example, illnesses, mental health and mental balance issues, and the development and condition of the nervous system and sensory pathways. Here in this model, it is assumed that diseases and mental health problems are treated with separate treatment events. In this analysis, I will now focus more on the sensory and neural states.



Definition: The more a person has functional deficiencies or problems in one or several senses, the more inappropriate or unsatisfactory build neural networks one have, the more the brain has to activate and compensate to cope with everyday life, work, and sports performance. All of these mismatches are, in principle, followed by increased background stress, and this compensatory neural work is called Neural Stress. This compensatory, extra work done by the brain is resource consuming, impairs motor skills, and impairs the ability to concentrate, and thus the athlete's performance in sports degrees, this prevents winning.

This table presents a situation where, for example, an individual has deficiencies in neural integration, problems in auditory discrimination, poor balance control, and visual perception, and automatic reactions do not fully support movement and motor skills. All of these components increase

background stress on their own, causing the end result where an individual's stress tolerance is very limited. All of these impair performance and prevent the individual from achieving their goal.

In practice, this can be seen, for example, in the fact that an athlete experiences exceptionally strong competition stress, performance levels in competitions are worse than in training situations.

Good stress - Bad stress

Stress is a good source of additional power in the short term. It improves endurance and performance in the short term, but as a long-term continuous phenomenon it consumes, exhausts, causes high blood pressure and even a wide range of health problems, impairs immunity and memory, causes concentration problems, i.e. is very harmful as a long term phenomenon.

The underlying factors of neural stress are neurological and can often be rehabilitated through careful targeted exercises and training. The phenomenon of neural stress is always accompanied by the possibility of rehabilitation. For example, in the case of extra brain work caused by poor nervous system organization or poor sensory activation, it is always possible to seek and correct and rehabilitate the situation. This requires careful analysis and/or a neurophysiological assessment and exercises designed for this purpose.

In order to get a reliable overall picture, the therapist must, of course, master the assessment and rehabilitation methodologies for all of these sensory and brain areas.

My observation is that, according to online advertising, there is a lot of expertise available in each country, but when you look at these more closely, only a few have this vast entity, really few. Here you should be critical. The results of the action must weigh more than the big promises in advertising.

Professional athletes: For professionals, I recommend doing an individual neurophysiological assessment designed for this purpose. It examines all the senses, the state of the nervous system, reactions, and automation, analyzing the history of development and sports and interviewing parents and previous coaches. This brings a developmental time perspective into the analysis. The result is compared with the historical growth and development trend compared to the current situation. Based on this analysis, the therapist will design a program that will address the factors that cause the possible increased background stress.

The training takes place according to the instructions on a daily basis at home according to the intensive principle, which allows the brain and nervous system to modify. The goal is to reduce neural stress and increase stress tolerance, get better motor skills, faster and relevant reactions, and faster brain processing.

At amateurs and junior levels you can use ***the Analysis and Follow-up Form*** *which is* included in the NeuroPhys Coaching program Fill it carefully at the beginning and again as a follow-up every 2 months. It goes through all the human developmental levels and senses with help of easy questions. Scoring the answers will then provide guidelines for needed training. It is important that this follow-up form is filled out carefully every 2 months, and changes are made to the program accordingly.

Expected results: If you do the program carefully, it is expected that motor skills, body control, memory and learning ability, perception of complex processes, workability, and endurance will be improved.

Then it is very possible that the athlete will have a better level of performance and a better chance of winning. Note that at the junior level, this also benefits the school and studying, and many previously difficult things, jobs or hobbies may seem easier. Likewise, it is possible that social interaction will improve, which is hardly a nuisance to anyone.

From now on, we'll go through the senses and developmental issues.

Automatic response system

These are reflexes and relevant reactions. In fact, this development begins as early as the fetal stage, where fetal reflexes, also called primitive reflexes or reflectors, develop and strongly influence already in fetal movements. For example, the classic fetal position where the fetus is curled is caused by primitive reflex TLR.

The purpose of these fetal reflexes is to protect and guide a small child through infancy, first sucking, turning, starting crawling on the stomach and then creeping on the fours, and finally walking at about 12 months of age, that is, to move at own will. After this, these baby reflectors should no longer be controlling the child's motor skills. In the therapy literature, for example, there is mentioned of an 18-month primitive period (1 1/2 years). After that, the child should control their own motor skills, and these baby-time reflexes, as said, should just be inhibited.

If this early period of development does not take place in a human species-specific way but is deficient in some areas, it is very possible that they will cause, for example:

- increased background stress
- interferes with motor skills, causing tension in the hands and hips, which reduces the speed of the reaction
- cause a situation where the nervous system is not properly activated, i.e. cause poor nerve integration
- cause problems in concentration
- cause problems in behavior control
- cause problems with perception
- cause problems in learning and memory
- cause problems in work and sports

These “mild” developmental issues but many practical problems causing issues are surprisingly common. For example, the majority of clients coming to a learning disability clinic are experiencing these. I did a reflex study related to a larger study in 2021 in a kindergarten for preschoolers in a normal group, where most kids were found to have a remnant of an ATNR primitive reflex. It should be found in children at the age of 6, but the finding is certain. This, in turn, reflects the impact of modern society's routines on a child’s development, resulting in mild developmental delays. At the same time, it tells us how common these mild developmental delays are nowadays, and no wonder if the same problems are likely to be found in many of our athletes.

In other words, this aspect must not be overlooked.

Analysis of the athlete's early development and correction of any deficiencies

The NeuroPhys Coaching program comes with an Analysis and Follow-up Form, where you can find out the current status of the early development period. It is therefore important that the questions will be answered as truthfully as possible. The assessment is made using a five-step analysis where each question looks for the number of challenges or problems in that section: 0 means "no problem or challenge" and 4 means very "a lot of problems", respectively.

If there are several numerical values describing the number of problems in early development questions, it is appropriate to implement the whole program to correct and ensure early development. The exercises are presented in online rehabilitation video materials and there is a print or video tutorial for each exercise. It is recommended that you occasionally check the video tutorials to make sure the movements are done correctly. In these exercises with the early developmental reflexes, it is very important that the exercises are done correctly according to the models.

Senses

In the following, I will go through the senses**.**

Auditory sense

Hearing is a complex set of mechanical and physical as well as extremely sensitive nerve structures. There may be abnormalities in hearing without being detected by traditional hearing analysis. But these small deviations in themselves can cause auditory discrimination difficulties, auditory slowness, or even distort the message heard. In practice, it has been found that hearing perception problems impair the ability to concentrate, which is one of the pillars of success in sports. Similarly, in sports where speech is used as a communication tool, this problem of auditory discrimination slows down the comprehension of the message and can slow down reactions. Similarly, in practice, it has been observed that these kinds of problems also weaken and slow down the process of internal speech, i.e. the speed of thinking, which is certainly relevant in all sports.

If one considers the sense of hearing as one of the "tools" of an athlete, it has at least four clear effects on success.

1. Does the athlete easily understand what is being said to him?

2. Does the athlete remember the instructions

3. Does hearing processing consume extra energy, which is away from the other important thing, namely winning?

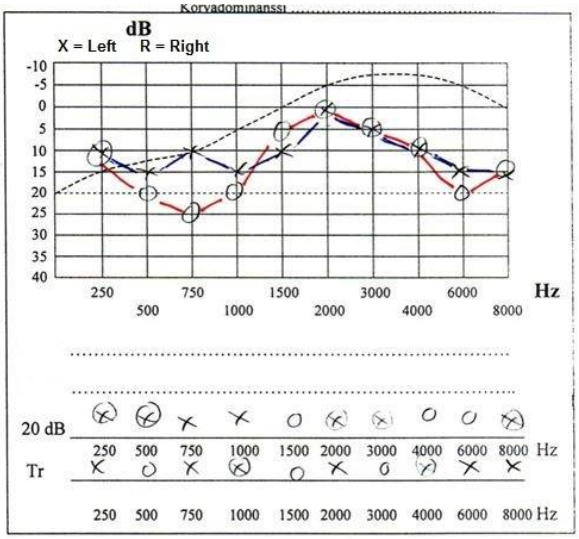
4. Do auditory problems slow down the speed of thinking?

Does the athlete understand what is being said?

Central to this is auditory discrimination.

1. Does the athlete hear normally? According to an ear doctor, it means hearing better than the volume of a whisper, i.e. better than 20 dB, which in the definition of ear medicine is the so-called hearing level of normal hearing. The majority of athletes are young adults who, according to this definition, hear the so-called at a normal level. However, some of these have to be pinched to find out what they have heard and/or do not remember long instructions. Many risk factors for sports performance are realized here. Thought and concentration decline, the athlete may even misunderstand the instruction, and/or have to ask and verify the content of the instruction several times. Usually, there is no time to waste in a sports performance, so the seconds you just lost can even be crucial in the fight to win or lose. In many sports, such as team games or, for example, racing,

where instructions are given in extremely hard second fights, a misunderstood or unnecessary assurance can really distract and even prevent winning.



The most common problem areas for auditory discrimination in young adults are:

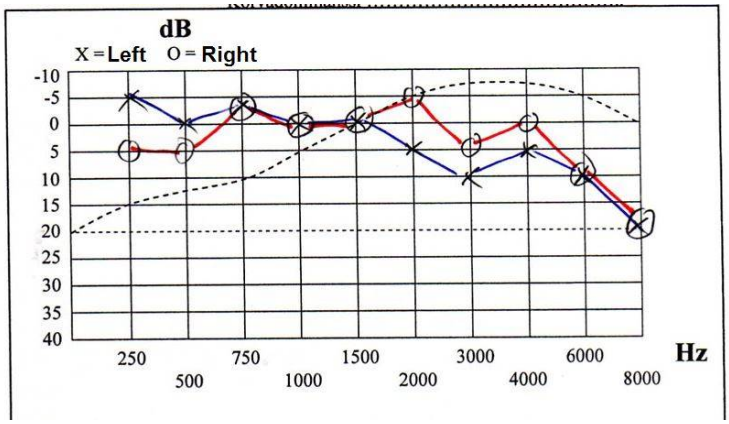
1. Attenuations in the hearing curve

2. Differences in hearing balance (difference in hearing between the left and right ear)

3. The multiplier effects of the above events at the level of neural energy use

Attenuations in the hearing curve

Each sound, pair of voices, and word consist of sounds at different pitches. For example, vowels often sound at low frequencies, such as a-sound or m-sound, and most consonants again play at fairly high frequencies, such as k, s, or t-sounds. So now it is very logical that if a person has a pit on the hearing curve, then the sounds at that frequency of the pit will be attenuated or even faded from the hearing register. And because words are made up of these sounds, this pit can impair or slow down comprehension of the word or change the meaning or content of the whole word. In this situation, the brain's processes are working more to make it understand what was said. Here the children have of course more problems than adults, but in fast-paced sports, it matters. This extra brain work needed both slow down thought processing and uses neural capacity. And there is no time to waste on sports performance. It should be mentioned that hearing can be here at the ear doctors mentioned "normal level", but here even small differences in the hearing curve that occur in a certain way may cause extra brain work and thus impair sports performance.



The most common attenuation of the hearing curve in young adults is a descending hearing curve, where high frequencies are therefore less heard. It may be due to mild high-frequency activation, childhood ear infections, hearing loss, or all of these together.

The problem is exacerbated by the fact that consonants tend to occur mainly at high frequencies This situation can significant changes in word-formation due to consonant attenuation. The difficulty of hearing is compounded by the fact that consonants are often very short in time, up to 10 times

shorter than vowels played at low frequencies, which adds to the difficulty of perceiving words containing these consonants.

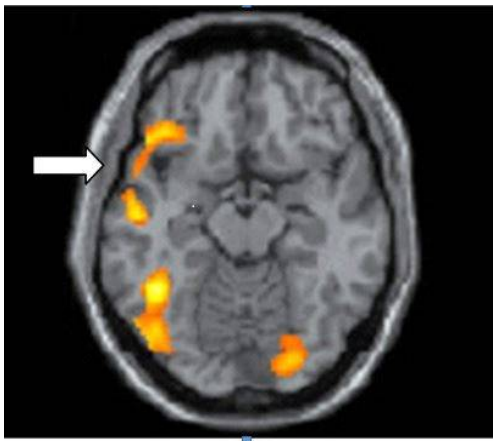
Thus, according to the doctor, the hearing curve of the picture is still at the so-called normal level, but the person may have difficulty discriminating words from one another.

Auditory Balance difficulties in hearing

In the basic anatomy of the brain, nerve information from the peripheral nervous system (sensation, sense of sight, hearing) is mainly directed to the opposite hemisphere. There are also anomalies here, i.e. the so-called one-way connections.

In principle, a person hears in both ears in the same way, assuming that the hearing in both ears is normal and the hearing curve is the same shape.

The auditory nerve in the ear leads mainly to the opposite side of the auditory cortex. The auditory nerve also has a so-called one-sided neural connection, but its transmission capacity is less than the so-called main nervousness. Hearing information is transmitted extensively in the brain, to the areas of memory, to the process areas of danger and pleasure, and, of course, to the brain areas of understanding the linguistic content of hearing, which are called the left and right Wernicke brain areas.

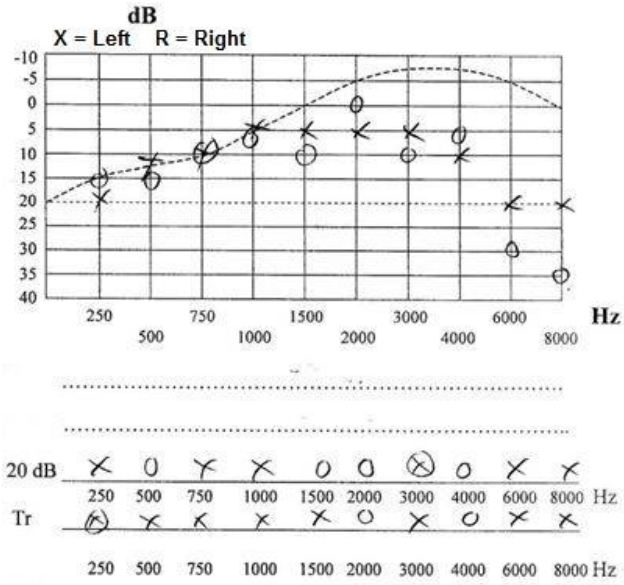


Here, men and women have differences. Men tend to have a major brain area of linguistic perception only in the left hemisphere (left Wernicke), and this anatomical difference can also cause hearing perception problems with the man. The crux of the problem is that if a man hears one or more frequencies better with the left ear than the right ear, this situation can cause him difficulty to understand and remember a linguistic message. Even if he hears better in both ears than, for example, 20 dB, but this difference in balance occurs, a significant problem of practical auditory discrimination may arise. It is called left-ear dominance by rehabilitators.

One problem here is, that the ear doctors and therapists are analyzing differently this situation. The ear doctor says that the hearing is normal when the hearing curve is better than 20dB, but the Therapist analyzes the hearing much more critically, detects this problem left ear dominance problem and plans rehabilitative actions for it.

This problem of left ear dominance in hearing is due to the fact that in men, only the Wernicke brain region of the left hemisphere efficiently processes linguistic information, and the right Wernicke in men processes more vision-spatial information, i.e., three-dimensional perception.

If and when some of the sounds are heard better only in the left ear, this sound information is first directed to the area of the right hemisphere's auditory brain area and from there back to the left hemisphere's Wernicke (men's language possess area). This extra round through the right hemisphere, according to measurements, causes approx. 20 ms delay compared to faster-detected sounds of the same word. This delay causes the word characters to change which interferes with the comprehension of hearing, and requires extra process power from the brain and increases Neural Stress level.



This phenomenon of left ear dominance is very often underlying in boys 'reading and learning difficulties (dyslexia), and if an athlete has had problems learning to read as a child, it is already a strong signal of the existence of this auditory balance problem. The picture shows a typical left-eared hearing test finding. The upper graph is the hearing threshold test and the lower part is the directional hearing study. A strong left ear dominance was observed in that client.

It should be mentioned that this type of hearing curve is often found also in children with dysphasia (difficulties of learning to speak), for example. The speech therapist can sent the child to the ear doctor because the therapist sees that there is something wrong with the child's hearing when the child does not understand what is being said or the child has difficulties speaking or repeating the therapist's words.

Sensitive hearing

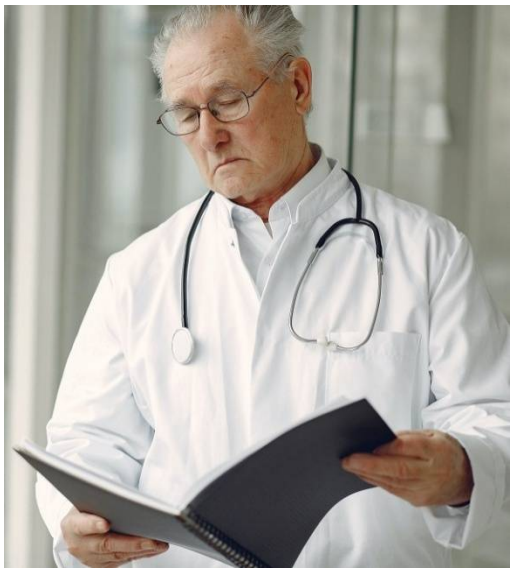
Part of the hypersensitivity hearing can be explained by this difference in hearing balance, where the brain's inherent own amplifier is unable to function, relying on the similar hearing ability of both ears. Namely, there is a mechanism in the hearing that compares the sounds coming from both ears and amplifies the sound coming directly from the front, fore sample speech. This inherent amplifier may not work as it should if one has this left ear dominance with this 20 ms time difference. In this

situation, the external noises from sides are proportionally heard better. The person may experience this as a sound hypersensitivity or at least a hearing discrimination problem.

If the hearing threshold test does not reveal clear, very sensitive hearing, as is typically the case in people with autism, for example, then this hypersensitivity phenomenon at the so-called normal hearing level may also be considered a psychiatric condition. Therefore, it would be important for ear doctors too to understand this phenomenon of left ear dominance.

Rehabilitation of auditory problems

These patients with the so-called "normal hearing" range who complain of either hypersensitivity hearing or poorly discriminating hearing are, as said difficult cases for ear doctors. The ear doctor thinks that small cavities or attenuations are not even a problem. The same attitude is with this difference in the balance of hearing (left ear dominance). Thus, ear doctors have not received education or training about this, they are not accustomed that much to these non-injured people.



Ear doctors have several good methods to treat injured or patients with hearing loss. Hearing aids amplify the sounds of the environment, and even for the completely deaf, for example, a device can be placed in the cochlea, which allows the deaf person to regain some hearing. Ear surgery can even repair the auditory hearing bone chain. But the so-called patients with a normal hearing range are difficult for most ear doctors. However, these patients are symptomatic with the hearing because they do not understand speech or the child sent by the speech therapist does not learn to speak and the speech therapist thinks the problem is hearing and hearing separation. The ear doctor's diagnosis at that time could be, for example, a "retrococlean hearing loss," meaning that the problem is not in the ear but the brain does not understand the heard information sent by the ears there.

In a way, the doctor is quite right here, the brain does not interpret incomplete hearing information. The problem is that according to the doctor, hearing is perfect enough, but according to the analysis of therapists, even these mild hearing abnormalities cause various problems, especially in children in the early stages of development, such as speech problems, difficulty reading, and concentration problems.

In the background can be found repeated ear infections or poorly treated ear infections

In practice, if the auditory cortex is not activated during early childhood, for example, due to recurrent ear infections, the situation often does not improve on its own afterward. This attenuation can leave a lifetime of high-frequency attenuation, as can be seen in the hearing test curves. The example hearing curves above are all for young people where the so-called natural attenuation caused by aging cannot yet exist.

Low exposure to natural sounds or hearing loss is another cause of mild hearing loss. In today's world, sounds are mostly low or mid-frequency, so children simply don't get high-frequency exercise. The music is also rarely really bright, meaning there aren't many high frequencies there.

Auditory therapy

These auditory discrimination problems in the normal hearing area are practically treated with targeted auditory therapy, where an individual hearing-activating recording is made for the client based on the hearing threshold test. This hearing test and a new recording are made about every second month. In practice, it has been found that the synaptic connections of the auditory cortex are strengthened and hearing is often changed as desired. As a result, auditory discrimination often improves and the associated challenges are reduced or eliminated.

Long-term experience in the auditory treatment

For more than 20 years, we have successfully treated thousands of clients who have these mild hearing problems, which, according to the ear doctors, are normal. Most of them are children who have had, for example, difficulty in reading (dyslexia), problems with speech production (dysphasia), or difficulty with concentration. But the same problem can be treated in adults, and of course in athletic adolescents and young adults.

In practice, a hearing threshold test by an audiologist is needed(according to Din-norm). This research report is then sent to us. Then we can make a recording that activates the auditory cortex. This unique recording then activates the auditory cortex as intended and, in most cases, corrects the problems found. The process starts when you contact us, for example, via the contact form at www.sensomoottori.com.

The effect of auditory problems on sports performance

With the success of auditory therapy, the problems of hearing and the challenges it poses to speech development, reading difficulty, and learning difficulties are alleviated or even completely alleviated. In the case of an athlete, this treatment speeds up the understanding of hearing and improves the speed of response. At the same time, it reduces the indirect effect of the problem, for example, the ability to concentrate and, in other words, the increase in Neural Stress.

The effect of auditory problems on music playing performance

The accuracy of hearing is an important component in singing, because in sound formation, the brain controls the sounds produced, and that control is through your own hearing. At the same time, if the auditory discrimination deteriorates, it becomes more difficult to control your own sound automatically, which both consumes neural resources and impairs sound production. Naturally, when playing music instrument, you should hear your own and others' playing as easily as possible. In practice, the weaker the hearing separates sounds, the more tired a person becomes. That's because listening is an automatic process, and if there are problems with auditory discrimination, the brain has to work significantly more with it. It impairs the ability to concentrate and exhausts the player faster.

The sensations of skin

The sense of touch can be recognized in all the areas of the human surface, the skin, but there are also sensory receptors in the surface of the eye, the structures of the ear, and there are also pain receptors in the joints, synovial membranes and internal organs and blood vessels. The sensory

system of the skin and surface handles a wide variety of sensations, such as touching, light touch (itching), pressure, vibration, temperature, and temperature differences and pain. And all of these are also important aspects of sports.

It is typical that the senses, and therefore the sense of touch, is hardly noticed until something critical happens, such as injuries or various injuries. And these are even commonplace for athletes.

Sports performance is certainly affected by all sensory abnormalities. The skin sensitivity can be attenuated (hypo) or overactive, i.e. very sensitive (hyper). Deviations from these will certainly have an impact on sports performance as well.

Hypo, or attenuated sensory state, is often observed as early as childhood, which is typical of autistic children, for example. Sometimes the situation may be due in part to a poorly activated sensory system. In any case, the sense of touch is normally activated in very different ways in different parts of the body, being at its most sensitive on the surface of the eye, face, and fingers, for example.

Hyper, or overactive sensation, can develop due to intense stress, for example. Namely, the human survival system activates the senses when there is a threat. It is a fully automatic process and thus normal as stress hormones increase in the bloodstream. It sensitizes hearing, sensitizes the surface, and even the visual system to detect potential danger. If an individual has early baby primitive reflex remnants (e.g., a Moro reflex), the stress state stiffens the musculature and thereby can impair involuntary musculoskeletal use. This background can therefore be any factor, internal or external, that causes this stress. A long-term cause can be caused by an illness or other external or internal factor that keeps a person constantly alert and stressed. This extensive sensory sensitivity caused by a state of stress, and at worst even an extra state of muscle tension, is also heavily consuming neural resources, and thus is also hampering an athlete's concentration and performance. In some developmental abnormalities, such as autism, the senses may be very hypersensitive (e.g., hearing) but at the same time, some of the senses (e.g., pain) may be attenuated.

Rehabilitation for skin surface abnormities needs to find the origin of this, for example, is there a background of high Neural Stress and which causes it? Activation of the senses through physiotherapy, manipulation, and mechanical training is one approach, but if the underlying causes are not elucidated and treated, the problem will not be definitively eliminated.

Balance mechanism

The balance mechanism has a significant effect on motor control. After all, a well-functioning balance system is the basis of all motor performance and even a prerequisite for it. The effects of the sense of balance is not limited only to motor skills, but it also has a direct effect on the control of the muscles of the eyes. In sport, this feature is paramount and balance management plays an important role in it.

The sense of balance also has an indirect effect on an athlete's ability to perform. Namely, impaired balance control also causes increased background stress (increased Neural Stress), which dilates the pupils, causing photosensitivity, increased stress levels cause sensory sensitivity, which impairs e.g. ability to concentrate. In addition, the brain uses all other senses to compensate for a poor sense of balance, which increases Neural Stress and consumes resources (compensatory effect). We have developed a perfectly accurate and therefore exceptionally effective balance workout methodology that is an important part of the NeuroPhys program.

Sight - Visual sense

The eyes and sight are important senses and, of course, important in almost all sports. Perceiving the speed and direction of movement of a moving ball or seeing the conditions of a fast race car's roadway and the noticeable changes in it take place in a seconds time window. Thus, vision is often accompanied by the need to react, i.e. it is always a matter of extensive cooperation and wholeness of the nervous system. Of course, visual acuity is basically a basic requirement, but there are many ways to treat it, such as with laser eye surgery, contact lenses, or glasses.

The shape of the eyeball may be a little atypical, causing a variety of astigmatism, but a skilled optician can handle even these issues.

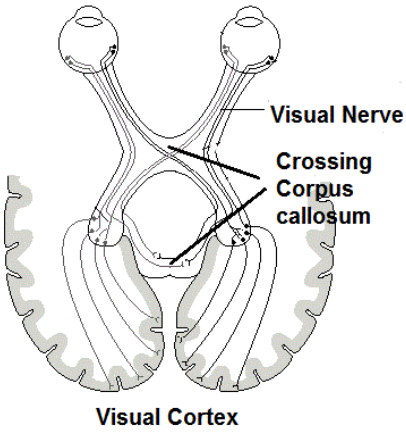
The senses are characterized by interdependent and influential relationships, where the senses support each other's actions. The eyes, for example, are extensively connected to the balance nuclei, which provide information about the need to focus the eyes, for example. Indeed, typical mutually supportive, or even possible, interfering sensory pairs are observed here.

If there are challenges in perceiving the balance, these difficulties will also be transferred to the work of aligning the eyes. Then it becomes more difficult and laborious to perceive the path of a fast-flying ball or racing car, taking resources away from reacting quickly, for example. The player does not have time to react to the ball flashing past or the deviation on the roadway is perceived too late. In other words, in order to win in competitive sports, in the brain, every particle of energy is needed to perceive and respond to rapidly changing situations, where there must be no extra areas of brain work, and thus, in this example, the challenge of focusing the eyes.

Carding

One problem with eye alignment is carding. Mild it can be seen, for example, as hidden carding, where the carding happens only, when the straight view from the eye is covered but in both eyes carding is not observed.

A more serious form of carding is continuous carding. It may be due to a number of developmental factors, such as the unfinished early developmental period of infant reflexes (primitive reflexes) from 0 to 18 months, which may have delayed the child's motor development, often resulting in the child not crawling and creeping at cross pattern way. Here, therefore, it is possible that the broad neural bridge connecting the hemispheres of the brain, the Corpus Callosum, is not sufficiently activated. This, in turn, can result in a phenomenon that, in the brain more broadly, effective cooperation between the hemispheres of the brain is disrupted.



The auditory and visual nerves are connected to the opposite hemispheres of the brain, but they also have the so-called same-sided network of contacts. Here, it is this cross-network that may have been less activated from an early age, when the brain should build a strong cross neural structure. If the connections to the opposite side are too weak, this is not the best and fastest neural network structure. But due to the early developmental delay and these circumstances occurred the so-called second best neural pathway activation is formed.

In this situation, the eyes do not always receive the same accurate information from the sense of balance, for example, so it can be difficult to get the eyes focused on one point at a time, for example.

This is always a challenging situation for rehabilitation. First of all, it is a matter of the abnormal construction of the nervous system at the time, i.e. a strong so-called alternative, “second best” nerve structure that doesn’t change in the blink of an eye. With glasses (prism glasses) it is possible to treat mild carding, but even if the eyes are brought to the same point, perceiving the balance of the client can still be challenging. In severe carding, one problem is the death of the optic nerve. In a severe carding situation, the brain simply stops receiving visual information from the other eye, and the ability of this nerve to transmit nerve information begins to weaken. This is prevented by an ophthalmic treatment where the better eye is covered, and the carding eye is used for vision and thus the death of this visual nerve is prevented.

Another common treatment is to move the muscles that move the eyeball to the new place, which then corrects the focus on the eye. This is often done as early as childhood. But it does not remedy other disadvantages caused by the developmental delay in infancy, such as an underdeveloped reflex system and lack of nerve integration between the hemispheres of the brain, which often also causes disadvantages seen in sports. Carding is so disturbing to balance, motoring, and perception that it is unlikely that it will be noticed much, at least in top sports, but certainly at the hobby level.

In carding, rehabilitation begins with an analysis of the underlying causes.

The study will help to find out:

- whether the early development and the process of transformation of primitive reflexes have taken place normally. A development analysis and monitoring form can be used for this. The questions on this form provide an indication of this.

- find out if the athlete has crawled during the baby period? Does the family have any photo or video material left? Does the mother remember (if alive)?

- Did the child have any challenges of learning, concentrating, or for example, learning to read? This therefore also gives an indication of the state of early development.

If it now emerges that there have been shortcomings or delays in the development of infancy and that there have been challenges in later learning and concentration in school, it is very likely that the same elements of development have also contributed to the development of carding. Thus, the low integration of brain hemispheres and balance challenges caused by reflex remnants here are also possible reasons for the observed carding. Thus, the rehabilitative activity begins with an early development exercise, starting from the very beginning of the exercise map, and implement this exercise as a whole without leaving anything out. In the beginning, there are a series of balance and reflex exercises, cross-exercises, coordination, and sensory exercises. Then only the visual exercises begin.

In the program, I teach several visual exercises.

Accurate vision - Peripheral vision

Eye vision can be roughly divided into focused accurate vision, where the eye is focused on a fixed point or a moving point. Seeing is very accurate in a fairly small area. It is difficult, if not impossible, for a person to focus precisely on two different points at the same time.

Peripheral vision is the title of seeing where a widely viewed area is seen, as if in a widescreen display. In it, no part of the field of view is perfectly accurate, but here motion is easily detected. The purpose

of mammalian development may have been to quickly detect a potential signal of danger, as movement can always be a sign of an offensive danger. In practice, the two processes operate continuously at the same time.

For example, tracking hockey moving in a sports performance and at the same time tracking events on the other field and detecting changes. When stressed (playing), the pupils still dilate, which helps the peripheral field to grow, for example.

This may be accompanied by a situation in which a person has had remnants of primitive reflexes since infancy, such as the remnant of the Moro reflection (fear reflex), it alone may keep the pupils constantly enlarged. This can result in photosensitivity, and when combined with the stress of sports performance and dilated pupils, the end result can be a photosensitivity problem that causes extra neural stress and thus impairs sports performance.

If you have trouble seeing accuracy, there are several good ways for opticians to help. Peripheral vision, on the other hand, is a more difficult case. In normal life, there is usually no need to consider peripheral issues. In top sports, the situation is different, and even small factors that degrade performance levels matter. For a racing motorist, the fast movement of the car also narrows the field of vision. The brain simply does not have time to perceive a very wide area of vision. In traditional team sports, such as playing field ball games, hockey, ringing, or hockey, the processes of peripheral vision are very important.

Visual training - always start with balance exercises

Due to the strong interaction between the visual and balance senses and the relationship of dependence, it is always worth starting with the balance exercises. In many ball games, it is important to be able to detect the events on the playing field and the rankings of the players without taking their eyes off the equipment, the ball, or hockey, for example. A person can

only focus on one object at a time, e.g. In ball games and hockey, the goalkeeper is required to have good visual perception and understanding, as he must constantly detect lateral movement and lateral positions of the players, and thus be able to prepare in advance for side feed and side shots.

The NeuroPhys Coaching program includes several easy-to-perform visual exercises, for example follow the object, far-near vision training, visio-moror reflex-training, focusing exercises. In addition, for goalkeepers, for example, there is a series of exercises designed specifically for their specific situation which the personal neurophysiological therapist can design.

Neural integration

This means the neural synaptic connections in the brain and its organization, how the whole brain is organized, and even how well the two lobes are integrated together. It is influenced by the development that has progressed since childhood and the quality and quantity of the child's motor training. The figure illustrates the flow of large neural networks when viewed from above. Part of the network connects neighboring areas, some areas in front and behind, and some connections between the two brain lobes. (source UC Berkley)

Most of these problems are caused at the very early baby-time by the low activation, too little training between the hemispheres. Here we can see a logical cause-and-effect formula in which, in early childhood, the natural control mechanism of infancy ((ATNR-reflex for examples) has not guided the child to the starting positions of crawling and creeping, and thus the child has not performed these important cross motor movements at the benefited way. This can result in a poorly activated cross-nervous network system, which can later cause a variety of challenges in motor skills, learning, concentration, and social interaction.

Development of the problem of nerve integration in practice

A small child makes hundreds of thousands of cross-movements during normal early development, which, when absent, can easily cause a problem of nerve integration.

In practice, this inappropriate development of early development is reflected, for example, in the fact that the child does not crawl in the so-called crosswise with a pair of hands and feet but, for example, pulls with his hands or pushes only with his feet or even rotates from one place to another.

At the stage of creeping at about 9 months of age, the same can be seen, for example, in the fact that the child does not creep at the so-called crosswise, jus push him selves forward or creep unilaterally, one-sided, etc. This is often due to the unfinished development of primitive reflexes that had not guided the child into these important motor trajectories of infancy. The end result, however, is that the network of connections between the hemispheres of the brain may remain poorly integrated.

Poor nerve integration poses challenges to perception and motor skills and appears to play a role in the process of developing learning disabilities.

This development also clearly shows the strong interdependence of the child's developmental periods: deficiencies in the child's early development cause new problems when early reflexes do not guide the child to crawl and creep in an appropriate cross-patter way, and then new problem factor of neural integration can develop.

In the NeuroPhys Coaching program, we present effective exercises to correct nerve integration problems. Because the child makes hundreds of thousands of cross-movements during childhood development, doing this work is not done so quickly afterward. The internship should be done daily and it lasts for several months. But the brain can be rebuilt in this regard too. All it takes is work and patience.

Coordination ability

Behind the precise control of the body is found to be good balance control and the fact that no internal tension, such as the remnants of primitive reflexes, causes extra muscle tension or inappropriate muscle control. That is why those challenging areas are the first to be addressed in the NeuroPhys program.

The second condition is well-realized nerve integration. The program's cross-exercises help with that.

Coordination and responsiveness can always be trained to be better, and sports coaches are aware of many different coordination exercises. What matters here is the readiness of the athlete to do and improve and develop. If the above background is not completed, no motor coordination training will produce the best possible result.

In some cases, the situation may even worse, as the primitive system may act against intentional doing in the background.

Another phenomenon is the stagnation of development. Despite the training, the coach may find that, compared to his experience, the training no longer achieves the expected result in terms of the time and amount devoted to it. This is where experience is needed. One way is to fill out the NeuroPhys analysis form carefully, which may reveal the underlying problems. In that case, it is relevant to implement the NeuroPhys exercise program.

In the NeuroPhys exercise program (Winner program), we have collected a series of coordination exercises that we also use in the rehabilitation of children and young people. You can find Video Links to them in the Winner program.

Development of thought processes

Thinking, or inner speech is part of a person's linguistic quality and ability to survive. It relies on visual and auditory perception, knowledge of the sense of touch and balance, and all the information produced by the

environment, which, by structuring and providing the total information it provides, creates strategies and practical means of coping. All the basic body skills described above are supported in this work. Once again, if any of the basic structures of the body and motor skills do not develop in the best way, it will also affect the quality and quantity of thinking.

In practice, it has been noticed that if an individual has problems with auditory discrimination, for example, then the quality and quantity of linguistic production are scarce. At the same time, it gives an indication of the quantity and quality of the thought process.

In my model of Neural Stress, elevated neural stress causes problems, especially if the stress tolerance is low. Then the person quickly moves to the defense position (defense mode) and even thinking is about coping with the stressed situation rather than a considered solution to the problem, and the reaction is easily aggressive.

Advanced logical reasoning is one of the quality criteria for thinking that can also be practiced and developed for the better. Courses in logical reasoning are now compulsory in university education, but of course, this thinking skill can be taught from school age onwards. That is why all of our exercise programs include a course on logical reasoning. It is suitable for anyone who wants to develop their way of thinking in their daily lives, hobbies, working life or even sports. It is useful everywhere.

Especially in sports, a quick cause-and-effect thinking process is sure to be of use. The faster solutions have to be made, the more important this process becomes.

Summary

When asked about top athletes and their coaches or top musicians , what is a key feature for a success?

The answer is often: "Good ability in concentration
and good pressure and stress tolerance."

These are based on good balance control, good motor skills and fast sensory functions, as well as automatic reactions that work without interruption.

You will probably find that this answer encapsulates all the qualities that the musician or athlete in the NeuroPhys Coaching program aims to enhance, and if the person faces challenges, NeuroPhys analysis tools or assessment may find the core of the problem and NeuroPhys training can possibly fix it.

Do you want to develop?

Now you have the opportunity to get the NeuroPhys Coaching online training program at a very affordable price. We have pushed the price so low that anyone who wants to develop themselves and achieve better results in sports, playing musical instruments, work, and leisure now has the opportunity to do so.

Take advantage of this opportunity and make your dreams come true.

Watch the video and subscribe the developmental Winner program [from Winner page.](https://winnerprogram.voomly.com/)
https://winnerprogram.voomly.com/

Enjoy the sweet nectar of success.

Best regards, NeuroPhys Team, Veli Laurinsalo

Contacts via E-mail: sensomoottori@gmail.com