

# Systemic hyposensitization (SHS) using the example of atopic dermatitis

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## Foreword

60 percent of Germans are now chronically ill. Mental disorders are the frontrunners, especially anxiety disorders and unipolar depression (38%), allergies (50%), atopic diseases (30%) and autoimmune diseases (8%). Most of these diseases occur in combination. Despite decades of research, the causes are not known. Stress factors, especially disease-enhancing behaviors, were suspected. The previous medical care could not stop the increase of these new widespread diseases. Since the eighties, for example, the prevalence of neurodermatitis has quadrupled to sixfold.

For the first time, current scientific research results provide reliable clues as to the cause of this worrying development.

More and more people perceive environmental stimuli, even harmless processes and substances, more emotionally unconsciously. Colloquially known as "high sensitivity", medicine assumes a central nervous sensory processing sensitivity (SPS). This predisposition is a priori not a disease. Highly sensitive personalities, for example, impress with their sensitivity, empathy and helpfulness. However, more and more of these sensitive personalities fail because of the rules of the competitive society, socio-economic instability, insecurity of attachment and the low appreciation of formerly highly respected professions.

We now know that overstimulated SPS manifests itself in the form of typical diseases. This also explains the anxiety disorders associated with these diseases.

The connection with sensory processing sensitivity (SPS), colloquially high sensitivity, is an applied or acquired central nervous hypersensitivity. This opens up completely new causal possibilities for prevention and therapy. Based on the research results, innovative medical care for these disease groups was developed and tested. *Systemic hyposensitization* is a medical procedure accompanied by behavioral therapy, which has led to sustainably better treatment results in clinical trials, without avoidance recommendations and significantly lower use of drugs.

It became clear that the decision on the further increase of civilization diseases falls within the scope of outpatient medical care for children. Accordingly, this training is primarily aimed at specialists in paediatrics and adolescent medicine, general medicine and dermatology involved in the care of chronically ill children.

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# 1 Background

## 1.1 The fruitless search for the disease-causing stress

Systemic hyposensitization resulted from the search for the causes of modern widespread diseases. According to the epidemiologists of the RKI, "allergic diseases" are considered such. In particular, decades of research into neurodermatitis had ultimately led to decisive findings.

Psychological factors have been included in the study of etiopathogenesis of chronic inflammatory diseases, in particular atopic dermatitis (AD), for 75 years (Dhabhar 2013; Peters et al. 2012; Ring et al. 2012; Senra and Wollenberg 2014). Above all, the search for stress factors that could be held responsible for their development ran like a red thread through their history. Previous studies of the relationships between psychological factors and the development and maintenance of AD have dealt with the effect of acute stress, circumscribed life events, specific personality factors or mental illnesses such as depression. Epidemiological approaches have recently provided evidence that modern widespread diseases could have co-dependent causes. The most common, so-called stress-associated diseases, such as atopic diseases (AD, bronchial asthma, hay fever) and allergies, autoimmune diseases and the most common mental disorders, seem to develop mainly in Western affluent societies[23]. In summary, decades of research have led to the conclusion that intense psychological stress can at least negatively influence the course of AD, possibly also its development, and that certain psychological factors, such as the existence of depression and disease-exacerbating behavioral habits, may be associated with the increased incidence of AD (Chida et al. 2008). In addition, a psychoneuroimmunological connection is considered to be established, which is partly influenced by the severity of the disease and by a number of influencing factors such as gender (Peters 2013).

## 1.2. First indications of the cause of atopy

The doctors at a children's hospital in northern Germany had noticed the overprotective behaviour of the parents of children suffering from neurodermatitis in everyday clinical practice. It was above all their tender sensitivity and constant anxious anxiety as well as the tendency to oversupply, which often turned into pessimistic mood or irritability for no apparent reason. This hypersensitivity was reminiscent of the construct of sensory processing (SPS).

In a pilot study by Liffler et al (2019), parents of children with AD were examined with the HSP test, the German translation of the Highly sensitive person scale by Elaine N. Aron and three proven personality tests, the Giessen Test [10], the Munich Personality Test [11] and the Freiburg Personality Inventory R [12]. The results of parents who themselves suffered or had suffered from an atopic disease differed highly significantly from the non-atopic parents in the HSP test ( $p = .000$  to  $.009$ ) in the 7 items dealing with *emotional excitability and sensitivity to subtle stimuli* and in the 12 items dealing with *excessive demands, exhaustion and reduced resilience*. There were no significant differences in the 8 items *sensitivity, empathy and helpfulness*. In the three personality tests, the atopic adults differed highly significantly in reduced frustration tolerance ( $p = .005$ ), significant in propensity to esoteric thinking ( $p = .011$ ) and psychological excitability ( $p = .013$ ).

### Summary

In the atopic adults, there was clearly a SPS in terms of test psychology. It was expressed exclusively by features of emotional excitability and hypersensitivity to subtle stimuli, as well as indications of *excessive demands, exhaustion and reduced resilience*, i.e. overall characteristics of weakness.

### 1.3. The Sensory Processing Sensitivity (SPS)

The 1997 book "Are They Highly Sensitive?" by the American psychotherapist Elaine N. Aron was translated into 80 languages and achieved millions of copies. Countless people recognized each other and were relieved and proud at the same time. In her scientific papers, she spoke of sensory processing sensitivity (SPS).

By definition, sensory processing sensitivity does not refer to the sensory organs as such, but to what happens in sensory information, is transmitted to the brain or processed there. Aron postulated SPS as an evolutionary higher and further development of perception processing and assumes a more open and subtle perception as well as a more intensive and prolonged central nervous processing of internal and external stimuli (Aron 2006). People with SPS also report an increased response to stimuli such as pain, caffeine, hunger, and loud noises (Liss et al. 2008) and show an affinity for spirituality (Blumentritt 2012). According to Aron, elevated SPS values are a personality trait and not a disorder. They must be distinguished from similar-appearing characteristics, such as socially reserved behavior, shyness, mental disorders such as neuroticism. Negative emotionality is only found in people with SPS

who were affected by an unfavorable parental environment during their childhood (Aron et al. 2012).

#### 1.4. The controversy over high sensitivity

The construct of sensory processing sensitivity is controversially discussed. Already 5 years after the publication of the book, a number of studies found evidence that highly sensitive people often suffer from anxiety disorders and depression (Neal J. A. 2002; Liss M. 2005, 2008); Meyer B. 2005). In 2019, two meta-analyses by Lionetti et al (2019) were published. In MA1 8 papers and in MA2 19 papers were examined for positive and negative correlations between the three main characteristics of PLC and Big Five personality traits. In MA1 SPS correlated with openness ( $r = 0.14$ ) and neuroticism ( $r = 0.40$ ), in the second MA only with negative effects ( $r = 0.34$ ).

Vanders Elst, T. et al. (2019) investigated the influence of SPS on the workplace. The results gave first indications of the greater susceptibility of highly sensitive individuals to work and showed the moderating role for the three components of the PLC.

According to the ease of arousal (LST) and the lower sensory threshold (EOE), the work demands were perceived as excessive and led to emotional exhaustion. Personal factors could act as both a personal vulnerability factor and a personal resource, depending on the type of perceived work environment.

The study by Nikola Drndarević et al. (2021) aimed to investigate the relationship between SPS and behavioral problems by testing the potential mediating roles as emotional intelligence trait (TEI) and decision-making styles. Pathway analysis was conducted using data from 268 community sample participants. SPS has been shown to influence the development of depression regardless of gender.

The striking juxtaposition of strengths and weaknesses was described by R. Tölle in 2013 in his article "The sensitive characters". Tölle quoted world-famous psychiatrists such as E. Kretschmer and K. Jaspers and summarized: "These people are extremely sensitive and soft, also sensitive and sensitive. They are impressionable and vulnerable, highly dependent on the judgment of others. Not very self-confident, rather insecure, inhibited and anxious"..... "On the one hand, there are sensitive people who are often found in everyday life without their sensitivity being noticeable. On the other hand, there are the highly sensitive people who visibly suffer from their personality structure and repeatedly get into such deep crises that treatment is necessary." The sensitive personality was therefore adopted as an anxious-avoidant personality disorder in the international classifications DSM-IV-TR and ICD-10.

#### **Summary:**

High HSP test results do not generally correlate with talents, but with the diseases of the atopic form and the most common mental disorders. The main features of SPS also correlate with the characteristic coexistence of sthenic and asthenic properties as

described in anxious-avoidant and avoidant-self-insecure personality disorders in ICD 10.

#### 1.5. Sensory processing sensitivity has a long tradition

The assumption of these connections has a long tradition. Hans Selye, Hungarian-Canadian physician and discoverer of the stress response (1940), wrote the bestseller "Stress without Distress" ten years after its first description. In it, he described the stress response as individually different stress sensitivity [4]. H.U. Wittchen, Director of the Department of Clinical Psychology at TU Dresden, wrote a critical article on the "Diathese-Stress Model" in 2012: "Stress is less responsible for triggering the stress response than the individually different processing and evaluation process and the adaptation effort. Vulnerability (sensitivity or "thin-skinnedness") can lead to the onset of psychosis in combination with stressful life history processes, to situational-social or physical-hormonal stress" [5]. In his book "The Ego Illusion", published in 2011, the world-renowned brain researcher Michael Gazzaniga assumes that psyche and what we understand by consciousness only arise in social interaction and cannot be understood as an isolated brain phenomenon of an individual. "Rather, one must start from complex structures and processes that are largely inaccessible to human consciousness. However, the feeling of a unified consciousness, the feeling of self-determined action and decision-making, is only an *"I" illusion* that our brain produces itself and with which it "permanently misleads". Human consciousness is not a uniform process, but comes about in the interaction of numerous, distributed systems that interact dynamically; Consciousness is therefore the result of complex systems that appear to us as "I", but in fact only arises from the need for explanation of our dominant brain hemisphere [6]. Sterling P, Eyer J. and McEwen B.S. assumed an evolutionary adaptation (allostasis), which leads to a more adapted behavior due to the longer-term changed requirements. However, persistent overload (allostatic overload) threatens overstimulation and typical diseases [20-22].

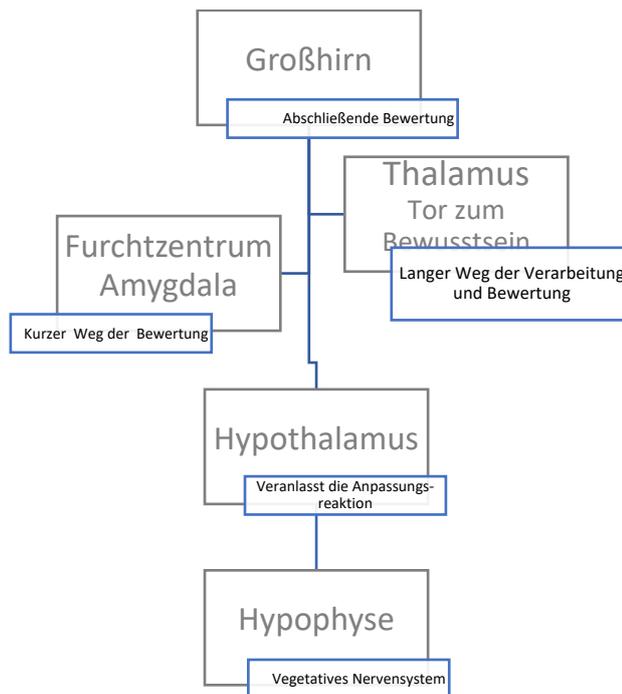
## 1.6. The Social Dependence of Sensory Processing Sensitivity

The social and biographical change in the affluent societies of Western character had already led to a significant decline in the values of marriage and family in the eighties of the last century. In response to increasing social insecurity, especially attachment insecurity, the attachment parenting movement in the United States led to a shift to the right in society, which redefined the role of mothers in particular. She had to submit unconditionally to the needs of the children.

The attachment-oriented parenting styles have long been widespread in Europe, especially in Germany, and hardly any young family wants to escape the codex that the mother has to respond to every emotion of the child, must never let it scream, wear it whenever possible, breastfeed ad libitum and share the bed with it. Feasible for the wealthy family, families in which the mother claims her own professional career or the family is dependent on the income of both parents must fail at this credo. Even though these mothers have long since reached their mental and physical limits, they try to do justice to this educational mainstream, for which, by the way, there is no scientific basis. They want to be recognized as a good mother at all costs. The constant worry of not meeting these requirements, the feeling of inadequacy and the fear of attachment insecurity, the failure of the relationship and the social crash, therefore increases above all the sensitivity (The allergy code S 208 -238).

## 1.7. Excursus: The Neurobiology of the Stress Response (Adaptation Response)

All information perceived via the eyes, nose, tongue, ears and touch reaches the evolutionarily older but fully functional diencephalon ("mammalian brain") via the thalamus. This part of the brain is not responsible for satisfying the urge to obtain food and reproduce, but also for basic needs for security and social cohesion, including, for example, instinctive maternal care. This part of the brain already has its own memory. The fear center, where all incoming information is checked for its threat, is of vital importance. In the amygdala, all sorts of well-founded fears already created at birth, but also learned, are stored. If the amygdala registers a danger, this is transmitted via the shortest conceivable route to the hypothalamus, which activates [the autonomic nervous system](#) (VS).



### The short and long path of the anxiety cycle

The VS uses control circuits between the brainstem and peripheral organs to ensure the optimal adaptation of the entire organism to the changed requirements. The first phase of the stress or adaptation response is initiated with the two stress hormones norepinephrine and adrenaline via the hypothalamic-pituitary-adrenal medulla axis (HHNM axis). If the adaptation does not succeed, the stress response is continued with the hypothalamic-pituitary-adrenal axis (HHNR axis) and the additional release of cortisol. These attempts at adaptation require a considerable expenditure of energy, which can sooner or later lead to exhaustion and illness. The physiological adaptation processes take place without control by our consciousness, but run reflexively through the reactions of the amygdala. We are therefore not consciously and willingly involved in this adaptation [16]. In this complex system, there is a structure, the hippocampus, which controls the processes and transmits perceptions that appear particularly important to the cortex for assessment. This long path of the cycle of fear manifests itself, for example, when we collapse at night in the moonlight due to a sudden shadow and breathe a sigh of relief the next moment because it was only a branch moved by the wind.

### 1.8. The Adaptive Response of Overstimulated Sensory Processing Sensitivity

The greatly increased SPS tends to overstimulate and adapt reactions with the release of the stress hormones norepinephrine and adrenaline via the hypothalamic-pituitary-adrenal

medulla axis, even with low, almost unchanged requirements. The adaptation attempts of sensitive personality lead without help in principle to an increase in sensitivity, so that the adaptation can not succeed and the hypothalamic-pituitary-adrenal axis (HHNR axis) and the additional release of cortisol is continued. Long-term, fruitless attempts at adaptation require a considerable expenditure of energy, which leads to exhaustion and the development of diseases. Since these are not adaptations to acutely increased demands, but a hypersensitivity to harmless stimuli, this process may take years. Often exacerbation occurs in connection with ripening crises.

#### 1.8.1. Sensitivity, empathy and social talents

In sensory processing sensitivity, there is an [increased sensitivity in the area of the subcortical structures in the diencephalon](#), but a priori it is not a disease. People with sensory processing sensitivity are usually not perceived by the social environment as hypersensitive or mimosa-like, but are even praised for their empathy and social behavior. Characteristic characteristics are sensitivity, empathy and their altruism. These people can not only cope well with their SPS throughout their lives, but also stand out because of their social and aesthetic talents.

#### 1.8.2. The emotional excitability and hypersensitivity to subtle stimuli

However, if their sensory sensitivity to perception is overused by constantly changing demands or the impending loss of social security, lack of appreciation and especially by attachment insecurity, it can be easier to arousal, especially to fears and apprehensions. These symptoms have been described by Elaine N. Aron as particularly characteristic of HSP. Here, too, it is usually not yet possible to speak of illness. If this condition persists for a long time, the sensitivity and excitability increases constantly and even with harmless stimuli there are unnecessary vegetative adaptation reactions with the release of the stress hormones adrenaline and norepinephrine as well as cortisol. These personalities stand out for their emotional irritability and physical hyperresponsiveness and atopic symptoms.

#### 1.8.3. The excessive demands, reduced resilience and exhaustion

SPS acquires an etiopathogenetic significance when it comes to prolong-lasting, unsuccessful adaptation attempts of the autonomic nervous system. The unsuccessful attempts at adaptation require a considerable expenditure of energy, which must lead to exhaustion and illness. The consequences are atopic diseases and / or mental disorders, such as anxiety disorders, depression, exhaustion and burn-out syndrome.

## 1.9. The acquisition and measurement of the PLC

### 1.9.1. The HSP test

To record and measure sensory processing sensitivity, Elaine N. Aron developed the Highly sensitive person scale in 1996. If more than 14 of the 27 questions are answered with "yes", the tested person is considered highly sensitive. The questionnaire has been scientifically examined several times. The analysis of the American Psychological Association showed reasonable reliability and content-related, convergent and discriminant validity for HSPS. The 27-item version had an internal consistency reliability (alphas) of .87 and .85 in 2 studies. The measure has good substantive validity in terms of conceptualizing high sensitivity, as it implies both high sensitivity to subtle stimuli and is slightly overexcited. The discriminance, convergence, and overall construct validity of HSP has been supported by the entire series of studies. (APA PsycTests Database Record (c) 2019 APA) HSP scale score patterns in adults were determined as dichotomous categorical variables with a break point between 10% and 35%, with Aron selecting a cut-off of the 20% with the highest score to define the HSP category.

The 27 items can be clearly assigned to the three main characteristics.

#### 1.9.1.1. Sensitivity, empathy and social talents (8)

- 2 Apparently, I have a fine perception of subliminal things in my environment.
- 8 I have a rich, multi-layered inner life.
- 10 Artful music moves me deeply.
- 12 I am a conscientious person.
- 15 When other people feel uncomfortable in an environment, I know more than some others what is necessary to create well-being (for example, by changing the lighting or seating arrangement).
- 17 I try very hard to avoid mistakes or not to forget things.
- 22 I notice and enjoy fine scents, tastes, sounds or works of art.
- 27 As a child, my parents and teachers saw me as sensitive or shy.

1.9.1.2. Emotional excitability and sensitivity to subtle stimuli (7)

- 3 Other people's moods influence me.
- 4 I am more sensitive to physical pain.
- 6 I react to caffeine more violently than many other people.
- 9 Loud noises make me uncomfortable.
- 13 I'm scared
- 18 I avoid TV shows and feature films with scenes of violence.
- 20 Feelings of hunger permanently disturb my concentration and affect my mood.
- 25 Loud noises, chaotic scenes and similar strong stimuli bother me.

1.9.1.3. Excessive demands, low resilience and exhaustion (12)

- 1 I feel easily overwhelmed by strong sensory impressions.
- 5 I feel the need to retreat on busy days – either to a dark room or to another place where I can be alone and recover from the stimulation.
- 7 I quickly feel overwhelmed by things like bright lights, strong smells, rough textiles on my skin or St. Martin's horns near me.
- 11 Sometimes my nerves are so bare that I just want to be alone.
- 14 It easily upsets me when I have to do a lot in a short time.
- 16 I get angry when I am expected to do too many things at once.
- 19 I feel uncomfortably aroused when there's a lot going on around me.
- 21 Changes in my life hit me very hard
- 23 I find it unpleasant when I have to deal with several things at the same time.
- 24 For me, it is very important to organize my life in such a way that I avoid situations in which I have to get angry or that overwhelm me.

- 26 When I have to compete with other people or am watched while completing a task, it makes me so nervous and insecure that I do far worse than I could.

## SPS-16 Screening

The SPS screening method is a measuring instrument designed for clinical use to detect sensory processing sensitivity (SPS). The test procedure was developed step by step with the support of 1246 test persons and is currently available in the 16-item version. The measurement is carried out using a 5-point Likert scale with the values disagree at *all* (1) to *fully agree* (5). The SPS screening test takes into account three dimensions of the SPS, which were derived from the highly sensitive person scale by means of exploratory factor analysis and empirically confirmed:

- Strengths and talents, such as sensitivity, empathy, caring, diligence, ambition and specific talents.
- Emotional and subtle physical sensitivity, that is, sensitivity to substances such as coffee or virgin wool or stimuli, such as loud noises, restlessness)
- Resilience and overwhelm, that is, feelings of inadequacy. Desire for recognition, feeling overwhelmed and exhausted)

In preliminary examinations, the SPS screening test shows a high internal consistency (Cronbach's Alpha AES = 0.80, LST = 0.82, EOE = 0.83), good item selectivity ( $0.48 < ITC < 0.75$ ) and good criterion validity ( $p < 0.001$ ,  $R^2 = 0.26$ , AUC = 0.81). Objectivity and visual

validity are given as well as a high test economy. With screening, the SPS can be detected quickly and reliably. The result not only shows the height of the SPS, but also graphically displays the individual feature distribution. In this respect, the method is equally suitable for outpatient and inpatient medical care as well as for carrying out large cohort studies.

#### 1.9.1.4. Sensitivity, Empathy and Social Talents (5)

- 1 In my private or professional dealings, I notice atmospheric disturbances earlier than others.
- 2 Other people's moods influence me.
- 10 The well-being of the people around me is important to me.
- 15 I tend to make too high demands of myself.
- 16 I perceive things and processes in my environment more intensively and emotionally than others.

#### 1.9.1.5. Emotional excitability and sensitivity to subtle stimuli (5)

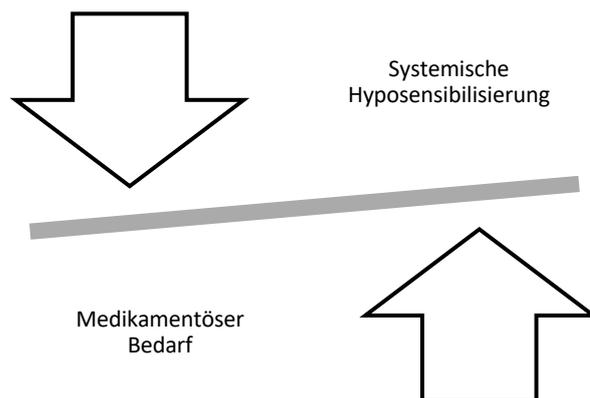
- 3 I tend to be startled.
- 4 Loud noises, bright lights or alarm drives from emergency vehicles worry me.
- 7 I find virgin wool or other rough textiles unpleasant.
- 9 I find constantly loud people unpleasant.
- 12 I have a sensitive sense of smell.

#### 1.9.1.6. Exhaustion, low resilience and exhaustion (6)

- 5 Sometimes I feel so annoyed that I just want to be alone.
- 6 When I or my child gets sick, I quickly think about complications.

- 8 Changes in my life bother me a lot
- 11 I can't stand being expected to do multiple tasks at the same time
- 13 It annoys me and I can't concentrate when there's too much going on around me.
- 14 I can't forget bad childhood experiences.

## 2. Basic principles of innovative medical care for children suffering from neurodermatitis



### The importance of systemic hyposensitization

Innovative care stands and falls with the observance of certain basic principles. These include:

- Early detection and the earliest possible therapy;
- the most accurate assessment of the stage of development of the chronic disease, because it alone enables needs-based support and treatment;
- active engagement rather than avoidance and symptomatic suppression;

- observance of the systemic hierarchy of the whole organism;
- the understanding of systemic hyposensitization as optimized medical care of the so-called stress-associated chronic diseases

## 2.1. Early detection and the earliest possible therapy

During the first trial of SHS, it was shown that the success of the treatment clearly depended on the age and time of starting treatment. 40 infants and toddlers up to 3 years of age were free of symptoms within 24 months, regardless of SCORAD and the number and severity of IgE-mediated allergies, and could be fed normally according to their age. The benefits of early treatment of chronic diseases in childhood are well known. The increase in primary chronic diseases of the atopic type, in particular the accumulation of neurodermatitis, can only be stopped in early childhood.

### *The earliest possible diagnosis*

Parents, especially those who tend to use alternative but unproven procedures, e.g. bioresonance therapy, should be informed about the need for early diagnosis and therapy in case of symptoms of AD.

- The diagnostic recommendations of the AWMF sk 2 guideline neurodermatitis and the screening to clarify individual needs (see 2.2) should always be taken into account.
- Especially in the case of severe familial atopy going back several generations, reliable allergy diagnostics are indispensable. In these cases, the pregnant woman should be informed about the peripartum examination of the total - IgE in the umbilical cord blood.
- Detection of sensory processing sensitivity by the SENS-E-TEST. At high SPS values, check for mental disorders, such as anxiety disorders, unipolar depression, ADHD. Psychovegetative exhaustion / burn-out.

### *The earliest possible therapy*

The therapy is mainly carried out through the trusting involvement of the parents. Without them, the promising treatment of an infant or toddler is not possible. The parents should therefore be involved by the doctor in all medical decisions from the beginning. It depends on the results of the diagnosis and the assignment to one of the four developmental stages of AD, which therapeutic focus is initially selected (see 3.1.to 3.3 and 4.)

## 2.2. The consideration of the atopic stages of development

Neurodermatitis, internationally referred to as atopic dermatitis (atopic dermatitis), AD for short, is one of the diseases of the atopic type, along with bronchial asthma and rhinoconjunctivitis. The term "atopy" was derived from Greek 100 years ago and was intended to refer to the "placeless" occurring hypersensitivity of the skin and part of the mucous membranes. Atopic dermatitis shows typical stages of development, at the end of which the classic symptoms of neurodermatitis stand. A more differentiated view of AD is indispensable for successful treatment.

### 2.2.1. Subacute (mild) atopic dermatitis

It is the most common form of AD and the one that is clearly due to the increased sensory processing sensitivity of at least one parent, most commonly the mother. The increased responsiveness of parents and their propensity to overprotect and overcare are important co-factors for the development of AD. Children with sensory sensitivity to processing react more sensitively to their sensitive parents, but also to all other environmental stimuli. There is little or no familial predisposition to atopy. Those affected often show food intolerances, but rarely IgE-mediated food allergies. The skin shows a slight, uncharacteristic, blotchy redness, especially on the face and on the outsides of the extremities.

### 2.2.2. Acute atopic dermatitis

Frequent acute flare-ups, often with complications, occur in infants and young children with the initial picture of subacute AD. In addition to sensory sensitivity to processing, however, there is a clear atopic predisposition in at least one parent, usually already in the 2nd generation. IgE-mediated food allergies (cow's milk, egg white, fish, nuts) are detected in almost 50% of children. The children develop acute episodes of the disease at ever shorter intervals, usually via rapidly spreading skin infections with Staph. Aureus. There are extensive weeping redness, excoriations and scabs, especially on the face, shoulders and the outsides of the extremities. Often within a few hours, this picture passes into impetigo with lawn-shaped, purulent pimples and purulent scabs. If you are unaware of the allergic predisposition, it is not uncommon for threatening anaphylactic events to occur as part of the food structure. In acute episodes, the children often have to be hospitalized.

### 2.2,3. Transitional forms

Parents have a clear atopic predisposition, usually in the second or even third generation. The characteristics of sensory processing sensitivity are often only seemingly less pronounced. Long-lasting therapeutic odysseys, relentlessly searching for the best method and the ingenious drug, they seem predominantly "head-controlled". There is little willingness to include oneself as a cause. Partnership conflicts are concealed. These children show a different picture early than the first two stages of development. More than 50% of their children are found to have airborne allergies (often early-flowering trees and grasses) and cross-allergies. The children have rather discreet, but still typical stigmata of neurodermatitis: the somewhat dry, somewhat scaly skin, especially on the forehead and around the eyes and mouth, the double eyelid crease and the so-called "white dermographism". On the extremities, the redness is less on the outsides than in the bends and insides of the wrists.

#### 2.2.4. Chronic atopic dermatitis

The full picture of neurodermatitis is rarely seen in early childhood. In the few cases, there is a long-standing family predisposition to atopy and neurodermatitis diseases, often in both parents. 80 percent of children suffer from IgE-mediated allergies and show all the characteristics of neurodermatitis right from the start. If a patient has three or more of the following characteristics, the diagnosis of neurodermatitis is considered confirmed (Hanifin and Rajka, 1980): Extensive thickening of the skin on the hollows of the knees and crooks of the arms, skin changes in characteristic areas, itching, chronic intermittent course, own or familial allergy.

#### Recommendations

At the first indications of atopic dermatitis, a diagnostic clarification is carried out. The subsequent screening enables rapid and relatively reliable differential diagnostic clarification and classification of the child in one of the four stages of development.

#### 2.2.5. Screening to determine the stage of development

	<b>Feature</b>	<b>Points</b>
1	Age: 1st to 2nd year 2 P., 3rd to 6th year 5 P., older than 7 years 10 P.	
2	Predisposition of the maternal family to diseases of atopic forms. 1st generation 2 P, 2nd gen. 5 P, 3rd gen. and another 10 P	
3	Predisposition of the paternal family to diseases of the atopic group 1st generation 2 P, 2nd gen. 5 P, 3rd gen. and another 10 P	

4	Proven IgE-mediated allergies in parents Mother: yes 5 P.                  Father: yes 5 P.	
5	Proven IgE-mediated allergies in children Yes 10 P.	
6	Since when does atopic dermatitis exist in the child? 1 year 2 P., 2 to 6 years 5 P., more than 7 years 10 P.	
7	Where the eczema shows up clearly Face 2 P., Outside of extremities 2 P., Torso 2nd P., Wrists inside 10 P., Elbows inside 10 P., Knee joints inside 10 P. <b>Enter total</b>	
8	How severe is the itching? 0 to 10 P. (strong)	
9	How severe is the skin dryness? 0 to 10 P. (strong)	
10	Indications of concomitant bronchial asthma? Yes 5 P.	
11	Indications of concomitant rhinoconjunctivitis (hay fever)? Yes 5. P.	
12	SPS-16 screening – result of the mother? 0 to 1.4 or 0 to 25 % 0 P., 1.5 to 2 or 26 to 50% 5th P, more than 2.0 or more than 59 % 10 P	
13	SPS-16- Screening – result of the father? 0 to 1.4 or 0 to 25% 0 P., 1.5 to 2 or 26 to 50% 5th P, more than 2.0 or more than 59 % 10.P	
14	Does the child show evidence of mental disorders, such as emotional excitability, crying fits, extraordinary startleness or sleep disturbances? Emotional imbalance 5 P. Unfounded crying attacks 5 P., sleep disorders 5 P., hyperresponsiveness / startleness 5 P. <b>Total</b>	
15	How severe is the psychosocial overload of the mother due to the child's illness?	

	0 to 10 P.	
16	How severe is the psychosocial overload of the father due to the child's illness? 0 to 10 P.	
17	To what extent are alternative methods, such as homeopathy, TCM or electroacupuncture, used? No 0 P, only accompanying 5 P., only 10 P	
18	Course of the disease to date easily 0 P. moderately 2. P. significantly 5 P. heavy 10 P.	
	<b>Sum</b>	

Assessment:

0 to 50 points: slight AD

51 to 100 points: acute AD

101 to 150 points: transitional form

more than 150 points: neurodermatitis

### 2.3. Active confrontation instead of avoidance and symptomatic suppression

The AMWF guideline recommends the strict avoidance of "triggers" such as psychological stress, dust, pollen, virgin wool, sweat, heat, cold, personal care products, food and beverages as well as microbes as an important part of dermatological treatment. The current study results offer a conclusive explanation why atopic people, especially patients with neurodermatitis, can react emotionally and physically hypersensitive to such everyday stimuli and why this hypersensitivity increases noticeably in the context of developmental phases associated with hormonal changes, such as pregnancy or puberty. The anxious-avoidant behavior and the hypersensitivity to harmless and natural environmental stimuli are the two main characteristics of the sensitive personality. The fear of unavoidable dangers is the most common reason for avoidance behavior. Fear and the flight reflex are vital characteristics of animals and humans. Avoiding known, unavoidable dangers is completely normal. Sensitive personalities, however, are afraid of only supposedly unavoidable dangers. Avoidance recommendations encourage these people in their fears of actually being at risk. However, since their clinical picture does not improve despite strict avoidance, they look for further dangers on their own, which they should avoid. They never know what they should actually be wary of.

#### **Recommendations**

- Refrain from nonsensical avoidance recommendations and instead promote the active confrontation with these alleged dangers.
- Proven high-grade IgE – mediated allergies are not avoided, but immunotherapeutically desensitized by continuous contact with the allergen (see section "Immunotherapeutic hyposensitization")
- For the reduction of the tendency to anxious-avoidant behavior, the cognitive discussion about the connection between high sensitivity and atopy is indispensable. Often, treatment is unnecessary afterwards.
- The treatment of highly sensitive anxiety disorders is based on the principles of recognized anxiety therapy, i.e. step-by-step mental, visual and contact-making confrontation with the anxiety-inducing stimulus. The use of psychological psychotherapists is usually not required. Appropriately trained psychologists, social pedagogues or alternative practitioners may find it easier to trust and access those affected.

### 2.4. Avoidance of too much medical intervention, and Over-medicalization.

More than half of the neurodermatitis patients have now turned their backs on the recommended medical care and seek advice and help from alternative providers. An army of doctors, psychotherapists, nutritionists, alternative practitioners and neurodermatitis consultants are now taking other paths. For no other chronic disease more and more different drugs, treatment methods and procedures are offered than for neurodermatitis and for hardly any other disease more books and guides have been written without this having led to a decline in prevalence. 80 percent of children suffering from neurodermatitis are neither sufficiently examined nor treated as needed. This was the result of a survey of parents whose children were admitted to the author's clinic for inpatient treatment.

### Recommendations

The new knowledge should help to focus on the identifiable cause of the disease and avoid the search for other causes and speculation. Restriction to the necessary and scientifically proven early diagnosis (2.2.1.) and therapy (2.2.2). Restriction to the really necessary therapy according to 3.1. to 3.3. and 4.

## 2.5. The observance of the systemic hierarchy in the whole organism

Rather, one must start from complex structures and processes that are largely inaccessible to human consciousness. However, the feeling of a unified consciousness, the feeling of self-determined action and decision-making, is only an *ego illusion* that our brain produces itself and with which it "permanently misleads us" (Michael Gazzaniga).

The ideal balance of the entire organism, homeostasis, owes the human being primarily not to the cortex, but evolutionarily older brain structures, which are also referred to as the "mammalian brain". This part of the brain has been fully functional in humans. In particular, the limbic system is increasingly proving to be an "emotional center of power" that constantly eludes rational influence [19]. Man has little influence on the processes in the parts inaccessible to consciousness, by virtue of his intellect. More and more diseases do not develop as assumed by stress, but by hypersensitivity of the structures in the emotional center of power. Symptomatic treatment of a subsystem, such as the skin, must fail if systemic dependencies are not taken into account.

## 2.6. The understanding of SHS as optimized medical care for stress-sensitive chronic diseases

SHS is not another alternative treatment method, but an innovative form of medical care, especially for the outpatient care of neurodermatitis and other stress-sensitive diseases.

It differs from previous symptomatic care (avoidance and symptom-suppressing drugs) by its causal derivation. The overstimulated sensory processing sensitivity is treated. The medical needs treatment is constantly adapted to the success of systemic hyposensitization, i.e. corrected downwards.

## 2.7. The reduction of parental over-protection

A promising treatment of the children is only possible through a stable parental personality. Even atopic, highly sensitive parents are often unable to meet the necessary requirements and prerequisites. Without at least a simultaneous, better is an early stabilization of the parental personality, the treatment of the children must fail. This is most evident in dealing with the main problems, sleep disorder and arousal-dependent itching. The many, different recommendations all suffer from the fact that the overstimulated high sensitivity of the parental personality is not taken into account. In particular, highly sensitive mothers tend to have a particularly intense mother-child bond. Already during the transition to the second year of life, the little ones discover themselves, play with their fingers, suck their toes, touch each other and recognize themselves in the mirror. They see themselves as important. Psychologists speak of egocentric empathy. Disturbances of this development towards independence due to too long adherence to the close mother-child relationship inevitably lead to mother-child conflict, which can shape the later social behavior of the children. These people later become dependent more easily, are insecure and weak in decision-making.

### 2.7.1. Parents should behave authentically and show their feelings

If the mother-child symbiosis goes so far that the mother defecates with the child at the breast, there is an advanced detachment problem. The attachment-oriented mother may suddenly lose her temper, and her self-sacrificing behavior turns into the opposite. She yells at the child and flees into the next room. Disappointed in herself, she apologizes in the next moment and tries to explain to the one-and-a-half-year-old that it cannot go on like this. This insight is a first step.

In fact, such conflicts can neither be resolved according to the motto "reward desired behavior, punish unwanted behavior" nor with consistent enforcement of rules. Even the violent dissolution of a symbiotic relationship makes no sense. It is important that parents know something about the normal development of their children and do not over- or under-challenge them. The children should learn early on that they are part of a community and have to respect the rights of the other family members. Parents never have to give up their own goals and desires for the sake of the child. Rather, they

should make it clear at an early stage that the partnership of the parents, their professional practice and the household require consideration. The social behavior does not awaken at some point on its own, but develops according to age according to the example of the parents.

Toddlers do not yet have the cognitive abilities to understand the necessary rules of living together. However, they have antennas with which they register any atmospheric fluctuation. In this situation, the parents should depict scenically how they imagine living together. They should consciously shape the critical situations that lead to power struggles with the child and express their own opinions and feelings through facial expressions, posture and gestures. If the child clinging, they should show that they can not be present all the time, but have something to do. One option is to offer the child a toy and then leave the room for a recognizably important activity. If there is nothing to do, such scenes can be "re-enacted". For example, carry a laundry basket purposefully out of the room and return before your child starts screaming, seemingly on the phone. These short-term spatial separations should be practiced with changing occasions. At the beginning, you should underline the going out with words: "I want to see if the post is already there." If you need a break, make it clear: "Boo, now I'm tired and need to rest." In doing so, they show their tiredness. Children love it when parents act!

The periods of spatial separation may be gradually extended. In case of failure, crying or angry screaming, the child should not be reprimanded or comforted. Inappropriate behavior should be ignored or acknowledged with a disapproving look. Escalations must be avoided. The praising must clearly outweigh the ignoring or criticizing. This means that the child must never be overwhelmed, it learns above all from success!

#### 2.7.2. Parents should avoid the child's secondary disease gain

More or less unconsciously, every sick person benefits from his condition, for example by exempting him from tasks and obligations. Unpleasant situations or conflicts can also be avoided in this way. This is no different with children. Due to illness, for example, the child escapes a class work for which it is insufficiently prepared. One then speaks of a primary disease gain.

If the child enjoys excessive attention and compassion from parents due to his or her state of health, he may even try to delay the illness in order to continue to receive this attention. A child whose disease gain outweighs or outweighs the negative side effects of the symptoms shows a lower willingness to actively participate in coping with the disease.

When caring for and caring for the sick child, consciously avoid an excessively tender-comforting attention. Instead, behave decidedly normally.

#### 2.7.3. Parents should not respond to every emotion of the child

Sensitive parents respond immediately to every emotion, but above all to signs of dissatisfaction, and react with affection and tenderness. They cannot stand a crying child. They interpret the crying as an indication of a deficiency for which they are responsible and which harms their child. Both parents often react almost reflexively in order to remedy the alleged deficiency immediately.

To avoid any misunderstandings: Caring, protective behavior of the parents and loving physical attention are normal and desirable, especially in infants in the first six months of life. The little ones are dependent on it at this stage of their lives. However, some mothers do not find the right balance. For example, you should not dwell too much on the crying of the child and respond appropriately to the communication of his negative feelings. The infant is already on the path to self-discovery and should be encouraged on this path and not hindered by overprotection. The roots of the development of hypersensitivity lie in early inappropriate overprotectiveness. The baby does not learn to distinguish the essential from the inessential. To an infant who orients himself to his overprotective mother, everything seems important in the future!

Already during the transition to the second year of life, the little ones discover themselves, play with their fingers, suck their toes, touch each other and recognize themselves in the mirror. They see themselves as important. Psychologists speak of egocentric empathy. Disturbances of this development towards independence due to too long adherence to the close mother-child relationship inevitably lead to mother-child conflict, which can shape the later social behavior of the children. These people later become dependent more easily, are insecure and weak in decision-making.

#### 2.7.4 Organizing everyday processes

To sensitive people, everything seems important. They have difficulty distinguishing the essential from the non-essential, and so they feel constantly overwhelmed. It can help to structure everyday processes temporarily and strictly. Everyone has to find themselves in this timetable. This applies to all recurring activities, meals, children's bedtime, household chores, preparatory or follow-up professional tasks and leisure activities. This should also include periods in which you consciously and meaningfully engage with your child. The predictability and reliability of operations are important, for young children more than for adults. This strict structuring should be relaxed again as the child's independent development progresses.

## 2.8 The course of atopic dermatitis is determined by sleep disorders

There is hardly a child suffering from neurodermatitis who does not suffer from sleep disorders and thus robs not only himself, but the whole family of sleep. Nothing affects the course of atopic dermatitis more than sleep disorder and opinions differ on how to deal with this problem. Some believe that parents are there to share the suffering of the

child, even if this brings them to the limits of their resilience. The others advise sleep training, whereby the opinions on what should be demanded of the child differ widely. In particular, the question of how long you can let the child cry, ignites the dispute of the "sleep disorder experts". In general, nocturnal itching robs children and parents of sleep.

In fact, the sleep disorders in families with children suffering from neurodermatitis are not caused by the children, but above all by the highly sensitive mothers. Their already characteristically increased sensitivity, i.e. their sensitivity, empathy and caring, is extremely enhanced by the hormonal adjustments. The risk of developing mental overstimulation is increased many times over at this stage of life. The highly sensitive mother perceives the slightest change in her child and often reacts completely unreasonably anxious and aroused. Although infants do not yet have cognitive abilities, they have highly sensitive antennae for the emotional state of the mother. The constantly anxious-worried and exhausted mother frightens the child, as a result of which his itching intensifies and worsens the symptoms of the disease. The mother responds to the negative changes with increased attention and attention. The result is a vicious circle.

Sensitivity can take on delusional traits. The juxtaposition of character strengths on the one hand and vulnerability and overwhelm on the other is the central problem of the sensitive personality. This problem accumulates and escalates during the classical stages of development, i.e. during pregnancy, peri- and postpartum, as well as during lactation periods. Mothers fail because of their own excessive demands and their feelings of inadequacy. Sensory processing sensitivity, a priori not a disease, can fluently transition into a sensitive personality disorder with delusional perceptions. In these cases, systemic hyposensitization reaches its limits, These women are convinced that the doctor understands them and their recommendations are correct. They also let them believe that they have understood everything and are following the recommendations. However, they are not able to do this without the constant support of the professional helper and fail due to their own inadequacy. These courses were isolated cases 20 years ago, today their share is likely to be 5 to 10 percent.

### 2.8.1 Systemic hypersensitization does not require sleep training

The course of atopic dermatitis is decisively determined by the extent of the sleep disorder. They develop as a result of the overstimulated sensory processing sensitivity of the parents, especially the mother. Unnoticed or mistreated, even the most well-intentioned medical treatment fails! In this respect, the earliest possible recording of parental SPS is of paramount importance. Overstimulated and exhausted parents cannot get the sleep disorder of their neurodermatitis child under control without expert help. This support may be delegated to appropriately trained professionals. The Network Innovative Neurodermatitis Care has set itself the goal of training SHS coaches. They are intended to support physicians in systemic hyposensitization.

## Recommendations

The following recommendations are aimed at parents. They must be stabilised and enabled to provide their child with the framework that meets the child's real needs and enables them to receive needs-based medical treatment. Children suffering from neurodermatitis should not be trained to endure the emotions and inadequacies of their parents. These findings are not new. Horst-Eberhard Richter, physician, psychoanalyst, social philosopher and Nobel Peace Prize laureate wrote the book *Patient Family* in 1970. *Origin, structure and therapy of conflicts in marriage and family*. He recommended the discovery of the causes of which the children despair and from which they become ill. 95% of parents understand and accept these connections and strive for solidarity with each other. If individuals fail to meet the requirements, this is not due to the deficiencies of systemic hyposensitization, but to circumstances that do not allow needs-based care of the child suffering from neurodermatitis. In most cases, the parents, especially the highly sensitive mothers themselves, are so mentally disturbed that cooperation with the professional helpers must fail. In psychiatry, an anxious-avoidant personality disorder is assumed if the person concerned suffers from social inhibition, feelings of inferiority and hypersensitivity to negative assessment due to fear of criticism or rejection (ICD 10 F60-69; R. Tölle, *Die sensitiven Charaktere*, 2013). These people are no less valuable than the overstimulated sensitive personalities, they only react more radically. Experience has shown that they are best helped if they work themselves and in community with like-minded people to overcome social grievances that have ultimately made them ill. If you support them in awakening their social talents, they often develop exceptionally committed and competent therapists. This form of activation corresponds to systemic hyposensitization at a higher level.

### 2.8.2 Why almost all AD-sick children sleep in their parents' bed

The decisive scratching attacks usually take place in the phase of fatigue, at night or upon awakening. This is the main reason why these children almost always spend the night in their parents' bed. Parents, especially mothers, are convinced that this is the only way to prevent scratches and their dire consequences. Years of contact with families in the context of inpatient treatment have shown that the children sleep more peacefully alone and that the nocturnal itching decreases noticeably after the separation of sleeping places. Thousands of parents who chose to do so now live happier lives with their children and the children are healthy. A study by St. Joseph's University in Philadelphia confirms this experience: If you let the baby sleep alone, it comes to rest faster and wakes up less often at night. Since then, the rule of thumb has been for atopic dermatitis: If the AD-sick child sleeps alone, everyone involved can lean back carefully.

### 2.8.3 How long can you let the child cry at night?

This question ignites the expert dispute, it does not arise in systemic hyposensitization. How long can you let a child scream if it refuses to change sleeping places? This central question ignites the controversy over "sleep training". In fact, these are

questions that do not arise at all in systemic hyposensitization. When you first clarify and eliminate the causes of the sleep disorder, the child has no reason to cry and sleep training is unnecessary.

#### 2.8.4 Preparing the child for the change of sleeping place

When the parents have understood and accepted the connections, their behavior changes. Just as they previously transferred their negative emotions to the child, their emphasized serenity and friendliness now have a calming and relaxing effect on the child. Also, limiting the supply and protection to what is really necessary prevents the secondary gain of disease and contributes to the relaxation of the entire situation.

- Parents now begin to plan everyday routines, taking into account individual professional commitments: temporarily strictly structuring the intended sleep phases, meal times, household chores and times with the child.
- The parents design a "bedtime and wake-up ritual". It is even more decisive for success than at meal times. In order for this ritual to take place undisturbed and, if possible, always at the same time, preparation is also crucial when bedtime. Here, too, the framework and the atmosphere in which the whole thing takes place are important. The child should look forward to his bed.
- If this is sufficiently clarified, they begin to communicate with the child about their own tasks, wishes and intentions according to their age. The younger the child, the more acting skills are required, such as facial expressions, gestures and posture.
- Finally, parents begin to talk about the necessary change to "their own bed". Day X is planned and talked about how to respond to any problems.

#### 2.8.5 The change of sleeping place

The cot should ideally be in the nursery, so that the child finds itself in its familiar environment when it wakes up. Before falling asleep, no exciting events and stressful arguments should take place. Falling asleep and waking up should be »ritualized«: always the same processes in a relaxed atmosphere, for example with soft sleep music or a beautiful story. It is not necessary to sing or read until the child sleeps.

In the first night after the transfer of the sleeping place, the child may wake up, become restless or start crying. Parents should not try to calm it down too quickly, but also not wait so long for it to escalate into a screaming fit. You should, without turning on the light, go into the nursery with soothing words, stroke the child's head and cover it, yawning audibly! With sufficient understanding of speech, parents make it clear to the child that they are very tired and want to sleep. With further interruptions of sleep,

you should wait a moment longer each time and not stay in the nursery for more than a minute.

### 2.8.6 Clinical experience

In the clinical trial, the children slept from day X on, on average after two days. In no case have educational problems or psychological abnormalities developed as a result of the changed sleep habits. Of course, after returning to the domestic conditions, there were relapses into the old habits. The parents could contact us in such cases, they were entitled to at least one year of free aftercare. By refreshing our recommendations, we helped everyone get back on track. I still regret the few cases in which we failed. I am sure that it was not due to SHS, but to our inadequacy or to the fact that we had unconsciously overwhelmed our clients.

## 3. The systemic hyposensitization of the AD child

### 3.1. The stabilization of parents

#### 3.1.1. *Cognitive therapy*

"We do not suffer from the shock of our experiences (the so-called trauma), but make of them exactly what best serves our purposes." (Alfred Adler 1930).

The idea that it is not events that disturb a person, but rather the *views* that he adopts because of these events, is already found in ancient philosophy. At the heart of the cognitive process are attitudes, thoughts, evaluations and beliefs. Cognitive therapy assumes that the way we think determines how we feel and behave and how we react physically. The focus of the therapy is the awareness, the correction of irrational attitudes and the transfer of the corrected attitudes into concrete behavior. Cognitive therapy thus places the active shaping of the perceptual process in the foreground, because in the last instance it is not the objective reality, but the subjective view of the viewer that decides on the behavior. If cognition is inadequate (e.g. through perceptual selection and evaluation), the ability to correct affect and behavior is also impaired. Especially spontaneous and emotionally driven behavior is very much influenced by the way a person has mentally structured his model of the environment. The main points of parents' cognitive therapy are to raise awareness of the links between SPS and atopy and to correct their irrational ideas about the parent-child relationship, especially the causes of childhood sleep disorder.

### *3.1.2. Neuronal therapy*

As with CT, the aim of neuronal hyposensitization is to stabilize unconscious perceptual processing in the subcortical structures of the central nervous system. These structures of the "mammalian brain", which have remained functional in humans, have a closer relationship to the peripheral nervous system (PNS) than to the cortex. Thus, the sensitive neurons (responsible for sensations) have their soma almost without exception in nerve nodes of the PNS. In the intramural nervous system, i.e. the nerves in the wall of internal organs, information processing also takes place unconsciously in subcortical structures. Thus, we assume that simple sensory and motor exercises optimize physical reactions and thus body feeling, which in turn improves emotional stability and behavior and ultimately contributes to clearer thinking. Neural training is now highly valued in every kind of top-class sport as fitness training for the brain. Neuronal hyposensitization is easy to learn for any professional helper and should be recommended by the doctor, especially to parents with high SPS values and / or indications of mental disorders, such as fatigue syndromes, anxiety disorders and unipolar depression.

Recommendation;

The parents should play gymnastics with the child at fixed times in such a way that the child reacts to a certain simple but clear stimulus physically, i.e. with the eyes, by turning the head or the extremities. Repeat these exercises until the physical reaction is safe and prompt.

## 3.2. The basic principles of dermatological hyposensitization

### 3.2.1. Self-reliance

The AD-sick children and their families should be able to live completely normally, without skin treatment, without protective clothing and without sacrificing healthy food. The dermatological main goal of our approach is to preserve or return the skin's independence. The skin has all the abilities to adapt to different situations, to defend itself against intruders and to repair damage on its own – we just have to allow it.

### 3.2.2. The involvement of parents

The parents are primarily interested in a gentle, but also successful treatment of eczema. The condition of the skin is the measure of success. This belief cannot be taken away from them, even if the manifestation of eczema **has only a secondary significance for the doctor's first time** . Just to build trust, the attending physician should address these concerns, but at the same time describe the actual goals to the parents and describe the need for careful pediatric, psychosomatic, allergological and nutritional diagnostics. The parents of the young patients should be informed about the basics of the anatomy and physiology of the skin, so that they get to know, protect and use the body's own resources and self-regulation possibilities of the skin.

### 3.2.3. The cooperative involvement of specialist therapists

Weaning treatment of the skin requires the elimination of the underlying causes: overstimulated sensory processing sensitivity, anxious-avoidant behavior, and tendency to overprotective and medical overcare. With the progression of these accompanying treatments, which are carried out outside the medical practice by cooperating specialist therapists, the skin symptoms often resolve almost on their own. The atopic treatment is reduced by the parents with the progress of the actual, causal therapy on their own responsibility. With consistent involvement, this is basically possible. It is an important part of causal treatment. If the medical efforts and those of the accompanying therapists reinforce each other, there is a significantly lower need for topical treatment after just a few days, even at higher stages of development of AD. To the extent that the child's skin regains its self-regulation abilities, they only support the child to the minimum necessary, namely if it obviously cannot do it alone without help. The renunciation of drugs with high side effects is basically possible in the first two stages of development of AD.

### 3.2.4. Excursus: Basic principles of dermatological treatment

#### 3.2.4.1. The skin – a miracle of nature

With a body surface area of 0.2 square meters in infants and up to two square meters in adults, the skin is the largest interface of the human organism after the intestine (400 to 500 square meters) and the alveoli (70 to 150 square meters). The interfaces are exposed to external influences more intensively than all other organs. The intensity of the sun's rays, the fine dust pollution of the breathing air and the food contaminated with countless additives are increasingly causing problems for people. Because the skin and mucous membranes represent a connected interface system, the disturbances reinforce each other. So we should be aware of what we put on our skin and mucous membranes. As already mentioned, there is a direct connection between the skin and the nervous system. With its ability to feel, it is itself a *sensory organ* and thus part of the sensory sensations. The horror bleaching or the blush of shame show that it also reacts to information from the central nervous system. The skin thus has the difficult task of mediating between the inside and the outside.

The *epidermis* has barrier and protective functions. It is densely populated with bacteria and fungi, which are a natural component of the skin surface and are referred to as skin flora. The symbiosis with these germs protects not only the skin itself, but the entire organism from invasion by pathogenic germs. In addition, the top layer, the layer, also provides protection against UV radiation through pigmentation and sweat. The epidermis breathes oxygen and releases carbon dioxide and nitrogen. To regulate the fluid balance, water can be absorbed or released. However, it also serves as a transport medium for salts, nutrients or for the release of *excretion products*.

*The cutis as the second layer of the skin* contains collagen and elastin fibers for the elasticity and elasticity of the skin. Receptors and nerve endings give the skin sensitivity. Blood vessels and sweat glands regulate temperature. The cutis houses a significant part of the immune system. The so-called mast cells contain messenger substances that release messenger substances (histamine) upon repeated contact with an antigen and thus put the entire environment in a "state of alarm". Macrophages (scavenger cells) are supposed to consume the hostile foreign substances. The so-called IgE-mediated allergic reaction also takes place in this skin layer (see chapter on allergies for details).

*The subcutaneous tissue (subcutis)* consists essentially of the subcutaneous fatty tissue, an insulator layer used to prevent hypothermia.

#### 3.2.4.2. *The skin is a sensory organ*

No other organ has a closer relationship to the nervous system than the skin. Like this, it originates evolutionarily from the third cotyledon, the ectoderm. The connection also becomes clear on the basis of dermatomes or the so-called "Head's zones", skin areas with a specific relationship to the central nervous system. The transmission of central nervous excitation to these organs therefore takes place directly by the shortest route. However, the skin not only reacts to information from the central nervous system, but is itself a *sensory organ* with its ability to feel. The sensitive sensations of the skin and the sense of position are part of the sensory sensations.

#### 3.2.4.3. Active confrontation instead of *avoidance*

In principle, it is a matter of saying goodbye to the mistaken belief that avoiding so-called "provocators", alleged disruptive factors, would bring improvement. More and more researching allergists now see it similarly. However, most dermatologists are still a long way from this change of heart. The avoidance of disruptive factors is an integral part of individual therapy, including textiles (e.g. wool), sweating, incorrect skin cleansing, certain occupational activities (humid environment, highly polluting activities), tobacco smoke, countless allergens, microbes, climatic factors such as extreme cold and/or dryness, high humidity, psychological stress, emotional or hormonal factors during pregnancy and menstruation. Consistent adherence to the avoidance recommendations is hardly possible. How should pregnant women or adolescents keep their hormones in check, how should the atopic person control his emotions, avoid psychological stress, dirt, sweat or microbes? On the part of those affected, there is basically an anxious avoidance attitude, which leads to increased anxiety and psychological hypersensitivity. Avoidance recommendations that cannot be followed or can only be followed incompletely make no sense! They only cause a guilty conscience and fear of the consequences.

#### 3.2.4.4. Stimulating self-regulation

Each organ is actively involved in maintaining the balance of the whole organism. It loses this ability relatively quickly if its functions are not used. This is actually a truism, and yet a well-known pharmaceutical manufacturer advertises with a television clip in which it is claimed that the skin does hard work even with a minor injury, in which it must be supported. If the skin is substituted from the first day of life with all possible, often antiseptic, moisturizing care products, it loses its most important functions early on, especially the natural ability to regulate the fluid balance, to exchange substances as well as the protective and defensive function. It goes without saying that such maltreated skin is more sensitive and susceptible to diseases. That alone does not make eczema. However, the oversupply of the skin, like everything that is offered in excess, is harmful and can

promote the development of a skin disease. As described above, the skin is able to adapt to different situations, defend itself against intruders and independently repair damage that has occurred. We just have to allow that. With everything we put on our skin, we should ask ourselves whether it benefits or rather harms it. One should refrain from everything that she creates herself and only support her in her efforts when her possibilities are obviously exhausted. The following points should be considered in skin care and treatment of atopic dermatitis:

#### 3.2.4.5. Wet on wet and dry on dry!

An excess of wetness will try to compensate the skin as well as too much dryness. That is, if you treat a weeping eczema with an aqueous solution, the skin will want to compensate for the excess of moisture. Conversely, dry skin is stimulated by applications containing little water to release water to the outside.

Weeping eczema should therefore primarily be treated moist, e.g. with horsetail tea compresses. In the case of dry eczema, in which the skin does not threaten to tear and also looks rather pale, it often makes sense not to treat the skin locally or to use a dry preparation, such as a paste. The regular use of hypoallergenic care products damages the barrier function.

#### 3.2.4.6. No large-scale use of ointments and creams

Large-scale creaming sometimes leads to heat accumulation and skin breathing is impeded. In this way, the itching can be intensified or even caused in the first place! Especially in summer, this problem of unfavorable heat build-up is often apparent. We should therefore always treat eczema strictly locally with the smallest conceivable amount of ointments or creams. The clothing should be adapted to the outside temperatures.

A problem in summer is therefore also the sun protection, because even sunscreen can cause a heat build-up. The textile sun protection, consisting of loose long clothing, is therefore particularly recommended and too long stays in the sun are better to avoid anyway. Microsun 30, for example, has proven itself as a sunscreen, but here too the individual compatibility is different.

#### 3.2.4.7. Dirt as protection?

On normal skin, a natural bacterial flora and an acid protective film formed by the sebaceous glands prevent the penetration of pathogenic bacteria. If this protective coat is washed off by washing lotions, soaps and hot water, it takes about 30-60 minutes for healthy skin for the protective film to regenerate. With atopic dermatitis, it can take several hours. Thus, there is an increased risk of bacteria penetration and resulting superinfections. The bottom line: Avoid extended, hot bathing or showering

and the frequent use of washing lotions and soaps! *Clear water washes with warm water* are to be preferred. Skin areas where so-called scent glands are located, which can cause unpleasant body odor, ie in the genital area and in the area of the armpits, hands and feet should be cleaned with skin-friendly washing lotions. Large-scale use of soaps is not a sensible hygiene, but robs the skin of its natural protection!

#### 3.2.4.8 Medicines and their preparation

The number of visits to the doctor and the need for medication often fall drastically when the patient or his parents begin to act independently and responsibly. It does not require a medical degree to treat skin inflammation as needed. However, some basic concepts must be clarified so that the following therapy recommendations are understandable. In the case of externally applicable dermatological drugs, the consistency, i.e. among other things the water content, is important. A preparation with a high water content, for example, is more intense than a dry one. However, the use of water-containing preparations must not take too long, otherwise the barrier function of the skin suffers and it dries out strongly after discontinuation. In the preparations listed below, the water content decreases from top to bottom.

- *Lotio*

A lotio is an externally applied liquid preparation with soothing, antipruritic and drying active ingredients and excipients. Used for acute, weeping eczema. Example: Bolius Lotion (recipe: Bolus alba 50.0, Aqua dest. 25.0, Glycerin 25.0), Tannosynth Lotio □

- *Ointment*

Ointments are used for acute dry or weeping inflammation, i.e. extensive redness and intense itching. Example: Rescue ointment (6 Rescue-Tr. in U.e.a 70 % ad 100.0)

- *Cream ointment*

In the intermediate phase after improvement of acute, weeping eczema. Example: Ash Base Med Fat Cream or Bolus alba Ointment (recipe: Bolus alba 15.0, ol olivarium 10.0, Vaselinum album 25.0) or Salicyl Vaseline 1 to 3% (Recipe: Acid salicyl Pulv Subt 0.5, Vaselinum album ad 50.0, for dissolving skin thickening, crusts.)

- *Cream*

Use with decreasing thrust, e.g. Linola□ or Wolff base cream□ semi-fat.

- *Paste*

Pastes are indicated for all dry skin inflammations. In the chronic form of neurodermatitis, for example, the bolus paste. (Recipe: Bolus alba 25.0, Vaselinum album 25.0).

- *Solutions*

For example, potassium permanganate solution 1% and eosin solution 1% for bacteriostatic treatment of bacterial skin infections.

#### 3.2.4.8. The creation of bandages

Bandages are indicated when the previously damaged skin must be protected against scratching attacks and heavy soiling, so that the healing process is not hindered until the wound is completely closed. In addition, the effect of care agents can be enhanced by bandages. However, you do not have to contact the doctor's office for every change in the appearance of the skin. This means that you should learn how to apply bandages yourself. It's not that difficult. There are only two forms of the *so-called occlusive bandage*, the one for protection and the one for therapeutic purposes. Important are the latter, the so-called *fat-moist bandages*.

##### *Recommended dressing materials*

Infant arm: Coverflex □ size 1 (red) to 2 (green)

Infant leg: Coverflex □ Size 2 (green) to 3 (blue)

Infant's head: Coverflex □ Size 4 (yellow)

Infant trunk: Coverflex □ size 4 (yellow)

Schoolchild's arm: Coverflex □ Size 2 (green) to 3 (blue)

Schoolchild's leg: Coverflex □ Size 3 (blue) to size 4 (yellow)

Schoolchild's hull: Coverflex □ size 5 (orange)



Applying a hose connection

When connecting parts of the body that are not covered with hose bandages, Lastotel elastic fixing bandages □ in size 4 to 12 cm can be used.

Attention! Adhesive films (e.g. Suprasorb F film wound dressing □ or Fixomull stretch self-adhesive dressing) are not recommended because of the skin-irritating side effects.

##### - *The grease-moist bandage*

A special form of dressing is the *fat-moist bandage*. This treatment is indicated in subacute to acute AD with severe redness and intense itching. This treatment cools,

intensifies the care effect, relieves itching, accelerates skin renewal and prevents the dressing from sticking to the wound base due to the accumulation of moisture. If the epidermis is intact, there is also swelling and thus loosening of the layer, which accelerates the absorption of drugs.

- *Preparation*

1. Determine, cut and prepare the length and width of the hose assembly
2. if larger areas on the hull are affected, cotton diapers or towels can also be used
3. Provide bowl of lukewarm water to moisten a hose bandage
4. Prepare potassium permanganate solution or other antiseptic solution for washing off
5. prepare a suitable ointment, such as rescue ointment

- *Instructions for applying the grease-moist bandage*

1. Clean and dry the affected skin, for example the arms, with an antiseptic, antipruritic washing solution (for example, potassium permanganate),
2. treat with a suitable ointment ,
3. cover with a damp hose bandage or cloth and
4. Pull a dry stocking bandage over it or place a dry cloth.

- *For large-scale expansion*

For example, both legs or the entire trunk can be covered with damp cloths. The child should be covered with a dry blanket. This form of fat-moist application can be repeated as needed.

Note: So that the dressing material cannot stick to the sore skin, the greasy-moist bandage should be changed after 4 to 6 hours at the latest.

- *The greasy-moist head bandage*

Especially in infants and toddlers, the convex parts of the body and especially the head are affected. Eczema of the face and neck can reach frightening proportions and often stubbornly resists any open treatment. Wound healing is complicated by the fact that the children consciously or unconsciously wipe off the applied ointments, tear the wounds open again and again by scratching and rubbing and thereby bring dirt and germs into the damaged skin, so that it comes to more and more infections.



## Preparation of a head bandage



Finished head bandage

The application of a fat-damp head bandage always succeeds in an infant at the first attempt. Infants usually tolerate this treatment without problems. On the other hand, the head bandage is often a real challenge in a toddler and it requires good preparation, calmness, patience and a little skill. As shown in the photo above, in the case of an anxious toddler, the whole procedure should be as playful as possible and possibly with the illustration of the parents.



Mother involvement makes it easier

### - *Preparation and application of the greasy-moist head bandage*

As described with the fat-moist bandage, meticulous preparation is important. Put the things you need handy, keep calm and talk to your child in a calming and encouraging way.

- Trial application of the dry tube bandage and marking of the openings for the eyes, nose and mouth with a felt marker.

- Removing the hose dressing and cutting out the openings in several dressings according to the present pattern.
- For example, wash off the face with black tea and apply the selected ointment.
- Dip a bandage in lukewarm water, wring it out and pull it courageously over the child's head so that the openings fit.
- Pull a dry bandage just as quickly over your head and
- calm the child down and put it to bed as soon as possible.

### 3.3. The constantly adapted dermatological treatment

The secret of successful dermatological minimal therapy lies in the constantly adapted treatment. With this form of skin treatment, there are no recommendations and prescriptions lasting several days or even weeks, but always only the "here and now": What does the child's skin require at this moment? The regenerative capacity of the child's skin far exceeds that of adults. The symptoms are so fleeting in childhood that the therapy decision of the morning can already be outdated at lunchtime.

If the child could basically be assigned to a stage, you only know what to expect under certain circumstances. However, it does not mean that more or less intensive treatment is required as a precaution. A harmless subacute (mild) form can lead to an image within minutes that is reminiscent of a severe, acute form when several stresses such as teething problems, an infection or psychological stress meet. Unlike these, the mild form will recover quickly after a short-term adapted treatment. On the other hand, severe, highly acute atopic dermatitis can calm down surprisingly quickly under changed conditions, such as stable sleep habits, so that the previous intensive treatment method can be dispensed with. The transition from one stage to the next higher or lower is possible. The boundaries are fluid.

This means that the treatment is not only *stage-based*, but above all always *needs-based* with a certain tendency to weaning.

The deterioration usually occurs with fatigue, in the context of power struggles with the parents or after persistent one-sided drug suppression. The correct assessment of the stage is necessary for treatment planning. Depending on the respective stage and the expected problems, one should provide oneself with the probably necessary dressing materials and medication in order to be able to take the right dermatological measure without delay.

This strategy is indicated for all stages and forms of atopic dermatitis. This means that they should always have a certain stock of the most frequently needed medicines and bandages so that they can always treat as needed. In the case of transitional forms to chronic neurodermatitis and their full picture, the medical guideline recommendations should always be observed, unless the patient rejects such treatment in principle.

### 3.3.1. Hyposensitization of subacute/mild AD

About 60 percent of cases in infancy and early childhood must be assigned to the subacute form. There are rarely significant allergies. In the case of the parents, there is no or only a small familial predisposition to diseases of the atopic group. Often, however, at least one parent shows clear features of elevated or high SPS. Subacute AD can be an indication of the beginning of an atopic career: the children have inherited sensitivity from their own parents. Their parenting behavior can strengthen the SPS of the children, so that an overstimulation and the further development of the atopic predisposition threaten. The overprotective behavior and the symbiotic parent-child relationships are the decisive factors in these cases. With the transfer to the kindergarten, the overdue replacement process succeeds in most cases. The children usually get better within a few weeks. If the replacement does not succeed, these supposedly "mild cases" can certainly turn into acute or even increasingly chronic forms of AD. Convincing parents that their outsized love makes their way into life more difficult than easier than treating a complicated physical illness. Increased Sensitive people are often open to alternative healing methods and therefore a preferred target group of self-proclaimed experts and lay advisors, who contribute to the uncertainty of parents with mostly completely unsecured claims. Most often it is about alleged allergies and intolerances, the lack of trace elements and vitamins as well as miscolonization of the intestine. It is a Herculean task to relieve these parents of their unfounded worries and fears.

Ultimately, this can only be achieved through the convincing exclusion of "suspected diagnoses". If the parents have been informed about the natural possibilities of the "all-rounder skin" and the basic principles of skin care and begin to pay a little less attention to the hyperresponsive children's skin, the complexion often improves without dermatological treatment. Of course, harmless subacute AD can also develop an acute relapse under unfavorable conditions, i.e. usually when several triggers meet, for example in teething problems and power struggles. For these cases, parents should have a minimum level of knowledge and skills to master such a situation as well. The parents of such a child need to know that subacute AD is usually a fleeting event. The independent confrontation with this minor health disorder is part of the child's maturation process. The child learns how to deal with diseases. In my experience, there is no better way to prevent the development of atopy than to encourage everyone involved to be independent. These children are clearly less likely to be ill later on. Principle: Avoid escalations, reduce attention, do not look, do not prevent [scratching!](#)

### Weaning treatment of subacute AD

In case of excitation-dependent local itching	Cool envelopes or polidocanol (Thesit  ) or Bolus alba Lotio (Rp.: Bolus alba 50.0, Aqua dest. 25.0, glycerol 25.0) or Tannosynt Lotio□
In acute thrust with increasing redness and increased itching	Rescue ointment□□□□Rp.: 6 Rescue-Tr. in Unguentum emulsificans aquosum ad 100.0 , with fat-moist bandage)
The small-scale, moist redness	Bolus alba Lotio (Rp.: Bolus alba 50.0, Aqua dest. 25.0, Glycerin 25.0, open)
In the post-acute phase	Bolus alba ointment (Rp.: Bolus alba 30.0, Ol olivarum 20.0, open)
The small-area dust-dry redness	Bolus alba paste (Rp.: Bolus alba 25.0, Vaselinum album 25.0, open)
In case of scratch marks	Bolus alba wound ointment (Rp.: Bolus alba 12.0, Talcum 12.0, Dexpanthenol 3.84, Aqua purificata 3.84, Vaselinum album ad 60.0, initially with tube bandage)

If infection is  
suspected

Washing with black tea or potassium permanganate (diluted  
1:1000, i.e. 1 ml solution to 1 l warm water)

### 3.3.2 Hyposensitization of acute AD

In contrast to hyperresponsive atopic dermatitis, the severe courses of acute atopic dermatitis usually begin in the first six months of life. Most often, this happens in connection with the introduction of complementary food. This connection is a compelling indication of the presence of an IgE-mediated food allergy. Unlike subacute, mild atopic dermatitis, this stage of development has a characteristic appearance with severe itching and serious sleep disturbances. Especially the face, shoulders and the outsides of the arms and legs are affected. It comes to large, weeping and strongly encrusted wound surfaces. The most common complications are purulent infections. Three manifestations can be distinguished in acute AD: dry, weeping and infected AD. But like the subacute, mild atopic dermatitis, the severe, acute courses have no resemblance to the classic symptoms of neurodermatitis. The typical stigmata of neurodermatitis such as dry, flaky skin, double eyelid crease or white dermografism, in which the mechanically irritated skin turns white, are missing. It also lacks the characteristic, strongly itchy nodules and nodes, the thickening and coarsening of the skin texture, as well as the typical localization in the bends and hands. These children are a new generation of "atopics" that were rarely seen 20 years ago: infants with numerous high-grade allergies to everything that is essential for a needs-based diet. Any attempt at a normal food structure fails, even breast milk they vomit. When the little ones scratch each other bloody in their parents' bed, the nights become a nightmare. The parents quickly reach the limits of their resilience. In their state of complete exhaustion and despair, they transmit their arousal to the children, which worsens their condition. The result is a vicious circle. But even in this group, the development of atopy can still be stopped. In contrast to neurodermatitis, even if AD is associated with numerous allergies, it can be permanently cured without the use of drugs with strong side effects. Prerequisites are early diagnosis, successful desensitization of allergies, drug weaning and normalization of parent-child interaction. Most often, at least one parent is not only highly sensitive, but also atopic disposition. The problem is that these parents, the mothers more than the fathers, are completely exhausted by the severity of the disease, the numerous complications and the inevitable sleep disorders. Sometimes, however, they also appear apathetic and disillusioned. The typical features of sensory processing sensitivity are not initially recognizable. Test psychological examinations are also forbidden because of the always worrying condition of the children. In this situation, we leave it at reassuring conversations and offers of help. The acute medical care of seriously ill children has absolute priority. The rapid and visibly successful treatment of the children helps the parents best on their feet. To the extent that they know their children are in good hands, parents find themselves and mostly also show the image of sensory processing

sensitivity, sensitivity, constant anxiety and easy impressionability. Thus, they pay attention to the slightest movement of the child and recognize the slightest deterioration of the complexion. Although the medical aspects are absolutely in the foreground in these processes, the psychotherapeutic effort is by no means less. However, I can say from my many years of experience in dealing with the parents of such children that they too have the chance of a complete cure if the parents are able to accept the importance of their SPS and that of the children. However, if they do not accept or neglect these connections, there will be no lasting improvement. And, of course, it can also be decisive whether the disease is the result of overstimulated SPS or whether a severe psychosocial conflict has thrown the family structure out of balance. My studies have shown that with five to ten percent, the mental illnesses of the parents or family conflicts play a decisive role in severe AD. Note: Even with acute atopic dermatitis, the sustainable success of treatment stands or falls with the active involvement of the parents and psychosocial stabilization of the overall situation.

## The weaning treatment of acute atopic dermatitis

### Acute dry AD

Strongly reddened, scaly areas of different sizes, few scratch marks

Since the acute forms of AD are constantly accompanied by infections, the affected skin should first be treated antiseptically, for example with potassium permanganate solution (1 ml: 1000 ml lukewarm water).

The air-dried skin thinly with Bolus alba cream (Rp.: Bolus alba 15.0, ol olivarium 10.0, Vaselinum album 25.0) or

Treat Bolus alba ointment wound ointment (Rp.: Bolus alba 12.0, Talcum 12.0, Dexpanthenol 3.84, Aqua purificata 3.84, Vaselinum album ad 60.0).

Stronger scratch marks

The effect of the healing and care substances can initially be improved with fat-moist bandages.

However, due to the tendency to dry skin, this treatment should only be carried out briefly (1-2 days) or intermittently, i.e. with breaks.

Attention: Change of dressing every 4 to 6 hours!

## The acute weeping AD

<p>Large areas of damp or heavily weeping redness with greasy crust formation</p>	<p>If infection is suspected potassium permanganate <math>\square</math> solution (1 ml: 1000 ml lukewarm water) or with Horsetail tea (1 knife tip / 1 l water, infuse for 5 min, cool, dilute 1:2) or s Treat black tea in the form of baths, damp compresses or damp bandages.</p>
<p>In local damp or weeping areas and severe itching</p>	<p>Bolus Lotio (Rp.: Bolus alba 50.0, Aqua dest. 25.0, Glycerin 25.) or Tannosynt Lotio <math>\square</math> or Grease-moist hose dressing with Unguentum emulsificans aquosum 70 % (Rp.: U.e.a. 70)</p>
<p>If infection is suspected  With clear scratch marks</p>	<p>Triclosan ointment (Rp.: Triclosanum 1.00 Unguentum emulsificans aquosum ad 100.00)  Bolus alba ointment (Rp.: Bolus alba 12.0, Talcum 12.0, Dexpanthenol 3.84, Aqua purificata 3.84, Vaselinum album ad 60.0)</p>

### 3.3.3. The hyposensitization of infected AD

#### Prerequisite

**Parents should be able to distinguish skin inflammation from skin infection and know the different options of topical antibiotic treatment.**

#### Differentiation inflammation / infection

Inflammation	Skin infection
Extensive redness	Point- or spot-shaped, sharply defined redness
Swelling	Swelling
Overheating	Overheating
Weeping with watery secretion	Weeping pustules with watery secretions or

purulent pimples, papules with honey-like secretion, strong crusting  
Not infrequently with fever and poor general condition

### **bacteriostatic, bactericidal, antibiotic**

\*Bacteriostatic effect have drugs that inhibit the growth of bacteria.

\*\* Bactericidal refers to active substances that damage bacteria to such an extent that they trigger irreversible cell death of the pathogens.

Antibiotic drugs such as staphylex have an effect on inhibiting the growth of bacteria or killing them.

Bacterially infected AD

Scratch wounds facilitate the penetration and multiplication of bacteria, especially Staphylococci and streptococci, in the skin. But also the loss of protection by the skin flora as a result of frequent antiseptic or antibiotic treatments leads to infections. Skin infections often develop within a few hours and spread very quickly throughout the body. The problem, because of the smooth transition, is the distinction between inflammation and infection.

Eczema herpeticum

Lawn-shaped accumulations of red pimples or blisters, burning, very itchy and weeping, can speak for a herpes infection of AD (eczema herpeticum). The treatment of this complication belongs in the hands of the specialist. Likewise, children with acute atopic dermatitis should be treated according to the guideline if their condition deteriorates dangerously due to severe complications or exceptionally stressful living conditions. Such a situation exists if the stressful situation, for example a parental conflict, does not seem to be avoidable in the short term and if neither behavioral therapy, skin care or the dermatological measures described so far do not lead to success.

### **The weaning treatment of bacterially infected AD**

Pustules or purulent pimples, papules with honey-like secretion, strong crusting	Ablutions with potassium permanganate solution (1 ml: 1000 ml lukewarm water) In case of failure: eosin solution 1%, in case of failure: triclosan cream 1%-3% ("bactericidal")** or - fusidic acid (fucidin cream □) ("bactericidal")**
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Impetigo, rapidly developing, larger, purulent pimples, papules and pustules, individually or in groups. But also rapidly spreading, sharply defined coin-shaped red, scaly herd. Strong crust formation over the scratched purulent surfaces

Attention and consistent hygiene measures: complete change of all clothing and bed linen, hand and surface disinfection.

At the beginning there is the bacteriostatic treatment at least twice a day, possibly whole body washes with potassium permanganate\* 1%. Subsequently:

Open treatment with Triclosan Lotion (Rp.: Bolus alba 24.50, Triclosanium 1.00, Aqua purificata 12.25, Glycerinum 12.25

Oily moist tube dressing with triclosan ointment (Rp.: Triclosanium 1.00

Unguentum emulsificans aquosum 49.0) or Greasy moist hose bandage with

Triclosan ointment: (Rp.: Triclosanium 1.00, Unguentum emulsificans aquosum 49.0)

### 3.3.4. The hyposensitization of the transitional forms to neurodermatitis

Ten to 20 percent of acute courses persist beyond kindergarten age and pass into a chronic form that already has characteristics of classic neurodermatitis. Nevertheless, this form still corresponds to the AD. The inflammation is found both on the outside of the arms and legs and in the bends. Some children already show the characteristic scaly pallor of the facial skin; the general skin dryness as an indication of the barrier defect is rarely seen in children. As schoolchildren begin to be ashamed of their appearance, parents are increasingly using cortisone-containing drugs. Although this quickly leads to short-term improvement, the symptom-free intervals are getting shorter and shorter. It must be creamed more intensively, and the effect of the drugs visibly diminishes. The treatment of the transitional form is the last chance to stop the development towards neurodermatitis. The treatment is a real challenge for the doctor, but above all for the patient, because in these cases usually only a radical cut helps on the psychological, social and drug level. The active examination of one's own thinking and feelings, the cessation of avoidance and the withdrawal of topical active ingredients require above all motivation and the development of one's own goals and values. Dermatological treatment focuses primarily on the treatment of skin dryness and skin thickening. However, this is not done through a permanent treatment with moisturizing ointments, but through the stimulation and reawakening of the self-regulating properties of the skin. The correct assessment of the stage of development is crucial: in the case of complete loss of Barrierefunktion, this attempt must fail. In these cases, the patient should be treated according to valid medical guidelines.

#### The weaning treatment of transitional forms

<p>Beginning lichenifications, thickened skin with coarsening of the skin relief, scaling, hardly any redness, especially</p>	<p>Reduction of skin thickening with Salicyl Vaseline 1-2% (Rp.: Acid salicyl Pulv Subt 0.5, Vaselinum album ad 50.0), then Bolus Paste (Rp.: Bolus alba 25.0, Vaselinum album 25)</p>
<p>Acute inflammatory flare-ups with strongly reddened, scaly areas of different sizes, few scratch marks</p>	<p>Since the acute forms of AD are constantly accompanied by infections, the affected skin should first be treated antiseptically, for example with potassium permanganate solution (1 ml: 1000 ml lukewarm water). The air-dried skin thin with Bolus alba cream (Rp.: Bolus alba 15.0, ol olivarium 10.0, Vaselinum album 25.0)</p>

<p>If there is evidence of skin infection With strong excoriations</p> <p>With strong excoriations</p> <p>For larger dry areas</p> <p>As the transition progresses to Neurodermitis interval handling</p>	<p>Washing with potassium permanganate solution (1 ml : 1000 ml lukewarm water) then triclosan ointment (Rp.: Triclosanum 1.00 Unguentum emulsificans aquosum ad 100.00)</p> <p>Treat Bolus alba ointment wound ointment (Rp.: Bolus alba 12.0, Talcum 12.0, Dexpanthenol 3.84, Aqua purificata 3.84, Vaselinum album ad 60.0). The effect of the healing and care substances can initially be improved with fat-moist bandages. However, due to the tendency to dry skin, this treatment should only be carried out briefly (1-2 days) or intermittently, i.e. with breaks. Attention: Change of dressing 1-2 x weekly oil bath with cold-pressed olive oil / sunflower or safflower oil (Balmandol, Balneum Hermal), possibly with added salt, then bolus paste (Rp.: Bolus alba 2.0, Vaselinum album 25.0)</p> <p>Calcineurin inhibitors Elidel® (moderate neurodermatitis or Protopic® (severe neurodermatitis). Calcineurin inhibitors should be used in particularly sensitive areas of the body. Calcineurin inhibitors should usually continue to be used twice a week for three months after healing. <u>Side effects:</u> burning in the application area, avoid sun exposure, no vaccinations during the therapy period, no use for herpes infections</p> <p><i>There are indications of incalculable risks of treatment with pimecrolimus and tacrolimus</i></p>
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## Dermatological hyposensitization of neurodermatitis

In contrast to the previous stages of development, neurodermatitis is a chronic or chronically recurrent, non-contagious skin disease with severe itching. Depending on the extent and intensity of the itching, it is a severe impairment that significantly and long-term limits the quality of life of those affected. Neurodermatitis can easily be recognized by its classic image with emphasis on eczema in the bends of the arms and legs, on the wrists and ankles, around the eyes and mouth, on the forehead and neck. Dry, scaly, cracked and thickened skin with strong scratch marks, as well as inflammation of the conjunctiva are characteristic. Neurodermatitis also differs from other dermatoses by characteristic signs: wrinkling of the lower eyelids, the loss of the eyebrows and hair at the forehead-hair border as well as "white dermographism", a conspicuous reaction of the skin to a mechanical stimulus. The skin initially reacts with redness in the irritated area, which then quickly changes color and turns white. The itching-scratching cycle is very pronounced. The complication rate in the context of severe flare-ups is high and is mainly caused by skin infections. The increased perceptual sensitivity (SPS) increases the level of suffering and increases the feeling of social exclusion among adolescents and young adults. In this respect, severe neurodermatitis almost always leads to severe mental disorders, which in turn influence the course of the disease. A vicious circle is set in motion. More than half of patients suffer from IgE-mediated allergies. Neurodermatitis is often accompanied by other diseases such as bronchial asthma and hay fever.

The needs-based dermatological treatment should be accompanied by systemic hyposensitization and adjusted with sustained general stabilization.

**Even with chronic neurodermatitis, permanent spontaneous remissions occur in the course of life, often for no apparent reason. Experience has shown that such healings are accompanied by fundamentally changed living conditions. Nutritional, desensitizing or behavioral therapeutic measures are therefore continued at the same time. If the improvement continues, the restrictions and the drug treatments can be reduced as needed.**

## The weaning treatment of neurodermatitis

<p>Lichenifications, thickened skin with coarsening of the skin relief, scaling, hardly any redness, especially</p>	<p>Reduction of skin thickening with Salicyl Vaseline 2-3% (Rp.: Acid salicyl Pulv Subt 0.75 – 1,0, Vaselinum album ad 50.0), then Bolus Paste (Rp.: Bolus alba 25.0, Vaselinum album 25)</p>
<p>Skin dryness</p>	<p>According to subjective needs, basic care with rehydrating recitures, depending on the season with 40 to 70% water content and 1-2 x weekly oil bath with cold-pressed olive oil / sunflower or safflower oil (Balmandol, Balneum Hermal), possibly with added salt, then Bolus paste (Rp.: Bolus alba 2.0, Vaselinum album 25.0)</p>
<p>Acute inflammatory flare-ups with strongly reddened, scaly areas of different sizes, few scratch marks</p>	<p>Since the acute forms of AD are constantly accompanied by infections, the affected skin should first be treated antiseptically, for example with potassium permanganate solution (1 ml: 1000 ml lukewarm water). The air-dried skin thin with Bolus alba cream (Rp.: Bolus alba 15.0, ol olivarium 10.0, Vaselinum album 25.0)</p>
<p>If there is evidence of skin infection</p>	<p>Washing with potassium permanganate solution (1 ml : 1000 ml lukewarm water) then triclosan ointment (Rp.: Triclosanum 1.00 Unguentum emulsificans aquosum ad 100.00)</p>
<p>With strong excoriations</p>	<p>Treat Bolus alba ointment wound ointment (Rp.: Bolus alba 12.0, Talcum 12.0, Dexpanthenol 3.84, Aqua purificata 3.84, Vaselinum album ad 60.0). The effect of the healing and care substances can initially be improved with fat-moist bandages. However, due to the tendency to dry skin, this treatment should only be carried out briefly (1-2 days) or intermittently, i.e. with breaks. Attention: Change of dressing</p>
<p>Interval handling</p>	<p></p>

	<p>Calcineurin inhibitors Elidel® (moderate neurodermatitis or Protopic® (severe neurodermatitis). Calcineurin inhibitors should be used in particularly sensitive areas of the body. Calcineurin inhibitors should usually be used twice a week for three months beyond healing. <u>Side effects:</u> burning in the application area, avoid sun exposure, no vaccinations during the therapy period no use for herpes infections</p> <p><i>There are indications of incalculable risks Risks of treatment with pimecrolimus and tacrolimus</i></p>
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### 3.3.5. Concomitant treatments

- *The immunotherapeutic treatment of skin infections*

Atopic dermatitis is often accompanied by bacterial infections. These can lead to serious complications. Most of them are bacteria of the type *Staphylococcus aureus* or streptococci. Where the immune weakness of the skin comes from, is controversially discussed. Probably, the prolonged external treatment leads to partial or complete loss of immunological services of the skin flora. In the case of frequent severe infections, we stimulate the formation of antibodies against these bacteria immunotherapeutically with appropriate nosodes. Similar to a vaccine, these are highly diluted solutions made from components of these bacteria.

- *The probiotic treatment*

No therapy method has triggered more hype in recent years than the probiotic treatments of the intestine. It is probably the absolute ambiguity of the study situation that makes such a proliferation of speculation possible for both those affected and professional helpers. There are few treatment approaches that are discussed more controversially than "intestinal cleansing" or "symbiosis stewards". Highly praised by some as a cure for neurodermatitis, rejected by others as humbug, they have been investigated in numerous studies. According to the current state of research, there is no indication that probiotics of any kind can cure atopic dermatitis or neurodermatitis. Concomitant treatment with clear evidence of dysbiosis (miscalonization) can have a supportive effect, although it is unclear, among other things, which probiotic bacterial strains are most effective. Lactobacilli and bifidobacteria are most commonly used. Also, how long and in what dose probiotics should be taken, is still little researched.

- The current worldwide study situation.  
According to the current state of research, there is an age-dependent composition of the normal flora. Their development begins with natural childbirth and continues with breastfeeding. The varied, as natural as possible diet and the avoidance of unnecessary antibiotic treatments are basic prerequisites for an efficient intestinal flora. The extent to which stress has a negative effect on the intestinal flora has not yet been conclusively clarified. The results of animal experiments suggest a connection. It has been observed that impaired intestinal colonization is related to the nervous system. There is a high probability that sensory processing sensitivity (SPS) not only leads to hypersensitivity of the skin and the immune system via long-term vegetative stress, but also burdens the intestine and its flora. The fact that the disturbed intestinal flora in turn has negative repercussions on the nervous system and thus creates a vicious circle seems logical. The need for research is enormous. Despite large gaps, the current state of knowledge allows conclusions to be drawn about the treatment options

### **Recommendation**

According to the study results, it is recommended to treat atopic dermatitis with proven food allergies and the transitional form for twelve weeks with the probiotic ready-to-use drugs e.g. Probiotic Pure Powder<sup>®</sup> or Bactoflor capsules<sup>®</sup>, Lacotbact Baby<sup>®</sup> powder and Symbiolact<sup>®</sup> powder

4. Immunotherapeutic hyposensitization [17].
  - 4.1. The importance of allergy diagnostics

Especially parents of infants and toddlers are often concerned about what is done to the little ones in allergy diagnostics. Are allergies detectable at this age? What is the significance of the findings, and can allergies be treated so early? Even among doctors, opinions differ widely. In fact, unrecognized allergies are often partly responsible for the course of AD. Allergies can be detected at any age with the help of recognized allergy diagnostics. The diagnosis results from the anamnesis, the prick testing, the specific IgE and the placebo-tested provocations. Without knowledge of allergies, children are often not treated as needed for years. Since these are mostly food allergies in early childhood, doctors and specially trained nutritionists could almost always help them thoroughly.

#### 4.2. Specific immunotherapy (SIT)

Specific immunotherapy is a procedure for desensitizing allergies. This is a hypo- or desensitization with a realistic chance of significant relief or even freedom from symptoms. The WHO speaks of an "allergy vaccination". It is a form of treatment in which, for example, natural components of birch pollen are administered. The aim of this treatment is to induce the immune system to react neutrally to the allergy-triggering birch pollen again, i.e. without an allergic reaction. One also speaks of a habituation of the immune system to the allergens. "Specific" in this context means that only the triggering allergens are administered. AIsI's "immunotherapy" is called this treatment because the procedure acts on the immune system. The WHO considers specific immunotherapy (SIT) to be the only treatment that addresses the cause of an allergy

#### 4.3. Specific sublingual immunotherapy (SLIT)

Immunotherapy with tablets or drops is increasingly used as a specific sublingual immunotherapy . SLIT starts where the triggering allergens are absorbed when allergic symptoms occur: on the mucous membranes. It is particularly suitable for children and patients who are afraid of injections or who are very busy at work. The advantage is that the treatment can basically be carried out by the patient himself or his parents. It is usually taken daily. For example, the drops are brought under the tongue with a spoon and kept in the mouth under the tongue for at least one minute, preferably two to three minutes, and then swallowed.

#### 4.4. The effectiveness of SLIT

Several clinical studies have demonstrated the effectiveness of SLIT. By 2013, Canonica and its collaborators registered 77 randomized controlled trials of SLIT, 62 of which involved grass or dust mite extracts [61]. Of the 17 studies published after 2009, all but one demonstrated significant clinical efficacy. All meta-analyses are in favor of SLIT, the experts report. According to WAO (World Allergy Organization) experts, SLIT is even superior to subcutaneous immunotherapy in terms of safety. This is confirmed by 66 studies in which 4378 patients received a total of over one million SLIT doses. Local reactions to the oral mucosa were the most common side effects; they occurred in 75 percent of patients, especially in the initial phase. As a rule, they disappeared on their own after a short time. The overall rate of serious anaphylactic reactions is 1.4 per 100 000 doses. According to the WAO, SLIT can be used in children from the age of five, probably even below. Here, no more or more serious side effects are to be expected than in other age groups.

#### 4.5. Children suffering from allergies are deliberately *undersupplied*

Allergists and laboratory doctors at pharmaceutical companies know that immunotherapeutic treatments for infants and toddlers have a much faster and lasting effect. It is exclusively economic considerations that hinder the needs-based care of the children. Pharmaceutical companies could produce very effective desensitization solutions for children, but they don't because it's not worth it because of the low take-up. Currently, a few solutions or tablets against common airborne allergens are offered for children from the age of 5.

#### 4.6. Hyposensitization of infants and toddlers

As part of systemic hyposensitization (SHS), numerous infants and young children have also been treated with a special form of specific immunotherapy since 2014. The goal of treatment was a life without restrictions. Every child, regardless of the number and severity of food allergies, should be able to eat a healthy and balanced diet within a manageable period of time, i.e. without avoidance. As treatment progressed, atopic dermatitis visibly receded. All children, including those with multiple high-grade food allergies, were able to be fed normally in an age-appropriate manner after 24 months. The AD had largely regressed or completely dissolved. This was achieved in two ways: the so-called rotational diet and specific immunotherapy (SLIT). The classification of food allergy was determined by the results of allergy diagnostics, i.e. the specific IgE and food provocation.

#### 4.7. The hyposensitization of food allergy

- Oral hyposensitization according to the rotation principle

If the allergological examination reveals minor or moderate allergies to food, they are included in a rotation plan. The foods in question are integrated into the main meal by grams. The amount and frequency are increased individually from 14 days to four weeks according to the allergic predisposition of the child. There is no alternative to this approach. The temporary complete avoidance is just as wrong as the non-observance of the allergy. The body must learn to handle the foods in question. Parents can carry out the procedure completely independently. The rotation diets usually last no longer than a year and lead to success without exception.

#### 4.8. Treatment of food allergy according to the principle of systemic hyposensitization

For the immunotherapeutic treatment of food allergies, no industrially manufactured solutions are currently offered, because, according to the argument of the pharmaceutical companies, there is allegedly no market for it, or they could not be marketed profitably. However, in cooperation with a knowledgeable doctor and a pharmacy, the solutions can be prepared by yourself. However, the costs must be borne by the patient himself. From the food and a durable dilution solution, which any pharmacy can supply, a dripable suspension is prepared. For a class 6 food allergy, a 0.001 percent solution is started and increased to a 75 percent solution in 21 steps. This results in 22 vials of 10 ml of solution each. Material: 22 brown vials with a pipette screw cap, 300 ml dilution solution, 1 mortar, 1 blender. Formulation of a diluent solution

*Example of the preparation of a chicken protein desensitization solution* 9,5 ml of egg protein is shaken with 0,5 ml of dilution solution. The result is a 97 percent suspension. In the next step, shake 1 ml of dilution solution with 9 ml of chicken egg. The result is a 90 percent suspension. In 22 steps, a 0.001 percent chicken protein suspension is produced at the end, with which the treatment is started. Formulation of 600, 72 g of a diluent solution: glycerol 390 g, Aqua purificata plus Zusch 210 g, sodium monohydrogenphosphate 0.48 g, sodium hydrogen phosphate 0.24 g.

#### 4.9. Treatment of airborne allergies

In children, specific immunotherapy should always be carried out sublingually, as in the case of food allergies. The children do not have to fear the endless pricking. However, since manufacturers do not offer age-appropriate concentrations, treatment was recommended for safety reasons at the earliest from the age of five. In the meantime, the pharmaceutical industry has recognized that children are not a profitable target group either, and has quadrupled the concentration of therapy solutions, so that treatment can only be carried out from the age of 18. All this is done in the knowledge that treatment as early as possible has the greatest chance of success.

#### 4.10. Parents and doctors are on their own

Even when it comes to desensitizing allergies to inhaled substances, parents are on their own and have to bear the costs themselves. The understanding, knowledgeable doctor can still prescribe therapy solutions for allergy-stricken infants and young children if he ensures that they are diluted according to their age. In these cases, one should always desensitize gradually. The commercially available solution is diluted

with a durable dilution solution to a 0.001 percent concentration and increased in ten steps to 40 percent.

#### *Preparation of the therapy solution*

For the preparation of the solutions, ten brown vials with pipette screw caps and 150 ml of dilution solution and two vials ( $2 \times 24$  ml) of standard solution from the manufacturer are required. The first standard solution is only sufficient for vials 1 to 6. The second prescription should therefore be issued in good time. For example, if a five-year-old is to be desensitized and it is a pharmaceutical solution intended for 18-year-olds and older adolescents, it must first be diluted to a 25 percent solution. If it is an original solution intended for children from the age of five, the first step is omitted. In infants and young children up to the age of four, dilute the original solution in five further steps to a 60% solution and then continue treatment with the original solution.

#### *Performance*

Start with one drop from vial 1 and increase by one drop to five daily. Then continue to add five drops of this dilution stage daily until the bottle is empty. This will be the case after almost four weeks. Proceed in the same way with vials 2 to 10. In case of side effects, proceed according to the manufacturer's recommendations in the package leaflet.

**Note:** *It corresponds both to the recommendations of the manufacturers and to the right of every physician to dilute an active ingredient with suitable methods to such an extent that its effect is only reduced, but not lost.*

## 5. The transferability of SHS

### *Transferability to adult patients*

As already mentioned in the preface, the development of modern widespread diseases and atopic diseases, allergies, autoimmune diseases and the most common mental disorders can be stopped primarily by the earliest possible treatment in childhood. This does not mean that the principles of systemic hyposensitization are not transferable to adult sufferers. Of course, SHS can be transferred to all age groups. In this introduction for doctors, however, we focus on our main goal, overcoming these widespread diseases.

### *The transferability of SHS to other disease groups*

Previous scientific research has provided convincing evidence of the dependence of atopy, allergy and the most common mental disorders on sensory processing sensitivity. The connection also seems logical and plausible. Many well-known scientists have been pointing out for almost 100 years that the sensitivity of perceptual processing is more decisive for the development of stress reactions than that of the stress factor itself. The problem was that there was no instrument to record the PLC. In any case, the psychological tests based on the *Big Five* were only able to capture the construct of sensory processing sensitivity to a very limited extent. Such a contradictory personality trait defies normal personality tests. With the SENS-E procedure, there is now an instrument that meets all the quality criteria of a test, so that today it is absolutely possible to distinguish characteristic carriers from non-characteristic carriers. In personalities with high SPS values, there is undoubtedly an increased risk of developing atopy, allergies and the most common mental disorders. The similarity of autoimmune diseases with atopy allows the assumption that SPS could also be considered as a cause here. However, corresponding cohort studies have not yet been carried out. Currently, anxiety disorders and unipolar depression have been shown to have the strongest dependence on the SPS level. In this respect, there is no doubt that personalities with mental disorders can be helped at least as well with sensory hyposensitization and that these diseases can be effectively prevented.

## 6. Sources

1. Peter Liffler<sup>1</sup>, Eva Milena Johanne Peters<sup>2</sup>, Uwe Gieler<sup>3</sup>: Are there indications of characteristics of "sensory processing sensitivity" (SPS) in atopic personalities? - A study on parents of children suffering from neurodermatitis in inpatient treatment, *Journal of Psychosomatic Medicine and Psychotherapy* 2018.
2. Peter Liffler<sup>1</sup> | Sabine Treuherz<sup>2</sup> | Regina Fölster-Holst<sup>3</sup> | Uwe Gieler<sup>4</sup> | Eva M. J. Peters<sup>5</sup>: Increased risk of allostatic overload of personalities with "Sensory Processing Sensitivity" (SPS) – a contribution to the explanation of the etiopathogenesis of atopy and the most common mental disorders. The examinations with a *screening* procedure with 16 features show an increased risk of the presence of atopic diseases, anxiety disorders, fatigue syndrome. Online: sens-research-group.de
3. AWMF- sk 2 Guideline Neurodermtis 2016
4. Selye H. Stress without need. Psychopathology of human adaptation. Springer, Boston, 1976.
5. Wittchen, H. U. et al (2011) The size and burden of mental disorders and other disorders of the brain in Europe 2010. 2011 Sep;21(9):655–79. doi: 10.1016/j.euroneuro.2011.07.018.
6. Gazzaniga M: Who's in charge? Free Will and the Science of the Brain. New York 2011
7. Tölle, R. (2013) »Die sensitive Persönlichkeit«. *The Neurologist* 3 (2013) 374
8. Aron E.N. (1996) Counseling the highly sensitive person. *Counseling and Human Development* 28, 1-7
9. LeDoux J.: Herr über die Erinnerung, portrait by Claudia Wüstenhagen, in: *Die Zeit*, 14 March 2012
10. Häusel, H. G.: Think Limbic! Understanding and Using the Power of the Unconscious for Motivation, Marketing and Management, Freiburg, 4th edition 2010
11. Lionetti, F., Pastore, M., Moscardiono U., Norentini A., Pluess, K., Pluess, M.: Sensory Processing Sensitivity and its association with personality traits and affect: A meta-analysis *Journal of Research in Personality* 81 (2019) S 138 – 152
12. Neal, J. A., Edelman, R. J., & Glachan, M. (2002). Behavioural inhibition and symptoms of anxiety and depression: Is there a specific relationship with social phobia? *British Journal of Clinical Psychology*, 41, 361-374
13. Liss, M., Timmel, L., Baxley, K., & Killingsworth, P. (2005). Sensory processing sensitivity and its relation to parental bonding, anxiety, and depression. *Personality and Individual Differences*, 39, 1429-1439.
14. Liss, M., Mailloux, J., & Erchull, M. J. (2008). The relationship between sensory processing sensitivity, alexithymia, autism, depression, and anxiety. *Personality and Individual Differences*, 45, 255-259.

15. Meyer, B., Ajchenbrenner, M., & Bowles, D. P. (2005). Sensory sensitivity, attachment experiences, and rejection responses among adults with borderline and avoidant features. *Journal of Personality Disorders, 19*, 641-658 108and 181-200
16. Liffler, P.: Der Allergie-Code, Ullstein-Verlag Berlin, 2019 pp. 208 – 234
17. Liffler, P.: Sensible Seele-sensibler Körper, Ullstein-Verlag 2021, pp. 51ff.
18. Häusel, H. G.: Think Limbic! Understanding and using the power of the unconscious for motivation, marketing and management, Freiburg, 4th edition 2010
19. Sterling P, Eyer J. Allostasis: a new paradigm to explain pathogenic pathology. In: S. Fisher, J. Reason (eds.) Handbook of life stress, cognition and health, Wiley & Sons, New York; 1988. pp. 631-651.
20. McEwen BS, Stellar E. Stress and the individual. Mechanisms that lead to diseases. *Archive of Internal Medicine.* 1993; 153: 2093-2101.
21. Gunnar M. The neurobiology of stress and development. *Annual review of psychology.* 2007; 58: 145-173.
22. Graham-Rowe, D. Lifestyle: When allergies go west. *Nature* **479**, S2–S4 (2011). <https://doi.org/10.1038/479S2a>