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We apologise for various typographic errors in the last issue, especially on the back page.
We have put steps into place to try to eliminate this for the future.

RESEARCH

Neuro-Linguistic-Psychotherapy (NLPt) treatment can modulate the reaction in pollen allergic humans and their state of health

KLAUS WITT

Abstract

This article explores the effects of mental allergy therapy – the HILDESHEIM HEALTH TRAINING which is based on NLPt. There are numerous evidence that points to a close association between psychosomatics and allergy. The strength of an allergy seems to be influenced by psychological factors. The reported experiment shows that NLPt is able to achieve feed-forward effects and positive changes to the immune function. In a randomised study with help of psychological tests, a diary of medical consumption and ailments and skin prick tests as a read-out system examined, how NLPt like the HILDESHEIM HEALTH TRAINING influence the allergic immune function on birch pollen allergic humans.

1. In comparison to the people of the control groups the participants of the NLPt-HHT-groups experienced highly significant improvement in all psychological-diagnostic-measurements. 2. The in vivo results demonstrated a significant difference between the treatment groups in both, symptoms and medicine consumption. 3. The force of the allergic reactions showed a drastically decrease during the following season of birch pollen. It seems possible to influence immune function like allergies and the (subjective covariate) state of health by NLPt

Key Words: Allergy, psychotherapy, mental health, cognition, NLPt, mental competency.

Zusammenfassung

Dieser Artikel untersucht die Auswirkungen der Geistigen Allergie Therapie – Das HILDESHEIM GESUNDHEITS TRAINING, basierend auf NLPT. Es gibt zahlreiche Hinweise auf psychosomatische Zusammenhänge bei allergischen Immunreaktionen. Die Stärke einer allergischen Reaktion scheint durch psychologische Faktoren beeinflusst werden zu können. Die beschriebene Studie zeigt, dass mit Neurolinguistischer Psychotherapie (NLPt), Feedforward-Effekte erreicht und allergische Immunfunktionen verändert werden können.

In einer randomisierten Studie wurde anhand von psychologischen Tests, Patienten symptomtagebüchern, Haut-Prick-Tests und dem Medikamentenverbrauch untersucht, wie sich NLPt-Interventionen in Form eines Hildesheimer Gesundheitstrainings auf die Immunfunktion bei Birkenpollenallergikern auswirken.

1. Im Vergleich zu den Probanden der Kontrollgruppen erreichten die Teilnehmer der Interventionsgruppen hochsignifikante Verbesserungen in den psychologischen Parametern. 2. Es gab positive signifikante Effekte, sowohl im Bereich der Symptome als auch im Bereich des Medikamentenkonsums. 3. Während der folgenden Birkenpollenflugsaison erreichten die Probanden der Interventionsgruppen eine deutliche Abschwächung der allergischen Reaktion im Vergleich zu den Kontrollgruppen; eine hochsignifikante Verbesserungen im Vergleich zu den subjektiven Angaben zur vorjährigen Birkenpollenflug saison. Dies lässt vermuten, dass komplexe immunologische Reaktionen wie Allergien und das damit kovariierende Gesundheitsempfinden durch psychotherapeutische Verfahren wie NLPT positiv beeinflusst werden können

Schlüsselwörter: Allergie, Psychotherapie, Mentales Training, NLPT, Seelische Gesundheit, Wahrnehmung, NLPT, geistige Fähigkeit.

Résumé

Un traitement par la PNLt peut moduler les réactions et l'état de santé des personnes allergiques au pollen.

Cet article explore les effets de la thérapie de l'allergie mentale, le HILDESHEIM HEALTH TRAINING, basée sur la PNLt. Il y a de nombreuses évidences qui soulignent une étroite association entre la psychosomatique et l'allergie. La force d'une allergie semble influencée par des facteurs psychologiques. L'expérience rapportée montre que la PNLt s'avère capable de mobiliser des effets positifs dans les fonctions immunitaires. Dans une étude randomisée, accompagnée de tests psychologiques, on a noté la consommation des médicaments et des aliments et examiné des tests de piqure qui ont montré comment la PNLt et le HILDESHEIM HEALTH TRAINING influence le système immunitaire chez des personnes sensibles au pollen de bouleau.

1. En comparaison avec le groupe témoin, les participants des groupes PNLt et HHT ont montré une amélioration hautement significative dans toutes les mesures de diagnostic psychologique. 2. Les résultats in vivo ont montré une différence significative entre les deux groupes en ce qui concerne les symptômes et la consommation de médicaments. 3. La force des réactions allergiques a montré une diminution drastique durant la saison suivante de pollen du bouleau.

Il semble possible d'influencer les fonctions immunitaires comme l'allergie ainsi que les variations subjectives de l'état de santé par la PNLt.

Mots clés: Allergie, psychothérapie, santé mentale, cognition, PNLt.

*

Introduction:

There is a lot of evidence for a psychological neurological and immunological interaction in the initiation of acute allergic responses. Amounts of mediators and different levels of expression can be modified in responses to stress or happiness and feelings of love. [Misery, L. Are Biochemical Mediators the missing Link between Psychosomatics and Dermatology? Dermatology and Psychosomatics 2001; 2:178-183]

There is a close association between emotions and their influence in the immune response, which was shown in skin reactions to histamine after hypnotically induced emotions of sadness, anger, and happiness. [Zachariae R, Jorgensen MM, Egekvist H, Bjerring P. Skin reactions to histamine of healthy subjects after hypnotically induced emotions of sadness,

anger, and happiness. Allergy 2001 Aug;56(8):734-40.] The association between Panic Disorder and allergic (vasomotor) reactions was found to be highly significant. A functional relationship is hypothesized in terms of conditioning cognitive and vasomotor interactions during autonomic arousal. [Schmidt-Traub 1991, Schmidt-Traub & Bamler 1992, Schmidt-Traub 1995, Schmidt-Traub & Bamler]

Several findings on conditioning of the immune system in animals have been published since Pawlov. The phenomenology of this response has been well characterized. And last but not least, comparable data on human research showed a bi-directional influence between the nervous system and human immune function. [Buske-Kirschbaum et al. 1992, 1994, 1997, 1998, 2001]. The concept, that the "Immune response can be enhanced through activity of the central nervous system, seems to be accepted".

However the connection between psychological and neural mechanisms remains unclear. Similarly, the way to use psychological treatment to induce neural mechanisms with biological relevance needs to be investigated. A couple of NLPT allergy-techniques which are a mixture of classical conditioning and hypnosis seem to be very helpful in changing the individual strategy utilised to perceive the environment. It is a way to establish a feed-forward regulation which changes the strategy (which normally ends with the allergic response) into a healthy one. A positive mood helps the organism cope well with pollen. In using HHT the individual learns not only to deal with stress and life events in a relaxed way, but also to influence the physiological immune response through classical conditioning and NLPT.

A mental health training called HILDESHEIM HEALTH TRAINING (HHT) was therefore developed and tested. Patients allergic to birch pollen received HILDESHEIM HEALTH TRAINING to learn how to modulate a new response of their immune system. HILDESHEIM HEALTH TRAINING uses a combination of behaviour therapy, NLPT, classical conditioning and hypnosis.

The intervention was tested with reference to psychological items, medicine consumption, ailments and skin-prick-tests. An analysis was made of all measurements and skin prick tests using histamine provocation were used as a standard technique in the study of allergies to control the immune response and medication. A functional relationship is hypothesized in terms of psychological and somatic interactions.

Patients and Methods:

Patients: Patients allergic to birch pollen for at least 3 years ($n = 73$; aging from 18 to 66 years, $\bar{x} = 42$ years, median: 41 years) were divided into two experimental groups ($n = 41$) and two control groups ($n = 32$). Inclusion criteria were suffering an allergic immune response to birch pollen which was IgE tested and showed in coetaneous prick testing.

Psychological Intervention: The two experimental groups received the HILDESHEIM HEALTH TRAINING for the mental handling of allergies. The treatment is a group setting, which takes 8 meetings (2/week) about 2 hours working with individual conditioning, psychosocial factors and believe systems + 25 minutes relaxation. The relaxation includes hypnotically healing imagination.

The Hildesheim Health Training helps participants to find out their own experience of a healthy perception of the environment and to establish it as a feed forward regulation. One of the two experimental groups received an additional intervention (40 minutes) to build a healthy immune response (classical conditioning of a healthy immune reaction by hypnotically induced imagination, they learned an extra NLPT-allergy-technique). One control group (placebo/cassette) received a relaxation cassette, in order to be able to check placebo effects. It

was suggested to these persons that the cassette contained highly effective healing materials. The individuals of the other control group did not receive any treatment and were requested to behave as usual. All participants of the study were instructed to document medicine consumption and ailments in daily diary entries for the duration of the intervention. The study was single blind, with objective data acquisition (randomised). All data were from 1998 before (= t 0), during (= t 1) and after the flight season of birch pollen (= t 2).

Table 1:

Patients, groups and drop-out after prick test (n 72)				
	Intervention Groups		Control Groups	
	HHT- Basis+ PI	HHT-Basis	Cassette (Placebo)	No Treatment
t ₀ (before HHT)	18	23	13	18
t ₁ (after HHT)	17	22	9	9
t ₂ (follow up 14 weeks after HHT)	17	22	5	16
Drop-out	2		10	

HHT = Hildesheim Health Training

Tests: In all participants of the study all tests (skin-prick-test, psychological items, medicine consumption and ailments) were performed 3-5 weeks before treatment and before the start of the birch pollen season; after intervention at the beginning of the birch pollen season; and 14 weeks later when the birch pollen season had finished.

The skin-prick-test was implemented with provocation with saline solution (NaCl 0.9%) to exclude non-specific irritations and a histamine provocation (Histamine: 0,01%, Allergopharma J. Ganzer KG, Reinbek, Germany) as a positive control, to exclude the risk of falsely negative results due to medication. Exclusion criteria were any non-specific irritation or negative control on histamine in the skin-prick-test or any antihistamine medication.

Psychological items like the subjective state of illness or subjective state of health and mood of well being in comparison to bad (allergy) mood were tested with Krampen-AT-Symptomscale and a German Rehabilitations-Psychologische-Diagnosesystem (rehabilitation psychological diagnostic system). It was checked that the interval-scaled data in the population were normally distributed (Kolmogorov-Smirnov-Test) and that variance homogeneity (Bartlett-Test) allowed variance analysis. A repeated-measures (within-subjects and time) ANALYSIS OF VARIANCE was calculated to check differences and the development over time between the groups. Of course it was also checked with ONEWAY ANOVA and multiple t-Test that there were no significant differences found between the groups in the beginning (t0).

The medicine consumption and ailments were entered in daily diary entries for the duration of the intervention. The ailments were counted by Kruskal-Wallis 1-Way Anova to check if the result of the ranking of the groups was normal populated or to find out with Mann-Whitney U and - Wilcoxon Rank Sum tests where the effects came from. After the flight season of birch pollen (t2) subjects were also asked for their subjective estimation of ailments in comparison to the last season. For this the pollen pollution was compared

between the seasons by Stiftung Deutscher Pollen-informationsdienst station Hamburg and Lübeck (1997/1998) and showed a lower pollen pollution in the season before treatment.

Counting medication is very difficult because of the variety of the medication, the variety of the chemical content and also individual cell sensitivity. So I took a radical decision to count the medication as binary-data with chi-square. It meant that everyone who took one tablet or spray or anything else during the whole season was counted on the medication side. All statistics were calculated using the SPSS 6.0 program.

Results:

Some interesting results were found:

Skin-prick-Test: There was not any significant effect of the HILDESHEIM HEALTH TRAINING to be observed on the birch pollen extract, which was calculated by histamine equivalent. Surprisingly a rise of histamine reaction was registered (t0 to t1 and t0 to t2) in the control groups and a variance analysis on basis of time and measuring repetition showed a highly significant difference in histamine-induced wheal area (significance of $F: < 0,000$). This development differed significantly between the groups (significance of $F: < 0,030$). The significant interactions between the groups and the developments over time suggest that the skin reactions are influenced by psychological intervention. This results to skin-reaction to birch pollen was calculated by histamine equivalent and reported in Dermatology + Psychosomatics [Witt Klaus Psychological Treatment Can Modulate the Skin Reaction to Histamine in Pollen Allergic Humans, Dermatology + Psychosomatics 2003;4:33-37].

Psychological items: well-being increased high significant in the HHT-groups between t0 and t1 and kept stable to t2. In the control groups it only increased a little but not significantly between t0 and t2.

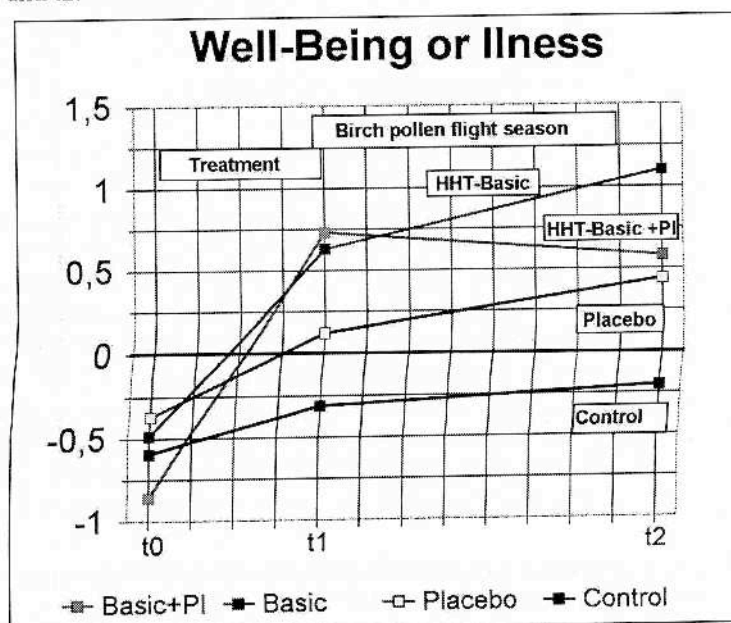


Figure 1.

This Scale signs from +3 Well-Being to -3 Illness

t₀: n = 71, Basic+Pi n = 17, Basic n = 22, Placebo n = 13, Control group, no treatment n = 19

The analysis of variance involving time within subject effects showed a clear highly significant effect (Sig of $F = ,001$) in the NLPT treated groups. The mood of well-being increased high significant in the HHT-groups t_0 to t_1 ($t_1 F = ,0012$, Multipler t-Test) and kept stable to t_2 ($t_2 F = ,014$ Multipler t-Test). The control groups remained stable in their mood around illness.

The state of illness decreased significantly in the HHT-groups between t_0 and t_1 and remained stable to t_2 . Analysis of variance involving time within subject effects (Sig of $F = ,013$) Also it seems to decrease in the placebo group between t_1 and t_2 . This fact was unexpected and it is difficult to explain. Some participants in the placebo-group tried to continue without using medication during the period but they could not achieve and took tablets during the last days. Because it was asked for the state of illness during the last three days, it could be a result of medication or measurement failure. Compared with the Well-being or Illness figure the placebo-group should have been similar to the control group.

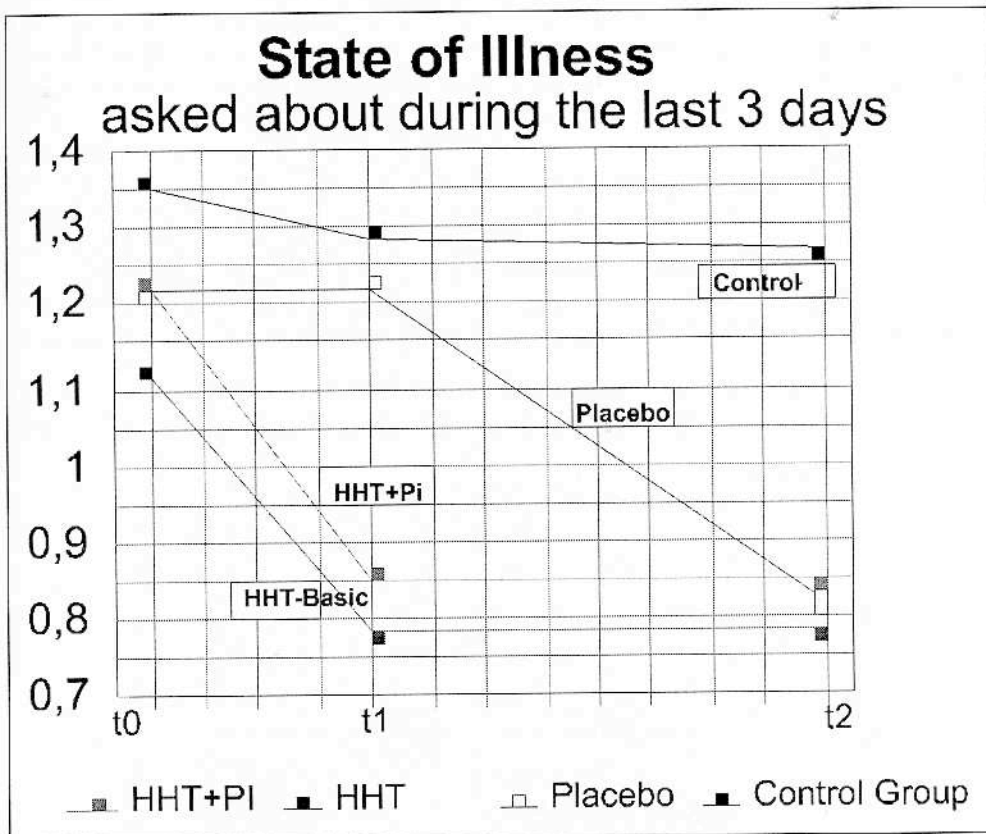


Figure 2.

Darstellung der Mittelwerte. Items 0 = nie (keine Belastung) 3 = häufig (hohe Belastung)

t_0 : $n = 73$, Basic+Pi = 18, Basic = 23, Placebo = 13, No treatment control group = 19

t_1 : $n = 72$, Basic+Pi = 18, Basic = 23, Placebo = 13, No treatment control group = 18

t_2 : $n = 66$, Basic+Pi = 16, Basic = 22, Placebo = 09, No treatment control group = 19

The subjective health increased significantly (Sig of $F = ,041$) in the HHT-groups

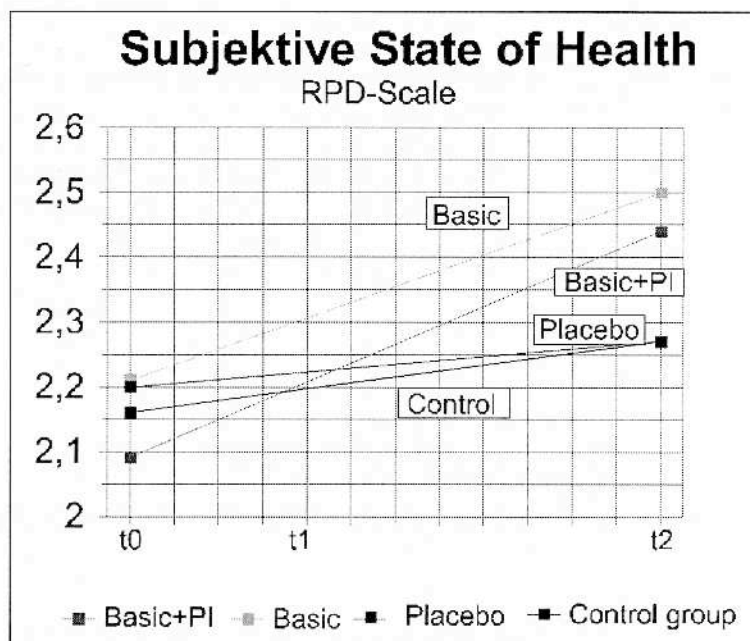


Figure 3.

The RPD scales range 1 to 4 was counted and divided by the number of items.

Ailments: The allergic immune response showed a clear difference in the daily diary between control and intervention groups. The HHT group members showed significantly (Kruskal-Wallis 1-Way Anova $P = .0370$) fewer symptoms.

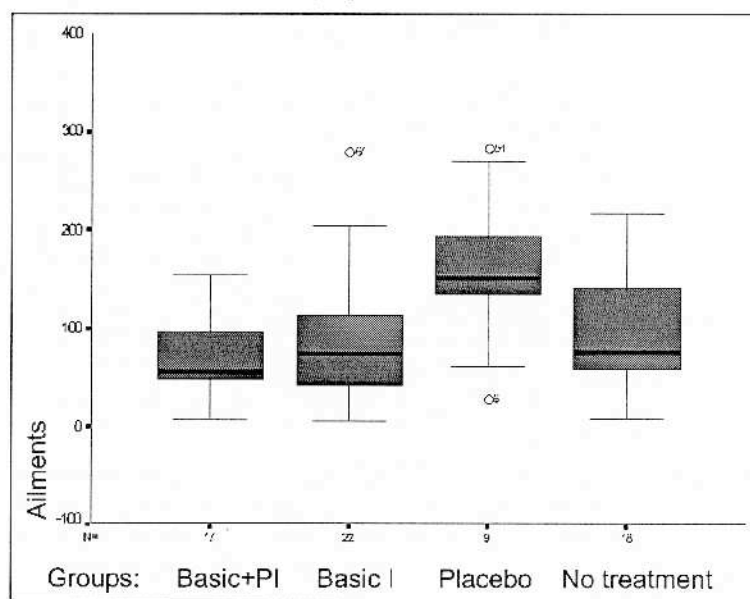


Figure 4.

Ailments were signed in daily diary entries for the duration of the intervention. 0 = without symptoms, 1 = light symptoms, 2 = medium symptoms 3 = strong symptoms. Symptoms are theoretically possible between 0 and 672 (4 ailments 56 days quoted in a range of 3) Out of 73 participants in the beginning 66 (n=66) counted the daily diary.

Medication: The members of the HHT treatment groups needed less medication in comparison to the control groups and in comparison to the last season. A Chi-Square confirmed that this result cannot be coincidental.

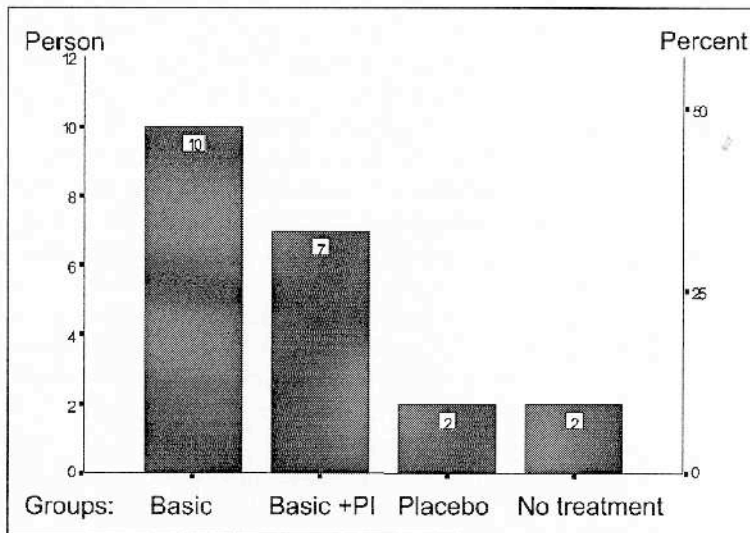


Figure 5.

Table 2:

Comparison of persons without any medication				
Group: n	HHT-groups		Control groups	
	Basic+PI (n = 18) n = 17 ¹⁾	Basic (n = 23) n = 22	Cassette- Imagination (n = 13) n = 09	No treatment (n = 19) n = 18
Season 97 (n= 73)	4	6	1	3
Season 98 (n = 66)	7	10	2	1
Trend 97-98	3	4	1	2

After birch pollen season 98 we got 66 daily dairies so we can not count the missing 7.

Discussion:

While the subjective state of illness, the subjective state of health, the state of illness or well being and specially the state of ailments and medication remained almost constant or got better in the intervention groups, whilst its negative intensity increased (high) significantly in the control groups. Because variance analysis involving time showed a significantly different development between the groups, it seems improbable that this effect is due to variations of base values.

Without any psychotherapeutic effect of the NLPT-treatment the individuals could not increase their state of subjective health and well-being and similarly decrease their state of illness during the pollen season. Particularly the placebo group showed that the treatment must be more than suggestion. Without any psychoneuroendocrinological effect the individuals receiving the NLPT-treatment HILDESHEIM HEALTH TRAINING group should have shown a development similar to the control groups. The incidence of ailments or medication should have increased to the same extent as in the control group. At time t1 the control group showed a high drop out (t1: 9, t2: 2) because of medication. Even the high drop out in the placebo group at time t2 (t1: 4, t2: 3) was remarkable and indicates that the intervention was more than a placebo effect. In the beginning all participants were high motivated and believed in healing imagination. But this did not work; imagination and belief was not enough. They got the most symptoms. Some persons stopped participating, others tried to continue using the imagination strategy without any medication. But later they realised that they couldn't achieve improvement without any medication. Only the participants in the intervention groups achieved improvement without any medication and got also fewer ailments in the same time. It seems, even if it is not significant, that all participants of the HHT+PI group, who got an extra NLPT-allergy intervention, achieved slightly better results than the normal HHT group. The placebo group got the worst ailments and confirmed that changing in their mood also in all Psychological Items between t0 to t1 and t1 to t2.

The results suggest that the psychological NLPT-treatment has an effect on allergy sensitivity which was shown in the strong combination of Psychological Items, Ailments and Medication. It is probable that the effect was prevented by the psychological treatment in participants of the intervention groups and that this reflects physiologically the positive effects of such mental allergy treatments which might affect mast cells. These results clinically support the observations of Bienenstock and coworkers, [Blennerhassett & Bienenstock 1998, Djuric et al 1995, Marshall & Bienenstock 1994, Marshall et al 1994, 1999, McKay & Bienenstock 1994, Sanico et al 1999, 2000, Suzuki et al 1999, William et al 1995] who found that contacts between mast cells and nerve membranes, and between neuropeptides such as substance P and mast cells, establish a dialog between the immune system and nervous system.

The preliminary results provide further evidence in support of psychoneuro-endocrinological interaction and the positive effect of NLPT. Also the published data of Anbar [Anbar RD, Childhood habit cough treated with self-hypnosis. *J Pediatr.* 2004 Feb;144(2):213-7. Anbar RD Self-hypnosis for anxiety associated with severe asthma: a case report. *BMC Pediatr.* 2003 Jul 22;3(1):7.] and multiple psychological intervention of Zachariae and colleagues [Zachariae R, Jorgensen MM, Egekvist H, Bjerring P. Skin reactions to histamine of healthy subjects after hypnotically induced emotions of sadness, anger, and happiness] support existing theories [Witt 1999, 2000], that an adjuvant psychological treatment appears to be able to reduce physiological effects, decrease medication, and can be used to eliminate side effects, support well-being and can also be helpful in combination with interdisciplinary treatments.

NLPT methods seem to provide the interface between the environment and the organism and between medicine and behaviour. In conclusion, allergic immune processes might be

influenced by means of complex mental procedures like NLPT and group assessments like HILDESHEIM HEALTH TRAINING. Nevertheless, more randomized controlled trials of good methodological quality are required to describe psychotherapeutic models and techniques which are offered in NLPT to allow more firm conclusions.

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