

**Yoga for children in the mirror of the science: working spectrum and practice fields of the Training of Relaxation with Elements of Yoga for Children**

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The latest research work showed a clear increase in stress consequences for younger children related to experience, behaviour and health (among other things, fear to fail and psychosomatic disorders). In contrast, only a few stress handling programmes are available specifically for children; a large part covers stress handling training courses orientated to behaviour and cognition. The aim of the Training of Relaxation with Elements of Yoga for Children technique introduced and evaluated is the communication of self control and relaxation based on experience using breathing exercises, imagination journeys and specifically selected yoga techniques for children. This stress handling programme has been investigated by means of a test/control/group design with 48 pupils of the fifth grade. During a pre/post comparison with three measuring times one could give proof that the training will increase emotional balance in the long term and reduce fears. Feelings of helplessness and aggression were clearly reduced. Beyond this, the participants transferred the learned breathing techniques and self instructions to situations beyond school, in order to relax after the lessons, to improve wellbeing and to control negative feelings. The effects found out here indicate that yoga is suited for children as an independent control method.

*Keywords: Yoga for children; Training evaluation; Stress prevention for children.*

**Introduction**

Research has shown an increase in stress related behaviour and experiences of stress in children ([Engel & Hurrelmann, 1989]; [Reißig & Petermann, 1996]). In contrast, only a few stress management programmes have been developed for elementary school children ([Lohaus et al., 1997]). The published stress management programmes for children in Germany ([Lohaus & KleinHeßling, 2000]) are mainly cognitive behaviour therapy oriented. For a long time there was no empirically proved stress management approach for children based primarily on relaxation techniques. Such a stress management approach was developed by Stück [Stück, 1998]; [Stück, 2000], mainly based on elements of yoga and additionally including aspects of stress management training (e.g. drawing, breathing and massage techniques, imagery techniques for children [fantasy journeys], meditation and relaxation by music). The aim and goal

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of this Training of Relaxation with Elements of Yoga for Children (TorweYC) technique is to teach children and adolescents in self regulated strategies to reduce stress and to optimize their reactions related to high psychological demands and pressure in everyday life. During the training, the participants will be confronted with yoga and breathing exercises. They learn to use these exercises before, during and after stress situations, and they are instructed to make homework assignments for self-controlled use of the relaxation techniques. Additionally we developed and evaluated an education for course instructors. This published evaluation of the work of some educated course instructors shows an effect of TorweYC in the practise ([Stück, et al., 2002]). In this article we refer only to the results of the evaluation of the developmental period of TorweYC, which took place between 1994 and 1998 at the Institute of Applied Psychology at Leipzig University. In this study we were interested in the following questions:

1. Is TorweYC suitable to achieve short term as well as long term effects on stabilization of personality and at the same time to reduce stress in school children?
2. Is the training suitable to reduce examination anxiety?
3. Is the employed method attractive to children and adolescents?

## **Methods**

The TorweYC consists of 15 meetings. One exercise lasts 60 minutes and is subdivided into three parts.

(a)*First relaxation.* The aim of this part is to achieve a stronger inner orientation and to prepare for the following yoga exercises. This first relaxation is accomplished by the help of a technique called 'journey through the body', which consists of different concentration tasks on single body parts. Other used first relaxation techniques are breathing techniques from yoga (*ujjayi, nadhi shodana*, alternating breathing).

(b)*Yoga exercises.* During the relaxation training 23 different yoga exercises (based on ShivanandaYoga, Rishikesh/India) are introduced, developed and consolidated. The long term aim is besides the immediate relaxation during the meeting the mastery of *asana* for self relaxation. For independent training, the programme focuses on an individual complex of yoga exercises, which can be built from single yoga exercises. Several complex yoga exercises will be taught. Another variant of this relaxation training is that the participants can develop their own complex yoga exercise by the help of *asana* and the basic principles of yoga. Later, they are asked to introduce the group to their own exercise and instruct everybody else, taking on the role of a yoga teacher. As a result, identification with these yoga exercises, creativity and the ability of selfreflected use of these exercises are to be strengthened (transfer effect).

(c)*Final part.* The final part of a session has rather a game character. It encourages social contact and integration into the group and reinforces the training efforts. Several techniques will be used for that purpose: for example, massage techniques (partner massage, ball massage), meditation (candle meditation), sensory exercises

(discovering of objects by touching and smelling), and interactive exercises ('trust game', 'jumping lotus flower') as well as six different imagery techniques. These specially designed imagery techniques are used to teach the self instruction abilities of the children. Formulas like, for example, 'Stop calm and cool is wonderful' are embedded in the imagery process. The use of imaginary and meditation exercises (candle meditation) was chosen to create a transition from the sensual motor action regulation of the Yoga exercises to a cognitive behavioural and imaginative self regulation process. This connection leads to emotional, regulated inner experience of calmness. The active intrapsychic monitoring or the 'inner view' seems to be very important and helps participants to learn to pay attention to their own emotions and to not only follow external stimuli (e.g. computer games, television).

To prove the effects of the relaxation training, one experimental group (with training) and one control group (without training) were surveyed with the design presented in Table 1.

<b>Group</b>	<b>Pre interview</b>	<b>Post 1 interview (short term effect: immediately after training)</b>	<b>Post 2 interview (long term effect: 3 months after training)</b>
Experimental group	<b>21</b>	<b>21</b>	<b>21</b>
Control group	<b>27</b>	<b>27</b>	<b>27</b>

Table 1: Design of study

The realization of the relaxation training and the data collection took place in the period between August 1994 and March 1996 (four groups, males and females separated). Out of 110 children (age 11-12 years), 48 pupils who showed an abnormal examination anxiety (with the anxiety questionnaire for pupils by Wiczerkowski [Wiczerkowski, 1994]) were selected for the evaluation. The following variables were measured:

- *Process variables* (psychological and physiological variables during training sessions). For example, feeling of relaxation due to sessions, acceptance of session and non-dependent exercising behaviour during session, concentration, general wellbeing (by the estimation of parents and teachers), electro dermal activity during session as a physiological parameter for stress, and relaxation states during sessions.
- *Effect variables* (variables before and after the training in prepost 1 comparison). For example, physical complaints, emotional regulation, control convictions, working motivation, and psycho physiological stress coping abilities.
- *Effect variables* (variables before, immediately after and 3 months after the training in pre post 1post 2 comparison using the pre post-test analysis of Lander [Lander, 1990]).

## Results

The results can be summarized in the following theses.

1. For the following effect variables, significant differences ( $p \leq .05$ ) could be proved in Pre Post 1 comparison: aggression ( $\downarrow$ )<sup>1</sup>, helplessness in school ( $\downarrow$ ), static balance ability ( $\uparrow$ )<sup>2</sup>, physical complaints ( $\downarrow$ ), psychophysical behaviour while dealing with a stressor in the Stress Relaxation Test (stress-coping abilities) ( $\uparrow$ ).

2. The hypotheses concerning the improvement (Pre Post 1) of emotional control, of active engaged behaviour and of acceptance by the school fellows could not be verified statistically. Concerning the Pre Post 1 changes in the emotional control, there is only a statistical tendency ( $p \leq .10$ ). This tendency could also be proved descriptively in the Post 1 interviews after the training. Of the subjects, 47.6% stated the improvement of control of emotions (e.g. less rage or anger in stress situations).

3. For the following effect variables (Pre Post 1Post 2 comparisons) the hypotheses could be verified statistically ( $p \leq .05$ ):

- Pre Post 1 alteration, stable to Post 2 measurement (short term and long term effect): emotional balance ( $\uparrow$ ), anxiety ( $\downarrow$ ).
- Pre Post 1 alteration, not stable to Post 2 measurement<sup>4</sup> (short term effect): feeling of defeat ( $\downarrow$ ).
- Pre Post 2 and Post 1Post 2 alterations (long term effect): extroversion ( $\downarrow$ ).
- Pre Post 2 alterations (long-term effect): shyness in social contact ( $\downarrow$ ), impulsiveness ( $\downarrow$ ).

4. The hypothesis concerning the effect variable self efficacy could not be verified statistically ( $p > .10$ ). The efficiency of the relaxation training is not suitable for this personality dimension.

5. Concerning the psychological process variables, the hypotheses could be verified statistically ( $p \leq .05$ ). The parents as well as the teachers estimated that the general wellbeing of the subjects improved due to the training, in contrast to the control group. This result could be proved also descriptively with the interview statements (Post 1) of the parents. They declared to experience their children being more calm and more balanced (71.4%) and less impulsive, aggressive and hot-tempered (38.1%). Besides this they described their children as more concentrated (38.1%) and with less complaint (38.1%).

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1 Statistically important decrease of the Post 1 values compared with the pre-measurement on the 5% significance level.

2 Statistically important increase of the Post 1 values compared with the re-measurement moment on the 5% significance level.

3 To verify means to prove a hypothesis. In this case there are no statistically important differences on the 5% significance level.

4 That means, significant deterioration of the Post 2 value compared with the Post 1 value concerning the feeling of defeat, which is located above the level of the pre-measurement moment, however.

5 The rating scales were filled out before and after the sessions.

6. Further results that could not be tested by inference statistics are as follows:

- The Experimental Group shows better results in the concentration test [Brickenkamp, 1994] than the control group.
- The results of the psycho physiological measurements of the electro dermal activity and of the rating scales concerning the subjective feeling of relaxation during the sessions show that the majority of the subjects get relaxed during the sessions. Thus, the presented training programme can legally be called relaxation training.
- In the training and post-training period, yoga as well as breathing exercises (rhythmic breathing, *ujjayi*, *nadhi shodana*) were practiced independently by the subjects (transfer effect). The statements of the subjects concerning the practice were confirmed by the parents in the interviews (Post 1 and Post 2). The intensity of the independent exercising increased during the sessions of TorweYC.
- The subjects applied the learned *asanas*, for example, to relax after school, to improve wellbeing and concentration, and to control anger (especially when there were problems at home). The breathing techniques and the self instruction were used also beyond the training period both in school and outside school to influence the physical emotional reactions in stressful situations, to control anger and for further indications; for example, to better fall asleep and to increase concentration (transfer effect).

7. The intended reduction of examination anxiety by the relaxation training could not be reached; neither short term nor long term was proved [Stück & Lander, 2000].

8. The participants of the training showed a constant good or very good motivation for participation in the sessions. The pleasure in doing the exercises was expressed by an active participation in the training. All 21 subjects carried out the training until the end. The estimations by the subjects about the exercising lessons proved that, in 98% of the cases, the participants found the sessions 'good' or 'very good'. The Post 1 interviews showed that the majority of the subjects and of the parents accepted the relaxation training and appreciated it as a method.

## **Discussion**

The earlier questions (see Introduction) can be answered as follows. As the results for the first question (points 16) show altogether, the relaxation training could stabilize on a higher level in the fields of the personality that are relevant for stress coping. Thus, in the subjects the conditions to cope with demands more efficiently and to reduce stress in school children were created. The intended reduction of examination anxiety by the relaxation training could not be proved (second question). The efficiency values of the Pre Post-test analysis by Lander show that, by extension of the training with examination of anxiety specific components, an interventional effect may be expected. Relevant questions for this consideration (e.g. the analysis and transfer of learning techniques, the focusing of aims, teaching issues and solving processes) were not considered in this concept of the training. These effects failing to appear (also self efficacy, see point 4) show boundaries in the effectual spectrum of the relaxation training. From the descriptive performance of the results concerning the psychological

process variables *acceptance of session* and *readiness for participation*, we can conclude (third question) that the training concept is suited very well for teaching pupils the basic principles of yoga in an appropriate way.

Generally, as the results of the survey show, the utilization of this training as a course after school stood the test and was appreciated by the pupils. Particularly, the integration of the movement oriented and experienced as well as the 'exotic' method of Yoga in the relaxation training proved to be especially effective. The evident exercising effects show that yoga is suited as a relaxation method for children and extends the spectrum of the existing relaxation methods for this age group. The independent application of the learned exercises for 'switching off or over' proves the value of the exercises of yoga for self regulation.

For future research the following suggestions can be given:

- In further surveys, gender specific differences should be explored more intensively concerning the effects of yoga programmes.
- It should be explored whether smaller programmes with four *asanas* and one breathing exercise as well as one self instruction can be exercised with children, so they may apply it independently when they get into stress states.
- A further possibility for teaching relaxation at school is the qualification of teachers. At the moment we prepare moderate relaxation techniques for children that can be used by teachers in the class (breathing meditation, fantasy journeys; altogether five minutes).

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