12. Whole-Body Breathing – (twintig jaar later, 2008)

Jan van Dixhoorn

The author introduces his approach for breath training and relaxation therapy. He describes a process model of relaxation practice, which individualizes interventions according to each client's experience of relaxation. The training is supported by seven outcome categories of training and 50 standardized instructions for the relaxation process. The author advocates a systems view of breathing, and emphasizes the client's personal awareness of tensions and of respiration. Finally, the article advocates a respect for the difference between the client's experiential reality and the observer's third person perspective, both of which are critical in effective relaxation therapy.

Introduction

In 1998 an extensive manual was published in Europe (the Netherlands) introducing a new approach for breathing and relaxation therapy. This approach had slowly developed over the past 25 years and resulted in a postgraduate educational and certification program for professionals, spanning three years. The novelty of the method consisted not only in a complete set of 50 new instructions, written out in detail, but also in a set of principles which articulate the actual practice of experienced professionals on a theoretical level. The principles include: 1. a process model of relaxation practice, 2. a system's view of breathing, 3. equivalence of subjective (first person) and objective (third person) reality, and 4. a model of self regulation of tension.

Process model

The idea for this model grew out of the recognition that 'arousal reduction' simply did not explain the variety of responses to the many kinds of relaxation instructions used in clinical practice. Although many clinicians share this recognition, the basic assumption for referrals for relaxation therapy and the primary explanation for relaxation effects remains the idea that excessive tension is being lowered. One of the reasons for a new model is the growing need to be able to explain indications of treatment in advance and thus, to be able to predict treatment outcomes to a certain extent. In order to meet the demands of professionalization, treatment has to be covered by clear protocols, stating what treatment modality is justified for what kinds of problems.

The experience I gathered in a fairly large clinical trial of relaxation therapy (n=156) with myocardial infarction patients provided the evidence and shaped my understanding that the umbrella explanation of arousal reduction was insufficient. This became unmistakably clear when I was challenged, as one of the organizer's of the fifth international conference of the International Stress Management Association (ISMA-5) in the Netherlands in 1995, to present my data under the title 'what is really happening during relaxation and breathing therapy'. We had taught cardiac patients 'breathing awareness' as a relaxation method, which included muscle tension reduction, aided by biofeedback, instructions for breathing awareness and relaxed breathing in different postures, sometimes coupled to movement or to mental images, aided by manual techniques, and we discussed their experiences with applying these techniques in daily life, to find key elements that worked for them. This package of interventions was delivered in six individual sessions, with five different therapists. Half of the patients received only regular exercise training, the other half, randomly allocated, received the combined treatment. We hypothesized that patients receiving the combined treatment would feel better, have less anxiety and have less Type A behavior (this was in the early eighties).

What was the outcome? Patients in the relaxation group did feel better, for a short while, but the difference disappeared after three months. There was no sign of EMG tension reduction, nor reductions in GSR measurements, only a little heart rate reduction. However, exercise induced signs of myocardial ischemia disappeared in half of the patients, unrelated to heart rate changes! Exercise testing showed that one third of all patients actually worsened after rehabilitation, but only half as many worsened in the relaxation group (Dixhoorn, Duivenvoorden, Staal & Pool, 1989)! Three months after the program, heart rate was lower, heart rate variability was increased, and return to work was improved in the relaxation group. However, they also reported less often feeling younger than their real age, than the control group did. Apparently, they had become more realistic and dealt more adequately with tensions. They even indicated more frequently that

their illness had a major impact, and reported more financial setbacks. In the long run, the outcome was baffling. After five years, they had had less coronary surgery. Adding up all cardiac events (cardiac death, reinfarction, surgery) we found less events and readmissions to hospital (Dixhoorn & Duivenvoorden, 1999). Subjectively, they reported feeling very good less frequently than the control group did, but their self reports correlated much higher with other items of daily functioning. Again, they seemed more realistic. They were more often discharged from follow up visits to the cardiologist and the total cost of hospital readmissions was reduced by almost half.

So, it was clear that relaxation and breathing therapy was beneficial, one way or another. Our outcome led to the inclusion of the treatment in the protocol for cardiac rehabilitation in The Netherlands and this was recommendded as such in the national guidelines in the nineties. Recently, the guidelines were updated and I summarized the scientific evidence to date in a systematic review and meta-analysis. The outcomes I had found were by and large replicated in 27 controlled studies (Dixhoorn & White, 2005).

My personal conclusion, after going over the data repeatedly, doing fine-grain analyses and differentiating subgroups, was that there was little evidence of a uniform response. As a consequence I gave up the search for predictable treatment outcomes and formulated the process model, as follows. One has to offer the client a large range of techniques and treatment modalities, without aiming at (or suggesting) any specific change. Instead, one observes changes, invites patients to describe their experiences and discusses in an open fashion what is really happening, both during the sessions and after practicing on their own. Any change is all right! So, I left the linear model of goal directed treatment and chose instead to pursue the open approach. Treatment content is multimodal, including muscle tension, posture, movement, breathing, self-talk, mental images, etc. Treatment goals are global: Any meaningful change will do, but one must carefully evaluate which treatment element is useful and what kind of change occurs. The changes are categorized into seven groups or 'processes'. The most relevant and useful processes that appear guide the selection of further techniques. There is no (linear) relationship between modalities and responses, as listed in table 1.

Table 1. Treatment modalities and responses (processes)*

Modalities of instruction	Categories of responses in the client
Movement: single and small (Tense-Relax); single large (posture change); repetitive (cyclic) and small or large.	Somatic tension reduction (lowering arousal)
Attention: active (focused) or passive (receptive); focus on body part or function or mental representation (formula, sentence, image)	Attentional shift: from focused active state to one-pointed attention to passive attention (mindfulness)
Breathing: direct or indirect, via mental images or physical movement; coupled to movement or image or uncoupled	Restoring balance: renewal of energy, pause in activity, somatic or emotional discharge of tension, recovering hidden resources
Touch (manual): passive (following the movement) or active (making the body move)	Body awareness: increase of somatic information, both pleasant and unpleasant; increased ability to report and describe one's internal state realistically
Tempo (of instruction or manual handling): matching, slowing down or quickening	Functional movement: organization of movement that follows the skeletal structure (e.g. more from ground than from head); skeletal awareness; balance in spinal column curvatures; ribcage (breathing!) mediates pelvis and head
Content: description of what the subject has to do (mentally or physically) or what may be noticed (suggestions)	Functional breathing: reflecting and supporting the internal state, without drawing attention; flexible and variable
Discussion: during or after instruction; concrete or general	Cognitive restructuring: increased realism in ideas about tension and relaxation and in interpretation of relaxation experiences
Feedback: manual, verbal, instrumental	

* Any instruction modality can induce any response.

A system's view of breathing

A fairly consistent change in the cardiac data appeared to occur in respiratory variables. Breathing frequency under resting conditions reduced somewhat, from about 15-16 breaths per minute to about 11-12 per minute. This reduction was stable and still present after three months and even two years. It appeared that breathing however was not so much controlled as more restful. The pause after exhalation was lengthened in particular. In the sitting position, breathing was distributed more evenly, involving both lower ribcage and abdomen. It was also remarkable that very few side-effects appeared, which are more common for patients with lung problems, hyperventilation or other functional complaints. Cardiac patients generally have few negative experiences with breathing and less negative conditioning of breathing sensations. Respiration is a quite neutral function and increasing its awareness leads to little or no unpleasant experiences for them.

This may also be due to our approach. We were teaching breathing strategies, that consisted of techniques to modify breathing directly, but many more instructions changed respiration **indirectly.** According to the systems view respiration has two double functions: It is able to regulate mental and physical tension states (sufficient evidence supports that), but more basic is its function to provide information to the subject of the internal state of tension (Dixhoorn, 2007). Breathing reflects tension and serves as an indicator of it. Breathing therapy helps the client to become aware of this function. Therefore, instructions to modify breathing are being carried out for a short period of time and then stopped, in order to let the system accept them, respond to them and return to normality. The end-result may be a slight shift in frequency, depth, distribution, timing (pauses) and / or ease of breathing, etc. Although the shift may be slight, it continues after instruction, more or less by itself and without having to pay attention to it, or 'practice'. It has become part of normal respiration. Thus, another consequence of the systems perspective is that a respiration regulation technique should not be taken as a model of normal breathing. It is a way to induce a temporary change, and the system determines the nature of the response. Some subjects become drowsy, others more energetic or clear headed, some become physically relaxed, others become more aware of their breathing, or of their posture or of ways to move more easily. Or, one may simply become more aware of oneself.

Thus, the systems view and the process model complement and support each other. A technique to influence mental tension state or elicit physical relaxation may or may not result in clear respiratory changes, in mental changes or in somatic tension reduction, or in more than one kind of change. Conversely, respiratory techniques may or may not modify habitual breathing, may or may not induce mental or somatic relaxation. Thus, there is no 'simple breathing technique'. The strategies to induce changes are complex, the changes are multiple and there is no linear relationship between them (Conrad et al, 2007). Thus, the practitioner has to keep a open eye and observe carefully what is really happening. In my experience, the indirect approach appeared to be very useful for patients with unpleasant breathing experiences in their history.

Security in the skeleton

Two voice teachers showed me concretely that the whole body is involved in breathing. However, that idea is so vast and outcome so undetermined, that I puzzled many years in search of patterns to bring some order. Inspired by the Feldenkrais work, a model was developed of the interconnection between the spinal column and breathing movement. Two patterns were found, length and width breathing. Optimal breathing uses both. Length breathing is present when the spine is more or less straight. During inhalation and exhalation the chest not only expands and flattens, but makes a **rolling movement**, upward and downward. This is connected to slight and complementary changes in lumbar and cervical lordosis. Thus, the head remains stable. Width breathing occurs when the spine is more flexed or one is lying prone and extension and chest rolling is prohibited. The ribcage expands more sideways. The crux of the matter, however, is that peripheral movements throughout the whole body facilitate breathing in one of the patterns. The set of new instructions were made to utilize these connections and influence breathing indirectly. Muscle tension and relaxation, images, movements and postures were selected for their facilitative effect of respiration.

As a medical doctor and researcher these patterns provide some security, although not certainty, to deal with the endless variety of subjective breathing experiences. The instructions are based on and can be explained by the mechanical connections, but the personal experience is completely open. Interestingly, however, the focus on the hardest part of our bodies, the skeleton, also provides some security to persons, who experienced physical trauma or abuse. It enables them to start to feel their bodies again, but in a neutral fashion. This opens the way to self regulation of tension for them.

First and third person's reality

During my medical studies I passed through a very turbulent period in life. Gradually it dawned on me that the first person experience of the body and its signs and symptoms is a completely different reality than the

normal objective view of the body, which is also the basis of the doctor's point of view. One may have signs of a disease, but all the signs do not tell you how it feels to live in such a body. Thus, the experience of one's own living body cannot be understood by external observation nor be reduced to it. The first person reality has its own validity. The external observer may have clues and indications, but basically and principally does not know how the subject feels.

The practitioner of relaxation and breathing techniques in particular has to acknowledge his ignorance and rely on the client's willingness to share his self-observations. Both may observe the occurrence of a change, but the two points of view and observations differ and complement each other. A basic mistake is to reduce a complaint to measurements in the body: 'You cannot feel this, because there is nothing wrong in your body'. Or, conversely, 'Your feelings are caused by this or that abnormality, that is found in your body'.

For the practitioner, to proclaim ignorance of the client's response to various practices, may at first seem unusual and may even seem to be a statement of being unprofessional. However, this declaration of ignorance has a major advantage: The client is thus compelled to express his experiences. He or she has to take his own experiences seriously. His point of view is necessary to discover which technique works. If the practitioner, following the process model, is uncertain about the changes that a technique elicits, the client can provide the information. Thus, active client cooperation is stimulated and required from the very beginning. Such cooperation is essential for successful self regulation of tension.

This new attitude requires that the practitioner gives instruction in a very neutral fashion, only describing what the client has to do, mentally or physically, and refraining from any suggestion as to how or what the client should feel. This is a basic shift in attitude, and the span of three years in our postgraduate program is partly for that reason: Our training gradually eliminates the tendency of the practitioner to exude the idea 'I know what I should do because I know what you should feel'. In stead, both practitioner and client are investigating and finding out what actually occurs in this client and how this actually feels.

On the other hand, the third person's perspective is just as real and valid. One may notice a change in breathing, posture, expression of the face, tension or unrest in the muscles, etc. As a social animal we have learned to make inferences about the other's internal state. Although we should refrain from doing that during breathing and relaxation practice, we can use our observations to help the client explore possible effects. We are mostly unaware of most of the events within our bodies. External observations may be very helpful to increase our awareness. Part of the expertise of the practitioner lies in the ability to help the client to discover changes, without the practitioner suggesting them. Following the process model, the practitioner uses any cue to find a specific technique that results in a meaningful change for a certain individual.

External or third person observation is often equated with measurement. Using instrumental measurements however, is only a subcategory of third person observation. There is a need to develop assessment tools that make the clinician's perceptions explicit, because that is the kind of information that guides the practitioner, in particular when following the process model. For instance, the manual assessment of respiratory movement (MARM) is a graphic notation of the subjective impression by the clinician of the distribution of breathing movement in a subject. It appears to be a reliable and valid tool, that is even better than lifeshirt measurement to differentiate between thoracic and abdominal breathing in slumped and erect posture patterns (Courtney, Dixhoorn, & Cohen, in press).

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Verschijnt in 'Biofeedback', maart 2008