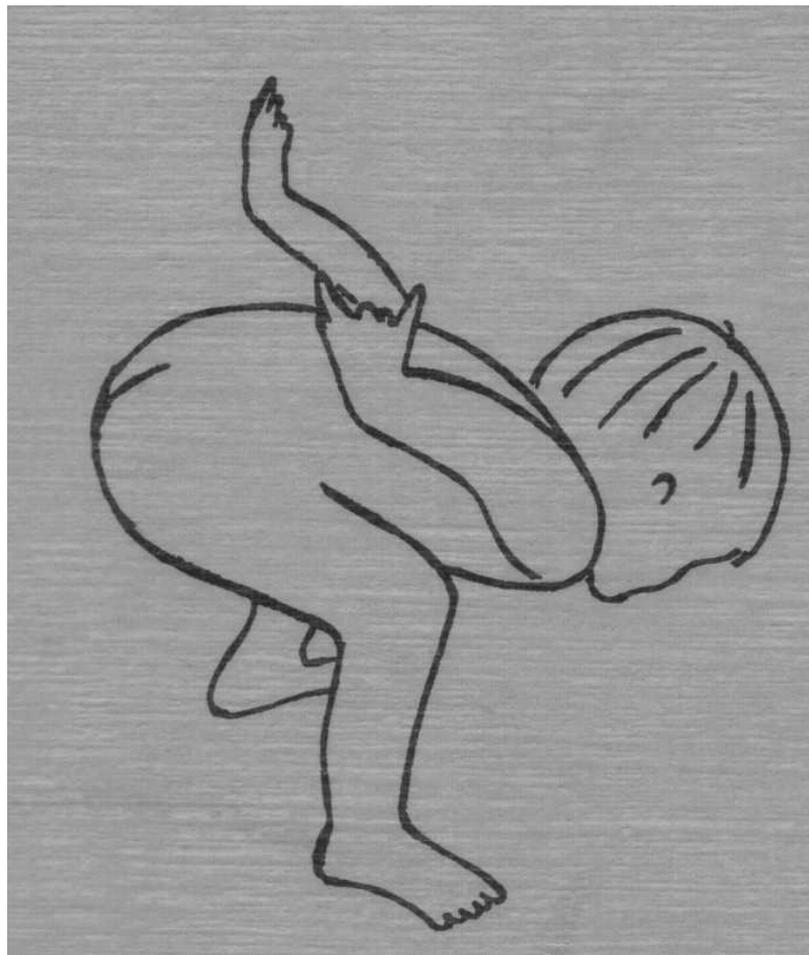


BODY AWARENESS THERAPY AND THE BODY AWARENESS SCALE,

TREATMENT AND EVALUATION
IN PSYCHIATRIC PHYSIOTHERAPY

Gertrud Roxendal



ABSTRACT

ROXENDAL, G., BODY-AWARENESS THERAPY AND THE BODY AWARENESS SCALE, TREATMENT AND EVALUATION IN PSYCHIATRIC PHYSIOTHERAPY

Some body-centred therapies of historical interest are briefly described. Body-centred concepts are defined for use in this issue: body consciousness, body experience, body image, body image boundaries, body management, body awareness, movement pattern and general bodily dysfunctions. The treatment method, Body Awareness Therapy, is described in two techniques, based on two complementary aspects of body consciousness and motor behaviour: 1) general functions common to all human beings, and 2) the unique individuality of nonverbal behaviour.

The Body Awareness Scale, BAS, is a combination of items from the Comprehensive Psychopathological Rating Scale, CPRS, and new body items. The new body items and the principles for the scale steps are briefly defined. A movement test mainly comprising movements of everyday life is described. A study designed to test the BAS for description of schizophrenic patients in after-care is presented. Fifty-three patients were rated a first time and the results show a variation of mean scores over the scale with a low frequency of psychotic symptoms, a high frequency of symptoms related to the body and emotional symptoms. The inter-rater reliability was satisfactory, four pairs of raters showing 0.96 - 0.98 over the whole scale.

A second study aimed at a data reduction by giving patterns of symptoms of the BAS. A factor analysis, based on 292 ratings with 60 patients, gave 13 factors, where all items were represented with a factor loading $>.40$. The factor analysis gave nine factors containing both items from the CPRS and new body items. Especially interesting factors seem to be The Movement Factor, Body Image Factor, General Feeling of Illness Factor and Anxiety Factor.

The purpose of the third study was to test the hypothesis that the BAS is sensitive to change, specifically concerning body awareness and general bodily dysfunctions. To achieve changes, six months of Body Awareness Therapy was given. Thirty-two patients with chronic schizophrenia entered the study, twenty were randomly allocated to a treatment group and twelve to a control group.

The assessments were: Ratings with the BAS (reported and observed items) and side effects of treatment with neuroleptics (Simpson & Angus); self reports of well-being, target problems and life events (Rahe & Theorell), and number of days in hospital.

All significant changes in the study were in favour of the treatment group. Intra-group differences in The Movement Factor, Body Image Factor, Anxiety Factor, Gaze & Sexual Interest Factor, in twelve items of the BAS and in side-effects were found in the treatment group after six months of treatment. After six months of follow-up there were significant changes in Gaze & Sexual Interest Factor, seven items of the BAS and target problem. Inter-group differences in The Movement Factor and Days in Hospital were found after six months of follow-up. The study thus gave support to content and construct validity of the BAS.

KEY WORDS: Body Image, physiotherapy, assessment, schizophrenia

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PREFACE

Motor disturbances are usually associated to mental disorders. The treatment of mental disorder is basically concentrated on symptom reduction irrespective of any hypothesis concerning possible but hidden cause. Such empirically based therapy approaches have eventually increased the interest to try treating just the motor disturbances when present in mental disorders.

Physiotherapy techniques were thus tested in psychiatric patients. The preliminary experiences were successful. That in turn stimulated to further development of the physiotherapy technique ending up in Body Awareness Therapy. This brought a new contribution in psychiatric care, compared to traditional approaches such as physical training, relaxation therapies and traditional physiotherapy for motor dysfunctions. The body therapy for symptom reduction now involved a new approach with perception and experience exercises. The motor functions trained are mostly total co-ordinations where the mechanical aspect of the movement is combined with an element of nonverbal expression.

Since there is yet no description of Body Awareness Therapy published in English, I found it convenient to include a short description of the therapeutic techniques in my monograph.

Body Awareness Therapy has now demonstrated its efficacy as an important part in advanced rehabilitation programmes (8). This has called for scientific evaluation of the method.

For that a measuring tool, the Body Awareness Scale (BAS), was constructed. Moreover, as very little, if any, research has been done in this area, it also necessitated discussion and construction of relevant items and conceptions as well as analysis of the validity and reliability of the measuring tool. The relevance of Body Awareness Therapy for psychiatric symptoms also must be shown before it can be recommended as a therapeutic technique in psychiatry.

The description of Body Awareness Therapy should be seen as a background to the following sections.

- A description of the Body Awareness Scale, BAS
- A descriptive study of schizophrenic patients with the BAS,
- A factor analytic study and,
- A discriminative study,

all with chronic schizophrenic patients in open after care.

The aims of the studies were:

- to test the BAS to describe schizophrenic patients, to test the inter-rater reliability of the BAS,
- to carry out a data reduction by means of a factor analysis, to assess the plausibility in patterns of symptoms gained in factors of the BAS,
- to test the hypothesis that the BAS is sensitive to change.

The BAS is constructed on the model of a psychiatric rating scale, Comprehensive Psychopathological Rating Scale, CPRS, with complementary body directed items. It is an attempt to a measuring tool, useful for monitoring psychiatric physiotherapy and easy to understand for other mental health professionals.

There is a tendency towards an increasing amount of physiotherapists in Swedish psychiatric care. The therapeutic techniques are developing, working with bodily aspects on mental disorders and integrated in the main treatment programmes.

For physiotherapeutic techniques in general, and those in psychiatric care in particular, there is a need for clear descriptions and valid clinical evaluations. With Body Awareness Therapy and the Body Awareness Scale I present a proposal for further use and development.

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And the eye cannot say unto the hand,
I have not need of thee;
NOR AGAIN the hand or the feet,
I have not need of you.

.....

Nay, much more those members of the body;
which seems to be more feeble,
are necessary

.....

...the body is one;
and hath many members,
and all the members of that one body,
being many.
are one body.....

Paul, I Corinthians 12

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BODY-CENTRED METHODS

Since the end of the 19th century, different kinds of body-centred therapies have been developed and used both in medical and in psychotherapeutic situations. Body-centred therapies touch upon the boundaries between conscious and unconscious being, where the focus lies upon experience of the body and non-verbal behaviour.

Body consciousness and motor behaviour of different groups of patients have been more or less thoroughly described by several authors in early psychiatric literature, e.g. Bleuler & Head, 1926. Schilder has given a very thorough description of disturbed body consciousness in his monumental work "The Image and Appearance of the Human Body" (39). His interest was directed towards the patient's image of his body parts, their inter-relationship and the boundaries of the body. Schilder described this picture of the body, called "body scheme", for healthy people, patients with brain damage, amputees and schizophrenic patients. Schilder's "measuring methods" were psycho-analytical conversation and neurological investigation.

Fisher and Cleveland have published fundamental studies on the boundary dimension of body image (body image boundaries). These authors have studied different groups of healthy people, patients with somatic and psychosomatic diseases (e.g. cancer, and rheumatoid arthritis), amputees and schizophrenic patients. Fisher and Cleveland have based their measurements on projective tests, a Penetration and Barrier Score, based on Rorschach-cards (15,16). They have found that schizophrenic patients have more indefinite body boundaries than normal individuals. Fisher's measurements are descriptive and not related to change in connection with body directed therapy.

Methods for assessment of body-posture and muscular tension have been developed in Norway by followers to Reich (34). Bülow-Hansen, Heir-Bunkan (6) and Johnsen (22) have developed variations for "psycho-motor investigation". These assessments are mainly based upon inspection of body posture (lying and standing) and palpation of muscles. The therapist records her observations mainly by colouring a human figure according to the qualitative conditions in the muscle. Ostbye-Sundsvold has quantified this information by transforming the colours into numbers. These methods are used for treatment of neurotic patients and also to some extent for diagnostic purpose (47,48).

Laban (24) has developed a notation system for movements where he used terms and components from the art of dance. The use of this notation system with healthy people and for some patients with neurosis has been described.

There are many body-centred therapies that have been used for a long time. Clinical experience indicates that many of them are effective, each in its own way. Special methods of evaluating these effects have not been developed, however.

An overview of some body-centred therapies

When going through the literature on body-centred therapies, I have not found any scientifically based description of a therapy comparable to Body Awareness Therapy. Still it might be of interest to mention some therapies and training systems developed since the end of the 19th century of historical interest. They are relatively well known and are used in several therapeutic contexts. The first four examples below draw upon physical experience of the body and physical activity.

Mensendieck (USA, 1862-1957) developed a training programme for posture and muscular tone. The purpose was to cure or prevent musculoskeletal disorders, such as poor posture, hypo- or hypertension in the muscles or muscular pain. Mensendieck placed the main emphasis on movement

training leading towards body awareness through muscular control. Specially trained physiotherapists utilise Mensendieck's method in individual therapy (25,31).

The Alexander Technique was developed by an Australian actor, Alexander (1869-1955). It aims at improved posture and harmony in movements of everyday life. As a young actor, Alexander several times experienced that his voice failed him completely during recitals. He found that his habit of pulling his head back and downwards as part of a whole body pattern created inhibitions in his movements and voice. Alexander developed a technique for movement training aimed at influencing the person's pattern of movement as a whole, with the posture of the head and neck as the starting point. The Alexander Technique is used by specially trained teachers in an individual setting (1,2).

Feldenkrais, born in 1907, has developed two methods, one for group training, Awareness Through Movement, and one for individual treatment, Functional Integration (12,13). The goal of Awareness Through Movement is to re-activate co-ordinations which are lost in present-day use of the body or as a result of injury. The method often starts with a small movement, which during several repetitions develop into a co-ordination that engages the whole body. This kind of training requires total mental presence. Feldenkrais calls his method a "body-mind method".

The above three methods have been developed and mainly used for people suffering from physical complaints and neuroses. They have not been used in psychiatric hospital care for patients with long-standing psychoses. The methods are known and used in several countries in the western world. Formal training and examinations are available.

Since the 1950s, the main body-centred therapies used in Swedish psychiatric care haven been different techniques for relaxation, such as progressive relaxation (21) and autogenic training (41). A tradition of physical training has also been developed. The goal of physical training has been to keep the body healthy and maintain motor ability until mental health is restored. Later on, tests of physical fitness and physical training became a natural ingredient of vocational rehabilitation. The aim of physical training is improvement of the capacity of the respiratory and circulatory systems and increased muscular strength and endurance. It starts with physical experience of the body and physical activity. In physical training, the psychological reactions have seldom received attention. Quite a lot of research has been done in this field (8).

Freud placed great emphasis on the body as the basis of the ego; he coined the expression body-ego (17). The body-ego is defined as the psychic representation of one's body and "self", that is the central part of the ego, which consists of memories and conceptions about one's own body. Its main function is perception (Hinsie & Campbell, Psychiatric Dictionary).

Bioenergetic therapies. Reich described the bodily, muscular defence system which is established by people with neurosis. This can be seen as a protection against threats from the surroundings or from the person's inner life (34). Reich's studies and description of the muscular defence form the basis of bioenergetic therapies. A prominent representative of the followers of Reich is Lowen, known for his books and his Institute for Bioenergetic Therapy and Education (26,27,28). Bioenergetic therapies start from psychological experience of the body. Their main working material is the conflict or its manifestation in the body.

In Norway, several followers of Reich have developed body-centred and muscular therapies, e.g. **vegetotherapy** and **psychomotor** treatment (6). These therapies originally used the patient's conflict or complaint as the working material. Nowadays, this is combined with focusing on non-verbal resources in body-posture and muscular function. Vegetotherapy and psychomotor treatment are by

tradition well integrated with verbal psychotherapy, particularly in the treatment of neuroses. There is formal training both in vegetotherapy and in psychomotor treatment.

In the USA, dance therapy is being developed for use in psychiatric care. Two dancers who have developed dance therapy and used it in schizophrenic patients are Salkin (37,38) and Schoop (40). Their therapy, called **Body Ego Technique**, aims at re-establishing a basic body-ego by performing movements from childhood. In these movements, memories and feelings from childhood are evoked. Body Ego Technique is based on a holistic view on an individual level with emphasis on the patient's healthy resources.

King (USA) has described the **Sensory-integrative Approach to Schizophrenia**, which focuses on the patient's healthy resources. She has formulated a consistent holistic view of schizophrenic patients. The Sensory-integrative Approach consists of exercises in groups with games and non-competitive activities. King emphasises vestibular stimulation as an especially effective part of her method (23).

Concentrative Movement Therapy, CMT, is a non-verbal psychotherapeutic technique which has been developed in central Europe since the 1920s.

Several therapists have taken part in the development of CMT, including Gindler (London), with roots in the German Medau-gymnastics, Stolze, psychoanalyst from Munich and Goldberg, movement therapist from Israel (18). CMT starts from a total perception of the body and from the trainee's healthy resources. It aims at increased self-knowledge and awareness, both concerning individual resources (self-esteem) and regarding personal conflicts. Discharge of built-up energy and outflow of evoked affects are important elements of the method. Verbalisation is also an important part of CMT, which is mainly used in Western Germany and Sweden (35).

BODY-CENTRED CONCEPTS

Body Awareness Therapy touches upon several different professional domains; physiotherapy, psychiatry, medicine, and psychotherapy. It is not possible to stick to conventional terminology within one of these areas when describing the method. In my studies of the literature on bodycentred therapies and methods of measurement, I have not found clear standard definitions of body-directed terms. In one chapter of her book, Bruch (5) uses the following expressions for bodily experience, without giving clear definitions: "body image", "body awareness", "body structure", "bodily self", "body concepts" and "social body concept". The term "body image" was first coined by Schilder in "The Image and Appearance of the Human Body" and is thereafter used by many authors, including Fisher (15,16), Brain (4), Fenichel (14) and Askevold (3). It is the task of the psychiatric physiotherapist to suggest concepts and terms that are helpful for an understanding of the interplay between the identity experience and body awareness as well as disturbances in the sphere of internal and external reality and interpersonal relationships.

The definitions below should be seen as preliminary attempts from which a further development of defined terms can be worked out. In the following I will partly use new terms and partly terms which have been used before, but which I have given special definitions for the purpose of this monograph.

Definitions

Body consciousness

Body consciousness is the bodily aspect of the person's total consciousness. It contains mental elements (cognitive thought processes) which include knowledge of the body and its parts, perception of position and movements of the body (kinaesthetic sense) and knowledge of the conditions for movements, e.g. basic physiology. Body consciousness also includes emotional elements such as the patient's attitude to his physical capacity and to movements and exercise.

In analogy with Strömngren's descriptions of ego disturbances (1943), we can discuss four qualities of body consciousness and disturbed body consciousness: 1) activity, the feeling of having control over one's body and not letting one-self be controlled by one's body, 2) integrity (the body is the same at every single moment), 3) continuity (the feeling of having the same body on different occasions) and 4) subjectivity (the feeling of boundaries between the body and the surroundings, see body image boundaries) (44).

In this issue body consciousness will refer to a person's bodily aspect of his total consciousness, including experience of, knowledge of and attitude to his body.

Body experience

Body experience is an aspect on body consciousness; it is the experience of the body in the present. The concept can refer to the whole body or parts of it. Body experience can be characterised by sensory or autonomic reactions such as strong heart-beats or burning cheeks. In this issue body experience will be used to refer to a person's experience of his body or parts of it - be it facts or the patient's fantasies. Body experience can be intensified into deepened body experience which can be manifested as a deep seriousness or genuine joy when exercising.

Body image

Body image is the body-centred term that is mostly used in psychiatric literature. Fenichel writes (14): "The sum of mental representations of the body and its organs, the so-called body image". Body image is built on perception of the body.

In this paper, body image is indicated by a group of symptoms in the factor analysis of the Body Awareness Scale. The factor Body image (page 50) contains the items Description of the body, Muscular tension reported and Loss of sensation or movement.

Body image boundaries

According to Fisher & Cleveland, body image boundaries are a dimension of body image. Working with Body Awareness Therapy, we have observed that some patients consistently avoid touch with or closeness to other people. In this issue the boundaries of the body are used to describe a person's behaviour in relation to physical closeness or contact with his physical surroundings or other people, see item Personal space, page 38.

Body management

Body management is the ability to control the body's position, movements and muscular tone. Body management includes mechanical elements for movements of every day life (cf. motor ability) (36) and emotional elements for non-verbal communication such as alignment, associated with movements, gestures and mimicry.

Movement pattern

Movement pattern is seen as a behavioural aspect on body management; it is used for the patient's personal style in posture, gait, associated movements and gestures.

Body awareness

Body awareness is used as an overall concept for experience and use of the body, representing body consciousness, body management and deepened body experience.

General-bodily dysfunctions

will be used for disturbances related to body awareness.

BODY AWARENESS THERAPY

Background

The term "body awareness therapy" was first used in the late 1960s in connection with physiotherapy for neurotic patients. Clinical experience has been the most important source of inspiration for the development of body awareness therapy; the resources, dysfunctions and needs of the patients have largely determined the development of the method. In addition, the following sources of knowledge and inspiration must be mentioned: basic physiotherapeutic training in anatomy, physiology and body movements; basic developmental psychology, especially the works of E.H.Erikson and J.Piaget; Ernst Idla's school of movement exercises (20); the art of mime, with its roots in the Institute of Daniel Decroux in Paris; Concentrative Movement Therapy through Miriam Goldberg; T'ai chi chuan exercises and their underlying philosophy, through Jacques Dropsy in Paris (9); and basic psychotherapeutic training.

The fundamental basis of Body Awareness Therapy is the somatic, biological knowledge taught in traditional physiotherapy. In practice, Body Awareness Therapy differs from traditional physiotherapy by stimulating sensory awareness and concentrating the main interest on exercises aimed at total coordination. If treatment of movement functions is given with a sufficient degree of sensory activation, emotional reactions occur. Body Awareness Therapy is thus based on a biological foundation, but is also associated with emotional reactions.

Body Awareness Therapy differs from many other therapeutic techniques by not primarily focusing on conflicts or their manifestations. Instead of this conflict orientation, activating healthy resources is the means in the treatment process, directed towards a total experience of identity.

Indications

Body Awareness Therapy is intended for treatment of diseases where disturbances in body awareness are an important part of the pathological picture. It can be used in psychotic states with disturbed body consciousness, body image and psychomotor behaviour as well as neurotic states with depreciation of the body or appearance or disturbances of body management and psychosomatic disorders. For schizophrenic patients, Body Awareness Therapy can be integrated with drug treatment, social training and psychotherapy.

Time needed

One hour twice a week is usually the minimum to maintain continuity in the treatment. There are cases where more frequent sessions might be useful but this is seldom possible for practical reasons. For those who are capable of exercising independently between the therapy sessions, one session a week is adequate.

In Body Awareness Therapy two time perspectives are considered, a long-term and a short-term perspective. The short-term perspective is often related to symptoms. Within its limits, symptoms or dysfunctions which have not reached the personality structure are treated. Up to ten sessions is a frequent number in a short-term therapy programme not aiming at a deeper process of change. The long-term perspective is related to a change of the body image, the muscular tension, other movement patterns or self esteem. Such changes and the integration of them in the consciousness takes a long time. A very long time may above all be needed for patients with schizophrenia and character neurosis. We have not yet experience enough to maximise the long-term perspective. Eight years of therapeutic contact have been kept in extreme cases. It is, however, possible to plan a short treatment series in the long-term perspective. The changes awakened by Body Awareness Therapy can continue in other activities such as physical training or studies in expressive arts, e.g. dancing and drama.

Adverse effects

There is a connection between body postures, muscular tension and body movements on the one hand and emotions on the other. A therapy based upon body postures and movements may therefore entail a risk of emotional outbursts such as agony, aggressive outbursts or acute psychosis. These risks might be particularly great in patients with acute depression, agony or psychosis. Since Body Awareness Therapy is aimed at releasing and concentrating personal resources, the risks should depend more on the physiotherapist's personality and competence than on the treatment method she uses. The physiotherapist must be skilful and experienced enough to determine whether the treatment is adequate or not. She must also be capable of applying the treatment in a constructive way and not try to release "events" such as crying or aggressive outbursts. However, if anxiety or aggressive behaviour, for example, is released, the physiotherapist must be prepared to meet the situation. The risks associated with the physiotherapists possible lack of competence can be considerably decreased if her therapy is well integrated in the total treatment programme and she gets regular psychotherapeutic supervision.

Basic conditions for Body Awareness Therapy

Body Awareness Therapy in practice is based upon two complementary therapeutic aspects of people's body experience and movement pattern. The first aspect concerns general movement functions, such as posture, gait, breathing and movements of daily living, partly described in the term body management. The second aspect deals with the person's unique individuality in terms of body experience and movement pattern. These two aspects require different orientation of techniques, basic and advanced Body Awareness Therapy, which will be described separately. In clinical reality, however, it happens that the two techniques are used in the same therapeutic setting. In both techniques the patient's sensory awareness is stimulated. Perception exercises are included and time is allowed for the patient to react and talk about his experience in both techniques.

The goals of Body Awareness Therapy

General goals for Body Awareness Therapy are improved body awareness and decreased bodily dysfunctions. The two techniques have each their emphasis on specific goals, but also contain elements from each other's.

Specific goals of Body Awareness Therapy:

- | | |
|---|---|
| Body Awareness Therapy has its emphasis on: (1-4) | <ol style="list-style-type: none">1. An increased consciousness of the body2. Improved management of the body3. Reestablishment of the body image4. Relieve symptoms related to poor use of the body |
|---|---|

- Advanced Body Awareness
Therapy has its emphasis
on: (5-7)
5. Increased consciousness of the movement pattern, "personal style"
 6. Improved nonverbal communication
 7. Increased motivation for movements and exercises

Basic Body Awareness Therapy, concerning general movement functions

Therapeutic philosophy

In Basic Body Awareness Therapy, the physiotherapist guides the patient in structured exercises; she has an educative attitude. The therapeutic process can be compared with supportive psychotherapy; bodily ego-forces are built up. The physiotherapist does not invite the release of defence mechanisms against conflicts or emotional outbursts, but some bodily defences can be weakened and strong feelings can be set free. The nonverbal therapeutic process is supported verbally by short talks. The purpose of these talks is partly to introduce the patient to verbal psychotherapy, working with the reactions in Body Awareness Therapy, and partly to give him insight to the psycho-physical functions that are trained. The nonverbal intervention may prepare the patient for a continued verbal phase of treatment (30).

Specialised techniques

The basic technique consists of structured exercise directed partly towards body management as a whole and partly towards particular elements of this entity. The following is a brief description of some of these elements.

1. Relation to the ground

The relation to the ground is considered to be an important part of motor function and behaviour. Every movement has its starting point. Safe contact with the floor is a necessary condition for efficient movements and co-ordinations, e.g. body-posture, gait and movements in the trunk. The vertical flow of energy, described by Reich, among others, (with horizontal inhibitions at different levels) requires a relaxed and safe contact with the ground. One might also speculate about the possible connection between a person's physical relation to the ground and his mental stability or emotional security. The patient's relation to the ground is trained by directing his attention to the surface of contact with the floor and his experience of the weight of his body in different positions. Exercises related to gravity, e.g. heel-raising and knee-bending, improve the patient's relation to the ground in action, see Figures 1 and 2.

2. The centre-line of the body

The body posture and balance in the upright position are described and trained in terms of arranging the parts of the body along the centre line of the body. Deviations from this line cause postural problems with increased muscular tension and can develop into disturbed balance.

Activated postural muscles require little physical energy (7, 33). With proper co-ordination, standing does not tire the organism. Exercises aimed at improving the body posture are integrated with movement and breathing exercises.

3. The movement centre

The human body can be seen as a combination of two functional systems; the lower one with the feet, legs and pelvis, and the upper one with the chest, arms and head. The two systems are connected in the movement centre of the body, between the navel and the breastbone, and with the abdominal obliques as the most important muscles, Fig. 3 (9). We train the patients to initiate movements from the movement centre, for instance in the pair of movements contract and expand

(stretch), see Figures 4 and 5. We also train them to integrate movement co-ordination and breathing, which is further described below.

4. Breathing

The breathing adapts to body movements and changes in the degree of activity. It becomes blocked or stimulated by different emotions and feelings. Psychic trauma or disease often creates lasting disturbances in the breathing. Breathing exercises are frequently introduced by directing the patient's attention to "how his breathing works all by itself". In other exercises the patient is told to emit sound on exhaling and integrate his breathing with movements.

Exercises with breathing and the voice easily arouse emotional reactions. They must therefore be performed with great care and professionalism.

5. The boundaries of the body

The boundaries of the body are simply defined as the individual's experience of his limits with his surroundings. In Body Awareness Therapy the boundaries of the body are seen as one component in a complex symptom picture that can possibly be treated. According to clinical experience, patients with acute psychosis often express agony in connection with disturbances in the body boundaries. The patient may say that he is outside his body, or that horns are growing out from his forehead. Patients' acceptance of physical contact with objects or people around them differs markedly. Some patients have kept their fists clenched for a long time in order to avoid touching things or people. Exaggerated need of closeness and contact also occurs but is not often expressed.

In Body Awareness Therapy, the patients repeatedly experience their physical limits with their surroundings, e.g. by turning and rolling on the floor. The exercises are never allowed to threaten the defence system created by some patients to protect their body boundaries.

6. Muscular tension and relaxation

Muscular tension is often part of a complex problem. People with hypertension in certain muscle groups, who are incapable of relaxing these muscles, frequently have a low tension in other muscles. A connection between muscular tension and emotional conflicts has also been described (6, 21, 22, 26). The state of muscular tension is here seen as part of the dimension "ability to relax the muscles - ability to perform relaxed and efficiently co-ordinated movements - ability to perform heavy exertion". Both the extremes, relaxation and physical exertion, are trained. The ability to alternate between activity and rest is also trained.

Energy and direction, two important elements in body movements

When teaching patients the exercises, their attention is directed towards different elements of body movements, including energy and direction. The energy for the movements is taken from the floor, through the legs and central muscles - those used for posture and breathing. These muscles have great endurance and are not easily exhausted (7, 33). Peripheral muscles, which have less staying power, are used in the exercises to give direction to the movements; this element does not require much energy. With this co-ordination, the movements have a possibility to become harmonious and relaxed. Even concentrated exercising should not tire the organism but make the patient feel vitalised.

Advanced, Individualistic Oriented Body Awareness Therapy

Therapeutic philosophy

The exercises in the advanced technique are less structured than those in the basic one. The emphasis is placed on personal style, as expressed in gait, posture and associated movements. In the advanced technique, the patient obtains self-experience in different patterns of movement behaviour. Exercises

involving interaction between pairs or groups of patients are also included. In the interaction exercises, the patients can observe others' reactions to their own behaviour and are made conscious of their own reactions to others behaviour, in a sheltered situation. As tools in the total approach of body awareness, different components of motor behaviour are observed and trained, such as gait, rhythm, voice, relation to one's mirror image and interaction between the members of the group.

In Advanced Body Awareness Therapy, the physiotherapist is less active and less guiding than in the basic one. There is also more room for the patient to take responsibility and show initiative. The physiotherapist carefully observes the patients' reactions in order to let the patients' needs and initiative steer the therapy. In the advanced technique, emotional reactions and memories are frequent; this makes verbalising necessary. In groups of in-patients, staff from the ward take part, mostly psychotherapists or group-leaders, so that the verbal psychotherapy can continue in another therapeutic setting.

Specialised techniques

1. The gait

As a mechanical function, the gait is largely the same in different individuals. Still the movement pattern during walking differs markedly between adult individuals; it is unique and personal, comparable to posture and voice. In prolonged walking exercises, the gait will function as during long walks, when the gait co-ordination is automatic. In these exercises, the patients' attention is directed towards the perception of their gait and towards different ways of walking.

Variations in gait can:

- relate to time slowly, slower, quickly, quicker;
- relate to space along the walls. to the middle of the room, in a circle, in a figure of eight, in straight lines, in curved lines;
- relate to direction - forwards, backwards, sideways;
- be co-ordinated in different ways - on the toes, on the heels, with the knees bent, with the shoulders raised, with the arms still, with big steps, with small steps, with a stamp, as silently as possible;
- be co-ordinated with the behaviour of somebody in the group – with the hands in the pockets, with crossed arms, with the feet turned inwards, with the feet turned outwards.

After every change in the co-ordination of the gait, the patients are told to walk "as usual". This helps the members of the group to get to know their own gait. The gait is also trained at meetings between individuals and groups. The patients can thus be made aware of and react to different movement patterns.

2. Rhythm

The life and the movements of the human being are subject to constant rhythmical changes as are those of other creatures. Physiologically dominated rhythms involve the heart beats, breathing and the menstrual cycle, where the connection with psychic life is evident. Every individual is considered to have his own basic rhythm which varies in different life situations. This personal basic rhythm adjusts to other, external, rhythms. Studies in industry have shown that it is easier to adjust to a faster than to a slower rhythm than one's own. The sense of rhythm is trained in different ways. One way is to start from a personal rhythm such as breathing, first by merely observing it. The breathing can then form the rhythmical basis for simple exercises. Rhythms are also trained without reference to breathing. In a later stage the patients lead each other in rhythmical improvisations.

3. The voice

The human voice is just as personal as the posture and the gait. Physiologically, it depends on the breathing, inner speech muscles, the muscles of the jaws and the lips. The voice also discloses moods and emotions. Many patients become embarrassed when they hear their own voice, especially those who lack self-confidence. Exercises with the voice must be performed very carefully, since they easily arouse emotional reactions. The voice exercises often start by asking the patient to emit sounds on exhaling. A combination of movements and sound, sometimes reminiscent of old work songs, trains the patient to integrate his breathing and voice with his body and movements. Through joint recitation of simple texts, the patients become accustomed to listening to their voice and practice using it. Repeated presentations when each member of the group states his or her name, which is then repeated by the others, is training both for the voice and for the experience of identity. Many of these exercises are pleasurable and raise the atmosphere in the group.

4. Relation to one's mirror image

The reservation that many people feel towards their mirror image can, in psychiatric patients, mean that they do not accept their appearance and body. These patients avoid the mirror except for necessary checks of appearance and dress. Body Awareness Therapy is performed in a gym with a wall-mirror, not in order to correct the patient's posture or performance of the exercises but as a tool for identification. In the beginning, many patients cannot move in front of a mirror; the physiotherapist then turns the group in another direction. They still train in being in a room with a mirror. After a while the exercises can be performed facing the mirror. This gives them practical training in the habit of seeing and looking at their mirror image aiming at accepting their appearance as a part of their identity.

5. Interaction exercises

In interaction exercises, the patients test their nonverbal behaviour in meeting and co-operating with each other. They also have an opportunity to practice skills and movement patterns that they have acquired in their personal training. There is some moment of interaction in every therapy session. It can occur spontaneously during the meetings, or the physiotherapist may introduce different kinds of interaction exercises such as presentations, meetings, movement interaction with a partner or in groups, or games.

- **Presentation**

In presentation exercises, the patients learn to say their names, hear their names mentioned by other people, listen to and remember other people's names and turn to other people and tell them their names. The presentation exercises continue even when all members of the group know each other's names. In one exercise of this kind, one person says his name in combination with a movement. The exercise often includes an answer; a responder or the whole group repeats the name and the movement once or several times.

- **Meetings**

There are many variations of meeting exercises. One is to try to avoid eye-contact in meetings. Or the patients try to look at each other secretly; they try to see without being seen. Or they greet one another. The meetings are also combined with other exercises such as certain body posture, a movement or a presentation.

- **Partner exercises**

In the partner exercises, different aspects of the interaction can be emphasised, such as co-operation, confidence, or energy release in games or in combat. The terms contact and security-exercises are avoided in Body Awareness Therapy, as is release of aggressions. The physiotherapist does not try to provoke increased contact between people in the group, or security or release of aggressions. She gives the patients the opportunity to find out their need of contact, how secure or insecure they feel and whether they are charged with energy that they have a need to act out. Acting out energy can occur spontaneously; a co-operation exercise can

turn into a combat game between partners or groups. The physiotherapist also suggests formal combat games when somebody expresses a need to release energy or a surplus of energy.

- **Interaction exercises in groups**

Nonverbal interaction exercises can provide great opportunities to train concentration and social contact. Games and dances from different countries are a natural part of Body Awareness Therapy. Co-ordination and rhythm are trained simultaneously with the ability to follow rules and cope nonverbally with others. The ability to play is considered to be a sign of mental health (45) and a condition for creativity. Games with an element of competition without personal prestige in winning can increase the motivation and raise the mood in the group. In the interaction exercises, the patients train to hold their own and at the same time adapt themselves to the group.

Reactions in the treatment process

Many physiotherapists working in psychiatry have reported a similar pattern of response from patients in Body Awareness Therapy. It has been described in three sentences, in many cases with identical words.

The first comment is: "I have noticed..." (e.g. "... that I keep my head inclined"). This may represent an increased body consciousness.

The second comment is: "I have changed..." (e.g. "the posture of my head, so I can see people I meet"), which may represent improved management of the body.

The third comment is: "I feel so..." (e.g. "free "happy"), which represents a deepened body experience.

These comments might indicate that the influence of Body Awareness Therapy has reached the patient's consciousness; that the treatment was a self experience, not only a body experience. They raise the question of possible effects of the treatment and how they might be evaluated. It was partly such comments that prompted the clinical studies reported below.

THE BODY AWARENESS SCALE, BAS

Rating scales versus other measurements

There is yet no scale in use for measuring body awareness and general bodily dysfunctions. Earlier measurements of body consciousness and/or motor behaviour measure a detailed function such as muscular tension (6,47) or body image boundaries (15, 16), yield qualitative information (except Sundsvold (47, 48)) (see page 12), can only be used by specially trained professionals such as dance therapists (e.g. Laban), yield only one kind of information, the patient's report or the therapist's observations, use projective tests that require the therapist's interpretation of the patient's responses (15), or are only applicable to healthy people or neurotic patients.

For clinical evaluation of Body Awareness Therapy, the assessment should: measure body awareness as a whole, including the aspects body consciousness and body management, yield information that can be quantified, contain two kinds of information, the patient's report and the rater's observation, be understood by different mental health professionals, and be independent of the rater's interpretation be applicable also with psychotic patients. The assessment model that fits these criteria best can be found among the psychiatric rating scales.

Purpose of the BAS

The general purpose of the BAS is to give the physiotherapist information about the patient's body awareness, including body consciousness and body management.

In practical use, the scale has two purposes:

1. to describe body awareness and general body dysfunctions, as components in psychiatric psychopathology,
2. to measure change between different ratings in order to evaluate the effect of treatment.

Use of the scale

The scale is intended to be used for the following purposes:

1. to provide a basis for planning and monitoring physiotherapy in psychiatric care, especially Body Awareness Therapy,
2. as a means of measuring the patient's body awareness and general bodily dysfunctions, and hence of evaluating effects of treatment,
3. as a part of the total treatment planning, the language of the scale should be comprehensible to different categories of the mental health workers,
4. as a pool of items from which subscales can be drawn for particular use.

In these studies, the scale is used in the treatment of schizophrenic patients. In the treatment of other patients, such as those with neurosis, a slightly different combination of items might be needed.

The construction of the BAS

The new scale was to assess both reported and observed signs of psychiatric disease as well as measuring general bodily dysfunctions. The Comprehensive Psychopathological Rating Scale, CPRS, has a combination of reported and observed items; it also includes some body-centred items such as Muscular tension, Mannerisms & postures (46). I therefore found it suitable as a model for the new scale. Items from the CPRS were chosen and new body-related items were constructed, based on clinical experience. To collect information for the observed part of the BAS, a structured movement test was constructed. The new items will henceforth be called "new body items".

All items in the scale have the scale-steps 0-3, where half-steps should also be used. "0" represents the healthy situation and "3" an extremely pathological one. The following general rules have been applied when constructing the scale-steps:

- 0 - Absence of the symptom.
The patient performs the exercise without hesitation or help.
- 1 - A degree of a symptom that is regarded as pathological for the individual but that might be normal for another person in another situation.
The patient performs the exercise with hesitation or help.
- 2 - A clearly pathological degree of the symptom.
The patient tries to perform the exercise but performs it wrongly or only partly.
- 3 - An extreme degree of the symptom.
The patient does not perform the exercise.

Item description

The scale contains 16 items for reported information, of which 10 are from the CPRS and 6 are new body items, and 31 items for observed information, 13 from the CPRS and 18 new body items. Items from the CPRS are chosen either because they are body-directed or on the basis of clinical experience of Body Awareness Therapy with schizophrenic patients, see Table 1.

Items from the CPRS

Reported

Body-directed items from the CPRS are Hypochondriasis, Autonomic disturbances, Aches & pains, Muscular tension, Loss of sensation and movement, and Depersonalisation. Items for the patient's description of his emotional symptoms are Inner tension, Worrying over trifles, Hostile feelings, and Inability to feel.

Observed

Items from the CPRS directed towards bodily reactions or motor behaviour are: Autonomic disturbances, Slowness of movements, Agitation, Involuntary movements, Muscular tension and Mannerisms & postures. Items describing emotionally disturbed behaviour are: Hostility, Labile emotional responses, Lack of appropriate emotion. Signs of disturbances in the consciousness are described in the following items: Sleepiness, Distractability, Withdrawal and Hallucinatory behaviour. For a description of these items, see Åsberg et al (46).

New body items

Reported

New body items for reported information concern different aspects of body awareness. For "Description of the body", the patient is asked to enumerate his body parts from the feet up through the body. The item describes the patient's perception of his body. "Attitude to own appearance" describes whether the patient is satisfied with his appearance and the degree of any dissatisfaction. These two items are aspects of body image as the term is used by Fisher and others (15,16). The item "Attitude to physical ability" describes whether the patient experiences bodily dysfunctions in his daily life, such as inability to climb stairs owing to weak legs. It is an aspect of the patient's idea about his body management. "Change of sexual interest" is a combination of two items from the CPRS, for increased and decreased sexual interest respectively. For "hygiene" the patient answers the question how often he takes a shower or a bath or washes himself and puts on clean clothes. Since periods occur when some patients severely neglect their hygienic behaviour as a part of a negative attitude or an alienation towards their bodies, I found this item important.

Observed

Eighteen new body items are partly directed towards the patient's behaviour during the rating session and partly towards his co-operation and ability to carry out the movement test. The items concern the aims of Body Awareness Therapy as well as the components in the therapeutic techniques. In order to study the physical relation to the ground, I have constructed seven different items. "Gait" describes the patient's tendency to "meet the floor" with a small, normal flexibility in the knees or to keep at distance from the floor by walking with his knees stiff and shoulder raised. "Sit down and be seated" describes whether the patient sits down on the floor when requested and his suppleness when doing so. The item "Lying down, lying on the floor" is defined analogously.

Table 1: Items, Means (M), Standard deviations (SD) and coefficients of correlation (r) for 53 schizophrenic patients

	M (SD)	r
REPORTED ITEMS		
From CPRS		
Inner tension	1.97 (1.60)	0.95
Hostile feelings	0.97 (1.30)	0.96
Inability to feel	1.37 (1.80)	0.97
Hypochondriasis	0.30 (0.73)	0.97
Worrying over trifles	1.39 (1.57)	0.97
Autonomic disturbances	1.67 (1.58)	0.95
Aches and pains	1.53 (1.48)	0.96
Muscular tension	1.52 (1.72)	0.97
Loss of sensation or movement	0.36 (0.80)	0.87
Depersonalisation	0.42 (1.10)	0.98
New body items		
Description of the body	2.15 (1.37)	0.95
Change of sexual interest	0.98 (1.57)	0.99
Attitude to physical ability	1.18 (1.43)	0.98
Attitude to movements & exercise	1.56 (1.59)	0.96
Attitude to own appearance	0.89 (1.43)	0.96
Hygiene	1.70 (1.63)	0.97
OBSERVED ITEMS		
From CPRS		
Hostility	0.03 (0.19)	0.97
labile emotional responses	0.39 (0.78)	0.86
Lack of appropriate emotion	0.69 (1.18)	0.92
Autonomic disturbances	0.88 (1.23)	0.98
Sleepiness	0.22 (0.69)	0.96
Distractibility	0.57 (1.03)	0.97
Withdrawal	0.26 (0.61)	0.90
Slowness of movements	1.57 (1.46)	0.89
Agitation	0.87 (1.32)	0.81
Involuntary movements	1.28 (1.69)	0.98
Muscular tension	2.45 (1.49)	0.88
Mannerisms & postures	0.50 (1.17)	0.94
Hallucinatory behaviour	0.04 (0.25)	0.96
New body items		
Relation to the centre-line	1.72 (1.30)	0.92
Relation to the ground in walking	1.60 (1.50)	0.95
Relation to the ground, weight transfer	1.06 (1.54)	0.96
Relation to the ground in sitting	0.69 (0.87)	0.77
Relation to the ground in lying	0.38 (0.65)	0.77
Relation to the ground, contact surface	1.14 (1.23)	0.95
Open or closed body posture	0.41 (0.76)	0.99
Relation to space	0.30 (0.65)	1

Associated movements	2.28 (1.65)	0.93
Relation to own mirror image	0.58 (0.93)	0.87
Personal space	0.27 (0.59)	0.65
Isolated movements	1.10 (1.12)	0.91
Stretching	1.56 (1.22)	0.91
Stamp	1.14 (1.26)	0.94
Run and jump	0.79 (1.93)	0.97
Eye-contact	0.51 (0.94)	0.89
Climb up on a chair	0.39 (0.61)	0.92
Hygiene	1.26 (1.64)	0.92

The item "**Weight transfer**" describes the patient's ability to transfer his weight from foot to foot and to stand on one leg. This is a condition for a safe and harmonious gait. "Contact surface" describes the size of the patient's contact surface with the floor when sitting and lying, his tendency to "spread" out on the floor or to avoid contact with the floor, see Figures 6-9. "Run & jump" and "Climb up on a chair" are measures of ability to leave the ground with the weight of the body.

"**Relation to the centre-line**" describes an aspect of body posture. Deviations from the centre-line, poor posture, require permanent tension in certain groups of muscles. In extreme cases, such deviations can make it difficult to maintain proper balance, see Figures 10-13. "Open or closed body posture" is another aspect of body posture. The term is borrowed from ballet and describes the patient's tendency to protect certain parts of his body, such as by holding his arms crossed in front of his chest and his head bent forwards, see Figures 14-17.

"**Isolated movements**" describes the patient's ability to move one part of his body at a time. The ability for total co-ordination is described in "Stretching", "Run & jump", "Stamp" and "Climb up on a chair". "Stretching" describes the patient's ability to stretch through the whole body at a time when lying and standing, see Fig. 5, page 23. "Associated movements" describes the amount of movement in the trunk, the shoulders, the arms and the head while walking. "Relation to space" describes whether the patient limits himself in relation to the room, for instance whether he only moves around the walls, stays in one spot, or moves all over the room.

"**Relation to own mirror image**" describes the patient's tendency to look at his mirror image or avoid it when exercising in front of the mirror. "Eye-contact" describes whether the patient meets or avoids the look of the interviewer and test-leader during conversation and exercises. "Personal space" is the distance to other people that a person needs to feel at ease. In the scale-steps, it is expressed in terms of the length of the forearm (approx. 40 cm) and of the whole arm (approx. 65 cm). "Hygiene" represents signs of poor hygiene such as dirty hair, dirty hands or nails, unbrushed teeth, unpleasant odours or untidy (dirty or torn) clothing.

The movement test

The purpose of the movement test is to give the rater the opportunity to make enough observations for a complete protocol, see Appendix 1. It consists of simple movements, adapted to the needs of everyday life. Some of the movements are constructed to give information for the corresponding item, others give the rater a chance to observe the patient's body management and movement pattern.

Examples of movements in the test:

- Different types of walking exercises, where the rater can observe the relation to the ground, associated movements, relation to the centre-line and psychomotor symptoms.
- A series of exercises for observation of the surface of contact with the floor; sit on a chair, sit on the floor, turn over when lying.
- A series of exercises for the item Isolated movements; turn the head, bend the head sideways, raise and drop the shoulders, and so on through the body.
- A polarised exercise in the movement test is to walk as slowly as possible and as fast as possible. This reveals several deficiencies in motor behaviour, such as deviations from the centre-line, lack of associated movements and psychomotor symptoms.

The Appendix "Manual and Movement Test for the Body Awareness Scale" contains a complete description of items, scale-steps and the movement test.

Scoring and Manual

The designations of the items are only brief descriptions; they are used for cross-reference between the manual and protocol. A detailed description of the function/symptom and the scale items is given in the manual. If the definitions of the scale are used as a basis for questions in the interview, the patient's answer should be clear enough for scoring. The following three examples illustrate the construction of the manual, one from the reported and two from the observed part.

Attitude to movements and exercise

Represents the patient's motivation for and ability to initiate movements of the body, apart from those necessary for daily life.

- 0 Likes and accomplishes different movements of the body such as dancing, going for a walk, jogging, running, swimming or some other sport.
- 1 Likes different kinds of movements or exercises; performs them once a week or every other week.
- 2 Likes some sport or movements of the body but seldom or never performs them.
- 3 Does not like and avoids all movements of the body.

Interview questions recommended:

How do you like moving, for instance going for a walk, jogging or swimming?

(The patient's answer).

Is there some other form of exercise that you find enjoyable or pleasurable (to perform)?

Do you do it?

How often?

When did you last do it?

Relation to the centre-line

Represents clear deviations in posture, e.g. inclining forwards, backwards, sideways, exaggerated hunchback or swayback, inclining head. Clear asymmetry in the muscular strength or joint articulation will be scored on this item with a comment.

- 0 No deviation from the centre-line.
- 1 A small deviation or a big deviation that is corrected in movements, e.g. head inclined, exaggerated swayback, bent backbone.
- 2 Marked deviation that is not corrected and that impedes other movements (breathing, walking).
- 3 Constant, fixed deviation which seriously influences the balance.

See Figures 10-13. (*OBS! Borttagna i detta scannade document*)

Relation to the ground, contact surface

Represents the contact surface between the body and the floor when sitting and lying. (Distinguish from Relation to the ground when sitting and Relation to the ground when lying.)

- 0 Sits and lies with a relaxed and functioning contact surface with the floor.
- 1 Sits and lies mostly with a small contact surface, e.g. with knees bent and arms bent when lying.
- 2 Sits constantly with a very small contact surface. Lies with a very small contact surface, e.g. keeps head and shoulders raised from the floor.
- 3 Sits and/or lies but stands up immediately or refuses to sit and/or lie.

See Figures 6-9. (*Borttagna i detta scannade document*)

CLINICAL APPLICATION OF THE BODY AWARENESS SCALE

Aims

Descriptive study

- to test the BAS to describe schizophrenic patients in open aftercare and
- to test the inter-rater reliability of the BAS.

Factor-analytic study

- to carry out a data reduction by means of a factor analysis
- to assess the plausibility in patterns of symptoms measured by the BAS.

Patients

The diagnostic criteria for the patients included in the study were those for chronic schizophrenia in DSM 111 (10) with the following main symptoms:

- A. At least one of the following during some phase of the illness: delusions, hallucinations, loosening of associations, markedly illogical thinking, emotional disturbances, disorganised behaviour.
 - B. Deterioration from a previous level of functioning in such areas as work, social relations, self-care.
 - C. Continuous signs of the illness for at least six months at some time during the person's life.
- In addition, the following criteria for inclusion and exclusion have been applied:

Criteria for inclusion: Outpatient for more than six months before the start of the study, age 20-59 years, individualised treatment with depot neuroleptics, the patient's acceptance to take part in the rating/study.

Criteria for exclusion: Duration of schizophrenia less than two years, hospitalisation more than 10 years, schizo-affective syndromes, alcoholism, drug addiction, pregnancy, brain damage or other chronic disease.

Design of the studies

Descriptive study

Fifty-three patients, who fulfilled the criteria, were rated simultaneously by a physiotherapist and a psychologist with the BAS once. There was one extra rater at one rating, which makes a total of 107 ratings. The patients age and sex are shown in Table 2.

Factor analytic study

Seven more patients had entered the study. Sixty patients were rated 1-5 times, each with six months interval, with the BAS, by two raters, see Table 3.

METHODS

Ratings

Two physiotherapists and three psychologists participated in the studies. The interviews were performed by the psychologist and the movement test by the physiotherapist. The protocols were filled in after the interview and the movement tests were completed (and the patient had left the room). The amount of time used for the BAS-rating (interview, movement test and scoring) was approximately one hour.

Table 2: Age and sex of the patients participating in the descriptive study

Age, years	Men	Women	All
20-29	11	6	17
30-39	11	4	15
40-49	10	5	15
50-59	4	2	6
<hr/>			
TOTAL	36	17	53

Statistical method

Means and standard deviations were calculated. For computing the inter-rater reliability, Pearson's product-moment correlation was used.

A factor analysis was performed and when 13 factors were concluded, all items were represented with significant factor loading $> (större än eller =) .40$. The reasons for cutting off the factoring at the level of 13 factors were, firstly, that it was our intention to have all items represented, and, secondly, that the eigenvalue levelled out. The 13 factors explain 65% of the total variance and the eigenvalue was as low as 1.13. An oblique rotation was chosen, since we expected some associations between the factors. We also found that an orthogonal solution complicated interpretation of the results as more items had a double representation.

Table 3: Ratings for the factor analysis.

Number of	patients	ratings
Rating at		
0 months	60	121*
6	32	64
12	26	51**
18	18	36
24	10	20
Total number of ratings		292

*There were 3 raters at one rating session (one psychologist extra)

**At one rating session the physiotherapist was the only rater

RESULTS

Descriptive study

The interview and the movement test were almost always complete. In the total of 107 ratings with 47 items each, there were 23 missing data, which is equivalent to 0.45%.

Mean scores

The means of the scores vary over the whole scale, from close to zero to 2.45, see Table 1. Thirteen items had means over 1.50; twelve of them were body-directed. The two highest means concerned the observed items. Muscular tension and Associated movements. For description of the body 87% of the ratings were scored higher than "0". Other reported items with a high mean are Hygiene, Autonomic disturbances and Attitude to movements and exercise. Relation to the ground when walking and Slowness of movements are two observed items with high means. The only item with high means which is not body-related is Inner tension. The lowest means in the study were found for Hostility and Hallucinatory behaviour.

Some symptoms are represented in the scale both as reported and observed information. The means differed markedly. The patient's report had higher means than the rater's observations for Inability to feel (Lack of appropriate emotion), Hostile feelings (Hostility), Autonomic disturbances and Hygiene. The rater's observations gave higher means than the patient's reports for Muscular tension.

Standard deviation

The standard deviation is consistently comparatively high, especially for items with extremely low means, where the standard deviation is several times higher than the means, e.g. Hostility, Hallucinatory behaviour and Sleepiness.

Inter-rater reliability

The inter-rater reliability is given in Table 1. The results for four pair of raters with more than 10 ratings per pair is given in Table 4. As seen, the reliability was generally around 0.9, in fact, in 25 out of 47 items about 0.95. For three new body items the reliability was about 0.7.

Table 4: Inter-rater reliability for four pairs of raters
r = correlation coefficients

Pair No.	r	n
1	0.96	20
2	0.98	13
3	0.98	12
4	0.98	13

Factor Analytic Study

Introductory remarks

The BAS is a scale for symptoms, which means that a higher score implies a higher degree of a symptom or dysfunction. In the following presentation, I describe and interpret the factors one-sidedly, that is when they give a picture of pathological conditions. The factors are presented in groups with common elements, see Table 5. The explained variance of the factors is given in brackets.

Description and interpretation of the factors

Factors concerning motor functions

The Movement Factor (expl. var. 7.9)

This factor describes motor function in eight items. Four items measure the relation to the ground, two measure general motor ability from a mechanical or physical point of view and two may be called behavioural items (Muscular tension, observed, and Associated movements).

A high score on The Movement Factor describes behaviour with hyper tensed muscles, lack of associated movements in the gait, inability to stretch through the body, inability to move one part of the body at a time and insecurity in relation to the ground. As a whole, the factor describes a generally hampered, insecure and disharmonious movement pattern and deficient management of the body.

Movement & Gravity Factor (expl. var. 4.6)

Run & jump and Climb up on a chair, together with Relation to the ground when sitting, represent a combination of items relating to gravity. Personal space also belongs to the factor. A high score on the factor shows difficulty in performing movements which involve leaving the ground by jumping, running and climbing, difficulty in sitting down on the floor and a need for more personal space, that is a greater distance to other people than normal. Movements where the weight of the body is lifted from or lowered towards the floor require more physical energy than others.

A high score on Movement and Gravity Factor may be a sign of poor physical fitness and/or weak leg muscles. It might also have a hypothetical symbolic value. A person who does not stand steadily cannot leave the floor by jumping and running. The physical insecurity (not standing steadily) might be interpreted as an expression of a corresponding mental insecurity. If this is correct; the combination with increased need of personal space would be easy to understand; the physical insecurity would reflect mental insecurity, not only in relation to the floor but in general.

Body-related factors

Body Image Factor (expl. var. 4.4)

In The Body Image Factor, three items correlate; Description of the body Muscular tension, reported, and Loss of sensation or movement; all of them show some kind of disturbance in relation to the body. A high score on the factor implies that the patient gives an insufficient, disproportionate or bizarre description of his body and reports an increased muscular tension from which he cannot relax and moments of sensory disturbance or inability to move some part of his body. These are reported items but Description of the body has an element of observation, since the patient is often unaware of to what extent he has completed the task of describing his body. The Body Image Factor measures lack of knowledge about and contact with the body. The factor gives a clear picture of what forms a disturbed body image can take.

General Feeling of Illness Factor (expl. var. 5.1)

Three items for body symptoms correlate with each other and with Attitude to physical ability. A high score on this factor, describes a patient with prominent and multiple experience of bodily complaints. The patient experiences himself as physically ill and suffers from aches and/or pains and autonomic disturbances. He describes physical obstacles in daily life, such as .-inability to climb stairs or walk to the nearest grocery shop (Attitude to physical ability). These bodily complaints make the patient feel dependent, both as regards help in daily life and help for his suffering.

Limitation Factor (expl. var. 8.1)

This factor has three reported and two observed items. They are all negative; that is, they describe limitations in functions or behaviour. Two items concern hygiene, two are motor-directed and the fifth is Inability to feel. A high score on The Limitation Factor describes a patient who shows deficient personal hygiene and who has a slow and rigid pattern of movement. He reports that he seldom takes a shower or bath, that he does not like to move and that he feels indifferent to other people. The factor thus combines anhedonia with decreased motivation for movements of the body and decreased ability and motivation for taking care of the body (hygiene).

Autonomic Disturbances-Factor (expl. var. 3.3)

The item Autonomic disturbances, observed, formed a factor of its own, with the factor loading 0.66.

Factors directed towards motor behaviour and psychiatric symptoms:

Psychomotor Symptom Factor (expl. var. 6.5)

This factor contains a combination of psychomotor symptoms, deviations in body posture and emotional symptoms. A high score on the factor describes a behaviour with postural deviations, with marked or dominating psychomotor symptoms and an obvious incongruity between verbal and nonverbal signals in communication (Lack of appropriate emotions). The patient also has a guarded relation to space; that is, he stands in one spot, follows the walls etc. The factor describes a behaviour which is easily recognised in clinical practice. The combination of items shows the patient's alienation to his own body, expressed through the psychomotor symptoms, which are often unconscious, the poor posture and the incongruent way of expressing emotions.

Gaze & Sexual Interest-Factor (expl. var. 3.7)

This factor, composed of three items, also includes a reported item. Two items for the gaze correlate with each other and with altered sexual interest (in this study decreased) and a pattern of behaviour where the patient avoids meeting other people's gaze, and looking at his own mirror image. Avoiding looking in the mirror may represent non-acceptance of one's appearance or some other disturbance in

body experience. Avoiding meeting other people's gaze can be a severe handicap in all communication, particularly for the non-verbal elements.

The factor might describe one aspect of low self-esteem and difficulties with non-verbal communication.

Closed Body Posture Factor (No. 13) (expl. var. 4.2)

A high score on this factor describes a behaviour with hampered and slow gestures and mimicry and a closed body posture with the arms close to the body, the shoulders protruded, the head bent forward, and the legs closed. The body posture can be compared to the so-called defensive posture, which is described by Heir-Bunkan (6) among others.

Psychotic Symptom Factor (expl. var. 5.6)

A high score on this factor with five items describes a group of psychotic symptoms combined with aggressive behaviour and inability to stamp on the floor.

Alertness Factor (expl. var. 3.7)

A high score on this factor describes a behaviour with sleepiness and rapid changes between different emotional expressions, such as laughter and crying.

Agitation Factor (expl. var. 3.3)

The item Agitation was the only one with factor loading in this factor, 0.71; it forms a factor of its own.

Anxiety Factor (expl. var. 5.3)

This factor forms a group of its own. The combination of items for emotional symptoms, inner tension, worrying over trifles, hostile feelings and reported muscular tension, support earlier descriptions (Reich, Braatøy, Lowen, Raknes, etc) of these associations. The correlation with Attitude to own appearance might imply low self-esteem (in such case related to appearance), which, in turn, might be an expression of a depressive element of alienation to one's own body. A few patients had a high score on Depersonalisation showed by a low mean score and high standard deviation in the descriptive study. This might give support to the assumption that the factor here has got a psychotic character.

A high score on the Anxiety Factor describes a patient with symptoms of anxiety and aggressive feelings (which are mostly not obvious in the test situation), experience of hypertensed muscles, a feeling of being less attractive than others and, in some cases, depersonalisation. The factor contains only information reported by the patient. This report is often given in bodily terms, particularly for anxiety, muscular tension, appearance and depersonalisation. This symptom picture seems to affect the life of the patient seriously.

Table 5: Factor structure of the BAS for 60 schizophrenic out-patients

Explained variance in brackets	<u>Factors for motor functions:</u>	fl
	The Movement Factor (7.9)	
Origin of item:	Isolated movements (B)	0.70
(C) = from CPRS	Stretchings (8)	0.68
(B) = new body	Relation to the ground, lying (B)	0.66
item	Associated movements (B)	0.62
fl = factor loading	Rel. to the ground, weight transfer (8)	0.61
	Muscular tension observed (C)	0.51
	Rel. to the ground, walking (B)	0.51
	Rel. to the gr., surface of contact (B)	0.48
	Movement & Gravity Factor (4.6)	
	Relation to the ground, sitting (B)	0.71
	Climb up on a chair (B)	0.70
	Run & jump (B)	0.58
	Personal space (B)	0.48
	<u>Body-related factors</u>	
	Body Image Factor (4.4)	
	Description of the body (B)	0.66
	Muscular tension, reported (C)	0.62
	Loss of sens. or movement (C)	0.47
	General Feeling of Illness Factor (5.1)	
	Hypochondriasis (C)	0.72
	Aches & pains (C)	0.67
	Attitude to physical ability (B)	0.57
	Autonomic disturbances, report (C)	0.56
	Limitation Factor (8.1)	
	Inability to feel (C)	0.80
	Attitude to movements & exercise (B)	0.66
	Hygiene reported (B)	0.65
	Hygiene, observed (B)	0.65
	Slowness of movements (C)	0.50
	Autonomic Disturbances obs Factor (3.3)	
	Autonomic disturbances, observed (C)	0.66

Factors for motor behaviour and psychiatric symptoms

Psychomotor Symptom Factor (6.5)

Mannerisms & postures (C)	0.65
Rel. to centre-line (B)	0.60
Involuntary movements (C)	0.55
Relation to space (B)	0.50
Lack of appropriate emotions (C)	0.49

Gaze & Sexual Interest Factor (3.7)

Eye-contact (B)	0.70
Relation to mirror image (B)	0.57
Changed sexual interest (B) (C)	0.45

Closed Body Posture Factor (4.2)

Open or closed position (B)	0.64
Slowness of movements (C)	0.48

Psychotic Symptoms Factor (5.6)

Hostility (C)	0.82
Hallucinatory behaviour (C)	0.70
Stamp (B)	0.62
Distractability (C)	0.59
Withdrawal (C)	0.49

Alertness Factor (3.7)

Sleepiness (C)	0.59
Labile emotional responses (C)	0.58

Agitation Factor (3.3)

Agitation (C)	0.71
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Factor for emotional symptoms

Anxiety Factor (5.3)

Inner tension (C)	0.78
Hostile feelings (C)	0.74
Worrying over trifles (C)	0.57
Attitude to own appearance (B)	0.52
Muscular tension reported (C)	0.47
Depersonalisation (C)	0.46

DISCUSSION

Sources of error

The Body Awareness Scale is intended for use with patients in different phases of a psychotic disease. It may be used in its entirety, but also as a pool of items from which a selection of items can be drawn for particular needs. The low means (and frequency of symptoms) in some items are probably due to the fact that the patients in this study were well treated and had a low rate of psychotic symptoms. The items with the lowest frequency in this study have been included in the scale for use with patients in an acute phase of psychosis. I have therefore kept them in my continued work with the scale.

It might have been useful to have made a more thorough investigation and description of separate functions or symptoms such as muscular tension, body image, body posture, associated movements or breathing. Since my aim was to test the BAS as a whole rather than to analyse separate functions, however, I chose to give a more superficial description of several components, instead of making a more detailed investigation of a few functions.

The scale

Mean scores

The means show a profile with a low frequency of psychotic symptoms, a high frequency of symptoms related to movement pattern, a relatively high frequency of dysfunctions related to experience of the body and a high frequency of emotional symptoms.

Of 13 items from the whole scale with a mean over 1.50, all except one are related to the body. The only non-body related item in this group is Inner tension. Otherwise, the patients described the following disturbances: unsatisfactory personal hygiene, aches and/or pains, hyper tensed muscles and inability to relax, and no interest in body movements. These high means of body related items show that the scale covers an area where it is possible to obtain much information about experience and behaviour. This might be interpreted as a first indication of the validity of the scale. Hypochondriasis and Loss of sensation and movement had the lowest means in the reported information.

Reported items

The item Description of the body is intermediate between the reported and observed areas. The rater compares the patient's description with a "normal variant" where the following parts of the body are mentioned, the feet, legs (possibly calves, knees, thighs) hips, buttocks, abdomen, chest, back, shoulders, arms (possibly upper arms, elbows, forearms) hands, neck, and head. Description of the body had the highest degree of symptoms among the reported items. Many of the patients thus gave an insufficient, disproportionate or bizarre description of their bodies. Out of the emotional symptoms, those connected with anxiety (Inner tension, Worrying over trifles) were most frequent. Inability to feel was also rather often reported.

Observed items

The following symptoms/ behaviour were frequent in the study: increased muscular tension, a gait with stiff legs, lack of associated movements, decreased frequency of gestures and mimicry, and inability to stretch through the body. Expressed aggressive behaviour and psychotic symptoms, such as sleepiness, withdrawal and hallucinatory behaviour, were rare as were inability to move freely about the room and an increased need of personal space. In other respects, the symptoms were distributed equally between symptoms of mainly psychiatric and somatic character.

Correspondence between reported and observed symptoms

There was a difference in mean scores between the reported and observed items concerning the same symptom. At the interview, some patients expressed an emotional disability which was not revealed in their behaviour. This was also the case for aggressive (hostile) feelings, which were reported in 73 ratings out of 107, but only observed as a slightly aggressive behaviour in four ratings. A higher mean of the reported than the observed item might partly be explained by the fact that the patient's report concerned the last few days, while the rater's observation was limited to the rating session, i.e. less than an hour.

The higher mean for reported autonomic disturbances than for observed, might be explained by the fact that only a few of them can be observed, such as hyper-ventilation, frequent sighing, blushing, sweating, cold hands, enlarged pupils, dry mouth, and fainting, while the patients report many more, e.g. palpitations, dizziness, cold feet, indigestion, diarrhoea, and frequent micturition.

The opposite is the case for the two items of reported and observed muscular tension; the mean for observed muscular tension is the highest in the whole scale. This might mean that the patient's body consciousness is so low that he does not recognise the increased tension in his muscles.

Standard deviations

The standard deviation is high in the scale, especially for items with low means. This may make it difficult to show significant differences between ratings in a coming clinical study. In the light of clinical experience, the high standard deviation is natural; on several items many of the patients were symptom-free, which is an expected result in treated patients, while a few were given a score of up to four points out of six possible. The extreme value, 6, was also used in rare cases.

Inter-rater reliability

The reliability was very satisfactory. This may be due to the operational definitions of the items and the scale steps. The item Relation to space has the r-value 1, see Table 1. The item describes how the patient uses the room in his gait and movements and is very easy to score. Even the three lowest values for correlation coefficients could probably be considered as reasonable for clinical research, may be with exception for Personal space. Comparison of reliability, computed in factors, between physiotherapist and psychologist gave no significant difference.

The reliability in comparison with other studies

The inter-rater reliability in this study is higher than in earlier tests of the CPRS. One reason for the high reliability might be that the interview was combined with a movement test, which gave a good opportunity to observe psychomotor behaviour. In this study, the raters trained co-rating six to ten times before participating in the study; this is considered sufficient to become an experienced rater with scales of this kind. One might consider that the high reliability is due to many zeros in the scoring. I have compared the means with the r-values and there is no clear pattern with low means connected with high r-values (Table 1).

The factor analysis

In the factor analysis, all the items are represented with significant factor loading (≥ 0.40). Two items, Hallucinatory behaviour and Hostility, have very low means in the study, close to zero. Their contribution to the total variance is thus very low. In this study, they correlate with psychotic symptoms in Psychotic Symptoms Factor. Their contribution might be better used in a study of acute phases of psychosis with higher means on psychosis-directed items.

The item Muscular tension reported is represented in two factors. The statistical correlation between experienced muscular tension and bodydirected items in the Body Image Factor on the one hand, and emotional symptoms in the Anxiety Factor on the other, is clinically relevant, so a double representation can be allowed.

The item Slowness of movements is also represented in two factors, The Limitation Factor, and The Closed Body Posture Factor. The statistical correlation between slowness of movements and a closed movement pattern is expected and natural. The combination of reported and observed items in The Limitation Factor illustrates the complexity of the associations between emotional life and bodily conditions. Slowness of movements is a frequent finding in psychiatric patients. There are therefore clinical reasons for accepting a double representation of the item.

Comments-on the content in the factors

Altogether, the factor analysis gave:

Eight factors with only observed items, out of which:

Seven mainly concern motor behaviour and

One concerns autonomic disturbances.

Two factors with psychotic symptoms have very low means. Three factors with only reported items.

Two factors with both reported and observed items.

This means that reported and observed items generally formed separate groups. Items with a psychotic character formed factors of their own.

General Feeling of Illness Factor, describes a situation where bodily complaints with pain and dependence upon others dominate the picture. Elton et al (11) have described a clear association between chronic pain and low self-esteem. If this association is valid for the patients in this study, and if the complaints in the factor, particularly the pain, are of a chronic nature, one might assume that patients with a high score on the factor have a low self-esteem. If that is so, General Feeling of Illness Factor describes a person with low self-esteem, who is dependent upon others and who identifies himself as ill or as a patient. He cannot respond to demands or contribute to the healing process or increase his level of daily functioning by his own efforts.

An adequate treatment for patients scored high on the factor General Feeling of Illness should provide care and support with the main aim of increasing their self-esteem, before they can be expected to contribute to the treatment or respond to demands made of them. In Body Awareness Therapy, the patients receive support, but they are also requested to make an active contribution from the beginning. If the treatment is given directly in a group, without individual preparation, one might equally well expect a deterioration of the symptoms as an improvement, at least in a first series of sessions of Body Awareness Therapy. In order to obtain a positive effect of Body Awareness Therapy, given in a group, the patients need to be individually prepared, with support for their self-esteem and maybe treatment of their bodily symptoms.

DISCRIMINATIVE STUDY

Aim

The aim of this associative and comparative study is to test the hypothesis that the BAS is sensitive to change, specifically concerning body management (the Movement Factor) and body image (factor).

General design

To achieve changes one group of patients has received six months of Body Awareness Therapy while a control group received "routine treatment". Body Awareness Therapy was given October-April with a follow-up period of six months April-October. Fig. 18 shows design, treatment and assessments in the study.

Design & treatment

Months after
index admission

Group T, n=

Patients
randomly
allocated to
treatment
and
control group

Group C, n=

Assessments

BAS
Extrapyramidal
side effects

Wellbeing
Target problems
Life events

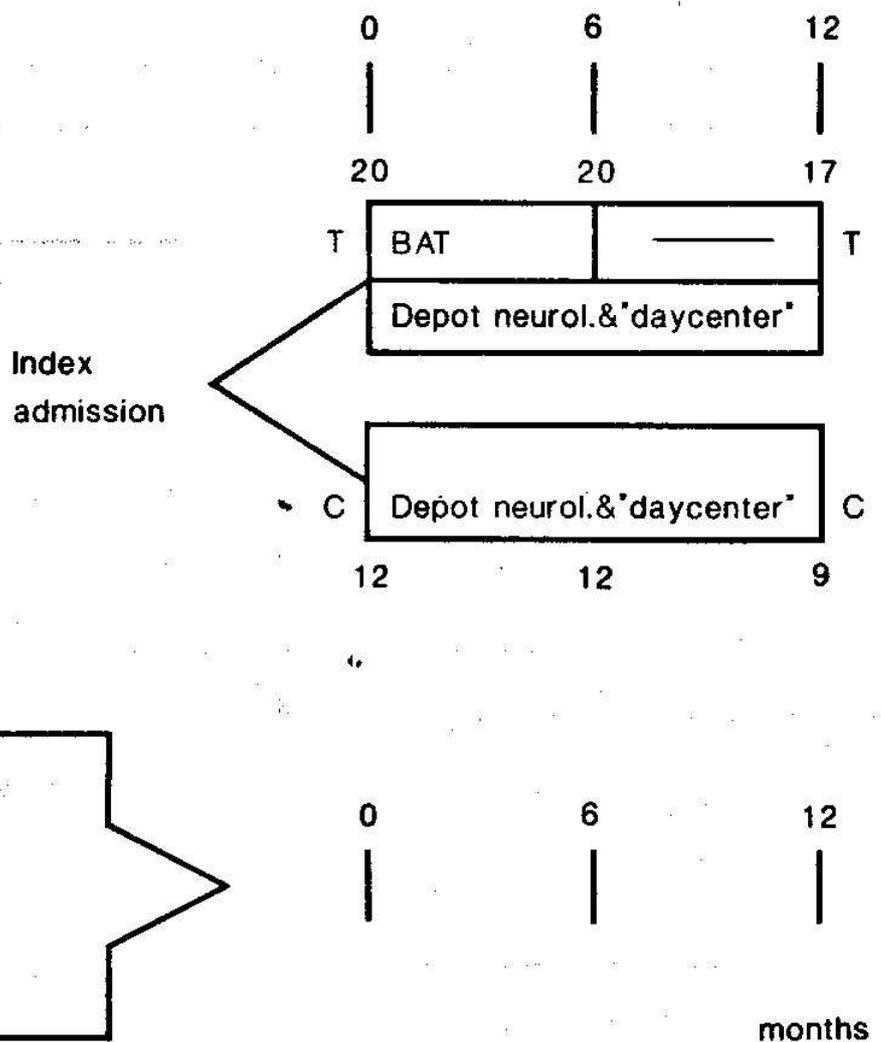


Fig18 .Design, treatments and assessments

Patients

Out of the sixty patients in The Factor Analytic Study, see page 43, sixteen were excluded because they were participating in some other study to evaluate the effect of a specific treatment.

The study ran over two winter seasons, starting two autumns. A total of forty-four patients were randomly allocated to three groups each autumn, two for Body Awareness Therapy and one control group. There was one random sampling for men and one for women (each autumn). The experimental group thus consisted of four treatment groups, treated by three different physiotherapists. These groups form the treatment group, group T, in the study.

Out of thirty patients in the treatment group, ten did not enter the study, either because they did not want to, or their families did not allow them to. Two of fourteen patients in the control group did not enter the study because they received Body Awareness Therapy by clinical reason, see Table 6, Non-participants. The study thus started with 32 patients.

Table 6:

Non-participants
T = Treatment group
C = Control group

	T	C
Refused treatment with BAT	5	
The family refused treatment for the patient	5	
Had to leave control group because BAT was given by clinical reasons		2
Total		12

Sociodemographic data

The sociodemographic data for the patients in the study are given in Table 7. The table shows good agreement between the treatment group and control group except that the control group was smaller (N=12) than the treatment group (N=20). There was some difference in the ages of the patients. Forty per cent of the patients in the control group were 20-29 years old, compared to 20 per cent of those in the treatment group. This predominance of younger patients in the control group is compensated for on the next age level, 30-39 years, which accounted to 8 per cent of the control group, compared to 45 per cent of the treatment group.

Clinical characteristics

The clinical characteristics of the treatment and control group are presented in Table 8. Most of the patients have a comparatively longstanding schizophrenic psychosis with several hospitalisations. On the whole, the agreement between the groups is good.

Drop-outs

Six patients did not take part in the last rating, three from each group. In the treatment group, two patients were physically handicapped, one after an attempted suicide and one owing to rheumatoid

arthritis. The third patient had decided not to continue Body Awareness Therapy and did not appear at the last rating. Two patients had to leave the control group since they received Body Awareness Therapy for clinical reasons. One did not turn up at the last rating in spite of repeated calls, see Table 9.

Ratings

The study started with 32 patients, 20 in the treatment group and 12 in the control group. The patients were rated three times; before and after 6 months' treatment with Body Awareness Therapy and after 6 months of follow-up, see Fig. 18. Each rating was performed simultaneously by a physiotherapist and a psychologist. Two of the physiotherapists treated the groups, but only in exceptional cases were the patients rated by their own therapist.

Table 7: Sociodemographic data at the time for the first BAS-rating for patients in treatment (T) and control (C) groups.

Category	Subcategory	Patients		
		T	C	
All				
Sex	Female	12	8	4
	Male	20	12	8
Age	20-29	9	4	5
	30-39	10	9	1
	40-49	10	6	4
	50-59	3	1	2
Education	Primary school	16	10	6
	High school	14	9	5
	University	2	1	1
Occupation	Student	3	3	0
	Unqualified work	5	3	2
	Skilled work	3	2	1
	Sheltered workshop	6	4	2
	No work	2	1	1
	Disablement pension	13	7	6
Living	Alone in own home	14	10	4
	Own home with spouse or cohabitant	8	5	3
	Own home with child	2	1	1
	Own home with friend or relative	1	1	0
	With parents	7	3	4
Marital status	Never married	20	11	9
	Married or cohabitant	6	5	1
	Divorced	5	3	2
	Widow/er	1	1	0
Socioeconomic status	1	2	2	0
	2	30	18	12

Table 8: Clinical characteristics at index admission for patients in treatment (T) and control (C) groups.

Category	Subcategory	Patients		
		All	T	C
Age of onset of psychosis	<18 years	8	3	5
	18-25 years	16	13	3
	>25 years		8	4
4				
Number of previous hospitalisations	1	1	1	0
	2-4	11	5	6
	>4	20	14	6
Total length of previous hospitalisation	0 months	2	2	0
	3-5.9 months	3	3	0
	6-11.9 months	8	5	3
	1-2 years	14	6	8
	>2 years	5	4	1
Neuroleptics at index admission	+	31	20	11
	-	1	0	1
Time out of hospital at index admission	5-11.9 months	7	3	4
	12-17.9 months	5	4	1
	18-24 months	8	6	2
	>2 years	12	7	5
No. of life events within 6 months before index admission	0	10	4	6
	1	7	5	2
	2	8	5	3
	>2	7	6	1

Table 9: Drop-outs after the second rating

Treatment group:	Relapse of schizophrenia with
attempted	1
suicide	
Other disease (rheumatoid arthritis)	1
Refused continued treatment & third rating	1
Control group: Refused the third rating	3

METHODS

Assessments

In order to test the construct validity of the BAS the following assessments were completed at each rating session:

1. Psychopathological and body-centred symptoms and dysfunctions accounting to the Body Awareness Scale, BAS, see Appendix.
2. Rating of extrapyramidal side-effects of treatment with neuroleptics, Simpson & Angus (42).
3. The patient's self-report of "wellbeing" on the principle of visual analogous scale, made for this study.
4. The patient's report of "target problems", visual analogous scale.
5. The patient's self-report of life events, Holmes & Rahe (19).
6. The course of the illness according to the case records: relapse of schizophrenia, days in hospital, drug treatment.

Rating procedure and time used

All the ratings were performed to the same model (the times are only approximate):

1. A structured BAS-interview, made by the psychologist 20 min
2. The psychologist explains the scales for wellbeing and target problems, which the patient fills in independently 5 min
3. 3. The patient also fills in the sheet for life events independently after instruction 5 min
4. The psychologist rates the patient for extrapyramidal side-effects 5 min
5. The physiotherapist conducts the movement test 20 min
6. The raters fill in their protocols independently 20 min

The total time used for each rating was approximately 75 minutes. The raters also needed a few minutes pause between the ratings to separate the observations of different patients.

Table 10. Average monthly doses in mgs of depot neuroleptics (see text below)

No. of patients in brackets.

T = Treatment group

C = Control group

Depot neuroleptic	Before	6 months	12 months
Group T			
1. Fluphenazine normal dose	22.3 (10)	20.7 (8)	16.5 (8)
2. Fluphenazine high dose	412.3 (4)	281.1 (4)	334.8 (4)
3. Flupentixol	92.8 (3)	91.1 (4)	91.1 (4)
4. Clopentixol	167.8 (2)	338.8 (3)	410.2 (3)
5. Perphenazine	1285.8 (1)	- (0)	- (0)
Group C			
1. Fluphenazine	22.3 (8)	24.7 (7)	25.6 (5)
2. Flupentixol	171.4 (3)	157.1 (4)	160.7 (4)
3. Clopentixol	drug 1*(1)	321.4 (1)	321.4 (1)

The patient received fluphenazine at index admission

Treatment methods

Drug Treatment

The patients in both groups received "routine treatment" in after-care. The neuroleptics were given in depot doses, individually adapted according to clinical practice (29). The anti-psychotic drugs used for the patients in the study were fluphenazine, flupentixol, clopentixol and perphenazine. Out of 14 patients in the treatment group treated with fluphenazine, four received high doses, eight were given unchanged doses, three reduced doses, one increased dose, for one the drug was changed to flupentixol and for one patient the neuroleptic drug was withdrawn at the rating at 12 months. Out of eight patients in the control group treated with fluphenazine, five were given unchanged doses the time 0-6 months, for one the drug was changed to clopentixol and two were drop-outs at the third rating, see Table 10, Average monthly doses of medicine, above.

Psycho-social activities

Fifteen patients had no structured occupation in the form of work or studies. Ten of these were offered daily treatment at a day-centre; occupational therapy (mostly cooking and household management), vocational rehabilitation and a sociotherapeutic programme, with courses, expressive art therapy and entertainment. The remaining five patients were invited to a large group meeting at the day-centre, with conversation, a common meal and entertainment, one afternoon a week.

Body Awareness Therapy

The patients in the treatment group were in addition given Body Awareness Therapy twice a week, 45 times in all. The treatment was planned in two stages with approximately twenty sessions in each stage. The first stage aimed at basic body awareness. Working situations, where body experience is fundamental and positive, were offered. Repeated exercises involving movements of daily life were intended to increase the patient's basic body management and self-confidence, Basic Body Awareness Therapy, see page 21.

In the second stage there is a gradual transition to the advanced technique of Body Awareness Therapy with the aim to make the patient conscious of his unique individuality in his movement pattern. The aim is also to increase the patient's motivation for body movements. Movements, learnt in the basic therapy are applied and interactions between the patients are tried in exercises and games. The physiotherapist changes gradually her attitude from an educating one to that of a supporting and listening therapist.

Common elements for the two stages were a short introductory group discussion, presentation exercises with names, some kind of relaxation or rest and, in conclusion, a dance or game and a group discussion. The common elements in the two stages of the treatment should give continuity between the stages with their somewhat different therapeutic directions. The transition between the stages should also be gradual. An example of a treatment session from each stage is given below:

Stage 1. Basic body awareness

Common elements and

1. Lying exercises, stretching and contracting, gradually integrated with breathing and voice, Figs.4, 5, page 23.
2. Standing exercises for everyday life, with relation to the ground, relation to the centre-line, exercises for central co-ordinations (in contrast to peripheral ones), body image boundaries. The exercises are increasingly integrated with the natural breathing.
3. Walking exercises, aiming to a natural, relaxed and rhythmical gait with normal associated movements.

Stage 2. Unique individuality in the movement pattern

Common elements and

1. Varied walking exercises aiming at increased consciousness of the individual gait. Walking with meetings and other interactions, such as walking in pairs and groups.
2. Exercises for physical security and motor skills, such as gymnastics of different kinds; isolated movements, and total co-ordinations such as jogging, jumping on the spot, skipping and weight transfer.
3. Partner-exercises; non-verbal exercises in co-operation. These can progress to fighting games, which allow acting out of energy.
4. Exercises with sounds from the body, such as clapping, stamping or breathing and voice.

For part of the session, the leadership can be handed over to the patients, one at a time, for improvisation. Movement & Gravity Factor describes an aspect on stage 2. The Movement Factor describes aspects on Body Awareness Therapy in the study.

Costs for the treatment

The treatment took place in an old, closed school in the centre of the city of Gothenburg. Old classrooms without conveniences such as showers and changing rooms were used. The classrooms were borrowed free of charge. The staff consisted of two physiotherapists (one for each group) two hours a week from October to April the following year. Planning and follow-up of the treatment

took a further three hours or so per physiotherapist each week. The total time used for the treatment was thus approximately five hours (plus travelling time) per physiotherapist per week.

Statistical methods

The results obtained with the BAS, both for factors and for single items, were computed with t-tests. In addition, the difference between the groups, for factors, was computed non-parametrically with Fisher's permutation test, see page 75. Extrapyramidal side-effects, wellbeing and target problems were calculated manually with t-tests.

All t-tests were two-tailed and the level of significance $p < .05$. Life events are presented as raw data. The number of days in hospital was computed with chi-square tests, between group difference.

RESULTS

Introductory comments

For the first year of the study this treatment was a new and unknown part of the aftercare programme. A great many reminders bordering on persuasion were necessary to get the patients to participate. The attendance at the treatment sessions is shown in Table 11.

The results are presented in terms of assessments before and after six months of treatment, and six months after completion of the treatment. These assessments are referred to as 0, 6, and 12 months in the tables and figures. The results for the BAS are based on those of the independent rater, the psychologist, as the inter-rater reliability was satisfactory.

Table 11: Attendance in treatment sessions.

No. of sessions	No. of patients
<20	3
20-25	3
26-35	11
36-45	3
Total 45	20

Results for factors

The sensitivity to changes of the BAS is presented in Fig. 19, showing differences of means in factors within each patient group. The treatment group improved significantly in four factors; Movement Factor, Body Image, Anxiety, and Gaze & Sexual Interest (t-tests).

The Movement Factor showed a significant improvement at the end of the treatment period, $p < 0.05$, with a tendency towards retrogression after six months of follow-up, Fig. 19.1.

Body Image Factor also showed significantly lower means for the treatment group after six months, $p < 0.01$, with retrogression after six months of follow-up, Fig. 19.2.

Gaze & Sexual Interest Factor showed a difference between the groups at the first rating (index admission), though not significant; the treatment group had a higher mean than the control group. The treatment group improved significantly after six months, $p < 0.05$, and after twelve months, $p < 0.01$, Fig. 19.12.

Anxiety Factor showed a significant improvement for the treatment group after six months of treatment, $p < 0.05$, with a slight tendency towards retrogression after the period of follow-up, Fig. 19.9.

Limitation Factor showed a tendency towards improvement in the treatment group after six months and retrogression after twelve months, Fig. 19.7.

General Feeling of Illness Factor showed no change in the means in either of the groups after six months. After twelve months, the treatment group had a slightly lower mean and the control group was unchanged, Fig. 19.5.

Psychomotor Symptoms, Fig. 19.4, **Closed Body Posture** Fig 19.13, and **Autonomic Disturbances, observed Factors**, Fig. 19.10, showed no significant changes between the ratings in any of the groups.

Agitation Factor was largely unchanged in the treatment group after six months, with a tendency towards improvement after twelve months. The control group had deteriorated after six, and improved after twelve months, though not significantly, Fig. 19.11.

Movement & Gravity, Fig. 19.8, **Psychotic Symptoms** Fig. 19.3, and **Alertness Factors**, Fig 19.6, all started with low means and showed no changes between the ratings.

Results for separate items

Items with a significant difference in the treatment group are presented in Table 12. Twelve items improved significantly after six months and seven after twelve months (underlined in the table). Items with a significant difference showing decreased symptoms are partly related to body and movements, nine items, and partly to emotional symptoms (including withdrawal).

There was only one significant change in the control group where sleepiness showed a significant deterioration after six months.

Table 12: Means for items with significant difference in the treatment group.

Rating at	0 n=17	6 n=17	12 months n=17
<u>Inner tension</u>	2.1	1.2*	0.7**
Hostile feelings	0.8	0.2*	0.9NS
<u>Muscular tension report</u>	2.0	0.7*	0.9*
Description of the body	2.1	1.3*	1.9NS
<u>Change of sexual interest</u>	1.4	0.4*	0.4*
<u>Withdrawal</u>	1.2	0.4**	0.5**
Muscular tension observed	2.6	1.7*	2.0NS
<u>Relation to the ground, gait</u>	1	.9	1.2ns
Relation ground, weight transfer	0.8	0.2*	0.6NS
Relation to the ground, lying	0.5	0.0*	0.2NS
<u>Relation to mirror image</u>	0.8	0.2*	0.3*
Stretchings	1.7	0.9*	1.1NS
<u>Stamp</u>	1.7	0.5**	0.8**

p<0.05

P<0.01

Extra pyramidal side-effects

The results for extra pyramidal side-effects of treatment with neuroleptics are presented as means of total score, according to Simpson & Angus (42), Fig 20. In the treatment group, there was a significant reduction of these symptoms at the 5 per cent level after six months. The control group started with a lower mean and showed no significant change.

(Figurer finns längst bak i texten.)

Well being

The patients' wellbeing is presented as means of the individuals' self-ratings in Fig. 21. Neither of the groups showed a significant difference.

Target problems

The patients gave names to three problems each and rated how much these worried them. The number of patients who reported different problems is presented in Table 13. The patients' ratings of the number of problems and their "severity" are presented as means (scale-steps 0 - 6) in Fig. 22. The tendency is the same for the three problems with most complaints and highest "severity" for problem No. 1. The treatment group showed a significant difference after twelve months for how much the first problem worried them, p<0.05, Fig. 22.1. In the control group there were no significant differences. The patients were not reminded which problems they had brought up at the earlier rating-sessions. Problems reported as no 1 are presented in Table 14. Four patients in the treatment group brought up the same first problem at three ratings (concentration difficulties, overweight, work, smoking) and one in the control group.

Table 13: Number of patients who reported target problems.

	T=20	C=12	T=20	C=12	T=17	C=9
Problem No. 1	19	8	14	8	11	6
Problem No. 2	12	4	11	5	6	3
Problem No. 3	7	3	7	2	3	1
Rating at	0		6		12 months	

T = Treatment group

C = Control group

Table 14: Type of first problem. T = Treatment group C = Control group

	Group T	Group C
Body-related problems		
T: Stiffness, overweight, smoking, cold, tremor	5	
C: Headache, dizziness		2
Psychic symptoms or problems		
T: Anxiety, allusion, anhedonia	3	
C: The psychic life		1
Self-experience and behaviour		
T: Lack of initiative, concentration difficulties, self-centred, silence, self-confidence	5	
C: Isolation from others, contact difficulties, go shopping		3
Social problems		
T: Work 3 pts, relation to family members, leisure time activities	6	
C: The dwelling, the flat		2

Life events

The patients' reports of the number of life events 12 months before the study are presented in Table 2, Clinical characteristics. The table shows that the agreement between the groups was good. Life events have been categorised, partly based on Paykel et al (32). The categories chosen are Losses, (other) Undesirable events, Desirable events, Events that are independent of the patient's actions, Events that are dependent upon the patient's actions and New personal habits. Categories where the life events could influence the result of the treatment are Losses, (other) Undesirable events, Events which are independent of the patient's actions (below called Independent events) and Desirable events. Categories where the events could be a result of the treatment are Events dependent upon the patient's actions (below called Dependent events) and New personal habits. The number of life events during the last 6 months before the reports are presented in Table 15.

Table 15: Life events six months before the reports. T = Treatment group, C = Control group

	Losses		Desirable		Undesirable		Independent		Dependent		New personal habits	
	T	C	T	C	T	C	T	C	T	C	T	C
Rating at 0 months	4	2	4	1	12	5	1	2	4	1	12	5
Rating at 6 months	4	2	5	1	12	8	2	0	6	1	12	2
Rating at 12 months	5	2	3	1	7	3	2	1	6	1	11	2

Table 15 shows that there is no difference between the groups concerning life events which might influence the result of the treatment. For categories that can be understood as a result of the treatment, Dependent events and New personal habits, there is a tendency towards a difference between the groups in favour of the treatment group.

Between group differences

There was a significant difference in change of score between the groups for one factor; Movement Factor, $p < 0.05$ after twelve months. The improvement in the treatment group was significant after six months, but the deterioration in the control group after twelve months explains the significant difference between the groups.

Days in hospital

Since the study concerns outpatients the number of days in hospital is presented instead of the more traditional "days out of hospital". Table 16 shows that four patients out of twelve in the control group were hospitalised for 506 days, and three out of twenty in the treatment group for 84 days during the treatment and follow-up period. The difference between the groups, computed with the chi-square test, is significant, $p < 0.01$.

Table 16: Days in hospital.

T = Treatment group

C = Control group

Group	T	C	T	C	T	C
N=	20	12	20	12	20	12
Number of days in hospital	20	270	64	236	84	506
No. of patients concerned	1	4	2	2	3	4
Period of time	0-6		6-12		0-12 months	

DISCUSSION

Sources of error

The patients in the study were all recruited from an outpatient pool and fulfilled predetermined criteria. The catchments area was the city of Gothenburg. All the patients had obvious signs of schizophrenia with typical symptoms and typical course of the illness. They were representative of chronic schizophrenic patients in aftercare.

The patients were randomly allocated to a treatment or a control group at the ratio 2:1. The agreement between the groups was good concerning clinical and sociodemographic background and life events six months before the study.

Participation in Body Awareness Therapy must be voluntary. Ten patients were randomly allocated to the treatment group but did not enter the study because they or their family refused. After the start of the study there were three drop-outs from each group. One of the characteristics of schizophrenic patients in aftercare is that it is very difficult to get them participate in regular, voluntary activities. From statistical point of view, the sample is small, but from a clinical point of view the drop-out rate is low.

The record of drop-outs during the study shows that three patients from each group did not turn up at the last rating session. Three of the patients in the treatment group participated in less than 20 sessions, i.e. less than half of the total series of treatment sessions. These patients, however, are included in statistical presentation. This might influence the results, probably in a negative direction. One patient in the control group who had a relapse of schizophrenia during the treatment period was treated in the hospital for five months and received Body Awareness Therapy as part of the treatment programme. This patient has been included in the statistical calculations. This might influence the results of the BAS evaluation in either direction.

Some of the questions in the BAS-interview were of an entirely new type for many of the patients. This is especially the case for questions focusing on the body. This element of surprise might influence some answers in a positive or negative direction.

As the reliability of the ratings is satisfactory the results are based on those of one rater only. The psychologist was the independent rater in relation to the patients' membership of the treatment or control group. A few patients in the treatment group mentioned "the group" or "the gymnastics" in the interview and thereby disclosed that they belonged to the treatment group. This might influence the ratings but, if so, would be just as likely to lead to overestimation as underestimation of the patients' symptoms.

Studies on different forms of psychotherapies have shown that the style and personality of the therapist are at least as important for the outcome of the therapy as the therapeutic technique chosen (Block -81, Malm -82). Whether this is also the case for non-verbal, body-directed, therapies has, as far as I know, not been studied. In this study, two groups of patients were treated in parallel during each of the winter seasons 1979 - 1980 and 1980 - 1981, and three physiotherapists were involved in the treatment. Measurable improvements in the treatment group should therefore partly be the result of the therapeutic technique, and not mainly of the personality and communication skill of the therapist.

In the control group, there were certain tendencies towards improvements after six months, but no significant differences. The tendencies may be explained by the fact that the measurements were performed in October and April, with the treatment period during the winter and follow-up during

the summer. The treatment period in the study is thus coincident with the therapeutically most intensive period of the year at the day-centre.

Comments on the results

Content validity

The question whether the items selected for the purpose of a scale are relevant and sufficient for this purpose is concerning the content validity (44). The purpose of the BAS (page 32) is 1. to describe body awareness and general bodily dysfunctions, and 2. to measure change between different ratings.

The distribution of the means, Descriptive Study, page 35, with a low rate of psychotic symptoms and a relatively high rate of body related symptoms may support the content validity of the scale.

The BAS was to assess both reported and observed signs of psychiatric disease combined with bodily dysfunctions. The Factor Analytic Study, page 47, gives support to the need of such combined measurements. Out of eleven factors with more than one item each, nine are combinations of items from the CPRS and new body items (including Gaze & Sexual Interest Factor, where altered sexual interest consists of two items from the CPRS). The fact that items from the CPRS, which is a psychiatric rating scale, were so often combined with body items is a sign that the factor analysis elucidates the connection between "body and mind".

Previously discussed associations between different functions of the consciousness, such as emotional symptoms and muscular tension, thus receive statistical support from this study.

Construct validity

The question if a scale yields results consistent with the investigator's hypothesis involves the concept of construct validity. Construct validation requires the integration of many studies (44). The construct validity of the BAS can so far only be discussed in relation to the goals of Body Awareness Therapy. The results in the Discriminative Study show that separate items with significant difference between the ratings belong to the functional areas where we had expected effects of the treatment, i.e. items related to the body, body management and emotional functions. In the control group, no significant differences between the ratings were recorded. The BAS has thus not proved to be more sensitive than is of clinical value.

Some goals of Body Awareness Therapy are closely related to The Movement Factor, (the factor) Body Image and (the factor) Gaze & Sexual Interest which all had a significant change after six months of treatment.

The Movement factor contains body management such as isolated movements and stretching, relation to the ground and general psychomotor behaviour expressed in muscular tension and associated movements in the gait. The improvement that the factor describes is thus not only an effect of physical training, since the relation to the ground, muscular tension and associated movements can be seen both as physical motor functions (mechanical aspect) and as an expression of the patient's psychic state.

The Gaze and Sexual Interest Factor, also describes the patient's psyche more than his physical ability. Avoidance of one's mirror image and meeting other people's gaze is a pattern of behaviour that shows disturbance of the individual's relation to himself (his mirror image) and impairment of non-verbal communication (eye-contact). This behaviour can interfere with other people's attempts to establish contact and the factor may thereby describe a descending spiral towards lower self-esteem and increasing social isolation.

The Body Image Factor, is a combination of inability to describe one's body, inability to master one's body and an experience of disturbing muscular tension. Improvement measured by these three factors implies increased integration of the body in the patient's ego-identity, decreased alienation to his own body, and an improved capacity for nonverbal communication. The scale thus has recorded changes for the treatment group in functions that have been essential goals of the specific therapy in the study.

The construct validity of the BAS might also be discussed by comparing ratings with the BAS with other measurements. The significant improvements, especially after the treatment period, shown by the BAS correspond to similar differences for extra pyramidal side effects (Simpson & Angus) with significant change after the treatment period. As extra pyramidal side effects describe an aspect of body management, in the BAS closest described by The Movement Factor, this gives support to the construct validity of the BAS.

As seen in Table 14, problems related to the body and problems with self-experience and behaviour accounted for a larger part of the "first problem" than psychic symptoms. This corresponds with the ratings with the BAS with a low rate of psychotic symptoms and a high rate of body related symptoms. The significant decrease in worries about the first problem for the treatment group after the follow-up period, points in the same direction as other measurements in the discriminative study.

The raw data of Life Events show that the treatment group had more dependent life events and started more personal habits than the control group which might represent secondary effects of Body Awareness Therapy.

Between group differences

There was a significant difference in The Movement Factor between the groups after the follow-up period. The Movement Factor is a close description of the goals of Body Awareness Therapy, including body management and movement pattern. The significant change score between the groups gives support to the construct validity of the BAS.

The number of days in hospital differed significantly between the groups (chi-square) in favour of the treatment group. On a whole, ratings with the BAS, both of factors and separate items, have shown good agreement with the other measurements in the discriminative study. This can be seen as a further support for the construct validity of the BAS.

We did not calculate the predictive validity since it was outside the scope of the studies and the groups of patients were too small for such a calculation.

Clinical notions

The Anxiety Factor, which mainly describes emotional symptoms, also showed a significant improvement in the treatment group after the treatment period. Of the items included in the factor, Inner tension showed the largest difference between the ratings. Exercises in muscular relaxation are included in the treatment, but only to a small extent, which means that improved ability to relax can only account for a small part of the total improvement of the factor. The ego-supporting elements of the treatment are probably of much greater importance. If the anxiety was connected with deficiencies in the patient's ego experience, the symptom reduction in this factor might be a sign of the efficacy of ego-supporting elements of the treatment recorded by the BAS.

Extra pyramidal side-effects

There is a general impression among physiotherapists engaged in psychiatric clinical work that extra pyramidal side-effects of treatment with neuroleptics decrease with physiotherapeutic training. The general experience, however, has been that the patients revert to their pathological movement pattern immediately after each treatment session and that the deficiencies in the movement pattern improve unspecifically during a period of physiotherapy. The expectations of a lasting change towards a normal movement pattern were therefore small in this study.

The significant improvement for the treatment group after the treatment period that was partly lost after the follow-up period. This observation raises two questions:

1. Will the side-effects deteriorate again if no more Body Awareness Therapy is given after this period, or will part of the effect remain longer even with continued drug treatment, and:
2. If the Body Awareness Therapy continues, will the side-effects decrease still more?

Days in hospital

A commonly quoted figure for the rate of relapse in schizophrenia is fifteen per cent for chronic schizophrenic patients treated with antipsychotic drugs. Three patients out of twenty in the treatment group had to have hospital care, which corresponds to this rate of relapse. These three patients were only hospitalized for a short time. One reason for this may be that Body Awareness Therapy gives better opportunities for contact with and observation of the patients than do other outpatient procedures. An increase of psychotic symptoms can be detected early and the patient can be given hospital care while the relapse is still in its beginning. The intensive efforts to break the acute psychotic state can be more effective with a shorter period of hospital care.

Four patients out of twelve in the control group received hospital care during 0 - 12 months; three of them were in hospital longer than four months. Two of the three had life events that shook their social life and appeared to be partly responsible for the deterioration of their condition. Comparable life events happened to two of the patients in the treatment group. However, they could continue their treatment programme as outpatients. It is conceivable that the specific treatment with Body Awareness Therapy and the increased and different contact with hospital staff and fellow-patients in the therapy group might partly explain the great difference in number of days in hospital between the groups.

Psychotic symptoms

Clinical studies have shown that specific therapeutic interventions can increase psychotic symptoms or provoke increased anxiety in patients with schizophrenia. The measurements made in this study showed a very low incidence of psychotic symptoms among the patients. The individualized antipsychotic drug therapy, and training in social skills appear to have kept the psychotic symptoms under control. The results of this study suggest that Body Awareness Therapy, professionally given as here, does not aggravate psychosis or increase anxiety. The results do not answer the question whether the treatment decreases psychotic symptoms.

General feeling of illness

The factor analysis made it possible to express expectations of change after a short period of Body Awareness Therapy. These expectations were largely fulfilled in the study. This also applies to the General Feeling of Illness Factor, with no change after the treatment. Patients scored high on the factor need individual preparatory treatment with more ego support and less demands upon them, with the aim of removing their regression and increasing their self-esteem. One might possibly expect

an improvement in General Feeling of Illness Factor from Body Awareness Therapy in a much more long-term perspective.

The BAS in clinical use

A calm interview technique with a period of silence after the first answers often resulted in the patients' spontaneously giving supplementary details of their symptoms. The patients usually reacted positively to the interview. They felt that somebody understood their situation and asked about things that really bothered or worried them. For symptom directed items, the interviewer concluded by asking the patient how he thought he could master the situation. This question had a dual purpose: to collect necessary information and to direct the patient's attention towards his possibilities of using his own resources to master the situation.

In spite of the rather large number of items in the BAS, it was not difficult for the physiotherapist and the psychologist to learn and memorise the interview and movement test. The manual was considered to be clear and distinct; no problems were experienced in understanding and applying the scoring system.

As far as these studies show, the BAS has served its purpose well. It provides an opportunity to obtain a concise functional diagnosis and clear picture of the patient's body awareness for monitoring the treatment. It might have been interesting to make a similar study with patients in an acute stage of schizophrenia. Two factors make such a study difficult; it would take many years to collect a sufficient number of patients, and it would be impossible to perform a complete interview and movement test with patients with acute psychosis. These studies were performed with patients with chronic schizophrenia, who are usually treated as psychiatric outpatients. It has therefore been natural to perform the study in an outpatient setting.

GENERAL DISCUSSION

Body Awareness Therapy

Reduction of symptoms

Part of the goals of Body Awareness Therapy is reduction of symptoms with emphasis on those concerning poor use of the body. Whether reduction of symptoms is a goal of the therapy or not, depends upon the type of symptom and what the symptom represents in the disease process. Some examples of different kinds of symptoms:

Physical dysfunction or pain which has not markedly altered the personality structure. Relief of such a symptom will increase the patient's self-esteem and improve his social function. Reduction of these symptoms is a basic objective of Body Awareness Therapy.

Psychotic symptoms which have a disintegrating effect on the consciousness, e.g. disturbed body image boundaries in schizophrenic patients. These symptoms can be expressed in a patient's searching for his head, which has "vanished", or in the anxiety caused by a feeling of disintegrating body image boundaries. Immediate relief of these symptoms can be achieved by some kind of touch or movement. This reduction of symptoms is also a basic objective of Body Awareness Therapy.

Vague bodily symptoms such as pain or tension as an expression of deep personal or psychosocial disturbances. Increased body consciousness gained by Body Awareness Therapy can temporarily aggravate symptoms of this kind. In the long run, however, it can lead to a growing understanding of the connection between the patient's life situation and the symptoms. In this case, the patient has to choose between taking steps to decrease the symptom (maybe also change his life situation) and

going on living with the symptom. A reduction of such symptoms is not always a self-evident short term goal of the treatment.

Symptoms that are elements of the defence system against agony. Relief of such a symptom might trigger the agony and is not a self-evident short-term goal of the treatment.

Body Awareness Therapy is based on the assumption that each voluntary human movement contains emotional meaning (33). It may be argued that each physical activity has several psychological components, e.g. the purpose of the movement, the movement as an expression of the person's reactions or will-power, or the person's psychological experience of the movement.

In Body Awareness Therapy, perception exercises, sensory activation and exercises for movements as well as relaxation, train the function of experience as well as motor functions. This is meant to activate the patient's healing forces against symptoms as well as towards increased self-esteem and independence.

In the process of analysing symptoms as pain or other complaints the basic physiotherapeutic education in physiology etc, is of a great value. Physiotherapy with its "bodily" direction is also a necessary ground for creating and performing Body Awareness Therapy. To handle emotional reactions, however, a psychotherapeutic education and/or supervision is needed for physiotherapists in psychiatric care.

Body Awareness Therapy can easily be adapted to different kinds of psychiatric treatment programmes. In psychiatric care with a psychodynamic approach, the emphasis can be placed upon emotional experience of the body exercises. In psychiatric care, dominated by, for instance, pharmacotherapy, the emphasis can be placed upon the element of physical capacity in Body Awareness Therapy. It is important, however, that the physiotherapist adapts her therapy to the patient's main treatment programme.

Body Awareness Therapy is a cautious and moderate treatment method. It does not invite to dramatic or rapid opening up of conflicts or emotions. In the method an edifying of personal resources and healing forces is strived for. This is often a comparatively slow process, when achieved improvements are visible only in the long run. Techniques from Body Awareness Therapy are used since several years in many psychiatric hospitals and outpatient departments in Sweden.

The treatment method and research to be closest to these studies is described in a preliminary report published by Philip R.A. May et al in 1967 (30). May and his co-authors describe Body Ego Technique for the most regressed psychotic patients at Camarillo Hospital. They mention the possibility that the patients become more accessible to verbal methods of treatment as an important value of Body Ego Technique. "Body Ego Technique appears to be a potential basic technique for the restoration of ego integrity in the regressed patient, a preliminary step toward opening up the patient for other psychotherapeutic or sociotherapeutic approaches."

Clinical experience shows that Body Awareness Therapy has influence not only on motor functions but also on psychological ones. If body-centred therapy is seen as a means to reach the patient as a whole, with emotional functions and symptoms as well as bodily expressions, an effect like the one May et al describes appears to be natural. Since perception and experience is trained in combination with movement exercises in Body Awareness Therapy, effects within the psychological field could be plausible. The significant improvement in the treatment group for the anxiety factor gives support to such arguments.

The Body Awareness Scale

When planning these studies, our intention was to carry out an outcome study of Body Awareness Therapy. Since the control group was not big enough for an outcome study, we chose to use our data to test the Body Awareness Scale only.

Physiotherapists' investigations are by tradition examining motor ability and motor dysfunctions from a somatic aspect, e.g. a biomechanical or a neurophysiological one. The BAS is meant to adapt a physiotherapeutic approach to the psychiatric investigation and treatment programmes. The BAS has a wide spectrum compared to many other scales. Ratings with the BAS give important information on the patient's experience of and attitude to his own body as well as observations concerning his body management and movement pattern. The body centred information in the BAS thus is a new complement to traditional psychiatric examination; it can shed light upon some bodily aspects on mental disorders since it describes combined dysfunctions which are already known in clinical experience but have not yet been the object of systematic investigation and description.

The physiotherapists and psychologists participating in these studies found it easy to learn to use the BAS. The technique recommended when using the BAS involves activating healthy resources. The interview on symptom-directed items are completed by questioning the patient about his ability to master the situation and the movement test shows motor ability as well as motor dysfunctions.

The BAS showed to be a useful instrument for communication between different mental health professionals. Since the inter-rater reliability was satisfactory, the BAS appears suitable for further clinical studies.

The factor analysis

A factor analysis groups the items according to degree of correlation. I found it interesting to study whether previously described associations between psychiatric symptoms and bodily manifestations such as muscular tension should receive statistical support. Since our studies concerned schizophrenic patients, the factor analysis could indicate whether these associations can also be valid for patients with schizophrenia.

The factor analytic study illustrates combinations of symptoms that are easily recognised in clinical practice. The factors have possibly greater clinical applicability than the separate items in the BAS. The General Feeling of Illness Factor, for instance, might be of special interest in further clinical evaluations. One can speculate about a connection between this factor and the patient's degree of regression and motivation. Irrespective of the diagnosis treated, such considerations might be of value when monitoring and evaluating treatment programmes.

The factor analysis also indicates new combinations of observations that might offer new therapeutic possibilities, such as deficient personal hygiene, a negative attitude to physical activity and lack of emotional capacity. Some factors thus give statistical support to clinically self-evident facts, e.g. Anxiety Factor, General Feeling of Illness Factor or Closed Body Posture Factor. The real applicability of the factors should be evaluated in further clinical studies, however.

Concluding remark

The validity of the BAS has got a first support from the studies. The applicability of the scale should be tested with other patients than those with schizophrenia, as the functions and dysfunctions measured are part of the disease picture even for other diagnosis.

This issue is a presentation of methods and studies on the border between physiotherapy and psychiatry. I hope that it will stimulate to further research to improve our understanding of complex problems and to increase our possibilities to develop adequate methods for the treatment of these problems.

SUMMARY

An overview over some body-centred therapies is presented, e.g. the Mensendieck System, the Alexander Technique, the Feldenkrais Method and bioenergetic therapies.

Some body-centred concepts are defined for use in this monograph, such as body consciousness, body experience, body management and body awareness. Two time perspectives are presented; a short-term, symptom-directed, and a long-term with the aim of achieving a change of self-consciousness, improved body management and deepened body experience.

Body Awareness Therapy is described from two complementary aspects of people's relation to their bodies and movements: 1. general conditions for the movements of everyday life (motor ability/body management), and 2. the individuality in the movement pattern. The two aspects have given two therapeutic techniques with somewhat different specific goals of treatment, basic and advanced Body Awareness Therapy. The aims of the basic technique are increased body consciousness, improved body management, reestablishment of the body image and relieve of symptoms. The following components in the basic technique are described: relation to the ground, the centre-line of the body, the movement centre, breathing, the boundaries of the body, and energy and direction in movements. Specific aims for the advanced technique are increased consciousness of the individuality in the movement pattern, improved non-verbal communication and increased motivation for movements and exercise. For advanced Body Awareness Therapy the following components in practice are described: gait, rhythm, the voice, relation to one's mirror image and interaction exercises.

For the construction of the Body Awareness Scale, BAS, the psychiatric rating scale is chosen as a model, with reported as well as observed items. Advantages of this model are that it can be used independently of the rater's interpretations, that it can yield a wide spectrum of information about psychopathological symptoms and body-related conditions, and that it can be used and understood by different mental health professionals.

The BAS has two main objectives, to describe body awareness and to measure change over time, e.g. a period of treatment. All items in the scale have the scale-steps 0-3, with operational definitions of each scale-step. General rules for the construction of the scale-steps are presented. The items of the scale are briefly described.

The Body Awareness Scale has been tested in 53 patients with chronic schizophrenia in after-care. The ratings were performed by physiotherapists and psychologists, one of each at every rating. Practically all the ratings were completed, only 0.45 per cent of the data were missing. The symptoms were distributed over the whole spectrum of the scale and both psychiatric symptoms and general bodily dysfunctions were revealed. Hostility and psychotic symptoms, such as hallucinatory behaviour, were practically totally absent. The items Muscular tension, observed, Associated movements, and Description of the body had the highest means in the study. The inter-rater reliability was satisfactory; most of the items had an r-value around .90.

The need for a factor analysis is elucidated to facilitate a description of patterns of symptoms with the BAS and for the construction of subscales.

A second study has been performed with 60 patients with chronic schizophrenia. A factor analysis with 13 factors gave significant factor loading on every item in the BAS. The factor analysis gave two motor-directed factors; The Movement Factor and Movement and Gravity Factor. It gave six factors exposing motor behaviour and psychiatric symptoms; factors Psychomotor Symptoms, Gaze and Sexual Interest, Closed Body Posture, Psychotic Symptoms, Alertness, and Agitation. In addition, there was one factor for emotional symptoms, Anxiety Factor, and four factors concerning

the body; the Factors Body Image, General Feeling of Illness, Limitations, and Autonomic Disturbances, observed. The factors are interpreted mainly with reference to clinical experience. The results of the factor analysis indicate the complex associations that can be found between patients' emotional symptoms, their attitude to their body, and their motor behaviour. Nine factors out of thirteen contain both items from the Comprehensive Psychopathological Rating Scale, CPRS, and new body items.

The factor analysis thereby supports previous descriptions of associations between emotional problems/symptoms and bodily conditions, e.g. muscular tension. It expresses mathematically, findings that for decades have been discussed as "psychosomatic". The factors can probably be used in clinical treatment and clinical studies. This needs to be further proved, however.

A controlled, randomized study has been carried out in chronic schizophrenic patients in open aftercare. The aim has been to test the hypothesis that the Body Awareness Scale is sensitive to change specifically concerning body image and body management.

Thirty-two patients participated in the study, twenty in the treatment group and twelve in the control group. Both groups received individualised routine aftercare with depot neuroleptics and psycho-social activities. In addition, the treatment group was offered 45 sessions of Body Awareness Therapy. The agreement between the groups concerning sociodemographic data and clinical characteristics at the start of the study was good.

Measuring methods used have been the Body Awareness Scale, BAS, special scales for self-rating of wellbeing and target problems, rating of extra pyramidal side-effects (Simpson & Angus), self-reporting of life events (Holmes & Rahe) and recording of the number of days in hospital. The assessments were performed at the start of the study, after six months of treatment, and after six months of follow-up (0, 6 and 12 months).

The results of the study show significant differences in the treatment group in four factors of the BAS: The Movement Factor, Gaze and Sexual Interest, Body Image, and Anxiety Factor. The treatment group showed a significant improvement after six months in twelve separate items, nine of which were related to the body and motor ability, and three emotional symptoms. Seven items were significantly improved in the treatment group after twelve months. There were no significant improvements in separate items or factors in the control group. These results confirm the hypothesis that the BAS is sensitive to changes.

The results obtained with the BAS in the treatment group were supported by corresponding changes in the other variables measured in the study. The treatment group showed a significant improvement in extrapyramidal side-effects (0 - 6 months). According to raw data, the treatment group tended to influence important life events and change their personal habits more than did the control group.

There was an inter-group significant change for The Movement Factor which is the closest description of the goal of Body Awareness Therapy. The number of days in hospital also differed significantly between the treatment and control group. The predominance of body-directed functions and dysfunctions treated with Body Awareness Therapy and measured with the BAS is discussed. Content validity and construct validity of the BAS have got support by the results in the study.

COLLABORATORS

My patients and colleagues at Lillhagen Hospital.

Clinical work with the patients Margit Johansson, physiotherapist, treated two groups of patients with Body Awareness Therapy with endless patience. Barbro Pettersson, physiotherapist, treated one group of patients. Dr Ulf Malm was medically responsible for the patients involved. He had personal contact with every patient. Lennart Lundin, was the psychologist responsible for the patients involved.

Construction of the BAS

Or Ulf Malm, helped me choose CPRS items.

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Language examining: John Gulliver

Photographer: Lennart Malm

Figures: Göran Olofsson

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FIGURES

Figure 19. Changes of the BAS in group in factors
Intra-group difference is marked with *

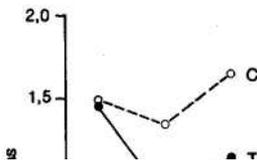
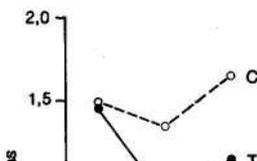


Figure 19. Changes of the BAS in group in factors
Intra-group difference is marked with *



Figs. 19:2-7

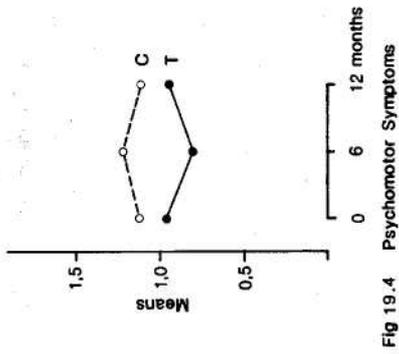


Fig 19.4 Psychomotor Symptoms

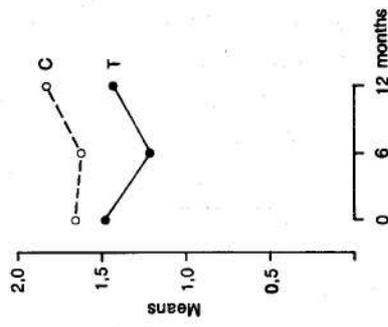


Fig 19.7 Limitations

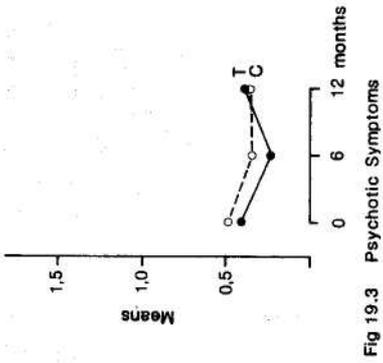


Fig 19.3 Psychotic Symptoms

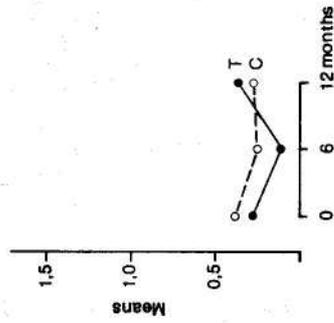
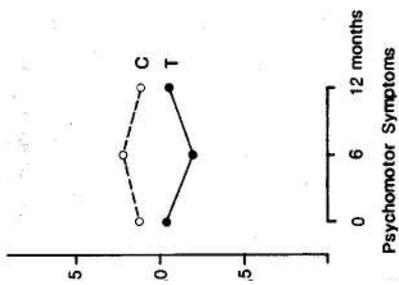
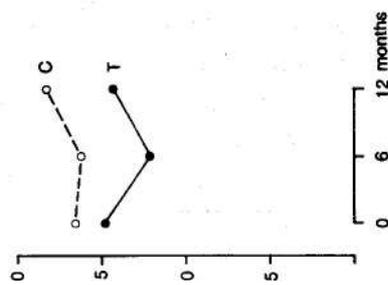


Fig 19.6 Alertness

Figs. 19:2-7



Psychomotor Symptoms



Limitations

Figs. 19:8-13

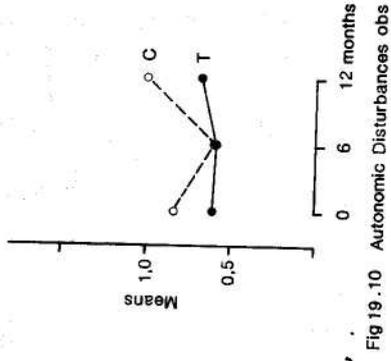


Fig 19.10 Autonomic Disturbances obs

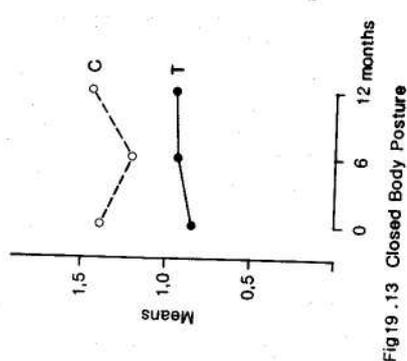


Fig 19.13 Closed Body Posture

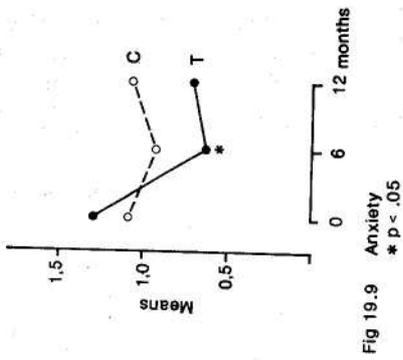


Fig 19.9 Anxiety * p < .05

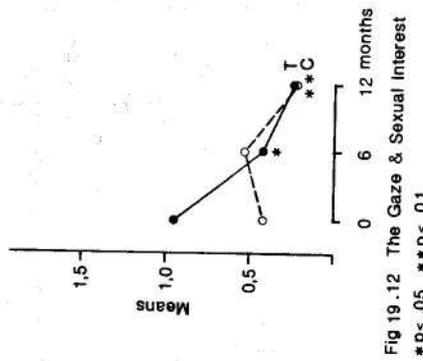
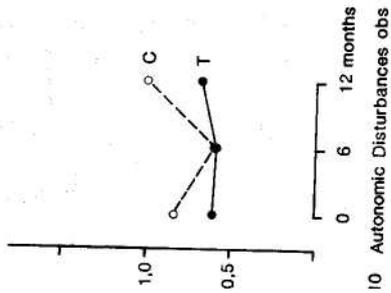
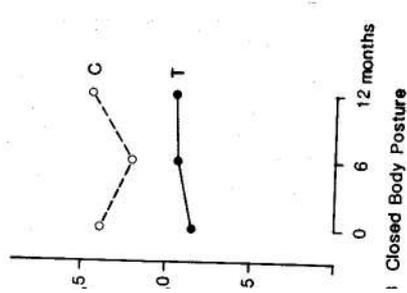


Fig 19.12 The Gaze & Sexual Interest * p < .05 ** p < .01

Figs. 19:8-13



10 Autonomic Disturbances obs



1 Closed Body Posture

Figs. 20-22

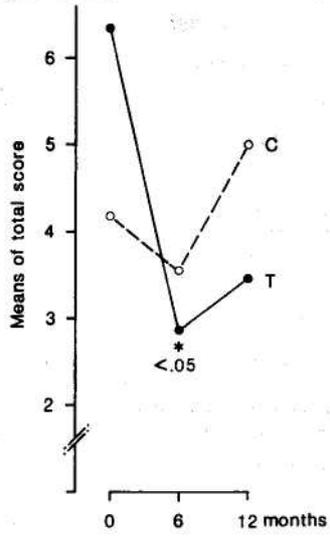


Fig 20 Extrapyramidal side-effects

Target problems, means, in group difference

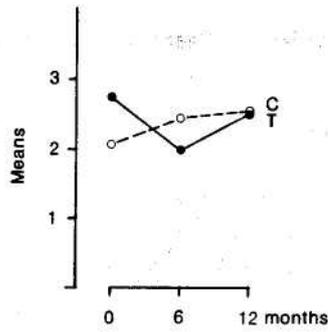


Fig 21 Wellbeing, means

Figs. 20-22

