

# Non-Drug Therapies for Dementia: An Overview of the Current Situation with Regard to Proof of Effectiveness

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## Key Words

Non-drug therapies · Effectiveness

## Abstract

An overview will be presented of music therapy, art therapy, movement therapy and reminiscence therapy, memory training, reality orientation, validation therapy, self-maintenance therapy, behaviour therapy, milieu therapy and staff training. The overview will examine the aims of each, the principles on which procedures are based and the proof of their effectiveness. The principal aim of non-drug therapies is to influence symptomatic dementia beneficially and to improve the abilities remaining to the patient. The potential benefits are usually deduced from studies made without control groups. At the present time, proof of the effectiveness of these therapies is still lacking as controlled, randomized studies have yet to be conducted, and so a fundamental evaluation of the therapeutic benefits of non-drug therapies in the treatment of dementia cannot yet be made.

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## Introduction

Primary degenerative dementias, particularly Alzheimer's disease, are numerically the most often diagnosed forms of dementia. At present, they cannot really be avoided by preventative measures, nor can they be treated causally [1]. With the use of nootropics, at the present time, in the case of mild to moderate Alzheimer's disease, it is possible to delay the deterioration of the clinical picture (on a cognitive, psychopathological and behavioural level) for about 1 year, if the patient responds to the therapy [2]. The effect here is on the symptoms. It is the limited effectiveness of drug therapies which makes the examination of the role of non-drug procedures on dementia symptoms essential.

In this overview the most common procedures, their aims, the principles on which they are based and the most significant proof of their effectiveness will be presented briefly – paying special attention to overview studies and meta-analyses.

The non-drug therapies used in the treatment of dementia form a heterogeneous group. They can be distinguished from one another on the basis of indication specificity, therapeutic orientation and complexity of the therapeutic approach (table 1). The therapies have either been developed specially for use in dealing with dementia

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Table 1. Principles of classification of non-drug therapies for dementia

Classification principle	Categories	
	specific	unspecific
Specificity of indications	Dementia specific	Procedure with a variety of indication areas – adapted to dementia
Therapeutic aims	Direct treatment of dementia-specific symptoms	Indirect influence on dementia symptoms
Complexity of the therapeutic approach	Unimodal procedure	Multimodal concept or general therapy principle

[reminiscence therapy, reality orientation (RO) and self-maintenance therapy) or are adaptations of already existing therapies to the needs and particular circumstances of dementia patients (music therapy, art therapy, movement therapy, memory training and most of the behaviour and milieu therapeutic approaches). The aim of the therapeutic procedures is either the direct alleviation of a specific symptom of dementia (or complex of symptoms; e.g. in RO training, by influencing disorientation through the specific exercising of orientation ability; in the case of behaviour therapy, by encouraging continence behaviour through the therapeutic technique of ‘prompted voiding’), or the aim is to exercise an indirect influence (for example, the diminishment of agitated behaviour through music, improvement in emotional state through ‘positive reminiscing’). With regard to their form, non-drug therapies can be divided into unimodal procedures (music therapy, art therapy, movement therapy, reminiscence therapy and memory training), multimodal concepts (RO, validation, self-maintenance therapy) and general therapy principles (behaviour therapy and milieu therapy).

Musical improvisation is at the most activating end of this spectrum of therapy, and listening is at the least activating end. The aim of music therapy is to compensate for the severe limitations in the dementia patients’ ability to act and to express themselves [5]. By these means it is intended that, above all else, social and behavioural symptoms will be influenced positively. In their survey of the literature concerning all experimental and non-experimental studies on the effectiveness of music therapy for dementia, Brotons et al. [6, 7] found that this form of intervention was effective in improving social skills (for example, interaction) and emotional state (mood) and effective in diminishing behaviour problems (e.g. agitation, wandering). From the meta-analytic point of view, the experimental studies show a significant effect in comparisons between parameters before treatment and after treatment, although the size of the effect was not consistent across all the studies [8]. It must also be noted that the authors could not find a single controlled study so that the effectiveness could not be reliably assessed [9].

#### *Art Therapy*

Art therapy is the scientifically based use of two-dimensional or three-dimensional visual elements which are systematically made experienceable (art contemplation) or which under the art therapist’s guidance are created (active artistic creation) with the aim of positively influencing symptoms. In the case of dementia patients, whose cognitive speech skills are increasingly limited, it is especially useful in that art therapy offers patients the opportunity to make decisions in a particular area and by altering the materials offers the feeling of being able to be in control of something [10]. Sensory stimulation [11] is in the foreground through the elements of line, colour and shape in frames of reference which are two-dimensional (drawing, painting) or three-dimensional (sculpturing, for

### Non-Drug Therapy for Dementia

#### *Unimodal Procedures*

##### *Music Therapy*

‘By the term music therapy we understand the use of music or musical elements for the purposes of healing, where this use is scientifically based or where such a basis is being established. Such therapy makes use of patients’ listening to music or of their musical activity’ [3]. Music therapy for dementia [4] extends from musical improvisation, an element taken from classical music therapy, via the singing of familiar songs, to simply listening to music.

example, with clay). Specific difficulties which arise in dealing with dementia patients are described by Marr [12]: low motivation on the part of the patient to try something out; difficulties in applying therapy in cases of apraxia; attention and concentration problems, particularly in the case of agitated or apathetic patients; patients mistaking the materials for foodstuffs; problems for patients in recognizing the therapist; depressive reactions where the therapeutic situation is interpreted as over-demanding.

On the other hand, art therapy contributes to the reduction of isolation and to an increase in feelings of identity and self-confidence [12]. Special significance attaches to the encouragement and enabling of artistic activity where a concrete link with the biography of the patient can be found. A particularly telling example of this is the case of the German advertising designer Carolus Horn who died of Alzheimer's disease in 1992. Till the end, Horn maintained both his desire and ability to create. He was thus able to shape his life with dementia with more variety and to make his care much easier for his wife [13].

Evidence of effectiveness (positive influence on inner agitation) is based on descriptions of cases (for example, Dunker [14] and Kahn-Denis [15]). No controlled studies exist.

#### *Movement Therapy*

Movement therapy can be used in a wide variety of stages of dementia in order to maintain and improve motor functions. In the mild to moderately severe stages it is possible to target balance, mobility, strength and stamina [16]. In the case of patients whose dementia is severe and who can no longer walk without help, it is sometimes possible (where the cause is not paralysis) to remobilize the patient [17]. In the case of patients who are bedridden, it is possible, by means of passive movement of the limbs, to avoid secondary contracture. Empirical studies without control groups show that in the case of dementia patients in mild stages it is possible, by means of psychomotor activation, to achieve an improvement in social behaviour, particularly in the group situation [18]. The frequency of aggressive behaviour in patients in severe stages of dementia can be reduced by a programme of regularly going for walks [19]. As is true for art therapy, there are no controlled studies on movement therapy for dementia.

There are initial indications that dementia patients benefit more from a combination of movement therapy and music therapy than from music therapy alone [20].

#### *Reminiscence Therapy*

'Reminiscence maintenance involves contemplation of experiences from a life and sharing these experiences with others' [21]. In reminiscence therapy, a person's memory of the events in his/her life is more or less deliberately jogged. The process usually takes place in groups with or without the presence of patients' relatives. The process is often supported by the use of photographs, music, film materials or other objects from the patients' past. The aims of reminiscence therapy are: to promote social interaction to the extent that new relationships may even be formed, to convey positive emotions (joy) and to promote the self-awareness of the dementia patient [21]. Through the esteem shown for existing memories from the long-term memory it is intended that the patients' sense of identity and their own self-esteem, both of which are endangered by the diminishment of autonomy, will be strengthened. Where, in individual cases, painful memories may surface, the supportive influence of the therapist is required. The essential medium of reminiscence therapy is communication. Active listening, attentiveness to non-verbal signals – particularly in the case of dysphasic or aphasic dementia patients – and language appropriate to the dementia are essential elements of working with reminiscence therapy.

In their meta-analytical examination, Spector et al. [22] were able to draw on only one single study with a randomized controlled-group design. For the 15 subjects of the experiment, there was no significant difference between the groups on the cognitive and behaviour levels. There is an urgent need for research [23] since a study of the use of this therapy in several European countries shows that family carers stated that after reminiscence therapy they were better able to deal with the illness [21]. According to Woodrow [24], reminiscence therapy has the potential to strengthen the empathetic behaviour of professional carers in dealing with dementia patients.

#### *Memory Training*

It seems only logical to try to influence the cardinal symptom of the dementia syndrome, namely memory impairment, by means of special therapeutic exercises.

The results from two controlled studies show, however, that even within a single research group the findings are inconsistent. While the memory function and the Mini Mental State Examination in the memory training group remained at the same level for a year, the performance of the control group deteriorated significantly [25]. Here we are dealing with patients whose eyesight and hearing is sufficiently good, patients whose social behaviour is not

disturbing and who are only mildly demented. In contrast, a cognitive-competence training programme, also with patients at an early stage of dementia, a programme which, as well as training cognitive abilities (concentration, memory, speech and numeracy) also trained management strategies, did not prevent the deterioration in cognitive performance [26].

A basic danger in the case of cognitive training lies in demanding too much. Furthermore, experiencing one's own deficiencies often leads to frustration and increased social withdrawal. Depressive reactions can, in turn, be the consequence. It is for this reason that cognitive training makes sense only for patients who are in the early stages of dementia and who themselves wish to train their cognitive skills.

### *Multimodal Therapeutic Concepts*

#### *Reality Orientation*

RO is a method of alleviating disorientation with regard to time, place and person, in an in-patient setting. Classic RO consists of three elements [27]. Firstly, in small RO groups (with fewer than 6 patients) using external aids (for example, enlarged calendars) in structured situations (formal RO or 'classroom' RO) and on a daily basis, reorientation to day, place and person is trained. The second element, the element at the centre of the RO programme, is the informal, so-called 24-hour RO. In the course of this, each naturally arising contact between personnel and the dementia patient is also used to give orientation information and to support and increase orientated behaviour. The third component of RO is known as 'attitude therapy'. Here, in order to support acceptance of the reality offered, and so to support the effect, all partners in interaction must adhere to the same, consistent, basic attitude in dealing with the patient (friendly, businesslike, polite, direct but not imperious).

A meta-analysis of six studies on the effectiveness of formal RO shows that, compared to randomized control individuals, memory, orientation and orientation-related behaviour improved significantly in the RO groups [28, 29]. The authors add by way of qualification that it remains unclear whether the effects persist after the RO has ended. There is reason to doubt that this is the case, since with the progress of the disease the biological basis for continued learning success is lost.

The question arises as to whether time orientation, for example, is sufficiently significant for in-patients with dementia that the therapeutic effort is justified for pa-

tients who suffer from limitations in the area of activities of daily living (for example, inability to feed themselves independently) which, clinically, are considerably more relevant than disorientation symptoms [30]. Woodrow's [31] criticism is that RO makes the patients passive receivers of information and increases feelings of insufficiency.

RO's therapeutic place is where it is used flexibly and sensitively with patients who themselves wish to be orientated in reality.

#### *Validation Therapy*

Validation therapy makes use of special verbal and non-verbal communication techniques to establish and maintain contact with elderly, disoriented individuals. In complete contrast to approaches which, in working with dementia patients, aim at orientation to external reality (e.g. RO), this method attempts to offer the dementia patients security in their own emotional state and their own time-place frames of reference by 'validation'. The principal aim of validation is 'to help disoriented people be as happy as possible and to reduce anxiety' [32]. Validation is also intended to offer a developmental theory for very elderly, disoriented individuals. The aims of validation, therefore, include what one might see as a psychotherapeutic dimension: the reconstruction of feelings of self-esteem, reduction of stress, justification of the life led, dealing with unresolved conflicts from the past, reduction of the use of drugs and physical means of coercion, improvement of verbal and non-verbal communication, prevention of relapse into vegetation, improvement in ambulation and physical well-being.

Validation techniques are dependent on the stage of the disease. They take into account, above all, changes in verbal communication skills. Putting the basic principles of validation into practice includes: picking up on utterances without disrupting these (perhaps by reformulation or repetition); addressing the preferred sense organs; eye contact; observation of body language and the expression of emotion; reaction in keeping with the body language of the patient; use of touch, and the employment of elements from music therapy and reminiscence therapy [32].

The communicative aspect of the validation principle, based on empathy and unconditional esteem, is a plausible concept for dealing with dementia patients.

The explanatory basis of validation – that there is always a reason underlying the behaviour of disoriented, elderly individuals, and that validation techniques may reconstitute coping mechanisms from the past by means of which the individual may be able to deal with present

crises [32] – has not been empirically proved. Here, there are major doubts about the validity of the theory.

In their meta-analysis of validation therapy, Neal and Briggs [33] were able to draw on two randomized controlled studies. On the basis of this small number of cases, no significant differences between the groups emerged.

#### *Self-Maintenance Therapy*

Self-maintenance therapy is a multimodal therapy procedure which uses elements of psychotherapy, reminiscence therapy, milieu therapy and validation therapy to achieve its principal aim. This aim is the maintenance, for as long as possible, of the personal identity and continuity of patients with dementia [34]. The starting point for the authors was the idea that cognitive impairment, interruptions to the continuity of personal experience and lack of new experiences lead to changes and disequilibrium in the self.

Self-maintenance therapy comprises four components: psychotherapeutic support, the systematic training of self-related knowledge, encouraging activities of daily living and ensuring that communication is validating [35]. Psychotherapeutic support consists of helping dementia patients to understand the disease and increasing their feeling of self-esteem. Training self-related knowledge is done in three stages. Firstly, accessible memories which are important for the individual are identified. In the second stage, this material is stored using a computer so that in the third stage it can be employed systematically in accessing positive memories. To counteract the lack of new experiences among the dementia patients, efforts are made to create a stimulating environment which suits the individual's own predilections. In addition to going for walks, dancing, meeting other people and similar everyday activities, art therapy plays a significant role. The therapists maintain a respectful verbal and non-verbal manner in dealing with the dementia patients, one which validates the patient's statements. To encourage the long-term effectiveness of self-maintenance therapy, caring relatives are involved in the therapy and are trained to continue with the use of these therapy elements at home.

From a study of 43 patients, Romero and Wenz [35] were able to show that 3 weeks of self-maintenance therapy significantly alleviated depression and other psychopathological symptoms (cumulative value from e.g. affective lability, apathy, agitation, aggression). A valid assessment of the therapeutic benefit cannot be made at this time, since no controlled study has yet been conducted.

### *General Therapy Principles*

#### *Behaviour Therapy*

Behaviour therapy is a general term indicating the use in psychotherapy of the knowledge offered by the whole field of experimental psychology [36]. Its aim is the alteration of clearly described and well-operationalized behaviour, cognition and emotions. These modifications are to be achieved essentially by means of operant and classical conditioning as well as by model learning. Most therapeutic approaches use operant methods. Here, there is a deliberate influencing of behaviour either by alteration of the situation in advance of the occurrence of the behaviour (for example, supports such as 'prompting') or by means of reaction to the behaviour after it has occurred in the form of consequences experienced as positive (reinforcement) or consequences experienced as negative (punishment, for example, indirectly via withdrawal of reinforcement).

With dementia patients behaviour therapy aims at recovering lost skills or coming to terms with their loss, at reducing disturbing behaviour and at the alleviation of accompanying psychiatric symptoms [30, 37]. Behaviour therapy programmes in nursing homes attempt to modify challenging behaviour such as agitation or apathy [38]. The latter manifests itself in deficits particularly in social and communicative skills, deficits which are often more pronounced than is justified by the degree of organic change. Challenging behaviour of the overactive kind, such as inappropriate vocalizations (for example, chronic screaming), motor agitation and verbal physical aggression, cause problems not only in in-patient nursing facilities.

According to Ehrhardt and Plattner [37] the advantages of behaviour therapy are its broad repertoire of methods, the facility of combination with other psychological therapeutic procedures and the possibility of adapting behaviour therapy methods as the disease progresses.

It is not possible here to give more than a couple of examples of the great number of specialized behaviour therapy procedures. The choice of the examples which are given rests upon the availability of controlled studies.

One simple procedure is the regular giving of verbal support to incontinent patients in the context of urination (prompted voiding). The differing results from four studies with randomized control groups prompted Eustice et al. [39] to conclude that with prompted voiding there was no assurance that self-controlled bladder emptying was promoted nor that the number of incontinence episodes

was reduced. There was no indication of long-term effects.

This points to a basic problem which behaviour therapy measures have in dealing with dementia. In the case of dementia patients, from a certain point of severity of the disease, the precondition for attaining lasting learning effects – for example, by operant conditioning – is no longer fulfilled, namely a memory which is still functioning sufficiently well. It must be added, however, that after everyday activities have been trained by means of behaviour therapy (by, for example, support with or without reinforcement) there is a significantly higher level of activity [40] or a significant reduction in the previously pronounced symptoms of depression [41] when compared to the control groups.

Alongside these unimodal procedures there are significantly more complex forms of therapy, for example the so-called behaviour therapy competence training [42], which use a broad spectrum of behaviour therapy techniques, psycho-education, stress management, activity creation, enhancement of social competence and modification of counter-productive cognitive patterns. Evidence of effectiveness of these concepts is still lacking.

In order to employ complex behaviour therapies with some promise of success, not only must there be qualified therapists but also a willingness on the part of the nursing staff to undertake training and to cooperate in the therapy. For this reason, Schnelle et al. [43] demand that when behaviour therapy is to be implemented in nursing facilities, not only should the effectiveness of the method be considered but also matters of efficiency, such as the level of training which would be required for staff, quality control and cost-benefit ratios.

### *Milieu Therapy*

'Milieu therapy describes a particular therapeutic practice based upon the concept of adaptation of the material and social environment to the changes caused by the disease, ...' [44]. Milieu therapy represents the most comprehensive field of non-drug therapy options for dealing with dementia. Greatly differing procedures – changes to the material environment and to the social environment of the patient (the milieu) – aim at weakening the negative effects of the disease process and to enhance existing skills (resources). Concrete examples [44] of milieu therapy interventions are (the particular aim of the intervention is given in brackets): conspicuous signals, so-called signposts (orientation); sensory stimulation (perception); stimulating environment (drive); avoidance of distraction (concentration skills); manageability of the environment

(thinking and performing everyday tasks); communication aids (speech).

Milieu therapy procedures may be divided into three categories, beginning with complex fields of influence (category I) via concrete unimodal procedures (category II) to special changes in detail (category III).

*Category I.* The shaping of the material environment is now increasingly seen as an important support in caring for dementia patients [45]. The comparison of a collective living unit with a classic nursing home [46] is one example of a comparison of global milieu differences. Such studies have a descriptive nature. On ethical grounds, studies using randomized control groups would, in the case of global milieu differences, be difficult to justify.

*Category II.* In principle, all procedures presented thus far may be seen as 'milieu therapies' in so far as they bring about changes in the material and social environment of the dementia patient. To give an even fuller picture, three other milieu therapy procedures (sensory stimulation, pet therapy and therapeutic touch) which mirror the wide variety of possibilities for change in the milieu ought also to be mentioned.

Targeted sensory stimulation is employed in order to combat sensory deprivation among hospitalized dementia patients. In case studies of 4 elderly male dementia patients (77–84 years old), Spaul et al. [47] observed that there was increased social interaction after the 'therapy sessions' but no change in feelings of well-being.

One particular example of the use of sensory stimulation is aromatherapy. Essential aromatherapy oils are employed in an attempt to improve the nighttime sleep of dementia patients and to reduce disturbing behaviour during the day. In case studies with 1 or 2 patients, an improvement in motivational behaviour [48] could be identified after the therapy phase, as well as an improvement in the average sleep time per week [49]. The combination of aromatherapy and massage led to a reduction in disturbing behaviour in only 1 of 4 subjects [50]. With 2 of the patients, the treatment led to an increase in agitated behaviour. The results concerning the effectiveness of aromatherapy are inconclusive [51], the more so since, in the only randomized study (with 21 patients), aromatherapy was examined only in combination with massage, in comparison to massage, in combination with conversation and in comparison to massage alone [52]. There is a lack of controlled studies in which aromatherapy has been tested as a monotherapy.

Therapy with animals (pet therapy) can motivate patients to go for regular walks and can alleviate loneliness. Stroking animals can have calming effects [53]. A study of

58 gerontopsychiatric patients (most of whom suffered from depression or dementia) who were divided randomly between a group with pets and a comparison group, showed that after a 5-day intervention built principally around contact with dogs there were no changes within the pet group nor significant differences between the two groups with respect to irritability or withdrawn behaviour [54]. The effects of pet therapy on challenging behaviour in the particular case of dementia patients have yet to be examined.

Therapeutic touch is employed to achieve relaxation in those dementia patients who do not reject [55]. This seems to work to reduce stress (tendency for cortisone concentrations to become lower in saliva and urine) and to reduce challenging behaviour such as motor agitation and inappropriate vocalizations, at least for the period of treatment and the phase immediately thereafter [56].

*Category III.* Examples of special milieu-therapeutic changes in detail are the increase in environmental 'white noise' to influence screaming attacks among severely demented nursing home residents (a reduction of 23% [57]) and the use of subjective barriers such as mirrored doors [58] or striped floor patterns in front of exit doors [59] to reduce the danger that dementia patients with motor agitation will wander. With these 'gentle' methods, without having to build physical obstacles or lock doors, it is possible to halve the frequency of contact with outside doors. It must be said, however, that the studies which show this were not controlled studies, and that the measures did not work with equal effect for all patients (non-responder problem). Furthermore, model learning made it possible for dementia patients, too, to overcome the subjective barriers to open the doors. Price et al. [60] were unable to find any controlled study of the effectiveness of subjective barriers when dealing with wandering dementia patients. They found no studies whatsoever relating to the effectiveness of such measures in the home. In order to be able to make a valid assessment of the therapeutic value of any milieu therapy procedures, it will be necessary to produce results from elaborately designed studies with a sufficiently large number of patients.

### *Staff Training*

Although staff training can also be seen as a form of milieu therapy (it brings changes in the social environment of the dementia patient), this form of intervention should actually be dealt with in its own section because of its special role – the target for 'change' being here primarily the staff.

Most staff members feel that the dementia patients' disturbed behaviour creates mental strain in the staff [61]. One consequence of this could be a change in the style of care (for example, behaviour of the staff which is less empathic) which in turn could lead to an increase in disturbed behaviour. If this vicious circle does indeed exist, then it must be possible by staff training to improve the behaviour of dementia patients and/or their emotional state. Are these assumptions well founded?

Analyses of the connection between the dimensions of care and patient-related outcome variables indicate that for a large sample of dementia patients (510 residents in long-term care institutions in Canada) there is a significant, though not particularly marked, correlation between staff training and the patients' agitation [62]. The more training the staff received, the smaller the rise in agitation in the course of a year. No significant correlation was established between staff training and the patients' physical functioning, expressive language skills, social skills, affect or cognitive functioning. The scores given by Chappell and Reid [62] to the value of staff training relate to a large variety of different types of training conducted in the care units which were studied, but the question remains as to which kinds of staff training most effectively influence the behaviour of the dementia patients, and this question can be answered only by using results from intervention studies.

Up until now, a wide range of very different staff training programmes has been developed, most of which are aimed principally at improving the level of understanding of and for the limited abilities of the dementia patients, offering possibilities for the augmentation of the abilities which the patient still retains and mediating techniques designed to improve communication.

Three quasi-experimental studies with a comparison group without staff training delivered the following results: directly after the 3-month intervention phase, integrity-promoting care (measures to create a positive climate for the dementia patients) together with improvements in care led to an increased number of opportunities for the dementia patients to be more active in shaping activities and in making decisions, more cooperation and an increase in verbal contact during morning care [63]. The abilities-focused programme of morning care developed by Wells et al. [64] is made up principally of interventions aimed at maintaining or compensating for social and self-care abilities. Three months and also 6 months after the intervention, a significant improvement could be identified in attending and calm behaviour, as well as in overall and social functioning. There was also a significant de-

crease in levels of agitation. In the communication skills programme for nursing assistants, developed by McCallion et al. [65], it was possible after 3 months to identify a significant reduction in verbal agitation and in physically aggressive behaviour, but after 3 further months the effects were clearly less marked. The results from controlled studies suggest that the behaviour and condition of dementia patients in long-term facilities can be influenced positively by staff training.

Although a one-session training programme aimed at improving the staff's knowledge of dementia, of wandering behaviour and of management strategies did lead, after the in-service programme, directly to an improvement in the caring personnel's level of knowledge, this effect was already weakening at the time of the 1-month follow-up [66].

Future studies will show which elements of staff training programmes are most effective and most efficient. Another question which must be answered is how intensive the training needs to be, and both how long its effects last and how soon the training needs to be refreshed.

## Discussion

Given the range and number of different procedures, particularly those employed in following general therapy principles such as behaviour therapy or milieu therapy, this overview cannot be fully comprehensive. The main criterion for choosing those which were examined was the availability in the international databanks (Medline®, Psychinfo®, Cochrane Review) of studies on effectiveness. The intention was also to show the diversity of non-drug therapies for dementia.

Findings from the studies make it possible to assess therapies with regard to aim, criteria for use and effectiveness.

### *Aim of Non-Drug Therapies*

The aim of therapy is to *influence positively*, above all, the *emotional and behavioural changes* associated with dementia. Symptoms to be dealt with are e.g. agitation, the tendency to wander, disturbance of the day-night rhythm, depression, apathy or aggression. Where these symptoms, which are often a great burden on nursing personnel and the patient's family, can be influenced successfully, living with the dementia patient is made much easier and the burden on the carers is eased. In this context,

providing the family carers with social support and counselling is of great importance [67].

A further aim of therapy is that the resources of the patients, that is to say their *remaining skills*, should be *enhanced* and their adaptation to a life with cognitive limitations and limitations with regard to activities of daily living should be improved. With regard to this, the aim of non-drug therapies is not primarily to employ specialized training to reduce deficiencies which already exist. Particularly from the moderately severe stages of the disease onwards, the functional basis for learning with lasting effect no longer exists.

### *Criteria for the Use of Non-Drug Therapies*

Before deciding to use symptom-based therapies it is advisable to undertake an *analysis of challenging behaviour* and of emotional changes. The aim with respect to these is to identify causes or triggers so that treatment can be aimed accurately or indeed be conducted causally. For example, the reason for pronounced agitation in a dementia patient could be a painful, as yet undiagnosed gastrointestinal illness (a gastritis, for example). In such a case, it would be possible, once the gastritis had been diagnosed, to treat the actual cause of the agitation.

Depending on the degree of severity of the dementia and upon the individual spectrum of symptoms, the *choice of non-drug therapies* can take two courses. The measures chosen will either be those which have been developed with the purpose of influencing one particular symptom (for example, prompted voiding in dealing with incontinence, or subjective barriers in the case of wandering), or a non-specific procedure will be chosen. The latter will be chosen if no specific non-drug therapy exists (for example, for improving emotional state). In this case, that therapy should be chosen which is practicable in the particular setting and whose effectiveness is best proved for the symptom which is to be influenced. This choice will depend crucially upon availability of specialist personnel and structures such as suitable premises for therapy. The individual patient's inclinations and disinclinations, and any special skills should be taken into account in making the choice, to ensure that the best possible basis is created for the success of the therapy. A full family case history and a full social case history are, therefore, essential preconditions for a targeted planning of therapy. It is also necessary to discover whether the patient personally fulfills all the preconditions for the successful use of the therapy (for example, in the case of pet therapy, freedom from



allergy to animal hair). Finally it has to be proved for each patient separately whether the degree of severity of the dementia syndrome enables the planned therapeutic measure.

In any case *the effectiveness of the therapy should be tested* after a certain length of time, and a decision should be made as to whether it is possible and wise to continue with the therapy or whether a different procedure must be tried. Generally, in treating emotional disturbance or challenging behaviour, it seems to make sense to use non-drug treatment options *before treatment with drugs* [68] and to test the effectiveness of these non-drug options in individual cases since the risk of possible undesirable effects from the drug therapy (for example, in neuroleptic therapy, extrapyramidal motor symptoms) could thus be avoided.

#### *Effectiveness of Non-Drug Therapies*

A variety of individual studies have shown desirable effects across a range of non-drug therapies employed. For the most part, these studies are to be regarded only as observations of the use of the therapies. For most of the procedures, there is, as yet, no evidence of effectiveness which is based on controlled randomized studies with a sufficiently large number of samples. Furthermore, there are hardly any findings relating to conditions which may lead to undesirable effects (findings, for example, on the question of whether negative emotional or behavioural symptoms are caused by excessive demands on the patient). In most of the studies, the therapy in question was effective only for so long as the therapy was continued. There has been no study of whether such therapies are effective in the long term. As is the case with drug therapies using nootropics, there are 'non-responders' who do not respond to non-drug therapies.

#### *Non-Drug Procedures in the Total Therapeutic Context*

In caring for dementia patients, non-drug therapies are used relatively seldom. The primary reason for this is not skepticism regarding the potential effectiveness of such therapies. The main reason in the in-patient setting is the lack of the trained personnel necessary for a non-drug procedure which is both labour intensive and cost intensive. Nor are there models for use in the domestic setting, though this is where around 70% of all dementia patients find themselves.

One essential reason for the relatively slow further development of non-drug therapies has been the lack of a 'lobby'. No commercial interests are tied in with non-drug therapies. In addition, the research funds on offer are meagre since the politics of research are currently all but completely dominated by the belief that effective treatment may be expected by biochemical-pharmacological approaches to therapy.

#### *Required Research*

Given the potential benefits of non-drug therapies and the unsatisfactory situation with regard to evidence of effectiveness, there is clearly a considerable need for research. Future studies should address the following issues:

(a) Are symptoms of the dementia syndrome at all influenced by a particular therapy, and, if so, which are the symptoms and what is the extent of the influence?

(b) Which structure (with relation to content, duration and frequency of therapy units) provides the greatest effects?

(c) Which criteria for inclusion and exclusion should be considered for a particular therapy so that the greatest possible therapeutic success may be achieved?

(d) Which patient characteristics are suitable for distinguishing responders from non-responders?

(e) Are there effects which last beyond the period of therapy? If so, for how long do they continue?

(f) Is it possible to increase the desired effects by combining a variety of non-drug therapies? If so, which combinations work most powerfully?

Findings relating to these issues will create the basis upon which, in the future, a clear definition of the value of non-drug therapies can be given.

## References

- 1 Förstl H, Kurz A, Calabrese P, Hartmann T: Alzheimer-Demenz; in Förstl H (ed): *Demenzen in Theorie und Praxis*. Berlin, Springer, 2001, pp 43–61.
- 2 Winblad B, Engedal K, Soininen H, Verhey F, Waldemar G, Wimo A, Wetterholm A-L, Zhang R, Haglund A, Subbiah P: Donepezil enhances global function, cognition and activities of daily living compared with placebo in a one-year double-blind trial in patients with mild to moderate Alzheimer's disease (poster). 9th Congr Int Psychogeriatr Assoc, Vancouver, 1999.
- 3 Strobel W, Huppmann G: *Musiktherapie*. Göttingen, Hogrefe, 1991.
- 4 Müller-Schwarz A: *Musiktherapie bei Demenzzkranken*; in Hirsch RD (ed): *Psychotherapie bei Demenzen*. Darmstadt, Steinkopff, 1994, pp 159–166.
- 5 Grümme R: *Situation and Perspektive der Musiktherapie mit dementiell Erkrankten*. Regensburg, Transfer-Verlag, 1998.
- 6 Brotons M, Koger SM, Pickett-Cooper P: Music and dementias: A review of literature. *J Music Ther* 1997;34:204–245.
- 7 Brotons M, Koger SM, Pickett-Cooper P: Music and dementias: A review of literature – Erratum. *J Music Ther* 1999;36:16.
- 8 Koger SM, Chapin K, Broton M: Is music therapy an effective intervention for dementia? A meta-analytic review of literature. *J Music Ther* 1999;36:2–15.
- 9 Koger SM, Brotons M: Music therapy for dementia symptoms (Cochrane Review). Oxford, Cochrane Library, Update Software 2, 2000.
- 10 Harlan JE: The therapeutic value of art for persons with Alzheimer's disease and related disorders. *Loss Grief Care* 1993;6:99–106.
- 11 Gerdner LA: Music, art, and recreational therapies in the treatment of behavioural and psychological symptoms of dementia. *Int Psychogeriatr* 2000;12:359–366.
- 12 Marr D: *Kunsttherapie mit altersverwirrten Menschen*. Weinheim, Beltz, 1995.
- 13 Maurer K, Maurer U, Horn T, Frölich L: «Wie aus Wolken Spiegeleier werden»: Alzheimer und Kunst. *Wissenschaftsmagazin der Universität Frankfurt am Main* 1999;17:68–73.
- 14 Dunker D: *Kunsttherapie bei Demenzzkranken*; in Hirsch RD (ed): *Psychotherapie bei Demenzen*. Darmstadt, Steinkopff, 1994, pp 167–171.
- 15 Kahn-Denis KB: Art therapy with geriatric dementia clients. *Art Ther* 1997;14:194–199.
- 16 Teri L, McCurry SM, Buchner DM, Logsdon RG, LaCroix AZ, Kukull WA, Barlow WE, Larson EB: Exercise and activity level in Alzheimer's disease: A potential treatment focus. *J Rehabil Res Dev* 1998;35:411–419.
- 17 Springmann J: *Urlaubsangebot für Angehörige und ihre Demenzzkranken zusammen*; in Deutsche Alzheimer Gesellschaft (ed): *Brücken in die Zukunft*. Berlin, Deutsche Alzheimer Gesellschaft, 2001, pp 169–173.
- 18 Hopman-Rock M, Staats PGM, Tak ECPM, Droees RM: The effects of psychomotor activation program for use in groups of cognitively impaired people in homes for the elderly. *Int J Geriatr Psychiatry* 1999;14:633–642.
- 19 Holmberg SK: Evaluation of a clinical intervention for wanderers on a geriatric nursing unit. *Arch Psychiatr Nurs* 1997;11:21–28.
- 20 Gröne R, Zapchenk S, Marble G, Kantar S: The effect of therapist and activity characteristics on the purposeful responses of probable Alzheimer's disease participants. *J Music Ther* 1998;35:119–136.
- 21 Bruce E, Hodgson S, Schweitzer P: *Reminiscing with People with Dementia: A Handbook for Carers*. London, Age Exchange, 1999.
- 22 Spector A, Orrell M, Davies S, Woods B: *Reminiscence therapy for dementia* (Cochrane Review). Oxford, Cochrane Library, Update Software 1, 2002.
- 23 Gagnon DL: A review of reality orientation, validation therapy, and reminiscence therapy with the Alzheimer's client. *Phys Occup Ther Geriatr* 1996;14:61–77.
- 24 Woodrow P: Interventions for confusion and dementia. 3. Reminiscence. *Br J Nurs* 1998;7:1145–1149.
- 25 Ermini-Fünfschilling D, Meier D: Memory training – An important part of a milieu therapy for patients with senile dementia. *Z Gerontol Geriatr* 1995;28:190–194.
- 26 Meier D, Ermini-Fünfschilling D, Monsch AU, Stähelin HB: Cognitive competence training for patients with beginning dementia. *Z Gerontopsychol-psychiatrie* 1996;9:207–217.
- 27 Kaschel R, Zaiser-Kaschel H, Mayer K: Reality orientation – Review of the literature and implications for a neuropsychological rehabilitation of memory. *Z Gerontopsychol-psychiatrie* 1992;5:223–235.
- 28 Spector A, Davies S, Woods B, Orrell M: Reality orientation for dementia: A systematic review of the evidence of effectiveness from randomized controlled trials. *Gerontologist* 2000;40:206–212.
- 29 Spector A, Orrell M, Davies S, Woods B: *Reality orientation for dementia* (Cochrane Review). Oxford, Cochrane Library, Update Software 1, 2002.
- 30 Gutzmann H: *Therapeutische Ansätze bei Demenzen*; in Wächtler C (ed): *Demenzen*. Stuttgart, Thieme, 1997, pp 40–59.
- 31 Woodrow P: Intervention for confusion and dementia. 2. Reality orientation. *Br J Nurs* 1998;7:1018–1020.
- 32 Feil N: *The Validation Breakthrough*. Baltimore, Health Professionals Press, 1993.
- 33 Neal M, Briggs M: *Validation therapy for dementia* (Cochrane Review). Oxford, Cochrane Library, Update Software 1, 2002.
- 34 Romero B, Eder G: Self-maintenance therapy – Concept of a neuropsychological therapy in Alzheimer's disease. *Z Gerontopsychol-psychiatrie* 1992;5:267–282.
- 35 Romero B, Wenz M: Self-maintenance therapy in Alzheimer's disease. *Neuropsychol Rehab* 2001;11:333–355.
- 36 Dorsch F, Bergius R, Ries H: *Psychologisches Wörterbuch*, ed 10, revised. Bern, Huber, 1982.
- 37 Ehrhardt T, Plattner A: *Verhaltenstherapie bei Morbus Alzheimer*. Göttingen, Hogrefe, 1999.
- 38 Allen-Burge R, Stevens AB, Burgio LD: Effective behavioral interventions for decreasing dementia-related challenging behavior in nursing homes. *Int J Geriatr Psychiatry* 1999;14:213–232.
- 39 Eustice S, Roe B, Paterson J: *Prompted voiding for the management of urinary incontinence in adults* (Cochrane Review). Oxford, Cochrane Library, Update Software 1, 2002.
- 40 Götestam KG, Melin L: The effect of prompting and reinforcement of activity in elderly demented inpatients. *Scand J Psychol* 1990;31:2–8.
- 41 Teri L, Logsdon RG, Uomoto J, McCurry S: Behavioral treatment of depression in dementia patients: A controlled clinical trial. *J Gerontol* 1997;52:159–166.
- 42 Ehrhardt T, Hampel H, Hegerl U, Möller H-J: *Behavior therapy competence training – A specific intervention with beginning Alzheimer dementia*. *Z Gerontol Geriatr* 1998;31:112–119.
- 43 Schnelle JF, Cruise PA, Rahman A, Ouslander JG: *Developing rehabilitative behavioral interventions for long-term care: Technology transfer, acceptance, and maintenance issues*. *J Am Geriatr Soc* 1998;46:771–777.
- 44 Woynar J, Gutzmann H: *Milieu-therapie bei Demenzen*. Arbeitstagung der Deutschen Gesellschaft für Gerontopsychiatrie und -psychotherapie, Düsseldorf, 1996, pp 2–8.
- 45 Day K, Carreon D, Stump C: The therapeutic design of environments for people with dementia: A review of the empirical research. *Gerontologist* 2000;40:397–416.
- 46 Kihlgren M, Brane G, Karlsson I, Kuremyr D, Leissner P, Norberg A: Long-term influences on demented patients in different caring milieus, a collective living unit and a nursing home: A descriptive study. *Dementia* 1992;3:342–349.
- 47 Spaul D, Leach C, Frampton I: An evaluation of the effects of sensory stimulation with people who have dementia. *Behav Cogn Psychother* 1998;26:77–86.
- 48 MacMahon S, Kermeo S: A clinical trial of the effect of aromatherapy on motivational behaviour in a dementia care setting using a single subject design. *Aust J Holist Nurs* 1998;5:47–49.
- 49 Wolfe N, Herzberg J: Can aromatherapy oils promote sleep in severely demented patients? *Int J Geriatr Psychiatry* 1996;11:926–927.
- 50 Brooker DJ, Snape M, Johnson E, Ward D, Payne M: Single case evaluation of the effects of aromatherapy and massage on disturbed behaviour in severe dementia. *Br J Clin Psychol* 1997;36:287–296.

- 51 Opie J, Rosewarne R, O'Connor DW: The efficacy of psychosocial approaches to behaviour disorders in dementia: A systematic literature review. *Aust NZ J Psychiatry* 1999;33:789–799.
- 52 Smallwood J, Brown R, Coulter F, Irvine E, Copland C: Aromatherapy and behaviour disturbances in dementia: A randomized controlled trial. *Int J Geriatr Psychiatry* 2001;16:1010–1013.
- 53 Wettstein A, Hanhart U: Milieu therapy for demented persons – Appropriate, regular stimulation by pleasant experiences. *Schweiz Rundsch Med Prax* 2000;89:281–286.
- 54 Zisselman MH, Rovner BW, Shmueli Y, Ferrie P: A pet-therapy intervention with geriatric psychiatry inpatients. *Am J Occup Ther* 1996;50:47–51.
- 55 Griffin RL, Vitro E: An overview of therapeutic touch and its application to patients with Alzheimer's disease. *Am J Alzheimer Dis* 1998;13:211–216.
- 56 Woods DL: The effect of therapeutic touch on glucocorticoids and agitated behavior in individuals with dementia of the Alzheimer type. *Dissert Abstr Int* 1999;60(4-B):1538.
- 57 Burgio L, Scilley K, Hardin JM, Hsu C, Yancey J: Environmental 'white noise': An intervention for verbally agitated nursing home residents. *J Gerontol* 1996;51:P364–P373.
- 58 Mayer R, Darby SJ: Does a mirror deter wandering in demented older people? *Int J Geriatr Psychiatry* 1991;6:607–609.
- 59 Hewawasam L: Floor patterns limit wandering of people with Alzheimer's. *Nurs Times* 1996;92:41–44.
- 60 Price JD, Hermans DG, Grimley-Evans J: Subjective barriers to prevent wandering of cognitively impaired people (Cochrane Review). Oxford, Cochrane Library, Update Software 1, 2002.
- 61 Ragneskog H, Kihlgren M, Karlsson I, Astrid N: Nursing home staff opinions of work with demented patients and effects of training in integrity-promoting care. *Vard Nord Utveckl Forsk* 1993;13:5–10.
- 62 Chappell NL, Reid RC: Dimensions of care for dementia sufferers in long-term care institutions: Are they related to outcomes? *J Gerontol* 2000;55B:S234–S244.
- 63 Kihlgren M, Kuremyr D, Norberg A, Brane G, Karlsson I, Engstrom B, Melin E: Nurse-patient interaction after training in integrity-promoting care at a long-term ward: Analysis of video-recorded morning care sessions. *Int J Nurs Stud* 1993;30:1–13.
- 64 Wells DL, Dawson P, Sidani S, Craig D, Pringle D: Effects of an abilities-focused program of morning care on residents who have dementia and on caregivers. *J Am Geriatr Soc* 2000;48:442–449.
- 65 McCallion P, Toseland RW, Lacey D, Banks S: Educating nursing assistants to communicate more effectively with nursing home residents with dementia. *Gerontologist* 1999;39:546–558.
- 66 Cohen-Mansfield J, Werner P, Culpepper WJ, Barkley D: Evaluation of an in-service training program on dementia and wandering. *J Gerontol Nurs* 1997;23:40–47.
- 67 Gräsel E: Angehörigenberatung bei Demenz: Bedarf, Ausgestaltung, Auswirkungen. *Theorie Prax Soz Arb* 2001;52:215–220.
- 68 Gutzmann H: Rationelle Therapie; in Förstl H (ed): *Demenzen in Theorie und Praxis*. Berlin, Springer, 2001, pp 241–256.