



PSYCHOSOCIAL INTERVENTIONS AND DEMENTIA

Understanding, knowing, implementing

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FOREWORD

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It is obvious to try to solve the difficulties of a person living with dementia in any way possible. What could be more normal than to find solutions to delay the evolution of the disease, and in absolute, to cure it. In France, the cessation of the reimbursement of drugs was a shock for all families, reinforcing the feeling of abandonment and powerlessness of medicine. This void has paved the way for a massive development of non-pharmacological practices, including psychosocial interventions, whose science today makes it possible to sort wheat from chaff..

Non-pharmacological interventions (NPIs)

French authorities have recently encouraged research into non-pharmacological practices considering people and contexts of use^[1-2]. Researchers are working to recognize a consensus framework for evaluation as has been the case for the drug for 50 years^[3-4]. If these practices cannot be evaluated exactly as drugs given their particularity, a rigorous validation, marketing and surveillance approach is possible^[5].

Over the past decade, research has begun to answer questions about the mechanisms, benefits, risks and usefulness of non-pharmacological interventions (NPIs). It is based on recent discoveries in neuroscience, epigenetics, immunology and exposomics, and technological innovations. These advances are the result of determined, long-term policies illustrated, for example, by the report of the French National Authority for Health (HAS) published in 2011 on the "development of the prescription of validated non-pharmacological therapies". [1], by the HAS document published in 2011 on the diagnosis and management of "Alzheimer's disease and related disorders"^[2], by the 2018 report of the International Alzheimer's Association^[6], by

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FOREWORD

measure 83 of the “French Neurodegenerative Diseases Plan 2014-2019” and by the French National Health Strategy 2018-2022 encouraging “testing the effectiveness of non-pharmacological interventions”. This development would probably never have taken place without the strong mobilisation of patients’ associations, families, practitioners and learned societies. The Fondation Médéric Alzheimer has played a key role in this development. However, we must remain vigilant, as NPIs no longer appear as a priority in the new French roadmap for neurodegenerative diseases 2021-2022 published on 2 June 2021.

Definition of non-pharmacological interventions

A scientific framework makes it possible to distinguish non-pharmacological interventions from general public health recommendations (e.g., campaigns promoting smoking cessation, moderate alcohol consumption, active mobility, etc.), socio-cultural activities (e.g., artistic, social, religious, leisure activities) and alternative medicines (e.g., alternative medicines, esoteric therapies, etc.). Non-pharmacological interventions are evidence-based prevention and care methods and the quality approach^[3, 5]. French experts define an NPI as “a psychological, bodily, nutritional, digital or basic intervention on a person aimed at preventing, treating or curing. It is personalised and integrated into the patient’s life course (integration of the patient, integration of different methods, integration into the health pathway). It takes the form of a protocol. It mobilises known or hypothetical biopsychosocial mechanisms. It has been the subject of at least one published interventional study conducted according to a recognised methodology that has assessed its benefits and risks”^[7]. An NPI is based on a triptych associating an intervention protocol described in detail (name, priority health objective, mechanism of action, content, duration, material, precautions), a context of implementation in the course and a trained professional facilitator. An NPI, to qualify as such, requires a published interventional study that has shown a benefit and identified its risks. It is a targeted, evidence-based approach to health.

In other words, an NPI targeted at dementia is not a discipline (psychology, physiotherapy, ergonomics, etc.), an approach (psychosocial, corporal, nutritional, etc.) or a component (pedometer bracelet, yoga posture, ginkgo biloba leaf, etc.). It is a programme with a main health objective combining different techniques that can be proposed and/or prescribed during a specific sequence in the life of people with dementia. A health benefit is thus expected according to the results of the published study^[8]. Naturally, the choice of intervention is made with the participant and its implementation meets all the conditions of safety, therapeutic alliance, professional ethics, traceability and contextual adjustment. This practice is subject to initial and final evaluation.

Non-pharmacological interventions, including psychosocial interventions, are a new arsenal of relevant and safe solutions for the health of people with dementia. Their distinction by the research of alternative medicines, hygienic and dietary rules and socio-cultural practices will have to be translated into a regulatory

and economic evolution. This guide is a further contribution to this development. It presents the main psychosocial interventions to be provided to people with dementia, such as adapted physical activity, art therapy, animal assisted interventions, dance therapy, cognitive rehabilitation, cognitive stimulation therapy, horticultural therapy, multisensory stimulation, music therapy, and reminiscence therapy. I acknowledge the authors of the chapters and the visionary approach of the Fondation Médéric Alzheimer.

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NOTICE TO READERS

This guide is intended for all professionals working directly or indirectly with people with dementia. It aims to improve knowledge and understanding of psychosocial interventions implemented to maintain and/or improve cognitive, psychological, social and physical functioning and, more globally, the quality of life of people with dementia. These interventions also aim to improve the well-being and quality of life of family caregivers, as well as the quality of work life of health care professionals. The relationship and interaction between the person providing the intervention and people with dementia are central to their support.

Before being provided, these interventions must be thought out, designed and adapted to the needs and difficulties of people with dementia. It is important to remember that just because these interventions are non-pharmacological does not mean that they are free of effects that can be negative for the person, such as failure, lowered self-esteem or increased behavioural and psychological symptoms. The absence of positive effects during and after an intervention does not necessarily mean that the intervention is not effective but may be due to implementation difficulties. Several questions need to be asked: to whom to propose the intervention? In what context should it be proposed? When is it contraindicated? What is the duration of the intervention? Its frequency? Does the professional providing the intervention have the training or knowledge required for its implementation? Do we have the human and material resources to implement it? The purpose of this guide is to answer these questions.

The ten interventions presented in this guide were selected based on scientific evidence of their positive effects. They are also the ones that are most often provided to people with dementia. Each chapter corresponding to an intervention was written by one or two nationally and internationally experts and reviewed by another expert. Care and support professionals and academics have reviewed the chapters to ensure that they are well understood. Chapters originally written in French have been translated into English. The vocabulary used by the various authors has been harmonised throughout the guide.

The interventions presented in this guide have therapeutic or therapeutic and recreational intentions. Therapeutic intentions refer to targeted objectives in response to a specific situation. The intervention stops when the objective is reached. An evaluation is conducted before, during and after to measure the effects. The intervention is adapted if necessary. Therapeutic intentions include the concepts of support, maintenance, stimulation and rehabilitation. Support, maintenance and stimulation reflect the objective of soliciting, maintaining and strengthening cognitive, psychological, social and physical capabilities. The rehabilitation aims to optimise cognitive, psychological, social and physical functioning in order to reduce the impact of cognitive disorders on daily life. Recreational intention engages people in meaningful activities to strengthen social ties, quality of life and well-being. There is no therapeutic objective. However, the intervention must be proposed within a specific framework. In therapeutic and recreational intentions, benefits can be observed immediately, in the short term and/or in the long term.

The clinical and practical advice presented in this guide is not a substitute for the training and knowledge required to provide these interventions but helps to define the framework for each intervention as well

as the human and material resources required. An intervention adapted to the needs of people with dementia will be more effective.

This guide will be useful to professionals providing these interventions and to researchers in studies evaluating their effectiveness and efficiency.

For more information on the implementation and evaluation of psychosocial interventions in dementia, see the work of INTERDEM (<https://interdem.org/>), a pan-European network of researchers collaborating in research and dissemination of psychosocial interventions aimed at improving the quality of life of people with dementia and their supporters.

Overview of interventions according to intended effects

	Adapted physical activity	Animal assisted interventions	Art therapy	Cognitive rehabilitation	Cognitive stimulation therapy	Dance-based interventions	Horticultural therapy	Multisensory stimulation	Music therapy	Reminiscence therapy
Cognitive functioning	■		■	■	■	■	■		■	■
Verbal and non-verbal communication		■	■		■	■		■		■
Behavioural and psychological symptoms	■	■	■	■	■	■	■	■	■	■
Emotional state		■	■			■	■	■	■	
Quality of life and personhood	■	■	■		■	■			■	■
Health related physical fitness	■					■				
Movement quality and control	■	■			■	■				
Functional independence	■			■	■					■

CHAPTER

1



PRESENTATION

A. Definition

The World Health Organization defines physical activity (PA) as “any body movement produced by the contraction of skeletal muscles resulting in an increase in energy expenditure over resting expenditure”. For a person weakened by illness, age or disability, the concept of «adapted» physical activity (APA) seems more relevant than simple PA.

In fact, APA is a physical activity adjusted to physical condition and functional abilities. According to the French Ministry of Health decree of 31 December 2016, APA is “the practice, in a context of daily activity, leisure, sport or programmed exercises, of body movements produced by skeletal muscles, based on the aptitudes and motivations of people with specific needs that prevent them from practicing in ordinary conditions”. It is provided for prevention, functional or vocational rehabilitation, education and/or social participation. According to the objectives of the APA, but also to possible disabilities and pathologies, some exercises are specific and train a particular physical domain such as cardio-respiratory capacity, endurance, flexibility, strength or balance, while other exercises are said to be multimodal, i.e., train multiple domains.

Unlike sport, which is often associated with performance and/or competition, APA also pursues strictly preventive and therapeutic objectives in a positive approach to the individual; supporting, maintaining, or developing his or her health and abilities^[1].

B. Fundamentals

According to the collective expertise of the French National Institute for Health and Medical Research (INSERM), which has analysed nearly 2,000 scientific studies on chronic diseases, physical activity, adapted to a patient's state of health, has benefits on metabolic, joint, muscle, cardiac, neurological and immunological functions^[2].

In dementia, basic scientific studies provide convincing evidence of physical activity effects on brain according to several intertwined physiological mechanisms, notably vascular and related to neuro-plasticity benefits^[3-4]. Indeed, this type of pathology has vascular and/or degenerative origins and is particularly favoured by cerebral blood circulation disorders and neuron metabolism, on which physical activity has an action.

Thus, physical activity has a positive vascular effect improving cerebral blood perfusion even though people with dementia have a decrease in perfusion in certain brain areas. This effect allows a better nutrients consumption and oxygen use by neurons with a better carbohydrate and neurotransmitter

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metabolism. This effect protects against neuron function disorders and carbohydrate utilization dysfunctions that promote the formation of amyloid plaques characteristic of Alzheimer's disease. On the other hand, according to animal studies, physical activity would encourage cerebral and vascular plasticity by neural growth factors synthesis, notably BDNF (Brain-Derived Neurotrophic Factor). In addition, human studies have shown an increase or a smaller decrease in size of certain brain areas (including hippocampus, which plays a central role in memory) after the implementation of adapted physical activity programs.

THEORETICAL BACKGROUND

A. Processes involved

- Physical processes: motor and sensory capabilities, cardio-respiratory abilities, muscular strength, endurance, walking and balance.
- Cognitive processes: memory and body schema, attention and task planning, coordination.
- Behavioural processes: cooperation during group sessions, playing enjoyment, stimulation of action and of autonomy in people who are often sidelined because of their disease or the help they receive.
- Social processes: social interactions, social links and integration of people with each other and with family caregivers and/or care staff and contributors participating in the sessions.

B. Neurophysiological correlates

Physical activity involves different cerebral areas in particular motor (voluntary movements) and somatosensory (visual and motor coordination) areas, cerebellum (balance), but also hippocampus (memory). Moderate or intense physical activity triggers the secretion of beta endorphins and serotonin, well-being hormones. It stimulates bones osteocalcin production, which has a positive neurogenic effect on hippocampus memory neurons.

SCIENTIFIC EVALUATION

Several studies have shown that PA is effective for people with dementia on mobility, physical functioning, cognition, anxiety, apathy and depression. It would be even more effective associated with cognitive stimulation and speech groups. Further studies are necessary to determine more precisely effective modalities. Meta-analyses of randomised controlled trials are difficult to conduct because participant characteristics, PA programs, and efficacy criteria are not always comparable. Nevertheless, several meta-analyses have indicated that APA programs can improve physical and functional abilities^[5-6], cognitive functions^[7], and ability to perform activities of daily living^[6,8], which are critical for quality of life and autonomy. Another randomised controlled trial showed that burden on family caregivers could be reduced when they supervised people's participation in the program^[9].

Regarding cost-effectiveness, a research conducted with Siel Bleu by the Health and Ageing Laboratory of the University of Versailles Saint Quentin, the French School of Advanced Studies in Public Health (EHESP) and the French Institute of Public Policy (Paris School of Economics) evaluated a 12-month adapted physical activity programme with around 450 people in 32 nursing homes in four European countries (Belgium, Spain, France, and Ireland). The results showed that the programme prevented approximately one minor fall per person per year and one accidental fall every 18 months and one serious fall every five years. If this programme were applied on a national scale considering the total number of residents in nursing homes in France, the total net economic benefit per year would be estimated at between 421 million euros and 771 million euros (taking into account the cost of the programme)^[10].

An intensive and long-term exercise program administered to people with dementia at home could slow the decline in physical functioning without increasing total health and social service costs^[11]. Further, an instructed walking program for people with dementia and their family caregivers is potentially cost-effective compared to usual care, when focusing on the reduction of behavioural and psychological symptoms of dementia as outcome of interest. However, no cost-effectiveness threshold was yet defined. The incremental cost-effectiveness ratio for Quality-Adjusted Life-Years (QALY) was high, thus the intervention seems not to be cost-effective with regard to QALY gains. Therefore, further evaluations are needed^[12].

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IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

Specialised contributors trained and (if possible, graduate) in APA sciences and techniques. For example, in France, Bachelor of Physical and Sports Activities Sciences and Techniques (STAPS) option APA is recommended.

B. Practical and clinical advice

THERAPEUTIC INTENTION

Participants profile

- People with mild to severe dementia.
- Family caregivers can participate.

Indications

- Apraxia, memory disorders.
- Mood disorders, apathy, anxiety.
- Behavioural disorders: psychomotor agitation, wandering, opposition to care.
- Sleep/wake rhythm disorders.
- Improvement of vital functions and physical performance (cardio-respiratory capacities, reflexes and coordination, balance, muscular power, and weight...).

Contra-indications

- Excessive behavioural problems (non-verbal aggression, hallucinations).
- No intense physical activity in cases of high blood pressure.

Contributors

- The physical activity program must be supervised by certified APA professionals.
- Program suitability must be first evaluated by a physician (general practitioner for example) and/or a psychologist.
- Care staff can contribute to program implementation: psychologist, psychomotor therapist, physiotherapist, speech therapist, occupational therapist, nurse, nursing assistant.

Setting of intervention

- At home, in fitness room or in institution.
- If indoors: aerated and insulated, windows with curtains, good luminosity.
- Equipment: chairs or armchairs, table, music.
- Gym equipment: balls of different sizes and textures, heels, rings, studs, elastics, markings (different shapes, textures, and colours), adapted rackets, etc.

THERAPEUTIC INTENTION

Dosage

- Period: following regular session respecting the same schedule.
- Frequency: once or twice a week (depending on participants physical condition).
- Duration: 30 minutes to maximum one hour.

Stopping physical activity is accompanied by loss of skills and “deconditioning”, a disadaptation to the activity with deleterious effects on physical and psychosocial health. However, the reverse, positive spiral is always possible.

Session sequencing

- Individual or groups sessions of 3 to 5 people.
- Warm-up routine to start and stretching to end the session.
- Progression cycle.
- Components that can be included are: strength, flexibility, balance, coordination, endurance. It also helps to work on attention, memory, and relaxation.

Sitting exercises in cases of pathological falls risk to improve physical fitness.

Observance / Attendance

- The APA programme must be adapted to the person, their environment and their lifestyle (home, institution).
- Concentrating and communicating difficulties often reduces motivation, especially since cognitive and psycho-behavioural disorders limit the expression of needs, feelings, suffering or somatic pain.
- Encouragement and good mood are essential to promote self-esteem.

Assessment

Evaluation at least at program beginning and at the end (test must be adapted to disease severity and level of autonomy of people):

1. Physical fitness components assessment (tests) by APA intervention provider:

- Agility, dynamic balance: Get Up and Go test, balance test with unipodal support, double task test.
- Muscular strength of upper limbs: arm flexion, pressure of foam balls.
- Muscular strength of the lower limbs: 30 seconds sitting upright, knee flexion.
- Aerobic endurance: 2 minutes on site.
- Flexibility of lower limbs: flexibility while sitting in a chair.
- Flexibility of the upper limbs: to be evaluated with a back scratcher.

2. Psychosocial behaviour assessment by APA provider and by medical and social professionals:

- Observation grids.
- Individual interview whenever possible.

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FOR MORE INFORMATION

- Exercise in the early to middle stage of dementia: <https://www.alzheimers.org.uk/get-support/daily-living/exercise/early-middle-dementia>

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KEY POINTS

- To improve physical capabilities and mood, stimulate memory, promote sleep and reduce behavioural disorders.
- This intervention involves physical, cognitive, psychological and social processes.
- Observed effects are an improvement in mobility, physical condition, cognitive functions, autonomy, and a decrease in anxiety and depression.
- In group, individually or with a family caregiver.
- For all people with dementia, regardless of the stage of the disease.



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CHAPTER

2



ANIMAL ASSISTED INTERVENTIONS

Animal Assisted Activity (AAA)

Animal Assisted Therapy (AAT) – Animal Assisted Education (AAE)

Animal Assisted Coaching/Counseling (AAC).

PRESENTATION

A. Definition

Animal Assisted Interventions (IAA) are psychosocial interventions by trained human-animal teams, aiming to improve the quality of life of vulnerable populations such as people with dementia.

“Animal Assisted Activity (AAA) is a planned and goal-oriented informal interaction and visitation conducted by the human-animal team for motivational, educational and recreational purposes. Human-animal teams must have received at least introductory training, preparation and assessment to participate in informal visitations. Human-animal teams who provide AAA may also work formally and directly with a healthcare professional, educator, human service provider on specific, documentable goals. In this case they are participating in AAT, AAC or AAE that is conducted by a specialist in his/her profession”^[1].

“Animal Assisted Therapy is a goal-oriented, planned and structured therapeutic intervention directed and/or delivered by health, education, and human service professionals. Intervention progress is measured and included in professional documentation. AAT is delivered and/or directed by a formally trained (with active licensure, degree, or equivalent) professional with expertise in the scope of the professional’s practice. AAT focuses on enhancing physical, cognitive, behavioural and/or socioemotional functioning of the particular human recipient”^[1].

Animal Assisted Education is a recent area involving teachers, school psychologists or speech therapists trained in animal assisted education. Animal Assisted Coaching/Counseling is a booming sector offering interventions in burn-out, psychological trauma contexts, or in life skills training.

In elderly care, it is mostly AAA and AAT that are put into practice.

B. Fundamentals

Animal Assisted Intervention is a fast-growing field with great potential. These interventions are innovative, non-invasive, embodied interventions aimed to motivate, activate, distract, elevate mood, relax and increase social interaction in a context of animation or therapeutic indication.

THEORETICAL BACKGROUND

A. Processes involved

Interventions with animals, therapeutic and/or as activity, affect psychological, physical, and social functioning of people with dementia. AAI have a positive effect on cognitive functioning such as being alert and ‘in the present’ as on the mood of people with dementia^[2], on physical functioning such as enhancing the level of activity and improving movement and balance^[3-4], and on social functioning, by

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stimulating communication and social inclusion^[5]. Since AAI are experience oriented, embodied and not per se verbal, it can be a good fit for people with cognitive disorders who have trouble understanding verbal communication. AAI have been found to reduce stress, depressive mood, aggression, and pain and to promote trust, calmness, motivation, and concentration. The physical interaction with the animal activates the oxytocin system, and thus attachment and caregiving behaviour^[6]. The embodied experience in the AAI (all senses are involved) and the non-judgmental, unambiguous behaviour of the animal create safety, relaxation, joy, distraction, and support^[7]. Theories that are used to explain the working mechanisms of human-animal interactions are all based on relational mechanisms, such as synchrony, attunement, attachment, social support and biophilia. Similar neurobiological/physiological processes take place in the interactions as in interactions between humans.

- Physical processes: fine motor skills, balance, movement coordination, physical and sensorimotor integration (e.g., when walking with the animal, playing, or reaching out to the animal).
- Cognitive processes: attention, concentration, sensory stimulation and processing, attunement and synchronization with the human-animal team, reminiscence.
- Behavioural processes: expression of emotions, verbal and non-verbal, enhancement of activity level, relaxation, taking initiatives.
- Social processes: social interactions, social inclusion.
- Neurobiological/physiological processes: release of oxytocin, decrease in level stress of hormone cortisol, effect on blood pressure and heartrate.

B. Neurophysiological correlates

There are no studies to date on the neurophysiological correlates of AAI.

SCIENTIFIC EVALUATION

In the last decades research in AAI has focused on quality of life of nursing home residents, especially for people with dementia. A growing number of studies have documented (small) positive effects on outcomes like social interaction, depression and behavioural and psychological symptoms^[8]. In more recent studies, conducted to support the evidence through a scientific approach based on theoretical constructs, positive effects were reported on agitation, depression, quality of life and balance^[2; 4; 9-12].

AAI may be cost-effective in elderly care for several reasons, for example: less agitation of people with dementia will be beneficial for the atmosphere in the ward and for the workload of care staff (less burnout); a non-pharmacological approach will save the costs of medication and prevent over-medication (delirium); a pleasant activity will distract from minor health problems and thus will save time of staff and reduce medical involvements. However, scientific research into cost-effectiveness of AAI with people with dementia in nursing homes has not yet been undertaken.

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

The human-animal teams need to be qualified and certified: well trained in their profession, have specific knowledge in the field of people with dementia and trained in the field of the animals involved (ethology, ethics, animal well-being, etc.). AAI can mean a strong motivational add-on to many therapies in elderly care (physiotherapy, psychotherapy, occupational therapy) and can mean a welcome, relaxing, distractive activity in the daily lives of elderly people in or outside a nursing home.

The field of AAI in elderly care is multidisciplinary. The teams can range from trained volunteers and professionals with animals doing AAA, to professionals with animals doing AAT (nurses, occupational therapists, physiotherapists, psychologists, medical doctors). The animal species range from dogs and horses to donkeys, cats, hamsters, rabbits, chickens, etc.

The animals in the AAI teams need to be checked regularly by an animal behaviourist (the behaviour of the animal, the interaction of the animal and the professional and the (emotional) well-being of the animal involved) and a veterinarian (for physical health and zoonoses). The professionals involved also need to be up to date in practice and knowledge and receive appropriate supervision.

When AAI are provided in health and medico-social establishments, hygiene and safety protocols should be presented and discussed with the hygiene and/or nosocomial infection control committees of the health and medico-social establishments.

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CHAPTER 2

ANIMAL ASSISTED INTERVENTIONS

B. Practical and clinical advice

ANIMAL ASSISTED THERAPY	ANIMAL ASSISTED ACTIVITY
<p>Participants profile</p> <p>People with dementia or cognitive disorders who like to interact with animals.</p>	Idem.
<p>Indications</p> <p>Motor Rehabilitation: animal assisted exercises with a physiotherapist (fine motor skills, walking, balance) or with a psychomotor therapist (to improve the synchronisation of the movements).</p> <p>Cognitive Rehabilitation: animal assisted sessions with a neuropsychologist to improve cognitive functioning (reminiscence, activation).</p> <p>Psychological rehabilitation: animal assisted sessions with a psychologist (to improve mood, decrease loneliness).</p>	<p>For recreation.</p> <p>For relaxation.</p> <p>For activation.</p> <p>For distraction.</p> <p>For playfulness.</p> <p>For reminiscences.</p> <p>For fun.</p> <p>To bring people in present state.</p> <p>To enhance social inclusion.</p>
<p>Contra-indications</p> <p>Allergy.</p> <p>Fear of animals or trauma with animals in past.</p> <p>Aggressive behaviour towards animals in present or past.</p> <p>Severe cognitive disorders or concurrent major psychiatric disorders (e.g., hallucinations).</p>	Idem.
<p>Contributors</p> <p>Therapists as medical doctors, (neuro) psychologists, physiotherapist, psychomotor therapist, nurses, working with or without an animal handler must be trained and certified to work with the animal in AAT.</p> <p>The animal must belong to the therapist or to an organisation and be very familiar to the therapist and must also be specifically trained to be certified as a "mediator".</p>	Trained and certified AAA teams (human-animal).

ANIMAL ASSISTED THERAPY	ANIMAL ASSISTED ACTIVITY
<p>Setting of intervention</p> <p>Kind of room depends of the discipline of the therapist that delivers AAT. A safe place to rest for the animal; water needs to be available; hygiene and safety measures and protocols in place; a non-slip floor or ground.</p>	<p>A quiet room; easily accessible for wheelchairs and walker; a non-slippery floor (for the animals); enough space to play and interact with the animal; hygiene and safety measures and protocols in place; safe place for the animal to rest and a water bowl.</p>
<p>Dosage</p> <p>Weekly 1 session, not longer than 45 minutes, until treatment goal is reached.</p>	<p>Weekly 1 or 2 AAA sessions, not longer than 30 to 45 minutes for group sessions; individual sessions same dosage, however 15 to 20 minutes. For group session, no more than 5-8 participants.</p>
<p>Session sequencing</p> <p>Individual sessions or groups of 3 participants.</p>	<p>If possible, twice a week. An AAA session will have more effect twice than once per week. The longer the program (at least 12 – 16 weeks), the better.</p>
<p>Observance / Attendance</p> <p>The therapist will evaluate each AAT session and follow the treatment plan. If a person does not want to come to a session it needs to be respected.</p>	<p>The AAA providers observe what is happening in their sessions and keep a record of what was happening with whom, to be able to build on the experiences with the participants in the next session. If a participant does not want to visit a session it should be respected.</p>
<p>Assessment</p> <p>The providers of AAT as well as the animals need to be assessed (for adequate training, health, suitability). The participants should be assessed if they like animals, if there is no history of animal trauma or abuse of animals, if they are able to handle animals in a way that is safe for the animal.</p>	<p>Idem.</p>

CHAPTER 2

ANIMAL ASSISTED INTERVENTIONS

FOR MORE INFORMATION

- International Association of Human-Animal Interaction Organizations: <https://iahaio.org/>
- Fondation Adrienne et Pierre Sommer: <https://fondation-apsommer.org/>
- Animal Assisted Therapies – International Association of Animal Assisted Therapy: www.aat-isaat.org
- Animal Assisted Interventions: SCAS (The Society for Companion Animal Studies Code of Practice) for the UK: <http://www.scas.org.uk/wp-content/uploads/2019/08/SCAS-AAI-Code-of-Practice-August-2019.pdf>
- General Standards of Practice: <https://aai-int.org/aai/standards-of-practice/>

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KEY POINTS

- To stimulate and improve physical, cognitive and psychological capabilities.
- These interventions involve physical, cognitive and social processes.
- Observed effects are an increase in social interaction, an improvement in quality of life, an improvement in balance and a decrease in behavioural and psychological symptoms.
- In group or individually.
- For people with mild to moderately severe dementia who enjoy animals.



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CHAPTER

3



ART THERAPY

Expressive arts therapy
Creative arts therapy

PRESENTATION

A. Definition

The psychotherapeutic use of art as an intervention is facilitated by an art therapist to help individuals' gain personal insight while engaging in the act of creativity. This process is designed to promote positive well-being through cognitive, emotional, physical, and social assimilation. Art therapy interventions are based on the principle that art is a form of self-expression for all individuals' mental health and well-being, despite those with memory and cognitive impairments, such as Alzheimer's disease. Through the facilitation process led by a credentialed art therapist, psychotherapeutic sessions support personal and relational treatment goals. Art therapy is used to foster self-esteem and self-awareness, support cognitive, sensorimotor functions, and cultivate emotional resilience, promote insight, enhance social skills, reduce, and resolve conflicts and distress, and advance societal and ecological change^[1].

Art therapy is practiced with a medical indication, an adapted therapeutic protocol and specific evaluation tools. Thus, the artistic practice used must be defined with regard to the person's and/or his or her family's tastes and in relation to the therapeutic strategy put in place.

B. Fundamentals

Art has been used as a form of expression since the beginning of mankind as seen in cave paintings such as in the Lascaux. Art therapy became a form of therapeutic self-expression in the 1940's when it evolved independently throughout certain parts of Europe and America. The first known individual to refer to art therapy as a mental health treatment was Adrian Hill, an artist from England. While undergoing therapy treatments in a sanatorium for tuberculosis, Hill recommended participating in art projects to his fellow patient peers. He later discussed much of his work as an art therapist in his book *Art Versus Illness*^[2]. Many art therapists' credit Carl Jung, the Swiss psychiatrist and psychoanalyst, as one of the pioneers who helped build the foundation of art therapy. Jung used art as a therapy practice with his clients and engaged in art making himself as a way to resolve inner conflict. He later published *The Red Book*, as a means of illustrating his emotions into images. Since this time, art therapy has vastly grown in multiple disciplines within the mental health and neurology fields. People with dementia have been of particular interest in using art therapy as a form of treatment. There is a growing body of research demonstrating that art therapy for those with memory impairments are able to create, despite cellular disruption, finding meaning and memories that resurface while in the creative process^[3].

CHAPTER 3

ART THERAPY

THEORETICAL BACKGROUND

A. Processes involved^[4-5]

- Cognitive process: attention, spatial, sequence and thought process (imagination building and recollection of memory/life stories), and sensory stimulation.
- Emotional/Behavioural process: self-expression (verbal and non-verbal forms of communication), relaxation, alertness, and self-awareness.
- Physical processes: fine motor skills and sensorimotor integration.
- Social processes: social interactions, social inclusion and social cohesion.

Cultural aspects need be taken into regard in the selection of art mediums and techniques, fine art works exhibited and discussed, and music (if played while creating art). Research studies have found benefit in providing weekly, one-hour sessions, primarily using watercolor as a good medium to use with people with dementia (collage, drawing, sculpture, digital arts and photography are other types of art mediums that can be used), and combined with appropriated music, the act of art making may help deepen the experience in being able to resurface long-term memories and sustain positive mood.

B. Neurophysiological correlates

Studies validate that art making helps to reduce agitation, anxiety, and depression, and stimulate areas in the brain pertaining to long-term memory and spatial recognition. PET (positron emission tomography) brain scan imaging has demonstrated regions in the brain being activated when engaged in forms of creativity. Art making has been compared to a mindfulness meditation in the same form of brain imaging with the releasing of dopamine, serotonin, oxytocin, endorphin (“feel good” chemicals in the brain that help activate neural signaling), thus reducing levels of challenging behaviours.

SCIENTIFIC EVALUATION

Art therapy as a psychosocial and psychotherapy intervention for people with dementia has been shown to have positive effects on quality of life, social interactions, mood and improved psychological symptoms^[6]. However, the lack of scientific clinical trials in art therapy does not support an evidence-based effect of art therapy, although there is empirical evidence in the academic literature and field observations. Further studies are needed to strengthen the evidence base for the effectiveness of this type of intervention.

No large-scale cost studies to date about cost-effectiveness. However, smaller studies conducted in the US and UK indicate a significant reduction in dementia care costs in using art therapy as an effective means to enhance quality of life. Current research in art therapy demonstrates an increase in positive mood and behaviour with depressive, anxiety and agitation symptoms lessened, a reduction in sundowning, reduction in loneliness, decrease usage in psychotropic drugs and a decrease in caregiver stress. Additionally, a larger study funded by The National Endowment of the Arts found a significant support in mental and physical performance on elderly people who engaged in the arts as a means for healthy ageing^[7].

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

Degree of art therapist or any health professional who has undergone specific training in the practice and teaching of art. Knowledge of neurocognitive disorders such as Alzheimer's disease and related dementias.

CHAPTER 3

ART THERAPY

B. Practical and clinical advice

THERAPEUTIC INTENTION

Participants profile

- People with mild to moderate dementia.
- Family member e.g., spouse, adult child, grandchild and/or other caregiver may also participate along with the person with dementia as a way to strengthen relationship bonds. It is recommended artwork be created together and not having the caregiver take over the person with dementia's work.

Indications

- Cognitive support: memory and executive functioning.
- Psychology support: mood, behaviour, social cohesion, and quality of life.
- Neurological support: limiting psychotropic drug usage in neural activity.

Contra-indications

- In some cases, severe cognitive disorder and/or late end stage dementia where creating art may not be possible
- Sensory and/or physical limitations.
- Severe chronic pain.
- Severe behavioural disturbances.
- Concurrent major psychiatric disorders with negative hallucinations and other continuous negative preoccupations.

Contributors

A college degree and/or registered art therapist, undergraduate or graduate student in an art therapy program, therapist or registered instructor in the arts, activity director; additional staff to facilitate the session with proper training in art therapy. Art therapy must be practiced by a trained professional. If a caregiver uses art for the purpose of care, it is not necessarily art therapy.

Setting of intervention

- A quiet space away from noise and other distractions, preferably with windows for fresh light and if possible, with a view of nature.
- A room with close proximity to a sink.
- A room with tables and chairs with enough space to maneuver in between.

THERAPEUTIC INTENTION

Dosage

- Period: sessions are conducted on an on-going bases.
- Frequency: at least once a week.
- Duration: usually mid-morning is the more optimal time to hold sessions and lasting anywhere from 45 minutes to an hour (depending on attention span, some may only hold attention for 20 to 30 minutes).

It is recommended to provide sessions on the same day(s) each week and at the same time(s) for consistency.

Session sequencing

- Art groups can be held in 1:1 independent or in group sessions, ideally between 5-8 participants per 1-2 facilitators (groups no more than 10-15 participants should have three facilitators. Anything over 15 is not recommended and needs to be well staffed).
- Presentation: reviewing an artist from a fine art book and giving some information of the artist's life history, showing two to three images of their artwork, and engaging in a discussion can help "set the stage" in getting creative. The theme of the art group can be based from the featured artist, e.g., Picasso and painting in cubism; O'Keefe and painting a flower up-close. If it is chosen to not feature an artist, a selected directive can be demonstrated e.g., painting a favorite landscape using watercolor, creating a favorite kind of day magazine collage *a vital component to the artwork is processing it, e.g., what is the title of the art created, what comes to mind when looking at it. (*paintbrushes should be placed lying flat to dry).
- Processing: writing the memory/story of what the person said on the back of their art or on a notepad to go with the art as a way to capture what the person is thinking and feeling. Sharing art with family members is additionally recommended to have meaningful conversations.
- Storage: artwork can be stored in each participate folder or given to them/family member and art supplies should be cleaned, dried, and stored away in a safe place.

Observance / Attendance

- Participants reluctant to attend sessions should be encouraged to attend, and continued to be invited, a call for re-evaluation of appropriateness of intervention may be needed.
- Engage various individuals to attend, even those who seem shy or avoidant of art.
- Keep sessions consistent to the same individuals for consistency and include others as needed.
- Ensure hearing aids are in place, eye glasses are clean and clothes are appropriately on e.g., shoes are on the correct foot.

Assessment

Cognitive and behavioural.

CHAPTER 3

ART THERAPY

FOR MORE INFORMATION

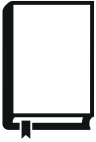
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- Cognitive Dynamics, Bringing Art to Life: <https://www.cognitivedynamics.org/therapy/>
- Presentation: "Searching for Personhood: Unlocking the Self through Expressive Arts": www.dmh.ms.gov/pdf/Searching%20for%20Personhood.pdf

ABOUT THE AUTHOR

Angel C. Duncan, PhD Candidate, MA, MFT, ATR, is a marriage and family therapist, art therapist and neuroscientist in Alzheimer's disease clinical research. She is a professor at the University of Tampa and Albertus Magnus College. Additionally, she is the founder and director of the Arts in MIND art therapy program at the Yale University Art Gallery, in partnership with the Yale Alzheimer's Disease Research Unit.

KEY POINTS

- To stimulate cognitive functioning, improve mood and quality of life, stimulate social interactions and manage behavioural symptoms.
- This intervention involves cognitive, emotional, physical and social processes.
- Observed effects are an improvement in quality of life, well-being and social interactions, a decrease in agitation, depression, anxiety and feelings of loneliness, and a decrease in the use of psychotropic treatments.
- In group, individually or with a family caregiver.
- For people with mild to moderate dementia.



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CHAPTER

4



COGNITIVE REHABILITATION

Neuropsychological rehabilitation (clinical settings)
Reablement or restorative care (community settings)
Tertiary prevention (public health)

PRESENTATION

A. Definition

Cognitive rehabilitation for people with dementia is a behavioural therapy for managing the impact of cognitive impairment on everyday life^[1]. It does not aim to cure dementia but to enable the optimal level of functioning despite the condition. The focus is on achieving personal goals relating to activities of daily living and social engagement; the ultimate goal is to improve quality of life and well-being. Cognitive rehabilitation is built on goal setting and problem-solving approaches. It can be seen as a toolbox of compensatory aids and enhanced learning techniques to facilitate new learning, reduce impairment, and build upon strategies to facilitate the process that can all be combined into a personalised intervention^[2].

B. Fundamentals

Cognitive rehabilitation was originally developed as an intervention to remediate cognitive impairment following brain injury. It started as a set of mechanistic exercises engaging cognitive abilities (i.e., brain training) and evolved into an individualised, collaborative, and holistic program focused on regaining competence in everyday situations. In brain injury settings, it promotes alleviation of the underlying impairment while offering practical ways to bypass associated difficulties such as changes in mood, motivation or communication, and relationships problems^[3]. While it is not possible to improve the underlying impairment in dementia, the approach is relevant for mitigating the impact of cognitive difficulties on everyday life and it serves as a valuable framework for conceptualising dementia care^[4].

THEORETICAL BACKGROUND

A. Processes involved

A course of cognitive rehabilitation can be divided into four stages^[1]:

- 1 The first step is to gain a thorough understanding of the person's current level of functioning within a broader family and social context, and in relations to past experiences, assets and expectations. This is a crucial time for establishing trust and setting a tone for the collaborative work ahead.
- 2 The second step involves identifying the person's key areas of dissatisfaction and subjective priorities for improving the current situation, and then refining them into clear therapy objectives (goals) using SMART principles (Specific, Measurable, Attainable, Relevant, Time-limited). As part of this collaborative process, the practitioner assesses the demands of the tasks, the person's cognitive ability and non-cognitive barriers and available resources, ensuring the eventually agreed therapy goal is potentially achievable as well as relevant and inspiring for the individual with dementia.



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COGNITIVE REHABILITATION

- ③ Finally, the individual therapy plan is developed in order to bridge the gap between the person's current ability and the demands of the goal-related activities.
- ④ Progress with therapy is closely monitored and the plan adjusted, if needed, to ensure ongoing engagement and desired therapy outcomes. Simple Likert-style ratings are often used to quantify the change^[5].

B. Neurophysiological correlates

While memory encoding and consolidation are impaired from the outset of the most common types of amnesic dementias (Alzheimer's disease, vascular dementia) the progression is gradual and other cognitive functions are relatively preserved in the earlier stages (language, visuospatial abilities, and implicit memory). That remaining cognitive ability provides a sufficient basis for new learning and therapeutic work in mild and moderate dementia^[6].

SCIENTIFIC EVALUATION

There is growing evidence for the effectiveness of cognitive rehabilitation programmes and specific rehabilitative techniques that range from small-scale pre- and post-comparison studies to large randomised controlled trials, with studies reporting reduced functional disability and better performance in daily tasks^[7-12]. While the studies focus on Alzheimer's disease, there is some early work in non-amnesic forms of dementia^[13-14].

There is limited research on the cost-effectiveness of cognitive rehabilitation in dementia. In the GREAT multicentre single-blind randomised controlled trial (Goal-oriented cognitive Rehabilitation in Early-stage Alzheimer' and related dementias), the intervention was reported as cost-effective from both health and social care and societal perspectives at willingness-to-pay values of £2,500 and above, in terms of achieving improvement in relation to areas specifically targeted in the therapy, but not in terms of gains in the quality-adjusted life-years of the person with dementia or the care partner^[15].

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

Practitioners need to know the principles of cognitive rehabilitation and specific rehabilitative techniques, and have experience in goal-setting, solution-based problem-solving approach, and activity analysis. It is also essential to understand the biopsychosocial model of dementia and the specific needs of people with dementia. Clinical psychology, neuropsychology and occupational therapy courses typically include modules on dementia and cognitive rehabilitation for acquired brain injury and therefore provide excellent knowledge and skill base for providing cognitive rehabilitation for people with dementia.

B. Practical and clinical advice

THERAPEUTIC INTENTION

Participants profile

People with early-stage dementia, particularly the amnesic type.

Indications

Difficulties in managing everyday activities.

- Cognitive rehabilitation: any cognitive difficulties that affect daily life (memory, language, planning and sequencing, executive functions, motor praxis).
- Psychological rehabilitation: anxiety, low esteem, poor sleep when secondary to cognitive difficulties.

Contra-indications

Limited understanding of own level of functioning, reluctance to confront the difficulties and put effort into addressing them.

Contributors

Practitioners trained in cognitive rehabilitation (clinical psychologist, neuropsychologist, occupational therapist, specialist nurse); person with dementia as an active participant and contributor along with the care partner if possible.

Setting of intervention

Place of residence (home, care home).

CHAPTER 4

COGNITIVE REHABILITATION

THERAPEUTIC INTENTION

Dosage

Individual sessions depending on the needs and circumstances.

- Period: 4-12 weeks.
- Frequency: weekly or biweekly.
- Duration: 40-60 minutes session.

Session sequencing

After the initial assessment and goal-setting session, the following sessions typically start with reviewing therapy goals and strategies, then focus on progressing that work or on addressing potential barriers (e.g., anxiety), and end with planning for the between-session practice if needed.

Observance / Attendance

It is helpful when a caregiver (close friend, family member) is involved.

Assessment

Interview; activities of daily living; neuropsychological evaluation of cognitive functions relevant for the individual therapy goals.

FOR MORE INFORMATION

- A short introduction to cognitive rehabilitation in dementia: Kudlicka, A., & Clare, L. [2018]. Cognitive rehabilitation in mild and moderate dementia. In *Oxford Research Encyclopedia of Psychology*. Clare, L. [2017]. Rehabilitation for people living with dementia: a practical framework of positive support. *PLoS Medicine*, 14(3), e1002245.
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ABOUT THE AUTHOR

Aleksandra Kudlicka, PhD, is a psychologist and researcher at the University of Exeter involved in work on introducing cognitive rehabilitation into dementia health and social care services.

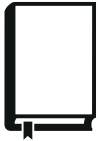


KEY POINTS

- To manage memory and executive difficulties that affect daily life and to alleviate psychological difficulties related to cognitive disorders.
- This intervention involves cognitive, psychological and social processes.
- Observed effects are a reduction in the impact of cognitive disorders on daily life and the maintenance or even improvement of functional autonomy.
- For individually or with support of family caregivers
- For people with early-stage cognitive impairment where memory impairment is predominant (Alzheimer's disease and vascular disease).

CHAPTER 4

COGNITIVE REHABILITATION



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CHAPTER

5



COGNITIVE STIMULATION THERAPY

Cognitive stimulation

PRESENTATION

A. Definition

Cognitive Stimulation Therapy (CST) is a psychosocial intervention for people with dementia that aims to improve cognitive function through themed group activities, which implicitly stimulate skills including memory, executive function, and language through tasks such as categorisation, word association and discussion of current affairs. It also intends to improve overall quality of life and mood. Sessions follow a set of guiding principles which include “new ideas, thoughts and associations”, “maximising potential” and “opinions rather than facts”^[1].

B. Fundamentals

Cognitive Stimulation Therapy was designed through systematically reviewing the literature on the main psychosocial interventions for dementia^[2] and combining the most effective elements of these therapies. The programme is built upon several theories including learning theory and brain plasticity, which suggest that appropriate and targeted mental stimulation, for example through building new semantic connections, can lead to the development of new neuronal pathways. Social theories suggest that creating an optimal and supportive group environment can enhance skills, reduce stigma and increase well-being and there is evidence that improved cognition in CST is mediated by improved quality of life^[3-4].

THEORETICAL BACKGROUND

A. Processes involved

- Physical processes: sensorimotor integration.
- Cognitive processes: memory, executive functioning, language production and comprehension, spatial and temporal orientation, praxis.
- Behavioural processes: mood, behavioural and neuropsychiatric symptoms.
- Social processes: social interaction, social communication.

Based on the involved processes mentioned above, it is important to highlight that CST also aims to improve quality of life and well-being of people with dementia and their caregivers. It is the only psychosocial intervention recommended to treat cognition by the United Kingdom (UK) National Institute for Health and Care Excellence (NICE) guidelines, being now offered by over 85% of UK memory services. It is endorsed by Alzheimer’s Disease International, used in over 31 countries globally and translated into at least 10 languages.

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B. Neurophysiological correlates

Cognitive Stimulation Therapy is a psychosocial intervention that aims to mentally stimulate people through complex psychological techniques (implicit learning, multi-sensory stimulation) embedded in structured group activities (word association, current affairs). The sessions create a positive but challenging learning environment which could stimulate the functioning of existing neural networks and also promote the functioning of alternative neuronal pathways. It might also stimulate the frontal lobe, as has been shown in studies exploring neural correlates of psychosocial intervention for people with dementia^[5-6]. However, to date, there is no published study exploring specifically the neurophysiological correlates of CST.

SCIENTIFIC EVALUATION

Group-based CST is recommended to be evidence-based intervention for dementia in the literature. A recent systematic review^[7] included 12 studies (8 RCTs) from the United States (US), UK, Hong Kong, Japan, Tanzania, and Portugal and found that all studies examined impact on cognition, with nine demonstrating statistically significant improvements. Several studies also found significant benefits to quality of life, depression, and impact on caregivers. Crucially, the review concluded that the CST programme can be widely linguistically and culturally adapted, with the benefits to cognition replicated internationally. A synthesis of 22 systematic reviews incorporating 197 unique studies of psychosocial interventions in dementia^[8] concluded that cognitive stimulation demonstrates the best evidence for improving cognition amongst all psychosocial interventions.

Economic analyses have shown that CST is more cost-effective than usual care when looking at benefits in cognition and quality of life^[9]. Also, the UK National Health System (NHS) conducted an economic evaluation of the alternatives to antipsychotic drugs for people with dementia, showing that, combining health care cost savings and quality of life improvements, CST used routinely could save £54.9 million annually for the NHS^[10].

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

Cognitive Stimulation Therapy can be administered by anyone working with people with dementia, such as care staff, psychologists, occupational therapists, or nurses. Practitioners can learn to provide CST treatment for people with dementia by following the CST manual or attending CST training.

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B. Practical and clinical advice

THERAPEUTIC INTENTION

Participants profile

People with mild to moderate dementia.

Indications

- Cognitive stimulation: memory, executive function and language.
- Psychological stimulation: mood, social interaction and quality of life.

Contra-indications

Severe cognitive disorders, severe auditory and/or vision loss, behaviour incongruent with group session.

Contributors

Care workers, psychologists, occupational therapists or nurses working with people with dementia.

Recommendation: Two facilitators per group.

Setting of intervention

Isolated and quiet room including comfortable chairs, a table, a whiteboard, a ball and a music player.

Dosage

Group sessions with 5 to 8 participants.

- Period: 7 weeks.
- Frequency: twice a week.
- Duration: 45 minutes - 1 hour session.

Session sequencing

1 Welcome members individually; **2** Group name and song; **3** Temporal orientation;
4 Discussion about current affairs; **5** Main activity; **6** Closure.

Observance / Attendance

To reduce reluctance to participate, group members should ideally be at similar stages of dementia and the sessions activities should be proposed according to group members' interests.

Assessment

Cognitive, functional, behavioural, mood, quality of life.

FOR MORE INFORMATION

International Cognitive Stimulation Therapy (CST) Centre: <https://www.ucl.ac.uk/pals/research/clinical-educational-and-health-psychology/research-groups/international-cognitive-34>

ABOUT THE AUTHORS

Élodie Bertrand, PhD, is a neuropsychologist and an associate professor at the University of Paris, working in the Memory, Brain & Cognition Laboratory.

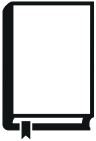
Aimee Spector is Professor of old Age Psychology at University College London and director of the International Cognitive Stimulation Therapy (CST) centre.

KEY POINTS

- To stimulate cognitive functioning (memory, language, attention-concentration, executive functioning) and provide psychological support.
- This intervention involves physical, cognitive, behavioural and social processes.
- Observed effects are a maintenance or an improvement of the cognitive functioning and an improvement of mood and quality of life of family caregivers.
- In group sessions.
- For people with mild to moderate dementia.

CHAPTER 5

COGNITIVE STIMULATION THERAPY



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CHAPTER

6



DANCE-BASED INTERVENTIONS

Dance therapy – Dance movement therapy

Psychomotor dance therapy

Dance movement psychotherapy

PRESENTATION

A. Definition

According to the Association of Dance Movement Psychotherapy (ADMP), the psychotherapeutic use of movement and dance enables people to engage creatively in processes intended to promote emotional, cognitive, physical and social integration, and spiritual aspects of self. This intervention is based on the principle that movement is a form of expression of a person's thoughts and feelings. By identifying, recognising and accompanying people's movements, the therapist encourages the development and integration of new adaptive movement patterns in relation with emotional experiences of people^[1]. Some dance-based interventions refer to this definition.

B. Fundamentals

Dance therapy is part of the four major disciplines of art therapy (visual arts, music therapy, drama therapy and poetry therapy). Dance appeared as a therapy in 1942 in the USA^[2]. Dance is a multimodal activity involving motor skills, cognitive, sensory and sensory-motor abilities as well as emotional and social skills^[3]. A growing body of research shows that creative arts and physical exercise are capable of alleviating disability, restoring social connections and slowing down the progression of the disease^[4].

THEORETICAL BACKGROUND

A. Processes involved ^[1 : 5]

- Physical processes: motor skills, balance, gait, movement coordination, physical and sensorimotor integration.
- Cognitive processes: attention, spatial movement planning, synchronisation in space and time, learning motor skills or sequences, sensory stimulation, creativity.
- Psychological, symbolic and metaphoric processes: body-image, self-expression (verbal and non-verbal communication), self-awareness, creativity, meditation, relaxation, expression of conscious and unconscious emotions, access to unconscious and/or difficult feelings.
- Social processes: social interactions, social inclusion.

Cultural aspects must be taken into account for the choice of dance styles and music. Processes listed above are more or less triggered in response to the quality of relationships initiated between the therapist and participants.

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DANCE-BASED INTERVENTIONS

B. Neurophysiological correlates

Studies showed that dance helps to reduce stress, increase levels of serotonin (a wellness hormone), and develop new neural connections, especially in areas involved in executive functions, long-term memory, and spatial recognition^[6]. Functional imaging has been used to isolate areas of the brain that contribute to the learning and performance of dance: motor cortex (planning, control, and execution of voluntary movements), somatosensory cortex (motor control and visuo-motor coordination), basal ganglia (movement coordination) and cerebellum (integration and planning of motor actions)^[6]. Dance stimulates inter-hemispheric exchanges^[7], suggesting a better processing of information. Dance learning is associated with long-term plasticity in older adults^[8-9]. Dance as a rehabilitative activity can foster cerebral plasticity of older people^[10].

SCIENTIFIC EVALUATION

Dance as a psychosocial intervention for people with dementia has shown positive effects on balance, gait, risk of falling, physical activity, cognition, quality of life, social interactions, and behavioural and psychological symptoms^[11-12]. However, current scientific knowledge does not support an evidence-based effect of dance, although there is empirical evidence in clinical literature and field observations. Further studies are needed to strengthen evidence of effectiveness of this type of intervention.

There are no studies to date on the cost-effectiveness of dance-based interventions.

IMPLEMENTATION AND PRACTICE ADVICE

A. Training and/or knowledge required to provide the intervention

Dance therapist or dance movement therapist or dance movement psychotherapist who has undergone a specific Masters level training program (2/3years).

Basics in psychomotricity and/or occupational therapy, as well as knowledge of neurodegenerative disorders. Knowledge of and clinical skills in the practice of Person Centred Care^[13].

B. Practical and clinical advice

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Participants profile</p> <p>People with dementia or cognitive disorders.</p>	<p>Open to anyone.</p>
<p>Indications</p> <ul style="list-style-type: none"> ■ Motor rehabilitation: walk, gait, balance, risks of fall. ■ Cognitive rehabilitation: memory, executive functions, motor praxis. ■ Psychological rehabilitation: social interaction, mood, quality of life, social withdrawal, anxiety, depression, agitation. 	<p>Convivial events, community dance, regular recreational activity, social events.</p>
<p>Contra-indications</p> <p>Medical advice not to exercise, fragile health status. Agitation or wandering may interfere with the sessions.</p>	<p>Idem.</p>
<p>Contributors</p> <p>Dance movement therapist, dance movement psychotherapist and additional care staff to assist the therapist.</p>	<p>Staff, families, friends.</p>
<p>Setting of intervention</p> <p>Quiet, relaxing, well-ventilated, and spacious room. Non-slip floor or ground. Refreshments and chairs at disposal.</p>	<p>Ballroom, community centre, day centre. Non-slip floor or ground. Refreshments and chairs at disposal.</p>
<p>Dosage</p> <p>Individual or group sessions of 8 to 10 participants.</p> <ul style="list-style-type: none"> ■ Period: 12 weeks. ■ Frequency: at least twice a week. ■ Duration: 30-60 minutes session (average 40 minutes). 	<p>Not specified.</p>

■ ■ ■

CHAPTER 6

DANCE-BASED INTERVENTIONS

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
Session sequencing 1 Welcome; 2 Warm-up; 3 Development with exercises and free dancing; 4 Closure; 5 Cool down; 6 Participants feedbacks. The movement must remain free with no obligation of coordination. Supports can be used (balloons, scarves, feathers, bells ...).	Not specified. The movement must remain free with no obligation of coordination. Supports can be used (balloons, scarves, feathers, bells ...).
Observance / Attendance Check that the sessions are appropriate and allow each participant to dance safely.	Not specified.
Assessment Cognitive, psychomotor, balance, behavioural, quality of life, Laban Movement Analysis (LMA) or Kestenberg Movement Profile (KMP).	Quality of life, well-being, satisfaction.

FOR MORE INFORMATION

Association for Dance Movement Psychotherapy UK: www.admp.org.uk

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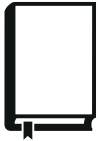


KEY POINTS

- To provide a physical, cognitive or psychological rehabilitation.
- These interventions involve physical, cognitive, psychological and social processes.
- Observed effects are improvements in balance, gait, cognition, quality of life and social interactions, and reduced risk of falls and behavioural and psychological symptoms.
- In group, individually or with family caregivers and/or friends.
- For all people with dementia who are physically able to dance or participate sitting down.

CHAPTER 6

DANCE-BASED INTERVENTIONS



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CHAPTER

7



HORTICULTURAL THERAPY

Therapeutic garden – Garden therapy

Therapeutic horticulture

Nature-based therapy – Healing garden^[1]

PRESENTATION

A. Definition

A holistic therapeutic act that involves garden using, gardening, plants growing or more generally relationship to plants and materials derived from nature in order to improve physical, mental, and social health^[2]. This therapy is particularly suitable for elderly people and people with dementia^[3-4].

B. Fundamentals

The general fundamentals refer to evolutionary theories of biophilia and the genetically embedded processes of adaptation to the environment^[5]. Biologically, physiologically, and spiritually, human being is made to interact with natural environment in the sense of life. Relationship to nature provides stimulation of vital momentum, body mobilisation, positive emotions, decreased stress levels, recovery of attention and concentration abilities and stimulation of cognition. It supports imagination and creativity. It strengthens self-esteem, sociability and contributes to the development of the inner history of life by positioning and balancing being in its fundamental relationships with the world. These instinctive mechanisms are relatively independent of intellectual capacity and cultural background. They remain for a long time preserved and mobilisable regardless of the pathologies^[6].

THEORETICAL BACKGROUND

A. Processes involved

- Physical processes: musculoskeletal maintenance: tone, trophicity, muscle strength, joint flexibility, motor coordination, fine motor skills, respiratory capacity. Cardiovascular maintenance: heart rate, blood pressure, arterial and venous network, skin trophicity. Sensory maintenance: vision, hearing, smell, taste, hearing, touch, proprioception, balance, temporal and spatial orientation. Exposure to natural light: regulation of biological rhythms, sleep/wake, appetite regulation, vitamin D therapy, mood regulation, strengthening of natural immunity.
- Cognitive processes: reminiscences and memory training: episodic memory, semantic memory, procedural memory, and cultural memory. Emotions stimulating, wording, storytelling. Imagination and metaphor. Psychomotor programming.
- Psychological and behavioural processes: body autonomy, adaptation to situations, self-esteem, expression of emotions, communication.
- Social processes: openness, listening, trust, willingness to exchange, social interactions, tolerance, quality of life and dignity.

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B. Neurophysiological correlates

Variety of natural sensory stimulations promotes brain arousal and adaptation of muscle tone from the brain stem. The stimulation of memory and emotions centers induces an impression of familiarity and adaptability to this environment. This condition requires cognitive abilities and behavioural regulation. Regulation of stress levels lowers cortisol levels. Inhibition of the sympathetic system reduces the catecholamines rate (action on the cardiovascular system). Action on serotonin pathways reinforces the benefits of stress regulation on the immune system. Mood regulation benefits to emotions expression that are fundamental for communication.

SCIENTIFIC EVALUATION

A meta-analysis of scientific publications over the past 20 years assessed the effectiveness of horticultural therapy on cognitive decline, agitation level, positive emotions, and level of engagement in people with dementia. The results indicated that there was a significant difference when individuals participated in an effective horticultural therapy program, while there were no significant results on agitation and positive emotions when the relationship to the plant was purely ornamental^[7].

A second review of the literature on 23 articles, 8 of which were already meta-analyses, found a significant effectiveness of a horticultural therapy program on the level of agitation. The effect was also particularly significant (+ 45%) on the impression of commitment and adherence to the activity^[8].

The cost-effectiveness of horticultural therapy is not sufficiently referenced to date

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

A dual competency is required. It should be noted that no program in France offers a degree in horticultural therapy. However, care staff can be made aware of this through continuing education. Diploma or certification courses are offered in the USA, Japan, and several European countries.

Horticultural therapist: care staff of all professional categories trained in the benefits of therapies through the relationship to nature, therapeutic gardens, horticultural activities, gardening, and horticulture.

Mediator gardener, Horticultural therapy facilitator: gardening and landscape professionals trained in the care and accompaniment of a vulnerable public, the benefits of therapies through the relationship to nature, therapeutic gardens, and horticultural activities.

NB: The High School of Horticulture and Landscape of Brive-Voulezac (France) has created in 2020 a Gardener Mediator specialisation. This professional title is based on the acquisition of four abilities: Design - Create - Manage/Animating landscaping and edibles for social and/or therapeutic purposes - Agroecology/Solidarity between the forms of life.



CHAPTER 7

HORTICULTURAL THERAPY

B. Practical and clinical advice

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Participants profile</p> <p>People with dementia. The professional will adapt activity to the participant profile, to his clinical situation, to the specific indications and his expectations if they can be formulated.</p>	<p>People with dementia, voluntary or whose previous life history leads to think that this recreational activity will be particularly favourable.</p>
<p>Indications</p> <ul style="list-style-type: none"> ■ Global physical rehabilitation: musculoskeletal, cardiovascular, respiratory, sensory, appetite, sleep quality, fall prevention, trophic disorders. ■ Cognitive maintenance: reminiscence, memory stimulation, verbalisation, action programming, praxis, temporal and spatial orientation, body schema. ■ Behavioural and psychological symptoms: anxiety, withdrawal, depression, insomnia, restlessness, wandering, aggressiveness. 	<p>Horticultural therapy sessions may be prescribed for recreational purposes when primary purpose is regulation of stress levels^[9] and recovery of attentional fatigue^[10]. Distraction, positive emotion, feeling of escape, familiarity with the place contribute to well-being.</p>
<p>Contra-indications</p> <ul style="list-style-type: none"> ■ No tetanus vaccination. ■ Severe and uncontrolled Allergic Asthma. 	<p>Idem. High risk of falls requires careful and suitable accompaniment during a trip to the garden.</p>
<p>Contributors</p> <p>Horticultural therapist, gardener mediator and care staff made aware of horticultural therapy. The indication is made by the health care team. For an individual session, horticultural therapist intervenes alone. For a group session, therapist is assisted by a care staff who is aware of the therapeutic issues of the intervention. In an institution where there is a therapeutic garden, the mediator gardener prepares the equipment and the site of the intervention. He assists the horticultural therapist during his intervention.</p>	<p>For a recreational and beneficent walk in the garden, the intervention can also be done individually or in groups. The mediator gardener welcomes, accompanies the walk and presents the garden. When the group exceeds two people, presence of volunteer visitor or family caregiver is necessary.</p>
<p>Setting of intervention</p> <p>In institution, in person's or professional' home:</p> <ul style="list-style-type: none"> ■ In a garden designed for this purpose, a terrace, a greenhouse, or an equipped room. ■ In the person's bed or in the armchair near an open window. ■ Safe and comfortable (which requires accommodation). ■ With suitable equipment: tooling, raised planter, tray or repotting table, horticultural therapy trolleys. 	<p>A garden, a patio, a terrace, indoors.</p>

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Dosage</p> <p>Individual or group sessions of 5 to 6 participants.</p> <ul style="list-style-type: none"> ■ Period: all year round. ■ Frequency: at least twice a week. When possible, every day. ■ Duration: half-hour in individual and 1 hour and 30 minutes in group. 	<p>Idem.</p>
<p>Session sequencing</p> <p>When possible: go around the garden, observe plants, awaken senses, observe reactions, and adapt its activity. To be attentive, in the exchange, propose a simple gardening activity, achievable and soothing, or targeted by the indication.</p> <p>For example: watering is generally appreciated and soothing.</p> <p>More structured workshops may be offered^[11].</p> <p><i>Recommendation: based on the indication, always adapt the proposed activity to the situation and encourage to maintain the session duration for an effective natural exposure.</i></p>	<p>The recreational outing always benefits from the mediator gardener presence.</p>
<p>Observance / Attendance</p> <p>Unless opposed and according to indications, minimum compliance can be defined for an actual result.</p> <p>For example: decreased agitation and aggression. A walk in the garden twice a day for 30 minutes or exposure to natural light from a veranda in the morning for 1 hour.</p>	<p>Not specified.</p>
<p>Assessment</p> <p>The therapist must be able to assess the person's abilities and adapt the activities.</p> <p>Sessions' evaluations are targeted from indications. They are carried out by both the horticultural therapist and by care staff the current and end-of-program.</p> <p>Physical measures: heart rate and blood pressure at the beginning and end of the session.</p> <p>Well-being with the EVIBE scale.</p> <p>Behavioural disorders with neuropsychiatric inventory (NPI) short version (NPI-reduced) and health care version (NPI-ES) at the beginning and end of the program.</p> <p>Quality of life with the QoL-AD questionnaire at the beginning and end of the program.</p>	<p>Not specified.</p>

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FOR MORE INFORMATION

- French Federation of Gardens, Nature and Health: therapeutic gardens, horticultural therapy and ecotherapy: <https://f-f-jardins-nature-sante.org>
- American of horticultural therapy association: <https://www.ahta.org/>
- Canadian Horticultural Therapy Association: <https://www.chta.ca/>
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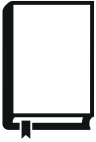
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France Criou is a consultant in therapeutic gardens, hortitherapy programs and ecotherapies. Doctor of Medicine and Landscaper, she graduated in Psychiatric Phenomenology and is an active member of the French Federation of Gardens, Nature and Health of which she was Secretary from April 2018 to April 2021.

Isabelle Boucq is a psychologist and an active member of the French Federation of Gardens, Nature and Health of which she was President from April 2018 to April 2021.

KEY POINTS

- To provide physical rehabilitation, cognitive maintenance or management of behavioural and psychological symptoms.
- This intervention involves physical, cognitive, psychological and social processes.
- Observed effects are an improvement in general physical health, a slowing of cognitive decline, reduced agitation, a sense of well-being, the expression of positive emotions and the satisfaction of engaging in nature-related activities.
- In group, individually or with a family caregiver.
- For all people with dementia, regardless of the stage of the disease.



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CHAPTER

8



MULTISENSORY STIMULATION

Multisensory intervention
Multisensory stimulation room
Multisensory environment –Sensory room
Snoezelen room.

PRESENTATION

A. Definition

The term “multisensory intervention” can be used to encompass any intervention aiming to stimulate two or more primary senses, including, visual, auditory, gustatory, olfactory, tactile. A multisensory intervention is purposefully designed to provide an enriched experience that stimulates multiple sensory systems.

Multisensory stimulation (MS) is often equated with the Snoezelen room (or multisensory environment), which is a widely used approach. The term *Snoezelen* (lit. “sniffing and dozing”) refers to a safe, comfortable, demand-free environment designed to stimulate all the senses^[1] frequently through the use of special equipment including e.g., coloured optic fibers, bubble tube lamp, aroma air spray, and digital interactive panels where colours, sounds, and images can be changed using a touch screen. The choice of supports and stimulation materials can also be very simple (perfumes, candles, lotions, etc.).

Other interventions using different approaches have been developed, among them multisensory tools (e.g., twiddle muffs, memory blankets), multisensory themed boxes, and multi-dimensional programmes such as Sonas or Namaste Care^[2].

B. Fundamentals

Multisensory interventions adopt a nondirective approach aiming to encourage people to engage with sensory stimuli as they choose^[3].

Among psychosocial approaches, MS has received great interest within the field of dementia care, particularly for the management of responsive behaviours (agitation, aberrant motor behaviour, anxiety, irritability, depression, apathy, disinhibition, and delusions). Sensory stimuli can offer the opportunity for meaningful interactions between people with dementia and those who care for them. This interaction can take place at the verbal and non-verbal level and is likely to boost relationships and improve communication.

THEORETICAL BACKGROUND

A. Processes involved

The theoretical underpinning supporting MS posits that responsive behaviours and cognitive impairment associated with dementia are closely related to sensory decline.

Due to age-related sensory changes (e.g., limited vision and hearing) which are exacerbated by the condition, people with dementia may require more stimulation (strong stimuli, greater contrast between objects) in order to maximise perception. Consequently, the absence of appropriate activities and sensory enriched experiences put people with dementia at risk of sensory deprivation, defined as a prolonged lack of stimulation^[4]. Empirical evidence demonstrates the detrimental effects of long-term sensory deprivation including changes in mood and behaviour such as depression, disorientation, irritation, apathy, and anxiety^[5].



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As cognitive function deteriorates in dementia, the individual's ability to process and integrate external sensory information and to understand context are reduced^[6]. Therefore, overstimulating environments which may exceed an individual's tolerance threshold can generate or increase maladaptive behaviours such as aggression and irritation. Tailoring environmental demand and providing appropriate sensory stimulation supports people with dementia to adjust and process information, reducing discomfort and confusion. In turn, MS may increase well-being, quality of life, social skills and support the management of behavioural manifestations of dementia.

B. Neurophysiological correlates

Sensory information is transmitted via neuronal networks to the brain, which interprets one's environment. Neuroscientific studies suggest that older people benefit more from receiving multimodal stimulation compared to unimodal stimulation, in performing tasks such as detection or according judgement^[7]. A sensory-enriched experience enables stimuli to be encoded into multisensory representations thereby activating a wider network of brain regions compared to those invoked by unisensory encoding, thus facilitating older peoples' task performance.

SCIENTIFIC EVALUATION

There is some evidence suggesting that MS has a positive impact on people with dementia in reducing responsive behaviours (e.g., agitation, irritation), improving mood, facilitating interactions and interpersonal relationships with other care home residents and with carers.

A few studies reported positive benefits for carers following multisensory interventions including reduced caregiver stress, increased well-being, and job satisfaction^[8-9]. However, the scientific effectiveness of interventions based on multisensory approaches is still fairly limited. The limited body of evidence, poor quality of studies, and variety of intervention protocols make it difficult to delineate an overall conclusion in relation to the effect of MS. Further research is needed to draw firm conclusions about its effectiveness and the key elements of different approaches to MS.

There are no cost-effectiveness studies to date. However, it possible to speculate that MS utilising everyday objects e.g., perfume, candles, scented body lotion, since these are by definition highly accessible, hold promise as an individualised, easy-to-implement, cost-effective intervention.

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

The authors suggest that MS facilitators should have training and education about dementia, good communication skills, and knowledge about the participants (e.g., past history, hobbies, etc.). This creates a person-centred care approach aiming to empower participants using bespoke activities created for each individual. This should result in appropriate support and engagement for people with dementia, thereby improving overall well-being for both residents and care staff or family supporters.

B. Practical and clinical advice

The following practical guide is created for supporting the development and implementation of a multisensory intervention using themed boxes for people with dementia^[10-12]. The example provided focusses primarily on tactile and olfactory (smell) stimulation. The following advice can also be applied to other kinds of sensory stimulation.

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THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Participants profile</p> <p>All people with dementia, regardless of the severity of the disease.</p>	Open to anyone.
<p>Indications</p> <ul style="list-style-type: none"> ■ Cognitive: memory, sensory integration, attention, and executive functions. ■ Psychological: social interaction, mood, quality of life, well-being, communication, responsive behaviour, anxiety and depression. 	Sensory stimulation, engagement in meaningful activity and socialisation.
<p>Contra-indications</p> <p>Risk of allergic reactions; skin irritation; emotional distress due to overstimulation or negative memories.</p>	Idem.
<p>Contributors</p> <p>Occupational therapist; psychologist; psychomotor therapist; trained care staff or artist facilitator; two (or more) staff to support the session (if working in a group).</p>	Anyone with good communication skills and knowledge of the participants.
<p>Setting of intervention</p> <p>A quiet, relaxing, well-ventilated room with chairs and table. You might want to clear other items or smells (e.g., air fresheners) away and ensure you won't be disturbed during the activity. This will create space and quality time for you and the participants.</p>	Quiet environment.
<p>Dosage</p> <p>Group sessions of 5-6 participants.</p> <ul style="list-style-type: none"> ■ Period: 6 weeks. ■ Frequency: once per week. ■ Length: 15 minutes (preparation); 45-60 minutes (intervention). <p>Participants should be given enough time to explore and comment on the materials according to their capacities.</p> <p><i>The intervention can also be offered individually. In this case, it is important that the participant does not feel examined/tested.</i></p>	Not specified.

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Session sequencing</p> <p>Item selection: think about objects that each people with dementia (participant) enjoys now or in the past, including their preferred smells. You can ask them, find out more about their life, or investigate what was popular when they were in their late teens or early 20's. Create six themed activities (e.g., childhood, vacations) based on each participant's preferences. Place the selected items related to each theme (6-8 is a good number to ensure variety) in a box or case.</p> <p>Introduce the activity: let the participants know that you would like to spend time exploring some interesting items together.</p> <p>Multisensory activity*: start by presenting one item to each participant or let them choose one from the box. Note how each participant interacts with the object (including smelling it if appropriate). Encourage each participant to handle and examine the objects. Allow them time to do this. When they are finished, you can handle the object and smell it as well and make comments, responding to what the participants said or did. Repeat, until all items in the box have been handled and discussed.</p> <p>For individual sessions, it is possible to remove the objects from the box and display them on a table. The participant will be able to choose the objects that interest him/her. The facilitator can also choose the objects that attract the participant's curiosity and attention the most.</p> <p>End session: thank participants for taking part and ask if they have any items or topic preferences for the next session.</p>	<p>Introduce items and activity, allow participants time to handle, explore, and comment, if they wish.</p>
<p>Observance / Attendance</p> <p>If an item does not interest the participants or they do not respond, you can move onto another one in the box.</p> <p>Be aware that people with dementia may have impairments such as a reduced sense of smell so do not worry if they do not respond. You may therefore choose items that have strong smells or focus on objects to handle and discuss instead.</p> <p>People with dementia may present physical impairment or pathologies that reduce mobility such as arthritis. If so, offer support to handle and explore the items.</p>	<p>Not specified.</p>
<p>Assessment</p> <p>E.g., COMMUNI-CARE scale; Observation of the participant's verbal and non-verbal responses via video recording; Visual analogue scales.</p>	<p>Not specified.</p>

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* Recommendations:

Allow time for participants to explore the object's sensory properties and to comment if they wish. Do not ask if they know what it is or what it is for as they may feel like they are being tested.

When you present a scent/smell, instruct the participant to breathe normally and present the next smell approximately 2-5 minutes later, to avoid overwhelming the senses.

If appropriate ask for opinions and not for factual information. For instance: do you like it? Does it have a smell? How does the object feel?

People who present communication impairments should be engaged at the sensory level e.g., handling and smelling items rather than discussing/commenting. It is recommended that carers engage with the participants' feelings and emotions expressed through facial expressions and body posture. An empathetic response may include verbalising the feelings and emotions observed.

FOR MORE INFORMATION

■ Using memory box objects and smells for people with dementia: guidance for carers

<https://www.boots-uk.com/our-stories/treasured-items-from-the-boots-uk-archive-help-to-rekindle-memories-in-people-with-dementia/>

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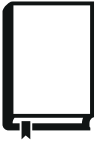


KEY POINTS

- To stimulate cognition, promote well-being, reduce anxiety and/or depression, stimulate communication and provide comfort.
- This intervention involves sensory, physical, cognitive, psychological and social processes.
- Observed effects are a reduction in agitation, improvement in mood and stimulation of social interaction.
- In group or individually.
- For all people with dementia, regardless of the severity of the disease.

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CHAPTER

9



MUSIC THERAPY

Musical interventions
Music medicine – Neurologic music therapy

PRESENTATION

A. Definition

Music therapy is defined by the World Federation of Music Therapy (WFMT) as the use of music and/or its musical elements (sound, rhythm, melody, and harmony) by a qualified music therapist, with a client or a group, in a process designed to facilitate and promote communication, relationships, learning, mobilisation, expression, organisation and other relevant therapeutic objectives in order to meet physical, emotional, mental, social, and cognitive needs^[1]. There is a traditional differentiation between two main techniques: active music therapy, which consists of using sound-producing objects, musical instruments, or the voice, and receptive (or passive) music therapy, based on listening to music. In practice, it has been found that music therapists tend to combine both techniques.

B. Fundamentals

Music therapy is one of the four major disciplines of art therapy (visual arts, music therapy, drama therapy and poetry therapy). Music therapy historically appear in the field of art therapy, with firstly a psycho-analytic approach. Thus, biological and neurological processes have been often missing from the concerns of music therapists for a very long time, even though the musical experience largely implies sensory, physiological, and neurological mechanisms. Thanks to the progress in neurocognitive research in the field of music cognition, notably using brain-imaging techniques, the better understanding of the neuropsychological mechanisms at work while listening to or practicing music has brought a renewal of music therapy practices. This scientific work has shed light on the active ingredient underlying the benefits of musical interventions^[2].

Music interventions for people with Alzheimer's disease are today driven by these scientific literature^[3]. During the first stage of the disease, when distress, depression and anxiety are associated with the fall of cognitive performances, receptive musical therapy as psycho-musical relaxation technique is very useful to reduce these disorders^[4]. During the severe stage, when verbal communication decreases and apathy becomes the biggest behavioural disorder to handle, music intervention as singing workshops are very pertinent to fight against the apathy and to stimulate verbal communication. Thus, at all stages of severity of the disease, receptive or active musical interventions have complementary impacts. Music can be relaxing or stimulating, and this dual quality brings to music intervention an undeniable interest in neurodegenerative diseases.

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THEORETICAL BACKGROUND

A. Processes involved

In order to improve the specificity of approaches, it is crucial to better understand the underlying mechanisms that lead to the positive effects of music interventions. Three main mechanisms help researchers and clinicians to optimally design music interventions according to their therapeutic targets.

- Sensory and emotional appreciation: people with dementia are able to perceive and understand the emotional connotations of musical material and to react to its listening. They usually maintain their sensory and emotional musical appreciation when other cognitive (especially verbal) abilities are completely impaired, even in the severe stages of the disease. Although there is a debate about the alteration of the perception of emotions in neurodegenerative diseases, aesthetic judgment and emotional appreciation seem largely preserved in dementia, especially in Alzheimer's disease^[5]. This preserved responsiveness to music allows using the well-known emotional and neurophysiological effects of music on mood and behaviour.
- Mnestic processes: memory of old songs and tunes listened to in their youth are very resistant to the amnesia and semantic memory has been shown to be relatively well-preserved, even at severe stages of the disease^[6-7]. This could enlighten why music is a preferred material to use in reminiscence therapy, to trigger autobiographical memories and engage people with dementia in reconnecting with their past and identity, which could in turn contribute to diminishing anxiety or depression. Moreover, music could be used as a mnemonic proxy to decrease the difficulties of verbal learning, particularly at the beginning of the disease.
- Social cognition: music is often a very social activity. Even when listening to music by ourselves, it often triggers our sense of belonging to a social group or reminds us of our relationships. This social aspect of music may be crucial in supporting the communication and connection between people with dementia, their family caregivers or care staff^[8].

B. Neurophysiological correlates

It has been well established that listening liked music has an arousing effect, associated with dopamine release^[9-10], which awakes people and makes them temporarily more efficient in different kinds of tasks. This could explain why music can sometimes alleviate apathy of people with dementia. Calm music has been shown to reduce our feeling of stress, as well as the body's physiological response to stress (e.g., decrease of cortisol^[11]). This could contribute to explain why music may have a soothing effect and decrease anxiety and aggressive behaviours of people with dementia. Thus, the emotions driven by music could also explain why music could facilitate the encoding of new information^[6, 12].

SCIENTIFIC EVALUATION

The benefit of musical intervention is sometimes difficult to demonstrate based on scientific research using strict evidence-based criteria^[13]. In the latest update of the review for the Cochrane Database started in 2003^[14], researchers perform a meta-analysis including 620 participants. Their conclusions are that music-based therapeutic intervention probably reduces depressive symptoms but has little or no effect on agitation or aggression. A meta-analysis performed from 353 identified papers, corresponding to 1.757 participants allocated to music intervention or control, show that music therapy had positive effects on disruptive behaviour and anxiety, and a positive trend for cognitive function, depression and quality of life^[15]. Thus, although not all types of music interventions have been subject to measures of effectiveness, standard interventions (receptive or active) show a validated impact for the reduction of behavioural disorders and cognitive and social stimulation in people with dementia.

By default, musical interventions have an excellent cost-effectiveness ratio, as they are interventions that can be inexpensive, especially for passive listening or singing activities, and do not require special skills of people. The costs to be considered correspond to the staff time dedicated to the animation of these activities (which is the least expensive solution), and possibly to the installation of a room dedicated to musical activities. Of course, it is recommended that the intervention (even when it is simply a matter of listening to music) be mediated by a professional recruited specifically for this purpose, which will increase its scope and effectiveness.

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

Numerous master's level courses concerning music therapy practices exist today, even if the professional recognition of these courses is quite heterogeneous between countries. These courses increasingly include content concerning cognitive neuroscience studies and offer practical training courses that allow future graduates to become familiar with a specific pathological population. In the context of the management of neurodegenerative diseases, it is essential that practitioners understand the neurocognitive disorders and the consequences on their behaviour. Methodological training is also recommended so that practitioners know how to assess the impact of their interventions.

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B. Practical and clinical advice

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Participants profile</p> <p>Apart including people who are singing out of tune in a choral workshop, all people with dementia, regardless of the stage of severity of the disease, can benefit from this type of intervention.</p>	<p>To restore people self-esteem by showing them that they are still able to participate to and enjoy an activity and to communicate this pleasure with other people, family caregivers or care staff.</p>
<p>Indications</p> <ul style="list-style-type: none"> ■ Behavioural disorders: mainly anxiety and depression at the beginning of pathology; apathy and language disorders for people with dementia at moderate to severe stages. ■ Cognitive stimulation: reminiscence therapy, semantic and autobiographic memory stimulation, language fluency, motor coordination. ■ Social cognition: social exchanges, cognitive and affective empathy. 	<p>Listening to or singing popular hits is a basic activity in specialised institutions, which can basically be a cultural animation, but can have a real impact on the health of the participants if this activity has targeted objectives and is part of an overall care strategy of the medical team.</p>
<p>Contra-indications</p> <p>Some people might not be receptive to certain types of musical intervention. Beyond an assessment of the auditory perception, it is important to estimate if music stimulation conveys positive emotions and therefore potentially represents a "reward" for a participant. Before recommending a musical intervention, using a scale like the Barcelona Music Reward Questionnaire (BMRQ) could be very relevant in order to measure whether music is an area of interest for the person.</p> <p>Deafness or severe hearing impairment without hearing aids.</p>	<p>Rare risk of opposition or crying in some people. Therefore, we should not be afraid to suggest listening to unknown music or songs, which may please the participants without the risk of bringing back difficult memories.</p> <p>Deafness or severe hearing impairment without hearing aids.</p>
<p>Contributors</p> <p>Preferably, the practitioners should be dedicated professionals with academic training in music therapy for people with dementia.</p>	<p>It is always interesting to involve family caregivers in these activities, especially if they take place at home.</p>

THERAPEUTIC INTENTION	RECREATIONAL INTENTION
<p>Setting of intervention</p> <p>Use a dedicated space (music room), or by default ensure that the activity is ritualised in the same institutional context or at home.</p>	<p>The location of interventions can also provide an important context for social interaction or shared cultural references.</p>
<p>Dosage</p> <p>Individual or group sessions of 4 to 8 participants.</p> <ul style="list-style-type: none"> ■ Period: cycle of 6 to 8 sessions. ■ Frequency: one by week at least. ■ Duration: one to one hour and a half session. <p><i>Ensure that participants with hearing impairments are properly fitted with hearing aids.</i></p>	<p>Individual or group sessions of 4 to 8 participants.</p> <p>It can be interesting to end a cycle of interventions by a public presentation or by listening to a concert thematically related to the music used in the workshops.</p> <p><i>Ensure that participants with hearing impairments are properly fitted with hearing aids.</i></p>
<p>Session sequencing</p> <p>1 Recall the context, introduce the people; 2 Warming up (in case of active interventions and singing workshops); 3 Content/specific work of the workshop; 4 Playful conclusion.</p>	<p>It is important to repeat the same content from one session to the next throughout an intervention cycle. The repetition will allow a better adaptation and a pleasure that increases over the sessions.</p>
<p>Observance / Attendance</p> <p>It should be observed during the sessions that people become increasingly comfortable and enjoy the workshop.</p>	<p>It is sometimes possible to observe outside of workshop times people singing tunes heard during music interventions. Try to start an exchange based on these spontaneous productions.</p>
<p>Assessment</p> <ul style="list-style-type: none"> ■ In terms of psycho-social benefits, there are many geriatric scales to measure well-being or self-esteem, as well as mood scales [Behavioural Pathology in Alzheimer's Disease Rating Scale (BEHAVE-AD), Neuropsychiatric Inventory (NPI), Cohen-Mansfield Agitation Inventory (CMAI), etc.]. ■ At the cognitive level, it is possible, for example, to measure the increase in the feeling of familiarity for the music heard in workshops, and to measure the quality of recalling personal memories in reminiscence workshops. Other cognitive measures are possible^[3]. 	<p>Filming and planning small concerts at the end of a cycle of workshops allows to fix the progress and the pleasure taken in the activity.</p>

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FOR MORE INFORMATION

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KEY POINTS

- To reduce signs of anxiety and depression and learn new information in the early stages of the disease; to reduce behavioural and psychological symptoms in the moderate to severe stages.
- This intervention involves memory, emotional and social processes.
- Observed effects are a decrease in behavioural and psychological symptoms, learning new information, an increase in social interaction and an improvement in well-being and quality of life.
- In group, individually or with family caregivers.
- For all people with dementia, regardless of the severity of the disease.

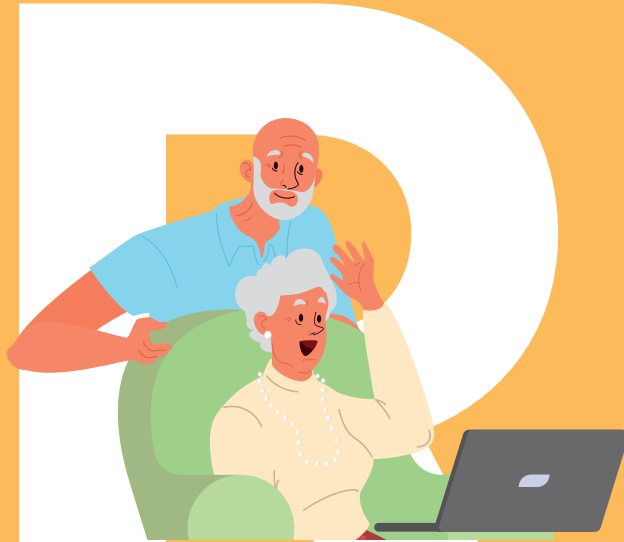


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CHAPTER

10



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Life story work – Life review therapy
Joint reminiscence groups

PRESENTATION

A. Definition

Reminiscence work with people with dementia typically involves the discussion of past activities, events and experiences, usually with the aid of tangible prompts or “memory triggers” (photographs, household and other familiar items from the past, music and archive sound recordings). In recent years, digital storage and presentation of photographs, music and video clips have become widely used. In a group context, the aim is usually to evoke personal and shared memories and encourage communication. Life story work is often carried out on an individual basis and results in the production of a “life story book”, enabling the person to tell their life story from their own perspective. The “book” may be in digital or a conventional paper format. Where the individual reminiscence work involves evaluation of memories and their associated emotions, for example in a psychotherapeutic context, this is described as “life review therapy”.

B. Fundamentals

The first study on reminiscence work with people with dementia was reported by Kiernat in 1979^[1]. Around that time, increasing interest in oral history meant that the reminiscences of elderly people were valued more greatly, with reminiscence seen as a natural and often adaptive process. Reminiscence triggers (objects, photographs and audio-clips) became widely available for use in day care centres, care homes and hospitals, leading many staff to establish some form of reminiscence work. These approaches have continued to grow in popularity in care settings in many countries.

THEORETICAL BACKGROUND

A. Processes involved

■ Cognitive processes: remote memory, memory for past events, often appears relatively intact in dementia. Events may be recalled from childhood, whilst those from an hour ago are forgotten. Accordingly, reminiscence appears to capitalise on cognitive strengths. Research suggests that, in fact, remote memory across the whole lifespan is impaired but people with dementia, like all elderly people, recall more memories from earlier life. Some of the memories represent well-rehearsed items or anecdotes. It is possible to envisage a disconnection between past and present, attributable to very low levels of autobiographical memory (memory for personal events) from the person’s middle years. Such a disconnection could contribute to difficulty in retaining a clear sense of personal identity. Reminiscence may therefore be a therapy that taps into the person’s strongest store of memories, enhancing conversation and communication relating to experiences and events in earlier life, and, by encouraging autobiographical memory, could reinforce a sense of identity.

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- Affective processes: reminiscence also involves emotional processing: memories often have positive or negative associations. “Life review” is a structured, evaluative process, usually conducted individually, covering the whole life-story chronologically, seeking to integrate negative and positive memories, consistent with Erikson’s late-life developmental stage^[2]. Reminiscence, including life review, is consistently reported to benefit elderly people with depressed mood^[3-4] including those with depressed mood living in long-term care environments^[5]. As depressed mood is more common in people with dementia, reminiscence may help to improve mood here also.
- Social processes: in a group context, reminiscence facilitates social interaction, helping group members find areas of common interest and experience as they get to know each other as individuals with diverse life-stories, leading to a sense of belonging and togetherness. In groups or one-to-one, staff providing care also learn about the individual, his/her experiences, interests, values, relationships, and preferences and so are better able to offer person-centred care, potentially enhancing quality of life.

B. Neurophysiological correlates

There are no studies to date on the neurophysiological correlates of reminiscence therapy.

SCIENTIFIC EVALUATION

Many studies have evaluated reminiscence therapy, but results are often inconsistent, influenced by different approaches (e.g., individual versus group; simple reminiscence versus life review) and settings (community versus institutional care). Reviews, including up to 23 randomised controlled trials with 1,763 participants, indicate improvements in:

- Quality of life [6], notably in care homes^[7].
- Depressive symptoms particularly in institutional settings^[8] or associated with individual reminiscence^[6-7].
- Cognition [8], most evident in care homes and individual reminiscence [7].
- Communication, especially associated with group reminiscence [7].
- Behavioural and Psychological Symptoms (BPSD) [6].

Detailed evidence about cost-effectiveness is available from only two large-scale studies, including a total of 779 participants. Both evaluated joint reminiscence groups, where people with dementia and their family caregivers participate together in an active programme covering themes across the life-span^[9]. They concluded that joint reminiscence groups are “unlikely to be cost-effective”^[10] and that they are “not cost-effective when considering outcomes for carers or most outcomes for people with dementia”^[11; p.103]. However, when the costs included replacing time and input of the family caregiver, joint reminiscence groups were cost-effective in relation to a measure of quality of life of people with dementia (the QoL-AD)^[11; p.103].

IMPLEMENTATION AND PRACTICAL ADVICE

A. Training and/or knowledge required to provide the intervention

All involved in reminiscence work should have a good understanding of the principles of person-centred care and practice. No professional qualification is needed to work on a life story book with a person with dementia nor to lead a small reminiscence group. All those undertaking life review therapy must make use of regular supervision or guidance from an experienced practitioner, providing the opportunity to discuss and reflect on the work undertaken. Those undertaking life review therapy with persons with dementia who have significant depressive symptoms must have training and experience in counselling and therapeutic skills. Joint reminiscence groups have been led by a range of professionals – nurses, occupational therapists, clinical psychologists – and by those from a creative arts practice background.

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B. Practical and clinical advice

LIFE REVIEW THERAPY	SIMPLE REMINISCENCE
Participants profile <p>People with mild to mild/moderate dementia, preferably with supportive family member / friend to assist with identifying helpful photographs and memorabilia.</p>	<p>People with mild or moderate dementia and, in joint reminiscence groups, family caregivers. Identifying profile of participants' interests before starting the intervention can be helpful.</p>
Indications <p>Low mood, social withdrawal, depressive symptoms, reduced quality of life.</p>	<p>To increase social interaction and communication, quality of life.</p>
Contra-indications <p>Alcohol-related dementia, high levels of agitation, uncorrected sensory problems.</p>	<p>Alcohol-related dementia, high levels of agitation, uncorrected sensory or communication problems. Survivors of abuse or people with post-traumatic stress disorder.</p>
Contributors <p>Typically a one-to-one therapy, with one person with dementia and one facilitator / therapist. Family member may join for part of session.</p>	<p>Facilitator(s), assistants, volunteers, family members. In a group, minimum of two facilitators / assistants required.</p>
Setting of intervention <p>Office or quiet room in care home or community care centre or person's own home. Comfortable chairs, well-lit and ventilated, free from interruptions and background noise. Drinks available. Table for setting out memory triggers. Wifi for accessing internet resources.</p>	<p>Good-sized group room in care home or community care centre, well-lit and ventilated, with good acoustics, low background noise. Drinks and other refreshments readily available. Seats set around a table where memory triggers can be set out. Whiteboard and screen easily viewed by all. Wifi for accessing internet resources.</p>

LIFE REVIEW THERAPY	SIMPLE REMINISCENCE
<p>Dosage</p> <p>Individual sessions.</p> <ul style="list-style-type: none"> ■ Period: from 8 to 12 weeks. ■ Frequency: at least weekly. ■ Duration: typically, 60 minutes session. 	<p>In individual sessions or usually in groups of 6-12 participants.</p> <ul style="list-style-type: none"> ■ Period: from 8 to 12 weeks. ■ Frequency: at least weekly. ■ Duration: typically, 60 minutes session.
<p>Session sequencing</p> <ol style="list-style-type: none"> 1 Recap from previous session, check life story book so far; 2 Move onto next chronological phase of life-story with open, evaluative questions, using personal memory triggers to assist; 3 Plan next session – seek assistance of family in identifying appropriate triggers. <p><i>A break in the middle of the session is recommended.</i></p>	<ol style="list-style-type: none"> 1 Welcome and introductions; 2 Introduce theme for the session and relevant memory triggers, including photographs, memorabilia, and music; 3 Facilitate discussion, ensuring all participants have opportunities to share memories; 4 Plan next session, offering participants opportunity to contribute their own memory triggers to share with others; 5 A refreshment break is recommended, preferably to link in with the theme of the session.
<p>Observance / Attendance</p> <p>Lack of engagement can be addressed in the sessions and discussed in supervision. Can mean that greater efforts need to be made to identify appropriate memory triggers, or that the person has unhappy or traumatic memories that are difficult to discuss.</p>	<p>Although many older people enjoy reminiscing, it is not universally enjoyed. Some people value privacy and find a group context difficult. People have different backgrounds, interests, and experiences, and so some participants may be less interested in some topics and themes. Unexpected unhappy or traumatic memories occasionally emerge, and facilitators need to be prepared to allow the person space, time, and support if this occurs.</p>
<p>Assessment</p> <p>Anxiety and/or depression with the Geriatric Depression Scale (e.g. GDS-15) and/or the Hospital Anxiety & Depression Scale (HAD); Quality of life with the QoL-AD questionnaire.</p>	<p>Quality of life with the QoL-AD questionnaire. Communication with the Holden Communication Scale. Interest, enjoyment, and immediate well-being with smiley face scales.</p>

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FOR MORE INFORMATION

■ Social Care Institute for Excellence (UK):

- 1 'Reminiscence for people with dementia' (includes reading list, useful links, and resources etc.)
<https://www.scie.org.uk/dementia/living-with-dementia/keeping-active/reminiscence.asp>
- 2 'Creating a life story using technology' (includes useful tips and links)
<https://www.scie.org.uk/dementia/support/technology/creating-life-story>

■ Cochrane Collaboration:

- 1 'Do memories matter? Is reminiscence over-rated as a therapy for people with dementia?'
Evidently Cochrane, June 2018
<http://www.evidentlycochrane.net/do-memories-matter-is-reminiscence-over-rated-as-a-therapy-for-people-with-dementia/>
- 2 Podcast 'Reminiscence therapy for dementia'
<https://www.cochrane.org/podcasts/10.1002/14651858.CD001120.pub3>

■ Dementia UK:

'Life story work' (template and resources) <https://www.dementiauk.org/for-professionals/free-resources/life-story-work/>

■ European Reminiscence Network: <http://www.europeanreminiscencenetwork.org/>

■ Recommended Reading:

- Gibson, F. (ed.) *International perspectives on reminiscence, life review and life story work*. London: Jessica Kingsley.
- Kaiser, P. & Eley, R. (eds) *Life story work with people with dementia: ordinary lives, extraordinary people*. London: Jessica Kingsley.

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KEY POINTS

- To decrease depressive symptoms, avoid social withdrawal and improve communication, social interaction, quality of life, mood.
- This intervention involves cognitive, social and emotional processes.
- Observed effects are an improvement in quality of life, cognition, communication and a decrease in behavioural and psychological symptoms.
- In group, individually or with family caregiver.
- For people with mild to moderate dementia.

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SYNTHESIS

SYNTHESIS

How were the synthesis tables produced? The various effects produced by the psychosocial interventions were researched in the records and in a pool of scientific publications called “systematic reviews”. After examining all of these publications, an overall score was used to indicate whether or not each psychosocial intervention produced the effects listed in a convincing manner. Only those effects that were considered to be convincing are highlighted in the table.

The names chosen for the different effects listed in the table and their categories are based on the following publication: Gonçalves, A. C., Samuel, D., Ramsay, M., Demain, S., & Marques, A. (2020). A Core Outcome Set to Evaluate Physical Activity Interventions for People Living With Dementia. *The Gerontologist*, 60(4), 682–692. <https://doi.org/10.1093/geront/gnz100>

Cognitive functioning and communication

		Adapted physical activity	Animal assisted interventions	Art therapy	Cognitive rehabilitation	Cognitive stimulation therapy	Dance-based interventions	Horticultural therapy	Multisensory stimulation	Music therapy	Reminiscence therapy
Cognitive functioning	Global cognitive functioning										
	Executive functioning										
	Memory										
	Attention										
	Orientation										
Verbal and non-verbal communication	Expression and communication										
	Social interactions										

This table shows the different functions for which the interventions presented in the guide have scientifically shown positive effects.

Psychological and behavioral aspects

	Adapted physical activity	Animal assisted interventions	Art therapy	Cognitive rehabilitation	Cognitive stimulation therapy	Dance-based interventions	Horticultural therapy	Multisensory stimulation	Music therapy	Reminiscence therapy
Behavioural and psychological symptoms	Global symptoms									
	Depression									
	Mood									
	Engagement									
	Anxiety									
	Agitation									
	Sundowning syndrome									
	Apathy									
	Irritability									
	Passivity									
	Aggressiveness									
	Prescription of psychotic drugs									
Emotional state	Enjoyment									
	Mental-emotional health									
Quality of life and personhood	Health-related quality of life (HRQL)									
	Sense of well-being									
	Coping skills									

This table shows the different functions for which the interventions presented in the guide have scientifically shown positive effects.

SYNTHESIS

Physical capabilities and functional autonomy

		Adapted physical activity	Animal assisted interventions	Art therapy	Cognitive rehabilitation	Cognitive stimulation therapy	Dance-based interventions	Horticultural therapy	Multisensory stimulation	Music therapy	Reminiscence therapy
Health related physical fitness	Physical performance and fitness	■				■					
	Muscular strength	■									
	Endurance	■									
Movement quality and control	Ability to conduct movements rightly	■									
	Motor skills	■			■						
	Mobility	■				■					
	Functional gait	■				■					
	Flexibility					■					
	Balance	■	■			■					
	Risk of falling	■				■					
Functional independence	Functionnal capabilities and independence	■			■	■					■

This table shows the different functions for which the interventions presented in the guide have scientifically shown positive effects.

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The Fondation Médéric Alzheimer, recognised as a public utility, has been working for 20 years with professionals, prescribers and public authorities to improve the quality of life of patients and their families on a daily basis.

Since 2010, the Foundation has been conducting scientific monitoring, surveys and research, and developing training activities through the Eval'Zheimer® training center. After publishing the book "Alzheimer Ensemble : trois chantiers pour 2030" (Alzheimer Together: three projects for 2030), the Fondation Médéric Alzheimer took the initiative of the collective "Alzheimer Ensemble, construisons l'avenir" (Alzheimer Together, let's build the future), which aims to meet the challenge of cognitive ageing and to promote the emergence of a caring and inclusive society.

The Foundation also aims to innovate and develop more effective support solutions through its Living Lab, but also by funding the work of researchers in public health and the human and social sciences, as well as projects by field workers.



Each chapter can be downloaded in the form of a practical sheet and in the form of popularised sheet on the Fondation Médéric Alzheimer website.

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