

# COMBINED COGNITIVE-BEHAVIOURAL AND PHYSIOTHERAPY TREATMENT OF DIZZINESS: A CASE REPORT

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**Abstract.** Dizziness is a distressing symptom that is often associated with fear and anxiety, as well as organic balance system dysfunction. We report here on the successful treatment of a 68-year-old woman with dizziness and balance problems. Treatment was given within a cognitive behavioural framework, but also included physiotherapy in the form of head movement exercises. Results were evaluated by a balance platform test, a behavioural provocation test and questionnaire data. Positive results were found in each of these three assessment domains.

*Keywords:* Vestibular rehabilitation, balance, posturography, cognitive behavioural treatment.

## Introduction

Dizziness is a common symptom in people with anxiety disorders, but can also be caused by a dysfunction of any part of the balance system, especially the vestibular organ. Signs of abnormal vestibular functioning have been observed in patients with anxiety disorders (see Jacob, Furman, Durrant, & Turner, 1996 for a recent review), and conversely, complaints of dizziness are frequently associated with elevated levels of anxiety and emotional problems (Yardley & Hallam, 1996). Along with dizziness, several symptoms may be present such as vertigo, unsteadiness, staggering and falling, spinning, nausea, sweating and fatigue. Among the elderly, a common problem is fear of falling (Yardley, 1998), which may merit the name “space phobia” as described by Marks (1981).

Physiotherapy treatment, involving the performance of repeated movements that provoke dizziness, have in recent years been found to be of great value in the treatment

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of dizziness (Shepard & Telian, 1995). Physiotherapy treatment may therefore be relevant to anxiety patients complaining of dizziness, as well as dizzy patients with anxiety. However, given the psychosocial factors associated with dizziness it may be useful to devise a treatment that involves more than physiotherapy (Yardley & Hallam, 1996). Given their established utility in the treatment of a range of psychiatric and medical conditions, cognitive-behavioural treatment methods could be suitable for this purpose. This may be of particular importance when avoidance and fear are involved (Yardley & Hallam, 1996).

The aim of this case-report was to describe an elderly woman with dizziness for whom physiotherapy exercises together with cognitive-behavioural treatment proved helpful for the alleviation of dizziness associated with anxiety.

### Case-report

Mrs J is a 68-year-old female with dizziness. She was recruited from an anxiety self-help group for participation in a research project on dizziness led by the second author. The duration of Mrs J's problems were two years, and she had a fear of falling and reported a "muzzy" feeling. The dizziness and fear of falling were experienced as restricting her life and in particular she was afraid of falling when it was "windy" outside. Moreover, she saw a clear link with stress and pressure. Although Mrs J lived on her own, she had friends whom she met regularly.

### Assessment

Four types of assessments were conducted. First, the vestibular system was tested, involving recordings of eye movements and their reflexes, caloric test, and a neuro-otological screening. Neuro-otological testing suggested probable vestibular imbalance, with some indications of deficient central balance system function. Her functional balance was tested via the Computerised dynamic posturography (Nasher, 1993), which quantifies body sway when standing on a moving platform. This test, called the Equitest (version 4.04), involves six conditions of three trials each. These are standing on the platform with eyes open (1) or closed (2), standing on the still platform while a surrounding screen moves (3), standing on the moving platform with eyes open (4) or closed (5), and standing on the moving platform with eyes open when the screen moves (6). For each of the trials an equilibrium score is obtained (see Fig. 1); an equilibrium score of 100 indicates perfect balance (no sway).

Second, a behaviour provocation test was included in which Mrs J was asked to perform head movements inducing dizziness. The measures obtained were time taken to complete these movements (since faster movements provoke more severe dizziness) and subjective ratings of the dizziness they provoked.

Third, questionnaire data were collected by an independent assessor (see acknowledgements) using a validated dizziness questionnaire, the Vertigo symptom scale (Yardley, Masson, Verschuur, Haacke, & Luxon, 1992). High scores on the scale indicate more severe symptoms.

In addition to these formal assessments, a functional analysis was conducted in which strengths and needs were explored. This revealed that the participant was motivated to

try the exercises but also that she saw that psychological factors were involved in generating her fears. Moreover, the functional analysis helped in the identification of topics to be dealt with in the treatment. Among these were stress (over-arousal), realistic expectations, fears (of wind and robbery), use of safety behaviours, motivation to engage in activities, and social skills.

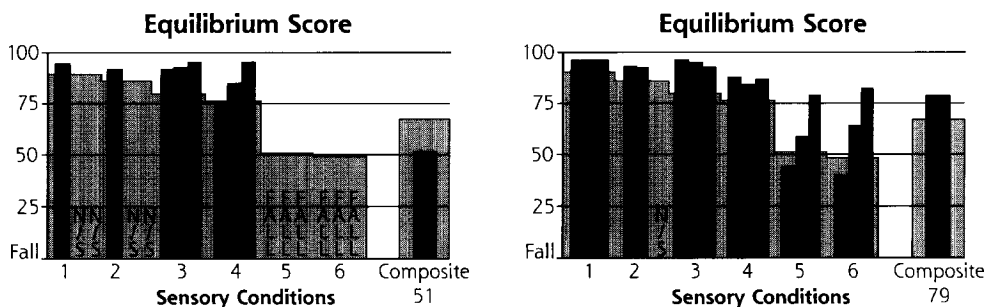
### Physiotherapy and cognitive-behavioural treatment programme

The treatment spanned five one-hour sessions, plus one telephone call. In all, the treatment was given over a 10 week period, the reason being that such a duration is needed for neurological adaptation for vestibular imbalance and improvement in balance to occur as a result of the physiotherapy exercises. During each treatment session a rationale for the exercise was presented and targets were set for the next session as well as for the treatment in general.

At the start of the five sessions a leaflet was provided, and discussed, explaining the symptoms and causes of dizziness. Next, individualized balance exercises (physiotherapy) were taught in-session and given as homework assignments. The rationale and aim of the exercises were to provoke the symptoms in order to stimulate neurological compensation for the loss of vestibular functioning. With repeated exposure the dizziness gradually decreases. An example of an exercise is “nodding” i.e., looking up and down quickly five times in each direction. Then the person is asked to stop and wait for the symptoms to cease. The exercises are then repeated three times. Additional exercises are included as the treatment progresses, including eye movement exercises. Another treatment ingredient was applied relaxation. As is common in CBT, the relaxation skills were to be used in difficult situations. Finally, a part of the treatment dealt with positive and negative thoughts, vicious circles, and expectations i.e., a cognitive intervention.

### Results and discussion

Equitest scores (Nasher, 1993) at pretreatment and posttreatment are presented in Fig. 1. Results falling below the shaded area are to be interpreted as failing the test in



**Figure 1.** Results on the computerised dynamic posturography test at pretreatment (left panel) and posttreatment (right panel). N/S stands for not tested, which is common practice given normal results at baseline conditions (1 and 2). The lower the score the greater the sway.

comparison with normal controls with similar age, height and weight. At pretreatment Mrs J fell during all trials on conditions 5 and 6, but at posttreatment the results were clearly improved and she did not fail any test conditions. The composite score for the test rose from 51 to 79. From these measures treatment clearly resulted in improvements in balance. These are probably due to the physiotherapy, which, however, was implemented by means of CBT methods. CBT may be an important adjunct to physiotherapy, since a major obstacle to therapy success is non-adherence to the programme associated with lack of confidence in performing the exercises.

The behavioural test at pretreatment showed a mean time required to do exercises of 7 seconds. At posttreatment the time had decreased to 4.9 seconds. The corresponding mean ratings of dizziness during these two occasions were 1.3 pretreatment and a posttreatment rating of 0.4. Using this in-session measure during provocation of the balance system, improvement was found.

Results from Equitest and behavioural test were corroborated by the questionnaire findings collected at pre- and posttreatment, and at a three-month follow-up. Her total score on the vertigo handicap scale went down from seven at pretreatment to one at posttreatment and follow-up. This was due to alleviation of her problems with walking properly without support, feeling unsteady, about to lose balance, and a feeling of being dizzy, disorientated or swimmy. Thus, questionnaire data confirmed the other test results, and also provided some evidence on long-term effects.

In sum, this case study shows the potential of integrating cognitive behavioural approaches with physiotherapy in the treatment of dizziness. Cognitive behavioural methods are likely to be helpful in the management of dizziness, especially when avoidance behaviours are involved. In ongoing research projects, Yardley and co-workers have tested the efficacy of CBT for dizziness. However, the level of training of the CBT therapist has varied and more controlled evaluations are needed.

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