

A practical approach to the physiotherapy assessment and treatment of conversion disorders



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Conversion disorder is a mechanism of illness by which psychological distress is expressed as a form of physical illness.¹ Conversion disorders are part of a wider group of conditions called somatoform disorders.¹ Somatoform disorders are dominated by somatic symptoms that resemble physical illness; however, the symptoms cannot be fully explained by organic causes.² It typically presents with deficits of sensory or voluntary motor function, which may represent a general medical or neurological condition.² Psychological factors play an important role in the diagnosis of a conversion disorder; exacerbation of symptoms is often preceded by a stress or inner turmoil. It is important to realise that the symptoms of a conversion disorder are not deliberately produced or simulated by the patient as would be the case in a factitious (assumption of the

sick role, which is motivated by obtaining medical assessment and treatment), or malingering (obvious gain to be achieved from sick role such as financial reward, avoidance of duty, etc.) disorder.^{2,3} Originally termed 'hysteria', conversion disorders are classified by the DSM-IV into four subtypes:^{1,2}

1. Motor symptom/deficit

Patients present with impaired balance or co-ordination, or with paralysis or localised weakness, which does not follow any particular pattern.^{2,4} Problems associated with gait are termed astasia-basia: impaired balance without the falls or a dramatically unbalanced gait that cannot be explained by decreased muscle strength (**Figure 1**).^{1,5} This subtype is the one most often encountered by physiotherapists.

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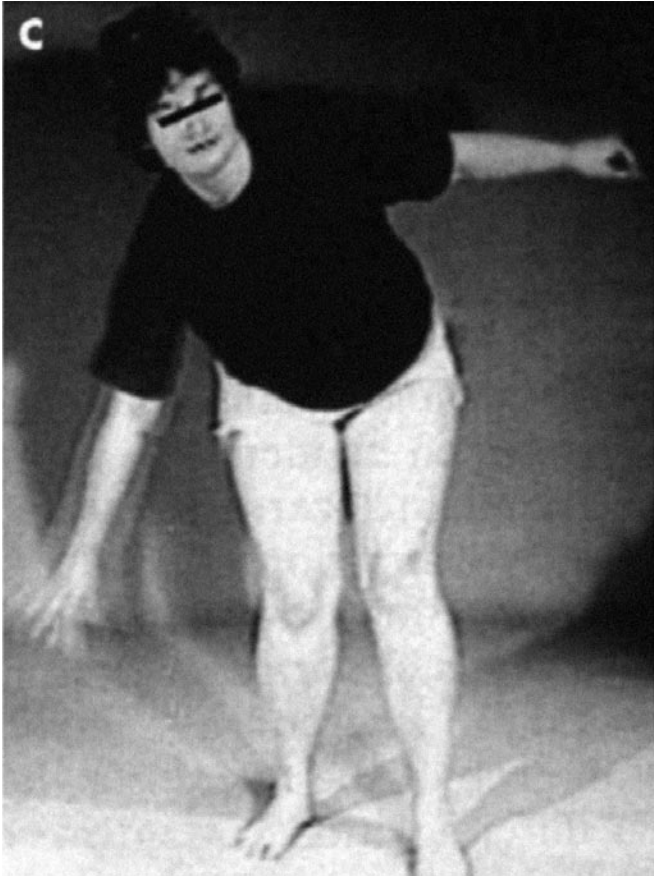


FIGURE 1: Astasia-basia.²⁰

2. Sensory symptom/deficit

Patients present with altered sensation – most often loss of touch or pain sensation.⁴ Blindness, deafness and hallucinations can also be common symptoms.²

3. Seizures/convulsions

Seizures with voluntary motor or sensory components – often termed psychogenic seizures.^{2,6}

4. Mixed presentation

Symptoms of more than one category are present.²

The symptoms of conversion disorders do not follow any physiological or pathological pathways that are typically associated with neurological disease.^{1,4}

The symptoms, however, are ideogenic and tend to follow the patient's perception of how a neurological disorder presents.⁷ For instance, in a patient complaining of paralysis, the deficit typically involves an entire body part or inability to perform a specific movement instead of loss of function along a particular myotome.¹

As conversion symptoms are often inconsistent, the paralysed limb can be inadvertently moved when attention is diverted during assessment.

This can be elicited during a physiotherapy assessment by

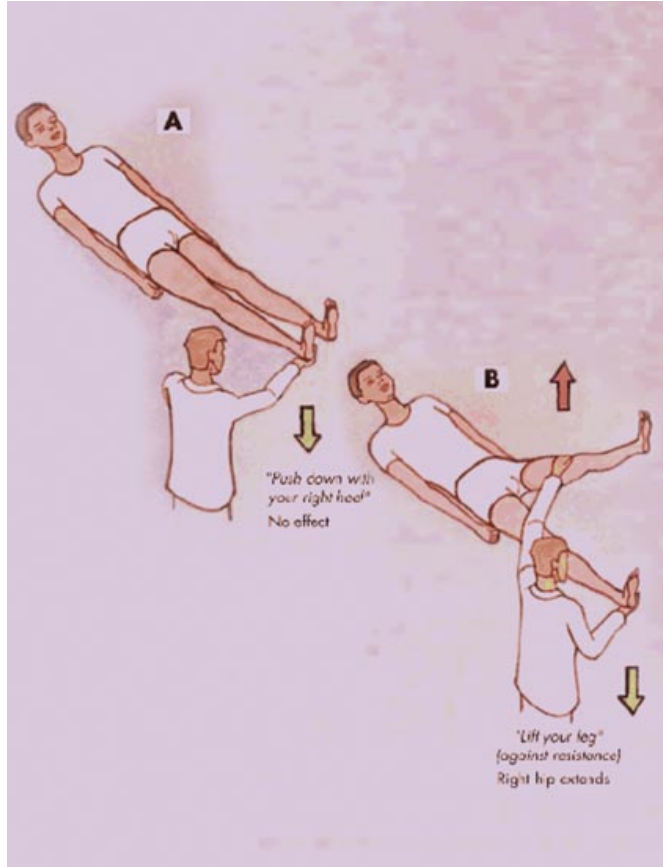


FIGURE 2: Hoover's sign.²⁰

Hoover's sign, which involves an assessment of hip extension strength on the paralysed limb⁵ (Figure 2).

The therapist asks the patient to flex the unaffected limb against resistance while supporting the affected limb at the heel. During resisted flexion, the paralysed limb will extend at the hip in the patient, confirming muscle activation in the affected limb.⁵

In addition, symptoms are associated with suggestion, so physiotherapy assessment can exacerbate or decrease the presenting complaint.⁴

For example, one physiotherapist may suggest a trial of walking without a mobility aid, which can assist in increasing independent function, while another physiotherapist who provides a gait aid to this patient can exacerbate symptoms. However, in chronic cases it may be difficult to positively influence symptoms, as patient beliefs are fixed.⁷

It is difficult to estimate the incidence of conversion disorders, but estimates range from five to 50 per 100,000 per annum.^{4,8}

The challenge in accounting for these patients is that they are rarely referred to psychiatry and plague the acute medical system as chronic 'problematic' patients.⁴

Nevertheless, evidence strongly suggests that this disorder is not disappearing.⁸

Table 1: Overview of the management of conversion disorders.²⁰

Treatment overview	<ul style="list-style-type: none"> ■ Understand underlying conflict before curing symptom ■ Indicate belief in presenting symptoms ■ Do not accuse patient
Counselling	<ul style="list-style-type: none"> ■ Insight-oriented therapy – learn to accept sexual/aggressive impulses ■ Behavioural therapy – induce relaxation, thus decreasing need for symptom reduction
Medication	<ul style="list-style-type: none"> ■ Benzodiazepine for anxiety and muscular tension, antidepressants or serotonergic drugs for obsessive ruminations
Other management	<ul style="list-style-type: none"> ■ Hypnosis and re-education, narcoanalysis

Aetiology

The aetiology of conversion disorders is still relatively unknown. In recent years, some theories have been offered, but these have been largely unsubstantiated. A few of these theories are listed below. It is important to appreciate that many patients with a neurological impairment may also present with symptoms of a conversion disorder, which is sometimes termed functional overlay.

Psychodynamic theories

According to these theories, there is an initial emotional stressor, which has been converted to physical symptoms. Depression has been observed in 54-88% of patients with a conversion disorder.⁷ Freud believed that conversion symptoms were a result of repression: the repression being deliberate, while the conversion symptoms were unconscious.⁹ Janet Pierre suggested that conversion resulted from a mind-body disconnection, in that the symptoms were demonstrated in the body in order to protect the mind.¹⁰

Social factors

The onset and development of conversion symptoms has shown an inverse correlation with socioeconomic status.⁷

Neurophysiological mechanisms

Recent discussion has evolved from the results of functional

Table 2: Elements of physiotherapy treatment.¹⁵

Develop rapport	<ul style="list-style-type: none"> ■ Initial assessment goal setting with staff, patient and family ■ Explanation of therapy programme ■ Patient involvement in selection of rewards/privileges ■ Consistent MDT staffing ■ Foster therapeutic physiotherapist-patient relationship
Pre-gait activities	<ul style="list-style-type: none"> ■ Stretching, general strengthening, bed mobility skills ■ Static balance activities (sitting/standing) ■ Co-ordination activities (throwing/catching a ball) ■ Transfer training ■ Weight-shifting activities
Supported gait activities	<ul style="list-style-type: none"> ■ Standing and beginning gait training in parallel bars, use of gait aids (frame, crutches) ■ Gait broken down into stepping and weight shifting ■ Progression to step to and then step over step gait pattern ■ Sidestepping, backward walking
General mobility	<ul style="list-style-type: none"> ■ Progression to gait outside of parallel bars ■ Negotiating obstacles (cones/steps) ■ Increasing endurance, add bike or treadmill ■ Privilege of walking in room and to therapy sessions ■ Multi-tasking activities such as walking and talking
Community re-integration	<ul style="list-style-type: none"> ■ Walking outside of therapy and hospital setting ■ Architectural barriers ■ Incorporate job/school/domestic tasks (liaise with occupational therapy) ■ Discharge planning with family

neuroimaging. These scans are compatible with the hypothesis that there is malfunctioning of normal connections between areas of the brain that control the intention of movement and those concerned with initiation of movement.¹¹ Vuillemier *et al.* have shown that conversion deficits are maintained by functional disorder of the striato-thalamo-cortical circuits.

In particular, the caudate nucleus of the basal ganglia plays a vital role in the motor process based on emotional information gained from the limbic system.¹² It has recently been demonstrated that when a patient with a conversion disorder attempted to move the paralysed leg, the primary motor cortex failed to activate. Instead, the right orbitofrontal and right anterior cingulate cortex, which have a known role in moderation of reward and benefit, were activated, thereby acting as an inhibition mechanism.¹³

4. Cognitive explanations

It has been suggested that the symptoms of conversion disorder are directly related to activation of the portrayal of symptoms in an individual's memory. Thus, conversion disorder is heightened by attention directed at these memories.¹⁴

5. Cultural explanations

Symptoms diagnosed as conversion disorder in Western societies are classified as possession or trance-like states in other cultures.⁴

Physiotherapy and conversion disorders

A brief overview of the management of conversion disorders is addressed in **Table 1**. However, physiotherapy plays a vital role in the rehabilitation of individuals with conversion disorders.⁷

Treatment entails using a plan of care for the presenting symptoms and the use of common physiotherapy strategies to achieve normal movement patterns, strengthening, balance rehabilitation, gait re-education and safe transfer training¹⁵ (**Table 2**).

A key feature of treatment is to incorporate behaviour modification through the Skinnerian model of learning theory.^{15,16} Skinner's model states that if a particular behaviour produces favourable reinforcement, then there is an increased likelihood of this behaviour occurring again.¹⁷

Thus, the therapist disregards unwanted movement patterns and only rewards desired behaviours such as smooth movement and normal gait.¹⁵

An important concept to integrate into the physiotherapy programme is motor learning. This is the process by which an individual acquires or modifies movement.¹⁸

As the patient progresses through the programme, the therapist should provide less cueing, less physical support and more intrinsic feedback.¹⁵ Programmes that include strengthening, general flexibility, gait retraining in parallel bars and weight-bearing activities can influence the patient's confidence in their ability to succeed, and thereby reintegrate into community activities.

Current physiotherapy treatment and management of conversion disorders in Ireland

At present in Ireland, conversion disorders are managed in the acute general hospital setting as patients frequently present to the Accident & Emergency (A&E) Department with symptoms or are referred by their general practitioner (GP) for further investigation. Thereafter, physiotherapy treatment is individualised to the patient and comprises many of the elements outlined in **Table 2**.

The following case presents a patient with the motor symptom/deficit subtype of conversion disorder and illustrates the physiotherapy management of conversion disorders in Ireland. I had the opportunity to observe the treatment of this patient with Roisin Moloney, Senior Physiotherapist in Neurology at Beaumont Hospital, Dublin.

Case study

A 27-year-old teacher presented to A&E following review by her GP. She had a four-week history of abdominal pain, headache, fatigue and progressive tremor. She had previously been treated by her GP for a viral infection, which presented as generalised fatigue. On presentation to A&E, she had a whole-body tremor. Her past medical history was unremarkable and she was not on any medication at the time. Laboratory and radiological investigations, namely liver function tests, lumbar puncture, electrocardiogram and magnetic resonance imaging, were normal.

The patient was admitted to the neurology ward in Beaumont Hospital and was referred by her medical team to physiotherapy. On initial assessment, we ascertained the patient's hobbies and found her to be very well prior to admission; she had been training for a triathlon and her training schedule included running 10km, swimming and cycling for two hours, three times a week. She was also a competitive camogie player, training three times a week, and enjoyed physically challenging herself by increasing her training. This schedule had been halted due to a one-week history of decreased balance, progressive tremor and decreased endurance such that she was tired after 100m of mobility. Objectively, muscle strength of the upper and lower limbs was 4/5 on the Oxford Scale with give-way weakness described as a sudden collapse of muscle resistance throughout the examination.

Grip strength was 4kg on her right upper limb and 18kg on her left upper limb. During gait assessment, the patient walked 10m in 35 seconds using 30 steps with the assistance of one physiotherapist. Whole-body tremor was present throughout the balance assessment, making it difficult to ascertain a score on the Berg balance test. The patient was able to complete a tandem stand (one foot placed in front of the other foot with heel-to-toe alignment), but not without uneconomical posture adaptations, including constant knee and hip flexion, in an attempt to maintain the tandem stand.

A key aspect to successful treatment of this patient was to incorporate a goal-oriented programme. These goals have to be

patient-specific, related to function and have a definite timeline. Regular multi-disciplinary meetings were conducted with the physiotherapy, neuropsychiatry and psychology teams to discuss goal achievement, adherence to the rehabilitation programme and treatment progression.

Physiotherapy treatment of this patient consisted of several treatment techniques. Proprioceptive neuromuscular facilitation (PNF) promotes functional movement through the excitation and inhibition of appropriate muscle groups. This technique aims to stimulate the proprioceptive system as a basis for muscle re-education and to stretch muscles to stimulate activity of the muscle spindle.

Relaxation techniques, such as Pilates and yoga, were recommended for relaxation, along with deep breathing exercises to help with stress management. Roisin Moloney emphasised the importance of rest from exercise for the body to recover prior to the next session.

Gait re-education was the focal point of treatment, whereby the patient was provided with verbal cues to adopt economical postures and educated on safe mobility. Praise was a means of rewarding the patient when normal patterns of movement were adopted. A gradual return to exercise was set as goal, encouraging the patient to continue to exercise at lower intensity and for a shorter duration, which was steadily increased throughout treatment.

Treatment enabled the patient to progress from walking 10m with the assistance of one person at the time of admission to

being able to jog 20m independently on the treadmill at the time of discharge. She scored 48/56 on her Berg balance test and her tremor was present only on slow movement and was gradually decreasing at each assessment. Her physiotherapy home exercise programme included jogging (not exceeding 80% maximum heart rate) for 10 minutes, with continued emphasis on the importance of rest and gradual return to work and exercise.

She continued to visit neuropsychology and physiotherapy for treatment sessions.

Patient symptoms should be continuously re-evaluated to avoid overlooking emerging neurological disease. For instance, multiple sclerosis, post-encephalitis syndrome and brain or spinal tumours can go undetected or be obscured by a diagnosis of conversion disorder.¹⁵⁻¹⁹

Thus, conversion disorders are complex conditions that require careful management. Recovery is ultimately facilitated through an individualised programme devised through precise communication and planning by various members of the multidisciplinary team. Physiotherapy plays a vital role in this recovery, providing patients with the environment to regain independent function through goal-driven therapy.

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