



# Functional Movement Disorder and its Management

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## Abstract

Functional movement disorders (FMD), commonly observed in neurological practice, are associated with poor prognosis. Interest in this area has increased in recent years with new developments in pathophysiological understanding and therapeutic management. The prognosis for FMD patients can be improved by improving access to well-organized care and treatment.

**Keywords:** Movement; Neurological; Therapeutic; Symptom

## Introduction

Functional movement disorders (FMD) are distraction- or non-physiological manipulation-altered movement abnormalities that are clinically inconsistent with movement disorders associated with neurological disorders. Foot-and-mouth disease commonly occurs in the broader category of functional neuropathies. Functional disorders are very common in neurological practice, with one study showing that functional neuropathy accounts for 15% of referrals to neurology clinics, followed by headache [1]. Despite its frequent occurrence, the prognosis is poor, and a systematic review found that 39% of patients had similar or better outcomes at long-term follow-up, with high levels of physical disability and psychiatric comorbidities [2]. Individuals diagnosed with FMD have traditionally been left in a therapeutic wasteland, with neither neurologists nor psychiatrists able to offer strategies for resolving symptoms.

## Loss of sensory attenuation

There have been many recent advances in the field of foot and mouth disease, not just a name change, but a better understanding of the pathophysiological aspects of the disease and, most importantly, pathways to successful treatment. Here we highlight some rays in the dark landscape, bringing a sense of optimism to an area long associated with the frustration of patients and their caregivers. Recently, the term psychogenic movement disorder has been debated in the literature, and a broader term, functional movement disorder, has been proposed instead. However, the diagnosis is made in relation to positive symptoms and signs rather than the presence of psychopathology. Although psychological triggers cannot be identified in many patients, it is difficult to say with certainty whether this is absent or simply unrecognized. Functionality is the second most common term used among movement disorder peers, and we recognize that the cause of these symptoms may not be obvious. , is a term that is indisputably used in other areas of medicine [3, 4]. Importantly, the publication of DSM-5, his current inclusion in brackets, is functional neurological disorder. The DSM-5 criteria were also modified to emphasize the importance of neurological examination and the possible absence of associated psychological factors. In particular, clinical findings must provide evidence of incompatibility between symptoms and perceived neurological conditions.

Researchers continue to explore the psychological underpinnings of FMD, with recent studies seeking to confirm the Freudian hypothesis of conversion, and conversely, to validate the removal of criteria for psychological stressors from DSM-5. A case-control study of 51 individuals with FMD evaluated self-rated measures of depression, anxiety, dissociation, and personality disorders compared

to individuals with neurologic (organic) movement disorders and healthy controls [5]. Thirty-nine percent of individuals with FMD scored in the normal range on all psychological questionnaires, compared to 38% of individuals with neurologic movement disorders and 89% of controls. Patients with FMDs had similar scores as patients with neurologic movement disorders for symptoms of depression, anxiety, and psychological dissociative symptoms, and only differed on symptoms of somatic dissociative symptoms. The study concluded that individuals with FMD are not different psychologically from individuals with neurologic movement disorders, and that a relevant proportion of individuals with FMD have no psychopathology detectable on symptom screening measures.

Using the Life Events and Difficulties Schedule, Nicholson et al.6 evaluated severe life events (life events associated with a long-term marked or moderate threat) and escape events (the extent to which the effect of a stressor might be ameliorated by being ill with neurologic symptoms) in the year preceding symptom onset in 43 individuals with motor conversion disorder (motor symptoms thought to be psychological in origin), 28 individuals with depression, and 28 healthy controls. Fifty-six percent of conversion disorder patients experienced at least one major event in the month before symptoms began, compared with 21% of depressed patients (odds ratio [OR] 4.63) and 18% of healthy controls (significantly higher than OR 5.81) [6]. Fifty-three percent of conversion disorder patients experienced at least one high-escape event, significantly higher than depressed patients (14%) and healthy controls (0%). The majority of etiology-related life events are not detected by routine assessment, suggesting that thorough and specific questioning skills are required to uncover these events [7,8]. It remains unclear whether the event represents a transient trigger or an important maintenance factor of symptoms (and thus relevance for treatment).

Overall, these findings indicate a heterogeneous psychological background among FMD patients. A simplistic approach to diagnosis and treatment (“This was caused by stress and should be seen by a

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psychologist”) overlooks this complexity. A sensitive and open-minded investigation of the psychological factors that may confer susceptibility to the development and maintenance of symptoms in FMD is useful and should be part of an individualized approach to explaining diagnosis and treatment. This investigation likely fails to find relevant factors, or factors that conferred susceptibility but are not currently active, and diagnostic and treatment descriptions need flexibility to accommodate these common situations [9].

A major question of attitude towards patients with FMD is suspicion as to whether symptoms can be triggered voluntarily and intentionally. It has features associated with movement. If patients are generally truthful, one explanation might be that the systems that provide a sense of agency about movement are impaired in FMD patients. There are other situations in neurology and psychiatry in which apparently spontaneous movements are not experienced. For example, alien limbs, disordered hand syndrome, and paranoid control in schizophrenia. A disturbed functioning of the system that conveys a sense of agency is commonly proposed as an explanation for such phenomena [10]. Sensory attenuation is the phenomenon of decreased intensity of sensation caused by self-generated motion. Sensory attenuation is thought to be important in marking movements as self-generated, and loss of sensory attenuation is associated with loss of motor agency, and has been found to be abnormal in patients with delusional-controlled schizophrenia has been previously described. 8 Recently, a study of sensory hypofunction in FMD patients was conducted using a force-matching paradigm.

Force His Matching In his paradigm, participants either directly presses a finger with the other hand (self-state) or operate a joystick to force the robot to press a finger (self-state). Healthy participants consistently generate more force than needed during self-conditioning compared to external conditions due to the phenomenon of sensory attenuation. Individuals with FMD are much more accurate than healthy controls in their performance on self-condition intensity assessments [11, 12]. Performance between the two groups did not differ for external conditions. The difference in performance between the two groups is thought to be due to the loss of sensory attenuation in FMD patients, which may reflect a lack of autogenous movement agency. The authors found that an overall increase in body-focused attention in FMD patients did not mitigate the sensory consequences of their actions and they were more likely to lose their sense of agency over their actions.

## Neuroimaging

Previous functional imaging studies in patients with FMD have found evidence for temporoparietal junction hypofunction—this area is thought to be important in comparing actual with expected sensory feedback during movement [13], and hence in sense of agency for movement. Abnormal connectivity between motor and limbic areas has also been demonstrated.

Researchers have attempted to examine the neural correlates of recall of life events judged to be of causal significance in individuals with conversion disorder, following the Freudian hypothesis of repression of psychological conflict and conversion of symptoms to physical disability in individuals with functional disorders. Using the Life Events and Difficulties Schedule to identify severe life events and escape events (as described above) in 12 individuals with conversion disorder and 13 controls, the researchers obtained details about severe life events, escape events, and a neutral event from the same time period to generate 72 statements [14]. Twenty-five percent of the statements were made incorrect by changing details, to maximize

immersive recall when later asked in the fMRI setting if statements were true or false. Blocks of 8 statements were presented in random order by condition (severe, escape, neutral), for which participants had to respond if each statement was true or false. Reaction times for true or false responses were recorded, and participants were asked to rate how upsetting the block of statements was using a visual analogue scale. Functional MRI during recall in the withdrawal state compared to the severe state in patients compared to controls showed increased activity in the left dorsolateral prefrontal cortex and decreased activity in the hippocampus and parahippocampus, consistent with memory suppression. Escape events also induced significantly longer response times than neutral events, and were perceived to be less problematic than severe events, despite comparable threat levels [15]. These changes were accompanied by increased activity in the right supplementary motor cortex and right parietal junction, regions involved in motor execution and sensory integration.

Taken together, these studies highlight the neural correlates underlying FMD and life events that may influence the underlying neurobiology of the disease.

## Conclusion

FMD is part of a broader development of scientific and clinical interest in patients with functional neurological symptoms in general. In a way, this is a redevelopment of his interest in important topics of neuroscientific interest in the mid-to-late nineteenth century. All of this is supported by a large group of patients with neurological conditions that often result in disability and reduced quality of life and lack access to organized care and treatment.

## References

1. Stone J, Carson A, Duncan R, Roberts R, Warlow C, et al. (2010) Who is referred to neurology clinics? The diagnoses made in 3781 new patients. *Clin Neurol Neurosurg* 112: 747-751.
2. Gelauff J, Stone J, Edwards M, Carson A (2014) The prognosis of functional (psychogenic) motor symptoms: a systematic review. *J Neurol Neurosurg Psychiatry* 85: 220-226.
3. Edwards MJ, Stone J, Lang AE (2014) From psychogenic movement disorder to functional movement disorder: it's time to change the name. *Mov Disord* 29: 849-852.
4. Fahn S, Olanow CW (2014) Psychogenic movement disorders: they are what they are. *Mov Disord* 29: 853-856.
5. Hoeven RM, Broersma M, Pijnenborg GH, Koops EA, Laar TV, et al. (2015) Functional (psychogenic) movement disorders associated with normal scores in psychological questionnaires: a case control study. *J Psychosom Res* 79: 190-194.
6. Nicholson TR, Aybek S, Craig T, Harris T, Wojcik W, et al. (2016) Life events and escape in conversion disorder. *Psychol Med* 46: 2617-2626.
7. Blakemore SJ, Wolpert D, Frith C (2000) Why can't you tickle yourself? *Neuroreport* 2000: R11-R16.
8. Blakemore SJ, Smith J, Steel R, Johnstone CE, Frith C (2000) The perception of self-produced sensory stimuli in patients with auditory hallucinations and passivity experiences: evidence for a breakdown in self-monitoring. *Psychol Med* 30:1131-301139.
9. Parees I, Brown H, Nuruqi A, Adams RA, Davare M, et al. (2014) Loss of sensory attenuation in patients with functional (psychogenic) movement disorders. *Brain* 137: 2916-2921.
10. Voon V, Brezing C, Gallea C, Hallett M (2011) Aberrant supplementary motor complex and limbic activity during motor preparation in motor conversion disorder. *Mov Disord* 26: 2396-2403.
11. Voon V, Gallea C, Hattori N, Bruno M, Ekanayake V, et al. (2010) The involuntary nature of conversion disorder. *Neurology* 74: 223-228.
12. Aybek S, Nicholson TR, Zelaya F, Craig J, David AS, et al. (2014) Neural

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- correlates of recall of life events in conversion disorder. JAMA Psychiatry 71: 52-60.
13. Nielsen G, Ricciardi L, Demartini B, Hunter R, Joyce E, et al. (2015) Outcomes of a 5-day physiotherapy programme for functional (psychogenic) motor disorders. J Neurol 262: 674-681.
14. Nielsen G, Buszewicz M, Stevenson F, Hunter R, Holt K, et al. (2016) Randomised feasibility study of physiotherapy for patients with functional motor symptoms. J Neurol Neurosurg Psychiatry 88: 484-490.
15. Nielsen G, Stone J, Matthews A (2015) Physiotherapy for functional motor disorders: a consensus recommendation. J Neurol Neurosurg Psychiatry 86: 1113-1119.