

## CASO CLÍNICO/CASE REPORT

**Dystonia of the Guitarist: Gloves as a Sensory Trick****Distonia do Guitarista: Luvas como Truque Sensitivo**

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**Abstract**

Musicians' hand dystonia has been reported mainly for those who play instruments requiring maximal fine-motor skills, including the guitar. We report a case of a healthy guitar player that presented with discoordination while playing the guitar, initially more evident in the third finger of the right hand, and, later, in the fourth finger of the left hand, with abnormal postures in flexion, causing impairment and playing errors. No other features were present. Investigation was unremarkable. Trihexyphenidyl was initiated with poor response. The use of gloves as a sensory trick was suggested and, after cutting the fingers of the gloves, he noticed a marked improvement which allowed him to maintain his professional activity. This condition can impact one's livelihood, being our aim to emphasize the gloves as a symptomatic relief therapeutic option in guitarists. Cutting the gloves fingers tip may be a piece of good advice when more precision is needed.

**Resumo**

A distonia do músico tem sido reportada principalmente por músicos cujos instrumentos exigem maior capacidade motora fina, como a guitarra. Apresentamos um caso de um guitarrista, saudável, com descoordenação quando tocava guitarra, inicialmente mais evidente no terceiro dedo da mão direita e, mais tarde, no quarto dedo da mão esquerda, com posturas anormais em flexão, causando incapacidade e erros ao tocar, sem outra sintomatologia. Investigação sem alterações. Cloridrato de triexifenidil foi iniciado com pouco efeito. O uso de luvas foi sugerido e, após cortar a ponta dos dedos das luvas, o doente notou uma melhoria marcada, o que lhe permitiu manter a sua atividade profissional. Esta condição pode ter um grande impacto na vivência do doente, pelo que o nosso objectivo é enfatizar as luvas como opção terapêutica para alívio sintomático em guitarristas. Cortar a ponta dos dedos das luvas pode ser um bom conselho quando maior precisão é necessária.

## Introduction

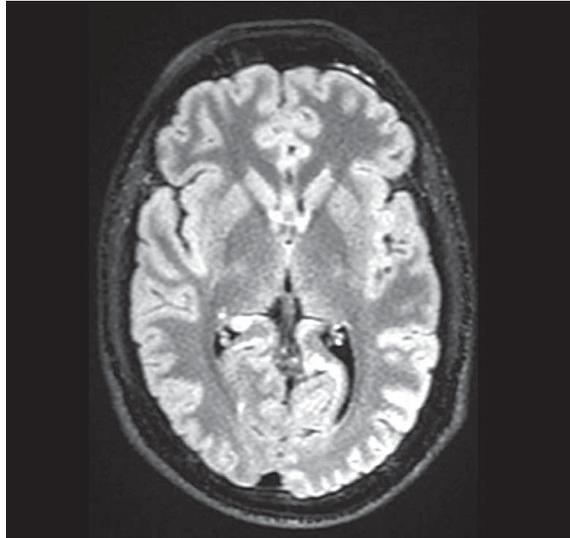
Recently updated consensus opinion defined dystonia as a movement disorder characterized by sustained or intermittent muscle contractions causing abnormal, often repetitive, movements, postures, or both, and classifies it by two axes: clinical characteristics and etiology.<sup>1</sup> A subclassification includes focal task specific dystonias (FTSD), which are a diverse group of focal dystonias affecting an isolated body part and are triggered, at least initially, by a specific action.<sup>1,2</sup> FTSD typically begins in adulthood with symptom onset in the third to sixth decade. Unlike other adult onset primary focal dystonias, FTSD are more common in men and typically presents as an insidious, painless loss of dexterity triggered by performance of a specific, often over-practiced task.<sup>2,3</sup> Symptoms progress over time to trigger uncontrolled activation of muscle groups, leading to abnormal postures and movements.<sup>2</sup> Musicians' hand dystonia has been reported with a variety of instruments, with higher risk of dystonia for those musicians who play instruments requiring maximal fine-motor skills,<sup>4</sup> including the guitar.<sup>2</sup> As with other types of dystonias, sensory tricks or geste antagonistes, may temporarily reduce the dystonic symptoms of FTSD.<sup>2,5</sup>

## Case Report

A healthy 30-year-old man, guitar player and professor, presented, at the age of 28, with discoordination while playing the guitar, initially more evident in the third finger of the right hand, and, some months later, in the fourth finger of the left hand, with abnormal postures in flexion, causing impairment and playing errors (**Video 1**). No other tasks or body segments were involved nor other features as tremor, Parkinsonism or myoclonus. As for investigation, blood analysis with copper and ceruloplasmin were negative, and brain and cervical magnetic resonance imaging (MRI) were unremarkable (**Fig. 1**), as well as electromyography (EMG).



**Video 1.** While playing the guitar, the right hand third finger fails to play the string. In the left hand, the fourth finger fails to press correctly the 4<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> cords.



**Figure 1.** Normal brain MRI

Considering the age and the overflow to the contralateral upper limb, genetic test to DYT-TOR1A and DYT-THAP1 was performed, both negative. As this was very disabling to his professional activity trihexyphenidyl, tritrate to 6 mg, was initiated with poor response and no tolerance due to secondary effects. At this stage occupational therapy was suggested as well as the use of gloves as a sensory trick. At first the patient noticed lack of precision but, after cutting the fingers of the gloves, he noticed a marked improvement which allowed him to maintain his professional activity (**Video 2**). Botulinum toxin was also suggested, however, considering the improvement with the gloves and the risk of paresis, it was postponed. The glove effect remains two years after the diagnosis.

FTSD are a group of movement disorders characterized by aberrant motor over-activation during the performance of a specific, often over-practised activity. The triggering activity can be associated with one's occupation, as in this patient, leading to its classification as



**Video 2.** When using gloves dexterity improves substantially

an occupational dystonia. The pathophysiology is complex with a wide range of techniques employed to help understand it, such as neuroimaging, electromyography and transcranial magnetic stimulation. Lack of inhibition seems to be the cornerstone of dystonia,<sup>6</sup> arising from different nervous system levels such as spinal or cortical areas.<sup>7,8</sup> The association between dystonia and highly specific manual tasks supports an environmental role, with primate models showing disorganized cortical sensory maps.<sup>9,10</sup> Maladaptive plasticity may also explain this phenomenon.<sup>11</sup> Dystonia is not only a mere motor problem, which is supported by several studies demonstrating cortical somatosensory receptive fields disorganization and enlargement.<sup>12</sup> This is reinforced by the fact that many patients can ameliorate their symptoms with sensory tricks or sensory retraining, suggesting that the sensory abnormalities may drive the motor disorder.<sup>13</sup> Recent works on sensorimotor integration revealed abnormalities at sensory gating which is defined as the modulation of sensory process in response to movement and may link both sensory and motor disruptions.<sup>14</sup>

## Conclusion

The development of such a condition can impact one's livelihood.<sup>2</sup> Current treatment modalities for FTSD include oral medication, chemodeneration, surgery and physical therapy; however, improved therapeutic options are needed.<sup>2</sup> The glove effect in guitarists is little reported in the literature so far. One small study reported the potential long-term benefit of gloves in pianists and the degree of benefit correlated with dystonia severity.<sup>15</sup> The aim of this report is to emphasize the gloves as a symptomatic relief option in guitarists. Cutting the gloves fingers tip may be a piece of good advice when more precision is needed. ■

### Responsabilidades Éticas

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