

BRIEF CLINICAL REPORT

# Decoupling: adaptation of a treatment for body-focused repetitive behaviour to Tourette syndrome. A case report

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(Received 22 September 2022; revised 11 February 2023; accepted 23 March 2023; first published online 02 June 2023)

## Abstract

**Aims:** Tourette syndrome (TS) is a neurological condition; its etiology is not yet fully understood. Cognitive behavioural therapy with habit reversal training is the recommended first-line treatment, but is not effective in all patients. This is the first report examining the usefulness of decoupling, a behavioural self-help treatment originally developed for patients with body-focused repetitive behaviours, in a patient with TS.

**Method:** Patient P.Z. showed 10 motor and three vocal tics on the Adult Tic Questionnaire (ATQ) before treatment. He was taught decoupling by the first author.

**Results:** The application of decoupling led to a reduction of P.Z.'s eye tics, which was one of his first and most enduring and severe tics. It was not effective for other areas. Quality of life and depression improved, which P.Z. attributed to the improvement of his tics.

**Conclusion:** Decoupling may be adopted as an alternative, when habit reversal training is not feasible. Future research, preferably using a controlled design with a large sample, may elucidate whether decoupling is only effective for tics relating to the eyes, the most common symptom in tic disorder/TS, or whether its effects extend to other symptoms.

**Keywords:** Habit reversal; Tics; Treatment

## Introduction

Tourette syndrome (TS) is a neuropsychiatric condition. Its cardinal symptoms are tics that manifest as sudden, rapid, recurrent, non-rhythmic movements and sounds (vocal tics) that are usually preceded by a premonitory urge (Robertson, 2015). The etiology of TS is not fully understood, and there is presently no cure.

Guidelines recommend cognitive behavioural therapy with habit reversal training (HRT) as the first-line treatment (Andrén *et al.*, 2021). A core element of HRT is competing response training, which according to all protocols consists of a 'freezing'/static behaviour (e.g. tightening/clenching muscles), which can involve both antagonistic muscles or muscles topographically dissimilar to the behaviour. Yet, not all individuals benefit from HRT.

A cluster of conditions with overlapping features are body-focused repetitive behaviours (BFRBs) such as trichotillomania and skin picking (Najera, 2022), which are classified as obsessive-compulsive spectrum disorders. Both disorders often co-occur. Recently, a technique named decoupling has been successfully tested in BFRBs (Moritz *et al.*, 2011; Moritz *et al.*, 2022),

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which can be regarded a variant of HRT, where the incompatible behaviour is dynamic (free download at: [www.free-from-bfrb.org](http://www.free-from-bfrb.org)). Following an awareness training, users are instructed on how to shape/deviate their dysfunctional behaviour into a similar but benign terminal movement. Two steps are distinguished. In the initiating phase of decoupling, the movement mimics the dysfunctional behaviour. Shortly before reaching the prior behavioural target (e.g. nails), that is in temporal and spatial proximity, the movement should be deviated and target either another location on the body (e.g. ear) or a certain point in the room with *an accelerated movement*; instructions are accompanied by photos. Participants are instructed on how to use a smartphone timer to remind them to complete the exercises (a timer was encouraged as decoupling should be practised in both symptomatic and symptom-free intervals, which is different from HRT where the new behaviour is usually only executed in symptomatic periods). This is the first report where decoupling was tested in a patient with TS.

### Case report and results

P.Z. is a 24-year-old male diagnosed with TS by a neurologist. His symptoms began at 15 years with eye rolling and shoulder shrugging. No additional psychiatric disorders such as obsessive-compulsive disorder (OCD) are present. Yet, the patient reports depressive symptoms due to TS (see below). He does not take medication at present. No psychotherapy was ever initiated. In his experience, competing response techniques (e.g. stopping the tic movement by muscle tensing) would raise the frequency of subsequent tics; however, he had not received any therapist-assisted intervention with HRT. He reports premonitory urges, mainly in the region where his tics ultimately manifest seconds later. The patient was taught decoupling by the first author. As described before, in standard decoupling for BFRB, the initial movement should be similar to the dysfunctional behaviour (e.g. moving the hands toward the hair as if to pull the hair in trichotillomania). Shortly before reaching the prior behavioural target (e.g. hair), the movement should be deviated and directed at either another location on the body, or to a specific point in the room with *an accelerated movement*. P.Z. was introduced to a variant of decoupling adapted to tics, which he should perform two to three times daily. The protocol was first attempted with the eyes. P.Z. was instructed to move his fingers in a way similar to his eye movements. To start, he performed the exercises multiple times during the day including periods when no urge was present. Later, results were best when he performed the movements during the premonitory urge. P.Z. would then flex his index finger and then bend the finger upwards towards the back of his hand with all of his strength, as shown in the Appendix (Supplementary material). This movement had some similarity to his eye tics, wherein he would pull his eyelids upwards.

Prior to adopting decoupling, P.Z. endorsed a moderate quality of life on a global quality of life item, which he rated as good following treatment. On the depression scale PHQ-9, he showed a score of 15 (moderately severe) at baseline, which decreased to 12 (moderate) after treatment.

P.Z. also completed the Adult Tic Questionnaire (ATQ; Abramovitch *et al.*, 2015) and presented with 10 (of 14) motor tics and three (of 14) vocal tics prior to treatment (see Table 1). Two tics improved following the use of decoupling; blinking: before = constant, intensity: 1; after = daily, intensity: 1, and eye rolling/darting: before = hourly, intensity: 3; after = daily, intensity: 1. The frequency and intensity of all other tics remained the same following decoupling, and importantly, no new tics emerged. The patient was re-contacted one year after the post-assessment and reported that the improvements were sustained.

### Discussion

Decoupling has shown efficacy in reducing BFRBs (Moritz *et al.*, 2011; Moritz *et al.*, 2022) but has never been tested in other conditions. This is the first study exploring whether it is feasible and

**Table 1.** Motor and vocal tics identified by patient P.Z. before and after decoupling

Tic	Present	Frequency	Intensity	Change
<b>Motor</b>				
Eye blinking	Yes	Constant	1	Daily and 1
Eye rolling/darting	Yes	Hourly	3	Daily and 1
Head jerk	Yes	Hourly	2	No
Facial grimace	Yes	Hourly	2	No
Mouth/tongue movements	Yes	Daily	1	No
Shoulder shrugs	Yes	Daily	3	No
Chest/stomach tightening	No	n/a	n/a	No
Pelvic tensing movements	No	n.a	n/a	No
Leg/feet movements	Yes	Weekly	1	No
Arm/hand movements	Yes	Daily	3	No
Echopraxia (copying another's gestures)	No	n/a	n/a	No
Copropaxia (obscene gestures)	Yes	Daily	4	No
Other motor tics	No	None	n/a	No
Complex motor combinations (multiple tics at once)	Yes	Daily	3	No
<b>Total motor tics</b>	10	2.7	2.3	
<b>Vocal</b>				
Grunting	No	n/a	n/a	No
Sniffing	Yes	Daily	3	No
Snorting	Yes	Weekly	1	No
Coughing	No	n/a	n/a	No
Animal noises	No	n/a	n/a	No
Syllables	No	n/a	n/a	No
Words	No	n/a	n/a	No
Phrases	No	n/a	n/a	No
Echolalia (repeating vocalizations of others)	No	n/a	n/a	No
Coprolalia (obscene words)	No	n/a	n/a	No
Blocking/stuttering	No	n/a	n/a	No
Other vocal tics	No	n/a	n/a	No
Complex vocal combinations (multiple tics at once)	Yes	Daily	3	No
<b>Total vocal tics</b>	3	3.5	2.3	
<b>Total scores</b>	13	2.8	2.3	

Constant = 1, hourly = 2, daily = 3, weekly = 4; n/a, not applicable.

effective in TS. Patient P.Z. reported a marked improvement in tics relating to his eyes following treatment with decoupling, which translated into an improved quality of life and somewhat lower depression scores. P.Z. reported that decoupling helped him to stop his eye tics in public, which he experienced as a great relief. However, none of the other tics improved despite several attempts to adapt the decoupling protocol. Future research, preferably using a controlled design with a large sample, may elucidate whether decoupling is only feasible and effective for tics relating to the eyes, the most common symptom in tic disorder/TS and the initial symptom of the patient, or whether it can be extended to other symptoms. P.Z. noted that the premonitory urge to perform the eye tics was a little less strong than for his other tics. This is one possible explanation why the technique worked for the eyes but not for his other tics.

A possible limitation of the study is that we did not administer the Premonitory Urge for Tics Scale (PUTS), which might have provided more insight into the mechanisms behind the improvement for his tics and why the technique failed for most other tics. HRT with competing response training remains the first-line treatment for TS and decoupling should only be attempted if HRT does not lead to symptom relief.

Many patients with tic disorder/TS also suffer from co-morbid conditions such as depressive and obsessive-compulsive symptoms (Robertson, 2015) that fuel the severity of tics/TS. In the future, it should therefore be tested whether complementary psychological strategies yield add-on effects when performing decoupling.

**Supplementary material.** The supplementary material for this article can be found at <https://doi.org/10.1017/S1352465823000152>

**Data availability statement.** The data that support the findings of this study are available on request from the corresponding author (S.M.).

**Acknowledgements.** We wish to thank the patient for allowing us to publish his case.

**Author contributions.** **Steffen Moritz:** Conceptualization (equal), Investigation (equal), Methodology (equal), Project administration (equal), Writing – original draft (equal), Writing – review & editing (equal); **Danielle Penney:** Conceptualization (equal), Methodology (equal), Writing – original draft (equal), Writing – review & editing (equal); **Stella Schmotz:** Conceptualization (equal), Methodology (equal), Project administration (equal), Writing – original draft (equal), Writing – review & editing (equal).

**Financial support.** This study had no external funding.

**Competing interests.** The authors declare none.

**Ethical standards.** Our study conformed to the Declaration of Helsinki; the person described has seen the submission in full and agreed to it going forward for publication.

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**Cite this article:** Moritz S, Penney D, and Schmotz S (2023). Decoupling: adaptation of a treatment for body-focused repetitive behaviour to Tourette syndrome. A case report. *Behavioural and Cognitive Psychotherapy* 51, 475–478. <https://doi.org/10.1017/S1352465823000152>