

# Using Neuropsychological Feedback Therapeutically in Treatment for Anorexia Nervosa: Two Illustrative Case Reports

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Information processing in anorexia nervosa (AN) has been characterised as having a tendency to get trapped in detail, and having difficulties with set-shifting. These characteristics can be addressed in treatment through personalised interventions targeting thinking styles and their role in the development and maintenance of an eating disorder (ED). This paper outlines a three-session assessment and feedback module designed to identify and address these information processing biases. Two case reports are presented to illustrate the structure, content and outcome of the intervention. Both patients described the intervention as helpful in providing a structure and rationale for the steps required in recovery. The short nature and promising results of this intervention make it an attractive addition to current treatment programmes. Copyright © 2008 John Wiley & Sons, Ltd and Eating Disorders Association.

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## INTRODUCTION

As anorexia nervosa (AN) is often treatment resistant, there is a need to examine alternative treatment approaches. One method is to understand the mechanisms underpinning risk and maintaining factors. Obsessive–compulsive traits, which are well documented as comorbid in AN (Anderluh, Tchan-

turia, Rabe-Hesketh, & Treasure, 2003; Halmi, Sunday, Klump, Strober, Leckman, & Fichter, 2003; Tozzi, Thornton, Crow, Fichter, & Kaplan, 2005), have been proposed as one of the four important maintaining factors for this illness (Schmidt & Treasure, 2006) and found to have important effect on outcome (Crane, Roberts, & Treasure, 2007; Lilienfeld, Wonderlich, Riso, Crosby, & Mitchell, 2006). Therefore translating what is known about the psychobiology of obsessive–compulsive traits into treatment of AN may be a viable treatment approach.

People with AN have a neuropsychological profile that is suggestive of superior detailed or

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local processing. They excel in tasks that are aided by a piecemeal processing style such as the Embedded Figures Test (Lopez, Tchanturia, Stahl, Booth, Holliday, & Treasure, 2007; Tokley & Kemps, 2007) and the Matching Familiar Figures (Southgate, Tchanturia, & Treasure, 2007). Additionally they perform less well in tasks requiring global information processing such as, Object Assembly (Gillberg, Gillberg, Rastam, & Johansson, 1996; Gillberg, Rastam, Wentz, & Gillberg, 2007; Tokley & Kemps, 2007) and the Rey–Osterrieth Complex Figure (RCFT) (Kingston, Szmukler, Andrewes, Tress, & Desmond, 1996; Lopez et al., 2007; Mathias & Kent, 1998; Murphy, Nutzinger, Paul, & Leplow, 2002; Sherman, Savage, Eddy, Blais, Deckersbach, & Jackson, 2006; Thompson, 1993).

In addition to local processing style, a deficit in set-shifting (the ability to move back and forth between different tasks, operations or mental sets (Miyake, Freidman, Emerson, Wizki, Howerter, & Wager, 2000)) has also been consistently found in people with AN (Roberts, Tchanturia, Stahl, Southgate, & Treasure, 2007) and in obsessive-compulsive spectrum disorders (Lawrence, Wooderson, Mataix-Cols, David, Speckens, & Phillips, 2006; Penades, Catalan, Andres, Salamero, & Gasto, 2005). Tchanturia and collaborators (Davies & Tchanturia, 2005; Tchanturia, Whitney, & Treasure, 2006) translated this finding into a 10-session treatment module designed to remediate set-shifting anomalies in inpatients with AN. This therapy has proved acceptable to patients and has the potential as both a stand-alone 'pre' therapy for severely emaciated inpatients, and as an integrated part of standard treatment protocols (Baldock & Tchanturia, 2007; Davies & Tchanturia, 2005; Tchanturia, Davies, & Campbell, 2007).

We hypothesise that both superior local processing and difficulties in set-shifting underlie obsessive-compulsive traits such as perfectionism and rigidity, and therefore have a role in maintaining AN.

The aim of this paper is to describe a short intervention designed to translate the results from neuropsychological testing into everyday life and to eating symptoms. The intervention involves two sessions of motivational feedback and formulation based on the first assessment session of both neuropsychological traits (local/global processing, and set-shifting). Our hypothesis is that this intervention will be of value as part of the standard treatment for outpatient AN. Two case reports with markedly different prognostic features are used to describe the practical aspects of the intervention and the outcome.

## METHOD

### *The Intervention*

#### *Rationale*

Preoccupation with detail over the gestalt, and rigidity with poor set-shifting is associated with obsessive-compulsive traits (Lopez et al., 2007; Schmidt & Treasure, 2006; Tchanturia, Morris, Anderluh, Collier, Nikolaou, & Treasure, 2004). People who are triggered into the development of an eating disorder (ED) apply these traits to food and shape. Hence this cognitive style shapes the form of the psychopathology. The individual applies their analytical, detailed focus onto the calories, colour or composition of food and/or body parts. This bias over-rules any consideration of nutritional health and quality of life. A rigid, single minded focus may make anomalous thoughts and beliefs resistant to change.

#### *Aim*

The aim of this intervention is to translate the neuropsychological assessment into an individual formulation. Individuals with a high detail focus are encouraged to reflect on whether this bias emerges in general aspects of life and more specifically in relationship to food and shape/weight. Finally, the individual is encouraged to step back and judge how such a bias interferes with their quality of life and, if present, to consider strategies to transcend this bias. Similarly, if difficulty with set-shifting is present the formulation includes an evaluation of how cognitive rigidity has impacted upon their life story. The discussion centres upon introducing more flexibility in everyday life.

#### *Procedure*

The neuropsychological assessment and feedback module is offered as a 'pre' therapy procedure to outpatients with an ED following their initial psychiatric assessment, before commencing the standard Maudsley model of individual outpatient treatment (Schmidt & Treasure, 2006).

The neuropsychological assessment takes 60 minutes. If the patient shows sufficient deficit in one or both areas to merit the intervention (scores are one standard deviation [SD] above or below healthy population in two or more of the administered tasks), they are given one session for feedback and formulation (50 minutes) and one session for review (60 minutes). Those with less extreme scores are given feedback only. The patient is given a worksheet that summarises the general

meaning of the assessment and suggests follow up strategies.

### Session 1—Neuropsychological Assessment

A complete battery of neuropsychological tests is administered after the general assessment (T1), before the feedback session. This consists of measures of local/global processing and set-shifting: the set-shifting test battery consists of the Trail Making Test (TMT), Wisconsin Card Sorting Test (WCST), Brixton test, Catbat task, Haptic Illusion and the detail focus tasks are the RCFT copy and recall administration, the Embedded Figure Test—Form B (EFT), and the Sentence Completion Task (SCT). For task descriptions see Roberts et al. (2007) for set-shifting tasks and Lopez et al. (2007) for detail focus tasks.

Along with the neuropsychological evaluation, individuals taking part in this treatment module are also given the following self-report questionnaires to complete regarding their cognitive style and comorbidity: Cognitive Flexibility Scale (CFS; Martin & Rubin, 1995), The hospital anxiety and depression scale (HADS; Zigmond & Snaith, 1983) and the Obsessive Compulsive Inventory – Revised (OCI-R; Foa, Huppert, Langner, Leiberg, Kichic, & Hajcak, 2002). Finally, semi-structured interviews (EATATE interview and SCID-I) are administered to complete the assessment of ED psychopathology (Anderluh et al., 2003; First, Gibbon, Spitzer, & Williams, 1997). BMI is also obtained on the day of assessment.

CSF, HADS and OCI-R self-report measures are administered again at a 6-month follow up (T2).

### Session 2—Feedback, Formulation and Target Setting

- (1) *Feedback*: motivational feedback of the results of the neuropsychological assessment is given to the individual. The results are presented in the form of charts (see Figure 1 a,b), and in the context of scores of other people with an ED and a healthy comparison (HC) population. The feedback is personalised and reflective.
- (2) *Formulation*: this includes a discussion of the role that extreme performance in either of these traits plays in academic life, career, family life, relationships, etc. and how they may have evolved and shaped the life course. Finally, the focus is on how these traits underpin and shape eating symptoms.

- (3) *Transcending targets*: the final aim is to examine how the patient can move their behaviour to a less extreme position or develop strategies to enable them to transcend their usual biases (i.e. consider the advice/expertise of others who show different traits).

#### *A detail over global bias*

Here patients are encouraged to adopt a more global approach, and to step back from detail to the gestalt (bigger picture). Practicing taking a more global approach involves monitoring how they and close others exhibit a detail bias in everyday life. The use of images, diagrams, headings and mind maps can help to keep the focus away from detail. Practical strategies such as making an album (or laminated collages/table mat) with a series of images about life without an ED (relationships, career, family, psychological health, etc.) can be helpful. Emotional engagement with this task can be increased if anorexic thoughts/behaviours are used as a currency to barter for elements of this 'global picture'. Patients are asked to try to introduce and practice zooming out to the bigger picture, either in relation to general activities or ED cues.

#### *Difficulties in set-shifting*

Patients with poor set-shifting are encouraged to introduce more flexibility into their everyday life. This involves making gradual changes in their habitual behaviours, for example, choosing different routes to university. Eventually this leads to behavioural experiments whereby decisions are made by random events (the throw of a dice, opening sealed envelopes).

#### *Extreme speed/accuracy style*

Patients who choose to make no mistakes at the cost of slowness in tasks are encouraged to make a judgement about this balance and set reasonable limits (e.g. one check through of homework only).

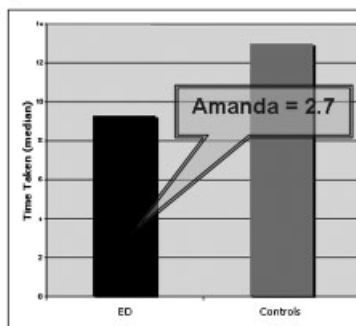
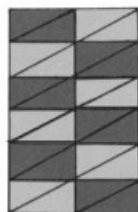
### Session 3—Reflection

The aim of this session is to review and reflect on the conceptualisation formulated in session 2, and to examine whether it had ecological meaning in everyday events. The therapist specifically asks about whether any behavioural experiments have been completed and reviews the outcome. Time is then spent developing further behavioural experiments and using problem solving strategies to review difficulties. Problem solving itself is a useful training tool where there is a focus on the bigger

(a)

## How quickly can you find hidden shapes ?

*If you are able to do this task quickly then it suggests you are good at picking up on detail .*

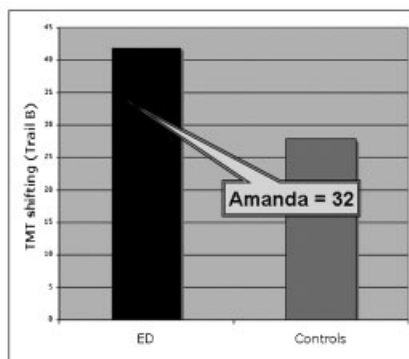
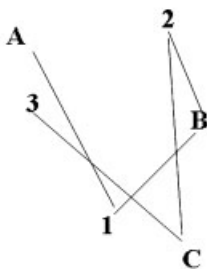


Time taken to find hidden figure

(b)

## How long does it take to join the dots if you have to change between 2 sets of rules?

*People are slower on this task if their preference is to focus on one thing at a time and not keep changing rules*



Time Taken

Figure 1. (a) An example of Embedded Figures Test chart provided to a patient during feedback; (b) An example of a Trail Making Test provided to a patient during feedback

picture rather than on detail and whereby a flexible response set is generated. If a clinical judgement is made that further treatment is needed (based on prognostic features and change in weight during the intervention) then a summary of the intervention is passed onto the new therapist who integrates the results into the standard Maudsley model of individual outpatient care. If, as in one the cases

described below (Case 1), the judgement is made that no additional treatment is needed, then follow up only is given.

The following case reports illustrate how this intervention is used in clinical practice. We obtained consent from the patients described here to use their information in this manuscript. We use invented names in these cases for confidentiality.

### Case Report 1: Amanda

Amanda was a 17-year-old white British female meeting DSM-IV diagnosis for restricting AN (SCID-I). She did not meet full criteria for any additional axis I or II diagnoses although she described herself as a perfectionist throughout her life. Her restricting began at 16 years of age around the time of her GCSE exams. She had a BMI under 17.5 kg/m<sup>2</sup> for a 10–12 month period, with a lowest BMI of 16.9 kg/m<sup>2</sup> and secondary amenorrhea for approximately 10 months. Amanda had rituals and obsessions related to food, weight and shape in line with her ED. For example, she had many rules about eating pertaining to specific crockery items and ingredients.

Amanda reported a strong family history of ED. Her older sister had restricting AN as a teenager, with a lowest BMI of 11.6 at 15 years of age. Her mother had had reoccurring restricting and bingeing behaviours throughout her life, and Amanda's maternal aunt had restricting AN as a young adult lowest BMI 16.9. Amanda herself had weighed more than average at school and had been teased and bullied about this.

The EATATE interview indicated general childhood perfectionism and competitiveness from a young age, which became more pronounced with the onset of AN. Amanda's scores on the OCI-R, HADS (anxiety and depression), and childhood perfectionism traits overlapped with the norms of a healthy population. She also obtained high scores in the CFS. The neuropsychological assessment took place 1 week after she was first seen, at a BMI of 16.9.

### Case Report 2: Emma

Emma was a 21-year-old white British female meeting DSM-IV diagnosis for restricting AN (SCID-I). She described obsessive–compulsive behaviours of repeated checking of her alarm clock and satchel as being present from childhood. She also met DSM-IV criteria for depression and had a severe spider phobia from childhood which meant that she could not stay at home alone. Her eating problems began after a school trip away when she was aged 15. When she left home to go to university she lost more weight. She had particular difficulties at exam time when she isolated herself and undertook a harsh revision routine. Emma came for treatment with her parents as she was depressed and lacking in energy and was failing in her work placement. During the assessment interview it

emerged as a surprise to Emma that her mother had had an episode of AN as a teenager. She was an only child.

Emma had become rigid and compulsive about food with rules limiting the amount of calories to 300 kcal. Her whole day was regimented. Emma had very high scores in OCI-R and also high indices in depression and anxiety. She scored relatively low in CFS (42 out of 72).

EATATE interview revealed that obsessive–compulsive traits from childhood became more pronounced with the onset of her illness. The neuropsychological assessment took place 2 weeks after Emma was first seen. Her weight had continued to fall from 44 to 42 kg, giving her a BMI of 16.4.

### Feedback on Neuropsychological Performance

#### Case 1

*Detail/global.* In the Rey figure, Amanda displayed a detail focused drawing style in the copy trial. This was less extreme in the recall trial, however despite this her recall accuracy score was excellent. Amanda was fast on finding the embedded figures in the EFT and made no time-out errors (over 60 seconds). She had prolonged hesitation in SCT which shows some difficulties in verbal global processing.

*Set-shifting.* Amanda was fast and accurate on the TMT 'A'. However she was slower on the shift task 'B' and made errors. Her scores on the WCST overlapped with those from the healthy population as did her scores on the Brixton and Haptic tasks. In the SCT and CATBAT task she chose a slow, accurate strategy. Overall Amanda did not have marked problems with set-shifting.

#### Case 2

*Detail/global.* In the Rey figure Emma had a drawing strategy equivalent to that shown by healthy population (i.e. did not focus on detail) with excellent accuracy. Emma was as fast on finding the embedded figures as the comparison AN group. However, she was extremely slow in finding answers for sentences in the SCT.

*Set-shifting.* Emma was somewhat slow but very accurate on the TMT 'A'. She was slow on the trail making 'B' and made no errors. Emma had fewer errors on the WCST than the healthy population and so performed atypically from wider group of people with AN who made more errors on this task.

The number of errors on the Brixton task and the number of illusions in Haptic was similar to the healthy population. Emma was extremely slow on the CATBAT task but made no errors. Thus in general on most of these tasks the strategy Emma used was to have accuracy as priority. The trade off was that she was slow on most of these tasks.

An example of how the above neuropsychological feedback is given to the patients is shown in Figure 1. Similar visual displays are produced for all of the neuropsychological tasks for each patient on a case-by-case basis.

Here are some of the comments Amanda (Case 1) made in relationship to her feedback:

Reflection on feedback: *'I think sometimes I can see the bigger picture but other times I do just get stuck in the detail and will ignore it. It is interesting in that test that I did pick up on some of the bigger picture. I do feel that I just jump straight in with the detail as if that is my comfort zone. . . Yes and with eating there is the calorie counting—just worrying about the tiniest amounts of increasing or decreasing or weighing.'*

The next phase of the assessment is to translate the results from the neuropsychological assessment into everyday life. Some examples for the cases reported are described below:

### **T (Therapist): How Does This Tendency to be Analytical and Detailed Function? What Are the Pros & Cons of This?**

General pros of detail focus: *'Like in the lab or something, measuring things out and there you would need a good eye for detail, noticing mistakes and things in text and that sort of thing, editing etc.'* (Emma)

Personal pros: *'It has helped me in some ways with tests and things I have been able to provide the details that I needed.'* (Emma)

Cons of detail focus: *'Well it does make learning difficult because I have to focus on every single sort of detail and have to get that absolutely right and then it takes time but sometimes just to have a general overview of something will do. You don't*

*need to know everything. You can't know everything in absolute detail.'* (Amanda)

Personal cons: *'It has hindered because it has taken a lot of my time when I could have been going out and enjoying myself'* (Amanda)

### **T: Where Does Detail Focus Come from?**

*I think actually Mum has a lot of attention to detail. She quite often likes to do things by herself and doesn't like anyone else to help her because she wants it to be just the way she wants it. You offer to help but she says no I will do it myself and she is quite particular about cleaning the house and she is quite perfectionistic.* (Emma)

### **Reflection Session**

#### **Case 1**

At the time of the review session, Amanda's weight had increased (BMI: 18.0). She had been able to notice her AN thoughts and worked hard to examine them in a broader context of her life. She had worked through the motivational module of the Maudsley model of individual therapy workbook and had found externalising the AN and making a decisional balance was helpful. She had experimented with being less detailed and spending less checking time over her academic work and found it made little difference to her overall score. She described how after having the feedback, she decided to step back when making decisions and deliberately do the opposite of what she would normally do that is, to go for a global rather than a detailed perspective.

#### **Case 2**

In the review session Emma's weight remained unchanged, however she had stopped the rapid weight loss that had occurred before her neuropsychological assessment session. In the motivational module Emma gave herself a low score (3/10) on her confidence in her ability to overcome her ED. Emma had worked to try to have a global rather than a detailed, rule driven approach to her AN. She made an album with cuttings to illustrate what her life would be like if she no longer had her AN. She used this to keep the 'bigger picture' in mind when she was struggling to overcome her AN rules. She had had great difficulty implementing any beha-

vioural experiments relating to changing her eating rules or rituals.

### **Continuation Treatment**

#### *Case 1*

Amanda came for two further sessions where it was apparent she was making steps into recovery (BMI 19.3). She was seen for a follow up appointment four months after her first appointment (BMI 22.4). She reported that she had been able to introduce normal food and had joined friends with social eating. It was clear that she was making progress towards recovery and so she was seen for extended follow up only.

#### *Case 2*

Emma worked on the motivational module in the Maudsley model of AN treatment. However a major focus in treatment was the reaction of her parents to her illness. Emma left university to live with her parents (her mother had just retired and her father had retired early for health reasons). Emma's mother talked to the therapist about her own AN but was reluctant to talk about it at home. Emma's mother had her own rituals and rules about eating and the family never ate in restaurants, etc. Emma's mother was very frustrated and critical of Emma. Emma's parents were invited to a skills training workshop, her father came but her mother became depressed, retired to bed and stopped talking to Emma. Emma's father came to the therapy sessions and at home played the role of an intermediary. Therapy was interrupted when Emma went away with her parents. Over this time Emma lost weight. Another issue in therapy was Emma's social isolation. Emma kept her mobile phone turned off and avoided her e-mails. Emma withdrew from her University and started a distance learning course but her perfectionist standards re-emerged and she decided to stop this.

### **Six-Month Follow-Up (T2)**

#### *Case 1*

Amanda presented as happy and healthy, and described the feedback session as a turning point to change her eating behaviours. Amanda had increased her BMI to 23.4 over the 6-month period. She no longer met any DSM-IV criteria for AN, and her self-report scores on both anxiety and depression were lower. Another positive although small change was observed on her scores on CFS increasing from 57 points to 62.

#### *Case 2*

Emma was still in treatment at 6-month follow-up. She had increased her BMI to 17.3 over this period and slowly relaxed some of her eating rules. She continued to put in extreme perfectionist effort into job applications. She was reluctant to take voluntary or simple work as a first step. She started to go to a yoga class with a neighbour but continued to avoid her peers. The relationship with her mother remained fraught. In cognitive flexibility self-report, Emma's scores in the CFS decreased from 42 at T1 to 30 at T2.

Both Amanda and Emma found the intervention informative and helpful. Emma wrote feedback about the neuropsychological assessment as follows:

*Understanding my cognitive style has had a positive impact on my life. Firstly, it has identified the thinking styles that have contributed towards the anorexia nervosa. Secondly, the results provide a basis for targets/experiments to help change the undesirable thinking patterns, and enable me to improve my quality of life.*

*An understanding that I have an analytical/detail focus has helped me to set targets for reducing this with food. For example, I used to be very preoccupied with counting the calories in food. By realising that this is due to my analytical thinking, I have taken steps to stop weighing food, to start eating food such as fruit without labelling [...] My focus on the detail of food, and disregard for my wider life, had also made it difficult to see how gaining weight would lead to a better life. However by producing a display booklet picturing my hopes for 'my life after anorexia' I can continually remind myself of the bigger picture, and what I can have in life once I can maintain a healthy weight.*

*Since receiving the feedback from the assessment I have been more aware of how my cognitive style plays a role in my life [...] This has helped me to understand why I take great care over tasks, both at home and in my work, to ensure that they are carried out to the highest standard, with few flaws or errors. While this trait can be useful [...] it slows down progress in others, resulting in my tendency to work for as long as it takes until a task is completed to perfection. [...] understand the*

*conflict between my focus on detail and ability to see the bigger picture [...] explains why I am overcome with indecision when selecting food in the supermarket—I have a conflict between focusing on the nutritional information and striving for better nutritional health.*

## CONCLUSIONS

We have described a short neuropsychological feedback and formulation intervention for people with ED with a strong detail focus and/or poor set-shifting. The aim of the intervention is to help individuals transcend these information processing styles and develop a more balanced strategy, especially in their relationship to food and shape/weight. The case reports illustrate some of the practical aspects of the intervention. The outcome in Case 1 was particularly successful whereas that for Case 2 was less impressive, although the patient found it to be a helpful part of treatment.

The cases presented here need to be set in the context of their prognostic indicators and maintaining factors (Schmidt & Treasure, 2006). Case 1, Amanda, was young, with a duration of illness of under a year, a moderately reduced BMI, and little comorbidity. Her parents and school had acted on the problem quickly had an agreed plan of action and obtained expert advice. She had good emotional and interpersonal skills and was a popular successful member of school. She had attained some secondary gains from the weight loss, her peers had commented positively but she was also able to balance this with her awareness of some of the negative aspects. However in Case 2, Emma was older with six years of untreated illness. Her BMI was moderately low. She had phobias and obsessive-compulsive behaviours dating from childhood. She also had depressive comorbidity in the context of her illness. The family reaction to the illness was complex. As mentioned Case 1 had little in the way of comorbidity on standard assessment tools whereas Case 2 had high levels of symptomatology; thus Case 1 had several good prognostic features which contrasted with Case 2 in which there were several indicators of an adverse prognosis.

The neuropsychological profiles showed similarities and differences. Amanda had a bias to Detail (superior performance on the Embedded Figure Test, and a detail preference when copying the RCFT), and an intermediate pattern on her

set-shifting profile. This ability to be relatively flexible and to change strategy (as seen in the RCFT recall) perhaps enabled her to shift her focus away from the local elements of her eating behaviours to see the bigger picture of her nutritional health. Emma was good at detail, but was able to use a global strategy for the RCFT. She had a mixed pattern in set-shifting tasks. Her strategy was avoiding any mistakes and so she was very slow on all set-shifting tasks.

The patients' feedback illustrates that this intervention is well accepted and found to be of relevance. The focus on the thinking process rather than the content of the psychopathology enables people with ED to step back and understand why they are trapped within the illness. This is more acceptable than being implicitly told that their thinking is wrong and in need of restructuring. The tone of the feedback intervention is that there is no right or wrong in terms of cognitive styles, merely differences in biases. Sharing information in this way means that patient and therapist can work collaboratively to design behavioural experiments and use problem solving to develop new strategies which they can implement at their pace.

The intervention described in this study is brief and limited to information sharing. Another strategy that has been used to overcome extreme biases in cognitive style is to train individuals to use alternative ways to process information. For example, Tchanturia and colleagues (Davies & Tchanturia, 2005; Tchanturia et al., 2006, 2007) have developed cognitive remediation therapy for in-patients with AN which consists of exercises to increase flexibility and move away from an overly detailed focus. This has been found to improve set-shifting performance and is found to be helpful by patients with AN. Cognitive training has been used in people with obsessive-compulsive disorder (OCD). For example, Buhlmann, Deckersbach, Engelhard, Cook, Rauch and Kathmann (2006) trained individuals with OCD to use a different organisation strategy in relationship to the RCFT. Their aim was to improve patients' skills to organise and integrate complex visual information. All participants receiving training improved in both organisation strategy and recall. Park, Shin, Ha, Shin, Kim and Lee (2006) trained people with OCD on block design and problem solving. The training group improved in recall accuracy in the RCFT as well as their clinical symptoms (Park et al., 2006). This suggests that interventions with a focus on basic information processing anomalies may have potential in AN and the OCD spectrum.

There are uncertainties about how easily such an intervention can be integrated into practice. This intervention is not relevant for all cases of AN, as approximately 20% of cases of AN do not have extreme scores on either of these dimensions. It is possible that other measures of executive function should be included. This may widen the relevance to all cases of AN. Skills and resources are presently needed to deliver the neuropsychological assessment. We are currently testing whether a computerised battery and feedback template can be used. This preliminary work suggests that this type of intervention holds promise as part of treatment for AN. However, additional work with extreme anxiety and family relationships, the other maintaining factors in the Maudsley model of individual therapy (Schmidt & Treasure, 2006) which were highly relevant in the case of Emma, are also necessary.

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