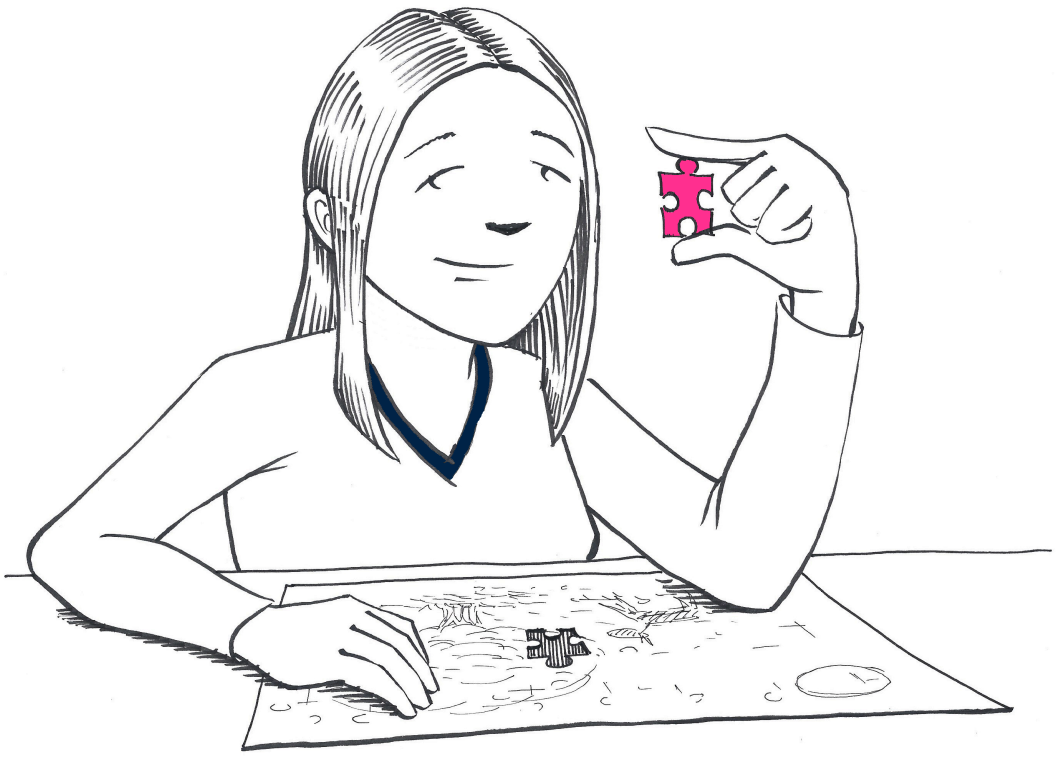
The Cognitive Remediation Therapy (CRT) Resource Pack for Children and Adolescents with Feeding and Eating Disorders

Second Edition

Camilla Lindvall Dahlgren, Betteke Maria van Noort & Bryan Lask



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Preface

Dear reader, thank you for showing interest in the second edition of our Cognitive Remediation Therapy (CRT) Resource Pack for Children and Adolescents with Feeding and Eating Disorders. The new edition builds on the content from our first resource pack published in 2010, but it contains more paper and pencil tasks, as well as additional suggestions to board games and brainteasers from ThinkFun® and other providers. Also, the introduction section is a bit longer, giving you a more detailed understanding of anorexia nervosa (AN), and the application of CRT for this patient group. Based on user feedback, we have also added a section on *Clinical Examples*, a list of *Suggested Reading*, and a section describing where you will find the materials described in the resource pack. We have called this last section *Resources*.

Our resource pack has been designed specifically for use with children and adolescents, and is inspired by the work on CRT for adults by Dr. Kate Tchanturia and her team at the Institute of Psychiatry, King's College London in United Kingdom. As the games and tasks included are of various difficulty levels however, our experience is that the material works really well with children, adolescents *and* adults. Most of the tasks can be used directly from the resource pack. Others you will need to photocopy for repeated use. The board games from ThinkFun® are available for purchase online (www.thinkfun.com) or in selected stores.

The resource pack is intended to support those who are completely new to CRT for AN, and who wish to implement the intervention in their everyday clinical practice. However, it is also designed to assist those who have already attended specialist training in CRT, and who are looking for a little guidance in the application of the therapy in their everyday practice. Independent of your CRT background, we suggest you read some of the publications listed in the section *Suggested Reading*. These will give you a fuller understanding of how CRT was adapted from schizophrenia to AN, the various modes of delivery, the development of CRT tasks, and how clinicians and researchers have evaluated the benefits of CRT for their patients.

We hope you will enjoy using our resource pack with your patients. If you have any questions, please do not hesitate to contact one of the authors!

Camilla, Betteke & Bryan

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The Authors

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Betteke Maria van Noort holds an MSc in Cognitive and Clinical Neuroscience with a specialization in Neuropsychology. She is currently working as a researcher at the Charité-Universitätsmedizin Berlin in Berlin, Germany. Simultaneously, she is completing her PhD in the field of early onset anorexia nervosa and is also involved in a trial exploring the effectiveness of CRT in children and adolescents with eating disorders She has been working as a CRT therapist since 2011, and has training from Professor Lask, Dr. Lindvall Dahlgren and Dr. Kate Tchanturia. Betteke has arranged several seminars on the topic of CRT in Germany.

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Introduction

In recent years, there has been a substantial increase in studies investigating the impact of neuropsychology on eating disorder aetiology, maintenance, and recovery. Clinical neuropsychology examines the relationship between brain pathology and behavior, and in anorexia nervosa (AN), the focus has been primarily to establish the extent to which weaknesses in cognitive flexibility (i.e. the inability to shift or change mental and behavioral strategies) and weak central coherence (i.e. the preoccupation with details at the cost of global/contextual processing) contribute to the development of the illness, its perseverance and the likelihood of recovery. Early neuropsychological studies and clinical observations of adult females with AN laid the groundwork for the adaptation of previous versions of cognitive remediation therapy (CRT) to the field of eating disorders.

Dr. Kate Tchanturia and colleagues at King's College in London were pioneering in the development of CRT for adult women with AN. Since the first CRT case study in 2005, a lot has happened, both in terms of the clinical application of CRT, but also in terms of research. We now know that CRT can be delivered individually, in groups, and in families, that the intervention suits both adults and adolescents and that it is easily incorporated in both in- and outpatient settings. But, perhaps even more important, we know that patients really like CRT, and that the intervention is beneficial in a number of ways. Before we explore CRT in more detail, let us take a look at what eating disorders are.

What are eating disorders?

Eating disorders (EDs) are illnesses manifested by disturbed eating behaviors, excessive preoccupation with weight and shape, body dissatisfaction/distortion, as well as compensatory behaviors such as restrictive food intake, excessive exercise or vomiting to achieve weight loss. They are often accompanied by major effects on both physical and mental health, with increased risk for comorbid disorders and significantly reduced quality of life.

During the last two decades, two standard classification systems have been commonly used to diagnose EDs: the WHO International Classification of Diseases and Related Health Problems – 10th Revision (ICD-10) and the Diagnostic and Statistical Manual of Mental Disorders – 4th Edition (DSM-IV-TR). Both diagnostic manuals outline three different clinical entities; 1) anorexia nervosa (AN), 2) bulimia nervosa (BN) and 3) a residual group with distorted eating behaviors that does not meet diagnostic criteria for either AN or BN,

eating disorders not otherwise specified (EDNOS). The fifth edition of the DSM, the DSM-5, was published in May 2013, and is now used in both clinical settings and for research purposes. Since CRT was adapted for people with AN, let's explore the features of this specific eating disorder in more detail.

Anorexia nervosa

Diagnosis. Anorexia nervosa (AN) is a multifaceted mental disorder, with significant psychological and physical comorbidity. Symptoms of the illness most commonly first occur in early to late adolescence and its incidence rate is 0.5 to 0.7% among adolescent females aged 15 to 19 years. Although the disorder is relatively uncommon, it has one of the highest morbidity and mortality rate of all psychiatric disorders.

To be diagnosed with AN, a person must meet all of the current diagnostic criteria from the DSM-5 listed in below.

A. Restriction of energy intake relative to requirements, leading to a significant low body weight in the context of age, sex, developmental trajectory, and physical health. Significantly low weight is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected.
B. Intense fear of gaining weight or becoming fat, or persistent behavior that interferes with weight gain, even though at a significant low weight.
C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

Aetiology. The aetiology of AN is complex and has a multifactorial nature. Society in general believes that the development of AN is largely dependent on socio-cultural factors. Media influences promoting zero-size body ideals undoubtedly contribute to the unhealthy image of what women should look like today, a phenomenon that is predominantly seen in Western societies.
However, although socio-cultural pressure to be thin is likely to have a significant impact on teenagers in a vulnerable developmental period, predisposing biological, psychological and cognitive factors render an individual more susceptible to the development of AN, and precipitating factors such as stress, poor coping strategies and limited social support may act as maintaining factors throughout the course of the illness.

Treatment. Although previous research in the field of EDs has made important contributions to the understanding of AN, there is currently little scientific evidence for effective treatments for the disorder, and for adults, there is no recommended first line treatment.

For children and adolescents, family based therapy (FBT) appears to be most beneficial, and recently, enhanced cognitive behavioral therapy (CBT-E) has also proven effective. Despite the fact that there are a number of approaches currently applied in the treatment of the illness, for example cognitive behavioral therapy (CBT), interpersonal therapy (IPT), cognitive analytical therapy, art therapy and nutritional counselling, existing effect studies are limited and sample sizes remain small. On average, only about one-third of individuals afflicted recover within 4 years after illness onset, and about 50 to 60% make a full and sustained recovery, whereas the rest either remain symptomatic and experience relapses.

The overall prognosis for adolescents with AN is better than that of the adult population, possibly due to lower dropout rates in this patient group. As treatment adherence is associated with better outcomes and shorter symptom duration, it is imperative that young females with AN engage in treatment at an early stage of their illness, and that they are encouraged to remain in treatment to achieve desired intervention effects.

What is cognitive remediation therapy (CRT)?

Cognitive Remediation Therapy (CRT) for AN is a relatively new treatment approach, which focuses on the process of thinking (i.e. the how) rather than the content (i.e. the what). In contrast to traditional interventions that focus on increasing or stabilizing food intake and treating core ED symptoms such as weight and shape concerns, CRT aims neither to address nor directly treat these. The focus is primarily to increase flexibility (set-shifting/switching), and to teach the patients how to achieve balance between detailed and global information processing strategies (central coherence). By encouraging patients to engage in metacognitive processes, that is, to reflect on how they think and explore alternative thinking styles, the goal is for the patient to be able to change thought patterns and behaviors that are not functioning optimally.

The CRT technique that clinicians and researches use today is originally inspired by the interventions developed for patients with brain lesions during the Second World War. The father of the original format of CRT, the Russian neuropsychologist Alexander Luria, and his team of researchers made major advances in the field of brain surgery, and in the restoration of brain functions after trauma when they found that the repetitive implementation of simple cognitive and behavioral exercises could rehabilitate neuropsychological deficits in specific brain regions. Luria's pioneering groundwork represents the very first application of CRT, but over the last five decades, the method and its application have been gradually adapted to suit individuals suffering from other health conditions as well.

In psychiatry, CRT has been most commonly associated with the treatment of cognitive

dysfunction in patients with schizophrenia, but the approach has also been successfully used in the treatment of other mental health conditions such as mood disorders, attention deficit hyperactivity disorder (ADHD), alcohol dependence, depression, and obsessive-compulsive disorder (OCD).

The very first paper on CRT for AN was published in 2005 by Helen Davies and Kate Tchanturia, and reported results from a single case study illustrating the use of CRT for an adult female inpatient refusing to participate in any of the core treatment approaches at the inpatient unit where she was admitted. The materials used were hand picked from the set-shifting module in Delahunty & Morice's "*A training programme for the remediation of cognitive deficits in schizophrenia*", and gradually thereafter, novel materials were developed and assembled in CRT manuals specifically tailored to remediate cognitive weaknesses in females with AN. You can read more about how CRT has been implemented to treat both AN and other illnesses in the *Suggested Reading* section.

Why is CRT suitable for people with eating disorders?

Neuropsychological research accumulated during the last decades reveals consistent weaknesses in both *set-shifting* and *central coherence* in adult women with EDs. So what do these terms actually mean, and why are these the focus in CRT?

Cognitive flexibility - Adapting to, and implementing new strategies

Cognitive flexibility is one of our most central executive functions allowing us to shift back and forth between different information units, or "mental sets". Generally, people who are flexible are able to continuously alter their thoughts and behaviors according to shifting environmental demands. Impaired cognitive flexibility refers to difficulties with shifting or changing mental strategies and rules according to alternating contextual demands. This inflexibility can manifest itself as difficulties in overriding well-learned cognitive and behavioral patterns.

People working with AN patients often report this group as being strongly affected by, and attached to certain rules and regimens, whether it is eating habits, calorie counting, or exercising routines. It is likely that deficits in this particular domain might lead to rigid approaches to problem solving, and to the perseverance of maladaptive thinking and behavioral patterns. In relation to the ED, it is suggested that poor cognitive flexibility leads to difficulties in changing thoughts and behaviors perpetuating the ED (e.g. dieting, body checking, exercising) making it difficult to achieve change. There is also empirical support

stating that greater impulsivity (i.e. less rigidity) is a positive prognostic factor predicting greater likelihood of recovery in patients with AN. Consequently, a person who is able to think flexibly is probably more likely to act in accordance with the continuous changing demands, and hence, might be more likely to achieve change. It is thus likely that flexibility plays an important role in the process of recovery from an ED, and should be included as an essential component in treatment.

Central coherence - Seeing the bigger picture

Central coherence refers to the tendency to process information in terms of the "gestalt" - the big picture - rather than in fine detail. The ability to process information globally enables people to perceive themselves and their surroundings as whole, rather than as separate or detached units. Further, this ability also allows for interpretation of details contextually, and gives a fuller understanding of the integration of, and overall relationship between these. It holds a pivotal function in our everyday life, and underlies many of our thoughts and actions both as children, adolescents and adults.

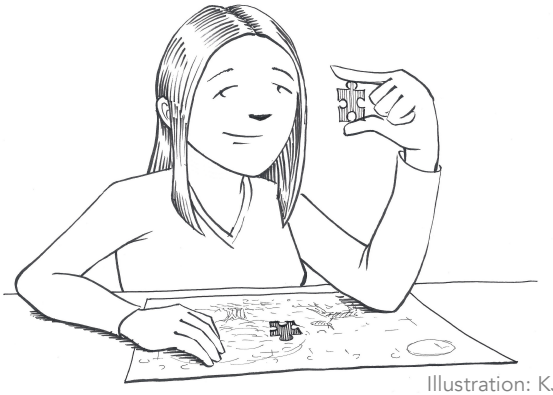


Illustration: KJ

Neuropsychological studies exploring central coherence in adult patients with AN have yielded consistent evidence of weaknesses in global processing, and some have also reported superior attention to details. In adult AN, it appears as though the balance between global and local information processing may be disrupted, resulting in an excessive preoccupation with details at the cost of the bigger picture. In relation to the illness, this preoccupation could manifest in a pathological fixation with calorie- and fat content, weight gain- and loss, and detailed exercise routines and practices, all features that perpetuate ED psychopathology.

Whether poor cognitive flexibility and central coherence is something that people with AN are born with, or if these weaknesses are results of the illness is currently unknown. Whereas some studies report that impairments in these domains revert to normal with weight gain, others have found they do persist after the patients reach normal weight and no longer fulfil

the diagnostic criteria of AN. Also, a few studies have reported impaired cognitive flexibility in unaffected family members of patients with AN, leading researchers to suggest weaknesses such as impaired set-shifting being a cognitive endophenotype (trait), rather than a consequence of the disorder (state).

Neuropsychological functioning in adolescents with eating disorders

Consistent with evidence of weak neuropsychological functioning in adult patient samples, but limited in its empirical support, cognitive weaknesses such as rigidity and preoccupation with details are often observed and reported by clinicians working with younger patients with AN. However, recent research report mixed findings for impaired set-shifting and central coherence in this patient group.

While the majority of research studies conducted within this population fail to report weaknesses in these cognitive domains, some reveal inconclusive results. Inconclusive results accentuate the need of reconsidering weaknesses in these domains as predisposing traits, and highlight the necessity of exploring alternative explanations such as rigidity and preoccupation with details being results of illness chronicity (scarring effects), interaction effects between chronicity and underweight and/or malnutrition, or as a potential characteristics of a subgroup of patients. Also, studies exploring impairments in these domains in adolescents have largely focused on group level analysis, rendering it possible for individual differences to be missed. Nevertheless, it is clear that a large number of young patients AN struggle with being flexible, and tend to focus on details rather than the bigger picture - just like adults with AN. Challenges following rigidity and preoccupations with details in young patients with AN are therefore just as important to focus on as in adults.

It is possible that the relative lack of effectiveness in treatments for AN is due, in part, to the fact that previous treatments tend to focus on emotions, cognitions and behaviors, but fail to address cognitive weaknesses such as poor cognitive flexibility and an inability to process information in terms of the gestalt (i.e. the big picture). In patients with AN, it is hypothesized that such weaknesses have undesirable effects in terms of social interactions, the development of the illness, its maintenance, response to treatment and ultimately, recovery. Given the complexity of, and relation between ED cognition and behavior, understanding and treating maladaptive cognitive functioning might serve as a first step in the process towards recovery. CRT is an intervention aimed at changing inefficient thinking styles often seen in patients with AN, and the behavioral consequences of these.

What is the aim of CRT?

As mentioned previously, the aim when delivering CRT is to help our patients to increase their flexibility (and decrease rigidity), and to encourage patients to practice achieving a balance between detailed and global information processing strategies. By posing a particular set of questions subsequent to being presented with various cognitive challenges or tasks, the patients are encouraged to engage in metacognitive processes, that is, to reflect on how they think and explore alternative thinking styles. The ultimate goal is for the patient to be able to change thought patterns and behaviors that are not working optimally, and to learn new strategies through which they can handle their everyday life more efficiently. The focus is thus on *how* patients think, the thought process, rather than *what* they think of, that is, the thought content.

What do we know about the effectiveness of CRT?

CRT for eating disorders was firstly adapted for, and implemented in adult patient populations. Therefore, research studies exploring the effectiveness of CRT, both on a cognitive- as well as a clinical level, have focused largely on adult populations. Whereas CRT research in children and adolescent most commonly describe case studies or series, several randomized controlled trials (RCTs) have been conducted with adult patients. RCTs are the gold standard for examining the effectiveness of a treatment or therapy program. So far, these first RCTs suggest that CRT can improve cognitive flexibility, enhance quality of life, reduce treatment attrition and potentially reduce eating disorder pathology.

Research in children and adolescents with eating disorders show that acceptance of, and motivation for CRT is high in these younger patients. Typically, treatment acceptance and adherence is low in patients with eating disorders. Exploring this specific aspect of CRT could therefore be crucial in understanding the efficacy of other eating disorder treatment programs, and potentially influence the notion of treatment adherence and drop out. Moreover, it is also possible that the cognitive training and the use of metacognitive techniques used in CRT might, partly aid in preventing the development of cognitive weaknesses. Overall, more research examining the effect of CRT in children and adolescents with eating disorders is essential.

Further reading regarding the effectiveness of CRT can be found in the section *Suggested Reading*.

Implementation of CRT for Children and Adolescents

CRT for children and adolescents is not a therapy that is set in stone, or even manualized. We like to think of it as a toolkit, or a cupboard of resources for the therapist to pick what they like from, when they want to. The CRT intervention has no set length or style or, you can design your intervention around your personal preferences, your available resources, and the patient themselves. This is in terms of how many sessions of CRT you provide, how they are spaced, whether they are 'stand-alone' or mixed in with other therapies, how long they last and what cognitive domains you focus on. Ultimately, the choice is yours!

How do I structure my CRT sessions?

As said, CRT is not a therapy that is set in stone, hence the materials used and the number of sessions is dependent on, and centred around the needs of the patient. Traditionally, most researchers and clinicians have used a fixed number of 10 sessions for every patient. This choice has been largely influenced by the first CRT case studies, but has not been supported scientifically. It is thus likely that some patients will need far more than 10 sessions to achieve expected changes in metacognition and cognitive functioning, whereas others will need less. As a CRT therapist it is important that you modify the number of sessions, their intensity and content based on your patient´s needs. You will probably encounter patients who will benefit greatly from one preparatory session; others will need or want up to 12 to 15 consecutive sessions. Some patients are happy to work for a good hour, whereas others will be exhausted after 30 minutes. This being said, we would like to give you an impression of how you can structure a 10-session course of CRT.

A 10-session course of CRT

Firstly, you need to decide on the tasks or exercises you bring into the session. As suggested in the first edition of the resource pack, this choice could be guided by a neuropsychological evaluation of your patient, which could indicate cognitive weaknesses or preferred cognitive styles for this patient. However, since it has become clear that children and adolescents with eating disorders do not show consistent neuropsychological weaknesses, it might be more logical to use your clinical experience and judgment when choosing what to focus on. This way, you can repeatedly evaluate the areas worth targeting, and change the focus during the course of your sessions.

It is wise to use the first session as an "introductory" session. Talk to your patient about the rationale for delivering CRT to patients with AN, how and why this intervention might be helpful, what the sessions will look like, the use of board games and pencil-and-paper tasks, and how metacognitive techniques will be used to explore the patient´s thinking style. The first session should also include information about the differences between CRT and conventional eating disorder treatment programs, in that the therapy does *not* focus on eating behaviors, weight or shape. The patient is of course allowed to bring up such themes or worries, but it then important for the therapist to guide his/her thoughts towards *thinking styles* related to these themes, rather than, for example, emotional consequences.

In subsequent sessions, different thinking styles are identified and reflected upon with the patient. Introducing the patient to a tasks or an exercise usually starts off a session. The therapist can either play together with the patient (be aware of avoiding a competitive atmosphere), or observe the patient whilst he/she tackles the task or the game. Following the exercise, the patient is asked to explore his or her approach and the associated strengths and weaknesses in approaching and/or tackling the task (i.e. the pros and cons). *Guiding questions* are used to explore the patient´s thinking style. These can be used both during, and after a task is being or has been solved. More information on guiding questions for CRT can be found in the section *Tasks and Exercises*.

Tryouts. During the sessions, the patient should be encouraged to relate his or her thinking styles to real life situations, and subsequently, explore the pros and cons of using these strategies in everyday life. Once the patient feels competent to do so, small homework exercises, or *tryouts* as we call them, can be presented, designed to help the patient to use the knowledge acquired during CRT sessions, and to experiment with this knowledge outside the therapy context. The tasks should be fairly simple to start with, and preferably related to everyday routines, which are easy to alter and reflect upon. Similar to the tasks presented during CRT, the *tryouts* are not supposed to elicit strong emotional reactions, and should normally not be related to explicit features of the illness such as food, calories, weight and body (unless the patients want to). The choice of homework tasks should be guided by the therapist's impression of specific issued needing to be addressed, and the patient's interest or willingness to try to change these. By ensuring a collaborative process when choosing homework, the patient is encouraged to reflect on issues of personal interest, and to take ownership of his/her process of change. It is wise to administer "neutral" *tryouts* initially (i.e. not individual specific), and as the course of CRT progresses, give more specific tryouts guided by individual preferences.

Finally, the last session can be used to summarize and reflect on what has been achieved during the 9 previous CRT session. It is often valuable for both the patient and therapist to discuss progresses and setbacks, and to do so using feedback from both parties. This could

be achieved in the form of written feedback letters. In the section *Clinical Examples*, you will find three feedback letters; two letters from patients to the therapist, and one letter from a therapist to her patient.

Who can deliver CRT?

A frequently asked question is "*Who is suitable to deliver CRT*"? There are several answers to this question. First and foremost, it is essential that the person is interested in delivering CRT receives appropriate training by experts. Dr. Kate Tchanturia organizes annual CRT Workshops for adult patients in London, and Dr. Camilla Lindvall Dahlgren and Professor Bryan Lask has done the same for those interested in CRT for adolescents. It is wise to sign up for a CRT workshop before delivering the intervention to a patient. Not only will you feel more confident in delivering CRT, but you will also learn that CRT is based on solid scientific evidence, information that you can convey to your patient(s), and in addition, you will gain valuable knowledge in how to tackle challenging situations, and work with challenging patients.

You and your team will also need to determine whether the potential CRT therapist has sufficient psychotherapy training and experience. A clinical nurse or an assistant psychologist might very well be able to (and skilled at) delivering CRT, but would require regular supervision from those trained in CRT. A clinically experienced psychotherapist would probably require less supervision, although it might be beneficial to catch up on the CRT skills once in a while by attending a workshop or reading up on the newest CRT publications. If a CRT therapist has had previous therapeutic training, it is important to recognize if (and when) elements from the primary training influences CRT, and deal with it accordingly. As we wish for CRT to be "ED-symptom free", that is, *not* focusing on the core ED symptoms such as weight or shape, it is important to keep this in mind if you are delivering multiple therapeutic interventions.

In what format can I deliver CRT?

There are a number of ways through which CRT can be delivered. Each format has their pros and cons, and the choice of how to deliver CRT is usually based on the available resources, if your patients are in- or outpatients, if you are delivering CRT as part of a research project or your CRT work is purely clinical. Historically, most CRT therapists have delivered the intervention *individually*. Individual CRT appears to be associated with lower dropout rates and has the potential of creating a positive patient- therapist alliance. However, this format is, by far, the most demanding in terms of number of therapists,

allocation of time and financial resources. Therefore, a more resource-efficient form for CRT is *group-based delivery*. The obvious advantage of group-based CRT is that you will be able to work with more than one patient each session. Also, research reports have shown that group CRT appeals to patients in increasing awareness of shared cognitive styles. Nevertheless, it has also been reported fostering negative group dynamics, and tasks assigned during the therapy are not always perceived as relevant. For those interested in delivering CRT in groups, it is strongly recommended that the CRT-therapists have adequate training and experience in group therapy. Sufficient training and experience is also required for the relatively new and unexplored *family-based format of CRT*. Literature describing the different CRT modes of delivery can be found under the heading *Suggested Reading*.

As a final remark, we would like to stress the prerogative of the CRT therapist in choosing the appropriate tasks, the adequate number of sessions, and the right mode of delivery. It will not be possible for all interested in delivering CRT to do exactly the same. The therapist should know (or learn) enough about the patient to be able to set up a meaningful, interesting and challenging course of CRT. Let the knowledge acquired during sessions, as well as previously held information guide you in choosing how to convey the remediating power of play, and do so with an open mind, curiosity, warmth and humour.

Tasks and Exercises

The materials listed in this section are chosen especially- or developed for use with children and adolescents. However, as mentioned in the preface, the tasks and games can without difficulties be modified to also suit adult patients. Since we wish for the intervention to have a strong focus on making the sessions fun and enjoyable, the games in this section are appealing and fun, colorful and challenging with a variety of levels of difficulty. Some are specifically designed to target one specific cognitive domain. Most of the material however, especially the board games, target more than one cognitive domain, and can without problems be used for people who find themselves struggling with both flexibility and central coherence.

The chapter is divided into two sections dividing the materials: 1) Paper and pencil materials and 2) *Board games*. The vast majority of board games are designed and produced by ThinkFun®. Have a look at their website for inspiration: www.thinkfun.com.

Guiding questions

The meta-cognitive component (i.e. thinking about one's own thinking process) is designed to help patients explore their cognitive styles, and should be encouraged throughout the entire treatment process. To help the patient engage in the meta-cognitive process, all tasks should be accompanied- and followed by questions encouraging reflecting on one's own thinking. Small variations of a predetermined set of questions can be used throughout the CRT sessions, allowing for fruitful reflections and discussion. A few of the most commonly used questions are shown below. Similar to the materials presented in this section of the resource pack, the questions are mere suggestions for how you could work with your patient. As a CRT therapist, feel free to alter or add questions you might find useful in exploring each task or exercise.

The reflection process will be dependent on the material chosen, and on the scope of information shared by the patient during each session. Sometimes it might be helpful to use the questions while the patient is working on a task, sometimes after she or he has finished (sometimes even on both occasions). Use your clinical judgement to decide what is most appropriate.

1. What did you think of this task/exercise/game?
    - Did you find it easy or difficult?
    - In what way was it easy or difficult?

2. How did you go about trying to solve the exercise?
    - Did you use a particular strategy/technique/trick?
    - How did that particular strategy/technique/trick work for you?
    - Could you have solved the exercise in a different way?
    - What would have been different if you had chosen a different strategy/technique/trick?
    - If you would be given the same task again, how would you go about it?

3. Did you learn anything about your thinking style while solving this task/exercise/game?
    - If yes, what did you learn?
    - If no, could you imagine what other people might learn from this task?

4. Would you say that you use this thinking style in other areas of your life as well?
    - Can you give me an example of an event or a situation where you used the same "thinking style" or the same strategy/technique/trick in your day-to-day life?
    - What usually happens when you use that strategy/technique/trick in your daily life?
    - Could you approach certain challenges/tasks/chores differently in your daily life?
    - What do you think would happen if you did?
    - What do you think are the pros and cons of each thinking style/strategy/trick?

Paper and Pencil Tasks

On the following pages, we have listed a number of paper and pencil tasks. Some of these you can use directly from the resource pack, others will have to be photocopied so that you can re-use them. And remember, many of the tasks have a dual function, that it, they are perfectly suited to train and reflect on both cognitive flexibility *and* central coherence.

A short description, the main cognitive domain it targets, and a tip (or several) on how you can use the task in the work with your patient will follow each task.

Useful tips are illustrated with this light bulb symbol 

Pros and Cons

Sometimes it can be difficult to see things from different perspectives. This task is perfect in helping your patient explore different sides of a situation.

Instructions

Below, you will find a list of statements. Ask your patient to consider the pros and cons of each statement. Which side trumps the other? The aim of the task is to encourage reflections about different perspectives of a situation. Remember that people are different in that they experience things differently, and that there are no right or wrong answers here. Below, we have given you an example to explain how to do this task.

Example: "Waking up Sunday morning and it's raining"

Pros (+)

I can stay in all day reading

The plants on my balcony will get water

I can watch my favourite TV series

I can catch up on things I haven't had time to finish

I can play games with my family/friends /husband/wife/kids

I can put my raincoat and wellies on, and go for a walk in the rain

Cons (-)

I will not be able to go for a run outside as I had planned

The sky gets so grey, I like sunshine!

I can't go outside because I'll get wet

I don't particularly like rain

Now, here are number of statements which you can use with your patients. You don't have go through them all of course. Pick the one(s) that you consider most appropriate. What are their pros and cons?

1. The dinner at your friends place gets cancelled
2. You get a present for your birthday that you don't like
3. You get a compliment
4. You are criticized for being inflexible
5. You are criticized for being too focused on details
6. You are awarded a prize for your academic efforts

7. You get a new job
8. You change classes in school
9. You move to a new city
10. You try a new sport
11. You go clothes shopping
12. You cut your hair
13. You prepare something for dinner that you have never tried before
14. You ask a person for help
15. You get lost
16. You plan for a trip with family or friends
17. You turn in your homework on time
18. Your parents allow you to sleep in
19. You forgot to set your alarm for school
20. You buy a new object for your room
21. Your favourite TV show gets cancelled
22. You sit next to someone new in school
23. You are not allowed to meet your friends for the evening
24. You lose your agenda
25. You lend your favourite pen to someone and that person forgets to return it

Do this task *together* with your patient, and compare your lists of pros and cons. In what way are your perspectives similar and/or different?

Shape It!

Shape It! is inspired by the *Geometric Figures* from the work by Dr. Tchanturia and colleagues at King's College in London. Here, we have added some colour to some of our figures, and we have also chosen to include figures that are not necessarily geometric, but nevertheless, might be useful in exploring your patients thinking style in terms of detailed- or bigger thinking.

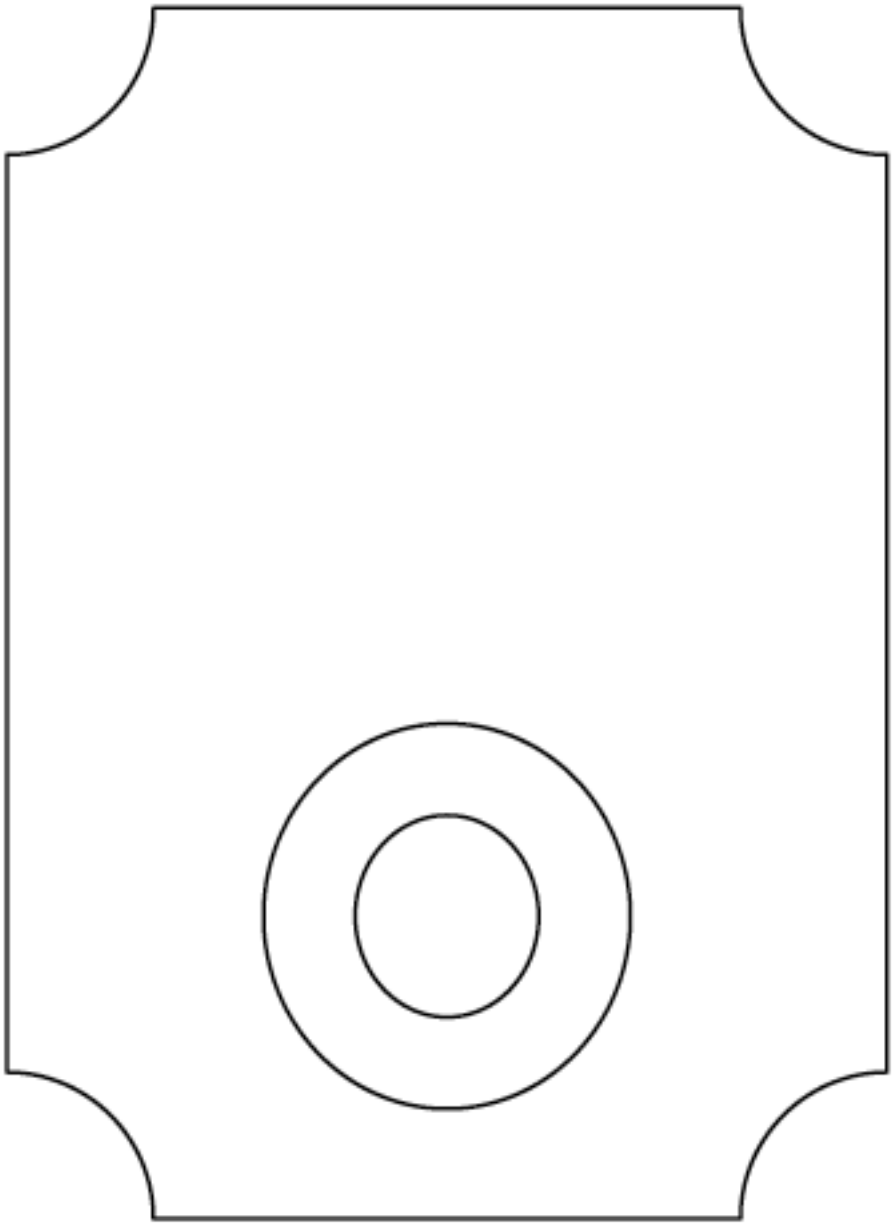
Instructions

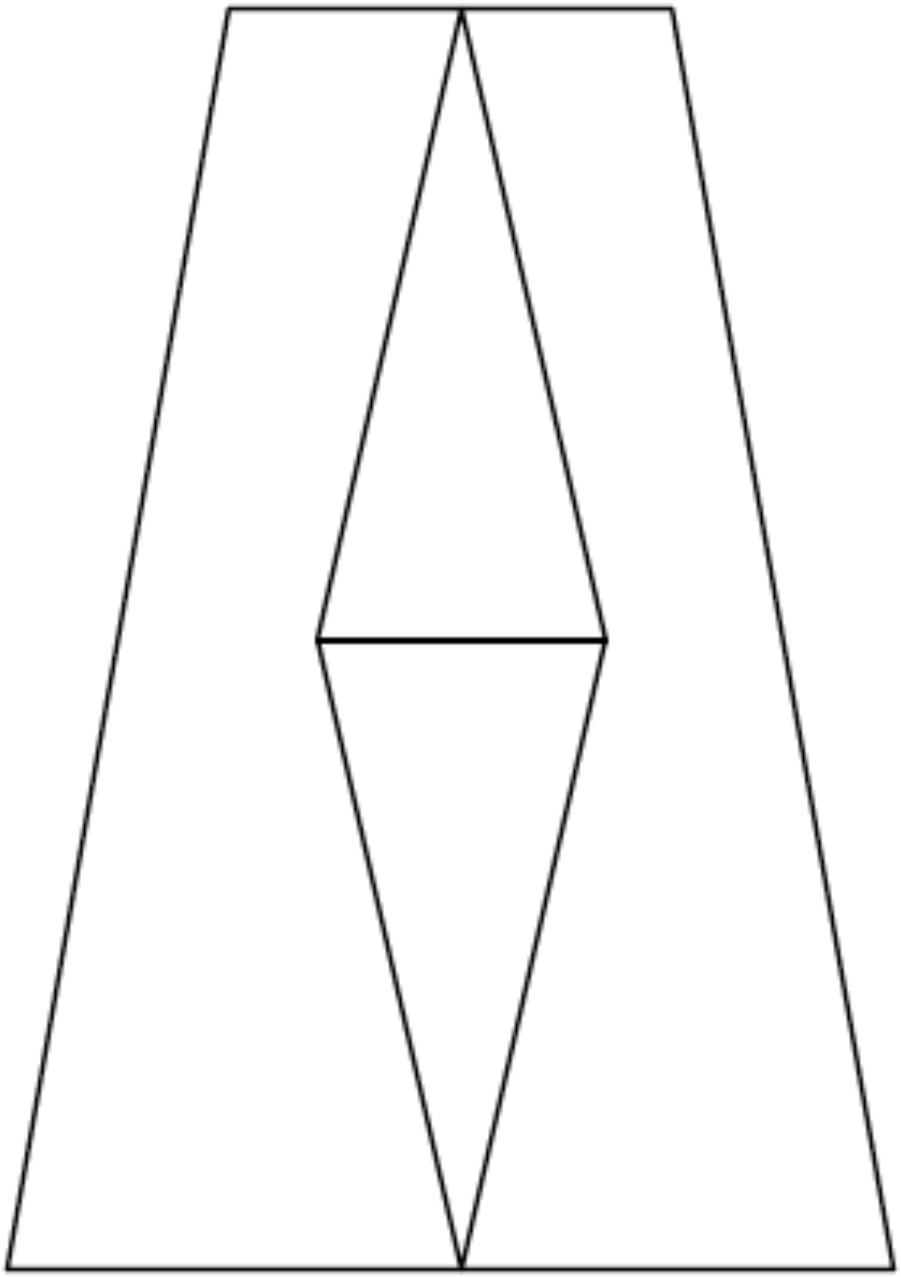
Print out a selection of the figures presented on the next pages. Give these to your patient, and ask her/him to choose one of them. Your patient is then instructed to describe the figure to you, without you being able to see the figure. You are not allowed to ask questions about the figure. When your patient is done, compare figures. What similarities do they have, in what ways are they different? What strategies did your patient use in describing the figure to you? Was the focus on the details or the bigger picture?

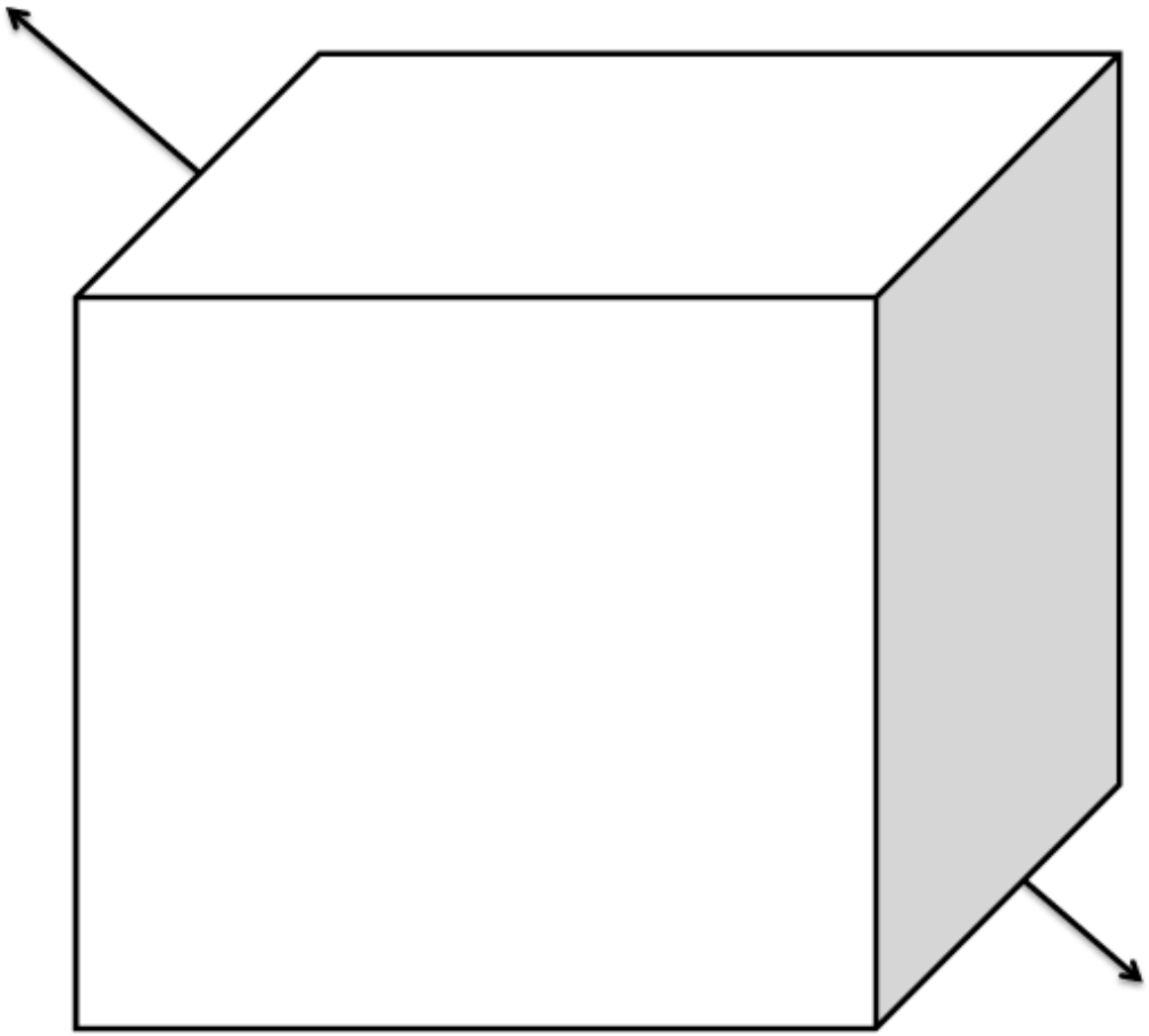
Remember to use the guiding questions to encourage your patient to reflect on her/his strategies. If using the coloured figures, remember to give your patient crayons or coloured pencils.

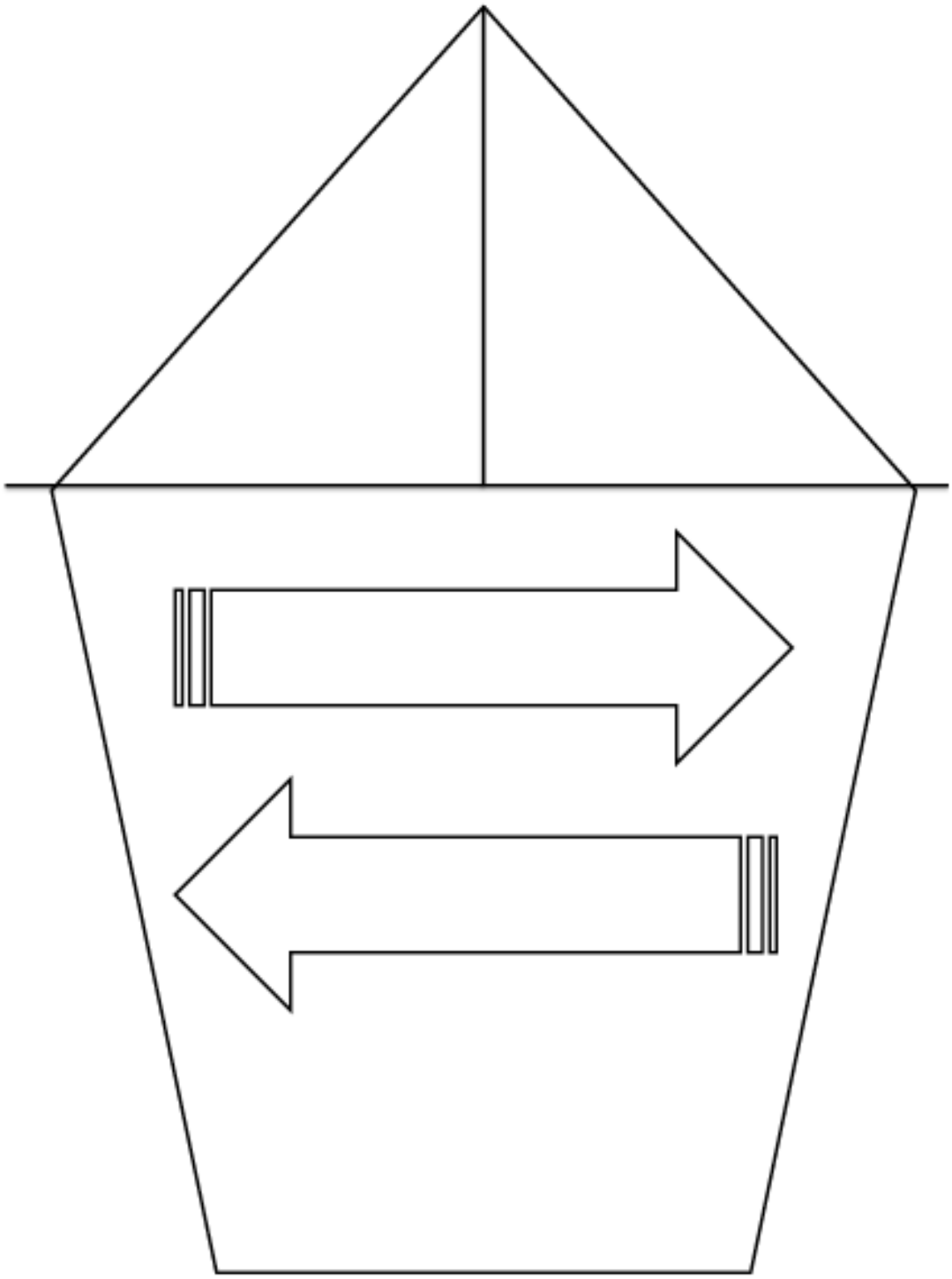
Sometimes it can be useful to swap roles, that is, let the patient draw the figure while the therapist describes it. Remember, the goal is not to draw a perfect figure based on the description, but to figure out what kind of thinking processes were used!

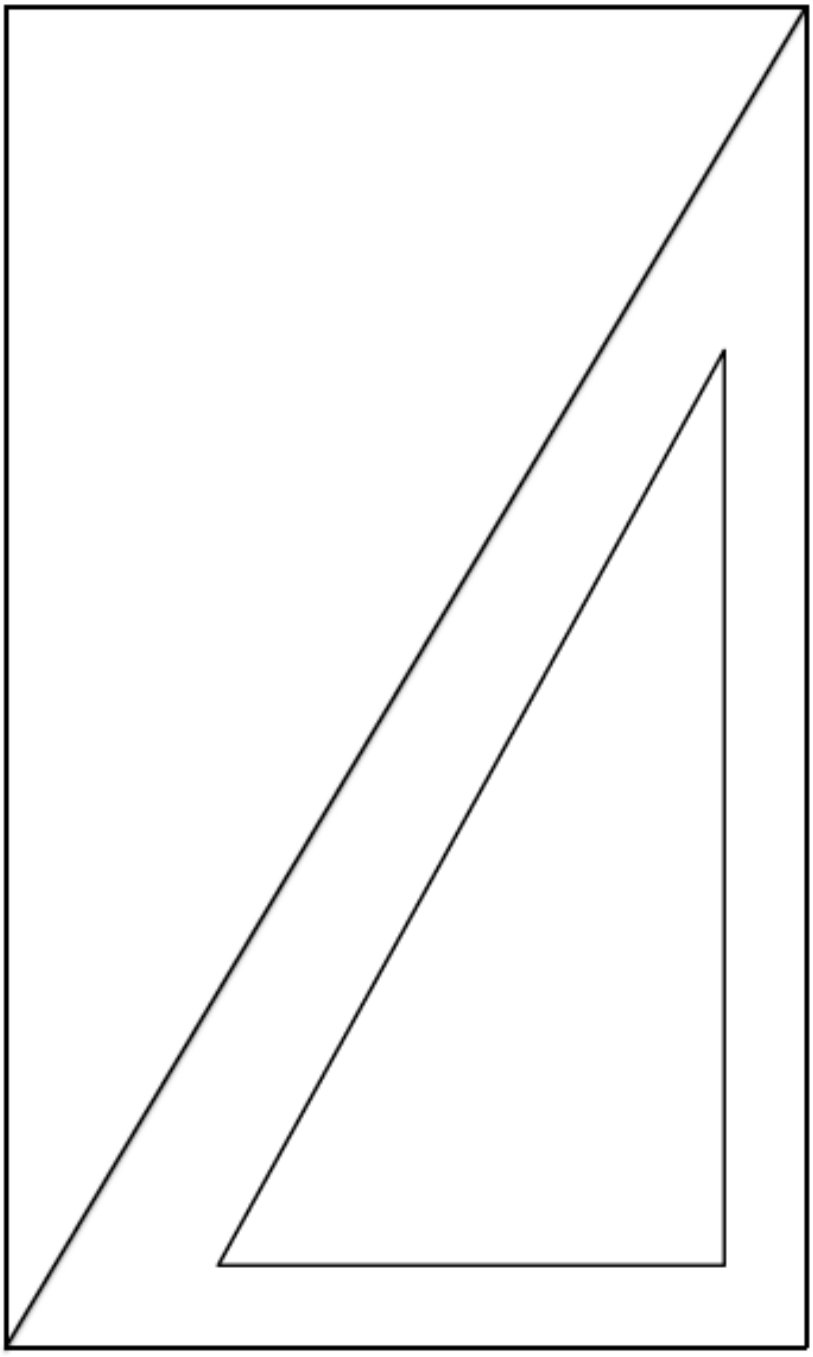
If available, give your patient a ruler and an eraser, but do not tell your patient these tools have to be used. Instead, note *if* they are used. This will allow for interesting reflections afterwards, where themes such as perfectionism and detail focus are likely to emerge.

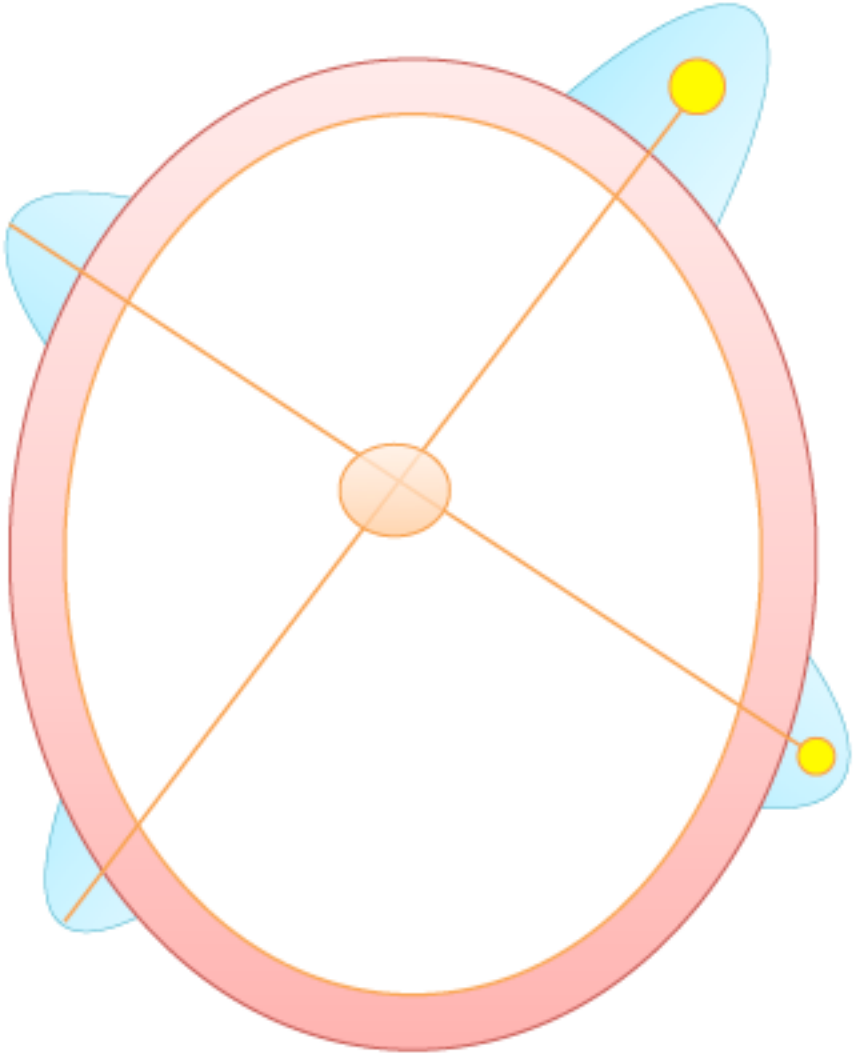


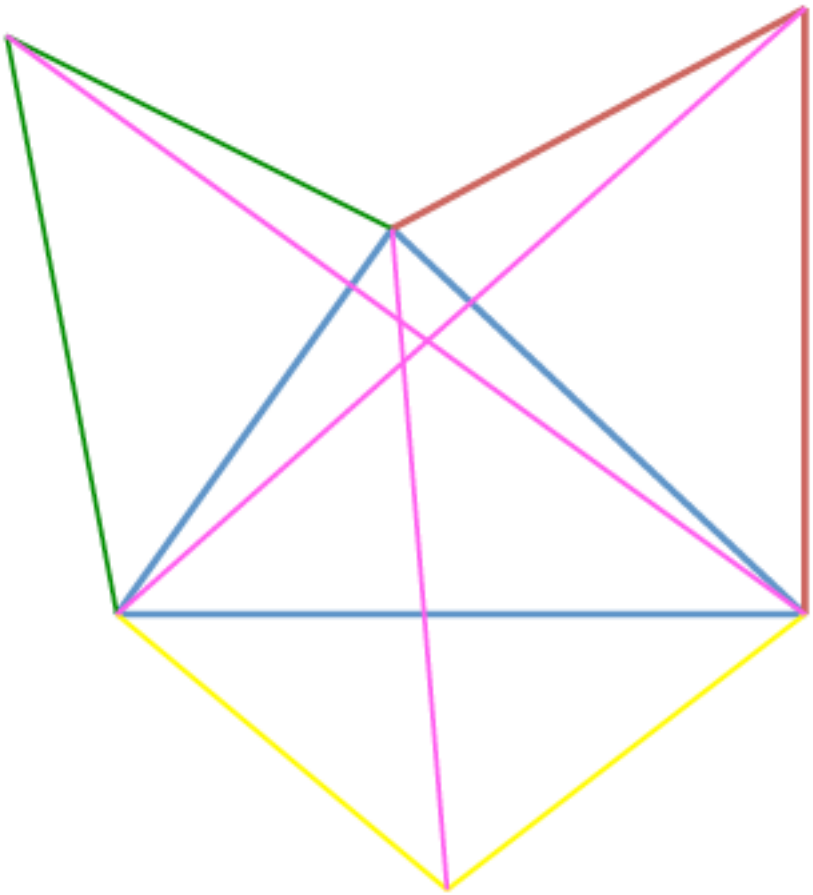


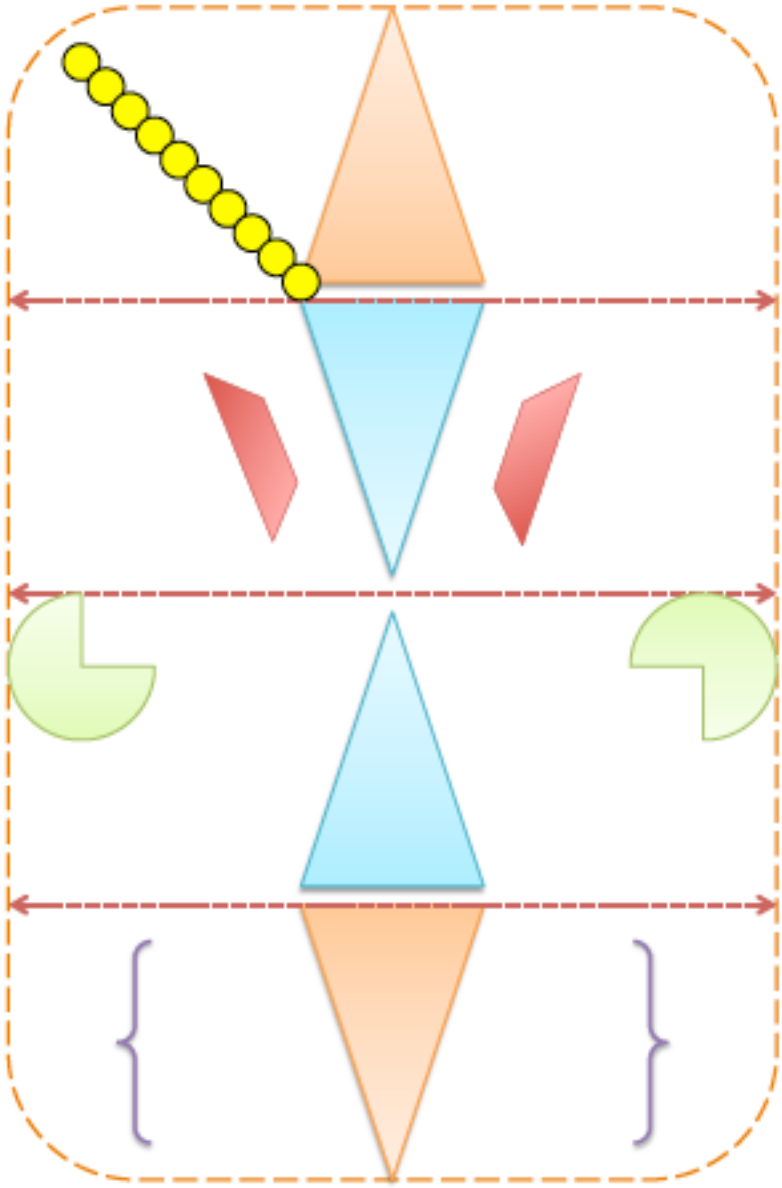












Swap

Swap is based on a frequently used neuropsychological test called the *Stroop Test*. This task will be helpful in exploring strengths and weaknesses in cognitive flexibility/set-shifting. *Swap* is inspired by the *Stroop material* from the work by Kate Tchanturia and colleagues at King's College in London.

Instructions

There are different ways of working with this task, and at the most difficult level, it can be quite demanding. We suggest you start off easy, and ask your patient to first read the words in the boxes. Once you have gone through all of them, let your patient describe the pictures. When this is done, ask you patient read the word in the boxes on the first line, then swap to describing the pictures on the second line, and so on. Once this is done, you now have the possibility of making the task even more difficult by asking you patient to alternate between reading the word and describing the word, one by one. Doing so using the example below (and starting with reading the word in the box) would sound like this:

Pen, scissors, butterfly, horse,
snow man, bridge, mailbox, fire,
leaf, roses, scissors, snowman,
fire, butterfly, money, duck

Don't forget the guiding questions, as these will allow for fruitful reflections on strategies and relevance to everyday thinking and behavior.

To personalize this task, create your own *Swap* using the Internet to find a set of pictures you know you patient will appreciate. For example, if you have a patient who loves animals, design your own Swap task consisting of different animals and animal names

.

Swap

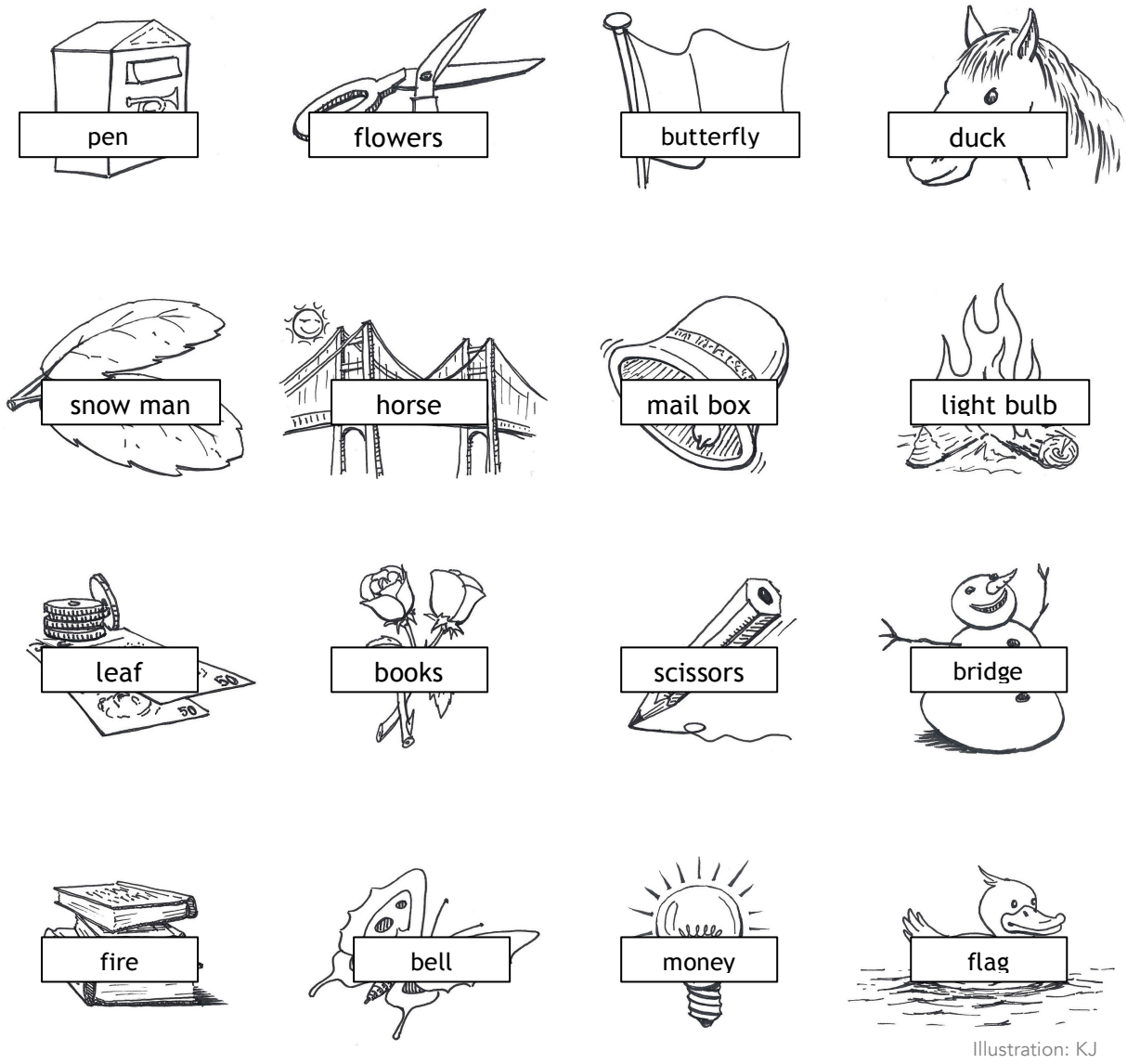


Illustration: KJ

Switch

Switch is inspired by the task *Up and Down* from the work by Kate Tchanturia and colleagues at King's College in London. This task is designed to explore your patient's ability to cognitively and behaviourally switch between different rules, and to multi-task, that is, being able to keep several rules or elements of information in mind at the same time. It can be quite tricky so take it slow.

Instructions

The patient is presented with one of the figures below, and these instructions (these are instructions for the task *Monkey Business*).

> *"The picture shows a monkey climbing up and down a palm tree. I want you to tell me the direction in which he climbs (up or down) by starting counting in the upper left corner. Start with 1, and keep on counting upwards until you encounter an arrow. When you encounter an arrow, instead of keeping counting, state the direction in which the arrow is pointing (up or down). When you have done this, the direction of the arrow will inform you whether you should continue counting upwards (arrow pointing up), or if you should shift, starting to count downwards (arrow pointing down). The arrows at the right and left of the palm trees indicate where to continue at the end of a row"*

In the picture on the next pate, the correct sequence would be: 1, 2, 3, *down*, 2, 1, *up*, 2, 3, 4, 5, *down*, 4, 3, 2, 1, *up*, 2, 3, *down*, 2, 1, 0, *up*, 1, 2, 3, 4, *down*, 3., *up*, 4. Similar to the other tasks, completion of this task is followed by discussion and reflection regarding the process through which the patient tackled the task

Start off by asking your patient to just name what is in the boxes in the top row. In the task *Monkey Business* this would sound like this: *monkey, monkey, monkey, arrow pointing down, monkey, monkey, arrow pointing down, monkey.* Then, ask your patient to do the same with all 4 rows, and once she/he has completed this task, you can start counting. The point is to start with an easy task, and to gradually increase the level of difficulty.

Switch - Monkey Business

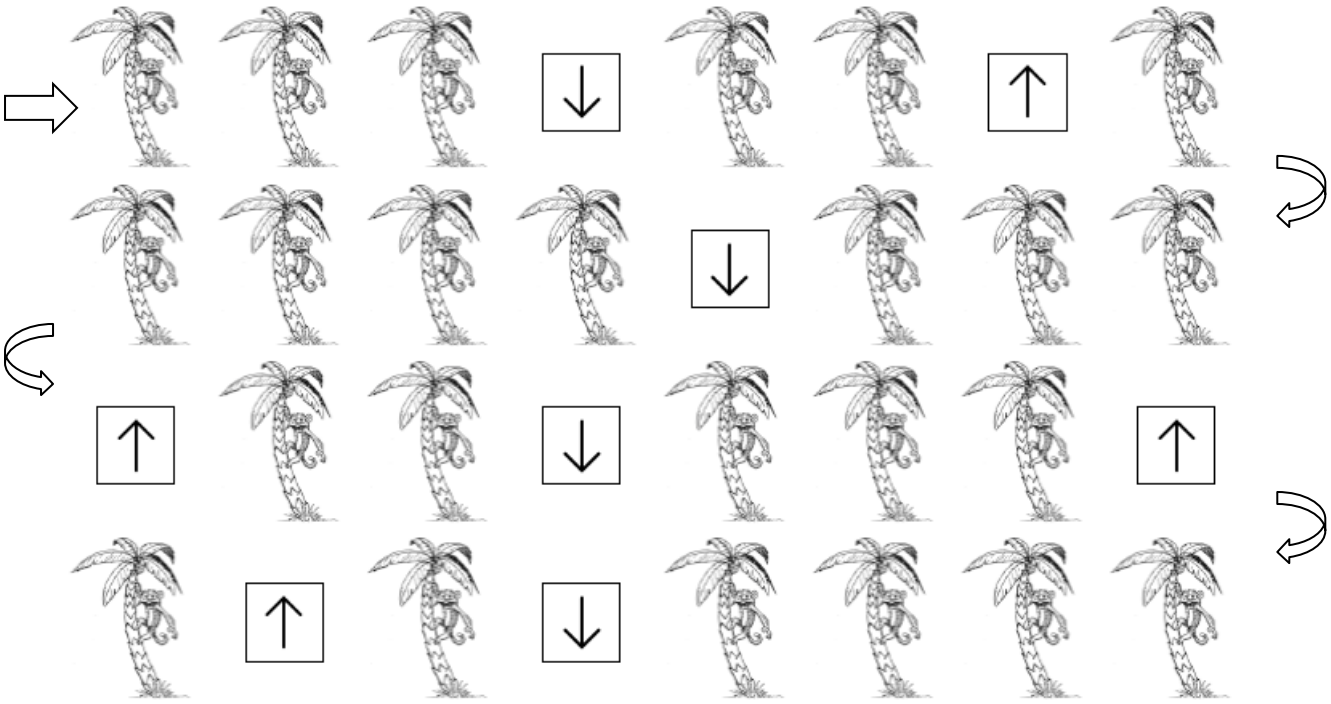


Illustration: KJ

Switch – Santa's Little Helper

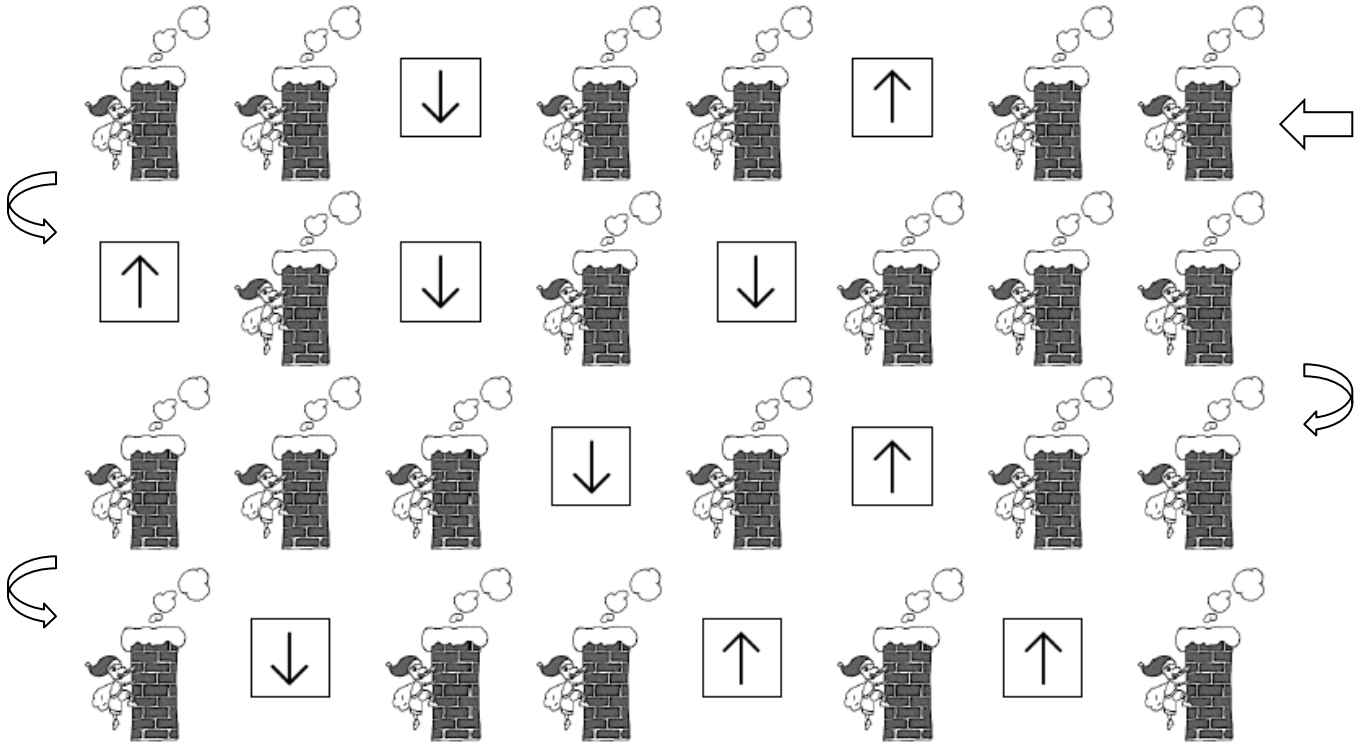


Illustration: CLD

Similarities and Differences

This task, developed and illustrated by Gunvor Sønnesyn and colleagues from Pedverket Kompetanse (www.pedverket.no), targets *set shifting* (cognitive flexibility). However, also pay attention to your patients' perceptive skills in this task. Does she/he focus on the bigger picture, or the little details?

Instructions

Present your patient with one of the following exercises, and ask her/him to follow these instructions:

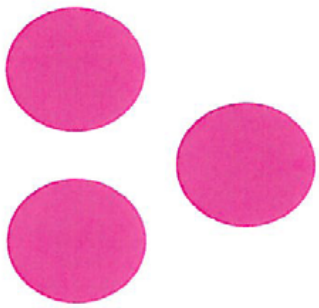
For exercise 1 and 2:
Ask your patient: "*Look at the square to the right and then at the square to the left. Do they have anything in common? In what way are they different?"*

For exercise 3:
Which of the 8 figures at the bottom of the page fit in the blank square?

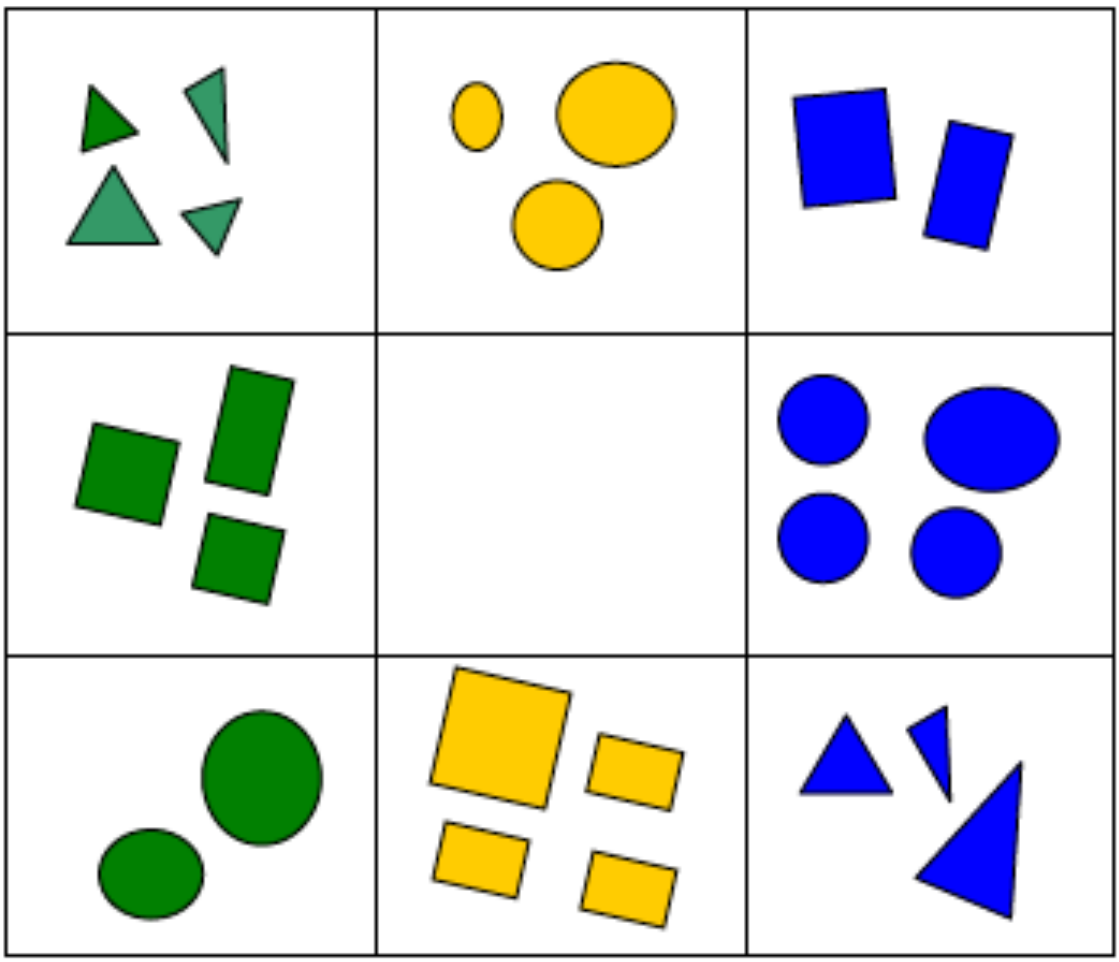
To personalize this task, create your own *Similarities and Differences* by using the Internet to find pictures and texts that you think your patients will like. Use words to fill in the grid, and then add pictures and text as you see fitting.

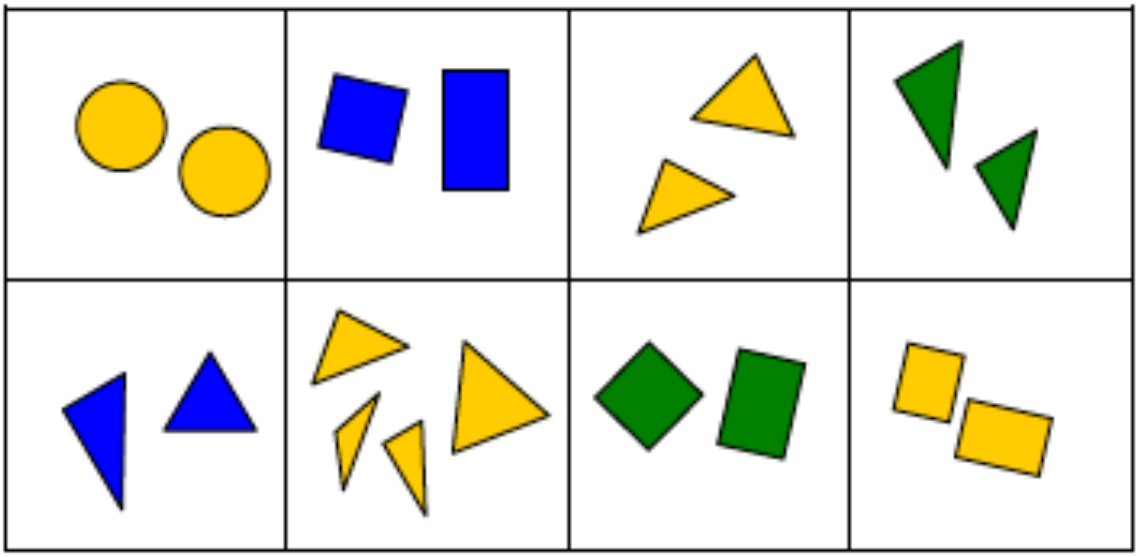
1: Similarities and Differences

frog	⇔	
frog	⇔	frog
frog	⇔	fry
frog	⇔	rfog

free	⇔	tree
free	⇔	fere
free	⇔	FRIES
	⇔	

3: Similarities and Differences





Optical Illusions

Optical illusions are great for exploring your patients' ability to flexibly alter between different perspectives, but also to investigate whether your patient has a bigger picture approach, or if she/he is more concerned with details.

Instructions

Take an illusion such as the one on the next page. Ask your patient what she/he can see at first glance. Some of your patients will be able to spot the various "hidden" elements quite easily; for some, this will take longer. Be patient and do not rush your patient. If your patient struggles with seeing more than one element/perspective, ask the patient to take another look at the picture, this time using another strategy (for example squinting, turning the page upside down, looking with one eye etc.). Explore the patients thinking process using the CRT guiding questions. Try not to hint or guide; given enough time most people will see several perspectives/pictures, and if not then that is material for discussion as well.

Optical illusions are easily available from several different places. We suggest you do an image search online (using the words "illusions", or "optical illusions") or use a book of illusions. Book tips can be found in the section *Resources*.

Illustration: KJ

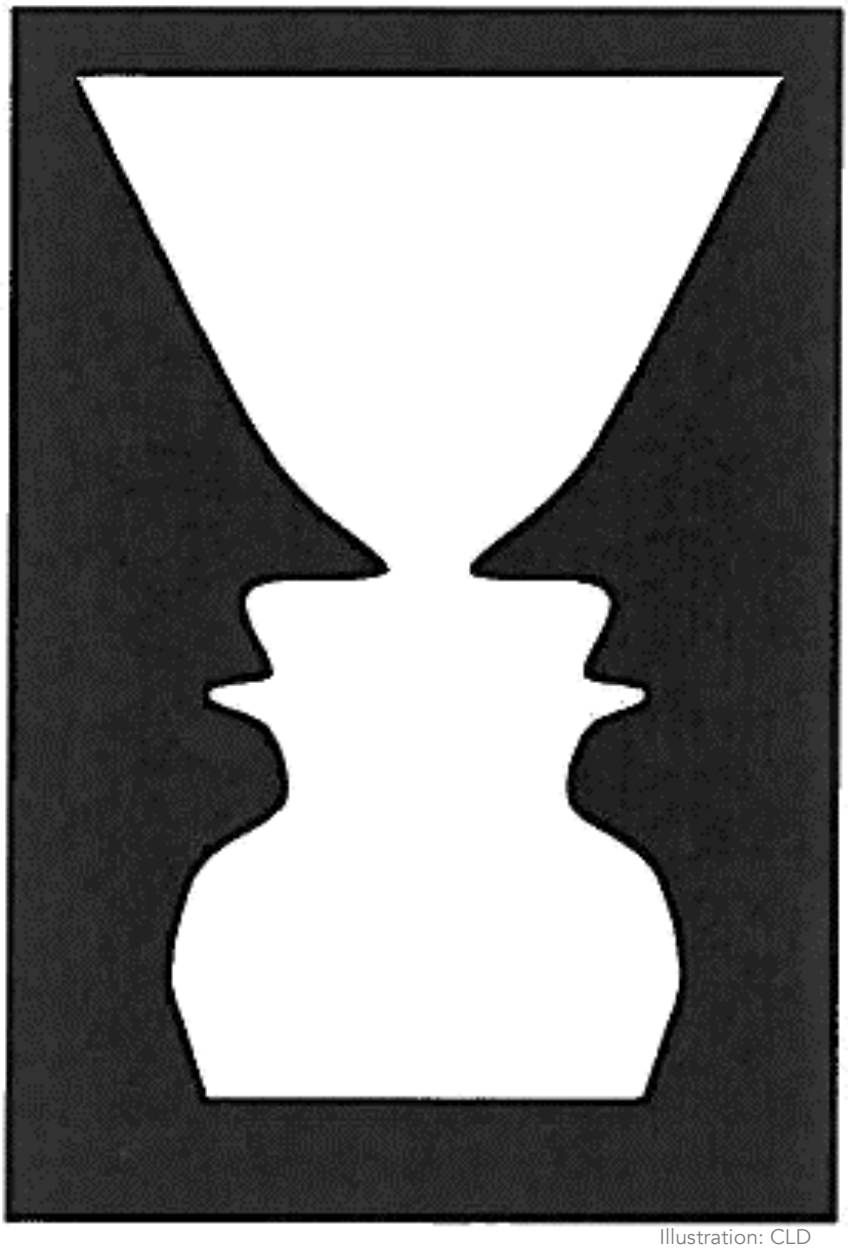


Illustration: CLD

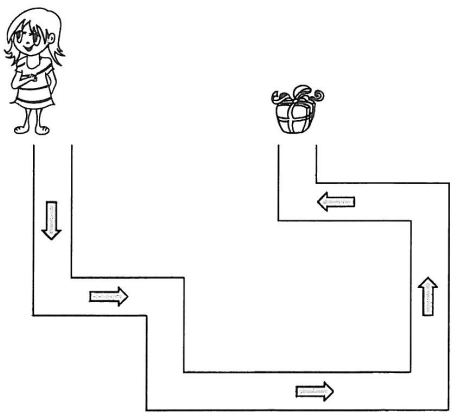
The Gift

In this task, the patient is asked find the way from one end of the "maze" to the other, and while doing so, keeping count of the left- and right turns. This is a perfect task for exploring multitasking and set-shifting, but it is also quite a tricky task. You might want to begin with asking your patient to guide you through the maze using the directions left, right, up and down, and when she/he has done this, then you can ask your patient to keep track of the right and left turns.

Instructions

The task would be presented as follows:

> *"The girl in the picture is waiting to receive her birthday present. Can you see the girl and the gift? All right, imagine you're the girl, and to receive the present, you have to find your way through this maze. On your way to the gift, I want you to try try to remember how many left and right turns you make. Do you understand the task? Ok, let's begin!"*



Note. You will find a larger picture on the next page

Remember to use the guiding questions to explore your patient's choice of strategy, it's pros and cons and how one might relate this way of tackling the task to the patient´s every day life.

Try out the task with a friend or a colleague before using it with a patient. Or, ask a friend or colleague to play the therapist, asking you to "find the gift". You might be surprised of how difficult it is!

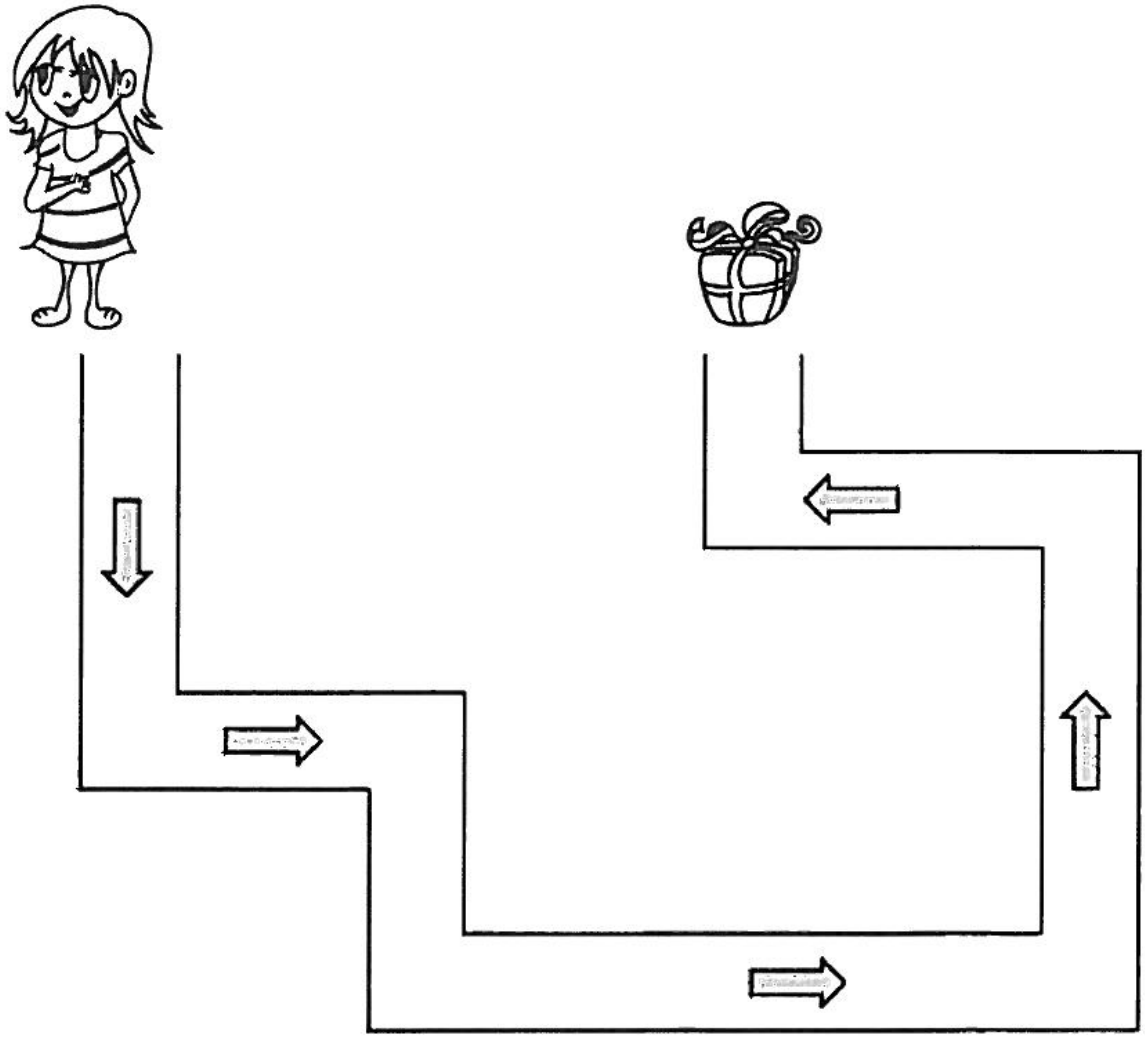


Illustration: CLD

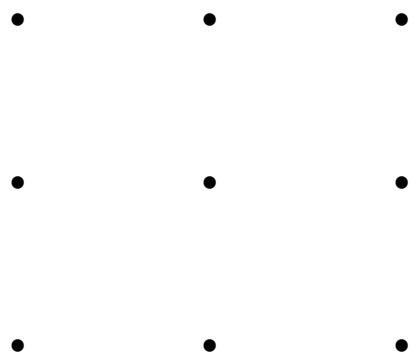
Riddles & Puzzles

This section contains a number of riddles and puzzles that you can use with your patient. Do not forget to use the guiding questions during and/or after the task. It can be a good idea if the therapist familiarizes her/himself with the tasks before presenting them to the patient. The correct solution to each task is presented on page 52.

Connect the dots

Try connecting the dots with four continuous lines!

Set off some time for this task as it might take a while to solve. *Connect the dots* is excellent in demonstrating how your patients think. It is a task requiring "outside the box" thinking, meaning it will be fairly difficult for those who struggle with inflexibility.



Instead of photocopying this figure, draw it on a piece of paper, and make it a bit bigger! This is a tricky task so give your patient a pencil *and* an eraser!

Tic-Tac-Toe

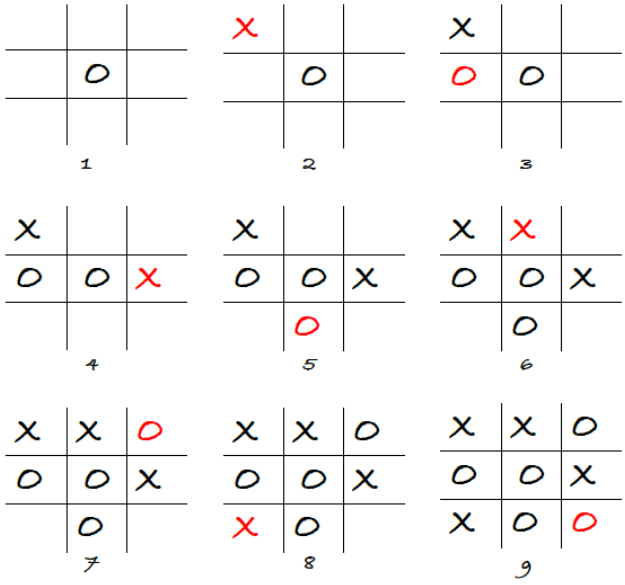
Tic-Tac-Toe teaches planning, logic, and strategy. This is two-player game is perfectly suitable for you and your patient to play together. If you do group CRT, let the patients play together! In tic-tac-toe a grid is drawn with two horizontal lines and two vertical lines. The

aim of the game is to get three of the same symbols in a row. This "three-in-a-row" can be horizontally, vertically, or diagonally.

Instructions

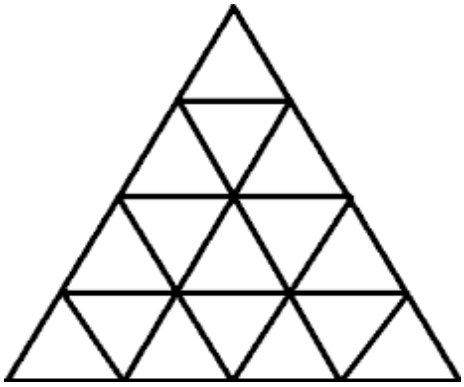
Each player uses one symbol, an "X" or an "O" and takes a turn drawing one symbol only. The object, as stated above, is to get three of your own symbols in a row; however, the other player can place his/her symbol to block such an outcome. In the example below (played from left to right, top to bottom) each move is marked by a red symbol. This game is a draw.

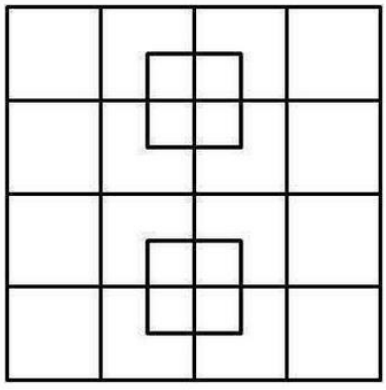
Example of Tic-Tac-Toe



How many…?

…triangles and squares can you find?

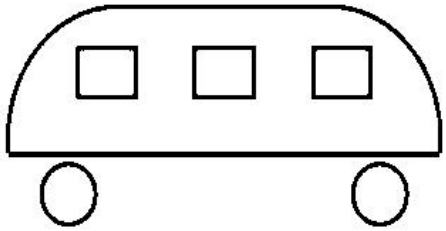




Which way is the bus going?

Look at the bus, in which direction do you think it is moving, left or right? What aspects are your patient considering when trying to decide? Remember that this is a task that requires your patient to keep an open mind, that is, thinking outside the box. Do not forget to use the guiding questions!

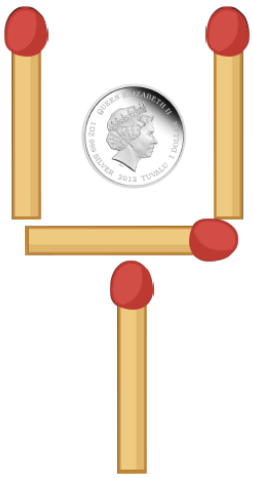
Hint: The bus is driving on UK roads.



The Shovel

Although this might seem like a trick puzzle, it isn't! You will need 4 matches (or four cocktail sticks, four pens/pencils), a coin, and some patience.

Start by arranging the matches so that they resemble a shovel, and put the coin in the middle (like in the figure below). Now, make the same shovel no longer containing the coin by moving only 2 matches.



Who did it?

Mr Pink: "Miss Purple did it."

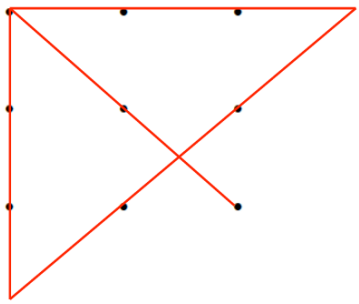
Miss Purple: "Mr Pink did it."

Miss Green: "Miss Purple's telling the truth."

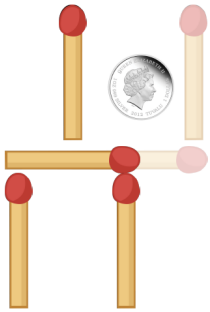
Mr Yellow: "Miss Green's not lying."

Solutions

Connect the 9 dots with 4 lines



The Shovel



How many…?

Triangles: 26

Squares: 40

Which way is the bus going?

In the UK, people drive on the left side. In the UK, buses also have doors on the left hand side. As you can see no doors, the bus is moving to the right!

Who did it?

Mr. Pink did it!

Map It!

Sometimes you need go somewhere were you are not acquainted with the area, and sometimes people might ask you for directions. In both situations, a bigger picture perspective is important to get to the right destination, but you will also need to pay attention to details to not get lost on your way.

Map it! is designed to identify your patients thinking style, and to challenge unfavourable techniques when necessary. This is an excellent task for working on central coherence, but with some modifications, it can also be used to investigate your patients' ability to think and behave flexible.

Instructions

Choose a map such as the ones on the following pages. Ask your patient to describe the way from one place to another. It's easier if you as a therapist choose the starting and finishing points. You can ask your patient to guide you using the cardinal signs (north, south, east and west) or directions (up, down, right, left, around, between etc.), or let your patient decide for her/himself.

Find and print a map of your patients' home city. Google Maps is excellent for this task. You can also choose how detailed you want the map to be.

If you print two identical maps you can use the same instructions as in Shape It! Give one map to your patient and let her/him describe the way from one point to another. Try following the described directions, and see if you end up at the same place!

Print out a map showing the area in which your clinic is situated and the surroundings. Ask your patient to show you which route she/he took to the clinic, and explore if there are any alternative routes. The patient can then be assigned "taking another route to the clinic" as a *tryout.*

1: New York Manhattan Map

2: London Tube Map

Key to lines and symbols

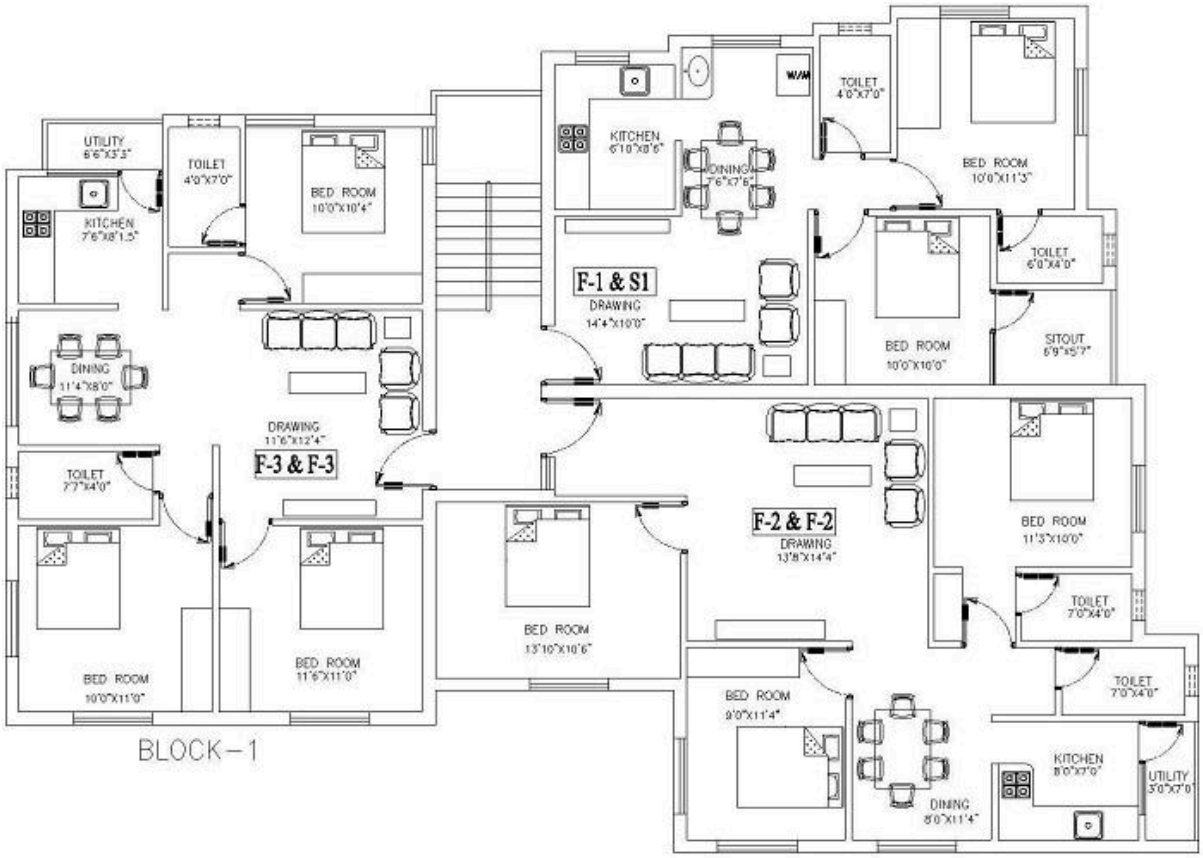
- Bakerloo
- Central
- Circle
- District
- East London
- Hammersmith & City
- Jubilee
- Metropolitan
- Northern
- Piccadilly
- Victoria
- Waterloo & City
- Docklands Light Railway (Under construction)
- National Rail
- Interchange stations
- Connections with National Rail
- Connections with riverboat services
- Airport Interchange
- Connection with Tramlink

Free admission to Elephant & Castle

Admit One to the Elephant & Castle

Offer valid until 14 Feb 2008
Children must be accompanied by an adult.
Terms & conditions apply.

3: House Plan Drawing



Planning

Planning exercises are good for identifying problems in flexibility and central coherence. Think of it, when you plan something, you need to pay attention to the details of what you plan, let's call them sub-goals, but also the bigger picture, the end goal. Also, sometimes you need to change your plans, and this demands a flexible mind and the ability to not become overwhelmed by the required changes.

Instructions

Below we have listed a few planning tasks. Go through each of them with your patient, or use them as in-between session exercises - *tryouts*. Remember that the focus is not to get your patient to come up with the perfect plan, but to understand how she or he is thinking when planning an event, and what happens when plans are disrupted (when flexibility is required). Use the guiding questions to work through the task together.

Planning Examples

1. Plan a trip to the cinema with family or friends
2. Get a hair cut
3. Write a book report
4. Practice for an exam
5. Plan your own birthday party
6. Plan a trip with family or friends
7. Bake a cake
8. Cook for yourself/friends
9. Buy Christmas presents
10. Apply for a summer job
11. Write a letter to a friend
12. Buy a new outfit
13. Going shopping at the mall
14. Register for a new university course
15. Apply for university
16. Finding a new hobby
17. Going to a concert
18. Redecorating your room

Is your patient planning a trip, a birthday party or preparing for an exam at school? Choose a real life example from your patients' life, and work through the plan together. Does it seem like an efficient plan? Will the patient be able to go through with the plan, or are the ambitions too high or too low? What aspects of the plan can be changed for the better? What happens to the plan if something unforeseen occurs?

Sequencing

Sequencing tasks are great for exploring your patient's ability to prioritize and plan, but also to figure out whether your patients is preoccupied with details, or is able to see the bigger picture.

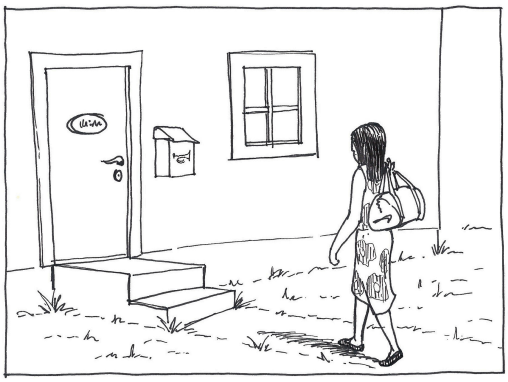
Instructions

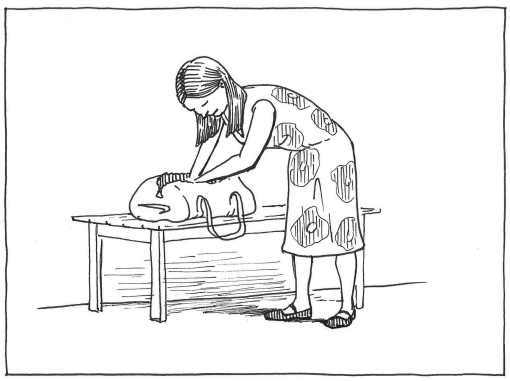
On the next page you will find a set of 8 illustrations. These all fit together, creating a sequence of events. Your patient's task is to figure out the correct sequence, and whilst doing so, exploring his/her strategies. Is the focus primarily on the details within each illustration, or is the focus on "the bigger picture"? Does your patient try finding the illustration initiating the sequence, or does she/he start with the last in the sequence?

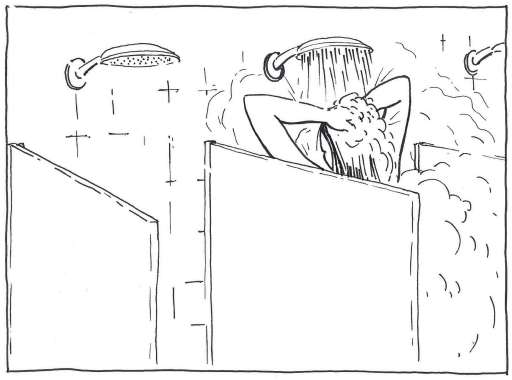
Do not forget to use the guiding questions; these are very helpful in this task!

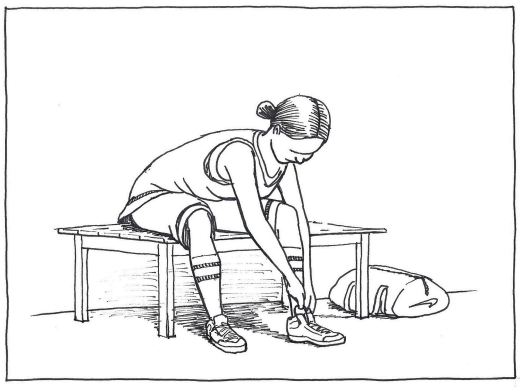
Ask your patient to bring personal photos to the session, depicting him/her at different ages. Then try figuring out the chronological sequence of these photos, you might need some help from your patient!

Sequencing









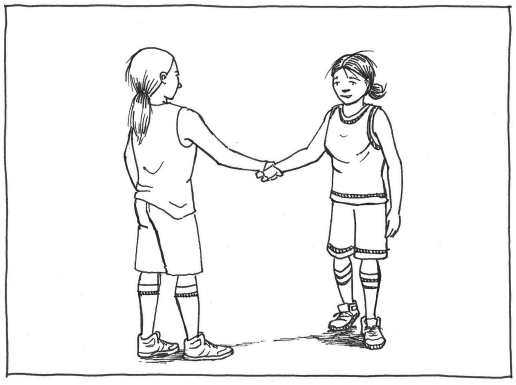


Illustration: KJ

Where is Liam?

Where is Liam focuses on your patients' ability to shift perspectives, and works best if you photocopy and cut out the figures below. The four pictures depicting a school, a football, home, and a girl belong together. This is your "board" upon which you will place one of the 4 different versions of Liam - the one where he looks straight at you, the one where he is looking away from you, the one where he looks to the right and the one where he looks to the left. Photocopying the task will allow you re-use it as you will ask your patient to write on the "board"

Instructions

1. Draw or paste one of the four versions of Liam in the centre of the drawing below.
2. Write the directions "right", "left", "front" or "back" in each rectangle according to the way the objects appear in relation to the version of Liam you have chosen.
3. Complete the following sentences:

The football is ……..
To the left of Liam is ……
Liam's home is ……..
The school is ……
In front of Liam is ……..
Liam's sister is ……

Where is Liam?

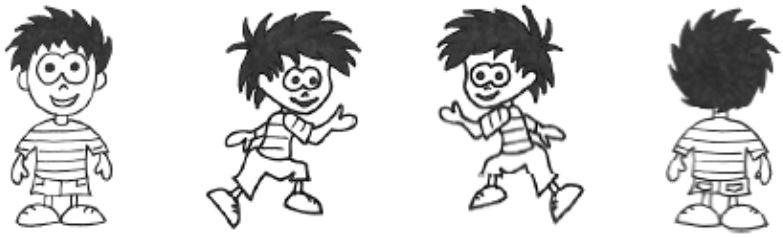


Illustration: CLD

Board Games

This section describes different board games that are excellent in identifying and challenging your patient thinking styles. A variety of cognitive aspects such as flexibility or recognizing connections between various elements are addressed using each game. Hence, these board games promote abstract thinking and analytical skills. Most games are divided into different levels of difficulty and the tasks can therefore be tailored specifically to the patient´s cognitive skills or needs. Overall, the board games encourage the discovery of new skills and strategies for everyday life in a positive and light-hearted manner.

As previously mentioned, the majority of the board games listed are developed and produced by the company ThinkFun®. Their aim is to create games promoting and targeting specific cognitive abilities, and which support general brain development in children and adolescents. These characteristics ensure that a number of their board games are useful as CRT materials.

ThinkFun® was kind enough to provide us with several of their games to try out with our patients. Now we wish to present these to you! The games on the following pages are all suitable for use in CRT. However, feel free to find and/or develop additional tasks that might be useful. Remember, all the board games from ThinkFun® are delivered with full instructions. It might be an idea to look at these together with your patient before you start, or to read them through yourself. All illustrations are downloaded from their website www.thinkfun.com

Amaze

Cognitive domains targeted

- Bigger-picture thinking & visio-spatial abilities

Notes on implementation

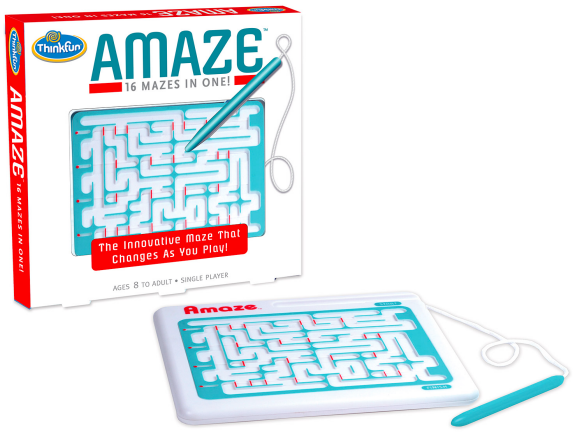
Just like the paper and pencil tasks *Map It!* and *The Gift*, this game requires the patient to find his/her way out of a maze. The patient needs to make sure not to lift up the pencil while doing so. It is possible to create new paths by moving around the red bars, however, this could also lead to trapping yourself!

This board game allows the patient to practice bigger-picture thinking, as well as flexibility when creating new paths on the board. It will be interesting to see if your patient will use the possibility of creating new paths or if they are adamant on sticking to the original path.

Examples of questions for reflection

- Which strategies helped you the most to find your way through the maze?
- What were the pros and the cons of this strategy?
- Do you sometimes get stuck on a path in your everyday life as, what is that like?
- What do you do to get off that path? Are there different strategies you could use?

Start with the easiest level and when appropriate, let the patient work his/her way up.



Bananagrams

Cognitive domains targeted

- Flexibility & planning

Notes on implementation

144 tiles, each with a letter on it, are put upside down on a table. Each player takes 21 tiles and attempts to form as many words as possible, connected to each other. When one of the players have used up all of his/her tiles and say "Peel", all players must draw another tile. Words can be rearranged throughout the game.

Examples of questions for reflection

- How did you go about forming the words?
- Was it difficult to use all your tiles?
- What was your reaction when you had to say "peel"?

You do not have to play the game until all the tiles are used up; the game can be interrupted at anytime, allowing the patient to start reflecting on strategies/thinking styles used.

Block by Block & Brick by Brick

Cognitive domains targeted

- Visio-spatial abilities, set-shifting and planning

Notes on implementation

These two puzzle games are very similar; the difference lies in the shape of their pieces. The goal in both games is to assemble the pieces in such a way that they represent the form depicted on the challenge card. The solution is provided on the back of the card.

Examples of questions for reflection

- What did you think of this game?
- Did you find the task difficult, easy or somewhere in the middle?
- What was easy/difficult?
- Could you think of a different approach to solve this card?

Please note the difficulty of these two games; high levels of spatial skills are required. To avoid discouragement, always start with the first card of the easiest level and let your patient slowly work his/her way up.

Chocolate Fix

Cognitive domains targeted

- Flexibility, planning and visio-spatial abilities

Notes on implementation

This game consists of plastic pieces shaped like pieces of chocolate, and a board in the shape of a baking tray. By following the different clues on the challenge card, the aim of the task is to fill the baking tray with all the chocolate pieces. This game can be seen as a mix between a puzzle and a Sudoku.

Please be aware that this game adds a food-aspect to CRT. It might not be appropriate to use with all patients, and usage should be based on your own clinical judgment.

Hoppers

Cognitive domains targeted

- Flexibility, planning and visio-spatial abilities

Notes on implementation

The patient is presented with a pegboard and a number of green plastic frogs. One of the frogs is red. The aim of this game is to get all frogs off the board, except for the red one. A more detailed description can be found in the task instructions.

Examples of questions for reflection

- What did you think of this game? Was it difficult/easy/neither?
- The board was really full; did you get stuck at some point?
- Do you ever get stuck or overwhelmed in everyday life? What is your approach to that?

There are multiple levels of difficulty in this game; start with the easiest level and let the patient work their his/her up.

Last Letter

Cognitive domains targeted

- Flexibility, information processing speed, central coherence

Notes on implementation

Both patient and therapist have five playing cards in their hands. When it is the patient´s turn, he/she is asked to come up with a word associated to one of the image on the card. The first letter of that word has to be the same letter as the last letter of the word by the previous player (here the therapist). This game can create a relaxed and interactive atmosphere, but also a situation in which the patient might feel stressed or inadequate. Beware of this, and make the session playful and fun when using this task!

Examples of questions for reflection

- What did you think of this game? How did you go about solving it?
- Did you find it easy or difficult to react spontaneous to the last letter?
- Would you say you are spontaneous in everyday life? In what situations?
- Do you sometimes find it difficult to be spontaneous in everyday life? Can you give an example?
- How can you approach situation like this differently?

In order to get an even more intense flexibility training using this game, it is possible to put the deck of playing cards upside down on the table, and draw only one card when its your turn. This forces each player to react with even more spontaneity and flexibility to the image on the card.

Puzzle Ball

Cognitive domains targeted

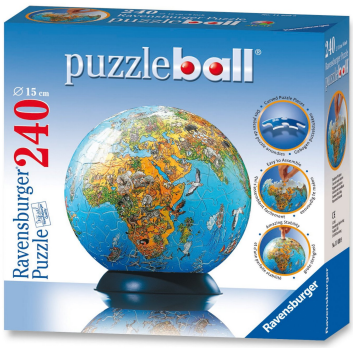
- Visio-spatial abilities and bigger-picture thinking

Notes on implementation

The aim is for your patient to complete this ball-shaped puzzle. If your patient needs a little guidance on how to solve it, take a peek at the images on the front of the puzzle-pieces, or use the number written on the back of each piece. Let your patient decide what approach he/she wishes to use to solve the puzzle. After completing the puzzle, it is possible to encourage your patient to solve the puzzle in an alternative way, and subsequently reflect on the differences between strategies.

Examples of questions for reflection

- How did you solve this puzzle?
- Did you notice that there were different options for solving the puzzle?
- What are the pros and cons of the each approach?
- Do you prefer one way of solving it to another? Why?
- Have you considered using both options at simultaneously? What would that be like?
- Are there situations in everyday life where you use two approaches simultaneously?



Qwirkle

Cognitive domains targeted

- Flexibility and bigger-picture thinking

Notes on implementation

This game consists of wooden tiles painted with six with six different shapes in six different colours. Each player receives six tiles and after using some or all of them, adds as many tiles as necessary to always keep six tiles in front of him/her. When it is your turn, try connecting as many tiles as possible by either matching them by colour or by shape. For each tile placed in the middle, you receive one point. No more than six tiles can make up a row, and certain tiles (e.g. a red star or green square) are only allowed to appear once in a single row.

Examples of questions for reflection

- How did you decide on where to place your tile?
- Did you use a certain strategy to gain more points?
- At one point there were quite a lot of tiles in the middle; did you notice this? Did this influence the strategy you used in any way?
- This game required you to have an overview of all tiles, to switch between different placement-options and to evaluate the best placement. What was that like? Are there any situations in your everyday life where you have to multi-task like this?

To avoid a competitive atmosphere between you and your patient during the game, set a certain amount of points (e.g. 200) as a goal and try to collect them together as soon as possible.

River Crossing

Cognitive domains targeted

- Flexibility and bigger-picture thinking

Notes on implementation

The aim is to build a road out of tree trunks, so that the lumberjack can safely cross the river. This game requires planning abilities, bigger-picture thinking, as well as flexibility. The patient needs to be able to concentrate, think ahead and evaluate different options at the same time.

If your patient is doing well in this task, consider adding a time constraint during which your patient has to finish building the road. Once this is done, discuss with your patient what it was like to solve the task during time pressure. For example, did this if it increases your patient´s level of stress? Further, explore this element with regards to everyday situations; what happens in school during examinations and is it difficult for your patient to find a balance between finishing the task in time and performing really well (speed vs. perfectionism).

Rush Hour

Cognitive domains targeted

- Flexibility, bigger-picture thinking and planning

Notes on implementation

The patient is asked to find the way out of a traffic jam by moving cars and trucks blocking the exit. When the level of difficulty is increased (usually done by adding cars to the board), a higher level of planning, central coherence and flexibility is required. Different approaches can be used to solve this task, for example, a trial-and-error approach might work for those who prefer to be a bit more impulsive, whereas some might prefer to plan each move carefully. In our opinion, it seems like combining these two approaches might be the best solution when trying to get the little red car out of the traffic jam.

Examples of questions for reflection

- What did you think of this game?
- Did you find it difficult or easy?
- How did you deal with all the cars blocking your way?
- Are there things blocking your way in everyday life as well?
- How do you deal with these blocks in your everyday life?
- Could you imagine approaching it similarly to the approach you used in the game?

Try to find out if your patient is able to alternate between different approaches or strategies in everyday-life "blocking" situations. Is your patient able to flexibly alter strategies, or does she/he prefer to use certain strategies when approaching a challenge, problem or task?

Serpentiles

Cognitive domains targeted

- Bigger-picture thinking and visio-spatial abilities

Notes on implementation

Serpentiles is a mind challenging game designed for single players. The player is asked to combine a set of tiles to form a continuous path. Some parts of the road are coloured green and some are coloured blue, the tiles will only form the path if using the right colour and shape.

Examples of questions for reflection

- Was this game difficult or easy or neither for you?
- What did you find difficult/easy?
- Did you plan beforehand or did you simply put the pieces down at random?
- Were you able to keep an overview of the road in your head?
- Are you able to put things together easily in everyday life?

Shape by Shape & Square by Square

Cognitive domains targeted

- Visio-spatial abilities and flexibility

Notes on implementation

These two puzzle games are very similar; the difference lies in the shape of the separate pieces. The pieces of *Square by Square* are, as the name suggests, completely square. The aim in both games is to combine the various pieces in such a way that they depict the image of the corresponding challenging card.

Examples of questions for reflection

- How did you approach this task?
- Did you start with the outline of the figure, the centre of the figure or did you put the pieces together at random? Or, did you try to do both at the same time?
- Why did you choose that/this particular strategy?
- Did you get stuck at some point? If so, what was your reaction/approach?

These games have proved to be quite difficult, therefore always start with the first challenge card (no.1) so that your patient does not get discouraged.

Solitaire Chess

Cognitive domains targeted

- Visio-spatial abilities and flexibility

Notes on implementation

Solitaire Chess is a one-person game, and follows the rules of regular chess. It can be played with or without knowledge of regular chess; check the manual for how to play it! The game is over when only one chess piece is left on the board.

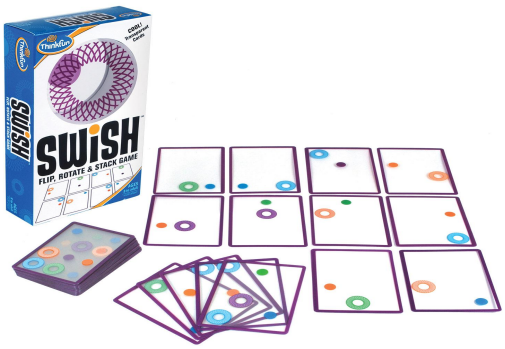
You do not have to to wait to explore your patient's strategies until she or he has solved the game. Noticing that the patient is stuck, for example, offers a great incentive reflection (remember to use the guiding questions).

Most of the tasks and board games described in the Resource Pack are designed to be played/solved by one person. To change this you could bring a regular chessboard to the CRT session and play together with your patient. Just remember to do not encourage too much competition!

Swish & Swish Jr.

Cognitive domains targeted

- Visio-spatial abilities, bigger-picture thinking and flexibility



Notes on implementation

Sixteen see-through playing cards are put on the table in front of the patient. The aim is to find as many card-combinations as possible; when you see one, call out "Swish!" and grab the cards. A correct Swish-combination is formed when the "balls" and "hoops" from two or more cards fit perfectly on top of each other.

Examples of questions for reflection

- How did you go about finding the right combinations?
- Did you find it easy or difficult to keep an overview of all playing cards?
- Were you able to switch between the details on the card and keeping an overall overview?
- Are you able to maintain a broad overview of things in everyday life?
- How do you find a balance between details and the bigger-picture in everyday life?

When working with a younger patient, Swish Jr. might be more age-appropriate than Swish.

Tilt

Cognitive domains targeted

- Flexibility and visio-spatial abilities

Notes on implementation

The aim of this game is to slide the green pieces in to the centre hole, without the blue pieces falling in. This game requires flexibility, as well as good visio-spatial abilities.

Examples of questions for reflection

- How did you find this game?
- How did you approach it?
- How did you deal with the blue "distraction" pieces?
- Do you sometimes encounter distractions in everyday life as well? How do you deal with these?

TipOver

Cognitive domains targeted

- Visio-spatial abilities and flexibility

Notes on implementation

This game consists of a red playing figure and several differently coloured crates. The goal is to get the red figure onto the red (final) crate; by tipping over the other crates. There are certain rules, which the patient has to follow when moving around the board, take some time to read through the instructions before starting! Have fun!

Examples of questions for reflection

- How did you go about solving this game?
- Did your approach work well for you?
- Was it difficult to find your way to the red crate?
- Do you have difficulties in everyday life with finding your way, or follow specific rules?
- Did you experience that your strategy did not work? What did you do?

Unhinged

Cognitive domains targeted

- Flexibility and visio-spatial abilities

Notes on implementation

The aim of this game is to fold and flip the hexagons until you have formed the image depicted on the challenge card. It can prove to be quite difficult and requires both flexibility and visio-spatial abilities.

Patients might find it difficult to find the link between the game and everyday-life situations. The might need some help, and we suggest you start by trying to identify the strategies or approaches used to tackle the game. Secondly, let your patient explore the game from a different perspective; i.e. how would your mother/sister/friend go about solving this game? What would they find difficult or easy? Do they use these strategies in their everyday-life? Make sure to redirect the conversation back to the patient and let her/him reflect on their own approaches and difficulties in everyday-life situations.

Besides being a real challenge, this games is quite small and easy to carry, making it a great game for patients to take home in between sessions. This will allow for the continuous practice of cognitive skills and metacognitive strategies, as described in the "Tryouts" section.

"Tryouts"

As mentioned previously, it is often wise to use the last minutes of each session to explore whether the patient experiences difficulties or challenges in their every day life, and how strategies used during the session might contribute to efficient or non efficient problem solving in real life. The tryouts are all about letting the patient *try out* new approaches to existing situations or problems. It is often a good idea to let the patients themselves figure out what they want to change or challenge, for example, a particular habit, a way of responding to other people, a certain way of communicating, a common problem solving strategy, as these individual choices might be experienced as more meaningful. However, it is not a necessity to decide on an assignment at the end of every CRT session, follow the pace of your patient. If she or he needs more time to complete a tryout, be generous with the time, but explore why some tasks might be difficult to tackle. Remember to follow up on the assignment at the beginning of the next session, and make sure to use the CRT guiding questions when doing so.

Although a personalized tryout might be experienced as more relevant than a generic one, it might be a good idea to start with a task that will require a minimum of efforts. You can either use the list of tryout examples below, or use the board games created by ThinkFun®. The latter are free to download as smart phone application, and most games from ThinkFun® are available as apps for both Android and iPhone.

Tryout examples

- Wear a different colour nail polish
- Do you have a piece of clothing, or type of clothing that you always wear daily (e.g. skirt, jeans, hoodies)? Try to wear something else for one day.
- Try to brush your teeth with your non-dominant hand.
- Invite a friend you haven't seen for a while to your house/your family's house
- Change something in your shower routine, e.g. a new shower gel, a new shampoo or conditioner
- Do something kind for a stranger (for example, offer your seat at the bus to an old lady or man, help someone carry their groceries, give someone a ride to work, offer to baby sit)
- Listen to a different music genre (R&B, classical, Rock´n´Roll, Reggae, Hip Hop, Electronica)
- When you get dressed, put on your clothes in a different order than usual
- Choose another route when visiting a friend or going to school or work
- Change the background picture on your mobile phone or computer

- Read a newspaper or magazine starting from the back instead of the front
- Wear your watch on the other wrist for a day
- Talk to someone at your school or workplace that you have never talked to before
- Reorganize the furniture in your bedroom/kitchen/living room
- Try a new type of coffee/tea fro breakfast
- Give a compliment to your friends/family members/colleagues
- Change your ringtone on your telephone
- Start watching a new TV series that you don't think you will like– perhaps you will be surprised!
- When you go to the hairdresser, ask for a new hairstyle
- Write down three good things that happened to you each day
- Make a list of things you like about yourself/family members/friends
- Set and achieve one micro goal per day – it can be anything!
- Disconnect from social media for one hour per day
- Check your smartphone apps – delete the ones you don't think you need
- Read 15 minutes before you go to sleep each night
- Keep a journal
- Use a camera (phone) to take pictures of people or things that inspire you
- Watch a YouTube clip that makes you laugh
- If you struggle to plan your day, start the morning by writing an agenda for the day, and try your best to follow it – what was that like?
- If you feel like you need some more spontaneity, don't make your bed in the morning, don't do the dishes until after work, try not making plans for one day, three days, a week – what does it feel like?
- Try smiling as often as you can – It might make you more happy, but it might also make other people happy and open the door to conversations with people you haven't talked to before
- If you like sports, try something new!
- Try a new hobby such as joining a choir, an arts and crafts group, dancing, a language course or a cooking class

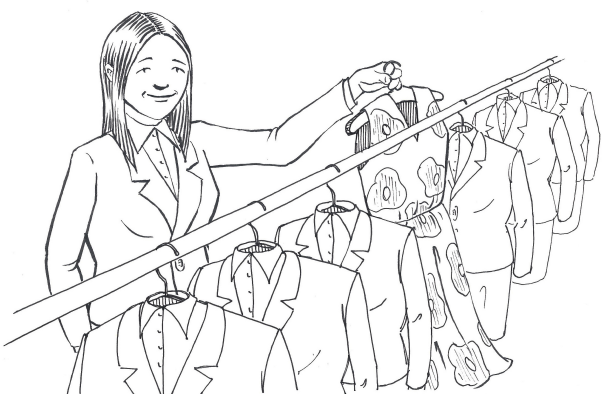


Illustration: KJ

Clinical Examples

Below you will find a selection of examples from our clinical work. We have included feedback letters from some of our patients, feedback letters from a couple of therapist, and examples of how we have worked with our patients using various games and tasks.

Patient and Therapist Feedback

Feedback from an adolescent girl (16)

Hi [therapist's name],

CRT has been very different from everything I've tried before, but it has been extremely useful for me. It has been exciting to work with all the tasks/games, which have made me focus on how I think in different situations, and how I solve problems. I very much liked talking to you about my thinking style since that is something I don't do very often.

CRT hasn't changed me that much, but it has helped me changed small things in my life and it has challenged me. CRT has made it clear to me why I solve things in different ways, and made me think about things that I'd like to change. I really liked the little homework tasks because those made me challenge myself in a variety of situations, without necessarily having to succeed every time.

I feel that the conversations following each task were very helpful, because I have never told anyone how I experience my everyday-life, planning or analysing. You were honest and wanted to listen to me, and I liked that. The situation has been slightly difficult at home, because my parents aren't really updated when it comes to CRT (with the exception of the first meeting they attended), and I find it difficult when I can't talk to anyone about what we do. I think my parents still think it's difficult to talk about the eating disorder, and that they are trying to "cure" me by giving me lots of food. But they don't understand the rest, and what's going on in my head. And that's why I think coming to see you has helped me.

I would have wanted more sessions with more concrete challenges. But I would absolutely recommend this to others, because you start reflecting a lot on your own self, why you choose to do what you do, something that's important. And even if you're sceptic, it never hurts to try something new.

Feedback from an adolescent girl (19)

Dear [therapist's name],

Thank you so much for the treatment I received. I feel CRT has helped me a lot. Even the very first tasks were "spot on", and gave me an "aha" experience. I think the tasks were really good since they made me look at my problems in another way, letting me solve the problems myself instead of being told how to do it, not thinking like this or that. After I while I felt that I actually changed my pattern of thinking, letting me understand that I don't necessarily *have* to think or behave like I did. The tasks, but most of all us talking together, has made me more flexible in my everyday life. Before I had to plan everything in detail, and if I couldn't follow the plan I threw up - I lost control. Through CRT with you I felt that I could balance my behavior more appropriately, so that it didn't have to be "all or nothing". Now I can deviate from my daily plans if something else exciting comes along, and I'm able to be more relaxed in terms of taking things as they come.

In the other treatments I have received the focus has been primarily on food and eating which has led to a lot of arguments between my therapists and me. And all along, food wasn't really the problem. Food was just one way in which my problems manifested. That's why it was so nice to finally *not* have to think about food, weight, calories, and instead focus on the way I was thinking. It actually turned out that my thinking style governs my eating disorder.

I felt we had a good connection, and I trust you and I feel safe with you. I felt that the last therapist I had often tried to fool me, or didn't understand me, but this hasn't been the case at all in CRT. I feel that you understand me, and that I can tell you everything. At the same time, I feel you are "on my team". The fact that you have also taught me to accept things (especially when things went bad), and not having to think that all is lost, has made me feel more confident. It's especially good to see you when I start getting insecure, because CRT gives me a feeling of safety, and that everything will work out.

I think the balance between tasks and conversation was very good. The tasks have made me more aware of how I think, whilst the conversation has helped in strengthening the right thinking styles. Being able to relax is actually one of the most important things I have learned in CRT. Before I was constantly ruminating about what I had to do, or should do. I was planning things in my mind all the time, and I rarely managed to be "in the present". Relaxing was a reward I couldn't treat myself with before I had completed all the things on my list (school, work, chores, exercise etc.).

After having had CRT I managed to stop thinking about all the things I couldn't do anything about, and I feel more present now. I try to enjoy the moment instead of always thinking ahead. This has let me be more relaxed in terms of schoolwork as well, and given me time to think about what is important to me. I had filled up my days with school, work, job, friends and exercise, but the treatment made me realize what's really important. I don't longer just prioritize being successful in the eyes of others. Now I try to prioritize feeling good. Being perfect or successful is no longer as important as it was before. It's an incredibly nice feeling!

I overslept today, and had to write this letter in haste, but I think I have managed to get most of what I wanted to say on paper :) The last 2 weeks have been quite rough because of lots of things in my personal life, and I feel like I could have needed some extra treatment right now. That's why I'm thinking that the only negative aspect of CRT is that it's only a research project. I would have loved to see you on a regular basis and because I feel CRT has been so valuable for me - not only because of the tasks we have been working with, but also because you are so good at what you are doing, and because we have connected really well.

All the best,
[patient's name]

Feedback Letter from Clinician to Patient (17)

Dear [patient's name],

Today we are meeting for the last time, and I want to start this letter by telling you it has been been a pleasure working with you during our 12 CRT sessions. You have been honest, interested, engaged and positive, and thanks to your efforts, we have managed to do quite a lot in a short period of time.

The focus of CRT was to challenge and reflect on your thinking style, especially when it come to flexibility, being able to see things from different perspectives, multitask, and to practice central coherence, that is, being able to see the whole *and* the details. We have also been working on tasks focusing on planning and prioritizing. You have had an amazing ability to reflect on your own thinking style all along, and I could see this from the very beginning when we discussed your thoughts on how you usually think. You described yourself as being both flexible and centrally coherent in general, but also as a person who struggles with these aspects in terms of food and exercise.

We continued to focus on these themes throughout the course of treatment, and did so by using practical tasks during the sessions, and "*tryouts*" between sessions.

CRT is all about becoming aware of how you think, and not so much what you think about, what strategies work well in your everyday life, and which ones does not work that well, how to change inefficient thought patterns to achieve specific goals, and how to challenge unwanted thoughts and behaviors. Through the tasks *Rush Hour* and *Shape by Shape*, you realized that it is important for you to be good in what you do, to succeed, and perhaps most important of all, to being able to control what you do. You did really well in both tasks, and manage to solve them both very quickly. However, you told me you're your initial thought was "I will not be able to solve this, but if I do, I'm just lucky", and that you usually think like this when you face a new task or a challenge. When you reflected on this way of thinking, you were able to "zoom out" and really analyse the effects of this thinking style, which you found to be quite negative. The good thing about it was that you were now aware of your thinking style, and wanted to change it!

We have also worked on tasks focusing on preoccupation with details. One such task has been *Shape It!* where you were asked to describe a figure to me using your own words, another *4 in a row* where we played against each other and also *Tilt*. A common denominator in the way you have tackled all these games is that you have been quick and efficient, with a strong competitive sense and a wish to "win". Also, you have been able to reflect really well in terms of which strategies you have used, which in turn has made it very clear with regards to the area in which you struggle the most – flexibility.

Together we decided that your first tryout should have something to do with flexibility, and you wanted it to focus on *time*. The conversation leading up to this decision was about you being scared of loosing control of your eating habits (you called it the domino effect), and in order to challenge this assumption (that if you changed the time of your meal, you would start binge eating and never be able to stop) we agreed that you should try changing the time of your dinner meal. When you returned to the next session you were so proud, and you told me that you had managed to do what we agreed on, and that it actually went quite well. However, you had your eye on the clock the whole time, making sure the meal wouldn't last longer than usual. Your next tryout was eating with your back against the clock so that you wouldn't be able to check the timing of your meal, and you were very successful (although you told me it was quite hard). Well done!! These two tryouts show that you CAN change, and that the fear of the domino effect might be stronger than the risk of it actually occurring! Keep making small everyday changes, and challenge yourself whenever you can. It might be difficult at first, but once you realize that you can change things you don't like, or habits that are counterproductive, it will be easier to change other situations/thoughts and behaviors as well!

You have been very brave in accepting the challenges I have suggested, and perhaps even more important, *you* have decided what you want your life to look like, how *you* want to live it, and the changes *you* see fit. Through reflections and feedback you have come to the conclusion that you are willing to start making small changes in the way you think and behave, and through the tryouts you have managed to start that process. Keep reflecting on how you think, and how these thoughts affect your behavior, your mood, your environment and your social relations. This will make it easier for you to keep up the good work that you have initiated here during the sessions, and it will also allow you to keep changing. A few things that it's important to keep in mind now that we have reached the end of our CRT session are:

- Keep reflecting on your thinking styles and strategies, are they efficient or are they not? Can you change them and if so, how?
- Flexibility – keep challenging yourself in your everyday life. You have managed to make small changes already; I believe you can make more!
- Try doing things without the end result being perfect. It might sound odd, but try going to school one day without making your bed, or wearing different colour socks. What does that feel like, and why? Is it important at all? Are there any good outcomes of not doing things perfectly? What are these?

Thank you for taking the time to complete all 12 CRT sessions [patient's name], and thank you for making an effort during each and every session. I wish you a lovely summer, and an exciting last year in school. You have my email address, and if there is anything I can do to help you or motivate you in your process of change, please let me know!

All the very best,
[therapist's name],

Using *Swish* with a young patient (15)

During one of the sessions with patient "N" (female, 15 years old), the game *Swish* was used.

"N" had a very structured approach to the game and she could quickly name the different advantages and disadvantages of her strategies during the game. Her main approach was *sorting*; she tried to sort the cards in her head by similarities or differences. Sorting things helped her to obtain an overview and she used it both in school, e.g. sorting her notebooks by subject, as well as at home, e.g. sorting her books in her room by size. Another approach

mentioned by "N" for this game was *concentration*. Although she found it difficult to consistently concentrate during the game, she noticed that it helped her to find sets of cards.

In her everyday life concentration had several advantages for "N": it helped her to be precise, to work conscientiously, and thus accomplish tasks that she is expected to finish. On the other hand, "N" found it tiring and exhausting to concentrate for longer periods of time. She concluded that concentration is dependent on weight and food intake, which are areas that she is currently struggling with.

Using *Last Letter* with a young patient (14)

When "T" (female, 14 years old) participated in CRT, the ThinkFun® game *Last Letter* was one of the games used during sessions. When playing together, both "T" and her CRT-therapist received 5 cards. By taking turns, they each stated a word associated with the images(s) displayed on one of their cards. All words had to start with the last letter of the previous word stated by the previous player. "T" really enjoyed the game, and she had to concentrate hard to be able to play it. For "T", an advantage of having to *concentrate* was that it helped her to accurately complete tasks and not make mistakes. Furthermore, having to concentrate on the task helped her take her mind off unpleasant thoughts. However, "T" told the therapist that one of the disadvantages of having to concentrate so hard was the fixation on one single thing. She realized that, lately, it had been more difficult to concentrate on specific tasks or activities in her everyday life, especially after she had eaten. After meals, she told the therapist that her mind was often preoccupied with thoughts that prevented her from concentrating on the activities at hand. She concluded that during the CRT-sessions it had been easier to block out these thoughts by actively engaging in the tasks or games on the table.

Another approach that "T" used while playing *Last Letter* was being *spontaneous*. In order to come up with novel words, it was necessary for her to react spontaneously to the word stated by the previous player (the therapist). However, in her everyday life "T" preferred *planning* almost everything in advance, and she found it difficult to be spontaneous both in everyday life and during this particular game. During her reflection on pros and cons of planning, she mentioned that planning gave her a feeling of security and that being spontaneous could feel strenuous. A disadvantage of her need to plan everything was her active fear of having a "useless" day during which she accomplished nothing. However, she also realized that spontaneity could be very relaxing for her and make her feel free.

Suggested Reading

Below you will find a list of reading materials. Most of the references are research papers published in peer-reviewed journals. We have also included a couple of book chapters, which might be of relevance to you. This section is thus primarily for those interested in the evidence supporting the use of CRT, and those who are interested in learning more about the development of CRT for people with eating disorders. Also, this section includes a list of papers on neuropsychology for adolescents with eating disorders. This is a fairly new field, which is growing rapidly. To keep updated, we suggest you subscribe to new publications in one or more of the current eating disorder journals.

We have divided section into different headings, which will make it easier for you to find exactly what you are looking for.

Cognitive Remediation Therapy in Eating Disorders

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Cognitive Remediation Therapy for Other Disorders

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Resources

Below, you will find a list of resources that might come in handy in your therapeutic work. Use them as you like. It is very likely that you will find that some of the games and tasks are easier and more enjoyable to work with, and that you develop your own favourite set of games. We encourage you to find materials that suit your patients, and your specific way of working. Enjoy!

Online Resources

- ✓ ThinkFun®
  - www.thinkfun.com
  - www.thinkfun.com/playonline
  - www.thinkfun.com/apps

- ✓ Regional Department of Eating Disorders (RASP), Oslo University Hospital, Ullevål
  - www.rasp.no
  - hwww.oslo-universitetssykehus.no/omoss_/avdelinger_/spiseforstyrrelser-kompetansesenter_/Sider/Cognitive-Remediation-Therapy-.aspx

- ✓ Camilla Lindvall Dahlgren
  - www.camilladahlgren.com

Books & Book Chapters

- ✓ The Ultimate Book of Optical Illusions, Al Seckel (2006)
- ✓ The Great Book of Optical Illusions, Al Seckel (2005)
- ✓ The Man with Shattered World, Alexander Luria (1972)
- ✓ The New Executive Brain - Frontal Lobes in in a Complex World, Elkhonon Goldberg (2009)
- ✓ Metacognitive Therapy - The CBT Distinctive Feature Series, Peter Fisher & Adrial Wells (2009)
- ✓ Chapter 16: Cognitive Remediation Therapy, in Eating Disorders in Childhood and Adolescents, 4th Edition. Edited by Bryan Lask & Rachel Bryant-Waugh (2013)
- ✓ Chapter 10: Implications for Treatment, in Eating Disorders and the Brain. Edited by Bryan Lask and Ian Frampton (2013).

- ✓ Cognitive remediation therapy for young female adolescents with anorexia nervosa - Assessing the feasibility of a novel intervention, Camilla Lindvall Dahlgren (2014)