



# Using Boccia as an Assessment and Intervention Tool

An Evidence-Based Guide for Occupational Therapy Practice



**This edition published in 2017 by Sport for Confidence.**

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Edited by Anna Pettican and Lyndsey Barrett on behalf of Sport for Confidence.  
[info@sportforconfidence.com](mailto:info@sportforconfidence.com)

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Review date: July 2022.

This guide should be referenced as:  
Pettican A, Barrett L (2017) Using boccia as an assessment and intervention tool: an evidence-based guide for occupational therapy practice. Billerica: Sport for Confidence.

## INTRODUCTION

**Boccia (pronounced, 'bot-cha') is a fun challenging sport similar to the game of boules. The intention of this guide is to support and inform the practice of occupational therapists, occupational therapy support staff, and occupational therapy students. It may also be of interest to anyone who is considering using or participating in boccia for therapeutic purposes. The guide has been produced by occupational therapists at Sport for Confidence on behalf of Boccia England, and in collaboration with Sport for Confidence service users who participate in boccia for therapeutic purposes.**

Central to the practice of occupational therapy is a concern for the relationship between activity participation, and health and wellbeing. Therefore, occupational therapy practice involves utilising a range of activities for assessment and intervention, often through grading, adapting, and modifying the activity to ultimately enable meaningful participation for those who wish to take part (*World Federation of Occupational Therapists 2013*).

However, people with a disability and other long-term conditions, such as mental health problems, have been identified as being much less likely to be engaged in sport and physical activity than the general population and therefore do not at present fully benefit from the many outcomes that such participation has been shown to bring about, namely benefits to physical health, mental well-being and the enhancement of social bonds (*Sport England 2016; Department for Culture Media and Sport 2015*). It is therefore considered a priority that occupational therapists consider sporting activities for their therapeutic potential and also for their role in enabling people with a range of health conditions to build a resilient habit of being more active.

This guide is concerned with using boccia as such a therapeutic activity. The guide is not aimed at occupational therapists working with a particular client group or health condition, as we believe boccia has the potential to be utilised therapeutically with a range of people and in a number of ways. It is instead intended to be a starting point for clinical reasoning, with a range of ideas, suggestions and resources.

We would particularly like to emphasise that we are not advocating for boccia to necessarily be utilised in accordance with convention and its rules, as enabling meaningful engagement and therapeutic outcomes may well involve some adaptation and modification of both the game and the playing environment. For example, an occupational therapist initially playing boccia with an individual in their own home to establish interest and understanding, before introducing them to a group boccia context. Additionally, we would also like to emphasise that practice must always be client-centred in terms of activity preferences, interests, and values.

**To support you in using this guide Boccia England will offer you a 5% discount on boccia balls at the Boccia England Shop once you become a member. To do this please visit [www.bocciaengland.org.uk](http://www.bocciaengland.org.uk)**



## What is boccia?

**Boccia is played on a smooth, flat surface such as a sports hall floor. The aim of the game is for the player or team to place as many of their own balls as they can closer to the jack ball than their opponent. It is a target game which relies upon skill, accuracy and tactics.**

A ball can be rolled, thrown or kicked. If a player is unable to throw or kick the ball, they can use a ramp. If players are unable to release the ball with their hands, they can use assistive devices, such as a head/hand pointer.

Two sides compete as individuals, pairs or as a team of three over a set number of ends (rounds). Each side has six balls (red or blue) and tries to score points. Points are accumulated over the course of a match to find a winner. Recreationally, any number can play depending on availability of equipment. Boccia was originally designed for people with severe cerebral palsy, but it is now enjoyed by players from many sectors of the community.



## How is boccia played?

- Conventionally, all players are seated during a game.
- A game consists of a series of ends (rounds).
- Singles & Pairs = 4 ends.
- Teams = 6 ends.
- An end consists of all 13 balls being propelled onto court (the jack, 6 red and 6 blue).
- Decided using a coin toss, the winning player/captain chooses to be red or blue.
- Both sides must occupy a designated box on the court from where balls are propelled.
- The red side always begins the first end by propelling the jack into court.
- In a pairs or team match each player propels the jack onto court in turn.
- In a singles match both players will alternate twice.
- The player who propels the jack ball also propels their first coloured ball.
- A player from the opposite side then propels their first coloured ball.
- The side not closest to the jack plays until they get closer, or runs out of balls.
- The end is complete when all balls from both sides have been propelled.
- One point is awarded for every ball of the same colour, which is closest to the jack.
- Points scored each end are accumulated to give a final score.



## What equipment will I need?

A set of boccia balls consisting of six red, six blue and one white jack.

For players who are unable to throw or kick the balls, a ramp may also be required. A head pointer can also be used with the ramp.

Though not essential for a player when getting started, officiating equipment, including a measure and red/blue indicator is recommended. They are used to determine who plays next, who has won and the score.

## How might I use boccia in my occupational therapy practice?

Boccia can be utilised within occupational therapy practice in a multitude of ways and with a range of client populations. Although Boccia is a team sport and there is therefore an obvious application to a therapeutic group setting, there is also the potential to use Boccia as an individual intervention. There is a role for everyone in boccia, with a range of tasks and activities arising from each game, for example setting up the court and equipment, keeping score and being a coach to others.

# CASE STUDIES

To provide ideas and inspiration for therapeutic practice four case-studies are provide in this guide, on pages 4-5 and 10-11. The intention of the case-studies is to highlight the potential diversity of boccia's application in occupational therapy practice, although it is also emphasised that practice should be client-centred and any chosen occupations selected and planned in collaboration with the service user.

## Louise

Louise is a 47-year-old lady with a learning disability and profound physical disabilities. She lives alone and has become increasingly socially isolated since the death of her mother, who was also her main carer. Louise was referred to occupational therapy with the primary aim of improving hand function to enable her to better handle cutlery and eat independently.

A collaborative intervention plan was agreed between Louise and the occupational therapist, involving a graded programme of using the boccia balls to increase hand strength, grip and range of movement. This was achieved initially through Louise rolling the boccia balls on a hard surface, instead of engaging in rote exercise using thera-putty. Over a period of several weeks this gradually progressed to Louise using the ramp to participate in the actual playing of boccia, before then progressing to Louise throwing the ball and fully participating in a boccia game. Louise's improved hand function and upper limb strength achieved through utilising boccia as an intervention meant she was now able to use cutlery and eat independently. Louise also began regularly participating in a boccia group at her local leisure centre.



## A school-based boccia group

Boccia was used as a group intervention, facilitated by an occupational therapist. The group took place in a local mainstream primary school, with a group of children with various additional needs, including autism, sensory processing disorder and various physical disabilities.

Boccia was utilised with the primary aim of facilitating a sense of belonging and developing social skills. An emphasis was therefore placed on boccia as a team sport, and the need for team members to communicate and work together. Warm-up games were used to promote face-to-face interaction and throughout the group sessions there were regular opportunities to work on emotional regulation and promoting healthy competition thorough participating in the boccia. Boccia was also utilised in varying ways to meet the differing individual needs of the group members. For example, developing numeracy skills through scoring tasks and hand-writing skills through producing match reports.



## WHAT IS THE EVIDENCE-BASE?

**The evidence-base for the therapeutic use of boccia is still emerging, but it is supportive and informative in terms of utilising the game for therapeutic purposes.**

A recent qualitative study (Ovenden et al. 2016) explored the experiences of people with dementia and their carers who participated in a boccia group. This research found that participants particularly valued the inclusive nature of the game, in terms of it requiring only basic skills and therefore being accessible to participants regardless of their physical or mental capabilities. The seated position of the game was also felt to be helpful for people with mobility difficulties. The element of luck that the game includes (the shape of the mats allows the ball to roll in any direction) was found to minimise differences between the players, which enabled competitiveness and a sense of enjoyment.

The group also enabled physical exercise (such as walking over and collecting the balls after each round) and facilitated the development of motor skills such as hand-eye coordination. In particular the group context was felt to be valuable in providing the opportunity for those with dementia and their carers to do something together, as well as socialising with others and gaining advice and support from them. In summary, this was a small study with a specialist client group, but nonetheless it demonstrates the range of benefits that can arise from participating in boccia, not just for people with dementia but also for their carers.

The enjoyable and fun nature of boccia was also referred to in a study involving children with cerebral palsy (Huang et al. 2014). The study noted that a team game such as boccia can be effectively integrated into a therapy programme to provide a fun and accessible way of improving the motor skills and psychosocial well-being of children with cerebral palsy, which is likely to be more engaging than conventional rote rehabilitation exercises.



The transferable skills that can potentially be acquired from playing boccia were highlighted in a comparative study involving 28 people who had cerebral palsy and also used a wheelchair (Faria et al. 2014). The study sought to explore the relationship between the skills acquired from driving a wheelchair and playing boccia, in relation to driving an intelligent wheelchair simulator. The study noted good performance in the participants who were drivers of an electronic wheelchair and also players of boccia.

The broader, psychosocial, benefits of participating in boccia were examined in another recent study with people with severe and enduring disabilities (Barak et al. 2016). The study compared two competitive boccia groups with one recreational boccia group, and found that in a general sense a rehabilitation program involving boccia had a general positive effect on the psychosocial status of individuals with severe physical disabilities. However, the competitive boccia groups demonstrated a greater number of favourable changes, suggesting an added value of participation in competitive boccia. To provide ideas and inspiration for the therapeutic use of Boccia an activity analysis and four case studies have been included on the following pages.

# ACTIVITY ANALYSIS

Completing an activity analysis involves determining the typical demands of an activity, the range of skills involved in its performance, and the meanings that might be associated with it.

The below activity analysis of playing bocchia is provided as a starting point to prompt reasoning and thinking, and is not therefore exhaustive in terms of the many forms and environments in which participation in bocchia could potentially be enabled. The activity analysis has been informed by both the International Classification of Functioning, Disability and Health (WHO 2001) and the Occupational Therapy Practice Framework (American Occupational Therapy Association 2014).

## Cognitive

- Conscious and orientated, with the energy and drive to participate.
- Concentration on game and related activities (for example, chatting to team-mates).
- Retains information about colour of team and rules of the game.
- Emotional response to winning or losing, potential sense of achievement.
- Success and development of self-esteem and belonging amongst team-mates.

## Sensory

- Form, size, shape and colour of ball determined through sensory information.
- Vestibular functions and balance to enable positioning, manipulation and propulsion of bocchia balls.
- Sensory demands of the game and playing environment will need to be considered and adapted carefully to enable meaningful participation. For example, a large sports hall may provide too much sensory stimulation for some players.

## Speech

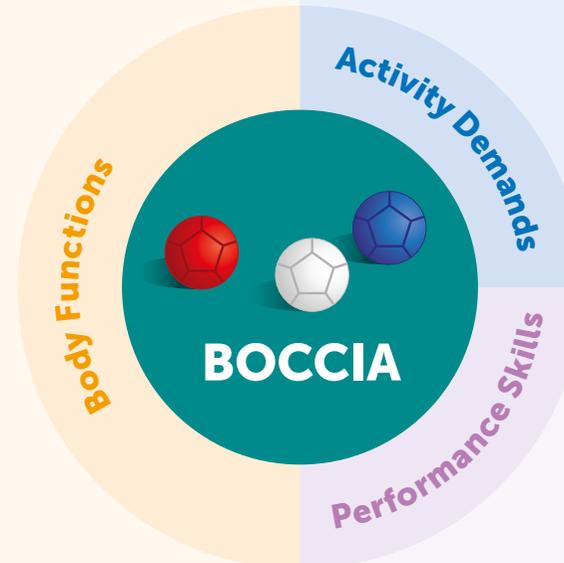
- No specific voice and speech demands, though playing the game provides opportunities for verbal interaction with team-mates in relation to rules, scoring and encouragement.
- Player may wish to ask for assistance at times (for example, passing of the ramp), but can adapt communication to gesturing and/or writing if required.

## Neuromusculoskeletal

- Conventionally a seated game requiring postural control or support, though can be adapted to standing.
- Joint, muscle and movement functions to enable grip and propulsion of ball (may be through kicking rather than throwing).
- Development of hand-eye co-ordination through participation, as well as bi-lateral integration and crossing of the mid-line during ball manipulation, throwing, propulsion and general bocchia play.

## Cardiovascular

- Sufficient blood pressure to enable movement and postural control.
- Respiration functions to enable participation, though may require modification in specific incidences (for example pacing of play for a player with a respiratory condition).
- Consideration will need to be given to physical endurance, aerobic capacity, stamina and fatigability, with play being adapted accordingly.



## Relevance & Meaning

Playing bocchia offers the opportunity to participate in a team sport and therefore a form of physical activity, to maintain or enhance health, well-being and/or independence.

## Equipment & Resources

Bocchia balls (six blue, six red and a white jack) and potentially, depending on the stage of participation, a ball ramp, paddles, score board and pens, measure, hoops and cones. Having a full range of equipment will enable different player roles and ways of participating.

## Space

A clear and well-lit open space is needed, in which the bocchia balls can be propelled. Conventionally a 12.5m x 6m indoor court. However, the size of the space will depend on the stage of participation. Bocchia can be played as a paired activity at home, or in various other forms through to as a serious and competitive game in a large sports hall.

## Social

Playing bocchia as a sport involves rules in relation to turn-taking and scoring, although it is acknowledged that these might initially be areas of development for which the activity is used (for example, to develop social skills in relation to an awareness of others through turn-taking).

## Sequencing

Playing bocchia involves various steps, again depending on stage of participation: Taking a seated position (if not already), waiting for your turn, throwing or propelling the balls, scoring, collecting the balls, returning to throwing position. If playing according to bocchia rules the losing team always plays until leading.

## Motor

- Positions self in seated or adapted standing position, if not already.
- Grips the bocchia ball in hand (or assisted to place the ball at the top of the ramp) and co-ordinates to either throw or propel ball.
- Fine and gross motor skills can be developed by handling and propelling bocchia balls, e.g. grip strength and endurance.
- May be adapted for balls to be kicked if required.

## Process

- Chooses colour of bocchia ball and therefore team.
- Initiates steps associated with playing bocchia and completes in a logical manner.
- Adjusts performance to try different methods of positioning and/or throwing in order to participate.
- Process skills can be developed as participation in bocchia progresses, for example through taking on a leadership role in terms of turn-taking and/or scoring.

## Social Interaction

- Approaches or initiates interaction with team-mates, may involve speech and/or gestures.
- Places self an appropriate distance from other players during the game.
- Takes their turn and gives other players the freedom to take theirs.
- Social interaction skills can be developed through playing bocchia, for example the regulation of emotion through winning or losing.

## Margaret

Margaret is a 38-year-old woman with a long-term diagnosis of depression and anxiety. Margaret's mental health problems have a significant impact on her daily life; and she has low self-esteem, says very little and her eye contact is limited.

Margaret was referred to an occupational therapist and during the initial assessment she mentioned that she used to play boccia at school and was very good at it, but since leaving school the interest had lapsed. Due to Margaret's limited communication the occupational therapist utilised her historical interest in and knowledge of boccia to establish a rapport, very gradually exploring with Margaret the different rules, roles and tasks associated with the game. Such discussions then gradually developed into Margaret working with her support worker at her supported accommodation to make some boccia paddles as a meaningful but manageable activity within her home environment. Over the coming months the intention is to gradually involve Margaret in playing boccia with other residents within her living environment, with the long-term intention of involving her in a local boccia group.

## Max

Max was an 82-year-old man who lived in a residential home. Despite being active in his early life a series of falls at home had recently knocked his confidence in mobilising and led to him being relatively inactive. In particular Max had been restricting his food and fluid intake to reduce the need for him to mobilise from his chair to the kitchen and toilet. However, this culminated in a severe urinary tract infection and the need to admit him to a residential care home due to his malnutrition, dehydration and general ill health.

Following this Max was referred to an occupational therapist, who focused on engaging him in activity within the residential home setting. This meant initially playing boccia within the lounge of the residential home, which enabled Max to remain seated as his interest and confidence gradually grew. Changes in Max were noticeable, as he talked about improving his throwing technique and increasing his strength and range of movement, as other residents also gradually became involved. Ultimately the weekly boccia grew into an established group, with people participating in ways that were manageable to them from the comfort of their armchairs.



**"Boccia has helped me to have a focus and made me want to make plans for my future. It has improved my confidence massively."**

Donna



## FURTHER INFORMATION

[www.bocciaengland.org.uk](http://www.bocciaengland.org.uk)

**Where to purchase a boccia kit**  
[www.bocciaengland.org.uk/shop](http://www.bocciaengland.org.uk/shop)

**How to find a local boccia group**  
[www.bocciaengland.org.uk/clubs/finder](http://www.bocciaengland.org.uk/clubs/finder)

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# WARM-UP/COOLDOWN TIPS

As with many physical activities and sports, it is important to prepare the body before and after each session.

## Why use these techniques?

Despite recognising that individual players may well develop their own warm up/cool down routines to suit their own needs and preferences, these general guidance notes can be used especially with beginners.

## Key parts of the body repeated movement exercises

### Trunk

- Turn left and right
- Bend from side to side
- Bend forward and back

### Neck

- Turn left and right
- Bend from side to side
- Bend forward and back

### Shoulders

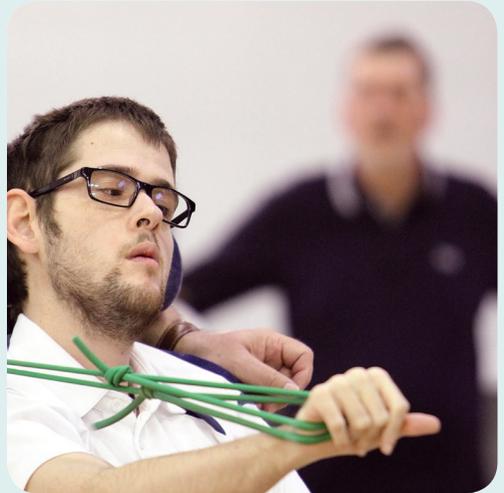
- Lift up and down
- Circle forwards and backwards

### Arms

- Circle forwards and backwards
- Extend above the head, out to the sides and down to the floor

### Wrists

- Circle in both directions
- Bend up and down
- Clinch and extend fingers bend and extend



# PROPELLING A BOCCIA BALL

There are many methods of propelling a Boccia ball.

## Examples of the different techniques:

### Throw

- Ball is delivered from the hand, typically involving the movement of the arm prior to release.



### Kick

- Ball is delivered from the foot, typically involving the movement of the leg prior to release.



### Ramp

- This is an assistive device where the ball is released by a player down a chute onto court.



# SKILL PRACTICE EXERCISES

Skill practices can be used as a training tool and an activity in their own right.

They are intended to provide variety and fun. As well as helping develop the core skills of accuracy, consistency, control etc, they also help develop secondary skills including:

- Perception and decision making
- Taking turns and competitiveness
- Social interaction and communication

Each practice can be used to develop specific skills. All practices use equipment which should be found within schools and sports centres, for example hoops and skittles.

Alternatively you can improvise with: boxes, bins, chairs etc. Any practice games can be adapted to meet the needs of individual players.



## Activity 1

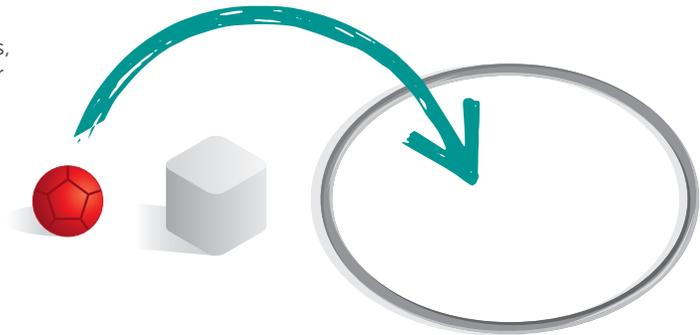
**Throw ball over an object to land within hoop**

### Objective/Skills

- Accuracy and control
- Height
- Ability to throw over balls

### Equipment

- Boccia balls, hoops, plus hurdle or chair



# SKILL PRACTICE EXERCISES

## Activity 2

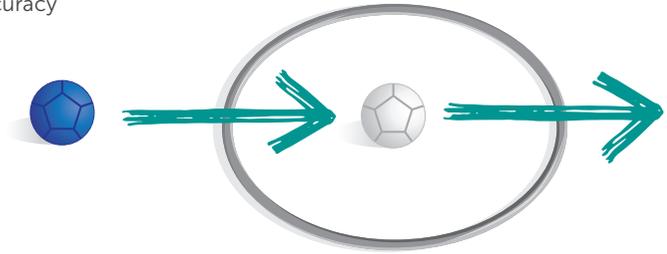
Propel ball to knock a jack ball out of hoop  
or without knocking jack ball out of hoop

### Objective/Skills

- Accuracy and control
- Ability to get close to target
- Ability to hit and move target
- Greater control and accuracy

### Equipment

- Boccia balls, beach ball, target balls



## Activity 3

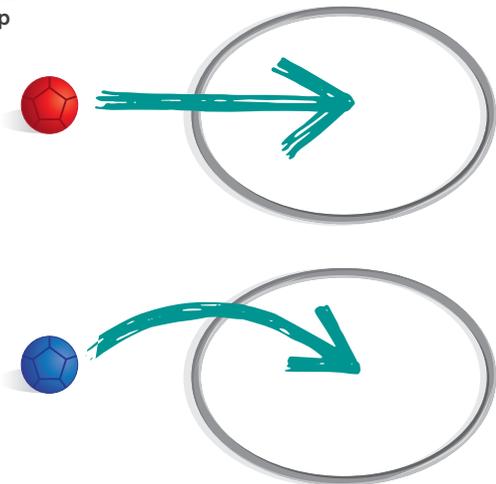
Roll ball so that it stops within hoop and  
throw ball to land and stop within hoop

### Objective/Skills

- Accuracy
- Concept of target area
- Rolled and thrown propulsion
- Ability to stop ball

### Equipment

- Boccia balls and various hoops



# SKILL PRACTICE EXERCISES

## Activity 4

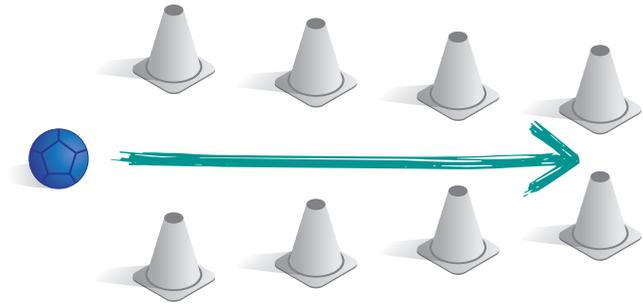
Propel ball through channel of cones progressively narrowing in width

### Objective/Skills

- Sustained accuracy
- Rolled propulsion
- Judgement of distance and space

### Equipment

- Boccia balls, 8-10 cones or skittles



## Activity 5

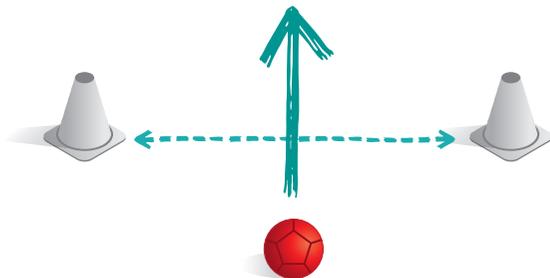
Propel balls through 2 cones progressively narrowing

### Objective/Skills

- Accuracy and control
- Rolled propulsion

### Equipment

- Boccia balls, 2 cones or skittles





[info@bocciaengland.org.uk](mailto:info@bocciaengland.org.uk)  
[www.bocciaengland.org.uk](http://www.bocciaengland.org.uk)



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