



Wheelchair Karate Coaching Guide

Advice for Instructors

ENGLISH KARATE



FEDERATION

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Why a participant might use a wheelchair

There are several different conditions resulting in reduced mobility or sensations. The following provides an overview but it is important to be aware that no two players are the same; and as such, your first step should always be to speak to the player to understand their abilities and goals, and never assume.

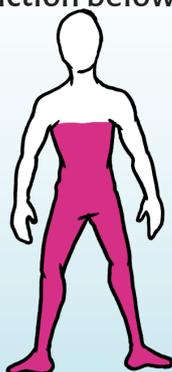
Spinal cord injury

A spinal cord injury is damage or trauma to the spinal cord that results in a loss or impaired function, causing reduced mobility or sensation. The level of impaired function is dependent on the level of trauma to the spinal cord. The higher the spinal cord is damaged; the less mobility the karateka will have. Spinal cord injury can be divided into two types of injury: a complete injury resulting in no function below the level of the injury with both sides of the body equally affected. An incomplete injury results in some functioning below the primary level of the injury.

This diagram depicts spinal nerves and the areas of the body they control. Injury to these areas will result in impaired or loss of movement/sensation to the given area.

Complete Spinal Cord Injury

Complete loss of motor and sensory function below the spinal cord injury



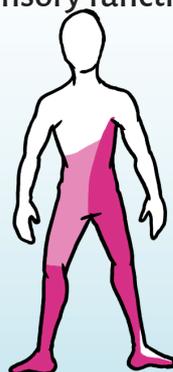
Paraplegia



Tetraplegia

Incomplete Spinal Cord Injury

Partial random preservation of motor or sensory function below the spinal cord injury



Paraplegia



Tetraplegia

Cervical

Is the highest spinal cord injury and is usually caused by damage to the neck. It is uncommon for individuals with a cervical injury to take part in physical activity.

Thoracic

Injuries in the thoracic level can affect abdominal muscle control. Individuals often participate in sport using a wheelchair. Their ability to perform activities will vary depending on the level of injury. Players with a T12 impairment will have a good range of upper body movement, compared with T4 impaired players who may choose to wear a (corset) back support. T4 players may also choose to strap themselves to the backrest of the wheelchair to offer greater support.

Lumbar

Injuries in the higher lumbar level such as L2 will affect the lower back. L3 to L5 will affect the hips and legs. Some individuals may be able to walk but it is likely they will play sport in a wheelchair. These karateka may choose to strap their legs to the wheelchair to keep them central in the seat.

Cervical Nerves:

- Diaphragm
- Deltoids
- Biceps
- Wrist extensors
- Rotates arm
- Triceps
- Bends fingers

Thoracic Nerves:

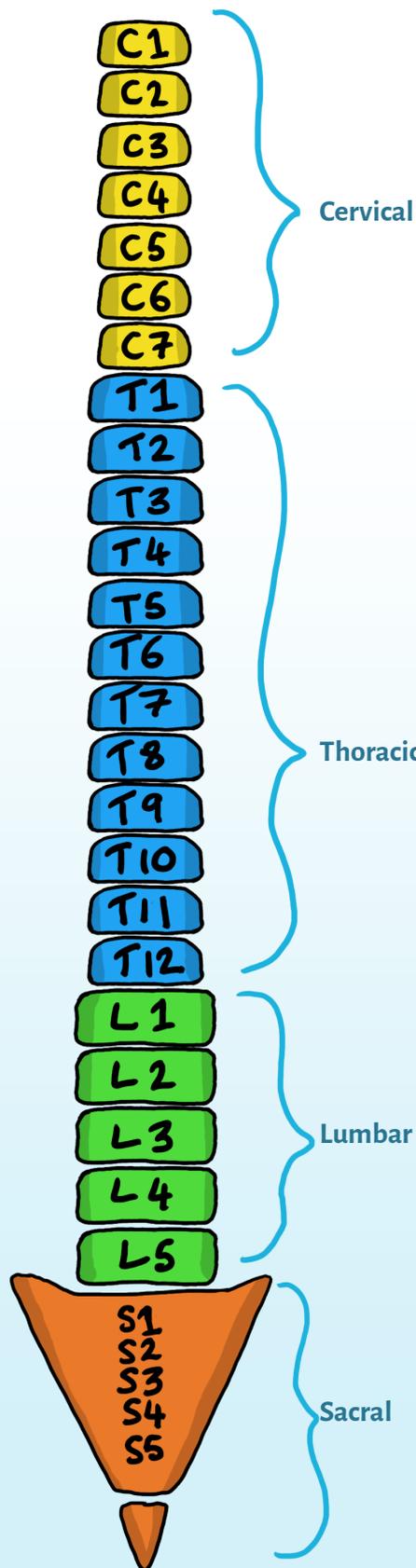
- Spread fingers
- Chest muscles
- Abdominal muscles
- Muscles in the back

Lumbar Nerves:

- Hip muscles
- Thigh muscles
- Knee muscles
- Foot muscles

Sacral Nerves:

- Bladder and bowel
- Sexual function



Sacral

Injuries in the sacral level generally result in some loss of function in the hips and legs. Individuals will most likely be able to walk but may choose to play sport in a wheelchair.

The information above is provided as guidance only. Participants with the same lesion may experience individual capabilities with regard to movement. (www.apparelyzed.com)

There are a number of other conditions (besides spinal injury) that may result in the player using a wheelchair for sport.

Spina bifida

Spina bifida is a series of birth defects that affect the development of the spine and central nervous system. It can result in partial or total paralysis of the lower limbs. Many people with spina bifida have latex allergy so always check that equipment is not made of this material.

Ask these students specifically where they see their limitations regarding breakfalls and blows and kicks to the head.

Muscular dystrophy

Muscular dystrophy is a group of muscle diseases that weaken the musculoskeletal system and impair locomotion.

Cerebral palsy

Cerebral palsy is a term that groups motor conditions that cause physical disability within development. Caused by damage to the motor control centre of the brain, which result in limited movement and are often accompanied by disturbance of sensation, depth perception, coordination and communication ability.

Amputees

Amputation is the removal of a body extremity by trauma, prolonged constriction, or surgery.

Hemiplegia

Hemiplegia is total paralysis of the arm, leg, and trunk on the same side of the body.

Multiple sclerosis (MS)

Affects the brain and spinal cord. Symptoms include problems with; vision, arm or leg movement, sensation or balance.

Motor neuron disease

Is an uncommon condition that affects the brain and nerves. It causes weakness that gets worse over time. Symptoms include weakness in ankle or leg, weak grip, muscle cramps/twitches.

Muscular dystrophy/spinal muscular atrophy

Is an uncommon condition that affects the brain and nerves. It causes weakness that gets worse over time. Symptoms include weakness in ankle or leg, weak grip, muscle cramps/twitches.

Virtually any karateka with any of the above can have their training adapted with a willing instructor and some creative problem solving. Today, you'll find wheelers participating at all ends of the spectrum — from the meditative flow of tai chi to the full-on contact of mixed martial arts and everything in between, including of course, karate!

Benefits of karate for wheelchair users

There are hundreds of thousands of wheelchair users who participate in martial arts worldwide and there can be really powerful benefits for participants from improved fitness, self-esteem and public speaking to problem solving skills.

Physical benefits can include those achieved through stress release, but also increased muscle tone, stamina and increased lung power too, through breathing techniques utilised within karate e.g. mokuso yame, ibuki and nogare.

The reasons for getting involved are equally varied. Some enjoy the fighting. Some want fitness and a good workout. And still others want to learn techniques they can use to defend themselves and keep safe.

Terminology

Be aware of current socially accepted terminology:

Do use	Do not use
Disabled person	The disabled, handicapped
Non-disabled	Able bodied
Wheelchair user or person who uses a wheelchair	Wheelchair bound or confined to a wheelchair
Impairments	Disabilities
For wheelchair users	For wheelchairs
Accessible toilet	Disabled toilet
Orange/blue badge holder parking	Disabled parking
Personal assistants	Carers

Basic wheelchair awareness

Participants will often prefer to train karate using a sports wheelchair. A sports wheelchair is generally more lightweight and easier to manoeuvre. The following outlines some of the main differences between a sports and day wheelchair:

Wheels

Sports wheelchairs will have cambered (angled) wheels. These are designed to enable participants to turn quickly with less effort.



Tyres

Sports wheelchair tyres will be more durable and are available in different materials designed to suit different surfaces. Tyres should be inflated to around 100psi. Tyres with insufficient pressure will result in slower moving and turning

Frame

Sports wheelchairs will have a reinforced, but lightweight, non-folding frame.

Backrest

Most sports wheelchairs will have adjustable backrests; participants with a higher impairment may prefer the backrest to be higher to offer greater support.

Seat gradient

Participants with higher impairment may feel more comfortable with a gradient sloping down towards the backrest (bucket seat).

Anti-tip wheel (caster)

The anti-tip wheel prevents the participant falling backwards in the wheelchair. The height of the anti-tip wheel may need to be higher on a surface with more friction, such as AstroTurf, to prevent the main wheels spinning.

Transferring from the day wheelchair into the sports wheelchair

When transferring from a day wheelchair to a sports wheelchair, instructors should:

- Ask the participants whether they require assistance
- The participant's day wheelchair should have brakes but the sports wheelchair will not. You may, therefore, need to hold the sports wheelchair to enable a safe transfer. Alternatively, participants may choose to position the sports wheelchair against a wall or fence to prevent it moving
- Some participants may use a transfer board to transfer between wheelchairs. This is a board that is positioned between wheelchairs for the player to slide across
- Hoists are another option but should only be used by parents or personal assistants who have undertaken manual handling training

Participants using their own wheelchair

- There is likely to be no anti-tip caster (wheel) which could potentially result in the wheelchair tipping backwards when performing fast movements
- Participants will find it slower to turn the day wheelchair because the wheels have no camber (are not angled)
- A day wheelchair will be heavier than a sports wheelchair resulting in less manoeuvrability
- When playing contact sports, it should be considered that there will be no protective front wing around participants' feet

Taping

Those with upper limb impairments may experience difficulties gripping equipment such as focus mitts, weaponry for kobudo equipment etc. and therefore, may choose to strap or tape these to their hands. They may also wear gloves with a tactile surface or use textured push rims to enable effective pushing.

Strapping

There are a number of options for helping participants to feel more secure in their wheelchair:

- Foot straps: to keep the feet on the footplate when turning
- Knee strap: to keep the participant central in the wheelchair
- Lap strap: to secure hips to be at one with the wheelchair
- Waist strap: to give core balance
 - By using a strap around the waist and the wheelchair a student might enhance her/his balance and reach

Some students will be flexible and can bend or lean forwards or sideways; those who are not can use a strap around the legs, feet or waist to improve their balance and turn more easily.

Sports venue considerations

Sports clubs have an on-going duty to meet the reasonable needs of disabled people as outlined under the Equality Act 2010. Karate clubs should, where possible, ensure that their dojos:

- Are available such as parking, changing rooms and toilets – each with sufficient space for manoeuvring a wheelchair
- Consider local, accessible transport links nearby
- Ensure surfaces are free from clutter and litter, with room to freely manoeuvre a wheelchair
- Ramps and accessible lifts should be in place if required
- Consider where day wheelchairs will be stored if sports wheelchair are being used for activity

Delivering the session

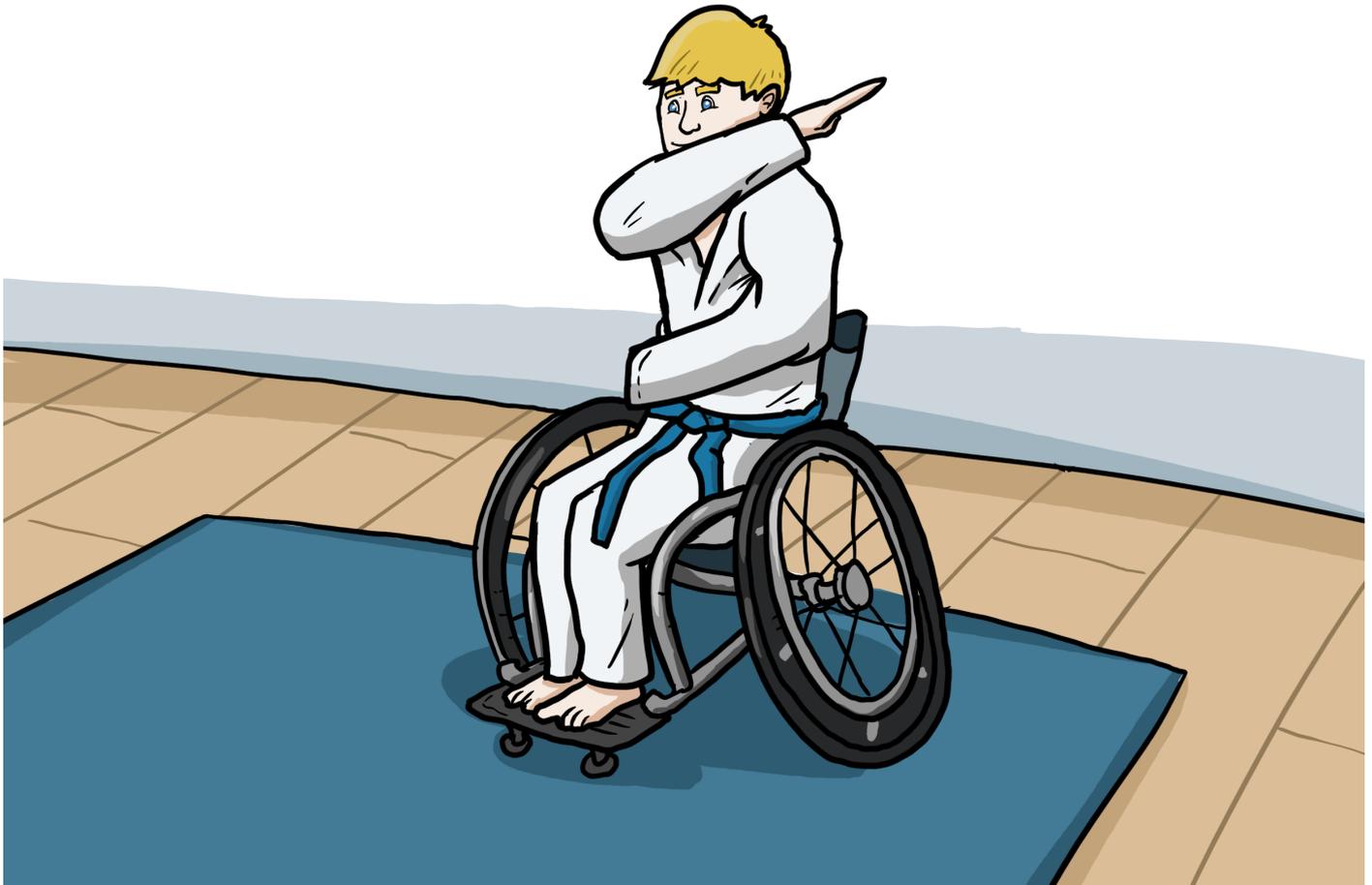
If there is one thing to take away from this guidance, it is to focus on what the participant can do; never assume that they will be unable to do something. Where possible, demonstrate the desired skill in a wheelchair yourself - it will show participants the correct technique and will give them confidence that the skill is achievable.

Duty of care

- Be aware and minimise risk of common injuries from propelling the wheelchair, such as blisters, friction burn from tyres, or trapping fingers in the spokes
- Ensure participants take in plenty of fluid during sessions
- Discuss realistic expectations with the karateka around what they would like to achieve
- Avoid touching a participant's wheelchair as they consider it to be part of them
- If the participant has a personal assistant, be sure to speak directly to the participant rather than communicating through their assistant

Sensations

- Be aware of hot and cold surfaces – some participants may have lack of sensation in their touch
- There is the potential for damage such as cuts and bruises below their lesion due to lack of sensation



Range of movement

Check participants' range of movement. Some participants may not be able to raise their arms above their shoulders so try to use stretches that can be performed below this level. Some participants may have spinal rods; it is therefore important for the athlete to only stretch as far as they feel comfortable.

There is a common assumption that if a participant is in a wheelchair they cannot bear weight on their legs, however, some may be able to bear weight, depending on their impairment.

Participants may tire easily during a session due to a lack of motor skill efficiency.

Participants may struggle with temperature regulation – both hot and cold. A tetraplegic (quadriplegic), for example, may not be able to perspire and will, therefore, require water to be sprayed on them to avoid overheating

Warm up and cool down

As with all activity, it is recommended that participants warm up before, and cool down and after a session. As participants will mainly be using their arms, focus the warm up and cool down on these muscles groups. Do not forget the core muscles, as the level of a participant's functional ability will depend on their impairment.

Dojo surface

Dojo surfaces are, and should, be flat. However, it is important that training surfaces are suitable for wheelchair users. Extra considerations may need to be borne in mind if you have a fully matted dojo as reasonable wheelchair adjustments may be required. When using a mat, the wheels should be clean, especially if other students are barefoot.

If they can do groundwork out of the chair, be sure that the mats don't separate, and take care no obstacles are lying around. Sports wheelchairs might have an anti-tip system fitted to them. This can make off-mat exercises with a lot of movement safer but might cause problems on mats or a soft floor. More confident students might want to take off the anti-tip system.

In short, ensure the surface is suitable for wheelchairs to move properly or take out some sections of the mat if possible.

Targets

Only decrease the distance to targets if this is necessary – do not automatically assume that wheelchair users will need targets to be closer.

Zones

Introduce different zones within the activity area for non-disabled participants to safely participate alongside participants using a wheelchair.

Pushing technique

There are two main types of pushing techniques; short and long. Short pushes are mainly used for adjusting position whereas long pushes are mainly used for momentum. The pushing action consists of a continual oval movement. Participants can push forward on one wheel and backward on the other wheel, to rotate the wheelchair quickly.

STEP model

The STEP model in sport is a very simple way to understand how to adapt and differentiate lessons to make sure everyone is getting the most engaging experience. It allows you to modify elements of your activity to better meet the needs of either the individual student or a group of students.



This gets instructors to think about how each of the differing elements can be tailored to each individual student. For example grabbing techniques in karate can be changed to suit wheelchair karateka by coaching a student to figure out how to use their wheelchair to their benefit is a real advantage if someone is attacked, teaching the student to defend themselves even if they got pulled from the chair.

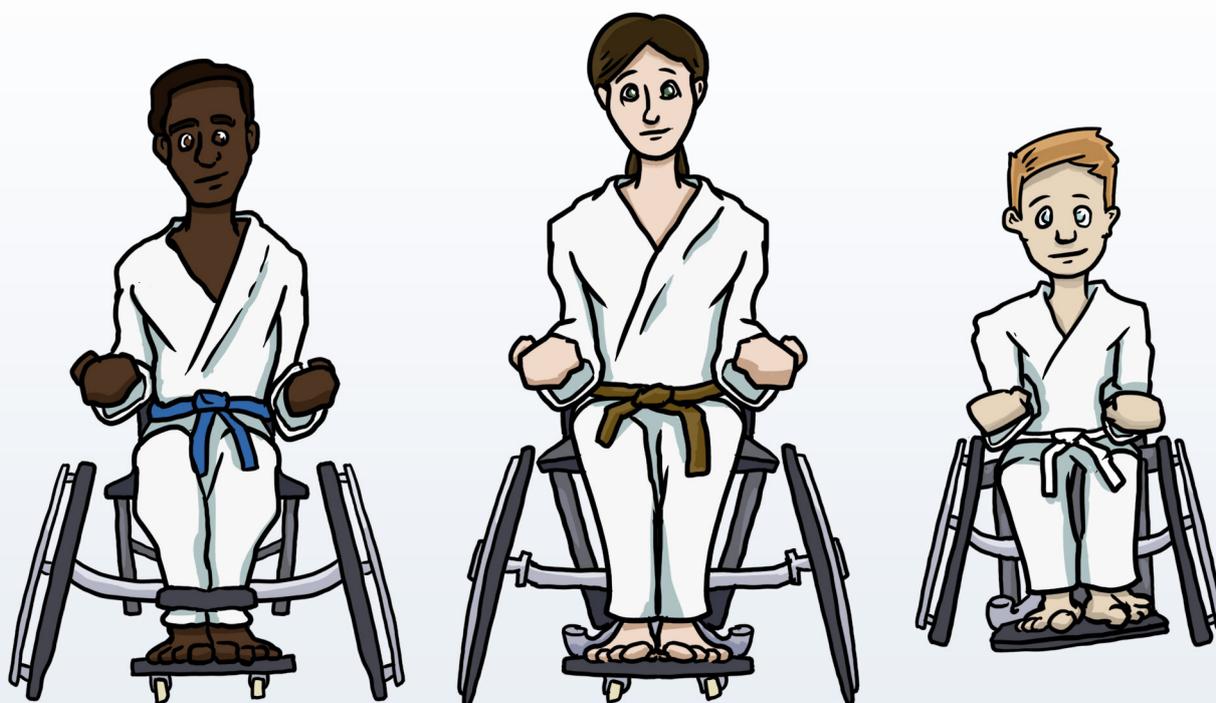
Working together as coach and student, you can figure out ways that the chair can be used in an attack or competition. The chair acts as a perfect defence mechanism as any attacker will be off balance when trying to harm the person in a wheelchair. This is because they cannot attack without overextending themselves. Any punch is also likely to be less powerful as they will have to reach down but the knees create further distance between the attacker and the defender. When being attacked, the perfect defence is an effective, devastating punch to the groin area. Moreover, when somebody is heading straight for the person who uses a wheelchair, heading straight for the attacker and running into them with the chair will cause severe pain in the shin areas of the would-be attacker. As they are starting to fall their head then becomes in the perfect position to strike with punches or elbows. For those who have limited mobility you can also teach the wheelchair user to use the chair as a shield.

Not everybody will be able to kick so when undertaking basics and/or kata, change the moves to accommodate knee strikes or techniques to throw their opponent off balance. Wheelchair using students often cannot kick, so a syllabus with kicks in it would be inappropriate. However, kicks can be replaced with similar techniques such as a front or elbow strike instead of a front kick, a roundhouse elbow strike instead of a roundhouse kick, or a descending elbow strike in place of an axe kick, etc. However, bear in mind some wheelchair using students might have difficulty leaning forwards or sideways without falling (see taping and strapping for further information).

Wheelchairs and even braces, can be used as a weapon and disabled karateka have been known to be able to break as many as three boards with a single kick.

For individuals who use crutches or canes, kobudo teaches defence and attack with weapons. Adapting this to use a stick, cane or crutch to defend an aggressor would be a good adaptation.

To be able to adapt things accordingly for the karateka, do not be afraid to practice in a wheelchair yourself, this will give instructors a real insight into what can work and what can't, but also how difficult and challenging adaptations may be. Gaining perspective is never a bad thing. It is useful to understand the impairments and disabilities of your students. but it is more important to remember that students are not their disabilities! Disability awareness always involves generalisations and simplifications. So remember to talk and listen to your students as individuals.



Additional, general coaching tips

- When undertaking partner work e.g. 5 step, let the wheelchair karateka's partners come to them in drills, not the other way round. Note that other students should take turns to partner wheelchair users.
- If the student has bladder control challenges (perhaps using a colostomy bag/catheter) give them space and time to regulate this during the class (and where applicable this could be the case for older students without disabilities too).
- Work with students on their range of movement and try to shift borders in their abilities. Sometimes limitations are caused by earlier operations or deterioration, but never underestimate a beginner's anxieties and hurdles
- Reduce the height of punch bags so students can always punch within their own body reach.

References

Online resources produced by the Disability Sports Organisation for wheelchair users, Wheel Power available at <https://www.wheelpower.org.uk/resources>





WARMAN
illustrations.

Illustrations and Layout by Warman Illustrations