

# CHAPTER 10: THE DISABLED NOVICE ARCHER

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## 10.1. Introduction

Archery, as a recreational and competitive activity, offers an excellent opportunity for the physically challenged and able-bodied to participate on an equal basis. Thus, every effort should be made to accommodate people with disabilities who are interested in trying or competing in archery. To that end, coaches need to be prepared to adapt equipment in order to best suit the needs of every archer.

With little or no alteration to the equipment, effective shooting can be experienced by those with physical limits in their lower limbs and, with the arrival of compound bows, those with physical limits in upper body function may enjoy the sport. People with other kinds of disability, such as visual or hearing impairment, can also enjoy archery using adapted equipment. There is a wide variety of specialized gear available to assist the physically challenged archer.

Spend some time and talk to the novice about their disability (it is also important to find out what the person can do and/or their disabilities) in order to find out as much as you can about the individual's situation. They are the best person to inform you about any limitations they may have which may affect the way in which you teach or coach them. It may be, for example, that a particular condition means that the person will tire very quickly and lessons should be shorter than normal. If the novice's disability includes some difficulty in communicating, there must be someone who can interpret or help with communication. If you are concerned about any medical issues, then you should consult someone in the medical profession. You may find that you have to adjust either the archery technique or equipment to suit the particular person that you are coaching.

People take up archery for many different reasons and it is useful to find out, at an early stage, what the novice wants from the sport. They may just want to have fun and enjoy shooting. However, if they have aspirations to become an elite athlete and be selected to represent their country at international disabled events such as the Paralympic Games, then the coach needs to be aware of the rules which govern these events.

## 10.2. Types of disability

There are many people with different disabilities in the world and nearly all of them are able to do archery. These disabilities can be broken down into four main categories:

- Physical disabilities
- Sensory disabilities
- Mental disabilities
- Various illnesses

Within each of these categories, there will be a wide range of different limiting factors. The coach will not necessarily have to know about all these disabilities but will find it easier to look at the way an archer shoots. The following categories can be used to help simplify coaching athletes with a disability:

- Archers with limited or no use of arms
- Standing archers with some balance problems
- Archers with a visual impairment
- Archers with mental disabilities
- Archers shooting from a wheelchair
- Archers shooting from an ordinary chair or stool
- Archers with communication difficulties
- Archers with a combination of difficulties

## 10.3. Archers with limited use of arms

### 10.3.1. Bow arm

#### 10.3.1.1. Prosthesis

If the bow arm is amputated, the archer can be fitted with a prosthesis that has a device to hold the bow. They may well have one which is used for normal everyday tasks and which can be adapted for this purpose.



A bow arm prosthesis strapped to the bow.

### 10.3.1.2. Strapping

If the bow arm is very weak or the novice has no grip in their fingers, the bow can be strapped to the hand. This strapping has to be very tight in order to keep the bow in the correct position but should be checked frequently to make sure that it is not cutting off the blood supply to the fingers.



Making use of strapping to hold the bow

### 10.3.1.3. Elbow Splint

If the bow arm is too weak to hold the weight of a bow with the arm held out towards the target, an elbow splint can be used.



An elbow splint supporting the bow arm

## 10.3.2. Drawing arm

### 10.3.2.1. Prosthesis

If the drawing hand, wrist or a part of the forearm is missing, a prosthesis can be fitted as in 10.3.1.1. This can have a hook fitted which hitches to the string. The novice twists the forearm in order to release the hook from the string.

With a Compound bow, the system illustrated below is an option.



Trigger activated by the opening of the angle of the elbow joint

There are two popular alternatives in case of a more severe amputation.

A release aid attached to a body harness and activated either by the rotation of the top body, or by a pressure of the jaw on the trigger.



Trigger activated by the change of the orientation of the top body

Alternatively, the novice can draw the bow with their teeth. A number of archers do this. A piece of leather is attached to the string on either side of the nocking point. The archer holds this with the teeth to draw the string and opens their mouth in order to loose the arrow. This "mouthtab" needs to be checked frequently as the archer will bite through it eventually.



An archer pulling the string with his mouth.

### 10.3.2.2. Release aid

If the drawing arm is weak and there is no grip in the fingers, the method used for many years and still useful for novices is to strap a hook to the hand. The novice hooks this on the string to draw, releasing with a twisting motion. Many archers prefer to use this kind of release aid as it is quite simple to make and easy to use. If the archer does not have sufficient dexterity in the fingers to release in the usual way, a release aid with a trigger can be adapted so that it activates when the trigger is brought into contact with something, e.g. a particular part of the jaw.



An archer using a release aid with a cheek trigger

### 10.3.2.3. Dexterity

In determining the shooting side of an athlete with a disability, consideration for the specific limitations of the archer is the first priority. Depending on how an archer's strength and control are affected by their disabilities, they may shoot better with one hand than the other, regardless of which eye is dominant. Therefore in order to help the archer shoot from a position where they have the ability to execute a good shot, eye dominance may have to be disregarded.

## 10.4. Standing archers with balance problems

Balance problems for a standing archer can have a number of causes such as one leg longer than the other, polio, one artificial leg, etc. There are a number of solutions to this. The archer may well have a shoe which is built up to compensate for a disparity in leg length. If not, the coach can suggest putting a block of wood, for example, under the shorter leg to create a good, upright stance. If the archer's balance is very poor, which could be a safety issue if they were to fall over when it was windy, it is worth suggesting that they shoot from a chair or stool placed on the shooting line.





Archers using a stool or chair for support

## 10.5. Archers with a visual impairment

As with all the other categories, this covers a wide range of people. Some will have sufficient vision to shoot in the same way as able-bodied archers while others will have no vision at all. This section is primarily concerned with novices closer to the latter end of the spectrum. Talk to them to find out if they were blind from birth or lost their sight at a later date as this will make a difference to the way they perceive the world. Someone who has been visually impaired from birth may not know what "red" is, for example. Allow the novice to feel all the equipment so that they can paint a mental picture of it.

As safety is paramount for everyone on the range, there must always be a coach or helper for each blind athlete who is shooting.

Very often, initial shots can be made using a "hands on" approach, with the permission of the archer. Physically guide them through the steps of shooting an arrow; draw with them, release with them, and guide the bow hand. Let them get the feel of shooting.

It has often been asked what pleasure is gained in archery for a blind person to such a visual sport. In fact, the archer will develop the ability to know how accurate the shot is from the sound of the arrow's impact. The arrow makes a different noise when hitting the gold rather than the white.

### 10.5.1. Position on line.

In order to have a consistent stance on the shooting line, visually impaired archers need something which they can feel with their feet. A pair of horseshoes attached to the ground (with target pins outdoors or with tape indoors) will enable them to place their feet inside them and be in the same position whenever they return to the shooting line.



A feet location device to help visually impaired archers feel their shooting location

### 10.5.2. Sighting

The most popular sighting method for beginners to have them use a tactile sight. There are other systems, such as the IRIS system that involves transmitters and an earpiece, but they are generally not appropriate for beginners due to cost, inconvenience and potential interference with the archer's balance.

#### 10.5.2.1. Tactile sights

A very basic tactile sight can be as simple as a camera tripod with the adjustable handle in a position to press on the back of the knuckles. A plastic container filled with water hung from the lower cross strut of the tripod gives it enough stability to resist moving or falling when the archer presses against it. With a little creativity, the precision of this arrangement can be improved, but the contact on the back of the bow hand is the important thing.



Tactile Aiming Aid for a left handed archer

Proper use of a tactile sight controls the elevation of the bow, hence the distance the arrow will travel, as well as the side to side travel. It is important to remember when adjusting the sighting aid that it is moved away from where the arrow has gone, towards the target point, rather than "following the arrow" as with a visual front sight. More sophisticated tactile sights are available and additional advice can be sought from the International Blind Sports Association (IBSA).



A specialised tactile sight that can be finely adjusted using a "click action" adjustment mechanism

### 10.5.3. Assistance

All visually impaired archers, when using tactile sights, will require an assistant to tell them where their arrows are going so that sight adjustments can be made. After the end is shot, the assistant will guide the archer back to the waiting area before scoring and collecting the arrows.

The assistant can only adjust the sight in between shooting ends; if the sight needs adjusting during the shooting end the archers have to change it on their own.

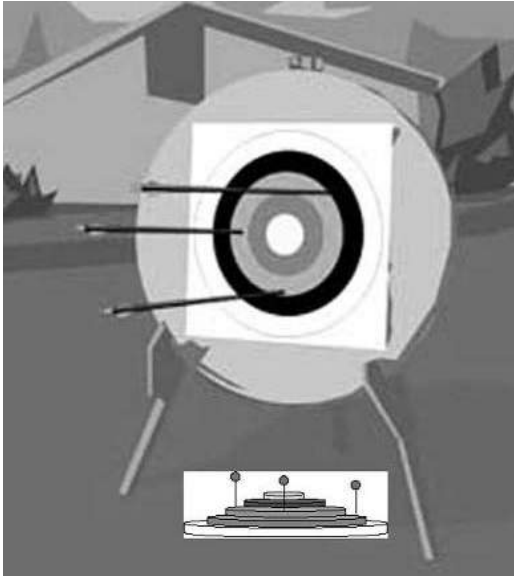


Assistant adjusting a sight in between shooting ends

### 10.5.4. Scoring

Because the archer still needs to have a sense of where their arrows have gone, he can be accompanied to the target, of course paying attention to the possible dangers that may be found on a shooting range. In the case that the archer cannot walk to the targets, the scorer can push round-head pins into a circular piece of foam to represent the positions where the arrows have struck the butt. The archer can then feel where the arrows have gone.





Pins pushed into a miniature target indicating the arrow locations. The spotting target can be flat or made using pieces of foam built up so it is easy to tell the difference in the rings.

## 10.6. Archers with mental disabilities

Owing to the diverse nature of mental disabilities, each prospective archer must be assessed individually basis to determine the best course of action. Each mentally challenged archer will most likely require individual attention 100% of the time. If there is only one coach in the club, the archer's parent or another volunteer may be trained as an assistant to look after this individual. Helper or not, the mentally challenged archer must follow directions. If no helper is available, see if the archer can return at another time when they can receive the attention they require. Even if there is no helper, if an archer can behave, they can participate, but safety must always come first. These archers may have physical disabilities as well which can be addressed in the usual way but they are also likely to:

- Have a short attention span
- Become easily frustrated
- Show extreme emotions

Tremendous patience is required as instructions may have to be repeated many times. The archer is also likely to:

- Turn around suddenly at full draw
- Run up to the target before the signal for arrow retrieval has been given

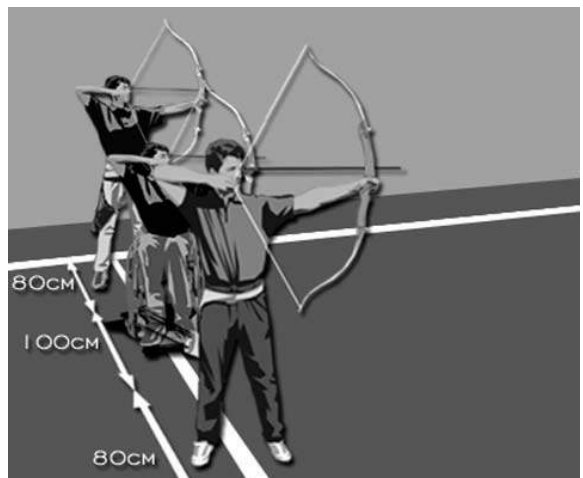
In extreme cases, it may be necessary to decide that safety considerations preclude the person from taking part.

## 10.7. Archers Using Wheelchairs

### 10.7.1. Chair position

The wheelchair should be placed so that the archer's shoulders are in the same orientation towards the target as for a standing archer. Just as a standing archer's feet position can be at 90 degrees to the target or angled towards the target, so the chair can be at 90 degrees to the target or be angled towards the target if the coach feels that this is beneficial. Make sure that the archer applies the wheelchair brakes while they are on the shooting line. Outdoors, where the ground may be uneven, try to ensure that the archer has all four wheels in contact with the ground so that the chair is stable.

Extra room must be allocated to a wheelchair archer on the shooting line.



Extra space on the shooting line to accommodate a wheelchair

### 10.7.2. Archer's sitting position

Sitting balance varies considerably with wheelchair users. Those with very poor balance will benefit from a chest or lap strap to gain the extra support required for drawing the bow. Even those with better balance may wish to use a body strap initially until they have gained sufficient confidence for the coach to remove it.



A wheelchair archer using a body strap.

### 10.7.3. Equipment

If the archer has no disability in the upper body, the only equipment change that may be necessary is a shorter bow than usual because they are closer to the ground.

The archer can place a small pad of foam or rubber just in front of the wheel closest to the target so they can set the bottom limb tip down between shots and rest their bow arm.



The chair can be at 90 degrees to the target, like here, or be angled towards the target, like the stance of a standing archer.

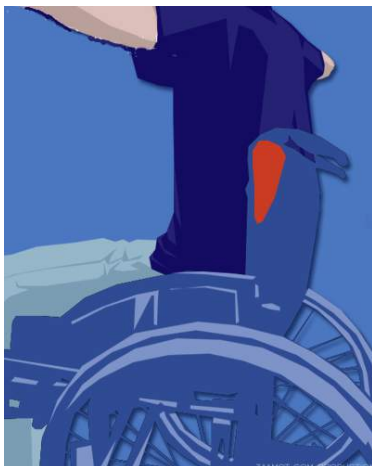
Those subject to severe spasms in the legs may wish to have their legs strapped.

The chair back should be below the shoulder blades in order that the muscles used to draw the bow are not restricted. In order to obtain optimal results, the archers must position themselves exactly the same in the chair for each shot. The coach can assist the archers to find some points of reference and teach them to check their position often against those references.



Bow rest

With a stabilizer, when the bow tips forwards on release, it will tend to hit the wheel of the chair. Some form of padding added to the wheel will help to prevent damage.



Coaches must assist the archers to find some points of reference on the chair.



Padded wheel

The archers will have a tendency to lean back away from the target to compensate for a lack of balance as they draw the bow, particularly as they tire. This form error may also cause problems with string clearance at the chest and the wheelchair. To counter this issue, archer can lean on the chair back for more stability.

#### 10.7.4. Stringing the bow

Many archers using wheelchairs string their own bows. This is usually done by putting the stringer on the bow and then looping it round the back of the chair. The archer can then push forward on the bow riser in order to tension it and put on the string.



Bracing a bow from a wheelchair.

#### 10.7.5. Shooting form

In most cases, shooting form is the same as for able-bodied archers but, often, the draw will start higher because of the archer's position. Other form modifications will only be required if the archer has additional difficulties with hands or arms. See section 10.3

#### 10.7.6. String clearance

One of the difficulties experienced by archers using wheelchairs, particularly when shooting at the shorter distances, is clearance of the string against parts of the chair which are nearest to the target, in particular, the wheel. String clearance is an issue for the novice and must be considered to ensure no damage is caused to the bow and the arrow flight is not impeded. If the string is impeded by a part of the wheelchair the arrow goes upwards, which is a serious safety concern.



For beginners, it is important that there is string clearance from the wheelchair or arm-rest.

The following alternatives can be tried to help with this.

- Remove the arm rest of the chair on the target side.



In this case, just remove the arm rest.

- Remove the hand rim from the wheel on the target side or replace the wheel with one without a hand rim. This spare wheel may be kept especially for archery.
- Cant the wheels slightly. Most wheelchair users will know how to do this on their particular chair.





Canting the wheel could solve this issue



Passable pathways on an outdoor archery range

- Place a board under the cushion in the chair, or change to a thicker cushion, to raise the archer slightly.
- Get the archer to sit more towards the target side of the chair. Make sure they move their whole body and rather than just leaning towards the target.

#### 10.7.7. The chair back

The archer with poor balance will need to get some support from the back of the chair. It is better if there is a slight sag in the back of the chair rather than having it very taut. As mentioned above, the height must be sufficient to give the archer support but not so much that it restricts the movement of the shoulder blades. In competition, the archer must not support his or her bow arm on the back or handle of the chair while shooting.

#### 10.7.8. Scoring and collecting

Indoors, wheelchair archers will often choose to score and collect the arrows themselves, although they may have difficulty pulling out arrows in the higher part of the target. Outdoors, it is difficult to push chairs across uneven grassy fields so they will need someone to score and collect arrows unless smooth pathways have been constructed.

At outdoor competitions, often other people on the same target or another volunteer will score and collect for an archer using a wheelchair.

#### 10.7.9. Some points to remember

Try to talk to the archer at their eye level, not always standing above them. Discuss changes you wish to make in the chair position and let the archer make them, if possible. Remember that, even in competition, archers with very little manual dexterity (such as tetraplegics) are allowed to have an assistant to nock their arrows and adjust their sights so it is quite permissible for you to do this, if the archer wishes.

### 10.8. Archers shooting from an ordinary chair or stool

While most will require a stick or crutch in order to be able to walk, these archers are likely to have more stability than archers using wheelchairs. Since they have their feet on the ground, they will have a much firmer base. Normally, the archer leaves the chair or stool on the shooting line throughout the session so that they do not have to keep repositioning it. The main purpose of a chair or stool is to give the archer the stability which they lack when standing unaided. The archer should be positioned on the seat to emulate, as far as possible, a standing archer. The height of the chair or stool is usually critical and advice may need to be sought from a physiotherapist to find the optimal position. The archer will be unlikely to require support from a chair back (unlike the wheelchair archer) and can be taught in the same way as an able-bodied archer.



A disabled archer using a seat without any back support

have to bring someone with them who can interpret.

## 10.10. Archers with a combination of disabilities

It is very common for someone to have more than one of the disabilities detailed above. For example, tetraplegics will be confined to a wheelchair and will have impaired use of hands and arms. In these cases, aspects of more than one of the above sections will need to be employed in order for the person to shoot.

## 10.11. Other medical issues

Although not strictly classed as a disability, there are a number of medical conditions which an archer may have which the coach should be aware of. Conditions such as asthma, epilepsy, haemophilia, rheumatism etc. may affect one of your novices. Talk with beginners before the first session to make yourself aware of any such conditions. Consult someone in the medical profession to become aware of the appropriate course of action to take in should something happen, for example, if one of your archers had an epileptic seizure.

## 10.12. Conclusion

Embrace the opportunity, should it arise, to coach archers with a disability. It can be very rewarding for a coach to see the enjoyment that a disabled archer can have in their shooting, particularly if there were some difficult challenges in adapting archery to suit the novice.

## 10.9. Archers with communication difficulties

While athletes in this category may be able to shoot in exactly the same way as able-bodied archers, the coach will have to modify their methods of teaching in order to be able to communicate effectively.

### 10.9.1. Archers with hearing impairment

Depending on the severity of this condition, various steps can be taken. For example, an archer that can lip read may only need to see the coach's lips for the majority of the instruction. Alternatively, it may be necessary to write down specific words or instructions, backed up by gestures. It is very important, from the safety point of view, that the archer is able to know when it is safe to shoot and/or collect the arrows. A visual signal may be necessary if the audible signal usually given is not appropriate.

### 10.9.2. Archers with speech impairment

Many of the same principles apply as for the hearing impaired. If the coach has too much difficulty understanding the archer, they may