

Para Throws Coaching Manual



A Technical Guide for Coaching Athletes
with a Disability in Para Throws



BC WHEELCHAIR
SPORTS

Acknowledgments

LEAD PROJECT CONTRIBUTORS

Ken Hall, ChPC – Former National Team Para Throws Coach, Athletics Canada and current Provincial Para Throws Coach, Ontario CP Sports Association and Cruisers Sports for the Physically Disabled

Lisa Myers – Program Manager and Provincial Seated Throws Coach, BC Wheelchair Sports Association

ADDITIONAL CONTRIBUTORS

Kim Cousins, ChPC – Paralympic Next Gen Manager and National Team Coach, Athletics Canada

Jennifer Schutz, ChPC – Coaching Education Coordinator, BC Athletics

PHOTOS

Photos included throughout this manual are provided by:

Rita Davidson

Sue Furey

Gerry Kripps

Paul Lengyell

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Table of Contents

Introduction.....	4
What is Para Throws?.....	4
Classification.....	4
Characteristics of Disability Groups.....	5
Spinal Cord Injury	5
Autonomic Dysreflexia	6
Cerebral Palsy.....	6
Amputees	7
Visually Impaired	7
Short Stature	7
Classification Process.....	8
Throws Classification Guide	8
Interchangeable Classes	9
Standing Throws.....	10
Event Rules	10
Technical Breakdown and Common Errors	10
Special Considerations:	11
Competition.....	12
Seated Throws.....	13
Throws Chair.....	13
Throws Chair vs Day Chair	14
Competition.....	14
What Constitutes a Fault in Seated Throws?	16
Seated Throws Technical Modules.....	17
Club Throw	18
Shot Put	20
Discus.....	22
Javelin	24
Special Considerations.....	26
Common Errors in Seated Throws.....	27
Club Integration: Tips on Supporting Para Athletes.....	29
Things to Consider When Building a Throws Chair	31

Navigating the Para System.....	32
Athletics at the Provincial Level	32
Athletics at the National Level	33
IPC Licenses and Sanctioned Events.....	33
Athletics at the International Level	33
Long Term Athlete Development Model.....	34
Closing Remarks	34
APPENDIX A – Detailed Description of Para Throws Classes.....	35
APPENDIX B – Implement Weights For Sport Classes	37
APPENDIX C – Club Dimensions.....	38
APPENDIX D – Throws Circle Conversation List.....	39
APPENDIX E – Portable Platform Design	40
REFERENCES	41

Introduction

The purpose of this manual is to provide supplementary technical information for coaches currently NCCP Trained or Certified in Athletics and/or those interested in learning more about coaching athletes with a disability in Para Throws. Coaches are strongly encouraged to take a NCCP Sport Coach or Club Coach Throws course prior to reviewing this manual. Individuals looking for general information on coaching athletes with a disability are encouraged to review the “Coaching Athletes with a Disability” resource by the Coaching Association of Canada.

What is Para Throws?

Para Throws is a term used to describe athletes with a disability who compete in a throwing event in the sport of Para Athletics. These events include shot put, discus, javelin, and an event specific to Para Athletics called the club throw. There are two main categories of para throws – athletes who compete from a standing position and athletes who compete from a seated position. The category that an athlete will compete in is based on the athlete’s classification.



Classification

Classification is a system used to assess if an athlete is eligible to compete in a para sport. The athlete is assigned a sport class based on their function level and the impact the athlete’s impairment has on their ability to compete. Within athletics there are 10 eligible impairment types: eight physical impairments as well as visual impairment and intellectual impairment. If an athlete has any of the following impairments, they would be classifiable in Para Athletics.

Table 1: 10 Eligible Impairments for Para Athletics, Adapted from World Para Athletics Classification Rules and Regulations

Impairment	Description
Impaired muscle power	The muscles in the limbs or trunk are completely or partially paralysed as a consequence of conditions such as spinal cord injury, polio or spina bifida
Impaired passive range of movement	Range of movement in one or more joints is permanently reduced due to trauma, illness or congenital deficiency (e.g. conditions such as arthrogyrosis or joint contracture resulting from trauma)

Limb deficiency	A total or partial absence of bones or joints, from birth, as a consequence of trauma (e.g. traumatic amputation) or illness (e.g. amputation due to cancer)
Ataxia	Lack of muscle co-ordination due to problems with the parts of the central nervous system that control movement and balance; typical of conditions such as traumatic brain injury and cerebral palsy
Athetosis	Repetitive and more or less continual involuntary movements caused by fluctuating muscle tone arising from problems in the central nervous system; typical of conditions such as cerebral palsy
Hypertonia	Abnormal increase in muscle tension with reduced ability of muscles to stretch, joint stiffness, slowness of movement and poor postural adaptation and balance due to problems in the central nervous system; typical of conditions such as cerebral palsy, traumatic brain injury and stroke
Short stature	Standing height and limb length are reduced due to conditions such as achondroplasia and osteogenesis imperfect
Leg length difference	Minimum of 7cm leg length difference due to trauma, illness or congenital conditions
Visual impairment	Vision is impacted by either an impairment of the eye structure, optical nerve / pathways or the part of the brain controlling vision (visual cortex)
Intellectual impairment	Limited intellectual functions and adaptive behaviour which must be diagnosed before the age of 18

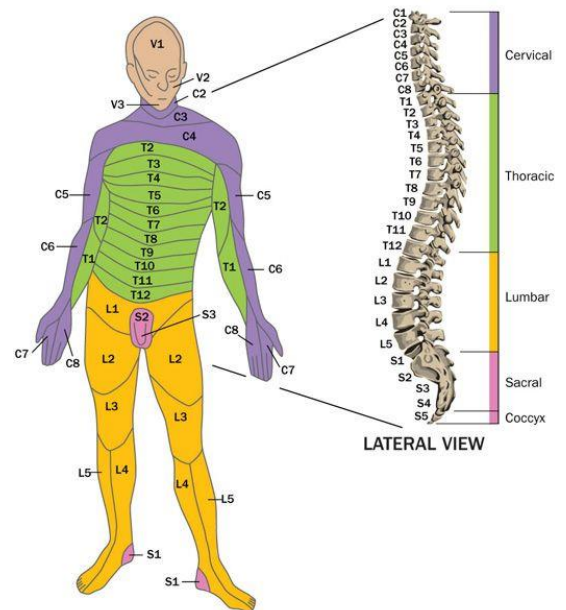
Characteristics of Disability Groups

There are numerous disabilities that fall into the categories listed above, particularly within the 8 different physical impairments. With this being said, there are some major disability groups that compete in Para Throws. Below is a brief description of these disabilities:

Spinal Cord Injury

A spinal cord injury (SCI) interrupts nerve signals between the brain and muscles, preventing the signal from reaching the muscles below the level of injury. Spinal cord injuries may result from a traumatic injury such as a motor vehicle accident or fall, an acquired disease or infection – including multiple sclerosis and polio, or a congenital disorder like spina bifida.

Individuals who have acquired a SCI from a traumatic injury typically refer to their SCI based on the injury level. This diagram can be used as a guide for coaches as to what muscle groups are impacted based on the level of injury. For example, if an athlete were to say they have a T8 complete SCI, all muscle innervation from the T8 vertebrae down would be impacted which would include leg, back, and some trunk muscle impairment. Athletes may also refer to themselves as paraplegic or quadriplegic: paraplegia affects the legs and trunk muscles (to varying degrees) while quadriplegia affects the arms, trunk, and legs (to varying degrees).



For more information about spinal cord injuries please visit www.sci-bc.ca/resource-centre/

Autonomic Dysreflexia

If you are working with an athlete who has an injury level of T6 or above, it is very important to be aware of a syndrome called Autonomic Dysreflexia (AD). AD can be a life threatening syndrome where there is a sudden onset of excessively high blood pressure which, when maintained for a long period of time, can result in serious conditions including seizures, strokes, and even death. AD is typically caused by something occurring below the individual's injury level, which can range from a kink in a catheter to something pushing into the skin like a pen or set of keys. For an individual's body to be returned to normal, the cause of the AD must be removed (ex. reopening the catheter or removing the keys under the athlete's leg

There are various signs and symptoms that will indicate if an athlete is experiencing AD. These can include: a pounding headache, sweating above the injury level, flushed or blotchy face, nausea, feeling faint, cool and clammy skin, and goose bumps below the injury level. Most athletes will be aware of what causes AD for them and ways in which they can prevent it from occurring. If you think an athlete is experiencing AD, have them stop training and sit in an upright position. Have the athlete remove or loosen any tight straps or clothing they have on and have them check to see if they need to evacuate their bowel/bladder. Coaches can also help do a quick skin check to ensure that nothing from their equipment or day chair may be poking into their skin. If the athlete cannot locate the cause of their AD and the symptoms remain, it is recommended that they go to the emergency room.

Cerebral Palsy

Damage to the brain from development to the first three years of life may result in cerebral palsy (CP) - a term used to describe a group of disorders affecting body movement and muscle coordination. This is not caused by damage to the muscles or nerves themselves but the brain's ability to control them. Some main effects of CP include lack of coordination, spasticity, muscle tightness or spasm, involuntary movement, different walking patterns, and difficulty with gross and fine motor skills

Individuals with CP will describe their impairment by the number of limbs impacted and how their movement is disrupted (ex. Spastic Triplegia). When talking about the limbs involved, the following terms are typically used:

- **Quadriplegia:** all four limbs impacted equally
- **Diplegia:** all four limbs impacted (legs are more impacted than the arms)
- **Hemiplegia:** one full side of the body is impacted
- **Triplegia:** three limbs are impacted (usually both the legs and one arm)
- **Monoplegia:** only one limb is impacted (usually the arm)

There are four major types of movement disorders associated with CP, which includes:

- **Spastic CP:** most common form of CP where muscles are extremely tight and stiff; this can be mild and only affect a few specific movements or affect the entire body
- **Athetoid CP:** second most common form where individuals have difficulty in controlling and coordinating their movements; this can be fast/jerky or slow
- **Ataxic CP:** individual has difficulty with balance and depth perception, resulting in difficulty walking and completing small coordinated tasks like writing or grasping
- **Mixed-type CP:** as the name implies, this is mixture between spasticity and involuntary movement

For more information about cerebral palsy please visit <http://bccerebralpalsy.com/>

Amputees



An amputee is an individual who has at least one major part of an extremity missing. Similar to other disabilities, amputations can either be acquired (through the surgical removal of a limb due to a traumatic injury or disease) or congenital (born missing a limb). When describing the type of amputation, individuals will typically describe the removal in relation to the closest joint (ex. below knee amputation, above elbow amputation). For many individuals gaining confidence in using a prosthetic limb will take time, whether it's related to completing activities of daily living or sport specific movements. Increased activity can lead to skin breakdown, changes in sensitivity, pain, infections, and swelling so it is important for amputees to work closely with therapists and prosthetists to ensure the residual limb stays healthy.

Many individuals who have an acquired amputation will experience phantom pain in the missing and/or residual limb. Phantom pain can present as a variety of sensations where the missing and/or residual limb used to be, including sharp pain, itching, false movement of the limb, sensation of heat or cold,

and sensations of someone touching or tickling the missing limb. For more information about amputees please visit <http://amputeecoalitioncanada.org/>

Visually Impaired

Athletes with vision impairment have either reduced or no vision that was either present at birth or acquired due to disease or environmental factors. In order to compete in Para Athletics, the athlete must have an impairment in either the eye structure, optical nerve/pathways, or the visual cortex and have be below a certain level of visual acuity or visual field restriction. This eligibility will be determined during an athlete's classification assessment. There are various kinds of eye conditions that can lead to the above damage. For more information on visual impairments, please visit

<http://www.cnib.ca/en/Pages/default.aspx>

Short Stature

Short stature is a term used to describe an individual whose overall height is considerably smaller when compared to the height of their peers. Within Para Athletics, an athlete must meet height and arm length specifications in order to be eligible to compete, as outlined in the table below:

Table 1: Short Stature Specifications, adapted from World Para Athletics Classification Rules and Regulations

	Max Standing Height	Max Arm Length	Max Sum of Standing Height and Longest Arm Length
Male	≤ 145cm	≤ 66cm	≤ 200cm
Female	≤ 137cm	≤ 63cm	≤ 190cm

The arm measurements listed above were selected as they are proportionate lengths based on the maximum standing height. Athletes will also be under an annual review until they reach the age of 18 years. For more information and contacts for provincial organizations, please visit

<http://www.lpo.on.ca/lpc/index.html>

Classification Process

In order to determine an athlete's classification, the athlete is taken through a series of assessments. This includes: a physical assessment to ensure the athlete has an eligible impairment; a technical assessment to determine to what degree the athlete can execute tasks and activities related to the event; and an observation during competition if deemed necessary in confirming the athlete's classification.

There are three levels of classification an athlete may go through during their athletic career: provincial, national, and international. Athletes can be assigned a provisional class at the provincial level by a variety of individuals, including classifiers, coaches, sport technical professionals, and medical professionals. This enables an athlete to begin competing within the sport at a particular classification. Athletes who chose to compete at a National Championship will have to undergo a National Classification that involves a panel of classifiers. Athletes who chose to compete at an International Championship will be seen by an International Classification panel and are required to submit medical documentation 6 weeks prior to their assessment.

Throws Classification Guide

An athlete's classification consists of two parts: a letter (T = track, F = field) and a numerical value. The lower the numerical value, the more impaired an athlete's function will be. When looking solely at throws, there are 26 different classification groups that compete in either standing or seated throws. This provides an opportunity for an athlete to be very competitive quite early on in their career compared to an able-bodied thrower who would compete in an open age category.

Discipline: Standing throws (15 classes)

F11-13 - Visual impairment

F20 - Intellectual impairment

F35-38 - Coordination impairments (hypertonia, ataxia, and athetosis)

F40-41 - Short stature

F42-44 - Lower limb/s affected by limb deficiency, leg length difference, impaired muscle power or impaired range of movement

F45-46 - Upper limb/s affected by limb deficiency, impaired muscle power or impaired range of movement

Discipline: Seated throws (11 classes)

F31-34 - Coordination impairments (hypertonia, ataxia, and athetosis)

F51-57 - Limb deficiency, leg length difference, impaired muscle power or impaired range of movement

In addition to the information above, Appendix A includes a detailed description of each individual sport class. This appendix is included as a starting point for coaches to help determine where their athlete falls within the classification system, how they would compete (ie. standing or seated) and the weight of implement they would throw as this varies dependent on age, classification, and gender. Please see Appendix B for a complete list of implement weights.

Interchangeable Classes

Some athletes may be given the opportunity to compete from either a seated or standing position based on their classification assessment. These interchangeable classes are:

Standing Position		Seated Position
F35	↔	F34
F42,43,44	↔	F57

When an athlete falls within one of these classifications, they must choose which position they wish to compete from. There are several factors an athlete should consider when deciding their throwing position:

- What position the athlete will feel most comfortable in; standing provides a greater sense of freedom in movement compared to the seated position which may be more appealing to the athlete
- Will balance be an issue if the athlete chooses to stand (particularly for F35s)
- Does one position present a greater competitive edge than the other? For instance, if the athlete is extremely tall but has extreme weakness in their legs, they might choose the seated position to take advantage of their long torso and wingspan
- For athletes in the F42-44 class, part of the decision can be based on how high the amputation is and which leg is amputated as this greatly impacts the ability to compete standing. By being in a seated position you are able to eliminate any performance issues that would be caused by the lower extremities
- Environmental factors such as coaching capacity, facility and club capability to offer seated throws, and the athlete's ability to transport a throwing frame to and from practices and competitions. Each province and disability sport organization provides varying degrees of support (equipment, funding, programming, coaching) so it may be valuable to inquire with each respective organization on what support is available

It is important to note that once an athlete is internationally classified they may only change their classification once. This can only be done at the end of the first season they have been internationally classed or when the Paralympic Summer Games have been completed for that quadrennial. Therefore it is valuable for an athlete to try both positions and determine what they wish to accomplish in the sport (ie. recreational vs competitive) before being classified.

Standing Throws

Note: This section provides an overview of the World Para Athletics Rules for Throwing Events for Ambulatory Throwers. For a complete listing of all World Para Athletics Rules, please visit <https://www.paralympic.org/athletics/events/rules-and-regulations>

Event Rules

There are very few differences when looking at rules and regulations between ambulatory throwers and able-bodied throwers. The major rule differences for ambulatory throwers are as follows:

Visually Impaired Throwers:

- Athletes who compete in the F11 class must have their eyes completely covered to block out all light. This is typically done using gauze patches and wearing opaque glasses.
- F11 and F12 athletes are allowed to have an assistant who directs them to the throwing area and orientates them in the circle/runway before each attempt, either physically and/or acoustically. If physical orientation is used, the assistant will position the thrower and then leave the circle/runway until the completion of the throw. Acoustical orientation may be used before, during, or after each throws attempt. The assistant can remain in the area they position themselves as long as the official deems the area to be safe. Once the attempt has been deemed valid, the athlete will be escorted from the throwing area. Rules for exiting the circle/runway are the same as able-bodied athletes.
- The assistant must remain on the field of play for the entire competition in a designated area away from the athletes. If an assistant is found to be coaching or communicating with the athlete in this manner, they will be removed from the field of play. Assistants will be given a vest or something similar to designate themselves as guides.

Amputee Throwers:

- Athletes who wear a prosthetic leg must ensure that their overall height does not exceed the Maximum Allowable Standing Height (MASH). This height requirement is outlined in the World Para Athletics Classification Rules and Regulations Document. An athlete's height will be measured when they are in the call room to ensure they are meeting the height specifications.

Technical Breakdown and Common Errors

Technical breakdown of the throw and common errors for all ambulatory throwers are similar to able bodied throwers. Please refer to Athletics Canada's Introduction to Competition Technical Manual for a technical overview and for common errors and correction strategies. The key challenge when working with an athlete with a disability is to determine if the underlying reason for technical errors is due to how they are performing the throw or if the athlete's disability is contributing. For example, you may notice the athlete transferring their weight onto their front leg early in the throw. Is this created by a flaw in their throw that can be corrected through specific drills? Or is this created by the athlete's power leg having a prosthetic on it, causing uncontrollable energy to transfer forward. Or is it because their front leg is weak as a result of their cerebral palsy, causing the body to collapse in the movement? The key to determining this is strong communication with your athlete to determine what movements are and are not possible and modify technique from that feedback.

Special Considerations:

While the technical breakdown of ambulatory para throws is very similar to able bodied throws, there are several considerations that coaches should be aware of when working with ambulatory para throwers.

Visually Impaired	<ul style="list-style-type: none"> • Many throwers will struggle with balance in the beginning • Leaving implements, brooms, etc. on the ground in and around the circle, cage, or runway are potential safety hazards • Make sure other coaches, athletes, and volunteers are aware when a visually impaired thrower is practicing; it is easy to forget that the thrower is unable to see
Amputee	<ul style="list-style-type: none"> • Some arm amps prefer to use a prosthetic arm to simulate the complete movement of an able bodied thrower • Depending on where the leg amputation is (above or below the knee, on the power or plant leg or both) will change how the coach approaches the block and entire throw. Weight transfer, power position, and balance all change the dynamic of the throw • The athlete can use their daily walking leg, a running leg, or a straight leg; anything they are comfortable with and can try and control throughout the throw should be explored <div data-bbox="630 783 1232 1224" data-label="Image"> </div> <ul style="list-style-type: none"> • Have athlete check skin and liners often as torsion can break them down • Heat, humidity, and sweat will increase risk of skin breakdown. Frequent checks, wiping down the skin and applying talcum powder or antiperspirants can help with this. Amputees should speak to their treatment teams for recommendations • Consider doubling up on the suspension systems (ex. for sockets that have a pin lock or belt system try using an outer sleeve to minimize forces on the residual limb within the socket) • Dehydration and activity leads to decreased volume in the residual limb. Amputee athletes should have extra socks on hand and keep hydrated • Prosthetic alignment for walking will not be the ideal alignment for throwing and turning with a bent knee. Athletes should work closely with both their coaching and prosthetic teams to make changes. A prosthetic device specific for throwing can allow for changes without adversely affecting walking gait in the everyday prosthetic leg • Alignment changes or new prosthetic devices will require a period of readjustment for the athlete to find their new balance point, pressure points, and prosthetic feedback

CP Throwers	<ul style="list-style-type: none"> • The type of CP an individual has will greatly impact how the athlete is able to throw. Please refer to the CP section of the Characteristics of Disability Groups for the various types of CP and how they impact muscle coordination • Limbs can become rigid during movement as they apply maximum effort to the throw. The greater the impairment to muscle function, the more pronounced this can be • Maximum effort can vary dramatically day to day due to a variety of factors such as weather (warmth or cold), lighting, and stimulants like pop or coffee • Ensure the training area is uncluttered as many of the lower classes have poor balance, and can stumble over small items • Some athletes may have secondary medical conditions including seizures, epilepsy, hearing impairments, visual problems, etc.
Short Stature	<ul style="list-style-type: none"> • Muscles and ligaments in the body tend to be very tight; in some limbs they may not have the full range of motion • Measure the athlete's arms to see which one is longer to help determine which side to throw from • There may be strength imbalance on one side of the body; it's important to ensure body balance before adding heavy weight training to program • Head size in proportion to body size may create difficulty in balance and movement across the circle during a throw

Competition

The overall structure of a competition is similar to that of able-bodied throwers. Athletes must throw implements that comply with IAAF specifications and the marshalling, warm up procedures, and delivery of competition is the same. As stated above, visually impaired athletes in the F11 and F12 classification are allowed an assistant on the field to assist with orientation in the throws area.

Depending on the level of competition, multiple classes can be combined to create an event (ex. F42/43/44 Discus event vs separate F42, F43 and F44 Discus events). When classes are combined in an event, it is important for the athlete to ensure they are throwing the correct implement weight based on their individual classification. Please see Appendix B for a complete list of implement weights.

When classes are combined, a points system called the Raza Points Table is typically used to determine the winner given the variations in functional ability that exists amongst the classes. The Raza Points Table uses an algorithm based on past major games (Paralympics, World Championships, and World Record) to provide a numerical value based on the distance the athlete threw and their classification. This enables athletes to be compared based on their performance relative to their classification rather than the furthest distance automatically placing first. While this points system exists, some major competitions will only offer events where there are enough athletes to compete within their classification or classes will be combined but ranking will be determined based on furthest distance regardless of classification.

Seated Throws

Note: This section provides an overview of the World Para Athletics Rules for Throwing Events for Seated Throwers. For a complete listing of all World Para Athletics Rules, please visit <https://www.paralympic.org/athletics/events/rules-and-regulations>

Throws Chair

The term “seated throws” refers to athletes who compete from a seated position, either from a specially designed piece of equipment called a throws chair/throwing frame or from the athlete’s day chair (either manual chair or power chair). See below for the current throwing frame specifications. The World Para Athletics Rules and Regulations document is updated annually so it is important for coaches and athletes to check this document yearly to ensure chair specification have not changed.

	Description
Chair Dimensions	<ul style="list-style-type: none"> • Max height (with cushion) = 75cm • Minimum side lengths = 30cm long • Seat of chair must be square or rectangular; it can be level or inclined backwards (ie. the front of the chair can be higher than the back chair, but not the other way around) • Footplates can be used as long as they are used for stability or support
Backrest	<ul style="list-style-type: none"> • Can have side, front or back rest for stability and safety • Has to be rigid part of chair frame or made of non-elastic fabric • If backrest has cushioning, cannot be more than 5cm thick • Backrest cannot block the view of the official in judging a “lifting” fault
Pole	<ul style="list-style-type: none"> • Must be rigid, one piece, vertical bar that’s circular or square in nature (not oval or rectangular) • Can have layers of tape (or something similar) to assist with grip • Pole cannot flex to the naked eye during an attempt; spirit of this rule is to prevent an unfair advantage by helping propel the body forward while the athlete pulls on the bar • Rules state that most materials will flex/distort to some degree; a fault will be called if it’s clearly flexing and is going against the spirit of the rule • No part of the throwing frame (including the pole) can moved during the throwing action (except for incidental movement that can’t be reasonably eliminated)
Strapping	<ul style="list-style-type: none"> • All strapping used to secure the athlete to the throwing frame must be made of non-elastic fabric. Weight lifting belts and snowboard binding are most commonly use

****Day chairs that meet all the above criteria are also able to be used in competition**

Example of side rests and footplate



Example of portable platform for day chair users



Example of chair with pole and strapping



Throws Chair vs Day Chair

There are many factors that you will want to consider when having an athlete chose their preferred throwing frame. Typically athletes from the lower functioning classes will throw from their day chair or build a throws chair that has a similar seating position. There are benefits and challenges associated with competing in either a throws chair or a day chair.

	Throws Chair	Day Chair
Benefits	<ul style="list-style-type: none"> • Throwing from elevated position will result in a further throw compared to day chair height • Ability to use throwing bar to stabilize and pull body forward • More room for body movement and rotation • Easier for officials to secure in the circle as they are more familiar with them 	<ul style="list-style-type: none"> • Seating position of back rest and seat creates stability for body when throwing • Eliminates need to transfer into another piece of equipment or bring additional equipment to competitions • Enables anyone in a day chair to compete in seated throws
Challenges	<ul style="list-style-type: none"> • Difficult transfer for some athletes in lower classification groups • May take some time for athlete to become comfortable with throws chair seating before putting full effort into throw • Creating optimal seating position for athlete will take time • If throws chair is to be used by multiple athletes, creating adjustability within frame can be challenging • Difficulty transporting to meets/practices for athletes 	<ul style="list-style-type: none"> • Lower height reduces distance in throw (unless the day chair is placed on a throwing frame to elevate the chair to the 75cm maximum) • Adapting chair to include rigid throwing bar may be challenging • Day chair set up may impede in athlete's ability to move/rotate during throw • Chair might not meet IPC rules for throw chairs, particularly if it blocks the ability to monitor a "lift"

Competition

The structure of competition for seated throwers is substantially different compared to the ambulatory throwers. Below are the key aspects that are unique to seated throws.

Throws Chair Check

Prior to competition starting, all throws chairs (including day chairs) are measured by an official to ensure they conform to the specifications outlined above. This will either be done at the throwing area or within the call room. At any point during the competition a throws chair can be re-inspected. The throws chair will be brought to the throwing area by an official or volunteer and will typically be returned to the storage/implement weigh in area once the event is complete. If chair storage is offered at the competition, the throws chair will be re-inspected if it has been removed from the area for practice or repairs. It is the athlete's responsibility to ensure that the throwing frame meets the specifications outlined above. It is important that any adjustments to the throwing frame is done prior to the chair being inspected as the throws event will not be delayed to make adjustments on the field.

Throws Circle

As athletes compete from a fixed position, all seated throws are conducted from a throws circle that meets the same diameter and sector degree specifications as the IAAF. Athletes may also compete from a moveable platform if it meets the same specifications as above. The club throw and discus event are conducted from a cage for safety reasons.

Assistance

Athletes in the lower functioning classes (F31-33 and F51-54) may bring an assistant with them into the call room and onto the field of play. This person can assist the athlete in transferring into their throws chair and securing their strapping. The assistant must remain on the field of play for the entire competition in a designated area away from the athletes. If an assistant is found to be coaching or communicating with the athlete in this manner, they will be removed from the field of play.



Athletes in the F31-33 and F51-53 classes may use a glove or strapping device on their non-throwing hand in order to secure their hand to the throws chair and/or pole. They may also use chalk or a similar substance like stickum or adhesive spray to gain a better grip on the implement. All substances must be easily removed from the implement and can't leave any residue behind. This is allowed as athletes in these classes may have difficulty holding on to the pole and/or implement during the execution of the throw due to their hand/finger function.

Chair Placement and Warm Up

It is the athlete's responsibility to direct the officials/volunteers how they would like their chair placed in the throws circle. The athlete may also position the chair themselves. All parts of the throwing frame (including the footplate) must remain inside the vertical plane of the rim of the circle. The throwing frame will then be secured by the officials using ratchet straps or chains. Once the athlete's throwing frame is secured, the athlete is given a set timeframe based on their classification to transfer and secure themselves to the chair and take as many warm up throws as they want within the following timeframes:

- 4 minutes for F32-34 and F54-57
- 5 minutes for F31 and F51-53

The competition will start if the athlete indicates they are ready to begin or when the time runs out. At most competitions an athlete will be given six consecutive throws with a two minute break after three attempts. The athlete will be given one minute to execute each attempt. The throwing order is typically determined by the athlete's best distance prior to the competition or in order of classification groups.

At the Paralympic Games and World Championships all athletes will be given three attempts and only the top eight athletes will remain in the competition for their remaining throws. In this situation, the returning athletes will not be given warm up throws and will be given a reduced time to secure themselves to their throwing frame (2 minutes for F32-34 and F54-57, 3 minutes for F31 and F51-53).

Length of Competition

Due to the nature of seated throws, competitions can last for hours. A good rule of thumb is to assume each athlete will take roughly 12 minutes from the time the officials start tying down the throwing frame to when the athlete has completed their set of throws. This can mean a substantially long wait period until the athlete will compete as they are required to stay on the field of play for the entire competition. Athletes should bring a snack and resistance bands onto the field of play to ensure they are warmed up prior to their start of competition.

What Constitutes a Fault in Seated Throws?

Flexing Pole

If the pole flexes during an athlete's attempt, the throw will be deemed a fault. Typically during the athlete's warm up throws an official will indicate if the pole is flexing too much. Sometimes this is not identified until the athlete's competition throws when they are putting full effort into their attempt. If the pole flex is deemed illegal, the athlete can grasp the pole closer to the frame to reduce the amount of flex.

Lifting

An athlete must remain in a seated position on the throwing frame from the time they are handed the implement to the time the implement has landed. A "seated position" refers to the athlete's ischial tuberosities (IT) and the back of the knees remaining in contact with the seat at all times. The purpose of this rule is to minimize the amount of contribution an athlete's leg function will have in the throw. Both ITs must be in contact with the seat; if one side rolls up a lifting fault will be called. An athlete may sit with their leg to the side as long as any part of the back of the knee remains in contact with the seat throughout the throw. Clothing that is loose and impacts the official's ability to view a lift is prohibited during competition. An official may request the athlete tuck in their clothing or tape it down to ensure a lift can be viewed.

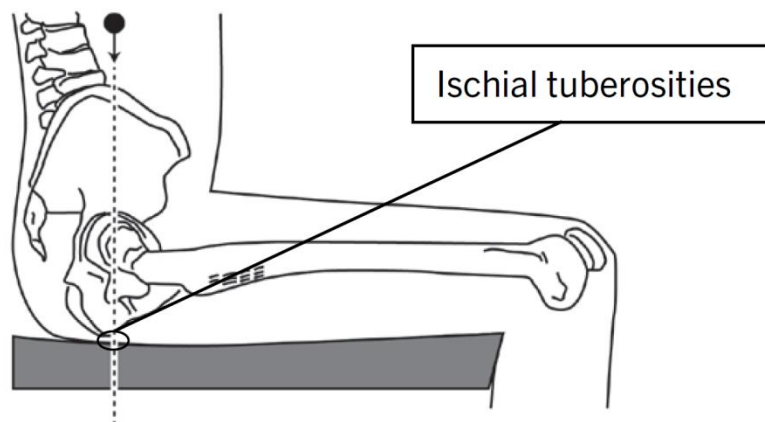


Figure 17 Ischial tuberosities

It is important to note that when an athlete leans back and pulls their body forward, the fleshy part of the buttock will roll up creating the illusion of a lift. It is noted in the rules that the back of the buttock refers to the point that remains in contact with the seat when the athlete is seated and bends as far forward as possible at the hip so the chest goes toward the knees.

Purposely Faulting a Throw

Athletes that wish to purposely fault a throw can do so by touching the ratchet strap outside the vertical plane of the circle. Athletes should also indicate verbally they wish to fault the throw in case this action is missed or the athlete is unable to reach outside the vertical plane of the circle. These actions should be done before the measurement of the throw.

Tie-Down Device Failures

Although it is rare, the ratchet strap securing the throwing frame may break or fail during the execution of the throw. If the athlete was able to complete the throw during the failure, they will be given the option to re-take the attempt or keep the measurement. If the athlete does not complete their throw because of the strap failure, they will be allowed to re-take their attempt. If an athlete's personal strapping (ex, snowboard waist strap) fails during a throw, they will not be allowed to re-take the attempt as it is their personal equipment that has failed.

Seated Throws Technical Modules

General Safety Rules for Seated Throws:

- Make sure the chair is securely strapped down before athlete transfers. Check to see that the straps are not frayed or cut. If using a raised platform ensure the rails are properly attached and all adjustments are complete before placing athlete/chair on the platform
- Ensure there are an appropriate number of volunteers around when athlete transfers into the throwing frame
- Do not pull on athlete's arms during a transfer to assist them; this will cause them to fall
- Ensure the athlete is secured to the throwing frame before attempting a throw
- Ensure throwing area is clear and people are aware when throwing has commenced (particularly for club throw as the implement may fly in any direction)
- If the athlete is throwing with his/her back to the landing area, an assistant should be there to tell them when it is safe to throw
- Make sure the athlete is throwing the proper weight of implement for their age and disability group (Please see Appendix B for a complete list of implement weights)





Club Throw

Event Overview: This event is unique to Para Throws. Club throw requires athletes to propel the club as far as possible into the designated throwing sector. It can be thrown in any manner (forward, sideways, or backwards). It should be thrown from a circle within a caged circle or portable platform. See Appendix C for the Club Dimensions.

Safety: Make sure the clubs are not damaged, splintered, or cracked. Check to ensure the weight on the end is not loose; it may dislodge when thrown. If athlete is throwing club for the first time start at a slow pace as the club may get stuck in the athlete's hand and swing back towards them.

Rules: Distance is measured from the first point of contact the club makes in the sector

Technical Model for Club Throw

Picture Sequence	Observations
<p>Start/Entry</p> 	<ul style="list-style-type: none"> • The club is either grasped in the palm of the hand or held between the fingers, (depending on the athlete's hand function and the direction they are throwing) • Athletes will typically start the throw by bringing it forward over their lap or by swinging it away from their legs. This motion all depends on the direction they are throwing • Strong body position should be emphasized from the start to ensure athlete is sitting as tall as possible
<p>Drawback</p> 	<ul style="list-style-type: none"> • The club is slowly swung back until they are at their most rearward position • It is important the club is not swung back abruptly as the weight on the end of the club will cause it to swing upwards, resulting in the club coming out of the hand too early during the release. • Athletes may use an adhesive spray to help secure the club in their hand (as long as it can be easily removed from the implement without leaving a residue) • If athlete is using a pole, the body will typically move in a similar direction as the club to create length in their throw

Release



- The club is swung forward and released. It can fly out of their grasp at either the highest point (facing forward or back) or slide out of their grasp at the point of greatest speed (facing sideways)
- While the club is brought forward the athlete will pull into their pole (if using one) for increased speed and/or stability
- Ideally the athlete's arm will stay as straight as possible during this motion to create length in the throw and increase the speed of the club at the release point. Timing as to when the arm flexes will vary by athlete and will impact how the club is released from the hand
- Temperature, humidity and other weather conditions can all contribute to the timing of the release

Follow Through



- After the club is released the arm continues along the same path
- Depending on chair set up the athlete may be falling forward or rotating at the waist due to momentum. Ensure that strapping is providing proper support for the athlete

Additional Comments:

If an athlete is throwing from their day chair, it is important to ensure the back of the athlete's knee remains in contact with their cushion at all times. Additional strapping may need to be attached to the day chair to assist with this. Some athletes will hook their arm around their curved handles on the back of their chair; this is considered illegal as the pole isn't vertical. Athletes can switch out the curved handle or attach a vertical pole to stay within the rules and regulations. Athletes may throw backwards or without the use of a pole, both of which are depicted below. When working with a new athlete it is recommended to have them try all throwing styles to see what feels most comfortable and powerful to them.





Shot Put

Event Overview: Shot Put requires athletes to push the shot as far as possible in the designated throwing sector.

Safety: Take caution when handing an athlete the shot put. Some athlete's hand function and/or fatigue levels makes it difficult to hold on to the shot put every time and they may potentially drop it on their legs or feet.

Rules: The shot shall be put from the shoulder with one hand only. The shot shall touch or be in close proximity to the neck or chin and the hand shall not be dropped below this position during the action of putting. The shot shall not be taken behind the line of the shoulders.

Technical Model for Shot Put

Picture Sequence	Observation
<p>Start</p> 	<ul style="list-style-type: none"> • Athlete begins in a tall upright position • Similar to able-bodied throwers, the athlete may hold the shot over the head until it is in the right position of the hand. Shot is then tucked under the chin/jawline. • Lower functioning athletes will tend to turn the palm completely upwards in fear of losing the shot through their hands due to poor hand/finger function; encourage the athlete to rotate shot as close as possible to the proper holding form without losing it • The non-throwing hand is positioned at the top of the pole with the back of the wrist slightly turned outwards. This enables the pull during the release to feel natural and the body to come forward. Ensure the athlete is not grasping the pole extremely tight as this will make the drawback position difficult to accomplish • Elbow of the non-throwing hand should be held between 45 to 90 degrees from the athlete's side to allow for an optimal pull. Degree will be based on athlete preference and coach feedback on how the body is being pulled forward
<p>Entry</p> 	<ul style="list-style-type: none"> • The athlete leans forward to initiate the throw. Athletes should be cautioned not to lean too far forward as it may be difficult for them to extend back (particularly for the lower functioning athletes) • Ensure the elbow does not drop too much during this motion or the athlete will tend to rock back into a poor position during the drawback • Some athletes tend to rock back and forth between the start position and entry position out of personal preference. Some athletes throw well like this while others waste energy and develop poor habits from it

Drawback



- Athlete transitions backward to one of two positions:
 - Athlete moves straight back, keeping their shoulders square to the sector
 - Athlete rotates at the waist, leads back with the elbow of their throwing arm, and rotates head back (as depicted in the picture)
- Style of drawback is individualized and should be selected on the position the athlete feels most comfortable and powerful
- If using the rotation style, ensure this movement is fluid and that the athlete is not coming straight back and then rotating as this will create a pivot point in the non-throwing arm shoulder, causing the body to sway and lose its position
- The body is drawn back until non-throwing arm is almost straight. A slight bend in the arm will keep the muscles in an activated position while straightening the arm will create a block the athlete must overcome during the release phase of the throw

Release



- Athlete pulls with non-throwing arm on the pole, bringing the body back to an upright position
- If athlete is in the rotated position this pull is critical in bringing the shoulders square to the sector; if athlete rotates at waist before pulling themselves upright they will lose power in the throw
- During the pull action the athlete will also begin to rotate their head forward to allow for clearance of the shot; ensure the athlete is looking up at the angle the arm is to follow
- The shot is pushed forward as the athlete reaches their maximum upright position
- At the end of the explosive push of the shot, the wrist will flex causing the shot put to flick off the end of the fingers

Follow Through



- Momentum from the pull and body movement should cause the athlete to bend forward at the waist; if an athlete is not following through they are slowing their body (and therefore the shot) down before it has left the hand
- Head either maintains an upright position or continues to rotate towards the side of the non-throwing arm, ensuring the shot clears and no fault is called

Additional Comments:

The height of the pole (and therefore where the hand is positioned) can greatly change the trajectory of the throw. Newer athletes tend to have their hands higher as it helps them pull into an upright position during the release of the throw. With time many throwers start to drop their hand down to shoulder height as they can generate more speed from this position.

Athletes should try moving the pole from close to the frame to slightly out front to see which pulling motion feels strongest for them. Some of the higher functioning athletes will throw shot put without the pole. If no pole is used the athlete will generate speed by utilizing their abdominals and throwing arm.

In the F52 class, many athletes hold the shot put against the side of their head due to very poor hand and finger function. Some athletes have enough tone in their hands to resist the force of the shot rolling back while throwing, while others have fingers that curl up and are unable to control the shot. Coaches are encouraged to adapt the holding position that will enable the greatest force to go behind the shot while throwing.

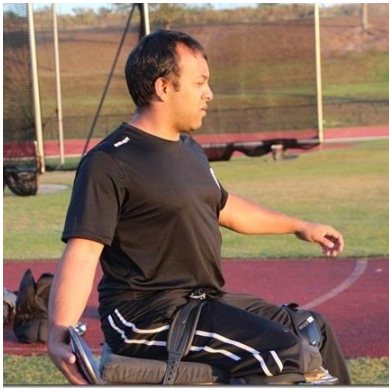

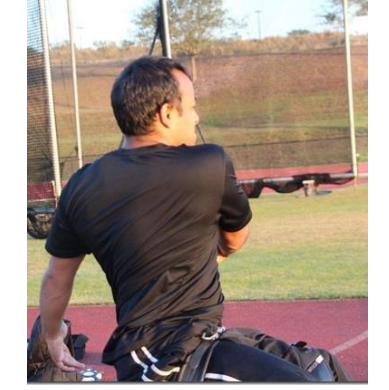



Discus

Event Overview: Discus is “flung” as far as possible within a designated sector.

Rules: All discus throws should be attempted from either a portable or permanent cage for safety.

Technical Model for Discus

Picture Sequence No Pole	Picture Sequence With Pole	Observation
<p>Start</p> 	<p>Start</p> 	<ul style="list-style-type: none"> • Athlete begins in a tall upright position with the discus in their hand • If using a pole, hand position is approximately shoulder height or slightly above; this position will cue the angle of the throwing arm during the drawback and release phase of the throw
<p>Entry</p> 	<p>Entry</p> 	<ul style="list-style-type: none"> • The discus is brought forward in a circular motion while maintaining an upright position • Athletes without a pole will be able to rotate at the waist towards their non-throwing arm whereas athletes using a pole will bring the discus to the front of their body

<p>Drawback</p> 	<p>Drawback</p> 	<ul style="list-style-type: none"> • The discus is swung back with the palm of the throwing hand facing down; cues such as “come around a barrel” will help athletes bring arm out and around rather than straight by their side • If using a pole, athlete leans away from pole until arm has a slight bend in it; you should be able to draw a straight line from the non-throwing hand to the discus • Head is turned back to elongate the throw for greater momentum
<p>Release</p> 	<p>Release</p> 	<ul style="list-style-type: none"> • With no pole, the non-throwing arm is swung up and around, causing the chest to open and creating separation. Momentum is maintained as the throwing arm comes around with the discus • If using a pole, the non-throwing arm will pull, bringing the body into an upright position. This will also cause the shoulders to be square with the sector, causing the chest to open and creating separation. • In both motions the head is turned to help create separation and the discus is released at the optimum angle
<p>Follow Through</p> 	<p>Follow Through</p> 	<ul style="list-style-type: none"> • As the body finishes its rotation it should be in an upright position • The head should keep turning as the throw is completed • The throwing arm finishes high; cueing the athletes to “pat themselves on the back” will maintain the throwing arm speed and reinforce follow through

Additional Comments:

Lowering functioning athletes will be hesitant in turning their hand over during the drawback phase of the throw due to poor hand/finger function and a fear of losing the discus. High levels of repetition will be required before the athlete will become comfortable with their hand position. Athletes can also use an adhesive spray or paste to assist with holding the discus. Lowering functioning athletes may choose to make a fist with the thumb side facing up and have the discus rest on the flat area of the hand. In this position the athlete would turn their wrist so the discus is thrown with the full force of the fist behind it.



Javelin

Event Overview: Athletes must sling the javelin and have it land correctly in the designated throwing sector

Safety: When carrying javelins back to the athlete, make sure to carry them vertically as the athlete will not be able to move if they are approached with a javelin held horizontally.

Rules: Athletes must sling the implement over the shoulder using one hand. It cannot be “cartwheeled” or spun. It must land nose first and must be gripped by the cord.

Technical Model for Javelin

Picture Sequence	Observation
<p>Start</p> 	<ul style="list-style-type: none"> • Athlete begins in a tall upright position with the javelin either above the head or at shoulder height. • The non-throwing hand is positioned at the top of the pole (shoulder height or slightly higher) with the back of the wrist slightly turned outwards. This enables the pull during the release to feel natural and the body to come forward. Ensure the athlete is not grasping the pole extremely tight as this will make the drawback position difficult to accomplish • Elbow of the non-throwing hand should be held between 45 to 90 degrees from the athlete’s side to allow for an optimal pull. Degree will be based on athlete preference and coach feedback on how the body is being pulled forward
<p>Entry</p> 	<ul style="list-style-type: none"> • Some athletes will move from the start position right into drawback position. This can help the athlete maintain the optimal angle of the javelin • Some athletes will bring the javelin and arm forward; this movement will be created by bending forward at the waist • Hand position on the pole remains the same during this motion

Drawback



- The javelin is brought back until the arm is straight
- Athlete leans away from pole until the non-throwing arm has a slight bend in it
- Majority of throwers will maintain their head position forward, looking towards the angle of release
- Athletes should be cautious that the javelin does not hit the back of the circle as the body leans back

Release



- Athlete pulls with non-throwing arm on the pole, bringing the body back to an upright position
- The javelin is propelled forward using the same whip like action as able-bodied throws where the elbow leads the throw as high as possible, followed by the forearm and eventual flick/rotation of the wrist at the release point

Follow Through



- The throwing arm follows the javelin through the release, where the wrist flicks/rotates and results in a downward thumb position
- The body continues forward with a similar follow through as shot put
- If an athlete is pulling on an angle into the pole, they will fall as far forward as they can without hitting the pole

Additional Comments:




As many seated throws athletes are daily wheelchair users, shoulder flexibility and stability constantly needs to be developed due to the general push motion of daily wheelchair users. Regardless of the event, all seated throws athletes should focus on exercises and stretches that improve shoulder flexibility and stability.

Special Considerations

Many of the special considerations outlined in the standing throws section would also be relevant to seated throwers in the same disability group. It is extremely important that all seated throwers follow a proper warm up to prevent shoulder injury. Many athletes who use a wheelchair daily believe wheeling to practice is an adequate warm up so it is extremely important to educate on the importance of a proper warm up. Some additional considerations that coaches should be aware of when working with seated throwers includes:

Spinal Cord Injury	<ul style="list-style-type: none"> • Coaches must be aware of Autonomic Dysreflexia when working with this population group (please see SCI section of Characteristics of Disability Groups) • If training in extremely cold/hot temperatures, ensure clothing or a towel is protecting the athlete’s legs from directly touching the throwing frame • Athletes may develop pressure sores due to lack of blood flow below the level of injury. This is typically caused by something pressing against the skin for a period of time. If an athlete sits on an uneven surface for a period of time or sustains a blunt impact (ex. hitting edge of throws chair while transferring), encourage them to perform skin checks that evening to check for redness. • Depending on the level of injury, athletes may have difficulty with temperature change (inability to sweat in hot temperatures and difficulty staying warm in cold temperatures due to poor circulation). Always ensure you have a spray bottle or wet towels/cooler on site to assist with cooling and encourage the athlete to pack multiple layers for cooler temperatures • If using an assistive device to attach the hand to the pole, ensure adequate breaks are taken throughout the practice to return blood flow to the hand
Spina Bifida	<ul style="list-style-type: none"> • Latex allergy is common for individuals with spina bifida. Ensure that the medical kit on site has latex free supplies • Athletes may use leg bags or other devices for urine collection. When transferring or securing the athlete to the chair ensure you do not cause damage to this bag
Polio	<ul style="list-style-type: none"> • Most will experience weakness and loss of control in limbs/torso; additional strapping and back/side rests may need to be considered when designing a throws chair
Amputee	<ul style="list-style-type: none"> • Some athletes will throw with or without their prosthesis; some like using their prosthesis to push against during the throw while others find it uncomfortable • Heat, humidity, and sweat will increase risk of skin breakdown or infection; ensure athlete cleans stump area and checks for irritation • Dehydration and activity leads to decreased volume in the residual limb. Ensure athlete has extra socks on hand and stays hydrated • Athletes may have increased sensitivity in the residual limb; ensure strapping on the residual limb does not create irritation • Because athletes have full upper body function, the rotation in seated throws may create stress on the lower back and upper thighs. Ensure the athlete has complete a proper warm up before getting into the throwing frame
Cerebral Palsy	<ul style="list-style-type: none"> • Maximum effort can vary dramatically day to day due to a variety of factors such as weather (warmth or cold) and stimulants like pop or coffee • Increased effort during a throw in practice and/or the stress and excitement of competition can amplify spasticity and tone; visualization and relaxation techniques can help with this. • Some athletes may have difficulty understanding multiple corrections at once; try to provide information in steps for more successful correction • Highly spastic individuals may have difficulty holding onto an implement; ensure the athlete is ready to take the implement before releasing it

Common Errors in Seated Throws

Error	Corrections
<p>Throw Angle is too high/low</p> 	<ul style="list-style-type: none"> • Change hand placement on bar to change angle of pull (either too high or too low) • Cue to look up when finishing throw; athletes tend to look at ground to see where throw has landed causing the angle to be too low (as pictured) • Athlete is extending at the waist too much, causing the angle of release to be too high; ensure the athlete is maintaining a solid position during the throwing motion; cues could include finishing tall and engage core • If angle is still too low hold a bar or javelin horizontally in front of the seated thrower from them to aim over (only use this strategy for shot put and javelin throws)
<p>Throwing Arm Starting Early</p> 	<ul style="list-style-type: none"> • Emphasize the need to pull on the bar before activating the throwing arm; ask athlete to hold onto implement a split second longer than they think they should • Visual cue such as standing beside the chair to indicate timing of throw may be helpful
<p>Non-Throwing Arm Hyperextending</p> 	<ul style="list-style-type: none"> • Have the athlete go through the drawback motion while physically supporting their position to have them feel ideal positioning • May be caused by the athlete uncontrollably throwing themselves back during the drawback phase of the throw • Important to cue the athlete that technique and controllable speed is ideal

<p>Not turning head back</p> 	<ul style="list-style-type: none"> • Place a target on the ground roughly 3 meters away from the chair and have them spot it during the throw (if it's too close they will drop their head) • Many athletes believe they are turning their head when in actuality they are just looking with their eyes but maintaining their head position forward • Have the athlete go through the drawback motion without turning their head and then with turning their head to emphasize the elongation that happens with the head rotation
<p>Pulling Body into the Pole</p> 	<ul style="list-style-type: none"> • Emphasize keeping their non-throwing elbow up as it might be pointed down, causing the body to tumble • Athlete may be over rotating during the drawback phase of the throw, causing the body to overcompensate during the pull. Ensure proper body alignment is occurring throughout the throw • Turn the hand slightly on the pole so the wrist is pointing outward, creating the natural pulling motion • If working with a lower functioning athlete they may start with their hand/wrist in the optimal position but then moves during the completion of the throw. Wearing a glove and taping the top of the pole may assist with maintaining the proper hand position
<p>Slumping/Falling Over</p> 	<ul style="list-style-type: none"> • Some athletes may need to throw with a pole to correct this (particularly SCI and CP athletes who don't have the core function or stability to maintain good posture throughout the throw) • Emphasize staying tall throughout the throws motion; cue can be imagine a rod running through the top of their head to their hips • Athlete may be over rotating during the drawback phase of the throw, causing the body to overcompensate during the pull. Ensure proper body alignment is occurring throughout the throw • Exercises strengthening core and back muscles (for those with muscle innervation) can assist with proper alignment
<p>Athlete pivoting at shoulder joint</p>	<ul style="list-style-type: none"> • Emphasize "leading with the elbow" if the athlete is rotating at the waist in shot/discus • Slow the athlete's initial drawback phase of the throw so they do not drop back out of control; coming back quickly or locking the non-throwing arm are common causes of this • Some athletes will have difficulty controlling this as they lack abdominal control
<p>Hitch Mid Throw</p>	<ul style="list-style-type: none"> • Emphasize one fluid motion • Place arm on their back as they go through the motion, forcing them to continue forward • Ensure the non-throwing arm is not fully extending as this will sometimes cause a delay in the athlete's ability to pull their body forward

Club Integration: Tips on Supporting Para Athletes

As previously outlined, integrating an ambulatory athlete with a disability into your existing practices should occur quite seamlessly. Education around prosthetics for amputees or how to support a visually impaired athlete at practices will need to be considered by coaches, but overall there should only be few additional considerations required.

Seated Throws

Seated throws will require some additional considerations to ensure that the athlete is receiving a quality practice. Before a coach works with a seated thrower it is highly recommended that they spend some time sitting in the throw chair to get a sense of what movements are possible, along with what restrictions the athlete might face. Due to the nature of seated throws, it is valuable to have a volunteer to retrieve for the athlete during the entire practice. In an ideal situation you would have one retriever per seated thrower. This enables the coach to move between athletes rather than being restricted to working with one athlete at a time.

The technical models for seated throws included in this manual are to provide a visual framework for coaches to start from. Every athlete with a disability you work with will have varying functional abilities that will impact how they are able to complete the throwing movements (including ambulatory athletes). The key for coaches is to consider what the “ideal” throw looks like, how the athlete’s body responds to varying movements, and try to find a middle ground in the technical form. The athlete will be the strongest advocate in what their body can and cannot do. When you first start working with an athlete do not be afraid to have the athlete try various movements and positions. The athlete will be able to indicate quite quickly what feels natural and what feels uncomfortable.

Throwing Area for Seated Throwers

Seated throwers can virtually train anywhere they are able to securely tie down their throws chair. Ideally an athlete would be able to train from a converted throws circle that has rails. The process for converting a throws circle is very basic: all that’s required is seven holes to be drilled around the circle, drop-in anchors set in each hole, and two strutted steel rails bolted in. This process does not impact the throwing surface of the circle, leaving the circle unaltered for able-bodied throwers. Once practice is complete the rails can be removed and socket screws are tightened until flush with the drop-in anchor. This prevents able-bodied throwers from catching the hole with their shoe, as well as keeps water and mud from getting into the holes. See Appendix D for a Throws Circle Conversion Parts List. If the throws circle is unable to be converted, a portable platform can be built. This can be extremely valuable when training at an indoor facility as well. See Appendix E for a Portable Platform Design.



Lastly a seated throws chair can be secured to the ground using long metal stakes that can be found at any hardware store. When inserting the stakes into the ground, ensure they are angled away from the throws chair as tightening the ratchet straps will cause them to pull inward. Depending on the strength of the athlete you may need to attach more than four ratchet straps and/or re-stake the chair as the throwing motion will eventually cause the metal stakes to loosen and the chair to rock.



Seated Throws Supplies

Some supplies to have on-site if you are welcoming a new seated thrower to the club includes:

- Throwing Frame
- Tie-down straps
- Stakes & Hammer
- Wrenches (for chair adjustments or to install/remove rails)
- Additional non-elastic strapping (weight lifting belts, Velcro straps, etc) to secure the athlete to the frame
- Towels – to wipe implements down and/or to place on the chair to help where pressure points may exist and to prevent direct skin to chair contact in hot/cold temperatures

Track clubs that are looking for clubs can purchase them from the UK supplier Neuff. Note that clubs can be purchase with different throwing head styles. This enables an athlete to purchase a club that works best with their hand function. To purchase a club, please visit

<https://neuff.co.uk/products/index.php>.



Things to Consider When Building a Throws Chair

Many athletes and coaches will work with a local welder to build a throws chair. In addition to the basic requirements listed above, the following questions should be considered when designing a throws chair:

What is the purpose of the chair?	<ul style="list-style-type: none"> • Are you building this chair to be multi-functional for a variety of athletes or specifically designed for an individual athlete? • If you are planning to use the chair for a variety of throwers, taking into consideration various body sizes, various body heights, left/right handed thrower, and potential need for a backrest is important
What is the athlete's disability?	<ul style="list-style-type: none"> • The greater the level of impairment, the more likely the athlete will need additional support such as a cushion, backrest, greater use of strapping, etc.
What event will the athlete be throwing?	<ul style="list-style-type: none"> • The events an athlete will be throwing can help determine if the athlete will use a pole, where the pole placement should go in the chair, if side rests are needed due to seating position and throwing form, etc.
If using a pole, where should it be placed?	<ul style="list-style-type: none"> • If the athlete has long limbs, you may want to consider having a bar that is away from the frame to increase length during the throw. The ability to remove the pole completely from the chair enables easier transportation in vehicles as well
How will the athlete sit on the chair?	<ul style="list-style-type: none"> • Will the athlete be facing forward or will they be putting their leg to the side? Do they need a foot plate or just a bar to hook their foot behind?
Does the athlete need a cushion?	<ul style="list-style-type: none"> • If an athlete has a SCI, they will probably need a thicker cushion to prevent pressure sores • When determining the frame height of the chair, the height of the cushion (without the athlete sitting on it) needs to be included in the 75cm maximum height
What kind of strapping will work best for the athlete?	<ul style="list-style-type: none"> • It's important for the athlete (or assistant) to be able to secure themselves quickly to the chair to enable the athlete to have as many warm up throws as possible • Strapping is also key in immobilizing the lower half of the athlete's body, ensuring that all movement and force is being transferred into the throw • Snowboard bindings are a preferred method of strapping due to their ease in use and ability to secure an athlete through a large range of force. They can also be easily attached to a throws chair and conform with the chair specification requirements.

Navigating the Para System

For a first time coach, navigating the para system in general may seem like an undertaking. Fortunately there are many organizations at each level of an athlete's pathway that could provide information and support for new athletes and coaches.

Athletics at the Provincial Level

Every province has a provincial sport organization that oversees the sport of Athletics. Each province has varying disability sport organizations that oversee the sport of athletics for their specific para athletics athletes. If you live in a province outside of British Columbia, please contact your provincial athletics association for more information.



BC Wheelchair Sports Association (BCWSA) is the provincial sport organization that oversees the sports of wheelchair tennis, wheelchair rugby, and wheelchair athletics (both wheelchair racing and seated throws) in British Columbia. Within wheelchair athletics BCWSA offers introductory level programs through the Bridging the Gap program, on-going practices, a provincial team program, as well as a wheelchair loan program for members to rent wheelchair sporting equipment at a substantially reduced cost than purchasing a piece of equipment themselves. For more information on BCWSA and wheelchair athletics, please visit www.bcwheelchairsports.com or email info@bcwheelchairsports.com.



WC Race Series (WCRS) is a BC track and field club that supports athletes who compete in wheelchair racing and seated throws. Athletes who register with WCRS receive numerous benefits, including their BCA and BCWSA memberships, coverage of registration fees and travel subsidies to compete in track and field meets and road races around the province, and coaching support through joint initiatives with BCWSA. For more information on WCRS, please visit www.wcraceseries.com or email info@wcraceseries.com.



BC Athletics (BCA) is the provincial sport organization for track & field, road running, marathons/ultras, cross country/trail running and race walking. A branch member of Athletics Canada, BCA is made up of individual members, member clubs, and affiliated organizations. BCA's purpose is to promote, encourage and develop the widest participation and the highest proficiency in the sport of Athletics. For more information on coaching education opportunities and how to become NCCP Trained in Athletics, please see <http://www.bcathletics.org/Coaches/> or email bcathletics@bcathletics.org.

BCA also works in partnership with **BC Blind Sports**, **Sportability (CP) BC**, and **Amputee Sport BC** to provide program opportunities for athletes with a physical impairment that fall under various classifications within the IPC. For more information on programs and educational opportunities for coaches working with para athletics athletes outside the realm of wheelchair athletics, please email bcathletics@bcathletics.org.

The majority of competitions that an athlete will compete in at this level will be able-bodied competitions that include para events. Many ambulatory throwers will compete within the open division at track meets given the similarities in competition structure. For seated throwers it is important to contact meet directors prior to the competition to ensure that seated throws is being offered.

Athletics at the National Level



Athletics Canada (AC) is the national governing body for the sport of athletics, both on the Olympic and Paralympic Side. As an athlete progresses in their performances, they may be considered for support at the National level which can include AC carding, access to AC integrated support team, training hub access, and potential national team selection. The national sport body is also responsible for communication with the international body, which includes submitting classification documents, IPC licenses, and IPC sanctioning requests. For more information on AC please visit:

<http://athletics.ca/>.

IPC Licenses and Sanctioned Events

An IPC license is only required for those individuals who plan to compete at an elite level. AC requires an athlete to hold a valid IPC license in order to be considered for national team status and to be considered for any Games or World Championship team selection. A valid IPC license is also required for an athlete to be eligible for international classification, for results to be included on the world ranking and regional lists, and for a world and regional record to be considered. Athletes wishing to complete their IPC license should contact Athletics Canada.

In addition to having an IPC license, only results achieved at an IPC sanctioned event will be considered for national team status and team selection. Each year a list of meets is submitted to the IPC for sanctioning approval. Please contact Athletics Canada for the full list of IPC sanctioned athletics events in Canada.

Athletics at the International Level



Similar to the IAAF, World Para Athletics is the international federation responsible for the sport of Para Athletics. All international documentation (including information on major competitions, IPC license forms, IPC Classification forms, Raza Points Table Calculator, and World Rankings and Record tracking documents) can be found on their website. Only athletes who are internationally classified and IPC licensed will have their results tracked on the world ranking list. For more information on World Para Athletics, please visit <https://www.paralympic.org/athletics>

Long Term Athlete Development Model

It is not uncommon for an athlete with a disability to experience success quickly if they possess qualities that provide them with a competitive advantage (ex. being functionally on the higher end of their classification, long wingspan, in a category that has a low number of participants, etc). This can create a pathway where an athlete is competing at the international stage before they are physically, mentally, and emotionally ready. It is not uncommon for athletes to leave the sport after only a couple years of competing if they are moved through the system too quickly. Care needs to be taken to ensure that the athlete is progressing along the Long Term Athlete Development (LTAD) model at an appropriate pace for their experience level to ensure longevity in the sport. More information on the LTAD model for athletes with a disability can be found at <http://sportforlife.ca/resources/>.

Closing Remarks

As outlined throughout this manual, there are many variables to be aware of when working with a para thrower. With that being said, an athlete with a disability is just another athlete that you must adapt your coaching knowledge and skills in order to help them succeed. Working with an athlete with a disability will challenge you to be creative in your approaches and push you outside your comfort zone as a coach. The authors hope that the information provided in this manual has helped prepare you in working with future para throwers. If you have any questions regarding the information presented in this manual, please do not hesitate to contact BC Wheelchair Sports Association and your questions will be directed to the appropriate individual or organization

BC Wheelchair Sports Association

780 SW Marine Drive, Vancouver BC, V6P 5Y7

T: 604-333-3520, ext 209

F: 604-326-1229

www.bcwheelchairsports.com

info@bcwheelchairsports.com

APPENDIX A – Detailed Description of Para Throws Classes

Adapted from “World Para Athletics Classification Rules and Regulations”, March 2017. For information on all para athletics classifications, please visit <https://www.paralympic.org/athletics/classification>

Sport Classes F11-13: Athletes have a visual impairment which is severe enough to impact sport.

F11	These athletes have a very low visual acuity and/or no light perception.
F12	Athletes with a F12 sport class have a higher visual acuity than athletes competing in the F11 sport class and/or a visual field of less than five degrees radius.
F13	Athletes with a F13 sport class have the least severe visual impairment eligible for IPC Athletics. They have the highest visual acuity and/or a visual field of less than 20 degrees radius.

Sport classes F20: Athletes have an intellectual impairment that impacts on the activities of throwing events (shot put). Athletes must meet the sport-specific MDC for each of their respective events (throwing).

Sport classes F31-34, F35-38 (standing throws): Athletes are affected by hypertonia, ataxia and athetosis all of which typically affect co-ordination of movement.

Seated throws: F31-34

F31	Athletes have severe hypertonia or athetosis, with very poor functional range, and/or control of movement in all four limbs and the trunk. Hand function is very poor with a limited static grip, severely reduced throwing motion and poor follow through and release.
F32	Athletes have moderate to severe hypertonia, ataxia &/or athetosis affecting all four limbs and trunk, usually with slightly more function on one side of the body or in the legs. A cylindrical and/or spherical grasp is possible, but grasp and release in combination with throws are poorly co-ordinated. Dynamic trunk control is poor.
F33	Athletes have moderate to severe hypertonia, ataxia or athetosis affecting three to four limbs, typically have almost full functional control in the least impaired arm. Athletes are able to throw an implement forcefully, albeit with limited follow-through. While athletes are able to grasp the implement, release of the implement is affected by poor finger dexterity. Trunk movements are limited by extensor tone, so that throwing motions are mainly from the arm.
F34	Athletes generally have moderate to severe hypertonia in both legs with significant difficulty in standing balance and walking. The arms and trunk demonstrate fair to good functional strength and near to full grasp, release and follow through for throws. Poor fine co-ordination in the hands is common. Hypertonia in the trunk and in the legs may result in mild limitations in throws.

Standing Throws: F35-38

F35	Athletes are typically more affected in the legs than the arms, but may also have significant co-ordination impairment of the non-throwing arm. Moderate hypertonia in the legs significantly limits the ability to walk and run. The athlete has fair to good functional strength and near to able-bodied grasp, release and follow through in the throwing arm.
F36	Athletes demonstrate moderate athetosis, ataxia and sometimes hypertonia or a mixture of these, which affects all four limbs. The arms are usually similarly or more affected than the legs. Involuntary movements are clearly evident throughout the trunk and/or in the limbs in sport activities, either when the athlete is attempting to stand still (athetosis) or when attempting a specific movement (tremor).
F37	Athletes have moderate hypertonia, ataxia or athetosis in one half of the body. The other side of the body may be minimally affected and demonstrates good functional ability in throws. Transfer of weight onto the affected leg is poor. The affected arm may demonstrate no to some functional ability. Some trunk asymmetry is usually evident.
F38	Athletes have clear evidence of hypertonia, ataxia and/or athetosis on physical assessment that meets the MDC. Impairment is mild to moderate and can be in one to four limbs. Co-ordination and balance in throws may be mildly affected, but overall these athletes are able to run and throw freely using able-bodied techniques.

Sport classes F40-41: Athletes with short stature, There are two classes depending on the body height of the athlete and the proportionality of the upper limbs. Athletes in class F40 have a shorter stature than F41.

Sport classes F42-46 (standing throws) and F51-58 (seated throws): Athletes are affected by one or more of the musculoskeletal impairments of limb deficiency, leg length difference, impaired muscle power or impaired range of movement.

Standing throws lower limb: F42 – F44: Athletes have impairments of the lower limbs.

F42	Athletes have one or more impairment types affecting hip and/or knee function in one or both limbs and with activity limitations in throws, jumps and running comparable to that of an athlete with at least a single through or above knee amputation. Athletes with impairment(s) roughly comparable to bilateral above knee amputations are also placed in this class
F43	Athletes have bilateral lower limb impairments where both limbs meet the MDC, and where functional loss is in the feet, ankles and/or lower legs. The activity limitation in athletics is roughly comparable to that found in an athlete with bilateral below-knee amputations.
F44	This class is for any athlete with a unilateral or a combination of lower limb impairment/s where the impairment in only one limb meets the MDC. Functional loss is seen in one foot, ankle and/or lower leg. The activity limitation in athletics is roughly comparable to that found in an athlete with one through ankle / below knee amputation.

Standing throws upper limb: F45 & F46: The primary impairments are in the upper limbs.

F45	Athletes have impairments of both arms which must meet the MDC for limb deficiency, impaired passive range of movement or impaired muscle power to the extent that both arms demonstrate significant activity limitation for gripping and/ or throwing the field implements.
F46	Athletes with a unilateral upper limb impairment roughly comparable to the activity limitations experienced by an athlete with a unilateral amputation of one arm through or above the wrist and one intact arm. Athletes with bilateral upper limb impairments where one arm meets the unilateral criteria, and the other affected arm does not meet the bilateral criteria above, also compete in this class.

Seated throws: F51-57: Athletes in these athletics categories use throwing frames in competition

F51	Athletes use the slightly decreased to full muscle power at the shoulders, elbow flexors, and wrist extensors for throwing an implement. The triceps muscles are non-functional and may be absent. Muscle power in the trunk is absent. Grip of the implements is difficult due to non-functional finger flexors. The non-throwing hand usually requires strapping to the support bar.
F52	Athletes usually have good shoulder muscles and mildly weak to full elbow and wrist muscles which are required for throwing an implement. Finger flexor and extensor muscles are non-functional making grip of the implement difficult. The non-throwing hand usually requires strapping to the throwing frame.
F53	Athletes have full muscle power at their shoulder, elbow and wrist in the throwing arm. Muscle power in the finger flexor and extensor muscles is functional, but there is always some weakness and resulting wasting of the intrinsic muscles of the hand. The grip on the implement is close to able-bodied and force can be imparted to the implement when throwing. The non-throwing hand grips the pole on the throwing frame. An athlete with partial to full trunk control but with a throwing arm that fits the F52 profile is appropriately placed in this class.
F54	Athletes have full power and movements in their arms, but no power in their abdominal muscles and typically no sitting balance. An athlete with partial to full trunk control but with upper limbs that fit the F53 profile is appropriately placed in this class.
F55	Athletes have full function of the arms and partial to full trunk muscle power. There is no movement in the lower limbs. Athletes with bilateral hip disarticulations are appropriately placed in this class.
F56	Athletes have full arm and trunk muscle power. Pelvic stability is provided by some to full ability to press the knees together. Hip abductor and hip extensor muscles are typically absent. Equivalent activity limitations are seen in athletes with bilateral high above knee amputations. Athletes with some but non-functional muscle power in the lower limbs will also fit in this class.
F57	Athletes who meet one or more of the MDC for impaired muscle power, limb deficiency, impaired passive range of movement and leg length difference, & who do not fit any of the previously described profiles

APPENDIX B – Implement Weights For Sport Classes

Adapted from “World Para Athletics Rules and Regulations 2016-2017”,

<https://www.paralympic.org/athletics/events/rules-and-regulations>

Sport Classes F11-13

Age Group	Classes	Discus	Discus	Javelin	Javelin	Shot put	Shot put
		Male	Female	Male	Female	Male	Female
Open	F11-13	2.00kg	1.00kg	800gr	600gr	7.26kg	4.00kg
U/20	F11-13	1.75kg	1.00kg	800gr	600gr	6.00kg	4.00kg
U/18	F11-13	1.50kg	1.00kg	700gr	500gr	5.00kg	3.00kg
U/16	F11-13	1.00kg	1.00kg	700gr	500gr	4.00kg	3.00kg

Sport Class F20

Age Group	Classes	Discus	Discus	Javelin	Javelin	Shot put	Shot put
		Male	Female	Male	Female	Male	Female
Open	F20	2.00kg	1.00kg	800gr	600gr	7.26kg	4.00kg
U/20	F20	1.75kg	1.00kg	800gr	600gr	6.00kg	4.00kg
U/18	F20	1.50kg	1.00kg	700gr	500gr	5.00kg	3.00kg
U/16	F20	1.00kg	1.00kg	700gr	500gr	4.00kg	3.00kg

Sports Classes F31-38

Age Group	Classes	Discus	Discus	Javelin	Javelin	Shot put	Shot put	Club Male and Female
		Male	Female	Male	Female	Male	Female	
Open, U/20	F31	NE	NE	NE	NE	NE	NE	397gr
	F32	1.00kg	1.00kg	NE	NE	2.00kg	2.00kg	397gr
	F33	1.00kg	1.00kg	600gr	600gr	3.00kg	3.00kg	NE
	F34	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	F35	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	F36	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	F37	1.00kg	1.00kg	600gr	600gr	5.00kg	3.00kg	NE
	F38	1.50kg	1.00kg	800gr	600gr	5.00kg	3.00kg	NE
U/18	F31	NE	NE	NE	NE	NE	NE	397gr
	F32	1.00kg	1.00kg	NE	NE	2.00kg	2.00kg	397gr
	F33	1.00kg	1.00kg	600gr	500gr	3.00kg	3.00kg	NE
	F34	1.00kg	1.00kg	600gr	500gr	4.00kg	3.00kg	NE
	F35	1.00kg	1.00kg	600gr	500gr	4.00kg	3.00kg	NE
	F36	1.00kg	1.00kg	600gr	500gr	4.00kg	3.00kg	NE
	F37	1.00kg	1.00kg	600gr	500gr	4.00kg	3.00kg	NE
	F38	1.50kg	1.00kg	700gr	500gr	4.00kg	3.00kg	NE
U/16	F31	NE	NE	NE	NE	NE	NE	397gr
	F32	750gr	750gr	NE	NE	1.00kg	1.00kg	397gr
	F33	750gr	750gr	500gr	500gr	2.00kg	2.00kg	NE
	F34	750gr	750gr	500gr	500gr	3.00kg	2.00kg	NE
	F35	750gr	750gr	500gr	500gr	3.00kg	2.00kg	NE
	F36	750gr	750gr	500gr	500gr	3.00kg	2.00kg	NE
	F37	750gr	750gr	500gr	500gr	3.00kg	2.00kg	NE
	F38	750gr	750gr	600gr	500gr	3.00kg	2.00kg	NE

Sport Classes F40-46

Age Group	Classes	Discus	Discus	Javelin	Javelin	Shot put	Shot put
		Male	Female	Male	Female	Male	Female
Open and U/20	F40, F41	1.00kg	750gr	600gr	400gr	4.00kg	3.00kg
	F42	1.50kg	1.00kg	800gr	600gr	6.00kg	4.00kg
	F43, F44	1.50kg	1.00kg	800gr	600gr	6.00kg	4.00kg
	F45	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg
U/18	F40, F41	1.00kg	750gr	500gr	400gr	3.00kg	2.00kg
	F42	1.00kg	1.00kg	700gr	500gr	5.00kg	3.00kg
	F43, F44	1.00kg	1.00kg	700gr	500gr	5.00kg	3.00kg
	F45	1.00kg	1.00kg	600gr	500gr	4.00kg	3.00kg
U/16	F40, F41	1.00kg	750gr	400gr	400gr	3.00kg	2.00kg
	F42	1.00kg	1.00kg	600gr	400gr	4.00kg	3.00kg
	F43, F44	1.00kg	1.00kg	600gr	400gr	4.00kg	3.00kg
	F45	750gr	750gr	500gr	400gr	3.00kg	2.00kg
U/16	F46	1.00kg	1.00kg	600gr	400gr	4.00kg	3.00kg

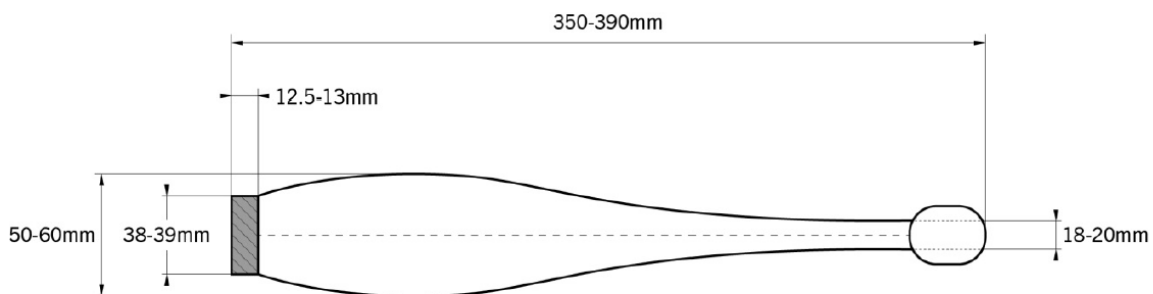
Sport Classes F51-57

Age Group	Classes	Discus	Discus	Javelin	Javelin	Shot put	Shot put	Club Male and Female
		Male	Female	Male	Female	Male	Female	
Open and U/20	F51	1.00kg	1.00kg	NE	NE	NE	NE	397gr
	F52	1.00kg	1.00kg	600gr	600gr	2.00kg	2.00kg	NE
	F53	1.00kg	1.00kg	600gr	600gr	3.00kg	3.00kg	NE
	F54	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	F55	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	F56	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	F57	1.00kg	1.00kg	600gr	600gr	4.00kg	3.00kg	NE
	U/18	F51	750gr	750gr	NE	NE	NE	NE
F52		750gr	750gr	500gr	500gr	2.00kg	2.00kg	NE
F53		750gr	750gr	500gr	500gr	3.00kg	2.00kg	NE
F54		1.00kg	1.00kg	500gr	500gr	3.00kg	2.00kg	NE
F55		1.00kg	1.00kg	500gr	500gr	3.00kg	2.00kg	NE
F56		1.00kg	1.00kg	500gr	500gr	3.00kg	2.00kg	NE
F57		1.00kg	1.00kg	600gr	500gr	3.00kg	2.00kg	NE
U/16		F51	750gr	750gr	NE	NE	NE	NE
	F52	750gr	750gr	400gr	400gr	2.00kg	2.00kg	NE
	F53	750gr	750gr	400gr	400gr	2.00kg	2.00kg	NE
	F54	750gr	750gr	400gr	400gr	2.00kg	2.00kg	NE
	F55	750gr	750gr	400gr	400gr	2.00kg	2.00kg	NE
	F56	750gr	750gr	400gr	400gr	2.00kg	2.00kg	NE
	F57	1.00kg	750gr	500gr	400gr	2.00kg	2.00kg	NE

APPENDIX C – Club Dimensions

Adapted from “World Para Athletics Rules and Regulations 2016-2017”,
<https://www.paralympic.org/athletics/events/rules-and-regulations>

Club	
Minimum weight for admission to competition and acceptance of a Record	397g
Information for manufacturers	
Range for supply of implement for competition	402g 422g
Overall length (including metal end)	
Min.	350mm
Max.	390mm
Diameter of neck	
Min.	18mm
Max.	20mm
Diameter of widest part of the body	
Min.	50mm
Max.	60mm
Diameter of metal end	
Min.	38mm
Max.	39mm
Thickness of metal end	
Min.	12.5mm
Max.	13mm



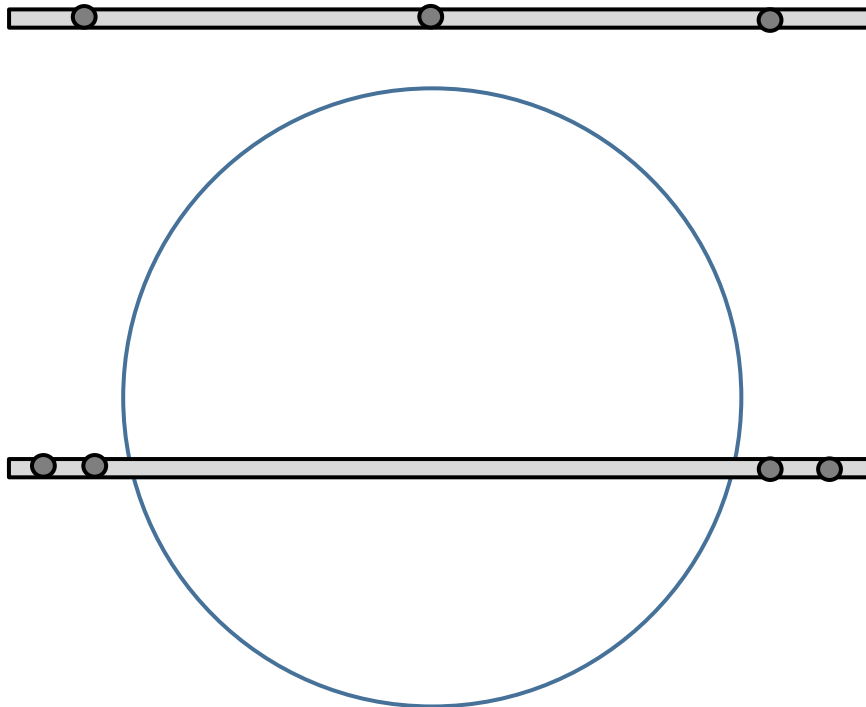
APPENDIX D – Throws Circle Conversation List

Part numbers are in reference to HD Supply Brafasco: Construction, Industrial & Safety Supplies
Parts can be purchased from any construction/industrial supply companies

½” Stainless Steel bolts 3” long, #FI880205420	quantity - 20
½” Flat washers Zinc plated, #FI1880900045	quantity - 40
½” Socket set screws, #FISTE0930780	quantity - 20
½” Drop in anchors, #ANCHOR040085	quantity - 20
1 5/8”x1 5/8” Half Slot steel strut (galvanized),#C2GHS	quantity - 2
½” Drop in anchor setting tool, #ANCHOR040125	quantity - 1
¾” combination wrench	quantity - 1
T handle for socket set screws	quantity - 1
Nickel grade Anti Seize, #77164	quantity - 1
Small tool box to hold all parts	quantity - 1
Roll of paper towels	quantity - 1

**Note: The above list will have enough items to convert two throws circles with some remaining spare parts. If both circles are to remain converted, two more strutted rails will need to be purchased. The socket screws are screwed flush into the drop anchors with some anti seize on them when the rails are not installed.

Installation:



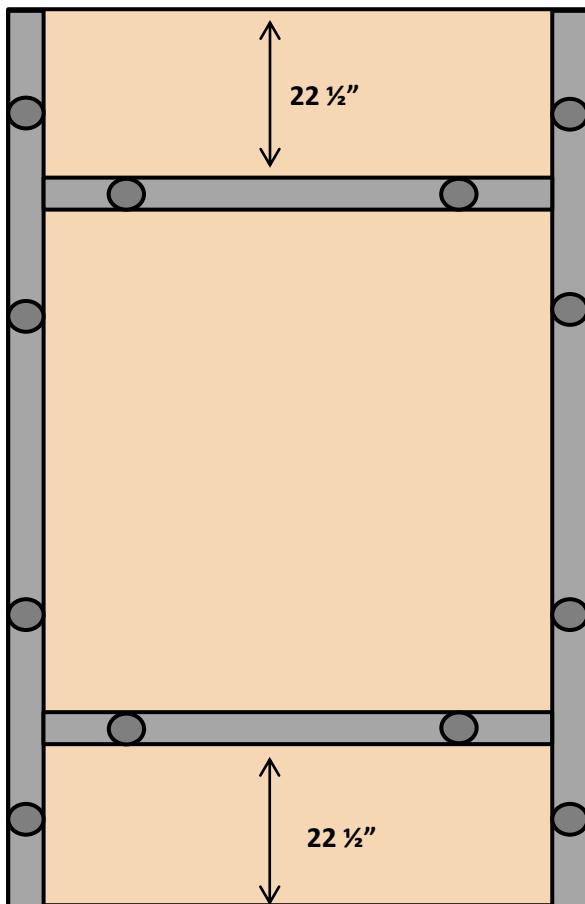
The front rail is installed approximately 12 inches from the front of the circle with three bolts. The back rail is approximately 12 inches behind the middle of the circle with two bolts on each side of the circle. The rail is positioned with the slots facing upward.

APPENDIX E - Portable Platform Design

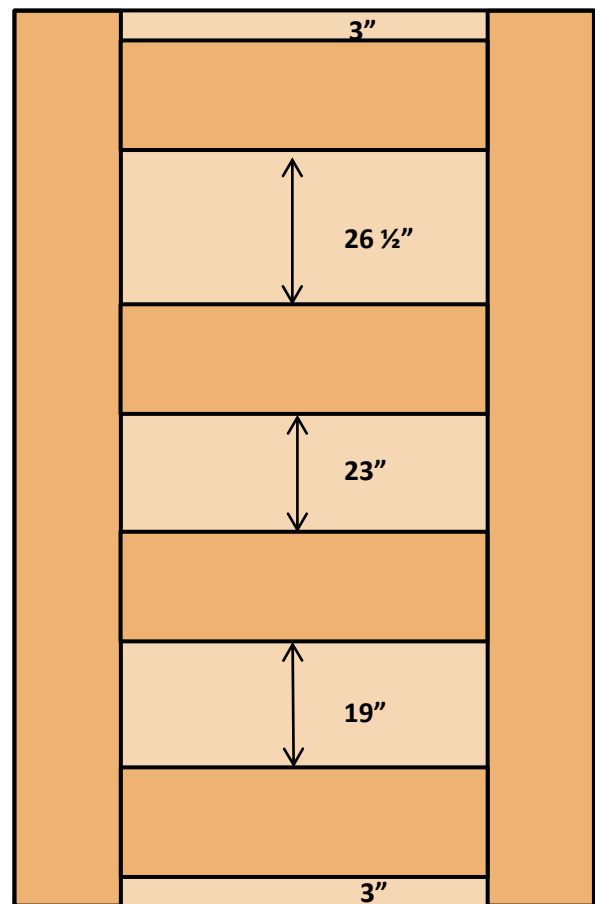
- 1/2" Stainless Steel bolts, 3 1/2" long
- 1/2" Nuts
- 1/2" Washers
- 4 x 8 x 3/4" sheet of plywood
- 2 x 6 x 8' wood
- 1 1/2" wood screws
- 1 5/8"x1 5/8" Half Slot steel strut (galvanized)

- quantity - 12
- quantity - 12
- quantity - 24
- quantity - 1
- quantity - 4
- quantity - 1 box
- quantity - 3

Top View



Bottom View



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