



access to sport

**Cerebral Palsy
International Sports and Recreation Association**

**CPISTRA FOOTBALL 7-A-SIDE
CLASSIFICATION RULES**

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Section A - CPISRA Football 7-a-side Classification Rules

1. Purpose, Eligibility and Definitions

1.1 Purpose

The CPISRA Football classification system has been designed to minimise the impact of impairment on the outcome of Competition, so that Athletes who succeed in Competition do so on the basis of their sporting ability.

In order to achieve this purpose, Athletes are classified according to the extent of Activity Limitation on the football skills (e.g. running, kicking, agility...) resulting from their impairment.

The term "classification", as used in these Rules, refers to the process by which Athletes are assessed by reference to the impact of impairment on performance of CPISRA sports. It is intended to provide a framework for fair Competition and to ensure that competitive success is determined by the strategies, skills and talent of Athletes and teams.

These Classification Rules cover CPISRA Football 7-a-side and need to be read in conjunction with the sport rules and are in compliance with the IPC Classification Code.

1.2 Eligible Participants

CPISRA provides sports opportunities for individuals with neurological impairment with a motor control impairment of a cerebral nature causing a permanent and verifiable Activity Limitation. In order to compete in CPISRA 7-a-side Football, an athlete must be affected by at least one of the following impairments;

Impairment type	Impairment description as per ICF and Sanger et al, 2003, 2006 & 2010
Hypertonia	High Muscle tone
<ul style="list-style-type: none">Spasticity	Spasticity is a velocity-dependent resistance of a muscle to stretch.
<ul style="list-style-type: none">Dystonia	Dystonia is an involuntary alteration in the pattern of muscle activation during voluntary movement or

	maintenance of posture Sustained or intermittent Muscle contractions.
<ul style="list-style-type: none"> • Rigidity 	Rigidity is resistance to passive movement and is independent of posture and speed of movement. rigidity is not specific to particular tasks or postures.
Ataxia	Control of voluntary movement
Athetosis/Chorea	Involuntary contractions of muscles

These impairment types are associated with a range of conditions including, but not limited to, cerebral palsy, traumatic brain injury, stroke, Friedreich's Ataxia, Spino-cerebellar Ataxia, Hereditary Spastic Diplegia/Paraplegia, and Dystonia.

The level of neurological impairment associated with these conditions must disadvantage Athletes as far as competing in high performance/Elite able bodied sport is concerned.

In CPISRA sanctioned events, players must be 15 years of age on the first day of competition. (In sanctioned events the competition starts the first day of classification.)

In youth/junior events players must be 14 years of age on the first day of competition and not older than 20 years on January 1st in the year of the competition. In youth/junior events a team can enter three players under 23 on January 1st in the year of the competition.

1.3 Definitions

A Glossary of Defined Terms (which generally appear in capital letters in these Rules) is included at Section 8 below, although certain terms are defined in the body of these Rules.

2. Athlete Evaluation

2.1 Purpose of Classification

The purpose of classification is to ensure that sporting success is a result of Athlete's training, skill level, talent and competitive experience rather than solely their degree of neurological function. Classification is undertaken to both ensure that a relevant level of neurological impairment is present in an Athlete, and that impairment has a demonstrable impact upon sport performance.

2.2 Classification Personnel

The following personnel have a key role in the process of Classification:

Classification Officer

The Classification Officer (CO) is the person responsible for classification for CPISRA. The CO is responsible for the direction, administration, co-ordination and implementation of classification matters for CPISRA.

Head of Classification Football

The Head of Classification (HOC) is the person that is responsible for the direction, administration and implementation matters for Football.

Chief Classifier

The Chief Classifier will be a Classifier responsible for the direction, administration, co-ordination and implementation of classification matters for a specific CPISRA Competition.

Classifier

A Classifier is a person authorised as an official by CPISRA to evaluate Athletes for international competition, while serving as a member of a classification panel.

Classification Panel

A Classification Panel is a group of Classifiers, appointed for a particular Competition, to determine Sport Class and Sport Class Status. According to the IPC Code a panel could be formed with two members, one medical (doctor/specialist/physiotherapist) and one sport technical expert. In CPISRA Football 7-a-side the panel will generally consist of a physician, physiotherapist and a sports technical expert.

Classification Master List

CPISRA maintains a Classification Master List of all Athletes, which details such matters as Athlete's name, Nationality, Sport Class and Sport Class Status.

2.3 National Classifications

All Athletes eligible to participate in CPISRA governed sports should receive an initial classification from their own National Federation. Classification should be conducted in accordance with the guidelines set out in the CPISRA Classification and Sport Profiles, and, in particular, National Classifiers should be trained according to CPISRA approved standards.

2.4 International Classification at Sanctioned Competitions

- 2.4.1** "International Classification" refers to the process of classification that is undertaken at, or before, an international Competition. It is required before an Athlete may compete at such an event.
- 2.4.2** International Classifications must be carried out by a CPISRA accredited and appointed multidisciplinary panel comprised of a physician (ideally specialising in rehabilitation or orthopedic medicine or neurological physiatry), a physiotherapist and a sports technical expert.
- 2.4.3** Members of Classification Panels should have no significant relationship with an Athlete (or a member of Athlete Support Personnel) that might create any actual or perceived bias or Conflict of Interest, and have no involvement with any decision being appealed. Should conflict arise the parties concerned should raise these with the Chief Classifier. Members of a Classification Panel should not have any other official responsibilities within a Competition other than in connection with classification.
- 2.4.4** Qualification events for Paralympics should have two (2) Classification Panels and one Chief Classifier.
- 2.4.5** At the discretion of the Head of Classification for a particular Sport and in consultation with the Classification Officer, one Classification Panel

may be deemed sufficient for smaller Competitions. If one Classification Panel only is present, no Protests will be dealt with and nations will be notified of this in initial entry information. Only new athletes will be classified.

- 2.4.6** At smaller Competitions, the Chief Classifier may also act as a Classifier.
- 2.4.7** Adequate time must be allocated at the beginning of a Competition for Athlete Evaluation. At qualification events for Paralympics, a minimum of two (2) full days is recommended, depending on the number of Athletes to be classified.

2.5 Classification: Scheduling, Substitutions and Preparation

- 2.5.1** The Head of Classification (HOC) for the Sport should appoint a Chief Classifier (CC) for the event, ideally at least three (3) months prior to a Competition. Classification Panels should be appointed two (2) months before the event.
- 2.5.2** The HOC may also act as the Chief Classifier at a Competition. The HOC for the Sport and the Chief Classifier should work with the Local Organising Committee (LOC) for the Competition to prepare Athlete lists. A minimum of four (4) weeks prior to the first day of the Competition must be allowed for Athletes names to be submitted to the HOC.
- 2.5.3** The Chief Classifier should provide the LOC and National Federation teams with a classification evaluation schedule on or before their arrival at the Competition. After that time, any substitutions must be approved by the Chief Classifier and Technical Delegate for the Sport.

2.6 Classification: Athlete Evaluation

Athlete Evaluation is the process by which an Athlete is assessed so as to determine both Sport Class, and Sport Class Status.

It is the responsibility of the National Federation/Team Manager to ensure that the Athlete attends evaluation. The Athlete must appear at Classification at the assigned time in the appropriate attire with a recognised form of identification, such as a passport or an ID Card.

The following matters should be noted in relation to Athlete Evaluation:

- All Athletes must sign an Informed Consent Form before they may be evaluated;
- The Athlete may be videotaped for classification and education purposes;

- If an Athlete does not appear in appropriate attire they will not be classified;
- If an Athlete has a health condition that causes pain that limits or prohibits full effort during evaluation they will not be evaluated at that time. The Chief Classifier may, time permitting, re-schedule the evaluation;
- The Athlete must provide information to the panel regarding impairment, medication and any surgery that affects sport performance. If an Athlete has an unusual or complicated impairment it is required that the Athlete brings information about the impairment written in English. Athletes must present a full list of medications to the Classification Panel;
- The Athlete must present with all necessary sports equipment that they use at Competition;
- Athletes may have one person (and, if required, an interpreter) accompany them at the evaluation. This person should have an understanding of the Athlete's impairment and sport performance. If needed, the person may be asked by the Classifiers to assist with communication;
- If an Athlete has a seizure disorder which is a secondary characteristic of cerebral palsy or traumatic brain injury, they will be permitted to compete provided that the condition is controlled.

2.7 Classification: Athlete Evaluation Process

The Athlete Evaluation process shall encompass the following:

2.7.1 Physical Assessment

The Classification Panel should conduct a physical assessment of the Athlete in accordance with methods of assessment stipulated in the Classification Rules of CPISRA.

The physical assessment may include, but is not limited to the examination by the Classification Panel medical and physiotherapist Classifiers.

2.7.2 Technical Assessment

The technical assessment may include, but is not limited to, evaluation in a non-competitive environment of the specific tasks and activities that are part of the sport in which the Athlete participates.

Classifiers may apply certain conditions to the Athlete in order to observe how the Athlete performs the activity under simulated sport conditions.

Classifiers must be confident that the Athlete has performed to the best of his/her capacity during the technical assessment.

2.7.3 Classification in Competition

The Classification Panel will observe the Athlete performing the specific skills that are part of the sport during training practice, in an event and/or during pool play.

Classification in Competition shall not be deemed to have been completed until the Athlete has completed the following:

- In Football events, a minimum of thirty (30) minutes continual participation in pool play (or such other play as may be permitted by Competition rules), unless the Classification Panel deems that a shorter period of play is sufficient in individual instances;

2.7.4 Completion of Athlete Evaluation

Athlete Evaluation will be deemed to have been completed once the matters referred to in 2.7.1, 2.7.2 and 2.7.3 above have been completed to the satisfaction of the Classification Panel.

If Athlete Evaluation is not deemed by the Classification Panel to have been completed, the Athlete will not be given a Sport Class and will not be eligible to participate in any part of the relevant Competition.

Video footage and/or photography may be utilised by the Classification Panel for all classification purposes connected to the Competition.

2.8 Classification: Sport Class and Sport Class Status

2.8.1 Sport Class

A Sport Class is a category in which Athletes are categorized by reference to an Activity Limitation resulting from impairment, and the degree to which that impairment impacts upon sport performance. A range of function will exist within each Sport Class.

(NE) Not-Eligible for Competition is considered a Sport Class.

Athletes will be allocated a Sport Class based on the individual Sport's Classification rules.

2.8.2 Sport Class Status

Following Athlete Evaluation, Athletes will also be given a Sport Class Status. Sport Class Status indicates the extent to which an Athlete will be required to undertake further Evaluation, and whether (and by what party) the Athlete's Sport Class may be subject to Protest.

The following Sport Class Status designations shall be used to indicate Sport Class Status:

Sport Class Status New (N)

Sport Class Status New (**N**) is assigned to an Athlete who has not been previously evaluated by an International Classification Panel and has not had an entry Sport Class verified by an International Federation.

N Athletes include Athletes who have been allocated a Sport Class by their National Federation for entry purposes.

N Athletes must complete Athlete Evaluation prior to competing at international CPISRA sanctioned Competitions.

Sport Class Status Review (R)

Sport Class Status Review (**R**) is assigned to an Athlete who has been previously evaluated by an international Classification Panel but is still subject to further re-evaluation. The Athlete is subject to re-evaluation and the Sport Class may be changed before or during a Competition.

R Athletes include, but are not limited to, Athletes who have fluctuating, progressive impairments.

R Athletes must complete Athlete Evaluation prior to competing at international CPISRA sanctioned Competitions.

Sport Class Status Confirmed (C)

Sport Class Status Confirmed (**C**) is assigned to an Athlete who has been evaluated by an International Classification Panel and the Classification Panel has determined that the Athlete's Sport Class **will not change**.

An Athlete with a Confirmed Sport Class will not have that Sport Class altered before or during Competition, and will not be required to complete evaluation prior to competing at International Competitions, except in the case of a Protest lodged under Exceptional Circumstances. An Athlete will not be allocated a Confirmed **C** Sports Class Status until other competitors/nations have had an opportunity to observe the Athlete in Competition.

C will be assigned if the Athlete has the same Sport Class at a minimum of two (2) and a maximum of three (3) consecutive CPISRA sanctioned Competitions over a period of at least two (2) years.

Exceptions:

Due to the variable nature of recovery after Acquired Brain Injury the athlete with an Acquired Brain Injury will not be given Confirmed Status (**C**) till at least 6 years post injury. The athlete will remain Review Status (**R**) until at least six

(6) years' post injury and has been classified in the same Sports Class a minimum of two (2) consecutive CPISRA sanctioned Competitions.

An athlete aged under 18 years of age will remain Review Status (**R**) till the age of 18 years has been reached and has been classified a minimum of two (2) consecutive CPISRA sanctioned Competitions in the same Sports Class over a period of at least two (2) years.

Sport Class Status Not Eligible (NE)

Sport Class Status Not Eligible (**NE**) will be assigned to an Athlete if that Athlete does not have a relevant impairment, or has an Activity Limitation resulting from a relevant impairment that is not permanent and/or does not limit the Athlete's ability to compete equitably in elite sport with Athletes without impairment.

2.9 Classification: Sport Class NE

- 2.9.1** If an Athlete does not have a relevant impairment the Athlete will be considered Not Eligible (**NE**) to compete.
- 2.9.2** If an Athlete has an Activity Limitation resulting from an impairment that is not permanent and/or does not limit the Athlete's ability to compete equitably in elite sport with Athletes without impairment, the Athlete will be considered Not Eligible to compete.
- 2.9.3** In circumstances where the determination of eligibility involves evaluation by a Classification Panel at a Competition, and a Sport Class Status of "Not Eligible to Compete" (**NE**) is allocated, the Athlete will be examined by a second Classification Panel. If the second Classification Panel confirms that the Athlete's Sport Class is NE the Athlete will not be permitted to compete, and will have no further right to Protest.
- 2.9.4** Article 2.9.3 shall not apply to an evaluation conducted following a Protest made under Exceptional Circumstances.
- 2.9.5** CPISRA Sport Rules shall provide that Athletes deemed **NE** cannot be substituted or replaced by another Athlete. In the case of team sports, that Athlete's position on the team may not be filled with a substitute. The rules of the sport shall apply to teams that lack one or more players as a result of such players being designated **NE**.

2.10 Classification: Notification of Sport Class and Sport Class Status

2.10.1 Sport Class Status New Athletes

Athletes with Sport Class Status **N** will receive Sport Class Status "Competition New Status" ("CNS") or Not Eligible (**NE**) following completion of Physical Assessment (2.7.1 above) and Technical Assessment (2.7.2 above).

Following Classification in Competition (2.7.3 above) and Completion of Athlete Evaluation (2.7.4 above), Athletes with Sport Class Status **CNS** will receive a Sport Class and Sport Class Status **R**.

2.10.2 Sport Class Status Review Athletes

Athletes with Sport Class Status **R** will receive Sport Class Status Competition Review Status (**CRS**) or Not Eligible (**NE**) following completion of Physical Assessment (2.7.1 above) and Technical Assessment (2.7.2 above).

Following Classification in Competition (2.7.3 above) and Completion of Athlete Evaluation (2.7.4 above), Athletes with Sport Class Status **CRS** will receive a Sport Class and Sport Class Status **C, R**.

Athlete Evaluation Pathway

Pre-Competition	Post-Evaluation Period	Post-First Appearance
N	→ CNS or NE → (2nd evaluation) NE or → CNS	→ R → R
R	→ CRS or NE → (2nd evaluation) NE or → CRS	→ C or R → R

2.10.3 Notification to Athlete

Following Completion of Athlete Evaluation (2.7.4 above), the Athlete shall be informed of the Classification Panel's decision regarding Sport Class and Sport Class Status. This will occur as soon as possible after the decision has been made.

Written notification will be provided to the Athlete and given to the Athlete's National Federation representative and will include:

- the Athlete's assigned Sport Class
- the Athlete's updated Sport Class Status
- details of associated Protest procedures

2.10.4 Notification to Third Parties

The LOC shall provide all relevant information that teams may require for viewing Classification in Competition of any Athletes who enter a Competition with an "NS" or "RS" Sport Class Status.

At the end of each session during the Athlete Evaluation period, the Chief Classifier must provide details of assigned Sports Classes and updated Sports Class Statuses to the LOC and the Technical Delegate for the relevant Sport.

2.10.5 Changes in Sport Class after Observation

If any changes to an Athlete's Sports Class are determined by the Classification Panel as a result of Classification in Competition:

- A member of the Classification Panel shall inform the national team representative and the LOC of the Classification Panel's decision as soon as is logistically possible;
- The change of Sport Class is effective immediately;
- The Chief Classifier will inform the Technical Delegate and the LOC;
- Results may need to be adjusted by the LOC in accordance with the sports and/or Classification Rules of CPISRA;
- The LOC may make adjustments to start lists in accordance with the sports and/or Classification Rules of CPISRA; and
- The LOC (under supervision of the TD and Chief Classifier) must advise other teams/nations and any other relevant parties of any associated changes as soon as logistically possible.

Written notification of any changes resulting from Classification in Competition period must be provided to the Athlete. This will include:

- The Athlete's assigned Sport Class;
- The Athlete's updated Sport Class Status; and
- Confirmation of any associated Protest procedures

The LOC has the responsibility to inform all relevant parties of the outcomes of the Athletes evaluation after being so advised by the Chief Classifier.

2.10.6 Final Confirmation at the end of the Competition

The Chief Classifier for the Competition must confirm each Sport Class and Sport Class Status assigned by the Classification Panels before the end of each Competition.

2.10.7 Post-Competition Notification

The results from Classification at each Competition will be posted for all countries on the CPISRA website, normally within four (4) weeks of the end of the event.

2.11 Classification: Athlete Failure to attend Evaluation

If an Athlete fails to attend evaluation, the Athlete will not be allocated a Sport Class or Sport Class Status, and will not be permitted to compete at that Competition.

Should the Chief Classifier be satisfied that a reasonable explanation exists for the failure to attend evaluation; an Athlete may be given a second and final chance to attend evaluation.

Failure to attend evaluation includes:

- Not attending the evaluation at the specified time or place; or
- Not attending the evaluation with the appropriate equipment/clothing and/or documentation; or
- Not attending evaluation accompanied by the required Athlete Support Personnel.

2.12 Classification: Non-Cooperation during Evaluation

An Athlete who, in the opinion of the Classification Panel, is unable or unwilling to participate in an Athlete Evaluation shall be considered Non-cooperative during evaluation.

If the Athlete fails to co-operate during Athlete Evaluation, the Athlete will not be allocated a Sport Class or Sport Class Status, and will not be permitted to compete at the respective Competition in the respective sport.

Should the Chief Classifier be satisfied that a reasonable explanation exists for the failure to co-operate during the evaluation then the Athlete may be given a second and final opportunity to attend and co-operate.

Any Athlete found to have been Non co-operative during an evaluation will not be permitted to undergo any further evaluation for that sport for a minimum of twelve (12) months starting from the date upon which the Athlete failed to cooperate.

2.13 Classification: Intentional Misrepresentation

An Athlete, who, in the opinion of the Classification Panel, is intentionally misrepresenting skills and/or abilities will not be allocated a Sport Class or Sport Class Status, and will not be permitted to compete at that Competition.

In addition:

- The Athlete will not be allowed to undergo any further evaluation for Football 7-a-side for a minimum of two (2) years from the date upon which the Athlete intentionally misrepresented skills and/or abilities;
- The Chief Classifier will remove the Sport Class and Sport Class Status allocated to the Athlete from the CPISRA Football 7-a-side classification master list;
- The Athlete will be designated as IM (Intentional Misrepresentation) in the CPISRA Football 7-a-side classification master list and on the CPISRA Football 7-a-side classification web list;
- The National Federation will be informed of the decision.

An Athlete who, on a second and separate occasion, Intentionally Misrepresents skills and/or abilities will receive a lifetime ban from CPISRA events and will be subject to other sanctions deemed appropriate to CPISRA.

2.14 Classification: Failure to Attend/Misrepresentation and Consequences for Athlete Support Personnel

CPISRA shall enforce sanctions on Athlete Support Personnel who assist or encourage an Athlete to fail to attend Athlete evaluation; to fail to cooperate; intentionally misrepresent skills and/or abilities or disrupt the evaluation process in any other way.

Those who are involved in advising Athletes to intentionally misrepresent skills and/or abilities will be subject to sanctions, which are at least as severe as the sanctions given to the Athlete.

In this circumstance, reporting the Athlete Support Personnel to the appropriate parties is an important step in deterring intentional misrepresentation by the Athlete.

2.15 Publication of Penalties

CPISRA will disclose details of penalties imposed upon Athletes and Athlete Support Personnel.

3. Protests and Appeals

3.1 Protests

- 3.1.1** The term "Protest" is used in these Rules as it is in the IPC Classification Code International Standard for Protests and Appeals. It refers to the procedure by which a formal objection to an Athlete's Sport Class is made and subsequently resolved.
- 3.1.2** An accepted Protest will result in Athlete Evaluation being conducted by a Classification Panel, which will be referred to as a "Protest Panel".
- 3.1.3** An Athlete's Sport Class may only be protested once. This restriction does not apply to Protests submitted in Exceptional Circumstances.
- 3.1.4** A Protest in respect of a Sport Class allocated by CPISRA may only be resolved by CPISRA.
- 3.1.5** Protests should be resolved in a manner that minimizes the impact on Competition participation, and Competition schedules and results.
- 3.1.6** Protests may be submitted during Competition, or after the Competition has ended.

3.2 When Protests May Take Place

- 3.2.1** Athletes with Sport Class New Status (NS) may be protested by any National Federation, or the Chief Classifier following completion of Athlete Evaluation and allocation of Sport Class Status RS. Following the resolution of the Protest, the Athlete shall be designated:
- Review Status (RS); or
 - Confirmed Status (CS); or
 - Not Eligible to Compete (NE)
- 3.2.2** Athletes with Sport Class Status Review (RS) may be protested by any National Federation or the Chief Classifier following completion of Athlete Evaluation and allocation of Sport Class. Following the resolution of the Protest, the Athlete shall retain RS or be designated:
- Confirmed (CS) Status; or
 - Not Eligible to Compete (NE)
- 3.2.3** Athletes with Sport Class Confirmed Status (CS) may be protested only in Exceptional Circumstances.

3.3 Protest Procedures during Competitions

- 3.3.1** Protests may be submitted by a National Federation representative authorised to submit Protests (for example, the Chef de Mission or Team Manager) and/or the Chief Classifier.
- 3.3.2** The Chief Classifier for the event, or a person designated for that event, shall be the person authorised to receive Protests on behalf of CPISRA at an event.
- 3.3.3** An Athlete's Sport Class may be protested within one (1) hour (sixty (60) minutes) of the Athlete being advised as to the Classification Panel's decision regarding Sport Class.
- 3.3.4** A National Federation representative may Protest the Sport Class of an Athlete of a different National Federation within one (1) hour (sixty (60) minutes) of the Athlete's first appearance in Competition or within one (1) hour (sixty (60) minutes) of the Athlete being assigned the Sport Class, whichever is the later.
- 3.3.5** Protests must be submitted in English on a designated Protest form that should be made available by the Chief Classifier at a Competition. The information and documentation to be submitted with the Protest form must include the following:
- The name and nation of the Athlete whose Sport Class is being protested;
 - Details of the decision being protested;
 - The reason for the Protest;
 - Any documents and other evidence to be offered in support of the Protest;
 - The signature of the National Federation representative or the Chief Classifier, where applicable; and
 - A fee of one hundred (100) Euros (unless there is a different amount specified for that Competition).
- 3.3.6** Regardless of the outcome of a Protest, CPISRA will retain the Protest fee.
- 3.3.7** Upon receipt of the Protest form, the Chief Classifier shall conduct a review to determine if there are grounds for a Protest and if all the necessary information is included.
- 3.3.8** If it appears to the Chief Classifier that the Protest form has been submitted without all necessary information, the Chief Classifier shall dismiss the protest and notify all relevant parties.
- 3.3.9** If the Protest is declined the Chief Classifier shall state why the Protest is not accepted.

- 3.3.10** If the Protest is accepted, the Chief Classifier shall appoint a Protest Panel to conduct Athlete Evaluation. The Protest Panel shall consist of a minimum of three (3) Classifiers, of equal or greater level of certification as those involved in the most recent allocation of the Athlete's Sport Class.
- 3.3.11** The Members of the Protest Panel should have had no direct involvement in the evaluation which led to the most recent allocation of the Athlete's Sport Class, unless the most recent evaluation took place more than eighteen (18) months prior to the Protest being submitted.
- 3.3.12** The Chief Classifier will notify all relevant parties of the time and date for the Athlete Evaluation that will be conducted by the Protest Panel.
- 3.3.13** All documentation submitted with the Protest form shall be provided to the Protest Panel. Protest Panels should conduct the initial evaluation without reference to the Classification Panel which allocated the Athlete's most recent Sport Class.
- 3.3.14** The Protest Panel may seek medical, sport or scientific expertise in reviewing an Athlete's Sport Class including the initial panel if necessary.
- 3.3.15** Athlete Evaluation following a Protest shall follow the same process as described in Article 2.7. All relevant parties shall be notified of the Protest decision as quickly as possible following Athlete Evaluation.
- 3.3.16 The decision of the Protest Panel is final and is not subject to any further Protest or appeal (subject to Article 3.6).**

3.4 Protests in Exceptional Circumstances

Exceptional Circumstances arise when an Athlete with a CS Sport Class demonstrates significantly less or greater ability prior to or during Competition, which does not reflect the Athlete's current Sport Class.

3.4.1 Exceptional circumstances may result from:

- A change in the degree of impairment of an Athlete;
- An Athlete demonstrating significantly less or greater ability prior to or during Competition which does not reflect the Athlete's current Sport Class;
- An error made by a Classification Panel which has led to the Athlete being allocated a Sport Class which is not in keeping with the Athlete's ability; or
- Sport Class allocation criteria having changed since the Athlete's most recent evaluation.

3.4.2 The procedure for the making of a Protest in Exceptional Circumstances shall be as follows:

- The Chief Classifier shall advise the Athlete and relevant National Federation and/or National Paralympic Committee that a Protest is being made in Exceptional Circumstances;
- The processes and procedures referred to in Articles 3.3.10, 3.3.11, 3.3.12, 3.3.14 and 3.3.15 will apply to Protests made in Exceptional Circumstances.

3.4.3 Athlete Evaluation following a Protest shall follow the same process as described in Article 2.7. All relevant parties shall be notified of the Protest decision as quickly as possible following Athlete Evaluation.

3.4.4 The decision of the Protest Panel is final and is not subject to any further Protest or appeal (subject to Article 3.6).

3.5 Procedures for Protests submitted out of Competition

3.5.1 Protests made out of Competition may be submitted by a National Federation representative authorised to submit Protests (for example, the Chef de Mission or Team Manager); and/or the Chief Classifier.

3.5.2 Protests made out of Competition may be made within thirty (30) days of the last day of a Competition in which the Athlete has competed or sixty (60) days prior to a Competition when the Athlete will compete.

3.5.3 Protests must be submitted on the CPISRA official Protest form to the Head of Classification Football 7-a-side with a copy to the CPISRA Classification Officer. A fee of three hundred (300) Euros must be paid.

3.5.4 Regardless of the outcome of a Protest, CPISRA will retain the Protest fee.

3.5.5 Upon receipt of the official Protest form and the Protest fee the Head of Classification Football 7-a-side and the Classification Officer shall conduct a review to determine whether all relevant rules concerning the submission of a Protest have been complied with and accept or reject the Protest.

3.5.6 If the relevant rules have not been complied with or there are no substantial grounds for a Protest the Protest shall be dismissed and the Protest form returned.

3.5.7 The Head of Classification Football 7-a-side and/or the Classification Officer shall notify all parties within twenty-eight (28) calendar days of the time and date for the protest evaluation, which, following consultation with all relevant parties, may take place at an agreed event.

If the protest is rejected, the reasons why the protest was rejected will be given.

3.5.8 Protests submitted out of Competition will not be considered at a Paralympic Games unless they are part of the process of classification evaluation held during the Paralympic Games.

3.5.9 Athlete Evaluation following a Protest made out of Competition shall follow the same process as described in Article 2.7. All relevant parties shall be notified of the Protest decision as quickly as possible following Athlete Evaluation.

3.5.10 The decision of the Protest Panel made following an out of Competition Protest is final and is not subject to any further Protest or appeal (subject to Article 3.6).

3.6 Appeals

The term "appeal" refers to a procedure by which a formal objection to the manner in which classification procedures have been conducted is submitted and subsequently resolved.

CPISRA has designated the International Paralympic Committee Board of Appeal on Classification (BAC) to act as the appeal body for CPISRA. The detailed rules of procedure in respect of Appeals to the BAC are provided by the IPC. The IPC will be responsible for establishing the BAC in accordance with the IPC BAC Bylaws.

The BAC shall have jurisdiction to review classification decisions in order to:

- Ensure that all appropriate Sport Class allocation procedures have been followed; and/or
- Ensure that all appropriate Protest procedures have been followed.

4. Classification Personnel

4.1 CPISRA International Classification Personnel

The IPC Classification Code and CPISRA recognise Classifiers as games officials.

There are three types of CPISRA Classifiers:

Medical

A doctor who has experience in dealing with people with cerebral palsy, traumatic brain injury, stroke or physical impairments as defined in the Athlete profiles.

Physiotherapist

Physiotherapists or related disciplines trained to work with individuals with the clinical manifestations of cerebral palsy, traumatic brain injury and stroke and other physical impairments.

Sports Technical Expert

Individuals with extensive coaching background or those with degrees in physical education, biomechanics or kinesiology with a working knowledge of the Football and individuals with physical impairments.

There are five levels of Classifiers in CPISRA (See section 6.1)

Trainee: An individual who is in the process of formal training by CPISRA but who is not yet certified as an International Classifier. This individual cannot allocate an international Sport Class.

Level 1 - International Classifier: An individual, who has finished the training program, has been recognised as an accredited international classifier and can classify as a member of an International classification panel.

Level 2 – Senior Classifier: An International Classifier who has at least 3 years' experience, has demonstrated consistent skills, is able to teach trainee classifiers and is able to easily interpret the CPISRA rules.

Level 3 - Chief Classifier : A Senior Classifier who has attended training for Chief Classifiers and is appointed by the Head of Classification Football 7-a-side Classification for a specific Competition.

Level 4 – Head of Classification Football 7-a-side: The person that is responsible for the direction, administration and implementation of classification for Football 7-a-side.

Level 5 – Classification Officer: The Classification Officer is the person that is responsible for Classification for CPISRA.

5. Classification and Sport Profiles

In order to compete in CPISRA Football 7-a-side, an athlete must demonstrate activity limitations as a result of at least one of the following impairments:

Impairment type	Impairment description as per ICF and Sanger et al, 2003, 2006 & 2010
Hypertonia	High Muscle tone
<ul style="list-style-type: none"> Spasticity 	Spasticity is a velocity-dependent resistance of a muscle to stretch.
<ul style="list-style-type: none"> Dystonia 	Dystonia is an involuntary alteration in the pattern of muscle activation during voluntary movement or maintenance of posture Sustained or intermittent Muscle contractions.
<ul style="list-style-type: none"> Rigidity 	Rigidity is resistance to passive movement and is independent of posture and speed of movement. Rigidity is not specific to particular tasks or postures.
Ataxia	Control of voluntary movement
Athetosis/Chorea	Involuntary contractions of muscles

Spasticity is measured using the Australian Spasticity Assessment Scale (See Section 12 Appendix).

Note that Low tone or hypotonia on its own without any other neurological or motor signs do not factor in CPISRA classification. Also note that orthopaedic issues such as brachial plexus and congenital / traumatic orthopaedic issues do not factor in CPISRA classification. Pain and any limitations caused by pain are not part of the CPISRA classification system.

Descriptions of the general CPISRA sport classes one (1) to four (4), or the wheelchair classes, have been provided as an Appendix See section 9.

Athlete Profiles Football 7-a-side

5.1 Class FT 5

Diplegia / Asymmetric Diplegia / Double hemiplegic / Dystonic

- Moderate involvement, spasticity grade 2-3;
- Involvement of both legs which may require orthotics/splints for walking;
- An asymmetric Diplegia or double hemiplegic Athlete with involvement on both sides with lower limbs more affected than upper extremities;
- Athletes with dystonia where the lower limbs are more affected than upper extremities

Balance: Usually has normal static balance but exhibits problems in dynamic balance e.g. attempting to pivot or stop and start. Reduced range of movement of hip could alter rapid movements in all directions.

Upper Extremities: This is an area where variation occurs. Some minimal to moderate limitation in range of motion and/or coordination can often be seen during sport movement, but functional strength is within normal limits.

Football

During sport, exertion will increase tone and decrease function. The Athletes will have difficulty in turning, pivoting and stopping, usually running only short distances due to involvement in both lower limbs. Stride length is reduced and/or decreased with exertion. Trapping may be difficult. Follow through movements may be impaired due to limitations in range of movement. Foot extension may be limited affecting passing. Jumping could also be affected due to the impaired Range Of Motion in the affected lower limbs. Balance during a throw-in may be impaired.

5.2 Class FT 6

Athetosis, Dystonic, Ataxic or Mixed Cerebral Palsy or related neurological conditions

- Moderate involvement in all four limbs;
- The Athlete ambulates without assistive devices but might require orthotics/splints;
- Athetosis, dystonia or ataxia is typically the most prevalent factor but some Athletes can have problems with athetosis or ataxia mixed with spasticity;
- Athletes with dystonic athetosis in all four limbs belong in this classification unless the impairment is minimal.

Class 6 Athletes have more control problems in their upper limbs than Class 5 Athletes, although Class 6 Athletes usually have better function in their lower limbs particularly when running.

Lower Extremities: Function can vary considerably depending on the sports skill involved, from poor, laboured, slow walking to a running gait, which often shows better mechanics. There can be a marked contrast between the walking athlete with athetosis or dystonia with uncoordinated gait and the smooth even paced coordinated running/cycling action.

Athletes with ataxia will have a wide based stance and gait.

Spasticity can occasionally be seen in Class 6 Athletes and should not be a reason for placement in Class 5.

When running the Athlete may have "flight" (both feet off the ground at the same time). If the athlete is not able to demonstrate flight he should be considered for the profile of Class 2 or 3.

Balance: Athletes who have athetosis or dystonia may have good dynamic balance compared with static balance. Both Athletes with dystonia, athetosis and ataxia, in particular, will have problems with balance and with starting, stopping, and turning when running. They will also have varying degrees of difficulty with balance while hopping and jumping; with many postural body adjustments for static/dynamic balance The Athlete has delayed saving/protective reactions when falling or losing balance.

Upper Extremities: The Athlete with a mixed picture may have problems with limitation of range of movement. Athletes who have athetosis or ataxia have poor upper limb coordination and timing – delayed reactions with catching and throwing and increased involuntary movements on activity.

Grasp and release can be significantly affected when throwing.

Football skills: The Athlete will have trouble stopping and changing direction quickly with and without the ball. Coordination and timing problems will be seen when tracking, trapping and kicking/passing the ball. The Athlete may have difficulty dribbling or controlling the ball when running. Explosive movements, hopping and vertical jumps are difficult to perform. Acceleration hesitation and increased impact of momentum on deceleration are typically noted, and difficulties in stop-start movements could be appreciated. Accuracy when planting the non-passing foot may be inconsistent; passing/kicking accuracy may fluctuate because of difficulty with balance on the stance leg and/or stability of the kicking ankle joint.

5.3 Class FT 7

Hemiplegic

- Spasticity Grade 2- 3 in one half of the body (on the frontal plane);
- Walk/run with a limp/clearly noticeable due to spasticity in the lower limb;
- Hemi gait pattern 2, 3 or 4 as per grouping described in 'Gait patterns in spastic hemiplegia in children and young adults ' by Winters TF Jr, Gage JR, Hicks R., (J Bone Joint Surg Am. 1987 Mar;69(3):437-41)(See Section 10 and 11);
- Good functional ability in the other side of the body

Lower Extremities: Hemiplegia Spasticity Grade 2 - 3. Non affected side has better development and good follow through movement in walking and running. The Athlete has activity limitations in gait/running both in stance and swing phase on the impaired side. Balance is also affected and causes significant difficulty with hopping and balancing and side stepping on the impaired leg or side. Foot placement is affected by either weakness in dorsiflexion muscles and/or over-activity in plantar flexor muscles. Knee and hip control are also affected by spasticity and possible loss of range of motion due to contracture.

Upper Extremities: Function is limited on the affected side. There is good functional control on the unaffected side. The affected arm and shoulder will have increased spasticity and decreased range of motion. There are many spasticity patterns in the arm that may fit into this class.

Football skills: The Athlete who walks with a noticeable limp may appear to have a smoother stride when running but may not have a consistent heel strike. The Athlete has difficulty pivoting and balancing on the impaired side and therefore often pivots on the unaffected side and may kick with the affected foot. The Athlete's affected arm muscles will have an increase in tone when running and may appear bent when walking. There are many patterns in the lower limb and upper limb demonstrating spasticity in the hemiplegic side.

Training does not change these patterns it only changes the quality of movement of functional ability. However, the Athlete experiences a visible restriction caused by spasticity during fast movement and an increase in tone with exertion.

The Athlete demonstrates a limitation in knee pick up in sprinting and also has an asymmetrical stride length. Step length is decreased on the impaired side in relation to the unaffected side. Running may appear to be nearly symmetrical however, due to the spasticity and limitations on the impaired side, there will be a difference in step length and stance time. This limitation will also have an impact in the performance of vertical jumps (e.g. for heading skills) due to the lack of contribution of one side in the eccentric phase (flexion-extension). Stride length is affected due to varying factors including reduced strength on impaired

leg and effect of spasticity in the muscles at the ankle, knee and hip joint of affected side Hip placement on the affected side is frequently variable affecting both passing and shooting power.

In some Athletes with an acquired brain injury, the dominant side may have become the impaired side. Therefore the Athlete may kick the ball with the dominant side. If the Athlete is unable to balance or has insufficient support on the impaired side, they may choose to stand on the less affected side and kick with the impaired leg.

5.4 Class FT 8

- **Diplegia / Asymmetric Diplegia / Double hemiplegia / Dystonia grade 1 to 2**
- **Hemiplegia with Spasticity Grade 1 to 2**
- **Monoplegia with spasticity Grade 1 or 2 in major joint in lower limb**
- **Athetosis, Dystonia, Ataxia or Mixed Cerebral Palsy or other neurological conditions**

This Athlete may appear to have near normal function when running but the Athlete must demonstrate a limitation in function to Classifiers based on evidence of spasticity (increased tone), ataxia, athetosis or dystonic movements while performing on the field of play or in training. The Athlete may walk with a slight limp but runs more fluidly.

The Athlete must have an evident impairment of function observed during classification and on the field of play. The Athlete must have one of the following:

5.4.1 Mild Diplegia / Asymmetric Diplegia / Double hemiplegia / Dystonic Hemiplegia / Monoplegia/

Clear evidence must include spasticity grade 1 - 2 in affected limbs and at least the affected lower limb. A clear difference needs to be demonstrated between **active ranges** of motion vs. **passive range**. In addition, a clear difference between **fast passive range** of motion against **slow passive range** of motion needs to be demonstrated. A clear and repetitive velocity dependent 'catch' needs to be felt/demonstrated on fast passive ranges of motion in the lower limb.

The athlete might also demonstrate a mild form of 'Lead-pipe' feel of rigidity on passive movement. If found in conjunction with spasticity or other neurological signs as per below the athlete meets the minimum criteria.

Plus

Upper Motor Neuron pattern must be demonstrated. This may include two or more of the following:

- Positive uni or bi-lateral Babinski
- Clear uni or bi-lateral clonus 3-4 beats or more
- Noticeably brisk reflexes or clear difference in reflexes left vs. Right
- Disdiadokokinesis
- dysmetria

Physical changes can often be seen such as;

- Leg length difference
- Muscle bulk difference
- Foot size difference
- Arm size difference

Lower extremities: gait pattern 1 or 2 as per grouping described in 'Gait patterns in spastic hemiplegia in children and young adults' by Winters TF Jr, Gage JR, Hicks R., (J Bone Joint Surg Am. 1987 Mar;69(3):437-41) See Section 10 and 11. Foot dorsi flexion and toe-heel gait when walking backwards is mildly affected on the affected side. The Athlete pivots to both sides on the field of play although there is a difference in the pivoting to the affected side due to spasticity.

Upper extremities: The affected arm and shoulder contributes to propulsion.

Monoplegia: Must involve at least two joints and have limitations in range of motion left versus right or active versus passive. Players with monoplegia, which does not include the leg but only the upper limb, are not eligible for Football 7-a-side.

5.4.2 Mild Athetosis/Dystonia

Obvious athetoid or dystonic movements are noticed in face/upper and or lower limbs, trunk or on one side of the body (hemi athetosis or hemi dystonia). Balance problems and incoordination must be evident both on examination during evaluation and the field of play. The impairment must have a demonstrable impact on sport performance as seen by the Classification Panel such as difficulty stopping, starting, turning, balance and explosive movements. If the athlete has pure athetosis only fluctuating muscle tone can be found but no spasticity or a catch. If however a 'catch' is found it is often found inconsistently and/or at varying points in the range of motion.

5.4.3 Mild Ataxia

The Athlete must have clear signs of cerebellar dysfunction. Tremor or dysmetria is found on finger nose test or finger-nose-finger test or heel shin test. Balance is affected in heel-toe walk and single leg stance and/or hopping. The impairment must have a demonstrable impact on sport performance as seen by the Classification Panel such as difficulty stopping, starting, turning, balance and explosive movements. Athletes with only Ataxia (not a mixed picture with spasticity) do not show a 'catch' on the ASAS. Variable contractions in opposing muscle groups may cause tremors or fine oscillating joint movements

Football skills

Athletes with minimal impairment may appear to have near normal function when running but the Athlete must demonstrate an activity limitation in function to Classifiers based on evidence of hypertonia (spasticity, dystonia, rigidity) athetosis/chorea or ataxia or mixed involvement. Athletes frequently have increased difficulty generating force against gravity than their non-disabled counterparts creating difficulty in mastering elite football skills. Crossing and finishing can be somewhat impaired in athletes with athetosis/chorea or ataxia and is only intermittently visible. When attacking in and around the box, the player's impulse impairment creates a slight but significant hesitation when compared to non-disabled elite players.

In some Athletes with an acquired brain injury, the dominant side may be the impaired side. Therefore the Athlete may kick the ball with the dominant side. If the Athlete is unable to balance or has insufficient support on impaired side, they may choose to stand on the less affected side and kick with the impaired leg.

6. Classifier Training and Accreditation

6.1 CPISRA International Classification personnel

Section 3 of the IPC Classification Code outlines the definitions for classification personnel. The Classification Code and CPISRA recognize classifiers as Games Officials.

A Classifier is a person authorized as an official by an IF to evaluate athletes, while serving as a member of a Classification Panel. The duties and responsibilities of a Classifier are detailed in the International Standard for Classifier Training and Certification and in the CPISRA Classification Rules.

6.1.1 THERE ARE FIVE LEVELS OF CLASSIFIERS IN CPISRA

Trainee or Classifier In Training (CIT): An individual who has completed online classification courses Level 1 & level 2 and is in the process of formal training by CPISRA but who is not yet certified as a Classifier. A trainee may not be an appointed member of a Classification Panel at an international competition. This individual is unable to allocate an international sport class.

A trainee Classifier is responsible for following prescribed rules as set down in the latest rule book and adhering to the Classifier's Code of Conduct.

The duties of the trainee may include:

- Active participation and observation to learn classification rules and to develop competencies and proficiencies for certification; and
- Attend classification meetings at events.

Level 1 - International Classifier: Individuals who have completed accreditation and are currently classifying both nationally and internationally.

This is an individual who has successfully completed the formal CPISRA training and has been certified to be a member of a Classification Panel at an international competition. This individual may participate in the assignment of sport class with a minimum of supervision of Level 2 classifiers.

An international Classifier (level 1) is responsible for following prescribed rules as set down in the latest rule book and adhering to the Classifier's Code of Conduct.

The duties of the Classifier may include, but are not limited to:

- Work as a member of a Classification Panel to allocate Athlete's Sport Class and Sport Class Status at CPISRA sanctioned events;
- Work as a member of a Protest Panel as required;
- Attend classification meetings at Competitions; and

- Assist in Classifier training and certification as requested by the Head of Classification for the sport, the Classification Officer or the Classifier appointed to be in charge of training at the Competition.

Level 2 – Senior Classifier: The senior classifier acts in a leadership capacity at competitions and reports to the classification committee chair and committee. They work as a team to ensure quality classification and assist and train newer classifiers.

Prerequisites:

- A minimum of 3 years' experience classifying internationally having lots of experience/time at all levels
- Be able understand and teach border line cases
- Shows consistent skills in classification
- Attend a course conductors course on classification and evaluation to teach and train classifiers in training

Senior Classifiers have completed the formal training of CPISRA, show leadership, participate in research and development of the classification system, have sufficient experience to interpret the CPISRA rules while at a competition or are able to act as the final arbiter in protests.

Assists in Classifier Training and Certification (for example being involved in organizing and teaching at classification seminars) as requested by the CPISRA Classification Officer or the Classifier appointed to be in charge of training at the Competition.

The duties of a Senior Classifier may include, but are not limited to:

- Supervise and evaluate Classifiers in training and Classifiers;
- Conduct or assist in the introductory and accreditation level practical courses;
- Assist in the research, development and clarification of the classification rules and profiles for CPISRA and its sports;
- Assist in the review of the rules / profiles on a regular basis; and
- Provide workshops to update Classifiers nationally, regionally and internationally.

Level 3 - Chief Classifier: The Chief Classifier is a senior classifier who has attended training for Chief Classifiers and/ or has been mentored by another Chief Classifier in the position. Chief Classifiers are appointed by the Classification Officer in negotiation with the HOC sports for a specific Competition. This position may be filled by the Classification Officer or HOC Sport. *

Level 4 – Head of Classification Football 7-a-side: The Head of Classification (HOC) is the person that is responsible for the direction, administration, coordination and implementation for Football.

Level 5 – Classification Officer: The Classification Officer is the person that is responsible for Classification for CPISRA. The Classification Officer is a Classifier responsible for the direction, administration, co-ordination and implementation of all Classification matters for the International Federation. Current CPISRA recognized

sports are Football 7-a-side and Race Runner with possible other sports becoming recognized in the future.

6.1.3 RESPONSIBILITIES AND DUTIES OF CLASSIFICATION PERSONNEL

Trainee

A trainee Classifier is responsible for following prescribed rules as set down in the latest rule book and adhering to the Classifier's Code of Conduct found in section 6.

The duties of the Trainee may include:

- Active participation and observation to learn Classification Rules and to develop competencies and proficiencies for Certification;
- Attend classification meetings at events.

International Classifiers

A classifier is responsible for following prescribed rules as set down in the latest rule book and adhering to the Classifier's Code of Conduct found in Section 6.

The duties of the Classifier may include, but are not limited to:

- Work as a member of a Classification Panel to allocate Athlete's Sport Class and Sport Class Status at CPISRA sanctioned events;
- Work as a member of a Protest Panel as required ;
- Attend classification meetings at Competitions;
- Assist in Classifier Training and Certification (for example being involved in organizing and teaching at classification seminars) as requested by the Classification Officer or the Classifier appointed to be in charge of training at the Competition.

Senior Classifier

The duties of a Senior Classifier may include, but are not limited to:

- Supervise and evaluate classifiers in training and classifiers.
- Conduct or assist in the introductory and accreditation level practical courses.
- Assist in the research, development and clarification of the classification rules and profiles for CPISRA and its sports.
- Assist in the review of the rules / profiles each quadrennial
- Provide workshops to update classifiers nationally, regionally and internationally.

Chief Classifier

The Chief Classifier is a senior classifier appointed by the Classification Officer and Head of Classification for a specific Competition. This position may be filled by the Head of Classification or Classification Officer.

Pre requisite training:

Attend and train or be mentored by the Classification Officer or another Senior Classifier who has been appointed as Chief Classifier at an event.

The duties of the Chief Classifier may include, but are not limited to:

- Administer and coordinate Classification matters related to a specific sport for a specific Competition according CPISRA Rules.
- Liaise with Organising Committees and teams before a Competition to identify and notify Athletes who require evaluation for Sport Class and Sport Class Status.
- Liaise with Organising Committees before a Competition to ensure travel, accommodation and working logistics are provided for Classifiers.
- Supervise Classifiers to ensure that classification rules are applied appropriately during a specific Competition.
- Supervise Classifiers and Trainee Classifiers in their duties as members of Classification Panels and monitor their level of classification competencies and proficiencies.
- Complete a competition report within 30 days of the competition and send to the Classification Officer.

Head of Classification Football 7-a-side

This position is appointed by the Chairs of the Football committee and the CPISRA Executive Committee.

Classification Officer CPISRA

The Classification Officer is a senior classifier appointed by the CPISRA Executive Committee and as such, sits as a member of the Executive Committee. They are responsible for all direction, administration and implementation of Classification matters for CPISRA.

Duties may include, but are not limited to:

- Examine the current status of Classification in the sports on a regular basis.
- Lead the design, planning and recommendation of programs and policies for the CPISRA to ensure that Classification Rules comply with the IPC Classification Code and International Standards.
- Administer and coordinate the classification matters related to a specific sport(s), including serving as a member of the Executive Committee of CPISRA.
- Appoint Classifiers for appropriate composition of Classification Panels for competitions, including appointment of Chief Classifiers.
- Organise and conduct Classifier training and certification.
- Maintain and regularly update a secure classification database to ensure classification records are accurate, or appoint an individual to maintain and update the database.
- Maintain and regularly update a Classifier database to track classifier activity and certification.
- Maintain and regularly update the Classification Master List for the respective sport(s).
- Inform Classifiers of any changes in the Classification rules and consult for feedback on issues which affect the specific sport and classification rules.
- Liaise with all relevant external parties, such as the IPC Classification Committee and IPC Medical and Scientific Department, and Organizing Committees.
- Chair the CPISRA Classification Committee.

6.2 CPISRA Classification Accreditation Process

The CPISRA Classification training and accreditation program consists of two levels:

- A person who has successfully completed the Level 1: Introduction to CPISRA Classification course can classify at local and national levels.
- A person who then successfully completes the Level 2: International Classification Accreditation course (including the practical components) can classify at an international level.

The theory component in both levels is accompanied by a practical component. In Level One the practical is done through video tape assignments with feedback from the education coordinators. In Level Two, the theory lends itself to support the practical component allowing trainees more time for hands on experience and interaction with classification panels. Typically the practical will be a one day group session with other classifiers addressing the technical and assessment protocol led by senior classifiers. This will be followed by two days of classification with mentor classifiers during the actual classification process and observations. It can take up to 2 years to finish the program, though most people complete it much more quickly.

Level 1: Introduction to CPISRA Classification

Pre-requisites:

Open to all who work with people with a disability and/ or wish to gain knowledge of the CPISRA Classification System.

Who should take the course?

Athletes, coaches, physiotherapists, doctors and other persons who work with people with neurological conditions or with severe physical impairments.

About the Course:

The course is self-paced and supervised by on line instructors who can answer questions and assist where needed. The theory component is offered online through CPISRA in partnership with Portage College. It includes readings, quizzes and assignments. The practical component requires the student to maintain a log book of athletes classified and videos of him/her classifying athletes. Candidates will have up to 6 months to complete the online portion; the practical component can take up to one year and provides the completion of pre requisites for Level 2.

Notification of Certification

A certificate will be issued upon completion of the online theory course and a second certification will be issued upon completion of the final practicum.

The participant's National Federation may request a copy of the certificate from the Classification Officer.

The participant must classify at national level to be nominated for Level 2: International Classification Accreditation.

Level 2: International Classification Accreditation

Pre-requisites:

Students must have completed both the online and practical components of Level 1: Introduction to CPISRA Classification course AND be nominated to the CPISRA Classification Officer by their country.

A resume of relevant education and certification must accompany the Country's nomination.

Who may take the course?

Individuals who work with people with neurological impairments or severely physically disabled people as defined in the section "Types of Classifiers".

About the Course:

The theory component is complimented by a hands-on practical session followed by the final written examination. The practical component is completed with the student attending an international competition to classify under the supervision of the classification panel. Those who pass the exam with a mark of 75% or higher will then complete a practicum under the supervision of accredited CPISRA classifiers. Candidates will have up to 6 months to complete the online portion; the practical component must be completed within 2 years from taking the written examination.

In Level Two, the theory lends itself to support the practical component allowing trainees more time for hands on experience and interaction with classification panels. Typically the practical will be a one day group session with other classifiers addressing the technical and assessment protocol led by senior classifiers. This will be followed by two days of classification with mentor classifiers during the actual classification process and observations. The final exam (pass mark of 75%) for the Level Two is held after the practical classification. This is followed by a review/evaluation of practical components with the trainee and the decision if a second practical is needed.

Notification of Certification:

Upon completion of the online theory component and successfully attaining 75 % or higher in the written exam, a Certificate will be issued and the individual will be a Level 1 trainee.

Upon successful evaluation and completion of the final practicum a certificate will be issued and the trainee will be elevated to Level 2 International Classifier status.

The new International Classifier's National Federation will receive a copy of the certification.

MAINTAINING CLASSIFIER ACCREDITATION

Classifiers must maintain their accreditation and will be notified annually regarding the status of their accreditation and how to develop further competencies by the Classification Officer after recommendations by the Sport HOC. Classifiers who fail to

meet the maintenance criteria after four years and will lose their status and become INACTIVE until they have been able to upgrade their skills and recertify.

LEVEL 2 - INTERNATIONAL CLASSIFIER

Maintaining Certification:

- Must respond to communications on a regular basis including responding to calls for classifiers for competitions indicating availability or not.
- Must be active within their nation or region annually classifying at least one competition or a minimum of 10 athletes.
- Submit an annual classification log to indicate activity each year.
- Attend classification seminars or meetings (sometime held prior to the competition) to maintain or obtain knowledge of current CPISRA classification rules.
- Attend and classify at a minimum of one competitions per quadrennial.

LEVEL 3 – CPISRA SENIOR CLASSIFIER

Maintaining Certification:

- Is active within nation and region.
- Classifying annually nationally.
- Submits a logbook to the classification chair each year.
- Is active internationally and attends at least one competition every three years in the sport they are accredited for.
- Attends classification workshops and seminars .
- Participates in classifier discussions and tasks keeping abreast of committee communications and directions.

6.3 Classification Workshops

Countries can request practical workshops for specific learning outcomes for example to improve practical skills of national classifiers in one particular sport. These workshops are separate from and do not substitute for the practical components of the International Classification Accreditation Education course (level 2).

6.4 Classifiers Code of Conduct

General Principles

- 6.4.1** The role of Classifiers is to act as impartial evaluators in determining an Athletes Sport Class and Sport Class Status. The Intergrety of Classification in the Paralympic movement and CPISRA rests on the professional conduct and behaviour of each individual Classifier.

6.4.2 All Classifiers must adhere to the IPC code of Ethics (See IPC handbook) and the CPISRA Code of Conduct.

6.4.3 All classification personnel must sign and adhere to the IPC code of ethics indicating an agreement to act in a professional manner according to set guidelines for professional conduct and behaviour.

6.4.4 Classifiers should value and respect the Athlete and Athlete support Personnel and:

- Treat Athletes and Athlete Support Personnel with understanding, patience and dignity,
- Be courteous, objective, honest and impartial in performing their classification duties for all Athletes, regardless of team affiliation, culture or origin.
- Accept responsibility for all actions and decisions taken and be open to discussion and interaction with Athletes and Athlete Support Personnel in accordance with the International Standard for Athlete Evaluation and the International Standard for Protest and Appeals, and CPISRA and/or competition rules.
- Perform classification duties and related responsibilities while not being under the influence of alcohol or illegal substances.
- Maintain confidentiality of Athlete information whenever possible, according of the International Standard for Athlete Evaluation and the International Standard for Protest and Appeals.

6.4.5 Classifiers should respect the Classification Rules and:

- Accurately and honestly represent their qualifications and abilities when applying for training and certification and when accepting classification appointments to competitions.
- Understand the theory and practical aspects of the Classification Rules and make them widely known and understood by Athletes and Athlete support Personnel.
- Continuously seek self-improvement through study of the Sport, Classification Rules, mentoring lesser experienced classifiers and developing trainee classifiers.
- Perform duties without yielding to any economic, political, sporting or human pressure.
- Recognise that anything that may lead to a Conflict of Interest, either real or apparent, must be avoided.
- Disclose any relationship with a team, Athlete or Athlete Support Personnel that would otherwise constitute a Conflict of Interest.

6.4.6 Classifiers should respect their colleagues and;

- Treat all discussions with colleagues as confidential information.
- Explain and justify decisions without showing anger or resentment.
- Treat other classifiers with professional dignity and courtesy, recognising that it is inappropriate and unacceptable to criticise other Classifiers, Games Officials or Technical Advisers in public.
- Publicly and privately respect the decisions and decision making process of fellow classifiers , Games Officials and Technical Advisors whter you agree or not.
- Share theoretical, technical and practical knowledge and skills with less experienced Classifiers and assist with the trainig and development of Classifiers in their respective sports in accordance with the International Standards for Classifier Training and Certification.

6.4.7 Consequences of NON compliance with the Classifers Code of Conduct;

- Classifiers perform a professional role and voluntarily observe a high-level of professional and ethical conduct and behavior, not because of fear of penalty but out of personal character and dignity.
- Classifers must acknowledge and accept that disciplinary action against them may include a variety of sanctions from verbal or written reprimand to revoking their certifiation as a Classifier of CPISRA.

7. Classification Administration and Development

7.1 CPISRA Classification Committee

The CPISRA Classification Committee is a group responsible for the administrative and development duties related to International Classification.

The Duties of the Classification Committee include valuation and revision of classification rules, and policy and procedures related to athlete evaluation and protests, classifier certification and training and other related administration of classification.

The CPISRA classification Committee is chaired by the CPISRA Classification officer. This person is responsible for overseeing the day to day administration of classification and reports to the Executive Committee on behalf of the Classification Committee. The Classification Officer liaises with the Sports Head of Classification to provide classification services to competitions.

The rest of the Classification Committee is composed of the Head of Classification Football, the Education Coordinator, Research Coordinator and 'ad hoc' Senior classifiers who can be recruited by the Classification Officer and the committee for their research and/or other skills as well as regional importance for regional development. All Classification Committee members are ratified by the Executive Committee. It is the aim of the committee to have a representative from each region and a combination of all three disciplines on the committee.

The role of the committee is to assist in the development of classification within the regions and to act as a resource for other classifiers within their region as well as for the individual sports. The Classification Committee members also act as a resource to the Classification Officer, HOC Sports and Research and Education Coordinator.

In addition to the above, members of the CPISRA Classification Committee may select an athlete to serve as a player Classification representative in an advisory capacity. This individual may be utilised for his/her perspective as an athlete, or former athlete, in the sport with experience in situations such as athlete evaluation. Protests, evaluation of classification rules and development of new classification rules, and/or policies and procedures related to Classification.

Classification Officer Duties

- serves as member of the CPISRA Executive Committee.
- See Section 4 Classification Personnel for duties and responsibilities.
 - Maintain a data base of all International Classified athletes and classifiers, including a current list of internationally accredited classifiers and certification levels.
 - Makes amendments and improvements to the data base as required.

- Distributes the data base in a secure format to the CO, HOC and Chief Classifiers as requested.
- Provides the web master of the CPISRA web site all relevant information in a timely manner to update the web Classification Masterlist after competitions.
- Provides appropriate reports from the data base on request.
- Collates and provides reports on Classifiers activities on request.

Head of Classification Sports (Football and Race Runner) Duties

- Serves as member on their respective Sports Committee
- See section 4 Classification Personnel for duties and responsibilities

Classification Education Coordinator

- Ongoing development and evaluation of comprehensive training and certification programme for classifiers.
- Ongoing development and evaluation of training curriculum and tools, including introductory workshops and practical seminars, web based resources and presentation materials.
- Assist in recruitment, retention and development of international classifiers
- Appoints, in consultation with CO and HOC Sport, classifier trainers/mentors for all international certification practical clinics.
- Generate a classifier Certification and training competition report within 30 days following the conclusion of a competition where training take place and submit the report to the CO.
- Maintain a list of Classifiers in Training and level of training achieved.

Research Coordinator

- Provides ideas to support and improve the classification system used for CPISRA sports by evidence-based research.
- Develop Research questions that can be used by researchers for future research programs/proposals. Particularly related to classification of athletes that meet the current CPISRA classification rules.
- Monitors international research of classification in paralympic sport and in particular for athletes with CP, ABI and other neurological conditions similar to the athletes that meet the minimum criteria for CPISRA classification system.
- Establish collaborations with other research groups, individuals and/or sport federations which are working in the field of evidencedbased classification research.
- Communication of results and reports, representing CPISRA at scientific meetings related with sports for persons with disabilities.

7.2 Competition Classification Administration

7.2.1 Classification Panel requirements

Regional/International Panel

- Class awarded

- International Sport Class and Sport Class Status restrictions depending on numbers of athletes and panels classifying.
- Panel requirements
 - 4 or 7 International Classifiers. The numbers of panels and make up of levels of classifiers is depending on number of athletes to be classified and number of countries to compete.
 - **One Classification panel** from a minimum of two countries and with at least one senior classifier and a Chief Classifier.
 - At a small competition with only one Classification Panel allocated, in special circumstances, the Chief Classifier may be a classifier.
 - This type of classification panel should be used at developmental competitions where the priority is to provide International Classes for New athletes.
 - This type of classification panel should only be used for athletes without a previous International Sport Class. Only new athletes will be classified.
 - There may be a limit to the number of athletes that can be evaluated because of smaller panel numbers.
 - No Protest will be dealt with. A protest may be carried forward to a world competition or International competition with two panels.
 - **Two Panels allocated** from a minimum of four to five countries and one to two regions with at least one Chief Classifier and three senior classifiers.
 - Classifiers in Training can do a practical at these competitions under the supervision of a senior classifier.
- Competitions
 - CPISRA recognised international competitions.

Paralympic Qualifying Event Classification Panel

- Class awarded
 - International Sport Class and Sport Class Status
- Panel requirements
 - 7 Classifiers, including a experienced Chief Classifier, a minimum of three senior level classifiers, and at least from four to five different countries and two regions.
- Competitions
 - CPISRA Sanctioned, International multi regional competitions

7.2.2 Classification Administration processes

The administration processes will be posted online as reference material but is a component of Classification Processes. The following shows an example of processes that will be posted.

- 'Call for Classifiers'
- 'Call for Classifiers In Training'

- 'Appointment of Classification Panels and Notification' Process
- 'Chief Classifiers duties pre-event, during the event and post event'
- Classifiers duties regarding Classification results and 'posting'

8. Glossary

Activity Limitation	Difficulties an individual may have in executing activities which may include attainment of high performance skills and techniques.
Athlete	For purposes of Classification, any person who participates in sport at the International Level (as defined by each IF) or National Level (as defined by each National Federation) and any additional person who participates in sport at a lower level if designated by the person's National Federation.
Athlete Evaluation	The process by which an Athlete is assessed in accordance with the classification rules of the IF.
Athlete Support Personnel	Any coach, trainer, manager, interpreter, agent, team staff, official, medical or paramedical personnel working with or treating Athletes participating in or preparing for training and/or Competition.
Competition	A series of individual Events conducted together under one ruling body.
Conflict of Interest	A Conflict of Interest will arise where a pre-existing personal or professional relationship gives rise to the possibility of that relationship affecting the Classifier's ability to make an objective decision or assessment.
International Competition	A Competition where an international sports organization (IPC, IF, Major Competition Organization, or another international sport organization) is the governing body for the Competition or appoints the technical officials for the Competition.
International Federation (IF)	A sport federation recognized by the IPC as the sole world-wide representative of a sport for Paralympic Athletes that has been granted the status as a Paralympic Sport by the IPC.
IPC	International Paralympic Committee.
National Competition	A Competition where the National Federation or National Paralympic Committee is the governing body for the Competition or appoints the technical officials for the Competition.

National Federation

The organization recognized by an IF as the sole national governing body for its sport.

National Paralympic Committee (NPC)

A national organization recognized by the IPC as the sole representative of Athletes with a disability in that country or territory to the IPC. In addition, the recognized National Federation of the sports for which the IPC is the IF.

Paralympic Games

Umbrella term for both Paralympic Games and Paralympic Winter Games.

Protest

The procedure by which a formal objection to an Athlete's Sport Class and/or Sport Class status is submitted and subsequently resolved.

9. Appendix CPISRA General Wheelchair sports classes

9.1 Class 1

Spastic Quadriplegic (Tetraplegic)/ Athetoid / Mixed picture/Ataxic

- Severe impairment in all four limbs
- Spasticity Grade 3-4 , with or without athetosis
- Poor functional range of movement and/or poor functional strength in all extremities and trunk
- OR the severe athetoid with poor functional strength and control
- OR Severe ataxia
- Dependent on a power wheelchair or assistance for mobility. Unable to functionally propel a wheelchair.

Trunk Control: Static and dynamic trunk control is very poor or non-existent. Severe difficulty adjusting back to mid-line or upright position when performing sports movements.

Upper Extremities: Severe limitation in functional range of movement or severe athetosis. For example, reduced throwing motion with poor follow through is evident. Opposition of thumb and one finger may be possible allowing Athlete to grip. A number of different unrefined grasp and releases may be observed within this group.

Lower Extremities: Non-functional due severe spasticity, limited range of motion and control. Minimal or involuntary movement would not change this person's class. Does not functionally walk.

9.2 Class 2

Spastic Quadriplegic (Tetraplegia) / Athetoid

- Severe to moderate impairment of function
- Spasticity Grade 3 with or without athetosis
- Severe athetosis
- Tetraplegia
- Poor functional strength in all extremities and trunk but able to propel a wheelchair

Upper Extremities: Can exhibit sufficient dexterity to manipulate and throw a ball. Often has the ability to throw both overhand and underhand. In Athletes with spasticity or mixed picture active range of motion does not allow full shoulder flexion or elevation when throwing.

- Hand: Severe to moderate involvement

- Athletes with spastic quadriplegia - spasticity Grade 3.
- Athletes with athetosis often have a cylindrical or spherical grasp but have difficulty controlling the ball on release

Lower Extremities:

Class 2 L: Sufficient function in one or both lower limbs to propel a wheelchair. They can consistently propel a ball with purposeful direction and sufficient velocity to play.

Class 2: Class 2 Athletes (upper or lower) can sometimes ambulate but never run functionally.

Trunk Control: Static control is fair. Dynamic trunk control is poor as demonstrated by the obligatory use of upper extremities and/or head to assist in returning to the mid-line (upright position). If the Athlete is able to demonstrate trunk rotation during throwing (combined with ROM as above) they are class 3.

9.3 Class 3

Quadriplegia (Tetraplegia), Triplegia, Severe Hemiplegia

- Moderate (asymmetric or symmetric) quadriplegic or severe hemiplegic in a wheelchair with almost full functional strength in unimpaired upper extremity.
- Athletes with severe hemiplegic can propel a wheelchair independently.

Lower Extremities: Spasticity Grade 2-3. Some demonstrable function can be observed during transfer. They may be able to ambulate with assistance or assistive devices but only for short distances.

Trunk Control: Fair trunk control is shown when pushing chair, but forward trunk movement is often limited by extensor tone during forceful pushing. Some trunk movement can be noted also in throwing for postural correction but throwing motions are mostly from the arm. This is a major factor in non-ambulatory capability. Rotation is limited. Spasticity Grade 2-3.

Upper Extremities: Moderate limitation Spasticity Grade 2 in dominant arm shown as limitation in extension and follow through.

Hand Function: Dominant hand may demonstrate cylindrical and spherical grasp, with poor finger dexterity demonstrable in release of shot and discus.

Motor / Mobility Skills

In order to differentiate between Class 3 and 4, trunk mobility in propulsion of the chair and hand function are important. If an Athlete demonstrates a very poor ability to use rapid trunk movements in the pushing motion, or significant

asymmetry in the arm action or grasp and release which impedes the development of forward momentum, he/she is a class 3. An Athlete using only one arm for wheelchair propulsion may have long strokes and rapid grasp and release in the dominant arm and still be Class 3.

Sometimes a hemiplegic Athlete with Spasticity Grade 2-3 in non-dominant arm and near normal function in the dominant arm or a Class 3 athlete with asymmetric diplegia is more appropriate in Class 4. However, a close look should be given to the trunk movement, as it is often the determining factor.

9.4 Class 4

Diplegia

- Moderate to severe involvement
- Good functional strength with minimal limitation or control problems noted in upper limbs and trunk

Lower Extremities: Moderate to severe involvement in both legs, Spasticity Grade 3 - 4 usually rendering them non-functional for ambulation over long distances without the use of assistive devices. A wheelchair is usually the choice for sport.

Trunk: Spasticity Grade 1 - 2. Minimal limitation of trunk movements when wheeling and throwing. In some Athletes, fatigue can increase spasticity which can be overcome with proper positioning. When standing, poor balance is obvious even using assistive devices.

Upper Extremities: The upper limbs often show normal functional strength often do demonstrate to have grade 1 spasticity.

Minimal limitation of range of movement may be present but a close to normal follow through and propulsion is observed when throwing or wheeling.

Hand Function: Normal cylindrical/spherical opposition and prehensive grasp is seen in all sports. Limitation, if any, is usually apparent only during rapid fine motor tasks. It should be remembered that diplegia implies that there is more spasticity in the lower than the upper extremities. Some involvement, Spasticity Grade 1 - 2, can be seen particularly in functional movements of the hands, arms and trunk.

Motor / Mobility Skills

The Athlete is able to perform long and forceful strokes on wheelchair propulsion, with rapid grasp and release, although fine movements of the hands may be affected. During propulsion, these fine movements are not essential. The arm strokes are supported by strong trunk movements in forward and backward direction. If these movements do not occur, the trunk is well balanced and forms a stable base for the arm movements. When the

wheelchair makes a curve, the trunk follows the wheelchair without disturbance of balance.

In throwing events the trunk has to make a complicated, forceful and rapid movement. This movement is complicated because it requires co-ordination of rotation, forward and sideways bending (more complicated than required for propulsion). Because of the slight spasticity in trunk muscles and the negative influence of the spastic legs, some disturbances may be seen when force and speed are required.

10. Appendix Hemiplegic Gait Patterns, Winters, Gage and Hicks (JBJS volume 69, March '87)

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Gait Patterns in Spastic Hemiplegia in Children and Young Adults*

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ABSTRACT: Four homogeneous patterns of gait were defined in forty-six patients who had spastic hemiplegia secondary to cerebral palsy or other neurological disorders by analyzing kinematic data in the sagittal plane and electromyographic data. In Group I (twenty patients) the primary abnormality was a drop foot in the swing phase. The thirteen patients in Group II had a tight heel cord in the stance phase as well as a drop foot in the swing phase. The five patients in Group III also had more proximal involvement (that is, restricted motion of the knee) as well as an equinus deformity of the ankle. In Group IV, the eight patients had, in addition, restricted motion of the hip.

The term spastic hemiplegia is used for the neural deficit that may occur in patients who have a neurological disorder such as cerebral palsy, traumatic injury to the brain, or cerebrovascular accident. The word hemiplegia means the neuromuscular disorder that involves one-half of the body in the frontal plane while the other half is normal or near normal. Cerebral palsy is generally taken to mean a non-progressive disorder that begins either *in utero* or within the first two years of life, with a selective loss of muscle control¹⁰. Many of the characteristics that are seen in patients who have cerebral palsy are similar to those in patients who have injury to the brain or a cerebrovascular accident in which the onset occurs later in life.

Surgery, bracing, or both, have been commonly used to improve the gait in patients who have spastic hemiplegia, but until recently the treatment was entirely empirical. Static muscle tests and observation of the patient's gait are done to determine which muscles are overactive and in need of lengthening. These tests, however, do not yield critical information from patients who have lesions of the brain because manual techniques for testing muscle depend on the patient's ability to selectively activate a particular muscle while simultaneously releasing the antagonist, and often patients who have the conditions that are under study are unable to coordinate these two muscular functions. Variables such as posture of the limbs, vestibular tone, patterns

of locomotor coordination, and the rates at which muscles are stretched also may influence the findings¹⁰. The result has been that variable regimens of treatment are prescribed for many patients who, from the clinical standpoint, appear to have similar involvement of the central nervous system. We decided to study whether more pertinent information could be obtained by use of new laboratory tests: dynamic electromyography and computerized measurements of the rotation of joints. These tests allow the physician to evaluate the function of the muscles and the position of the joints during gait and provide a more extensive and objective assessment of the neural deficit in patients who have spastic disorders.

In 1977, Bekey et al. classified the spastic gait of thirty patients into four categories using electromyographs of the muscles that activate motion of the foot and the ankle. They concluded that an accurate description of the various patterns of gait is possible if the patterns of movement of the entire lower extremity also were evaluated. In a follow-up study, Chang and Bekey discussed how they were able to apply recognition of patterns to the prediction of the changes in gait that could be expected postoperatively. Knutsson and Richards combined electromyographic studies and intermittent light photography and found three predominant patterns of gait in patients who had spastic hemiplegia that was secondary to cerebrovascular accidents; one pattern was similar to the pattern found in our Group-II patients and two patterns were similar to that in our Group-III patients.

Materials and Methods

Forty-six patients who had spastic hemiplegia underwent a computerized analysis of gait at the Newington Children's Hospital Kinesiology Laboratory. The thirty-three male and thirteen female patients had an average age of 11.2 years (range, 3.4 to 30.5 years). Thirty-eight had cerebral palsy; six, traumatic injury to the brain; and two, juvenile cerebrovascular accident. The patients with the two latter diagnoses were tested at least two years after the onset of the hemiplegia and were believed to have reached the limit of neurological recovery. None of the patients had had orthopaedic surgery before the analysis and all could walk independently without orthoses or other aids.

In the Kinesiology Laboratory, we used four systems of measurement that were connected to a supervising computer (Digital Equipment Corporation, Maynard, Massachusetts): a three-dimensional motion camera (United

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Technologies Research Center, East Hartford, Connecticut), a three-channel visual camera (Panasonic, Secaucus, New Jersey), a force measurement system with two force platforms (Advanced Mechanical Technology, Newton, Massachusetts), and an eight-channel electromyographic telemetry system (Biosentry, Torrance, California). The electromyographic telemetry system monitored signals from surface amplified electrodes (Motion Control, Salt Lake City, Utah) or implanted fine-wire electrodes, or both^{4,5}.

All patients had an orthopaedic evaluation as part of the analysis in which they walked at self-selected speeds during testing. Two runs of kinematic data were done for each subject and were compared visually. In patients who have spastic hemiplegia the differences in data from run to run are usually minor. Any patients whose analysis showed gross differences between runs were eliminated from the study. In patients who had minor differences, the data that more closely approximated normal were selected.

Although analysis of three-dimensional motion measurements was done in all patients, the classification of the patients into the four groups to be described was based on the recordings that were made in the sagittal plane (that is, the plane of progression for the three major joints of the lower extremity). Electromyographic data were used to classify patients who could not be grouped by kinematic data alone.

Results

Four distinct patterns of gait were identified. Table I

compares the speed of walking and rotations of the joints in the sagittal plane of the four groups with the parameters of normal gait.

Group I consisted of twelve boys and eight girls, whose average age was 9.5 years (range, 5.2 to 15.8 years). Nineteen patients had cerebral palsy and one had traumatic injury to the brain. The patients in this group had the mildest deviations from normal gait. The average speed of walking was 97.3 centimeters per second; the normal speed for children who are between the ages of eight and fourteen years is 116.6 centimeters per second⁷. The most significant abnormality of gait was a drop foot in the swing phase (Fig. 1), but equally important was the finding that they had an adequate range of dorsiflexion (average, 12 degrees) (Table I) of the ankle during the stance phase of gait. The maximum amount of dorsiflexion in the stance phase was more than zero degrees in all of the Group-I patients. Other deviations from normal gait that were recorded in this group included increased flexion of the knee at terminal swing phase, at initial contact, and in loading response; hyperflexion of the hip during the swing phase; and increased lordosis of the pelvis throughout the gait cycle (Fig. 1).

Group II consisted of thirteen patients, nine boys and four girls, whose average age was 10.2 years (range, 4.3 to 15.8 years). Eleven patients had cerebral palsy; one patient, traumatic injury to the brain; and one, a cerebrovascular accident. The average speed of walking for the patients in Group II was 90.0 centimeters per second. The gait in this group was characterized by plantar flexion that persisted

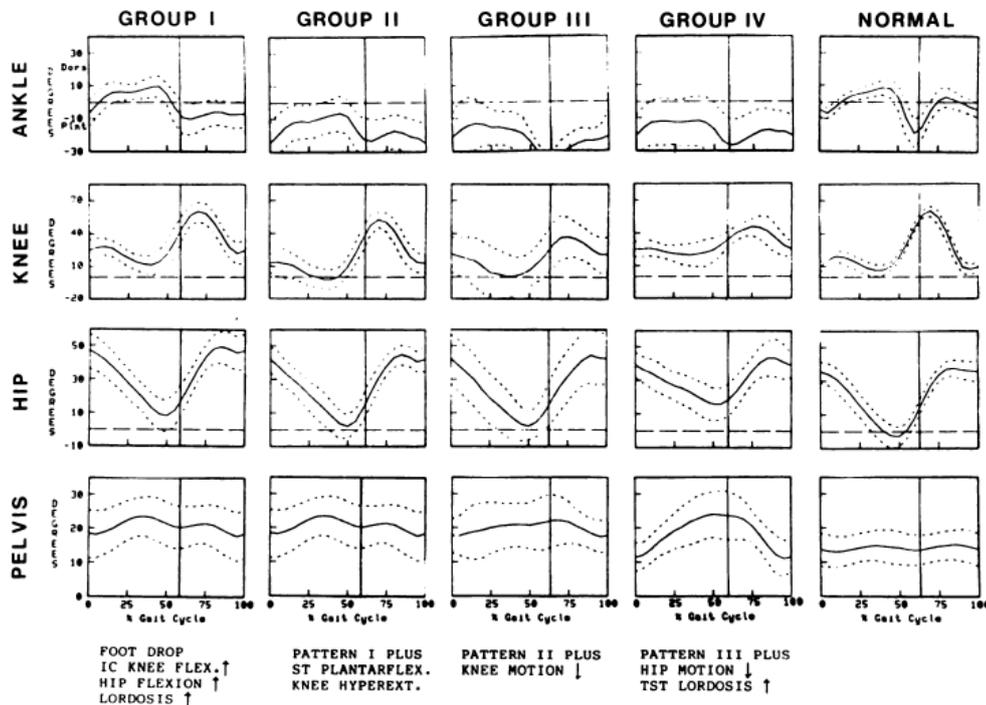


FIG. 1

The charts indicate the mean (solid line) and standard deviations (dotted lines) of rotation of the joints in the sagittal plane for each group and for normal values. Features of each group are summarized at the bottom of the chart using the following abbreviations: IC = initial contact, ST = stance, and TST = terminal stance.

TABLE I
DATA ON AGE AND PARAMETERS OF GAIT IN NORMAL SUBJECTS AND HEMIPLEGIC GROUPS*

	Normal†	Group I	Group II	Group III	Group IV
Rotation of the joints during gait (degrees)					
Maximum dorsiflexion of the ankle (swing phase)	4 ± 6	-1 ± 6	-16 ± 11	-21 ± 8	-14 ± 10
Maximum dorsiflexion of the ankle (stance phase)	10 ± 4	12 ± 6	-7 ± 10	-6 ± 12	-8 ± 14
Total flexion-extension of the knee	56 ± 4	51 ± 8	60 ± 10	37 ± 8	33 ± 12
Total flexion-extension of the hip	42 ± 3	44 ± 7	46 ± 6	46 ± 10	29 ± 4
Age (yrs.)	11	10 ± 4	10 ± 4	15 ± 12	12 ± 6
Speed of walking (cm/sec.)	117 ± 14	97 ± 19	90 ± 20	80 ± 24	84 ± 22

* Mean and standard deviation.
† Values obtained from Newington Children's Hospital.

throughout the gait cycle (Table I). The patients in this group also demonstrated full extension or hyperextension of the knee in the stance phase (Fig. 1) as well as hyperflexion of the hip and increased lumbar lordosis throughout the gait cycle.

Group III consisted of five male patients, whose average age was 14.5 years (range, 4.9 to 30.5 years). Two patients had cerebral palsy; two, traumatic injury to the brain; and one, a cerebrovascular accident. The average velocity of walking was 79.7 centimeters per second. The patients in this group had plantar flexion at the ankle,

showed a progression of involvement proximally, and had more limited flexion of the knee during the swing phase than Group-II patients. Total flexion-extension of the knee during gait was less than 45 degrees in Group-III patients; the value for normal subjects is 56.3 degrees. Group-III patients were similar to patients in Groups I and II in that they also had hyperflexion of the hip and increased lumbar lordosis.

Group IV consisted of eight patients, seven male and one female. The average age was 12.2 years (range, 3.4 to 21.5 years). Six patients had cerebral palsy and two, trau-

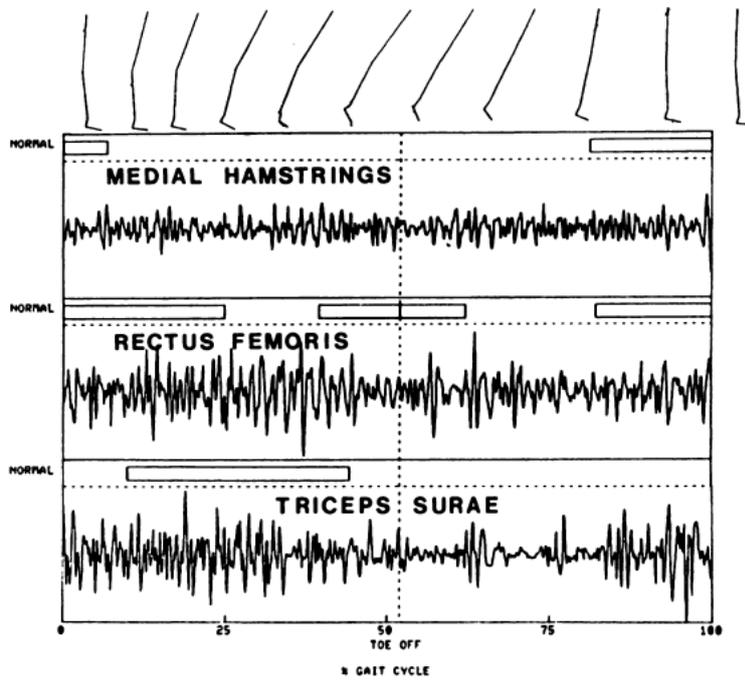


FIG. 2

The stick figures of the lower extremity and the electromyographs are representative of the patients in Group III. Flexion of the knee during the swing phase is limited because of the concomitant activation of the hamstring and rectus femoris muscles. The bar graphs that indicate normal values are based on data that were collected at the Shriners Hospital in San Francisco, California².

matic injury to the brain. This group had the most neurological involvement. The average velocity for walking was 84.4 centimeters per second. The ankle was plantar flexed, motion of the knee was restricted, and the hip showed limited flexion-extension. Total flexion-extension of the hip during gait was less than 35 degrees in Group-IV patients; the value in normal subjects is 42.1 degrees. Group-IV patients compensated for limited motion of the hip by increasing pelvic lordosis during the terminal stance of gait (Fig. 2).

Discussion

Group I

The pattern of gait in the patients in Group I was best characterized by plantar flexion of the ankle in the swing phase, resulting in an equinus deformity at initial contact. The heel cord was not tight since there was adequate dorsiflexion in the stance phase. To compensate for the drop foot, the knee hyperflexed at foot strike, forcing the hip into increased flexion in order to maintain the body in a position centered over the foot and to help clear the swinging limb with the drop foot. The pattern of pelvic tilt showed increased lordosis throughout the gait cycle.

The classic treatment for these patients has been to lengthen the heel cord. Such treatment, however, can worsen the gait since the pathological lesion is not a shortening of the gastrocnemius and soleus muscles as evidenced by dorsiflexion of more than zero degrees during the stance phase. It is more likely that the problem is weakness or underactivity of the anterior tibial muscle relative to overactivity of the gastrocnemius and soleus muscles.

Group II

The patients in Group II had a static or dynamic contracture of the gastrocnemius and soleus muscles that resulted in persistent plantar flexion of the ankle during the stance and swing phases. Perry⁹ stated that 15 degrees of plantar flexion of the ankle places the trunk behind the foot unless the knee is hyperextended, the hip is flexed, or the heel is elevated by external support. When the ankle is in fixed plantar flexion, the tibia and foot function together as a long lever that will not allow the usual rocker motion of the tibia on the foot. This forces the knee into hyperextension in the middle and terminal stages of stance. In addition, advancement of the trunk is curtailed and the length of the opposite step is decreased. To maintain the center of gravity over the foot, flexion of the hip and pelvic lordosis were increased, as in the patients who were in Group II.

In the study of Knutsson and Richards one-third of the twenty-six patients who had hemiplegia secondary to a cerebrovascular accident demonstrated a pattern that was similar to that in our Group-II patients. The main disturbance was plantar flexion of the ankle that resulted in hyperextension of the knee.

Group III

The musculature in the proximal part of the lower ex-

trinity was more involved in the patients in Group III than in those in Groups I and II. Waters et al.¹¹ believed that the stiff-legged gait of some hemiplegic patients is a regression to primitive locomotor patterns. These patterns are present in quadrupeds that depend on the extensor reflex for stability in stance and activation of the lower extremity. This extensor reflex occurs during terminal swing phase. There is a strong reflexive tie between contraction of the quadriceps muscles, extension of the hip, and plantar flexion of the ankle; therefore, the equinus position is normal during gait in quadrupeds. In bipeds, the extensor reflex at the ankle has been blocked so that humans do not normally initiate the stance phase with the foot plantar flexed.

In the Group-III patients the extensor reflex remained at the hip and knee to resist the flexor thrust; in fact, extensor tone is enhanced when one rises to the upright position. A central lesion in Group-III patients released the plantar reflex at the ankle from its inhibitory block^{11,12}. The result was the stiff gait with short steps that the Group-III patients demonstrated.

In subjects who have a normal gait, the knee flexes to 35 degrees in the late phase of stance, just before toe-off. Flexion increases to 65 degrees by the middle of the swing after the activity of the quadriceps muscles has ceased¹². In the Group-III patients, however, the quadriceps and hamstring muscles remained active. This simultaneous contraction of flexor and extensor muscles limited flexion of the knee during swing. Electromyography using surface amplified electrodes confirmed this by showing the abnormal activity of these muscles during the swing phase (Fig. 2). We believe that loss of coordinated contraction of the quadriceps and hamstring muscles is the primary cause of the decreased flexion of the knee that occurs during the swing phase⁶.

Knutsson and Richards also found hyperextension of the knee in the stance phase and decreased flexion of the knee in the swing phase in one-third of their patients. However, they also found decreased electromyographic activity of two or more muscle groups and believed the hyperextension of the knee compensated for weakness of the muscles rather than was secondary to plantar flexor spasticity. Decreased electromyographic activity was not found in our Group-III patients. In one-sixth of the patients in their series, Knutsson and Richards found concomitant activation (as shown by electromyography) in four to six muscle groups and decreased flexion of the knee during the swing phase. These findings were true of all of our patients who were in Group III.

Group IV

In Group-IV patients, as in Group-III patients, the extensor reflex was implicated because they had decreased motion at the hip and knee and plantar flexion at the ankle. The reduction of motion in the sagittal plane at the hip constituted the crucial difference between Groups III and IV. Increased activity of the iliopsoas and hip adductors prevented the hip from reaching full extension at terminal

stance phase. The length of the stride would have been severely shortened without the compensatory increase in anterior pelvic tilt.

In general, there was a progression of involvement in the four groups. The average speed of walking for Groups I and II combined was approximately ninety-five centimeters per second compared with approximately eighty-three centimeters per second for Groups III and IV ($p < 0.1$). Patients in Groups I and II appeared to have the least residual damage to the central nervous system as compared with patients in Groups III and IV. It is of interest that the patients in Groups I and II combined were significantly younger than those in Groups III and IV combined (approximately ten and thirteen years, respectively, $p < 0.05$).

Since spastic hemiplegia in young patients encompasses a spectrum of deficits, it follows logically that treatment

of the condition should be specific to the neurological deficit. For example, patients who have a pattern of gait similar to our Group I do not require a lengthening of the Achilles tendon since the gastrocnemius and soleus muscles are not shortened. A leaf-spring orthosis (a flexible plastic ankle-foot orthosis) should adequately control the drop foot.

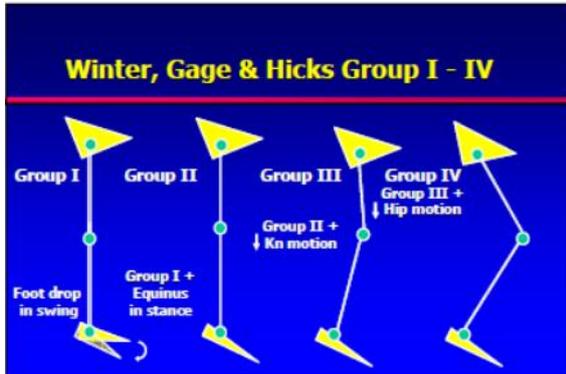
Patients who have a gait similar to our patients in Group II usually will require lengthening of the plantar flexors of the involved ankle as well as a leaf-spring orthosis. In order to develop the patient's ability to walk to the maximum, treatment will probably have to extend to the knee for patients who have a gait similar to our Group-III patients and to the knee and the hip for those who have a gait similar to our Group-IV patients.

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11. Appendix Hemiplegic and diplegic Gait (Rodda and HK Graham, European Journal of Neurology 2001, 8 (Suppl. 5): 98±108)



PowerPoint slide by Dr Kerr Graham (08)

100 J. Rodda and H. K. Graham

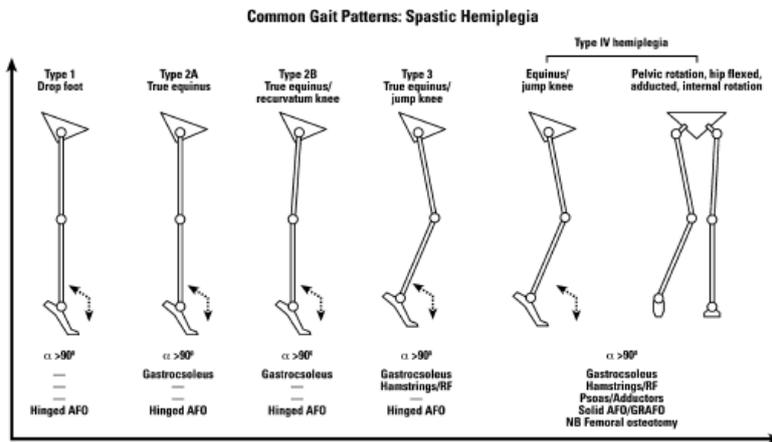


Figure 1 Gait patterns and management algorithm spastic hemiplegia. © Rodda and Graham, Royal Children's Hospital, Melbourne, Australia.

12. Appendix Australian Spasticity Assessment Scale

Australian Spasticity Assessment Scale Scoring Criteria

- 0 No catch on rapid passive movement (RPM) [i.e. no spasticity]
- 1 Catch occurs on RPM followed by release. There is no resistance to RPM throughout rest of range
- 2 Catch occurs in second half of available range (after halfway point) during RPM and is followed by resistance throughout remaining range
- 3 Catch occurs in first half of available range (up to and including halfway point) during RPM and is followed by resistance throughout the remaining range
- 4 When attempting RPM, the body part appears fixed but moves on slow passive movement

(Contracture is recorded separately)

The Australian Spasticity Assessment Scale

Love SC, Gibson N, Blair E

Test Procedure

Starting position: Child lies supine, at rest, attempting to relax, with head in midline, with minimal environmental stimulation.

Procedure for each muscle or muscle group:

Starting position: The muscle/muscle group to be tested is passively held in its shortest anatomical position (NB when testing bi-articular muscles the position of the joint above or below is critical. For information on the position of the joint above and below that being passively moved refer to Norkin and White 2003).

Step one: The muscle/muscle group is moved passively through its full excursion from its shortest anatomical position. The speed is very slow. The muscle length is measured by the available end range of the joint and is recorded in degrees of movement as R2.

Step two: The muscle/muscle group to be tested is passively returned to its shortest anatomical position and followed by three rapid passive movements in the same direction as Step one. The speed is faster than the speed of the limb falling under the effect of gravity (which clinically translates to 'as fast as the examiner can move the limb, without exerting force'. The movement, whilst rapid, must be gentle to ensure any velocity-dependent catch can be determined). If a true velocity-dependent catch is present it will be relatively consistent in its location within the range in all three passive muscle excursions. The point of catch on rapid passive movement is measured in degrees and recorded as R1.

Step three: A fourth rapid passive movement, from the same starting position, same direction and same velocity, is undertaken that not only confirms the previously identified point of catch in the arc of motion, but uses enough force (more than the previous three excursions) to move the muscle/muscle group through the catch to end range. The examiner determines the presence of resistance to the rapid passive movement after the point of catch (between point of catch and end range).

Step four: The muscle/muscle group can now be graded using the ASAS criteria. Scores must not be summed. The numerical value does no more than distinguish between ordinal levels. Whilst a score of '3' indicates more spasticity than a score of '2', a score of '4' is not indicative of twice the spasticity of a score of '2'.

In summary:

Test Action is one slow passive movement in the opposite direction to the main action of muscle/muscle group to be tested, immediately followed by three rapid passive movements in the same direction, stopping at any velocity-dependent catch; followed by one more (4th) rapid passive movement in the same direction, pushing past the catch to determine the presence of resistance.