Laurea specialistica in Scienze delle attività motorie preventive ed adattate

Monitoraggio e valutazione dell'attività motoria adattata (Disabili) - METODI E DIDATTICHE DELLE ATTIVITÀ MOTORIE (2009/2010)

Alcuni aspetti degli sport paralimpici

Lunedì 26 Aprile h. 9÷10:30 MDAm2

Luca P. Ardigò

that they will require for viewing any Athletes that entered the event with N or R Sports Class Status. Teams require this information so that they can determine to protest any newly assigned Sports Classes in accord with the First Appearance requirement of their sport (see article 9).

8.6.2 At the end of each session during the Classification Evaluation Period, the Chief Classifier must convey the outcomes of the assigned Sports Class and updated Sports Class Status to the LOC so that they can prepare start lists and make associated event management arrangements.

9 FIRST APPEARANCE

9.1 First Appearance for N and R Sports Class Status Athletes is generally defined as the first time the Athlete competes during the Competition. IFs are required to define whether First Appearance is applicable for a particular Sport.

9.1.1 In individual Sports, if applicable, First Appearance usually is considered for each Event that requires technically different skills.

9.1.2 In Team Sports, if applicable, First Appearance usually is defined the first time an Athlete has meaningful playing time (as determined by the Chief Classifier) during preliminary rounds or pools. IFs are required to clearly define the word 'meaningful' in objective terms.

9.2 Athletes cannot be allocated a C Sports Class Status until they have completed the First Appearance requirements of the Sport in order to allow other competitors/Nations to:

- Observe the Athlete in competition
- Potentially protest the allocated Sports Class.

10 NOTIFICATION OF CHANGES IN SPORT CLASS RESULTING FROM OBSERVATION ASSESSMENT

10.1 If any changes to an Athletes assigned Sports Class are determined by the Classification Panel as a result of the Observation Assessment during the Classification Competition Period, then:

APPENDIX 1: ATHLETE EVALUATION PATHWAY

Step 1. Pre-Competition Tasks

Inclusion of classification rules in the agreement with the OC
Appointment of a chief classifier
Identification of Athletes for Evaluation
Collection of supportive classification documentation
Preparation and dissemination of the Classification Evaluation Period Schedule
Organization of the Classification Evaluation Period Logistics

Step 2. Athlete Presentation for Evaluation

Athlete presentation
Verification of accreditation, collation of documentation and health check
Classification process briefing
Completion of consent forms

Step 3. Athlete Assessment (detail in Appendix 2)

Physical assessment
Technical assessment
Observation assessment (Training Sessions)
If applicable, Ineligibility re-evaluation
Assignment of initial sport class and sport class status

Step 4. Notification of Third Parties

Step 5. Handling Protests

Step 6. Notification of Protest outcome of relevant Parties

Step 7. Observation Assessment during First Appearance

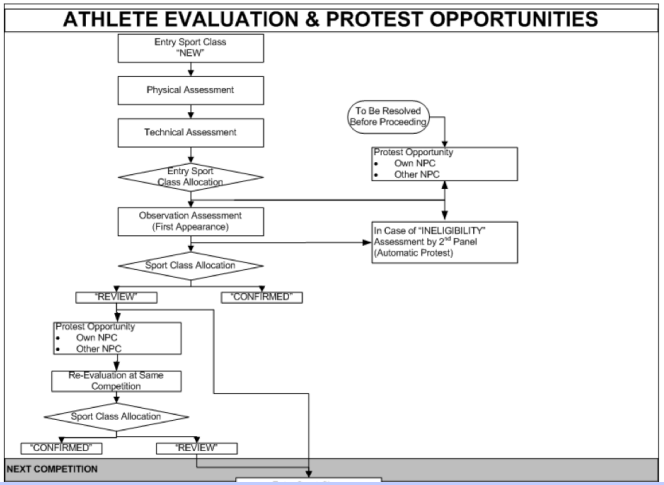
Step 8. Notification of Changes resulting from Observation assessment during First Appearance

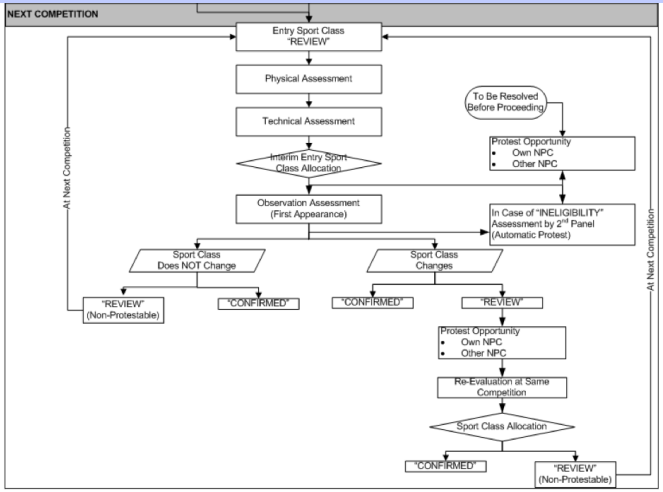
Step 9. Post-Event tasks

Acknowledgements
Post-Event Report
Update master list

flowchart, diagramma di flusso

APPENDIX 2: ATHLETE ASSESSMENT AND PROTEST OPPORTUNITIES




NEXT COMPETITION
Entry Sport Class "REVIEW"
Physical Assessment
Technical Assessment
Interim Entry Sport Class Allocation
To Be Resolved Before Proceeding
Protest Opportunity
Own NPC
Other NPC
Observation Assessment (First Appearance)
In Case of "INELIGIBILITY" Assessment by 2nd Panel (Automatic Protest)
Sport Class Does NOT Change
Sport Class Changes
"REVIEW" (Non-Protestable)
"CONFIRMED"
"CONFIRMED"
"REVIEW"
Protest Opportunity
Own NPC
Other NPC
Re-Evaluation at Same Competition
Sport Class Allocation
"CONFIRMED"
"REVIEW" (Non-Protestable)
At Next Competition
At Next Competition

International Paralympic Committee

International Standard:

PROTESTS AND APPEALS

3 SUBMISSION OF PROTESTS

Protests will generally be submitted during Competitions, but may also be submitted at any other time if permitted under the rules of the relevant IF.

4 PROTEST OPPORTUNITIES

4.1 A NPC or National Federation may Protest the Sport Class of an Athlete from their own or another nation, in accordance with the provisions of this International Standard.

4.2 The Sport Class Status that is allocated to an Athlete indicates the Protest opportunities that are available in respect of that Athlete's Sport Class. The Sport Class Status also indicates which parties may submit such a Protest.

4.3 The process by which Athlete Sport Class Status is allocated is detailed and explained in the International Standard for Athlete Evaluation. Athlete Sport Class Status is indicated by the following designations (these may be amended from time to time according to the International Standard for Athlete Evaluation):

4.3.1 **NEW (N)**: This designation indicates an Athlete who has not undergone Evaluation in order to obtain a Sport Class for International Competition.

4.3.2 **REVIEW (R)**: This designation indicates an Athlete who has undergone Evaluation and has obtained a Sport Class for International Competition, but may require further Evaluation according to the Classification Rules of the IF for that Sport.

4.3.3 **CONFIRMED (C)**: This designation indicates an Athlete who has undergone Evaluation and has obtained a Sport Class for International Competition, and does not require further Evaluation according to the Classification Rules of the IF for that Sport.

4.4 The Chief Classifier of an IF may Protest any Athlete's Sport Class, in accordance with the provisions of this International Standard.

4.5 Table 1 indicates the Protests that are possible during Competitions.

4.5.1 Athletes with Sport Class Status N may be protested (by any National Paralympic Committee and/or National Federation, or

the Chief Classifier of the IF for the relevant Sport) following completion of Athlete Evaluation and allocation of Sport Class. Following the resolution of the Protest, the Athlete shall be designated:

- (R) Review
- (C) Confirmed Status
- Ineligible to Compete.

4.5.2 Athletes with Sport Class Status R may be protested (by any NPC and/or National Federation or the Chief Classifier of the IF for the relevant Sport) following Athlete Evaluation and allocation of Sport Class. Following the resolution of the Protest, the Athlete shall retain R status or be designated:

- (C) Confirmed Status
- Ineligible to Compete.

4.5.3 Athletes with Sport Class Status C may only be protested by the Chief Classifier of the IF for the relevant Sport under Exceptional Circumstances (see article 5).

4.5.4 The regulations with regard to Athletes with Sport Class Status 'Ineligibility' are outlined in the International Standard for Athlete Evaluation, article 7.4.1.

Table 1. Protests during Competitions

Athlete Sport Class Status	Can be Protested by Athlete's NPC/NF and/or other NPC/NF	Can be Protested by Chief Classifier
New (N)	YES	YES
Review (R)	YES	YES
Confirmed (C)	NO	NO*

*Protest lodged under exceptional circumstances (see article 5)

5 EXCEPTIONAL CIRCUMSTANCES

5.1 Exceptional circumstances, for the purpose of this International Standard, will arise if a Chief Classifier believes that an Athlete's Confirmed Sport Class no longer reflects that Athlete's Ability to compete equitably within that Sport Class.

5.2 Exceptional circumstances may result from:

5.2.1 A change in the degree of impairment of an Athlete.

5.2.2 An Athlete demonstrating significantly less or greater Ability prior to or during Competition which does not reflect the Athlete's current Sport Class.

5.2.3 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.

5.2.4 Sport Class allocation criteria having changed since the Athlete's most recent Evaluation.

5.3 A Protest made in exceptional circumstances shall follow the same process detailed in Article 6.

6 PROTEST PROCEDURES

6.1 Protest Procedures during Competitions

6.1.1 International Federations shall detail in their Classification Rules how Protests may be submitted in conjunction with a Competition. These Rules must include provisions relating to the following:

- Who is able to submit a Protest
- The timelines for the submission and resolution of a Protest
- Documents and other Evidence to be submitted with a Protest
- Fees payable
- Notification of Decision.

International Paralympic Committee

International Standard:

CLASSIFIER TRAINING AND CERTIFICATION

1 CLASSIFICATION PERSONNEL

1.1 Classifiers are Officials trained and certified by an IF to determine an Athlete's Sport Class and Sport Class Status as a member of a Classification Panel (see IPC Classification Code, section 3.3).

1.2 Classifiers do not allocate international Sport Class and Sport Class Status individually. Classifiers work as members of a Classification Panel.

1.3 The Classification Panel is a group of Classifiers who allocate an Athlete's Sport Class and Sport Class Status in accordance with the IF Classification Rules.

1.4 In accordance with the Classification Code, a Classification Panel must include a minimum of two Classifiers, unless more are deemed appropriate and specified in the rules of the IF.

1.5 Classifiers may have a wide range of expertise, including medical knowledge and sport specific expertise and technical qualifications.

1.6 IFs are recommended to create Classification Panels that include:

- Classifiers with medical and/or health-related professional training (for example doctors, physiotherapists, occupational therapists) and/or
- Classifiers with sport specific expertise and technical qualifications and/or expertise (for example sport scientists, coaches, former Athletes, physical educators).

1.7 Each IF shall detail the specific qualification criteria for Classifiers including, but not limited to:

- Documentation required by the IF confirming the professional qualifications
- Experience required in the relevant sport.

2 CLASSIFIER CERTIFICATION

2.1 Classifier Certification establishes that an individual has met the competencies and is proficient to practice as a Classifier in a sport.

2.2 IFs are solely responsible for the certification of Classifiers in their Sport.

CHAPTER 4. 4 POSITION STATEMENT ON BACKGROUND AND SCIENTIFIC RATIONALE FOR CLASSIFICATION IN PARALYMPIC SPORT

This statement is endorsed by the IPC Sports Science Committee and the IPC Classification Committee, and has been approved by the IPC Governing Board in June 2009.

This statement is published as a scientific publication and has to be referenced as: Tweedy, S.M., & Vanlandewijck, Y.C. (2009). International Paralympic Committee Position Stand - Background and scientific principles of Classification in Paralympic Sport. British Journal of Sports Medicine, published online 22 October 2009, doi:10.1136/bjsm.2009.065060

ABSTRACT

The Classification Code of the International Paralympic Committee (IPC), inter alia, mandates the development of evidence based systems of classification. This paper: provides a scientific background for classification in Paralympic sport; defines evidence-based classification; and provides guidelines for how evidence-based classification may be achieved.

Classification is a process in which a single group of entities (or units) are ordered into a number of smaller groups (or classes) on the basis of observable properties that they have in common and taxonomy is the science of how to classify. Paralympic classification is interrelated with systems of classification used in two fields:

- Health and Functioning: The International Classification of Functioning, Disability and Health (ICF) is the most widely used classification in this field. To enhance communication Paralympic systems of classification should use language and concepts that are consistent with the ICF;
- Sport: Classification in sport reduces the likelihood of one-sided competition and in this way promotes participation. Two types of classification are used in sport – Performance Classification and Selective Classification. Paralympic sports require Selective Classification systems, so that athletes who enhance their competitive performance through effective training will not be moved to a class with athletes who have less activity limitation, as they would in a performance classification system.

Classification has a significant impact on which athletes are successful in Paralympic sport, but unfortunately issues relating to the weighting and

BJSM Online First, published on October 22, 2009 as 10.1136/bjsm.2009.065060

International Paralympic Committee Position Stand – Background and scientific principles of Classification in Paralympic Sport

This pronouncement was written for the International Paralympic Committee (IPC) by Sean M. Tweedy[1] and Yves C. Vanlandewijck[2]. It has been endorsed by the IPC Sports Science Committee, the IPC Classification Committee and the Governing Board of the IPC.

[1] The University of Queensland, School of Human Movement Studies, Brisbane, Australia

[2]Faculty of Kinesiology and Rehabilitation Sciences, Katholieke Universiteit Leuven, Belgium,

Address for correspondence:

Sean M. Tweedy

The University of Queensland,

School of Human Movement Studies,

St. Lucia, Queensland,

Australia 4072.

Ph: +61 7 3365 6638

Fax: +61 7 3365 6877

E-mail: seant@hms.uq.edu.au

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- Sport: Classification in sport reduces the likelihood of one-sided competition and in this way promotes participation. Two types of classification are used in sport – Performance Classification and Selective Classification. Paralympic sports require Selective Classification systems, so that athletes who enhance their competitive performance through effective training will not be moved to a class with athletes who have less activity limitation, as they would in a performance classification system.

Classification has a significant impact on which athletes are successful in Paralympic sport, but unfortunately issues relating to the weighting and

aggregation of measures used in classification pose significant threats to the validity of current systems of classification.

The IPC Classification Code mandates the development of evidence-based systems of classification, an evidence-based system being one which: the purpose of the system is stated unambiguously; and empirical evidence indicates the methods used for assigning class will achieve the stated purpose. To date, one of the most significant barriers to the development of evidence-based systems of classification has been absence of an unambiguous statement of purpose. To remedy this, all Paralympic systems of classification should indicate that the purpose of the system is to promote participation in sport by people with disabilities by minimising the impact of impairment on the outcome of competition. Conceptually, in order to minimise the impact of impairment on the outcome of competition, each classification system should:

- Describe eligibility criteria in terms of:
  - type of impairment; and
  - severity of impairment;

- Describe methods for classifying eligible impairments according to the extent of activity limitation they cause.

To classify impairments according to the extent of activity limitation they cause requires research which develops objective, reliable measures of both impairment and activity limitation and investigates the relative strength of association between these constructs in a large, racially representative sample. The paper outlines a number of objective principles which should considered when deciding how many classes a given sport should have: the number of classes in a sport should not be driven by the number of athletes in a sport at a single time-point.

BACKGROUND:

The International Paralympic Committee (IPC) is the global governing body of the Paralympic Movement, as well as the organizer of the Summer and Winter Paralympic Games. There are 20 Summer Paralympic sports, and four Winter and these are presented in Table 1, together with Wheelchair Dance Sport which is not contested at the Paralympic Games but which is governed by the IPC. As indicated, the IPC acts as international federation for eight sports (seven Paralympic and one non-Paralympic), while the remaining 17 Paralympic sports are governed by international federations which are structurally independent, but which have been admitted to the membership of the IPC. These international federations comprise International Organizations of Sport for the Disabled (IOSDs) which provide sports opportunities for people with specific disabilties (e.g., cerebral palsy or vision impairment); and International Sport-specific

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22. World Health Organization. The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. Geneva: Author, 1992

Table 1: Sports governed by the International Paralympic Committee (IPC) and its member federations as at January 2009.

Sports governed by IPC	**Sports governed by IPC Member Federations**			
	IOSDs		International Federation Sports	
	Sport	Organisation	Sport	Organisation
Alpine Skiing (W)	Boccia	CPISRA	Archery	Fédération International de Tir à l'Arc
Athletics	Football 5-a-Side	IBSA	Cycling	Union Cycliste Internationale
Ice Sledge Hockey (W)	Football 7-a-Side	CPISRA	Equestrian	International Equestrian Federation
Nordic Skiing (Biathlon & Cross Country Skiing) (W)	Goalball	IBSA	Rowing	International Rowing Federation
Powerlifting	Judo	IBSA	Sailing	International Foundation for Disabled Sailing
Shooting	Wheelchair Fencing	IWAS	Table Tennis	International Table Tennis

				Federation
Swimming	Wheelchair Rugby	IWAS	Volleyball (Sitting)	World Organization for Volleyball for Disabled
Wheelchair Dance Sport			Wheelchair Basketball	International Wheelchair Basketball Federation
			Wheelchair Tennis	International Tennis Federation
			Wheelchair Curling (W)	World Curling Federation

Acronym Key: IOSD (International Organizations of Sport for the Disabled); Cerebral Palsy International Sport and Recreation Association (CPISRA); International Blind Sport Association (IBSA); International Wheelchair and Amputee Sports Federation (IWAS); Winter sport denoted by (W).

Table 2: Previously proposed statements regarding the conceptual basis of Paralympic classification and why they are unsuitable

Conceptual basis	Problem with this conceptual basis
Place athletes into classes according to their **degree of function**	Although function is affected by impairment, a range of other factors also affect how well a person functions. These factors include age, fitness, motivation. A person who is old, unfit and unmotivated will not function as well as when they were young, fit and motivated. Moreover, we know that training affects function – if it did not, then athletes would not train. If athletes was placed into classes according to function, then an athlete who was young, motivated and well trained would be placed in a more functional class than someone who was older, unmotivated and poorly trained. Paralympic systems of classification should ensure that young, well-trained athletes should gain a competitive advantage and therefore classifying athletes according to their degree of function is not a suitable conceptual basis for classification in Paralympic sport.
Place athletes into classes according to their **degree of performance**	The performance potential or innate potential of an athlete is determined by an array of natural attributes including, but not limited to, impairment. For example in discus, performance potential or innate potential is

federations (e.g., Union Cycliste Internationale or International Wheelchair Basketball Federation).

In November 2007, the General Assembly of the IPC approved the IPC Classification Code. The Code provides comprehensive guidelines, policies and procedures for the conduct of classification in sports governed by the IPC or its member federations. (See Table 1 at the end of the document) From a sports science perspective the Code is significant because it explicitly mandates the development of evidence-based classification systems (Code Section 15.2). This position stand has a twofold purpose:

- To provide a theoretically-grounded description of the scientific principles underpinning classification in Paralympic sport; and
- To define the term evidence based classification and provide guidelines for how it may be achieved.

WHAT IS CLASSIFICATION?

Classification is a process in which a single group of entities (or units) are ordered into a number of smaller groups (or classes) on the basis of observable properties that they have in common.[1,2] Taxonomy is the science of how to classify, its principles, procedures and rules.[2] It is applied in most scientific fields to develop systems of naming and ordering that facilitate communication, understanding and identification of inter-relationships

Swedish biologist Carl Linnaeus (1707-1778) is considered the father of taxonomy in the natural sciences.[3] In the tenth edition of System Naturae (1758), Linnaeus introduced a system of binomial nomenclature that was parsimonious yet informative, vastly improving communication in botanical science. For example, the Linnaean term for the European Red Current, 'Ribes rubrum' is a considerably more useful term than 'rossularia, multiplici acino: seu non spinosa hortensis rubra, seu Ribes officinarium', the most widely accepted alternative of the day. Linnaean classification is still the basis upon which life on earth is classified.

As a science in its own right, taxonomy is made meaningful through its application in other fields of science,[2] such as pathology, botany and zoology for classification of diseases, plants and animals respectively. The Paralympic movement provides competitive sporting opportunities for people with a range of impairments and, as such, is interrelated with systems of classification used in two fields:

1. Health and Functioning
2. Sport

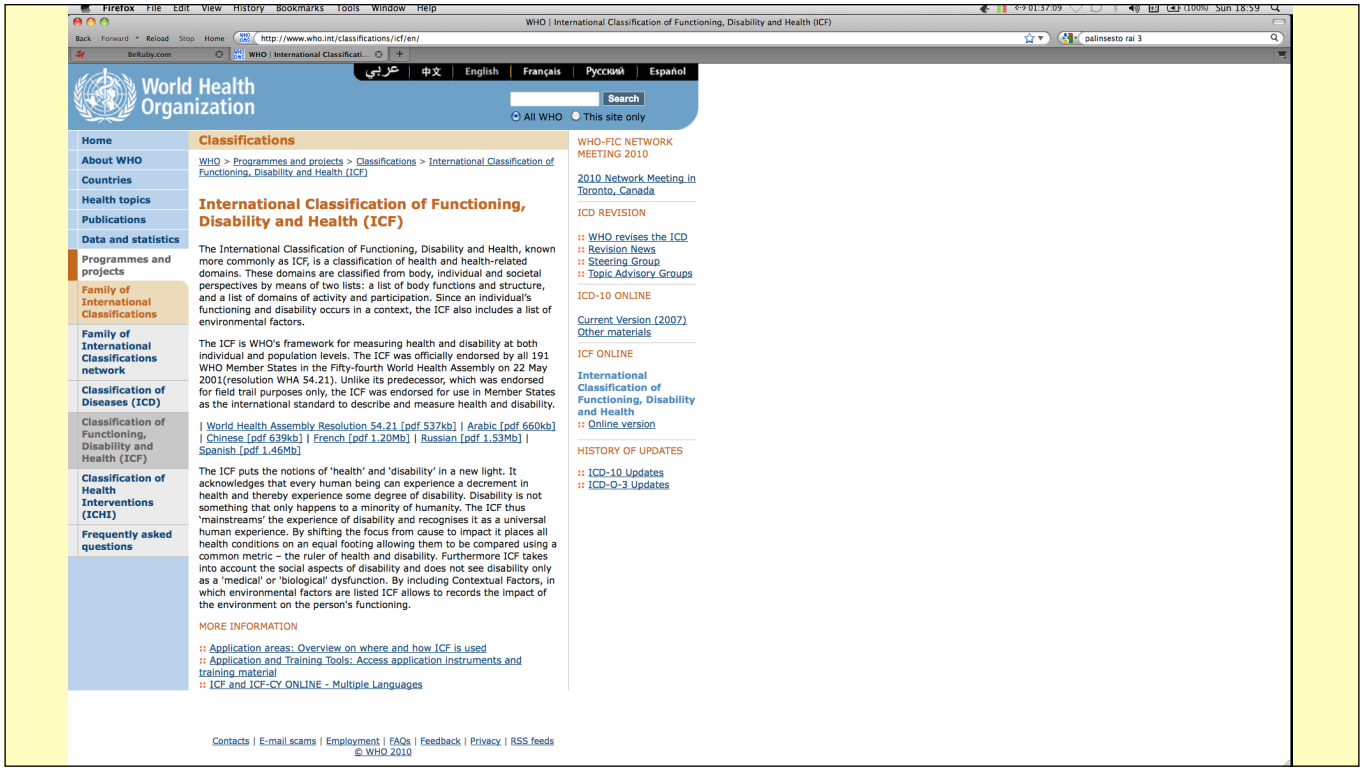
The following sections describe taxonomic principles from these two fields that are relevant to classification in Paralympic sport.

Classification in Health and Functioning
The first internationally recognized system for classification of health and functioning was the International classification of impairments, disabilities, and handicaps (ICIDH), published by the World Health Organisation (WHO) in 1980. In 2001 the ICIDH was revised and re-named the International classification of functioning, disability, and health (ICF). Internationally, the ICF is currently the most widely accepted classification of health and functioning. It is a broad, multi-purpose classification that provides a standardised language and structure that may be applied to describing and understanding health related functioning in a wide variety of contexts and sectors. Further information, including copies of the ICF, is available at: http://www.who.int/classifications/icf/en/.

In 2002, Tweedy [4] described the taxonomic relationship between the ICF and Paralympic classification. The relationship is presented graphically in Figure 1, which maps the domains relevant to Paralympic sport against the comprehensive ICF structure. Tweedy [4] proposed applying the language and structure of the ICF to the context of Paralympic classification and identified several advantages of doing so, including:

- ICF definitions for key terms are clear, unambiguous and internationally accepted. It has been empirically demonstrated that clear definitions enhance the inter-rater reliability of classification systems, particularly when the systems are used by people from a variety of professional and national backgrounds [2];
- the concepts of functioning and disability that are described in the ICF are contemporary and internationally accepted, including the inter-relationship between impairment and activity which is central to Paralympic classification; and
- the key terms and concepts of the ICF are described in six languages – English, French, Spanish, Russian, Chinese and Arabic – and therefore people from a range of non-English speaking backgrounds can learn about the key aspects of this System in their own language, thereby removing a significant barrier to international understanding of Paralympic classification.

Because of these advantages, the IPC Classification Code uses the language and definitions of the ICF. To be consistent, Paralympic classification systems should also conform to ICF language and structure. The remainder of this manuscript uses terms as defined by the ICF, the most important of which are presented in the Glossary. (see Figure 1 at the end of the document)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WHO | International Classification of Functioning, Disability and Health (ICF)
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Classification of Diseases (ICD)
Classification of Functioning, Disability and Health (ICF)
Classification of Health Interventions (ICHI)
Frequently asked questions
Classifications
WHO > Programmes and projects > Classifications > International Classification of Functioning, Disability and Health (ICF)
International Classification of Functioning, Disability and Health (ICF)
The International Classification of Functioning, Disability and Health, known more commonly as ICF, is a classification of health and health-related domains. These domains are classified from body, individual and societal perspectives by means of two lists: a list of body functions and structure, and a list of domains of activity and participation. Since an individual's functioning and disability occurs in a context, the ICF also includes a list of environmental factors.
The ICF is WHO's framework for measuring health and disability at both individual and population levels. The ICF was officially endorsed by all 191 WHO Member States in the Fifty-fourth World Health Assembly on 22 May 2001(resolution WHA 54.21). Unlike its predecessor, which was endorsed for field trail purposes only, the ICF was endorsed for use in Member States as the international standard to describe and measure health and disability.
| World Health Assembly Resolution 54.21 [pdf 537kb] | Arabic [pdf 660kb] | Chinese [pdf 639kb] | French [pdf 1.20Mb] | Russian [pdf 1.53Mb] | Spanish [pdf 1.46Mb]
The ICF puts the notions of 'health' and 'disability' in a new light. It acknowledges that every human being can experience a decrement in health and thereby experience some degree of disability. Disability is not something that only happens to a minority of humanity. The ICF thus 'mainstreams' the experience of disability and recognises it as a universal human experience. By shifting the focus from cause to impact it places all health conditions on an equal footing allowing them to be compared using a common metric – the ruler of health and disability. Furthermore ICF takes into account the social aspects of disability and does not see disability only as a 'medical' or 'biological' dysfunction. By including Contextual Factors, in which environmental factors are listed ICF allows to records the impact of the environment on the person's functioning.
MORE INFORMATION
Application areas: Overview on where and how ICF is used
Application and Training Tools: Access application instruments and training material
ICF and ICF-CY ONLINE - Multiple Languages
WHO-FIC NETWORK MEETING 2010
2010 Network Meeting in Toronto, Canada
ICD REVISION
WHO revises the ICD
Revision News
Steering Group
Topic Advisory Groups
ICD-10 ONLINE
Current Version (2007)
Other materials
ICF ONLINE
International Classification of Functioning, Disability and Health
Online version
HISTORY OF UPDATES
ICD-10 Updates
ICD-O-3 Updates
Contacts | E-mail scams | Employment | FAQs | Feedback | Privacy | RSS feeds
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Classification in Sport

Competition is a defining feature of sport and one of several factors that differentiate sport from other physical activities such as exercise, activities of daily living or recreation.[5] Moreover, competition is known to be a potent social factor that motivates many thousands of people to play sport.[6, 7] However, when competition is one-sided or predictable, motivation to participate in sport is reduced, particularly among the unsuccessful.

Classification in sport reduces the likelihood of one-sided competition and in this way promotes participation. Two main forms of classification are used in sport:

- Performance Classification; and
- Selective Classification.

Performance Classification

Examples of performance classification include the handicap system used in golf, the belt system used in several martial arts and the grading system used to organise competition in football codes (e.g., soccer, rugby and American football). These systems of classification group competitors according to their performance in that sport – competitors who perform very well compete together and those who are less accomplished also compete together. In taxonomic terms, the unit of classification is sports performance. While competitors within a class have a common level of performance, they may vary widely in age and body size, be males or females and, in principle, be disabled or non-disabled. In a performance classification system, competitors who improve their performance through enhanced fitness, skill acquisition or other means are reclassified to a higher performing class. Furthermore, because performance is the basis upon which competitors are placed into classes, competition is usually close and competition results can be used assess the validity of the classification methods – when competition is close and results are not predictable, the methods used to classify are valid.

Note that many performance classification systems have a "ceiling" – once competitors have reached a certain level of accomplishment, they are no longer classified. For example, golf players with a handicap of zero – or scratch – all compete together. They are not divided into players who only just able to make par and those who shoot well below par.

Selective Classification

In contrast to performance classification, the unit of classification in selective classification is not performance but a specified performance determinant or set of determinants (i.e., factors known to be strongly predictive of performance). Three types of selective classification are commonly used in modern sports: age-based classification (e.g., age divisions in junior sport and masters sport), size-based classification (e.g.,

weight divisions in boxing, wrestling or judo) and sex-based classification (e.g., any sport in which males and females compete separately). The units of classification in these examples are, respectively, age, body weight and sex.

The effect of selective classification systems is to minimise the impact of the unit/s of classification on the outcome of competition. For example in an 800m footrace for girls aged 13 years, the impact of sex and age-related maturation on the outcome of competition is minimised, and the relative impact of other performance determinants – training background, psychology and physiology – is increased. Note that selective classification does not eliminate the impact of the units of classification – maturation among 13 year old girls can vary considerably – but their impact is typically reduced.

There are other important differences between performance classifications and selective classifications. Firstly, there is generally no ceiling in selective classification systems – they are applied from grass-roots participation to the highest international level. Secondly, if a competitor in a selective classification system improves their performance through training, their class does not change, as it might in a performance classification system. In selective classification systems, effective training increases a person's competitive standing within their class. Finally, because selective classification systems only control for the effect of a small number of specified performance determinants, performance levels within a given class may vary widely. Consequently, while competition results can be used to evaluate the validity of methods used in a performance classification system, they provide only weak evidence in relation to selective classification systems. The following hypothetical example from the sport of rowing illustrates this point.

Rowing has two weight-based classes: light-weight (mean crew mass <70kg and maximum individual weight of 72.5kg) and heavy-weight (no weight restriction). In a given season, an excellent light-weight rowing crew might consistently finish three boat-lengths in front of their nearest competitors and may even row faster times than some heavy-weight rowing crews. However these results do not constitute evidence that the crew has been mis-classified. To determine whether the crew had been classified correctly would require that a suitably qualified official weighed each crew member on a correctly calibrated set of scales. The results would then be checked to see wether the individual and combined body weights of the crew members met the guidelines determined by the International Rowing Federation (FISA).

As the descriptions above make clear, both Performance Classification systems and Selective Classification systems can be said to promote participation by providing a framework for fair and equitable competition.

However, the IPC is committed to the development of Selective Classification systems, not Performance systems.

CLASSIFICATION IN PARALYMPIC SPORT

Background

Founded by Dr. Ludwig Guttmann in the 1940s, Paralympic sport originated as an extension of the rehabilitation process and during the early years of the Paralympic movement classification was medically based. The organisational structure of medically-based classification systems reflected the structure of a rehabilitation hospital, with separate classes for people with spinal cord injuries, amputations, brain impairments and those with other neurological or orthopaedic conditions. Athletes received a single class based on their medical diagnosis, and competed in that class for all sports – athletics, swimming, archery and any other sports offered. An athlete with a complete L2 spinal cord injury – resulting in lower limb paresis but normal arm and trunk power – would compete in a separate wheelchair race from a double above-knee amputee because their medical diagnosis was different. The fact that the impairments resulting from their medical condition caused roughly the same activity limitation in wheelchair propulsion was not considered in the classification process because classification was based on medical diagnosis.

As the Paralympic Movement matured, sport ceased to be a mere extension of rehabilitation and became important in its own right. The focus on sport, rather than rehabilitation, drove the development of functional classification systems . In functional systems, the main factors that determine class are not diagnosis and medical evaluation, but how much the impairment of a person impacts upon sports performance. For example, in athletics, an athlete with a complete L2 spinal cord injury now competes in the same class as a double above knee amputee (class T54). This is because these impairments have an impact on wheelchair propulsion that is approximately the same. Currently most Paralympic sports use systems of classification that are described as functional, a notable exception being the classification system used by the International Blind Sports Federation which remains medically-based.

In contrast to the medical classification approach, in which athletes competed in the same class for all sport, functional systems of classification are necessarily sports-specific. This is because any given impairment may have a significant impact in one sport and a relatively minor impact in another. For example the impact that bilateral below elbow amputation has on swimming is relatively large compared with the impact on distance running. Consequently, in sport specific, functional classification systems, an athlete with such an impairment would compete in a class that had relatively greater activity limitation in swimming than they would in track athletics.

Historically the transition from medical to sports-specific, functional classification systems began in the late 1970s, but there was considerable debate surrounding the relative merits of the medical and functional approaches and consequently the transition was slow.[8] One feature of early functional systems was that they comprised less classes than the existing medical systems.[9] Event organisers favoured fewer classes because the complexity of event organisation was significantly reduced. In 1989 the bodies responsible for organising the Barcelona Paralympic Games – the IPC and the Barcelona Paralympic Organizing Committee – signed an agreement which stipulated that all Paralympic sports contested at the 1992 Barcelona Paralympic Games were to be conducted using sports-specific functional classification systems.[8] This administrative decision greatly accelerated the transition to functional classification systems.

At the time of this decision many sports had not begun to develop functional systems so, given the short time-frame and the absence of relevant scientific evidence, the classification systems that were developed were necessarily based on expert opinion. Within each of the sports, senior Paralympic classifiers from a diverse range of backgrounds – medical doctors, therapists, athletes and coaches – lead the development of functional systems of classification.

Current Paralympic Classification

Since the widespread adoption of functional systems of classification, Paralympic sport has continued to mature rapidly. Currently there are more than 15,000 registered competitors with the international governing bodies of the 25 Paralympic sports, and a much larger (but indeterminate) number of athletes compete at local and regional level in their home countries but are not registered internationally. At the elite level, successful Paralympic athletes are receiving increasing peer and community recognition and many receive commercial sponsorship and other financial rewards.

It is well recognised that the classification an athlete is assigned has a significant impact on the degree of success they are likely to achieve. Unfortunately however, Paralympic classification and classification research have not matured as rapidly as other areas of Paralympic sport and current Paralympic classification systems are still based on the judgement of a small number of experienced classifiers, rather than empirical evidence. As a consequence, the validity of the methods used in functional classification systems is often questionable.

Threats to the validity of current classification methods

In some instances classification methods have considerable face validity. For example, in a range of Paralympic sports (e.g., Wheelchair Tennis, Swimming, Sailing and Athletics) athletes with a complete spinal cord injury at C7 all compete in the same class, and this is a justifiable grouping

because the nature and distribution of impairments caused by a C7 injury will be approximately the same for all people and therefore the injury will have a similar impact on performance in sport. Moreover, lower lesion level is associated with reduced activity limitation and consequently athletes with a complete T8 lesion will compete in a different class to those with a C7 lesion. The methods for assigning class in the cases described is based on medical diagnosis and confirmatory clinical evaluation of muscle strength, together with observation of the athlete performing a range of sports-specific and non sports-specific tests. These methods are typical of those used in many functional classification systems and, for the cases described, the methods appear to be valid. However, as the following paragraphs illustrate, closer scrutiny indicates that there are significant threats to the validity of these methods.

In general, threats to the validity of functional classification methods result from two separate but related measurement issues:
- Measurement weighting; and
- Measurement aggregation.

The following illustrations of weighting and aggregation issues are based upon the current classification system for wheelchair racing for athletes affected by impaired strength.[10] However the principles apply across the classification systems used in Paralympic sports. There are four class profiles for wheelchair racing – T51, T52, T53 and T54 – the 'T' indicating the classes are for track racing and 51-54 indicating progressively decreasing severity of impairment. The class profiles are written in terms of loss of strength and may be summarised as follows:

- T51: Equivalent activity limitation to person with complete cord injury at cord level C5-6. (elbow flexion and wrist dorsiflexion strength to grade 5, a decrease of shoulder strength especially pectoralis major, and triceps muscle power from grade 0-3);
- T52: Equivalent activity limitation to person with complete cord injury at cord level C7-8 (normal shoulder, elbow and wrist strength, poor to normal finger flexors and extensors and wasting of the intrinsic muscles of the hands);
- T53. Equivalent activity limitation to person with complete cord injury at cord level T1-7 (normal arm strength with little or no innervation of abdominals and lower spinal muscles);
- T54: Equivalent activity limitation to person with complete cord injury at cord level T8-S4 (normal arm strength with a range of trunk strength extending from partial trunk control to normal trunk control).

Measurement Weighting
Measurement weighting refers to the relative influence of individual measures of impairment on the classification outcome. Based upon the profiles above, classification of an athlete who presents with a complete