



Sitting Volleyball



Comitato Italiano Paralimpico



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Italian Paralympic Committee



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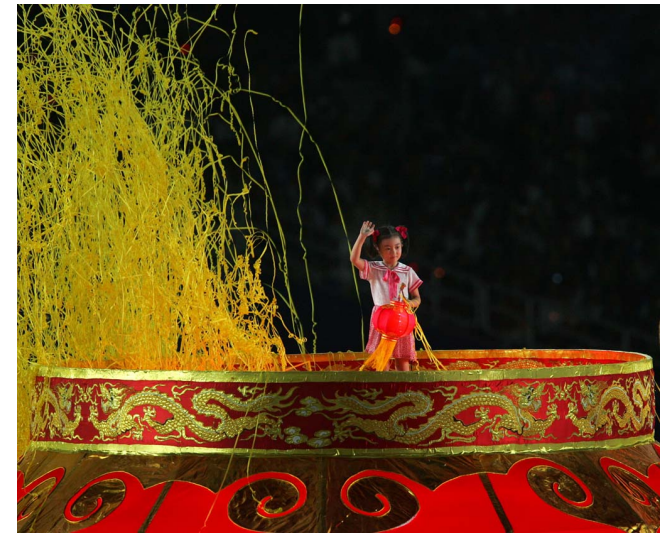


Table 1 Sports governed by the IPC and its member federations as of January 2009

Sports governed by IPC	Sports governed by IPC member federations			
	IOSDs		International Federation Sports	
	Sport	Organisation	Sport	Organisation
Alpine skiing (W)	Boccia	CPISTRA	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	CPISTRA	Equestrian	International Equestrian Federation
Nordic skiing (biathlon and 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

CPISTRA, Cerebral Palsy International Sport and Recreation Association; IBSA, International Blind Sport Association; IPC, International Paralympic Committee; IOSDs, International Organizations of Sport for the Disabled; IWAS, International Wheelchair and Amputee Sports Federation; W, Winter sport.

Paralympic Winter Games - Nagano '98



PARALYMPICS
NAGANO '98



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What is classification?

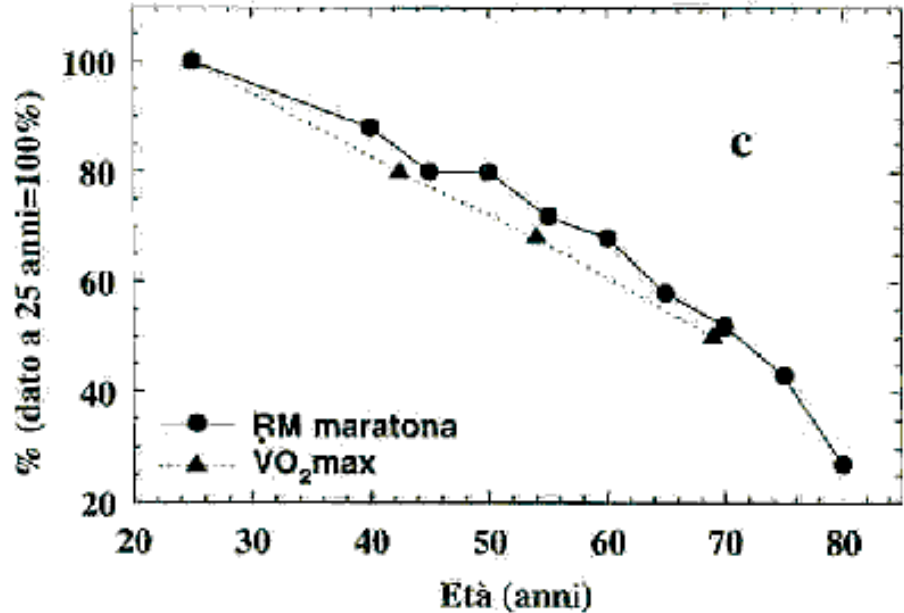
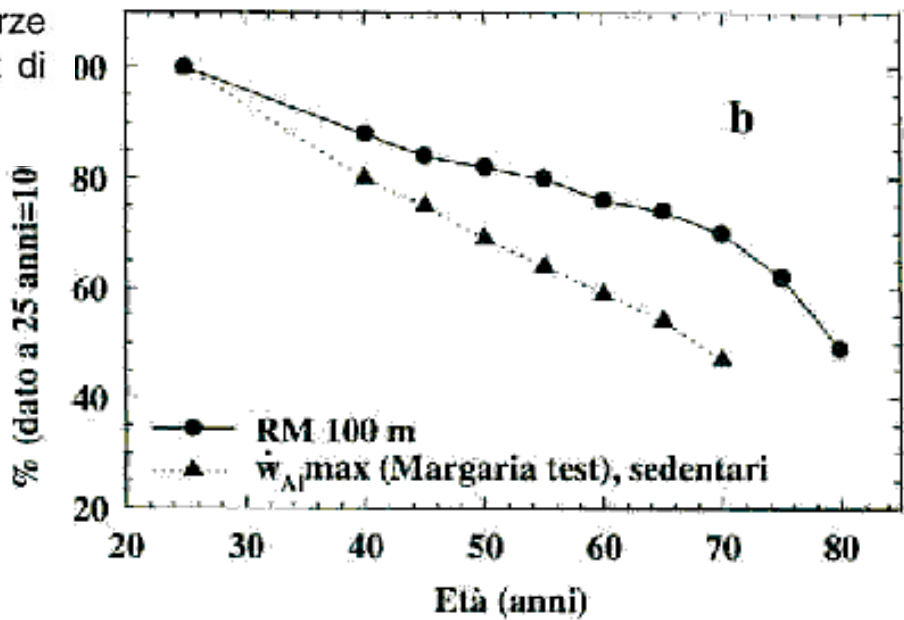
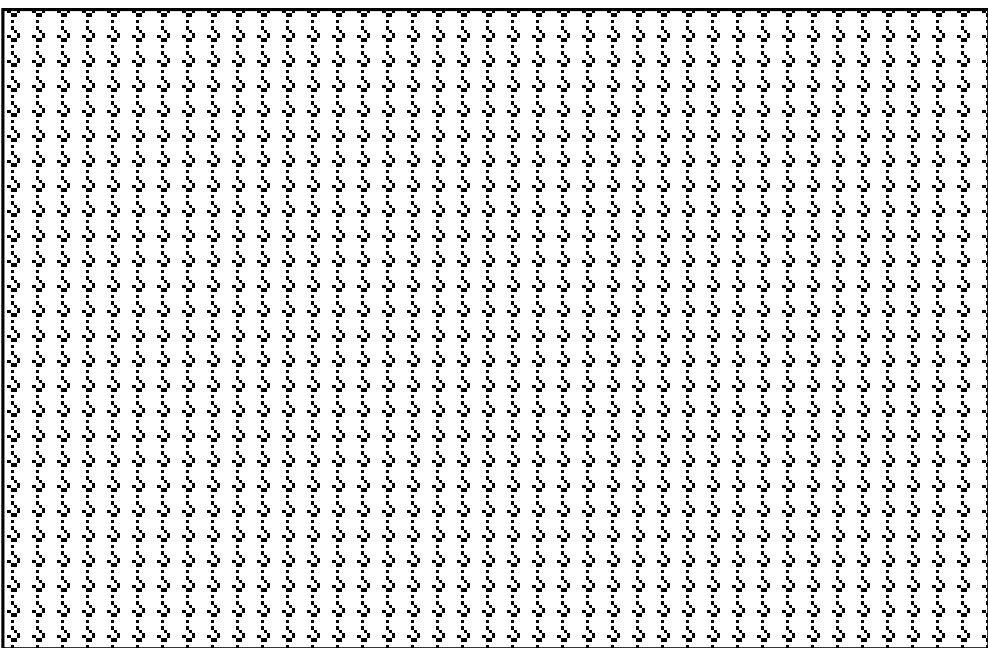
Classification is a process in which a single group of entities (or units) are ordered into a number of smaller groups (or classes) on the basis of observable properties that they have in common (Bailey, 1994; Fleishman & Quaintance, 1984).

Taxonomy is the science of how to classify, its principles, procedures, and rules (Fleishman & Quaintance, 1984). It is applied in most scientific fields to develop systems of naming and ordering that facilitate communication, understanding, and identification of interrelationships.



Fig. 13.40 – Decremento percentuale, in funzione dell'età, dei record mondiali (RM) assoluti del salto in alto (a), della corsa dei 100 m (b) e della maratona (c) paragonati rispettivamente ai dati di potenza \dot{w} registrata su piattaforma sensibile alle forze verticali (a), ai dati di potenza $\dot{w}_{Al,max}$ registrata col test di Margaria e Coll., e ai dati di VO_2max (c).

Decadimento della
funzionalità fisica con l'età





The five areas of resolution

All Paralympic systems of classification must:

- be consistent with the International Classification of Functioning Disability and Health (ICF);
- be based on scientific evidence;
- define eligible types of impairments;
- define minimum impairment criteria;
- classify impairments according to the extent of activity limitation caused.



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All Paralympic systems of classification must be consistent with the International Classification of Functioning Disability and Health (ICF):

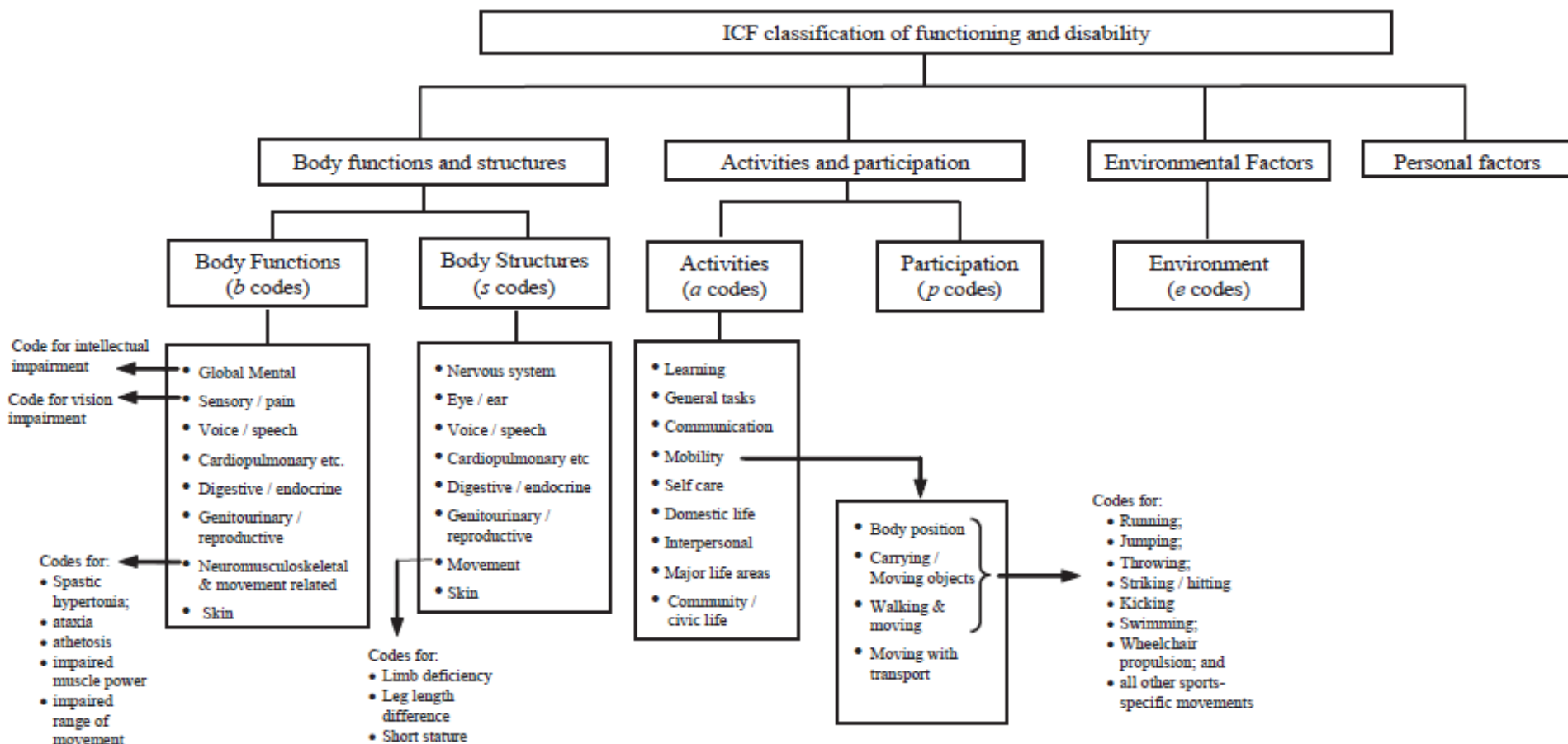


Figure 1 The structure of the International Classification of Functioning, Disability and Health with domains of Paralympic sport mapped.

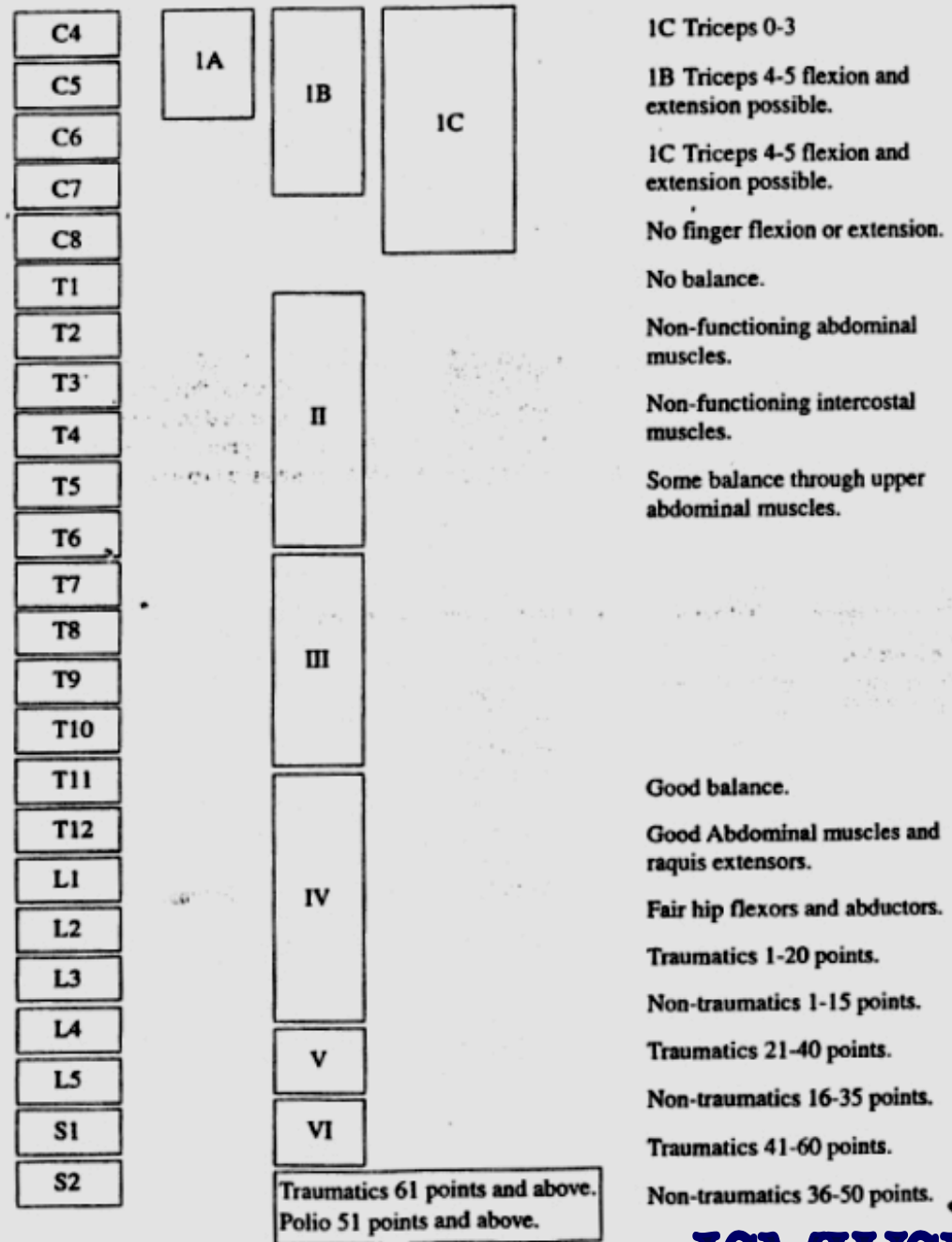
Working descriptor	Examples of health conditions likely to cause such impairments	Impairment as described in the ICF*	Relevant ICF Impairment Codes
Hypertonia (e.g., hemiplegia, diplegia/quadriplegia, monoplegia)	CP, stroke, acquired brain injury, multiple sclerosis	High muscle tone <i>Inclusions:</i> hypertonia/high muscle tone <i>Exclusions:</i> low muscle tone	b735
Ataxia	Ataxia resulting from CP, brain injury, Friedreich's ataxia, multiple sclerosis, spinocerebellar ataxia	Control of voluntary movement <i>Inclusions:</i> ataxia only <i>Exclusions:</i> problems of control of voluntary movement that do not fit description of ataxia	b760
Athetosis	Chorea, athetosis (e.g., from CP)	Involuntary contractions of muscles <i>Inclusions:</i> athetosis, chorea <i>Exclusions:</i> sleep-related movement disorders	b7650
Limb deficiency	Amputation resulting from trauma or congenital limb deficiency (dysmelia)	Total or partial absence of the bones or joints of the shoulder region, upper extremities, pelvic region or lower extremities	s720, s730, s740, s750 <i>Note:</i> These Codes would have the extension 0.81 or 0.82 to indicate total or partial absence of the structure, respectively
Impaired Passive Range of Movement (PROM)	Arthrogryposis, ankylosis, scoliosis	Joint mobility <i>Exclusions:</i> hypermobility of joints	b7100–b7102
Impaired muscle power	SCI, muscular dystrophy, brachial plexus injury, Erb palsy, polio, spina bifida, Guillain-Barré syndrome	Muscle power	b730
Leg length difference	Congenital or traumatic causes of bone shortening in one leg	Aberrant dimensions of bones of right lower limb OR left lower limb <i>Inclusions:</i> shortening of bones of one lower limb <i>Exclusions:</i> shortening of bones of both lower limbs; any increase in dimensions	s75000, s75010, s75020 <i>Note:</i> For coding purposes aberrant dimensions of bones of right lower limb is indicated by addition of the qualifying code 0.841 and in the left lower limb, 0.842
Short stature	Achondroplasia or other	Aberrant dimensions of bones of upper and lower limbs or trunk which will reduce standing height	s730.343, s750.343, s760.349

Classificazioni Tradizionali di tipo clinico

LESIONI MIDOLLARI

- TETRAPLEGIA
- PARAPLEGIA
- POLIO
- SPINA BIFIDA

Wicks et al., 1983:
Tendenza della
massima potenza
aerobica ad aumentare
dalla II alla V classe



Spinal Cord Injury

STANDARD NEUROLOGICAL CLASSIFICATION OF SPINAL CORD INJURY

MOTOR

KEY MUSCLES

	R	L
C2		
C3		
C4		
C5		
C6		
C7		
C8		
T1		
T2		
T3		
T4		
T5		
T6		
T7		
T8		
T9		
T10		
T11		
T12		
L1		
L2		
L3		
L4		
L5		
S1		
S2		
S3		
S4-5		

- Elbow flexors
- Wrist extensors
- Elbow extensors
- Finger flexors (distal phalanx of middle finger)
- Finger abductors (little finger)

0 = total paralysis
 1 = palpable or visible contraction
 2 = active movement, gravity eliminated
 3 = active movement, against gravity
 4 = active movement, against some resistance
 5 = active movement, against full resistance
 NT = not testable

- Hip flexors
- Knee extensors
- Ankle dorsiflexors
- Long toe extensors
- Ankle plantar flexors

Voluntary anal contraction (Yes/No)

TOTALS + = **MOTOR SCORE**

(MAXIMUM) (50) (50) (100)

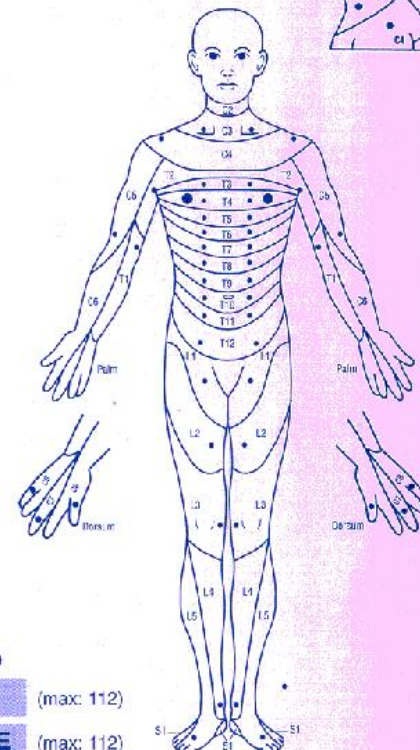
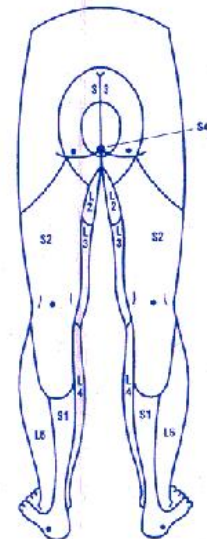
SENSORY

KEY SENSORY POINTS

LIGHT TOUCH
PIN PRICK

	R	L	R	L
C2				
C3				
C4				
C5				
C6				
C7				
C8				
T1				
T2				
T3				
T4				
T5				
T6				
T7				
T8				
T9				
T10				
T11				
T12				
L1				
L2				
L3				
L4				
L5				
S1				
S2				
S3				
S4-5				

0 = absent
 1 = impaired
 2 = normal
 NT = not testable



TOTALS + = **PIN PRICK SCORE**

(MAXIMUM) (56) (56) (56) (56)

TOTALS + = **LIGHT TOUCH SCORE**

(max: 112)
(max: 112)

NEUROLOGICAL LEVEL

The most caudal segment with normal function

SENSORY R L
 MOTOR R L

COMPLETE OR INCOMPLETE?

Incomplete - Any sensory or motor function in S4-S5

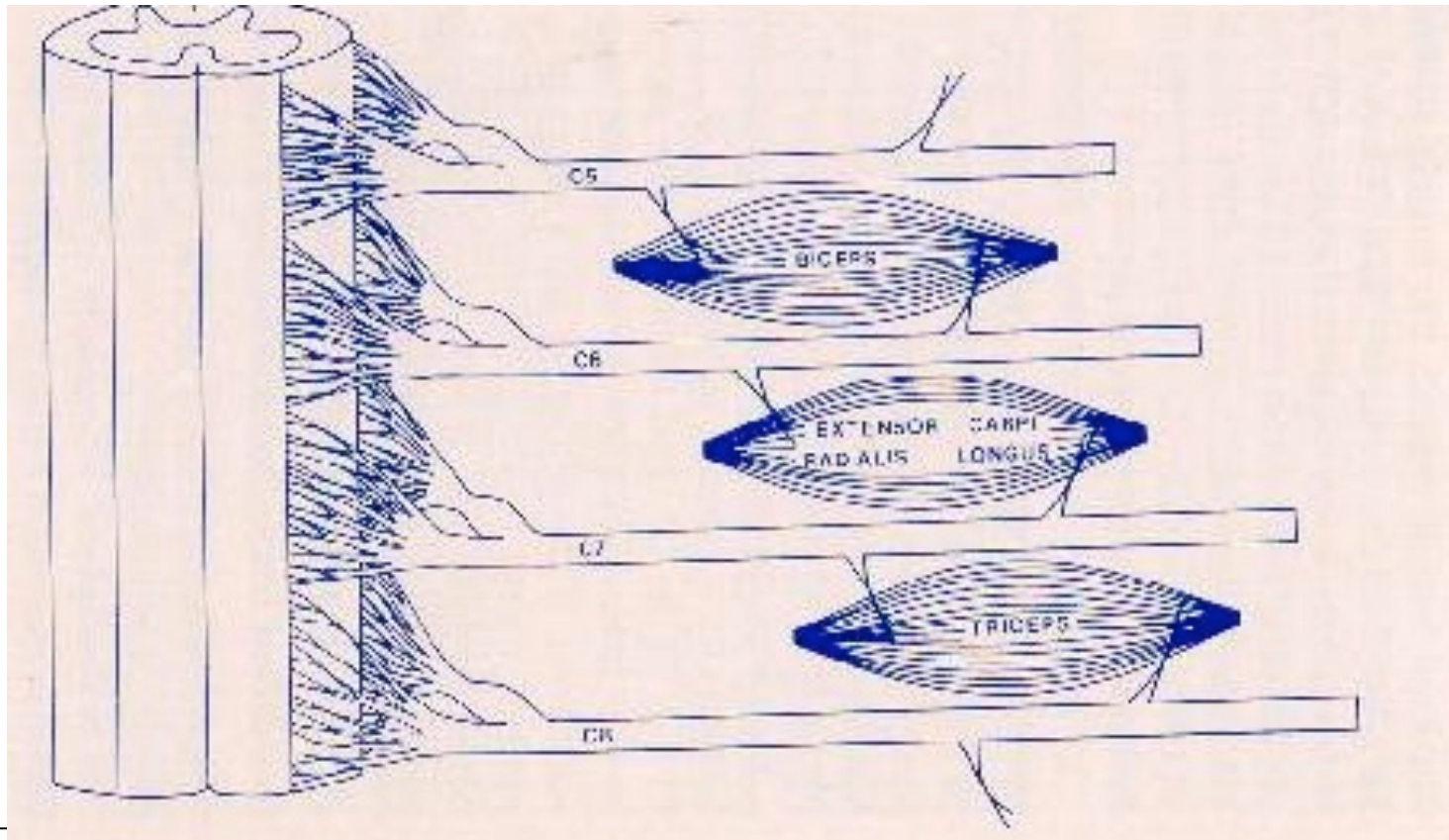
ASIA IMPAIRMENT SCALE

ZONE OF PARTIAL PRESERVATION

Caudal extent of partially innervated segments

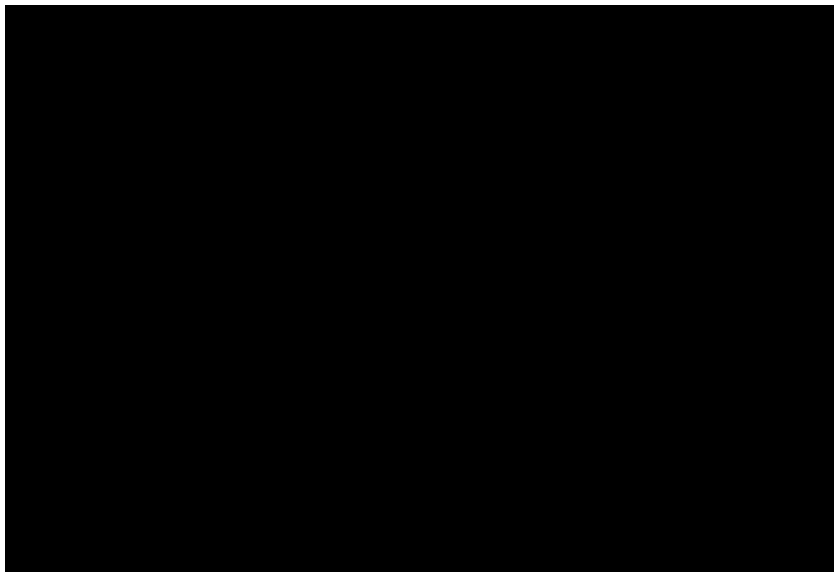
SENSORY R L
 MOTOR R L

Muscoli Chiave



- Disegno schematico dell'innervazione di 3 muscoli chiave: ciascuno muscolo è innervato da nervi a partenza da 2 livelli del midollo spinale

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



London 2012 – Wheelchair Racing T51 – 100 m



There are four class profiles for wheelchair track 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 strength from grade 0 to 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).

Wheelchair Racing

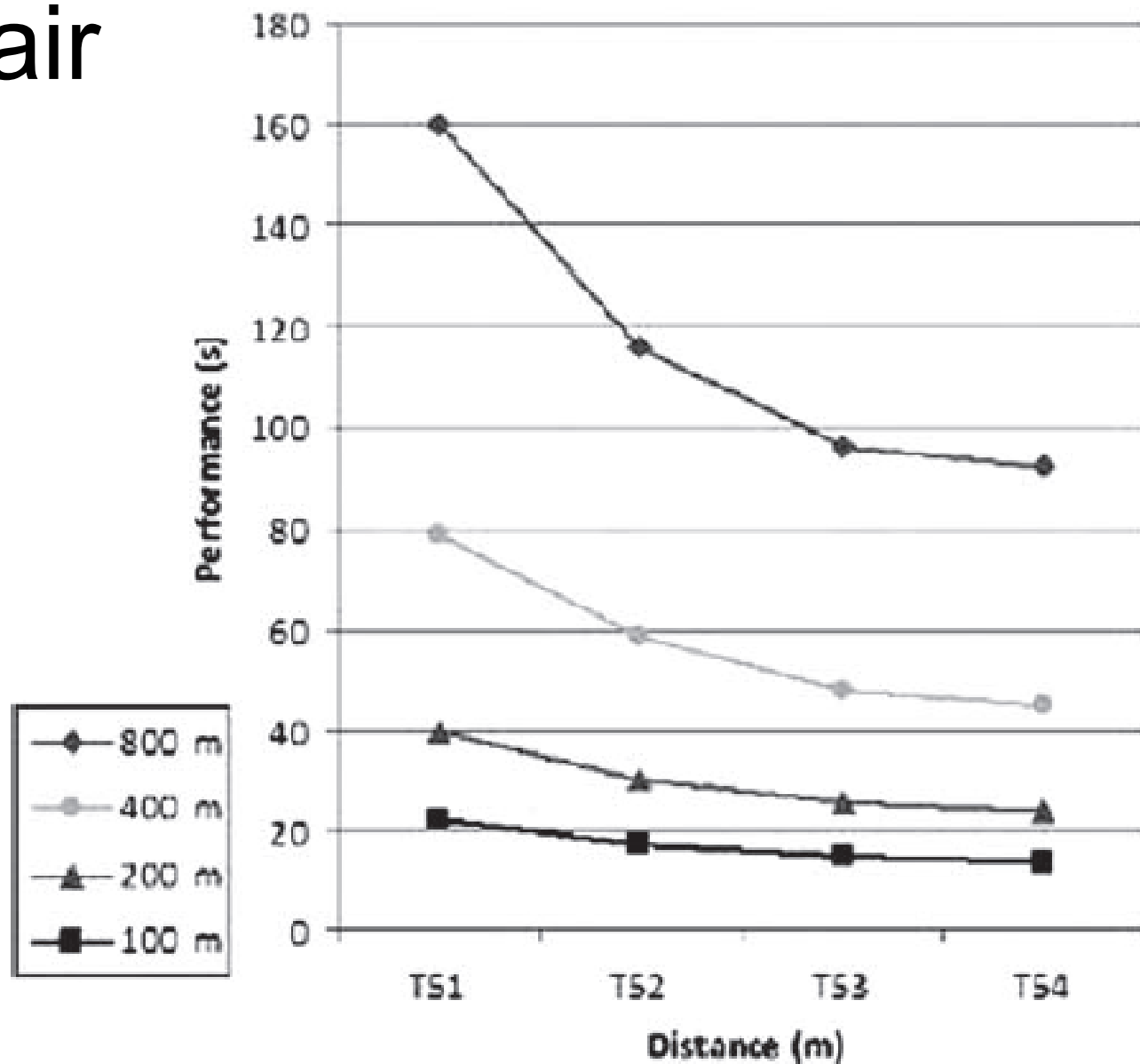


Figure 4 World record times for the four male wheelchair racing classes in Paralympic Athletics for four distances—100, 200, 400 and 800 m.

Classification Systems

- Each sport has a specific classification system that is determined by the international governing body of the sport. These may or may not be combined with or similar to the disability specific systems.



Classificazione Funzionale: Nuoto



Grazie alla Classificazione Funzionale, Atleti con differente patologia possono gareggiare nella stessa classe se il residuo funzionale è lo stesso