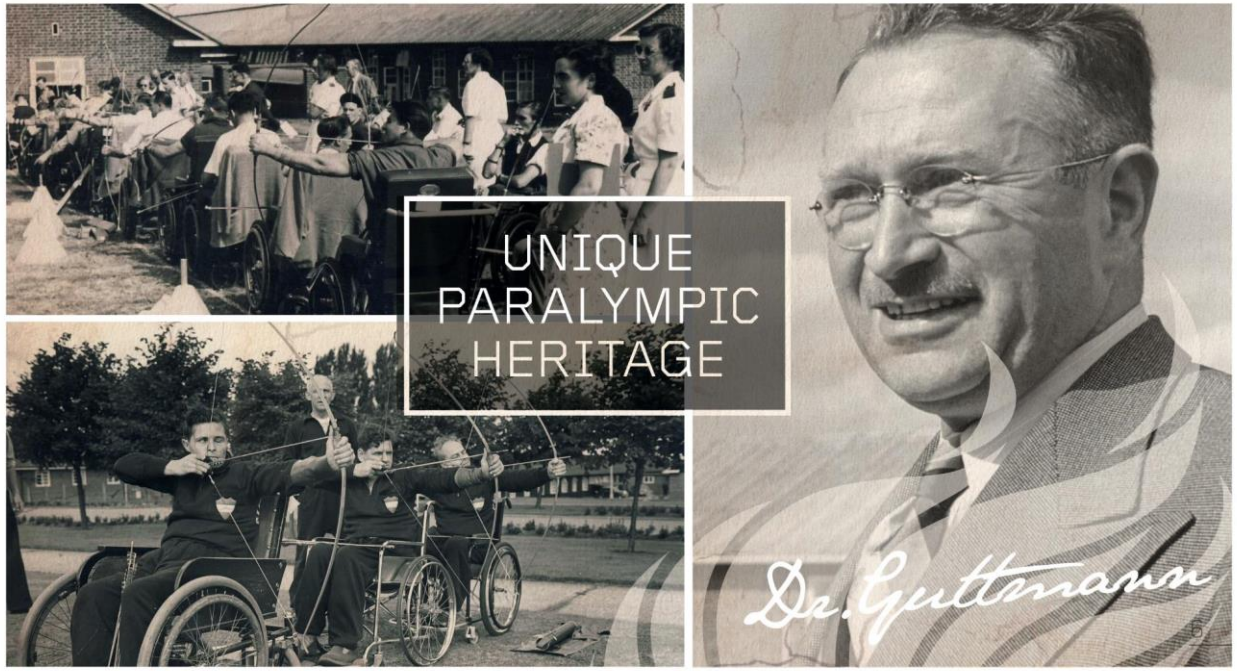
The Past, Present and Future of Paralympic Sports Medicine



Professor Nick Webborn OBE

University of Brighton

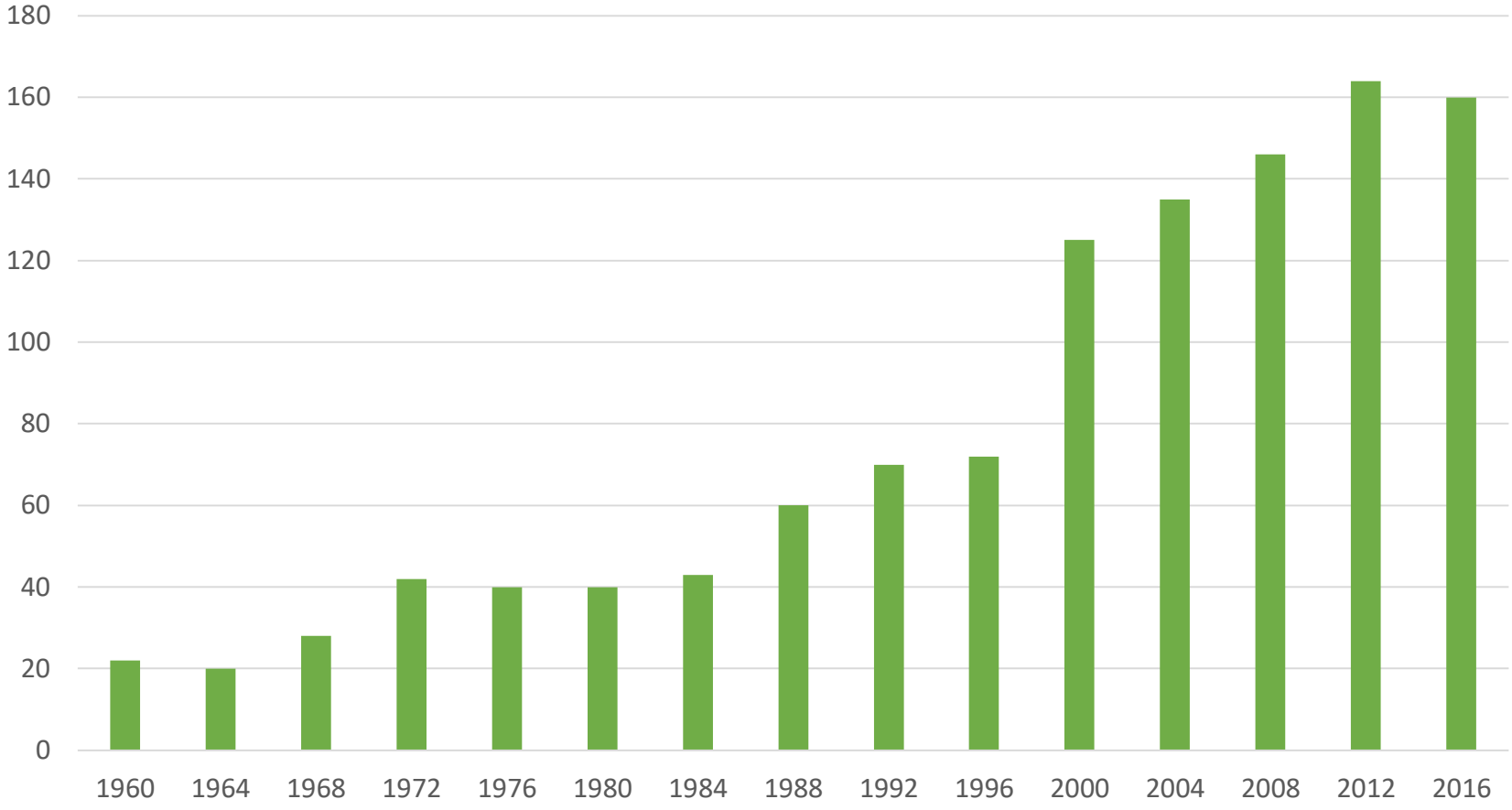
Loughborough University
Peter Harrison Centre for Disability Sport

VISTA CONFERENCE

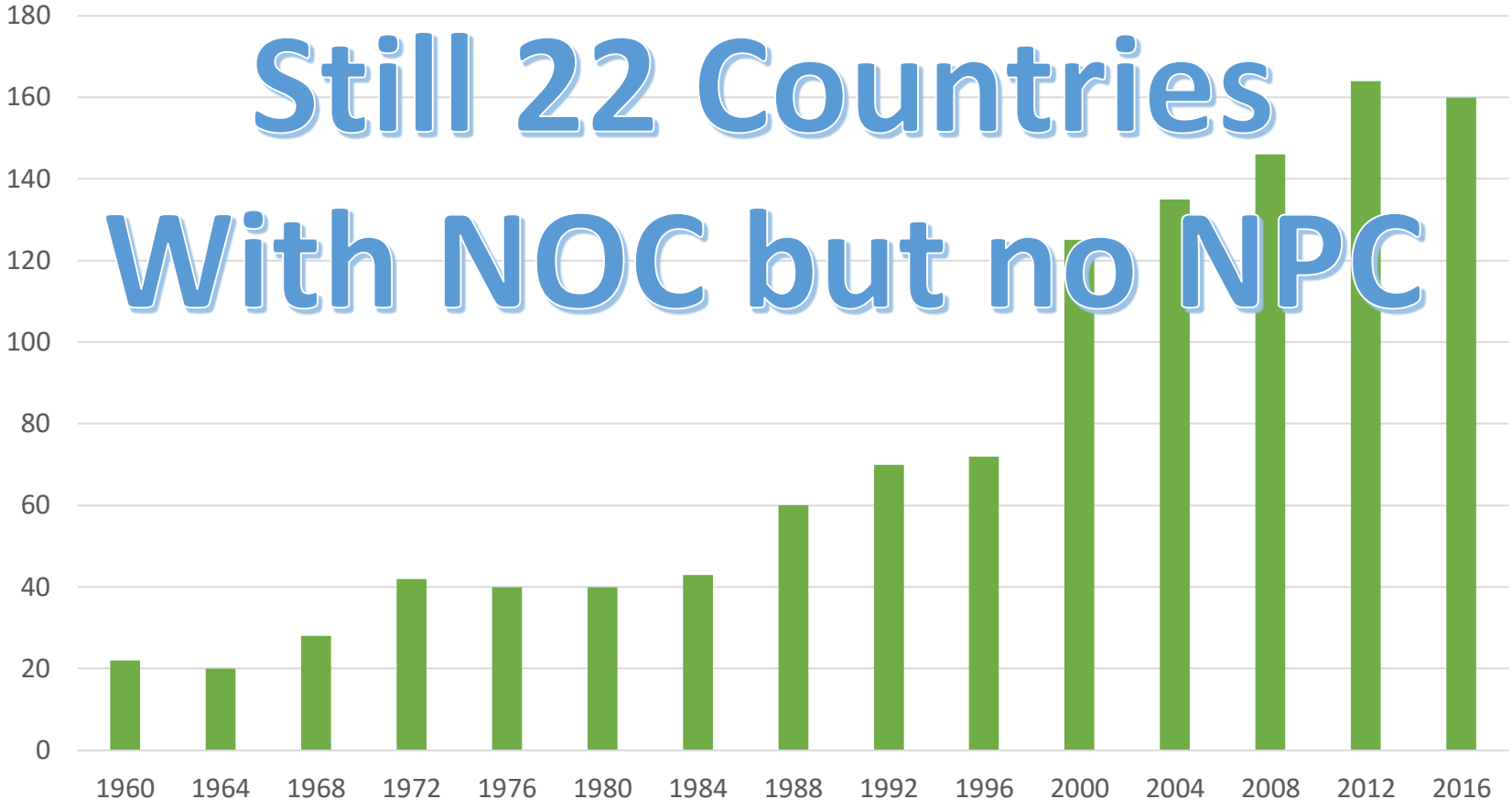

WHERE
HAVE WE
COME
FROM?

The Mandeville Legacy

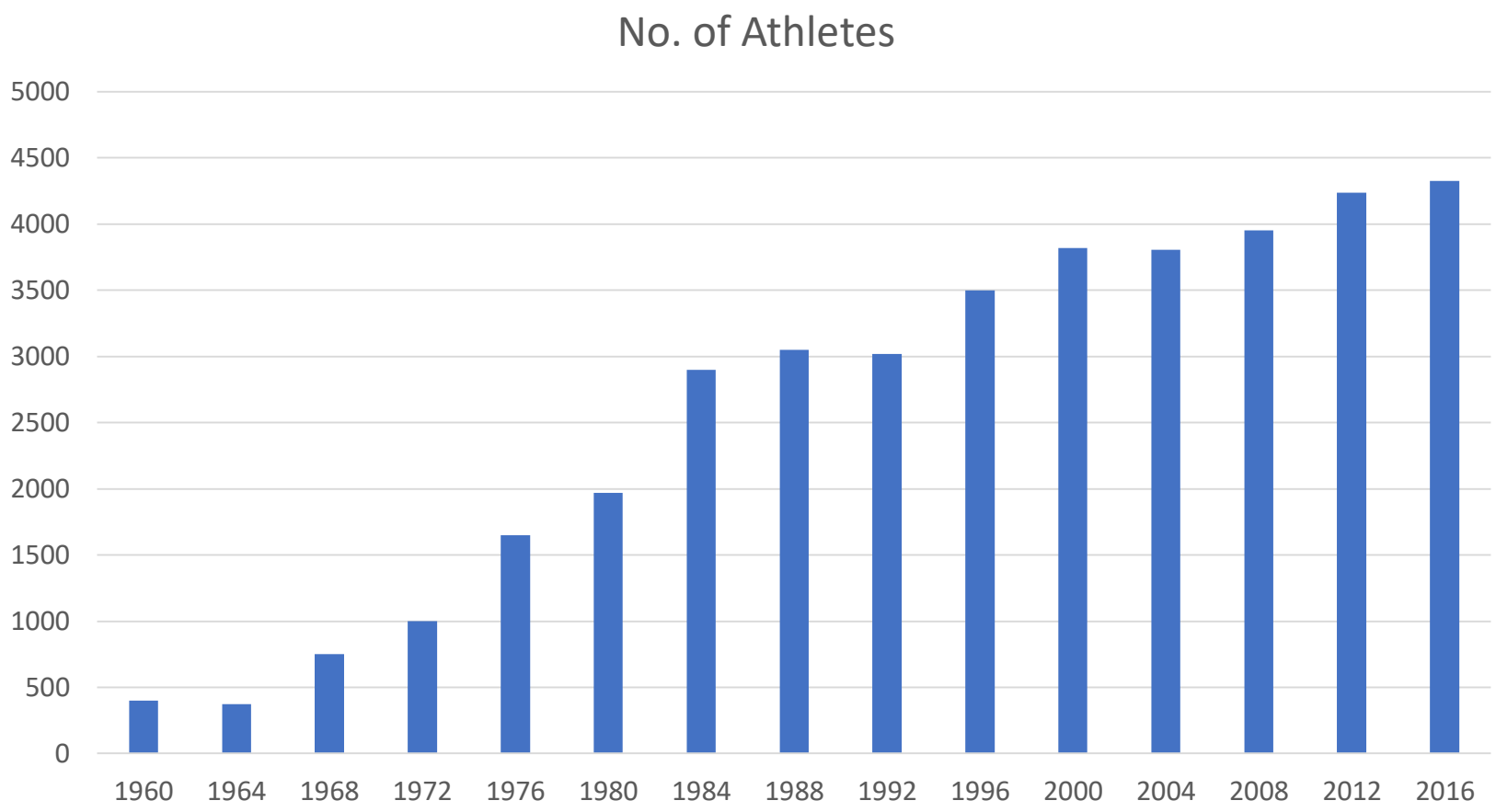
No. of Countries participating in Paralympic Games - Rome to Rio



No. of Countries participating in Paralympic Games - Rome to Rio



No. of Athletes participating in Paralympic Games - Rome to Rio



Evolution of Diversity and Inclusion in the Paralympic Games

1960 – Rome SCI only

Gradual inclusion of different impairment types

- 1976 - VI & Amputees
- 1980 – CP & Les Autres
- 1996 – Intellectual disability

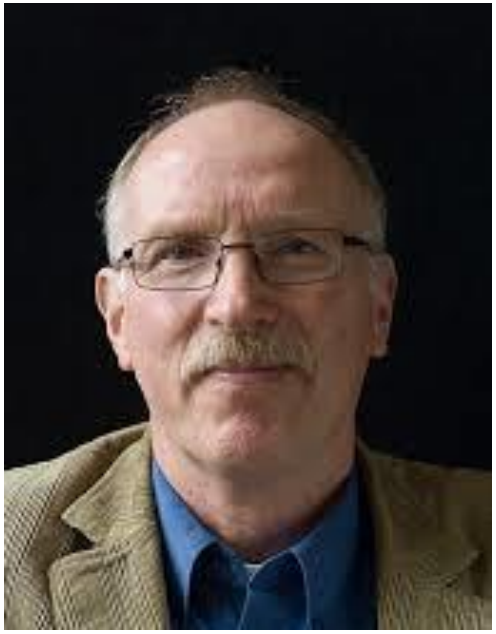
Male : Female Ratio 60:40


BT PARALYMPIC WORLD CUP
BT

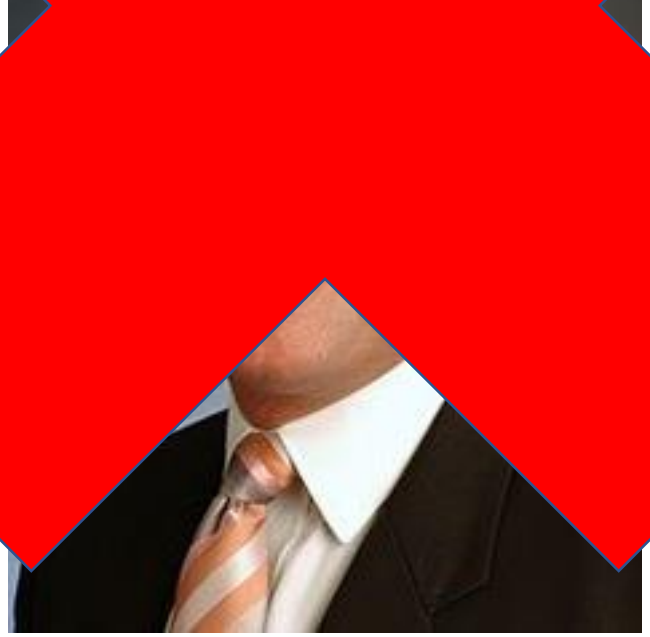

GBR


GREAT BRITAIN
2328

Sports Science Classification



Sports Science



1974 - 1980

Flt Lt Anthony Webborn

Medical Officer

duties as fitting helmets and harnesses for aircrew, as well as deciding when a man is fit enough to fly. The RAF is geared to flying and it is his task to get everyone as fit as possible and as quickly as possible.

One of two doctors on the station, Flt Lt Webborn is on call every other night, every other weekend and whenever there is flying. Compensation for this is the time the job gives him to study for the exam he needs if he is to graduate to surgery. Although his own goal is

WARD 2 STOKE MANDEVILLE HOSPITAL

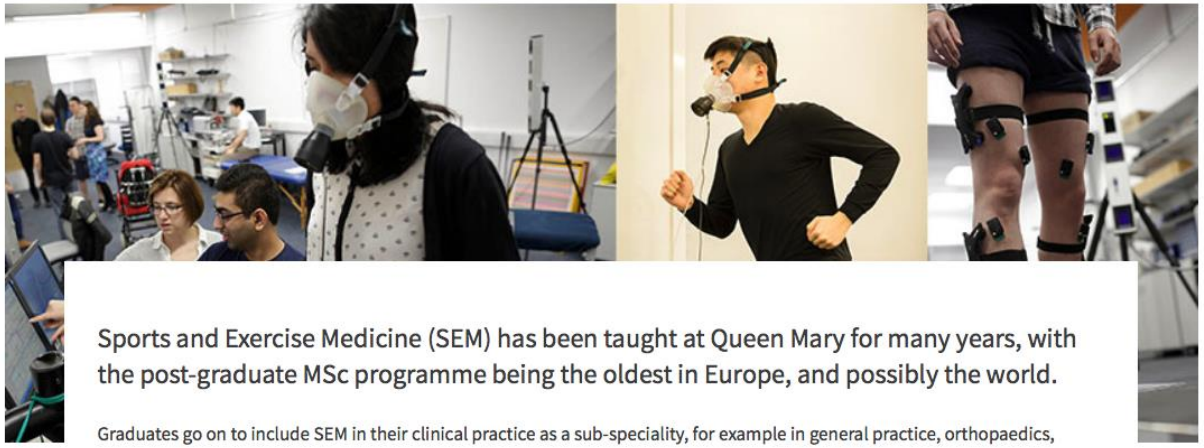
1992

Prof John King
Course Director

Queen Mary
University of London

Centre for Sports and Exercise Medicine

STAFF | THE HUMAN PERFORMANCE LABORATORY (HPL) | TESTIMONIALS | RESEARCH | PUBLICATIONS | COURSES | HOW TO APPLY



Sports and Exercise Medicine (SEM) has been taught at Queen Mary for many years, with the post-graduate MSc programme being the oldest in Europe, and possibly the world.

Graduates go on to include SEM in their clinical practice as a sub-speciality, for example in general practice, orthopaedics, rheumatology or emergency medicine, or more directly via specialist training in SEM. SEM was finally recognised as a speciality in the run-up to the London 2012 games, with many SEM graduates from QMUL playing critical roles in the games and now the legacy delivery.

1992

Br J Sp Med 1994; 28(1)

From the Games

Paralympics – Barcelona 1992

John Reynolds MB BS, MRCP(UK), Angela Stirk Grad Dip Phys Ed MCSP, Austin Thomas RGN RCNT RNT, BEd and Fiona Geary Grad Dip Phys MCSP
British Paralympic Association, Croydon, Surrey, UK

Medicine – Rehabilitation

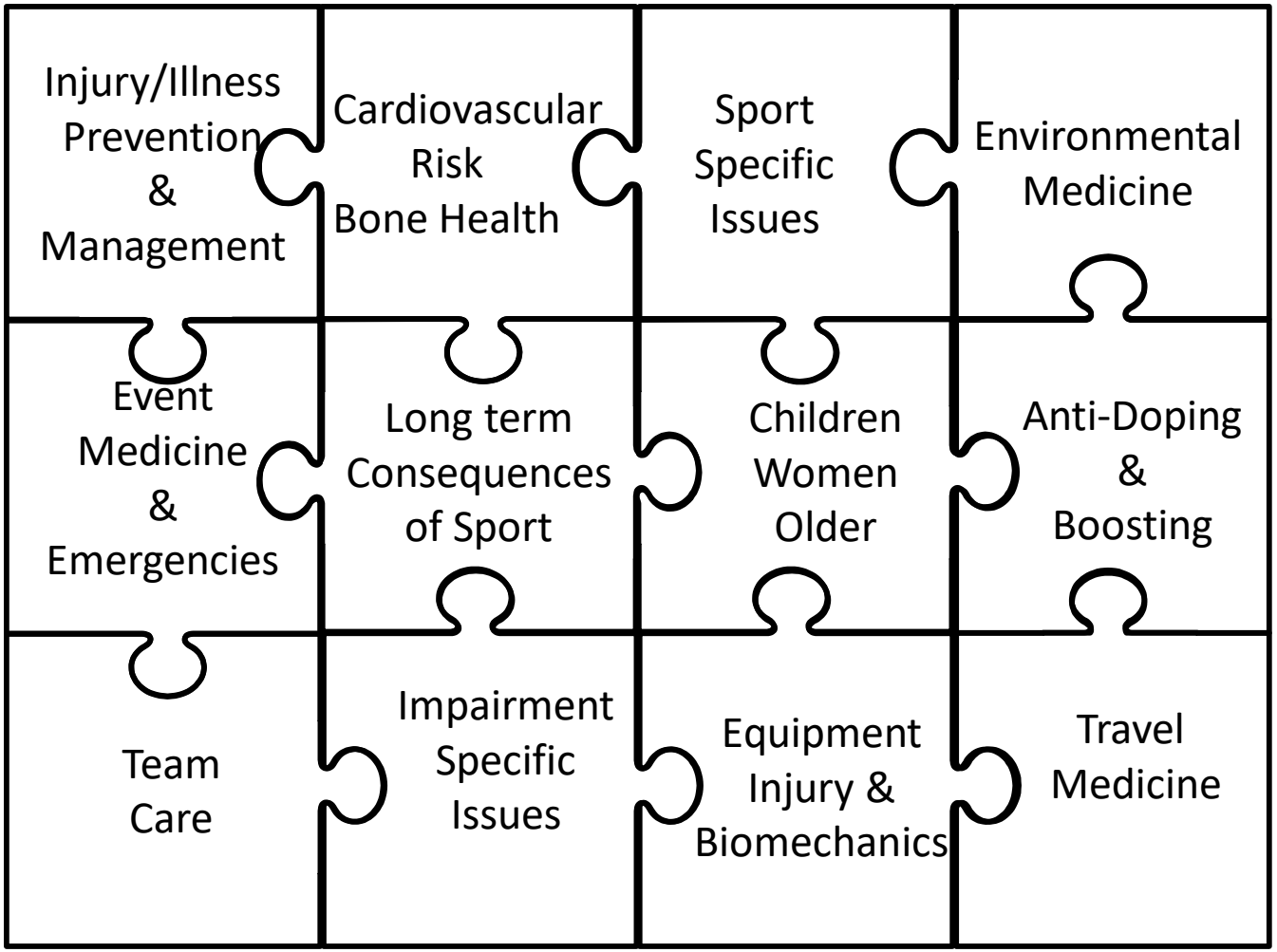
Sports Medicine – Athlete Care

1992 – Challenges for a young sports physician

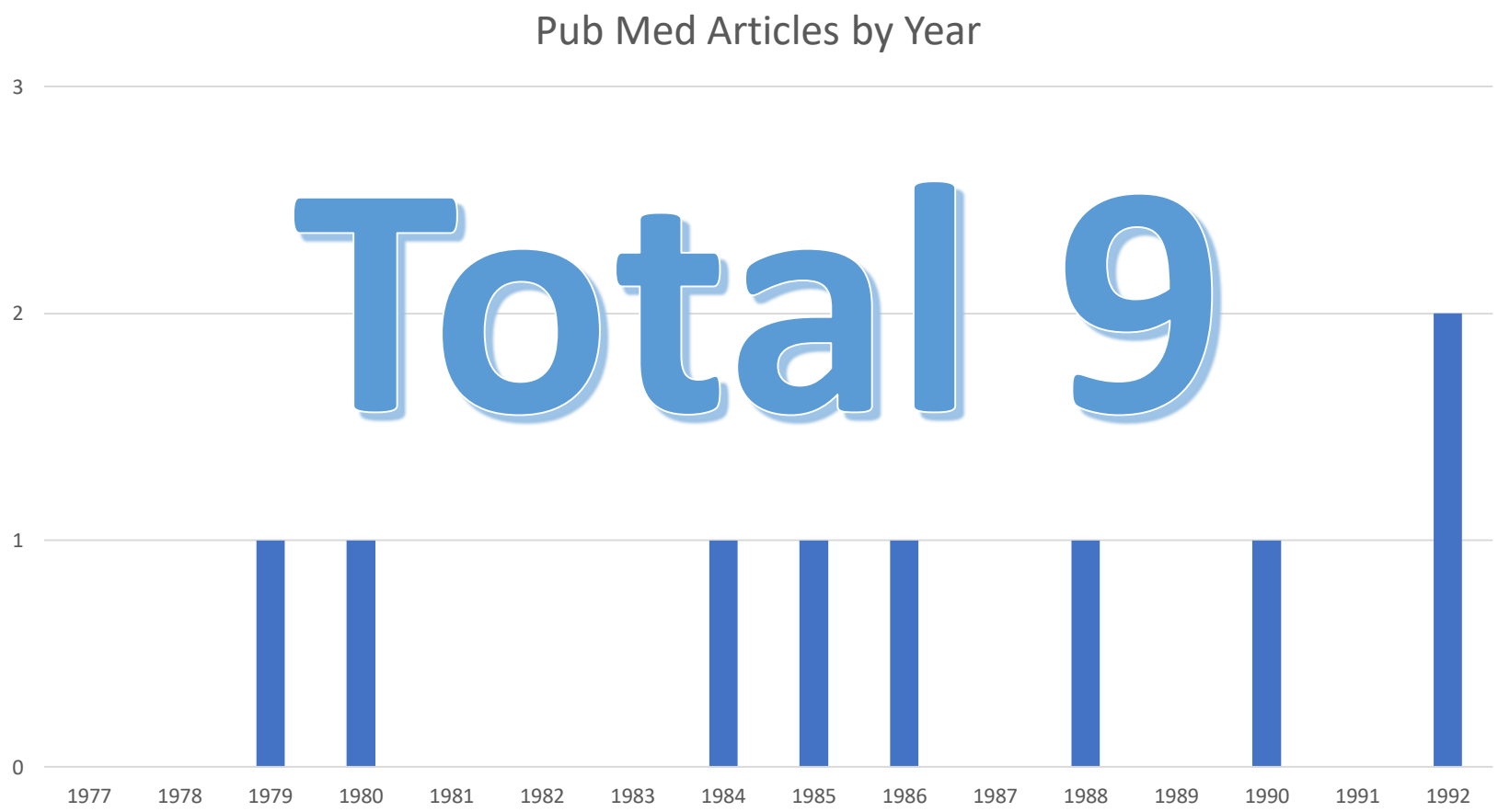
- Desire to apply principles of Sports Medicine to the Para athlete
- Very limited literature base
- Funding limited
- Small practitioner base

Sports Medicine Approach

Paralympic Sports Medicine Specialty Components



No. of Articles in PubMed Disability Sport / Paralympic - up to 1992



1979

0363-5465/79/0705-0293$02.00/0
THE AMERICAN JOURNAL OF SPORTS MEDICINE, Vol. 7, No. 5

Sports for the physically disabled

The 1976 Olympiad (Toronto)

ROBERT W. JACKSON,* M.D., M.S. (TOR.), F.R.C.S.(C), AND ALIX FREDRICKSON,† B.A.,
Toronto, Ontario, Canada

From the Division of Orthopaedic Surgery, Toronto Western Hospital, Toronto, Ontario, Canada

ABSTRACT

The 1976 Olympiad for the Physically Disabled was the first olympiad with full competition for blind, paralyzed, and amputee athletes. More than 1,500 from 38 countries took part in wheelchair (12 events), blind (8 events), and amputee (11 events) games. Participants were classified by an international team of doctors. The athletes were accommodated in university residences with small infirmaries. A school near the games site was used as a field hospital. Rest areas were also set up. Volunteers served on the medical staff (three doctors, three nurses, three receptionists, and three physical therapists on each of two shifts per day). In addition doctors, nurses, trainers, and physical therapists rotated around various venues at the games site. Physicians treated 285 patients (184 were athletes; others were spectators) for a variety of problems, physical therapists treated 119 athletes, and trainers treated 114 athletes. Contingency plans in case of mass disaster were made but were not needed. Disabled athletes are slightly more vulnerable to stress and fatigue than able-bodied athletes. The Toronto games will probably be remembered as the turning point in the emergence of sports for the disabled from a purely rehabilitation measure to a true sporting event in its own right.

handling of spinal cord injuries caused by that holocaust, 80% of paraplegics were dead within 3 years from the complications of paraplegia. Sir Ludwig Guttmann, through his work with spinal injuries, was largely responsible for reversing those statistics. He showed that if a paraplegic is well nursed in the early stages and pressure sores and kidney infections are avoided, the individual can eventually learn to look after himself. Now, 80% of paraplegics have a normal life expectancy. Sir Ludwig was knighted in 1966 for his basic contribution to the care and well-being of this group of seriously disabled persons. He is proud of the role he played in transforming people who were previously welfare recipients, into tax-paying citizens and social contributors.

Sir Ludwig must also be given credit for realizing the advantage of sport in the rehabilitation of persons who are paralyzed from trauma or disease.

THE BEGINNING

The first international sporting event for paralyzed persons took place in 1952 at Stoke Mandeville Hospital in England, the home of the National Spinal Injuries Centre directed by Sir Ludwig Guttmann. On that occasion, a team of Dutch archers, all former servicemen and servicewomen, competed

1984/1985

Kathleen A. Curtis, PT, Ph.D.
Former Dean, College of Health Sciences
University of Texas at El Paso

0363-5465/84/1202-0128$02.00/0
THE AMERICAN JOURNAL OF SPORTS MEDICINE, Vol. 12, No. 2

Wheelchair sports medicine

JULIE G. BOTVIN MADORSKY,*† MD, AND KATHLEEN A. CURTIS,‡ MA, RPT

From the †Casa Colina Hospital for Rehabilitation Medicine, Pomona, California, the †University of California, Irvine, the ‡Santa Clara Valley Medical Center, San Jose, California and the ‡National Wheelchair Sportsmedicine Task Force, San Jose, California.

As par
the las
more v
in imp
of disa
engage
ment w
sports
degree

Paraplegia **23** (1985) 170–175

Survey of Wheelchair Athletic Injuries: Common Patterns and Prevention

Kathleen A. Curtis, M.A., R.P.T.[1] and Deborah A. Dillon, M.P.H.[2]
[1]*Programs in Physical Therapy, Mount St Mary's College, Los Angeles, California, U.S.A.* [2]*Northern California Regional Spinal Injury System, Institute for Medical Research, 2260 Clove Drive, San Jose, California 95128, U.S.A.*

1992

Dr Mike Ferrara
Dean, College of Health and Human Services
University of New Hampshire

Paraplegia 28 (1990) 335–341
© 1990 International Medical Society of Paraplegia
0031–1758/90/0028–0335 $10.00

Paraplegia

Injuries to Elite Wheelchair Athletes

0195-9131/92/2402-0184$3.00/0
MEDICINE AND SCIENCE IN SPORTS AND EXERCISE
Copyright © 1992 by the American College of Sports Medicine
Vol. 24, No. 2
Printed in U.S.A.

The injury experience of the competitive athlete with a disability: prevention implications

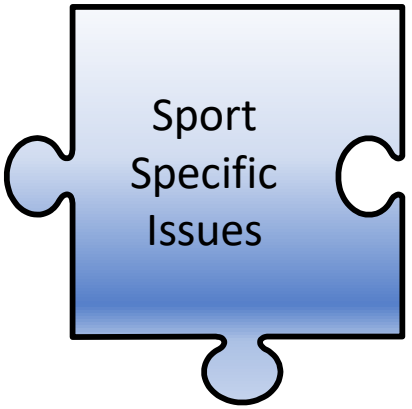
THE AMERICAN JOURNAL OF SPORTS MEDICINE, Vol. 20, No. 1
© 1992 American Orthopaedic Society for Sports Medicine

The injury experience and training history of the competitive skier with a disability

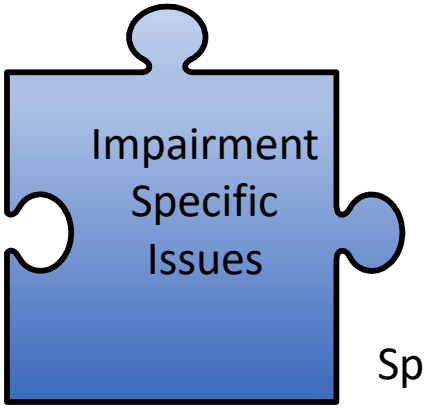
MICHAEL S. FERRARA,*† PhD, ATC, WILLIAM E. BUCKLEY,‡ PhD, ATC, DUANE G. MESSNER,§ MD, AND JACK BENEDICT,‖ MS

*From the * Department of Physical Education, Ball State University, Muncie, Indiana, ‡ the Department of Health Education, The Pennsylvania State University, University Park, Pennsylvania, § the Lakewood Orthopedic Clinic, Lakewood, Colorado, and the ‖ U.S. Disabled Ski Team, Washington, DC*

Paralympic Sports Medicine Specialty Components



'Wheelchair athletes'



Spinal cord injury

Paralympic Sports Medicine Specialty Components

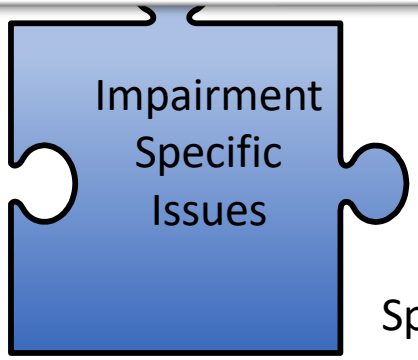
INVITED COMMENTARY

"What Do You Mean, A Wheelchair Athlete?"

Nick Webborn, MBBS, FACSM

The term "wheelchair athlete" evolved as a term as sports in wheelchairs developed and became more prominent. However, as we look forward to the largest Paralympic Games ever in London in 2012, is this term still valid? With more than 4,000 athletes participating in 20 different sports with a variety of impairment types, it has become evident that, in terms of understanding patterns of injury or illness, this generic term is misleading.

member of a three-man crew who uses a wheelchair in daily living. An archer with multiple sclerosis perhaps might use a wheelchair for daily ambulation but will sit on a stool to undertake his or her sport. One could continue similarly with examples for more established Paralympic sports like table tennis, equestrian dressage, or shooting, but new sports continue to evolve, such as rowing, introduced in Beijing in 2008 with fixed-seat rowing for wheelchair users. One can



Spinal cord injury


Beijing 2008
IPC


GBR

2 - 2000

2000

1999

1998

BJTR

British Journal of Therapy and Rehabilitation

Now International Journal of Therapy and Rehabilitiation

CURRENT ISSUE ARCHIVE SUBSCRIBE ABOUT AUTHORS CONTENT ALERTS

MAG Online Library > British Journal of Therapy and Rehabilitation > List of Issues > Volume 3, Issue

Heat-related problems for the Paralympic Games, Atlanta 1996

Dr ADJ Webborn

+AFFILIATIONS

1st IPC Athletics World Champs Berlin

138 *Br J Sports Med* 1999;33:138–139

Occasional pieces

Fifty years of competitive sport for athletes with disabilities: 1948–1998

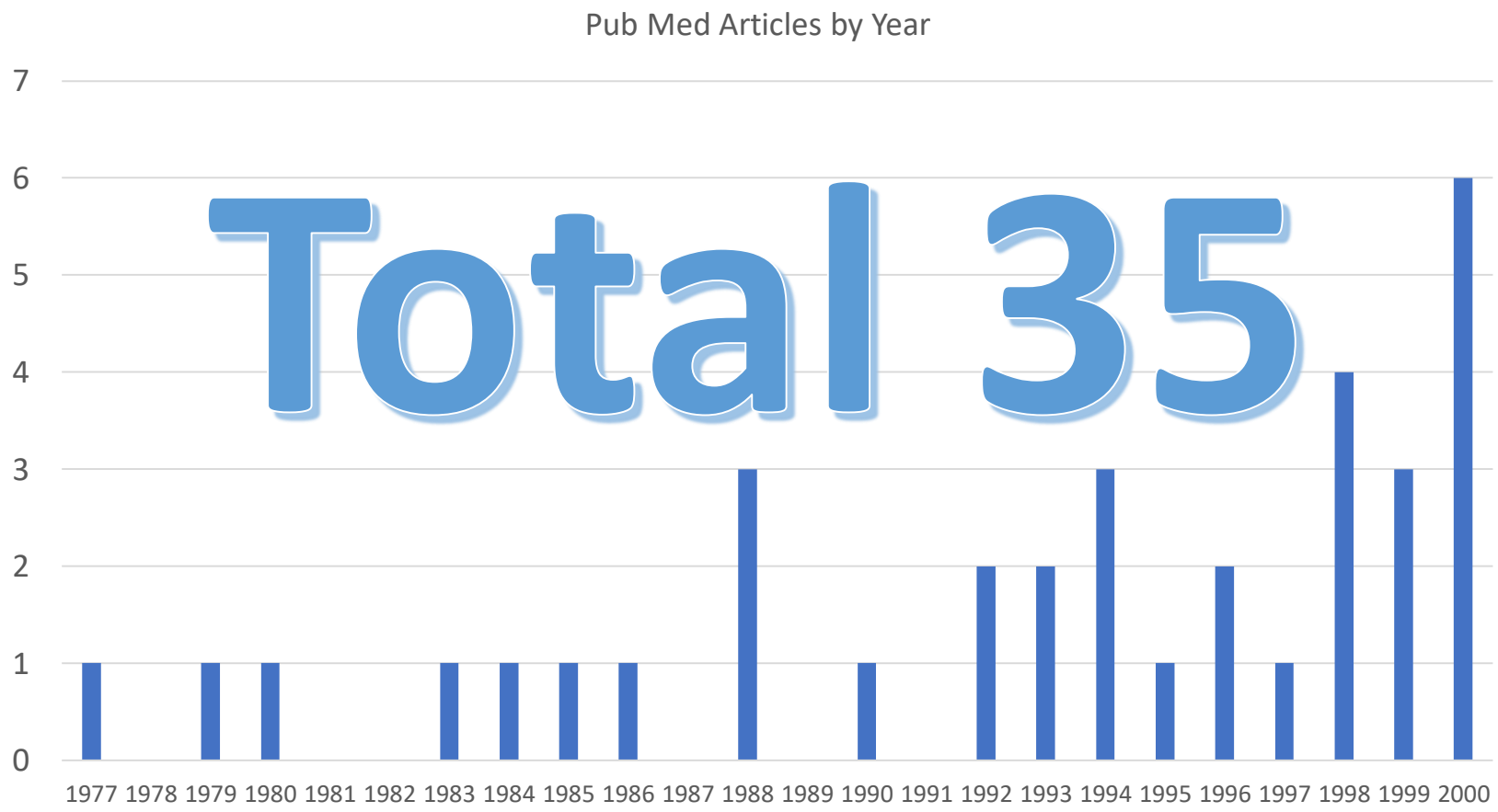
AD Webborn

"Boosting" performance in disability sport

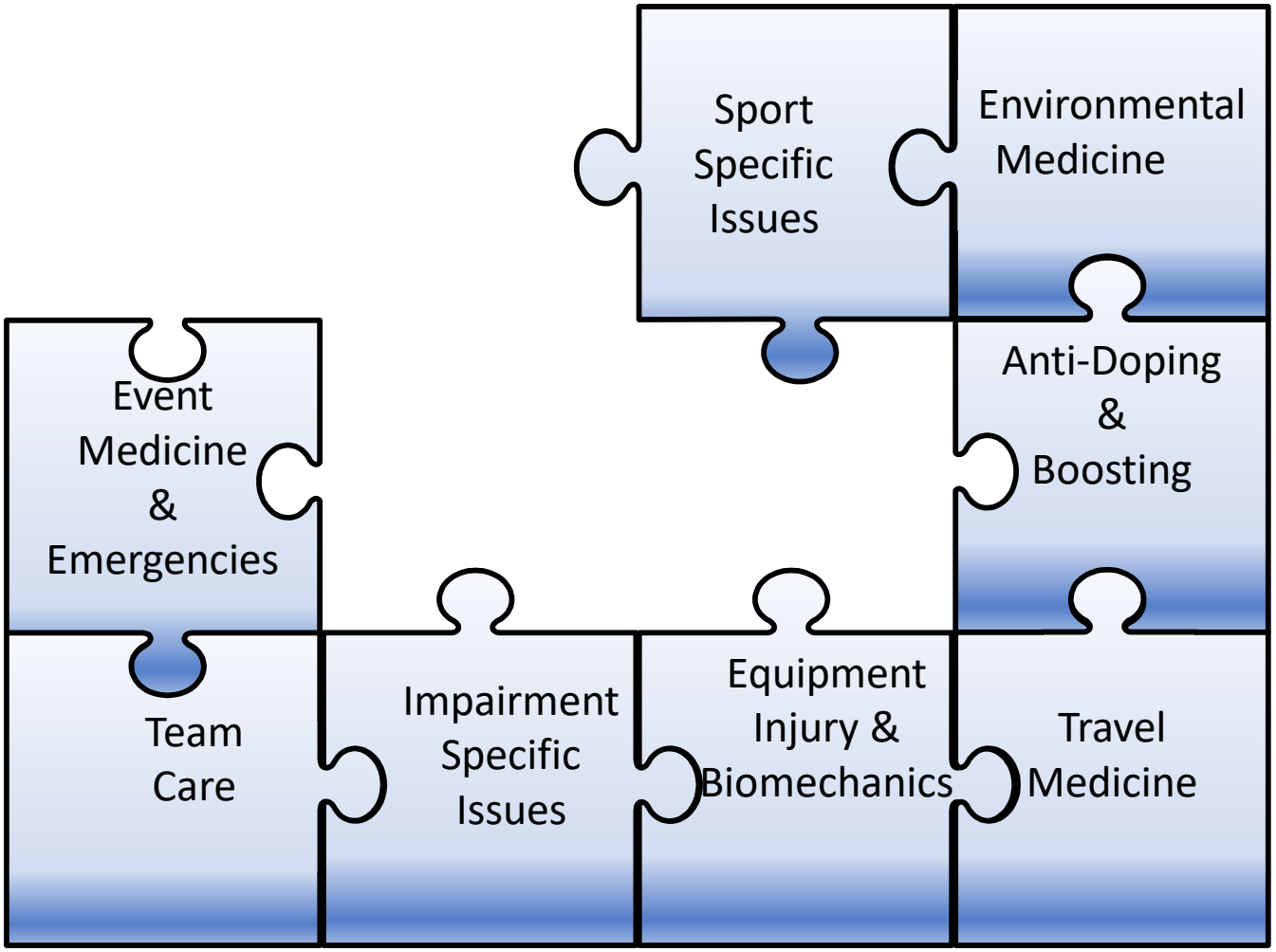
Br. J. Sports Med., Apr 1999; 33: 74 - 75.

...Original articles "**Boosting**" performance in disability sport "**Boosting**" performance in disability sport. | Sussex Centre for Sport and Exercise Medicine. | Journal Article | Autonomic Nervous System physiopathology | Blood Pressure physiology.....

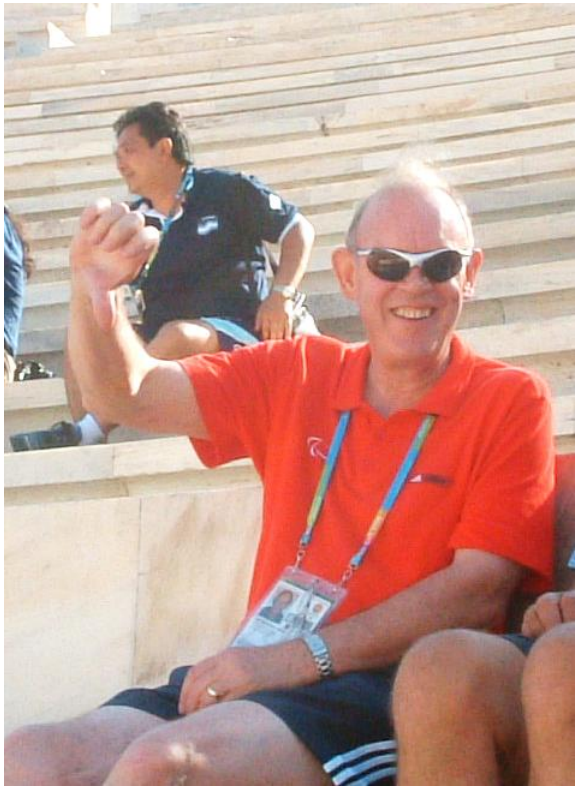
No. of Articles in PubMed Disability Sport / Paralympic 1977 - 2000



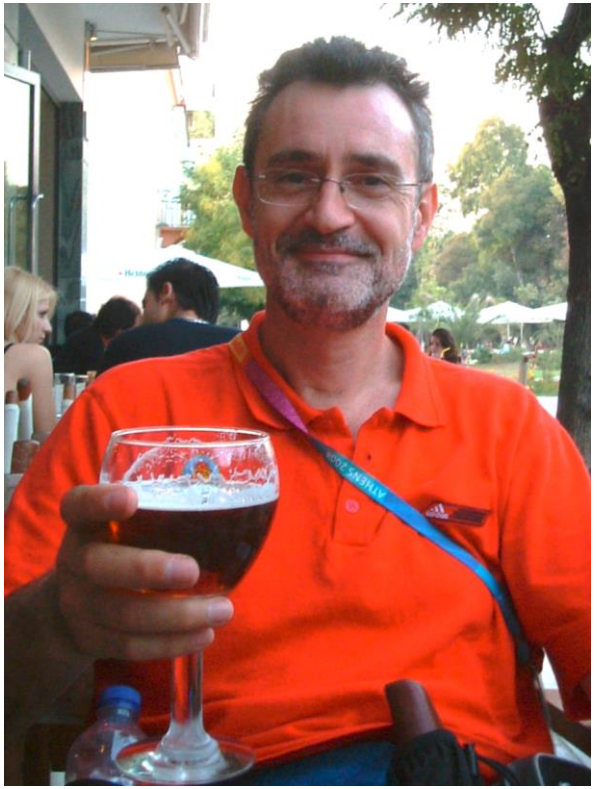
Paralympic Sports Medicine Specialty Components



IPC Medical Committee 2001

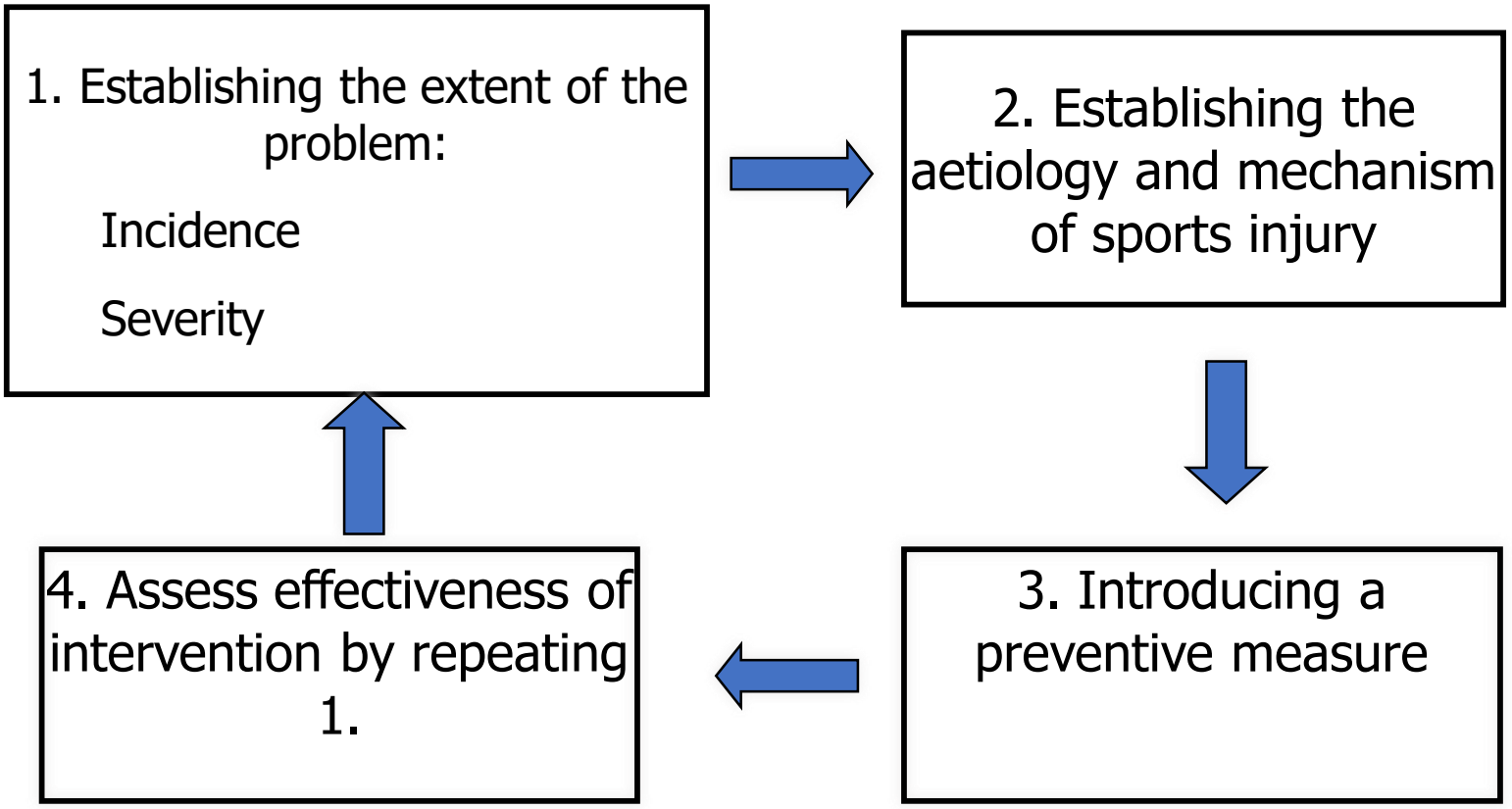


Dr Michael Riding
CMO IPC



Dr Toni Pascual
Anti-Doping

Sports Injury Prevention



2002

Dr Stuart Willick
Associate Professor, Physical Medicine & Rehabilitation, University of Utah School of Medicine

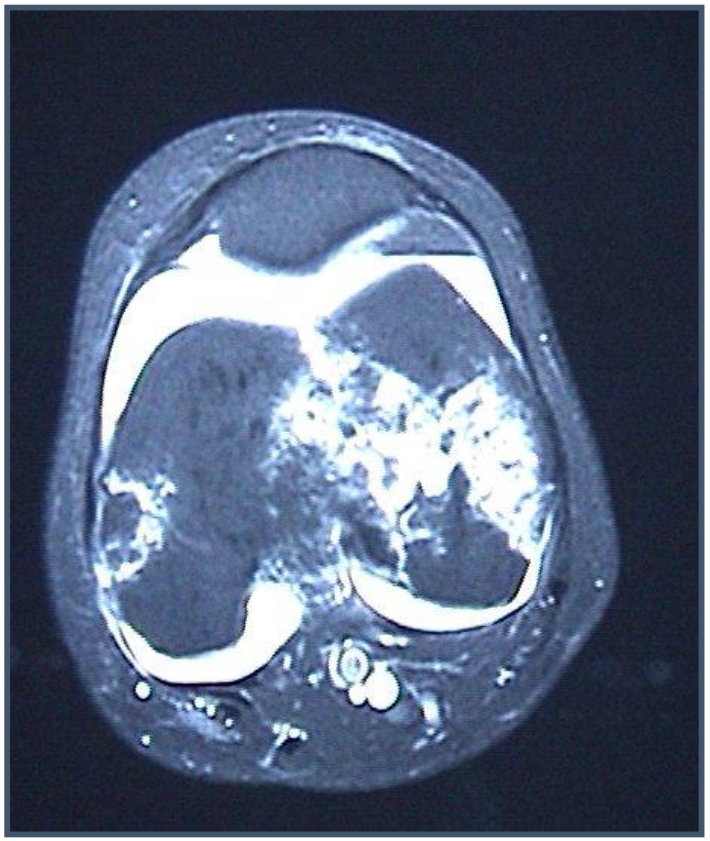
Injuries among Disabled Athletes during the 2002 Winter Paralympic Games

NICK WEBBORN[1,2], STUART WILLICK[3], and JONATHAN C. REESER[4]

[1]International Paralympic Committee, Bonn, GERMANY; [2]University of Brighton, East Sussex, UNITED KINGDOM; [3]University of Utah, Salt Lake City, UT; and [4]Department of Physical Medicine and Rehabilitation, Marshfield Clinic, Marshfield, WI

Salt Lake Injury Survey

Salt Lake Injury Survey



First interaction with Sport International Federation re: injury prevention and regulations

Issues of Exercise in the Heat for Paralympians are the Same

Performance Limitation & Heat Illness

Original article

Cooling strategies improve intermittent sprint performance in the heat of athletes with tetraplegia

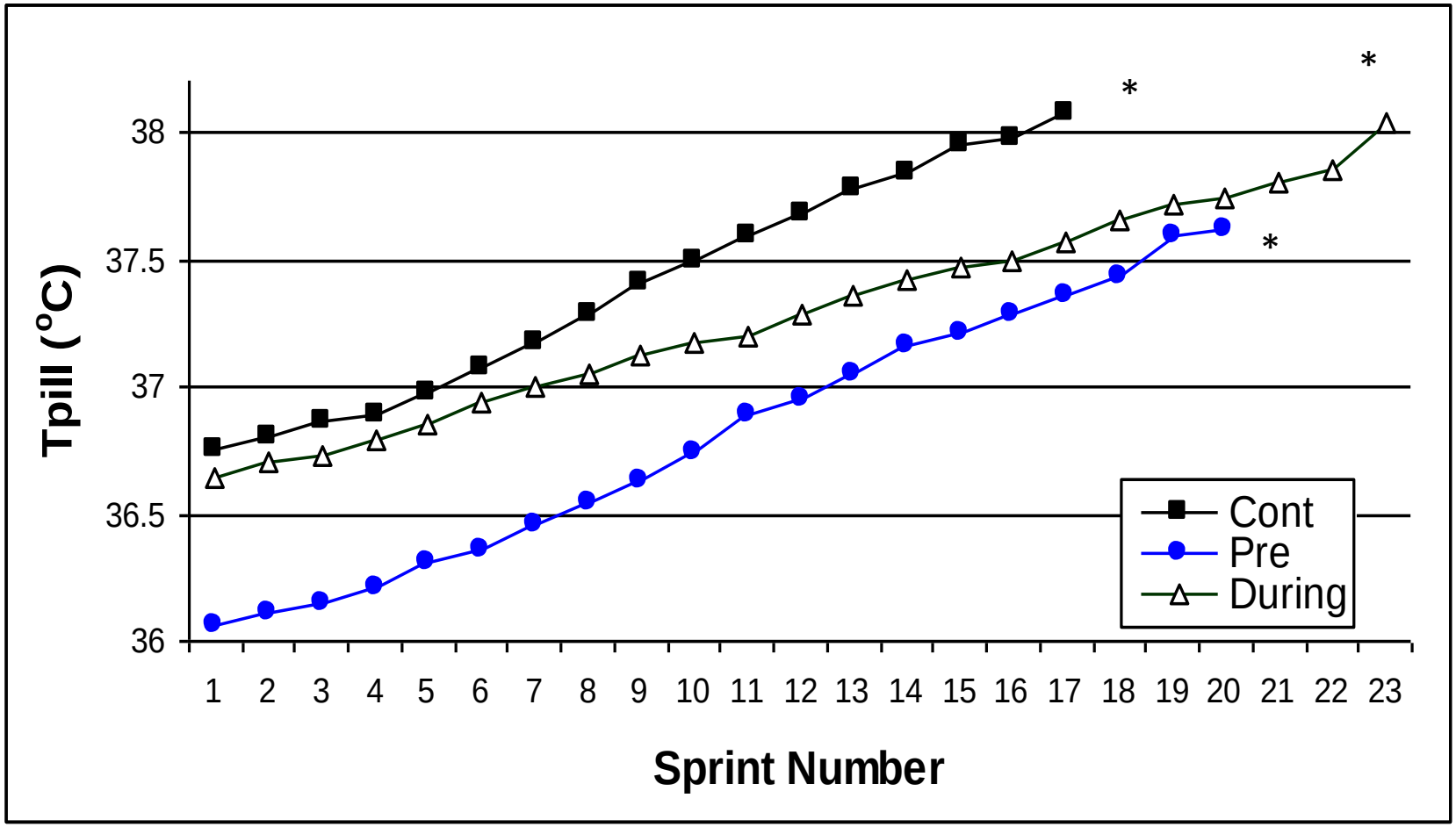
N Webborn,[1,2] M J Price,[3] P Castle,[1] V L Goosey-Tolfrey[2,4]

[1]Chelsea School Research Centre, University of Brighton, Eastbourne, UK
[2]British Paralympic Association, London, UK
[3]School of Science and the Environment, Coventry University, Coventry, UK
[4]School of Sport and Exercise Sciences, Loughborough University, Loughborough, UK

Correspondence to
Dr Nick Webborn, British Paralympic Association, 40 Bernard St, London WC1 1ST, UK;
nickwebborn@sportswise.org.uk

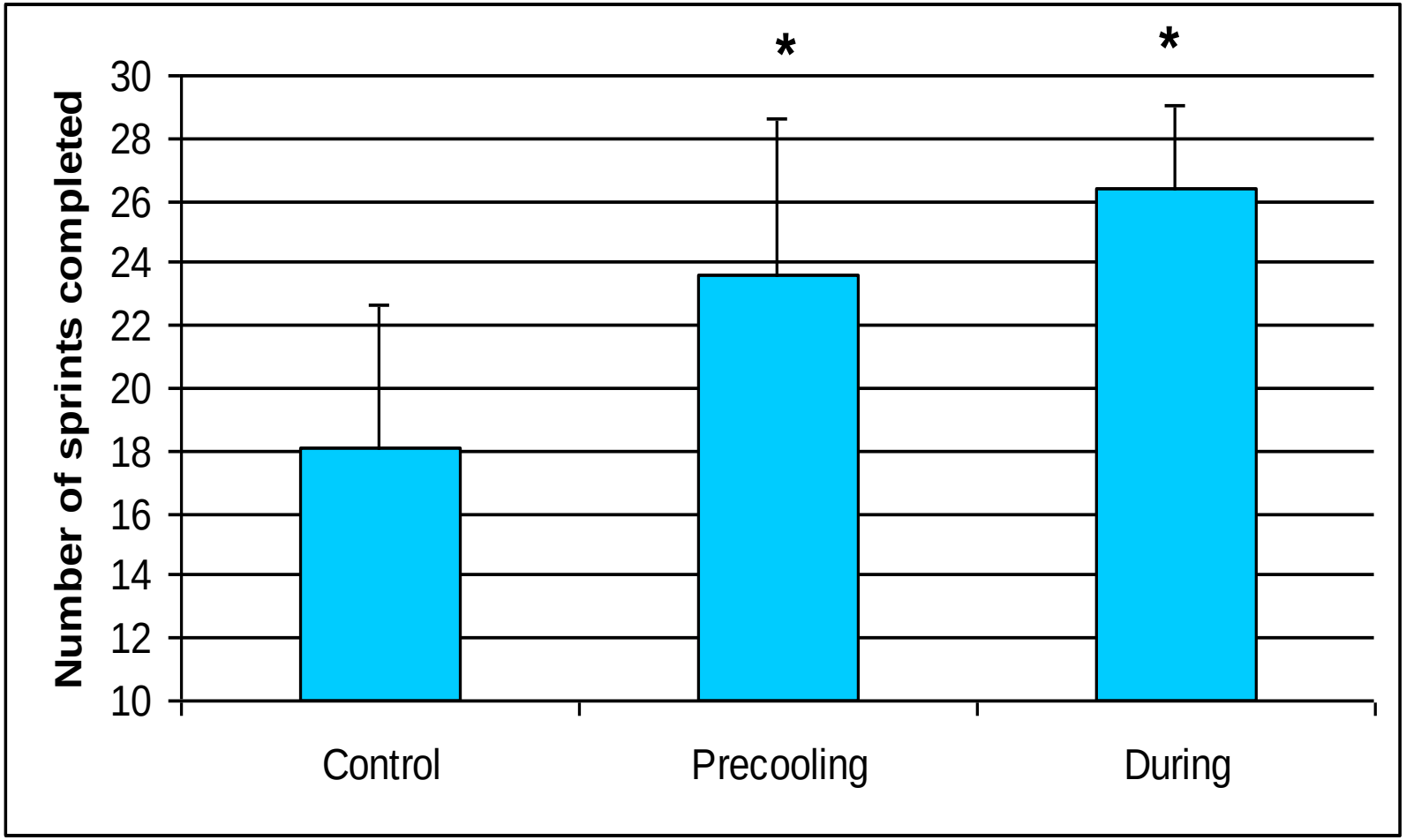
Accepted 1 May 2008
Published Online First 14 June 2008

Pill Temperature during the ISP



* All conditions significantly different from each other ($p<0.01$)

Time to Exhaustion



* significantly greater than Control ($p<0.05$)

Journal of Sports Sciences

Routledge
Taylor & Francis Group

ISSN: 0264-0414 (Print) 1466-447X (Online) Journal homepage: https://www.tandfonline.com/loi/rjsp20

Heat acclimation improves intermittent sprinting in the heat but additional pre-cooling offers no further ergogenic effect

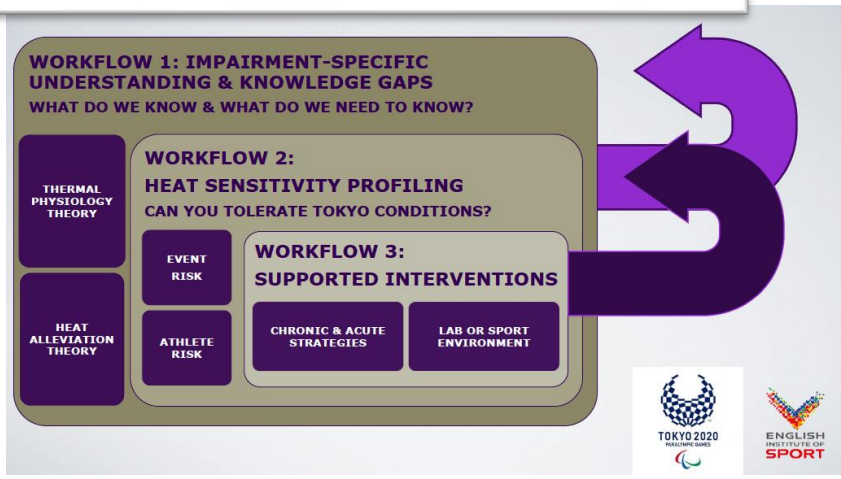
Paul Castle , Richard W. Mackenzie , Neil Maxwell , Anthony D.J. Webborn & Peter W. Watt

Eur J Appl Physiol
DOI 10.1007/s00421-012-2417-6

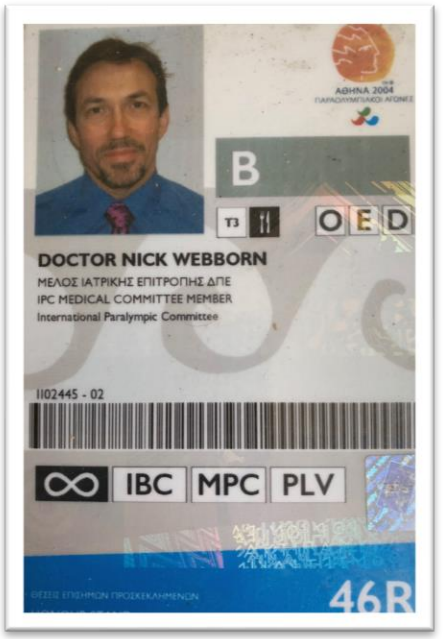
ORIGINAL ARTICLE

Partial heat acclimation of athletes with spinal cord lesion

Paul C. Castle · B. Pasan Kularatne · John Brewer · Alexis R. Mauger · Ross A. Austen · James A. Tuttle · Nick Sculthorpe · Richard W. Mackenzie · Neil S. Maxwell · Anthony D. J. Webborn

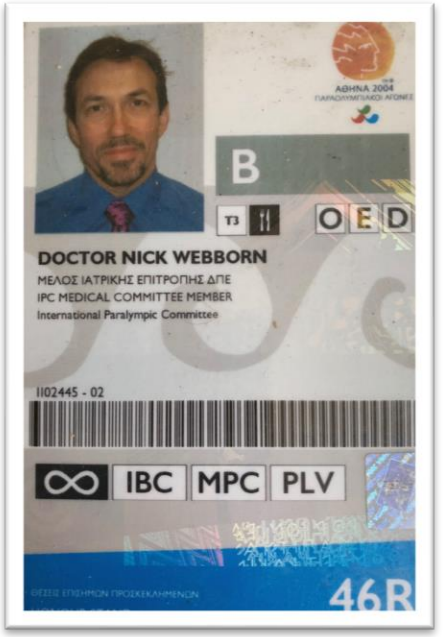


Athens 2004


ΑΘΗΝΑ 2004
B
T3
O E D
DOCTOR NICK WEBBORN
ΜΕΛΟΣ ΙΑΤΡΙΚΗΣ ΕΠΙΤΡΟΠΗΣ ΔΠΕ
IPC MEDICAL COMMITTEE MEMBER
International Paralympic Committee
II02445 - 02
IBC MPC PLV
46R

Athens 2004


ATHENS 2004


ΑΘΗΝΑ 2004
B
T3
O E D
DOCTOR NICK WEBBORN
ΜΕΛΟΣ ΙΑΤΡΙΚΗΣ ΕΠΙΤΡΟΠΗΣ ΔΠΕ
IPC MEDICAL COMMITTEE MEMBER
International Paralympic Committee
II02445 - 02
IBC
MPC
PLV
46R

Torino 2006 and Vancouver 2010

Dr Carolyn Emery
University of Calgary

Dr Anne Allen
Wilmington NC

Torino 2006 and Vancouver 2010

THEMATIC ISSUE

The Injury Experience at the 2010 Winter Paralympic Games

Nick Webborn, MBBS,† Stuart Willick, MD,‡ and Carolyn A. Emery, PT, PhD§¶||*

Objective: The objective of this study was to examine incidence proportion and the characteristics of athlete injuries sustained during the 2010 Vancouver Paralympic Games.

Design: Descriptive epidemiological study.

Setting: All medical venues at the 2010 Vancouver Paralympic Games, Canada.

Participants: A total of 505 athletes from 44 National Paralympic Committees participating in the 2010 Vancouver Winter Paralympic Games.

Assessment of Risk Factors: Baseline covariates included sport specificity (ie, ice sledge hockey, alpine skiing, Nordic skiing, wheelchair curling), gender, age, and disability classification.

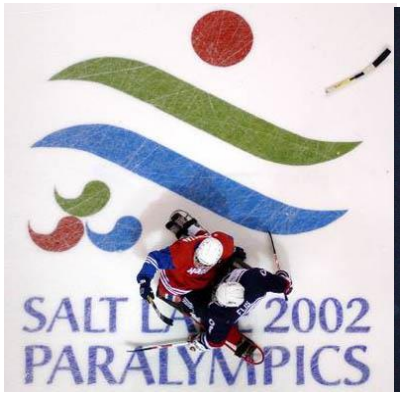
for musculoskeletal complaints were generated in 34% of all sledge hockey athletes, 22% of alpine ski racers, 19% of Nordic skiers, and 18% of wheelchair curling athletes.

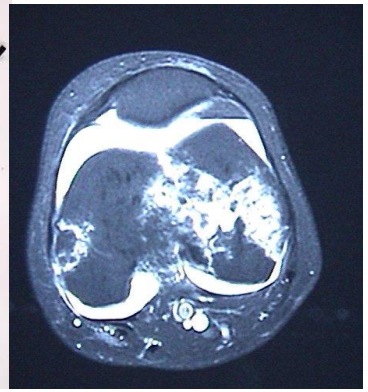
Conclusions: The Injury Surveillance System identified sport injuries in 24% of all athletes participating in the 2010 Winter Paralympic Games. The injury risk was significantly higher than during the 2002 (9.4%) and 2006 (8.4%) Winter Paralympic Games. This may reflect improved data collection systems but also highlights the high risk of acute injury in alpine skiing and ice sledge hockey at Paralympic Games. These data will assist future Organizing Committees with the delivery of medical care to athletes with a disability and guide future injury prevention research.

Key Words: athletic injury, Paralympic sport, epidemiology

(*Clin J Sport Med* 2012;22:3–9)

Sports Injury Prevention Para Ice hockey





2007

IPC INJURY AND ILLNESS PREVENTION STUDY

LONDON 2012 PARALYMPIC GAMES

Prof Wayne Derman Prof Martin Schwellnus Cheri Blauwet

International Paralympic Committee

Peter Van de Vliet

IPC Injury Surveys

The epidemiology of injuries at the London 2012 Paralympic Games

Stuart E Willick,[1,2] Nick Webborn,[3] Carolyn Emery,[4] Cheri A Blauwet,[1,5] Pia Pit-Grosheide,[1] Jaap Stomphorst,[1] Peter Van de Vliet,[6] Norma Angelica Patino Marques,[1,7] J Oriol Martinez-Ferrer,[1,8] Esmè Jordaan,[9] Wayne Derman,[1,10] Martin Schwellnus[10]

Willick SE, Webborn N, Emery C, et al.
Br J Sports Med Published Online First
doi:10.1136/bjsports-2013- 092374

Original article

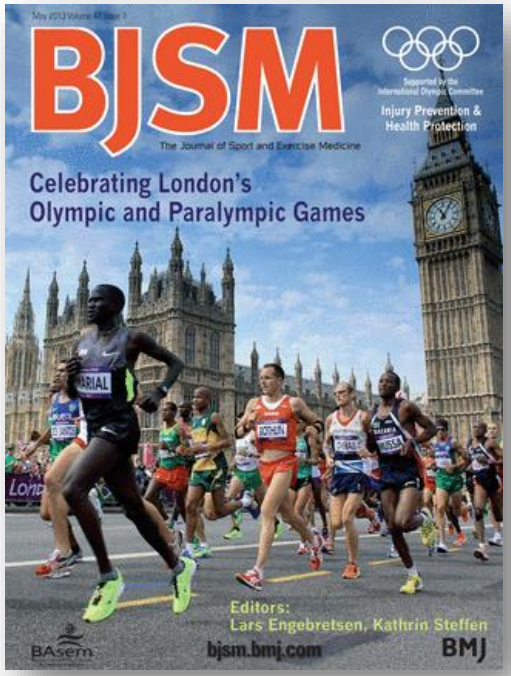
Illness and injury in athletes during the competition period at the London 2012 Paralympic Games: development and implementation of a web-based surveillance system (WEB-IISS) for team medical staff

Wayne Derman,[1,2] Martin Schwellnus,[1,2] Esme Jordaan,[3] Cheri A Blauwet,[4,5] Carolyn Emery,[6,7] Pia Pit-Grosheide,[5] Norma-Angelica Patino Marques,[5,8] Oriol Martinez-Ferrer,[5,9] Jaap Stomphorst,[5,10] Peter Van de Vliet,[5,11] Nick Webborn,[12] Stuart E Willick[5,13]

Original article

Factors associated with illness in athletes participating in the London 2012 Paralympic Games: a prospective cohort study involving 49 910 athlete-days

Martin Schwellnus,[1,2] Wayne Derman,[1,2] Esme Jordaan,[3] Cheri A Blauwet,[4,5] Carolyn Emery,[6,7] Pia Pit-Grosheide,[5] Norma-Angelica Patino Marques,[8,5] Oriol Martinez-Ferrer,[5,9] Jaap Stomphorst,[10,5] Peter Van de Vliet,[5,11] Nick Webborn,[12] Stuart E Willick,[5,13]



IPC Winter Injury Surveys

Salt Lake 2002

Injuries Among Disabled Athletes During the 2002 Winter Paralympic Games

NICK WEBBORN[1,2], STUART WILLICK[3], and JONATHAN C. REESER[4]

[1]Member, Medical Commission, International Paralympic Committee, Bonn, Germany and [2]University of Brighton, East Sussex, England; [3]University of Utah, Salt Lake City, UT; and [4]Department of Physical Medicine and Rehabilitation, Marshfield Clinic, Marshfield, WI

Torino 2006

MEDICAL AND SCIENTIFIC NEWS

IPC Injury Survey Torino 2006

Vancouver 2010

The Injury Experience at the 2010 Winter Paralympic Games

Nick Webborn, MBBS,† Stuart Willick, MD,‡ and Carolyn A. Emery, PT, PhD§¶‖*

Sochi 2014

High incidence of injury at the Sochi 2014 Winter Paralympic Games: a prospective cohort study of 6564 athlete days

W Derman,[1,2,3] M P Schwellnus,[2,3,4] E Jordaan,[5] P Runciman,[1] P Van de Vliet,[6] C Blauwet,[7] N Webborn,[8] S Willick,[9] J Stomphorst[10]

Pyeongchang 2018

High incidence of injuries at the Pyeongchang 2018 Paralympic Winter Games: a prospective cohort study of 6804 athlete days

IPC Summer Injury & Ilness Surveys

London 2012

Rio 2016

Tokyo 2020

The epidemiology of injuries at the London 2012 Paralympic Games

Stuart E Willick,[1,2] Nick Webborn,[3] Carolyn Emery,[4] Cheri A Blauwet,[1,5] Pia Pit-Grosheide,[1] Jaap Stomphorst,[1] Peter Van de Vliet,[6] Norma Angelica Patino Marques,[1,7] J Oriol Martinez-Ferrer,[1,8] Esmè Jordaan,[9] Wayne Derman,[1,10] Martin Schwellnus[10]

High precompetition injury rate dominates the injury profile at the Rio 2016 Summer Paralympic Games: a prospective cohort study of 51 198 athlete days

Wayne Derman,[1,2] Phoebe Runciman,[1,2] Martin Schwellnus,[2,3] Esme Jordaan,[4] Cheri Blauwet,[5] Nick Webborn,[6] Jan Lexell,[7,8,9] Peter van de Vliet,[10] Yetsa Tuakli-Wosornu,[11] James Kissick,[12] Jaap Stomphorst[13]

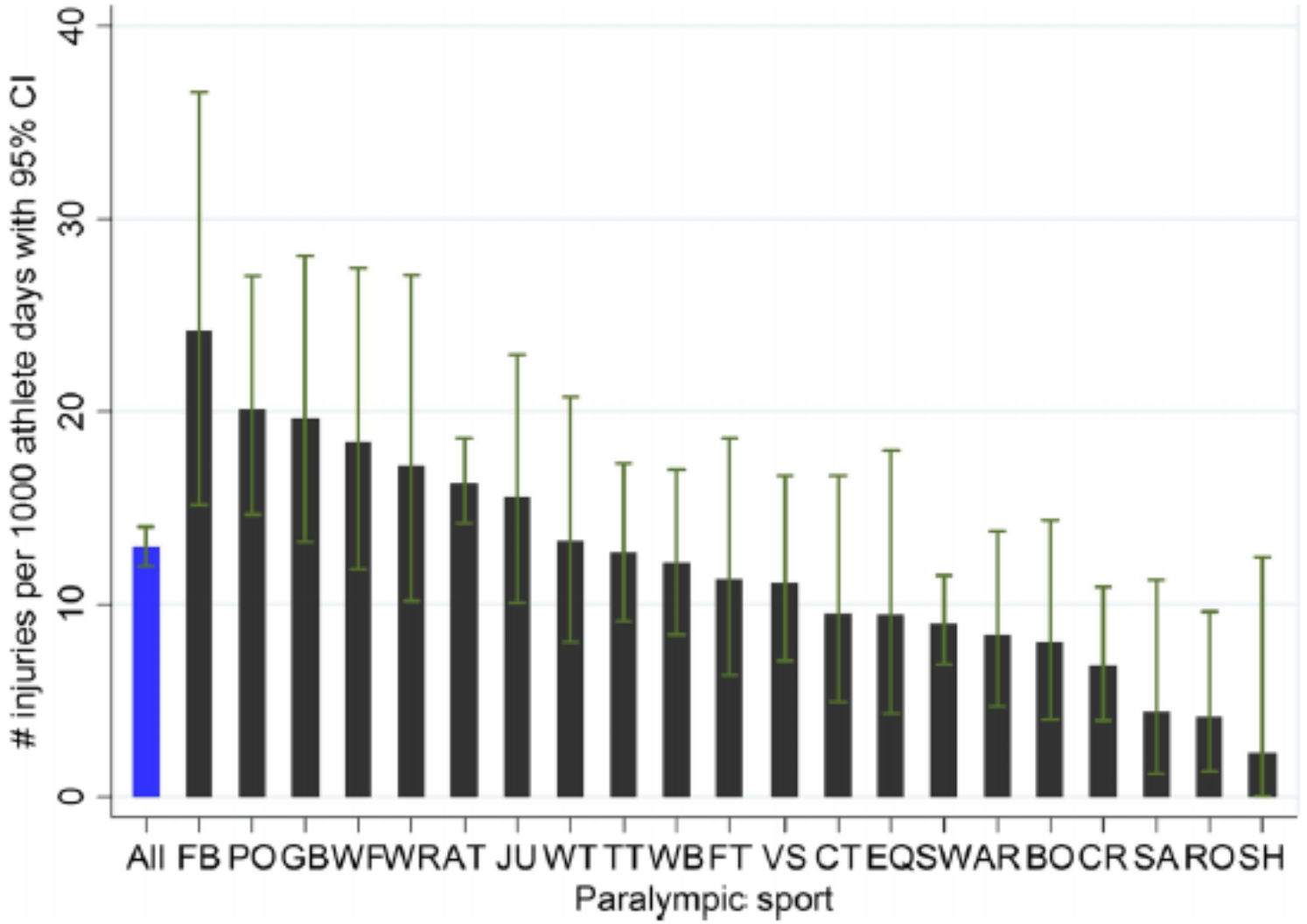
Watch this Space

Injury rate by sport – London 2012

Table 4 Incidence of injury by sport for athletes competing at the Rio 2016 Summer Paralympic Games in descending order of injury incidence rate

Sport	Total number of injuries (percentage of total number of injuries)	Number of athletes with an injury	Total number of athletes competing	Total number of athlete days	Proportion of athletes with an injury	Injury incidence rate: number of injuries/1000 athlete days (95% CI)
All	510 (100%)	441	3657	51 198	12.1	10.0 (9.1 to 10.9)
Football 5-a-side	22 (4.3%)	17	70	980	24.3	22.5 (14.8 to 34.1)*
Wheelchair fencing	16 (3.1%)	13	72	1008	18.1	15.9 (9.7 to 25.9)
Judo	25 (4.9%)	19	115	1610	16.5	15.5 (10.5 to 23.0)*
Football 7-a-side	24 (4.7%)	21	112	1568	18.8	15.3 (10.3 to 22.8)*
Wheelchair rugby	20 (3.9%)	16	96	1344	16.7	14.9 (9.6 to 23.1)
Wheelchair basketball	41 (8.0%)	32	228	3192	14.0	12.8 (9.5 to 17.4)
Sitting volleyball	21 (4.1%)	17	127	1778	13.4	11.8 (7.7 to 18.1)
Wheelchair tennis	15 (2.9%)	13	94	1316	13.8	11.4 (6.9 to 18.9)
Para powerlifting	22 (4.3%)	22	141	1974	15.6	11.1 (7.3 to 16.9)
Para athletics	126 (24.7%)	111	894	12 516	12.4	10.1 (8.5 to 12.0)
Archery	16 (3.1%)	14	113	1582	12.4	10.1 (6.2 to 16.5)
Triathlon	8 (1.6%)	7	58	812	12.1	9.9 (4.9 to 19.7)
Canoe	7 (1.4%)	6	52	728	11.5	9.6 (4.6 to 20.2)
Table tennis	27 (5.3%)	24	223	3122	10.8	8.6 (5.9 to 12.6)
Sailing	9 (1.8%)	8	76	1064	10.5	8.5 (4.4 to 16.3)
Rowing	9 (1.8%)	8	88	1232	9.1	7.3 (3.8 to 14.0)
Para swimming	49 (9.6%)	42	492	6888	8.5	7.1 (5.4 to 9.4)†
Cycling (track and road)	20 (3.9%)	20	204	2856	9.8	7.0 (4.5 to 10.9)
Equestrian	7 (1.4%)	7	71	994	9.9	7.0 (3.4 to 14.8)
Shooting Para sport	12 (2.4%)	11	130	1820	8.5	6.6 (3.7 to 11.6)
Goalball	8 (1.6%)	7	102	1428	6.9	5.6 (2.8 to 11.2)
Boccia	6 (1.2%)	6	99	1386	6.1	4.3 (1.9 to 9.6)†

Injury rate by sport – London 2012



General Risk Factors Paralympians

- Tend to be older than Olympians – London 2012 Mean age 30 (12-67)
- Co-morbidities from medical conditions
- Manual wheelchair use independent risk factor for upper limb injury

Incidence rate of illnesses

System	Competition period	
	N	IR
Respiratory	138	3.52 (2.96 to 4.16)
Skin and subcutaneous tissue	91	2.32 (1.87 to 2.85)
Digestive	74	1.89 (1.48 to 2.37)
Nervous system	44	1.12 (0.82 to 1.51)
Genitourinary	38	0.97 (0.69 to 1.33)
Ears and mastoid	32	0.82 (0.56 to 1.15)

Schwellnus M, et al. Br J Sports Med 2013

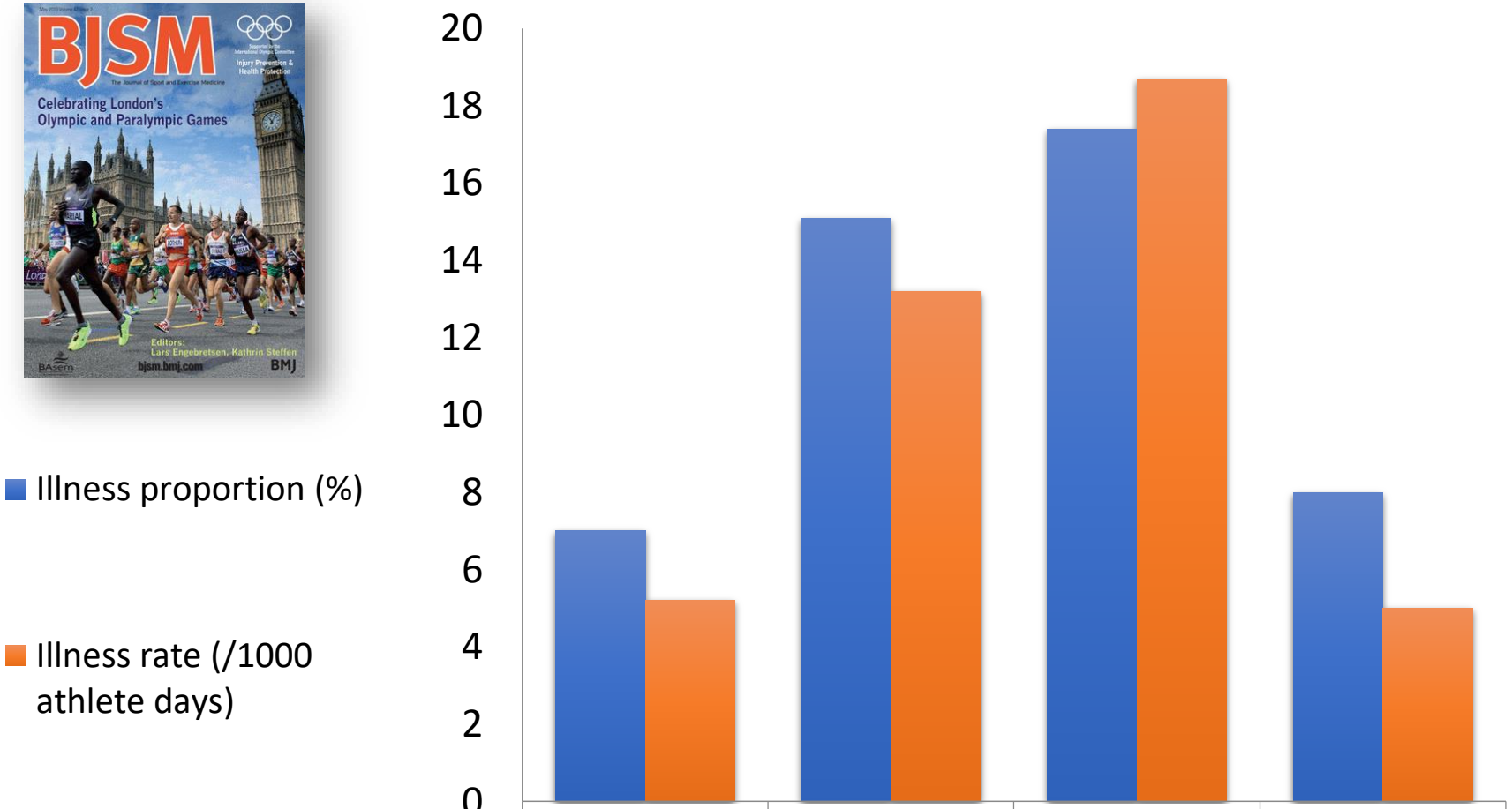
Incidence rate of illnesses

Different to Olympians

System	Competitio N	IR
Respiratory	138	3.52 (2.96 to 4.16)
Skin and subcutaneous tissue	91	2.32 (1.87 to 2.85)
Digestive	74	1.89 (1.48 to 2.37)
Nervous system	44	1.12 (0.82 to 1.51)
Genitourinary	38	0.97 (0.69 to 1.33)
Ears and mastoid	32	0.82 (0.56 to 1.15)

Schwellnus M, et al. Br J Sports Med 2013

Incidence of Illness



	Summer Olympics	Summer Paralympics	Winter Paralympics	Winter Olympics
Illness proportion (%)	7	15.1	17.4	8
Illness rate (/1000 athlete days)	5.2	13.2	18.7	5

Illness in impairment classes (385 illnesses on WEB-IISS)

- Skin and subcutaneous illnesses
  - Spinal cord injured (46.7%)
  - Amputation/limb deficiency (31%)
- Urinary tract infection – Spinal cord injured (77.4%)

Skin and Subcutaneous Tissue

Is daily walking when living in the Paralympic village different to the typical home environment?

Brendan Burkett

ABSTRACT

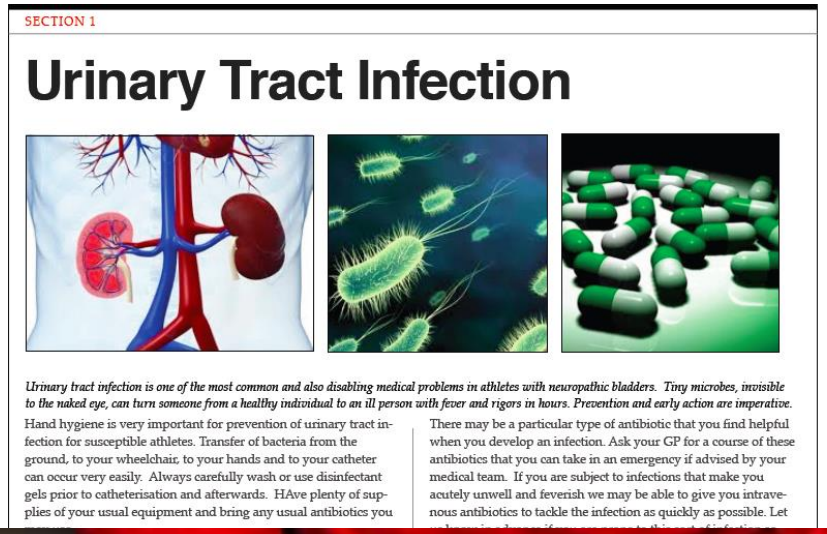
Background Life within the Paralympic village is exciting, and the preparation for competition of upmost importance. Due to the shear geographic size of the Paralympic village and associated competition venues, the amount of incidental walking could be different to an athlete's home environment, and any extra walking could potentially diminish athletic performance.

Swimming has been an official sport at the Paralympic Games since the inaugural 1960 Rome games. To be eligible to compete at the Paralympic Games, athletes with disabilities are grouped into classes that are defined by the degree of function present in their disability.[3] Swimmers with physical (locomotor) disabilities are placed into one of 10 classes (S1–S10) according to their ability to

Additional 5472 steps / day
when at a Paralympic Games
(83% increase over normal day)

Urinary Tract Infection

- Commonest cause of *disabling* infection in SCI athletes
- ‘Hero to Zero’ in hours
- Education –
  - Hydration
  - Hand hygiene



SECTION 1

Urinary Tract Infection

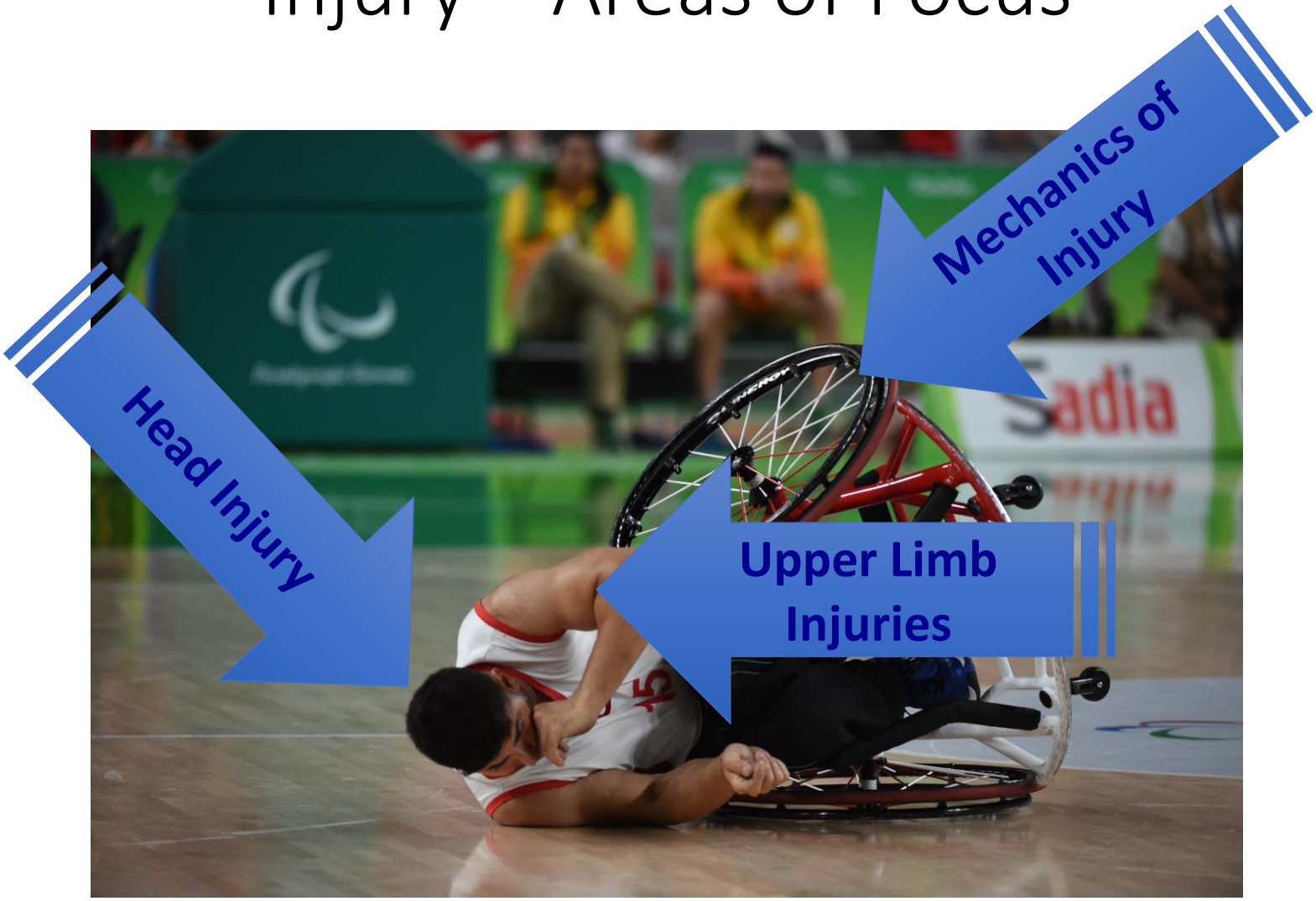
Urinary tract infection is one of the most common and also disabling medical problems in athletes with neuropathic bladders. Tiny microbes, invisible to the naked eye, can turn someone from a healthy individual to an ill person with fever and rigors in hours. Prevention and early action are imperative.

Hand hygiene is very important for prevention of urinary tract infection for susceptible athletes. Transfer of bacteria from the ground, to your wheelchair, to your hands and to your catheter can occur very easily. Always carefully wash or use disinfectant gels prior to catheterisation and afterwards. HAve plenty of supplies of your usual equipment and bring any usual antibiotics you

There may be a particular type of antibiotic that you find helpful when you develop an infection. Ask your GP for a course of these antibiotics that you can take in an emergency if advised by your medical team. If you are subject to infections that make you acutely unwell and feverish we may be able to give you intravenous antibiotics to tackle the infection as quickly as possible. Let


focus

Injury – Areas of Focus



“Biomechanics is everything”

Yves Vanlandewijck

Injury related to the Mechanics of Sport

To determine which structures will be damaged, and how to prevent injury, it is essential to understand:

- The Sport
- The Impairment type
- The Impairment level

And understand the biomechanical differences

Different Sports – Different Uses – Different Chairs

Different Design =
Different Pushing Techniques &
Different Sport Demands =
Different Mechanical Loads

Different Sports – Different Uses – Different Chairs

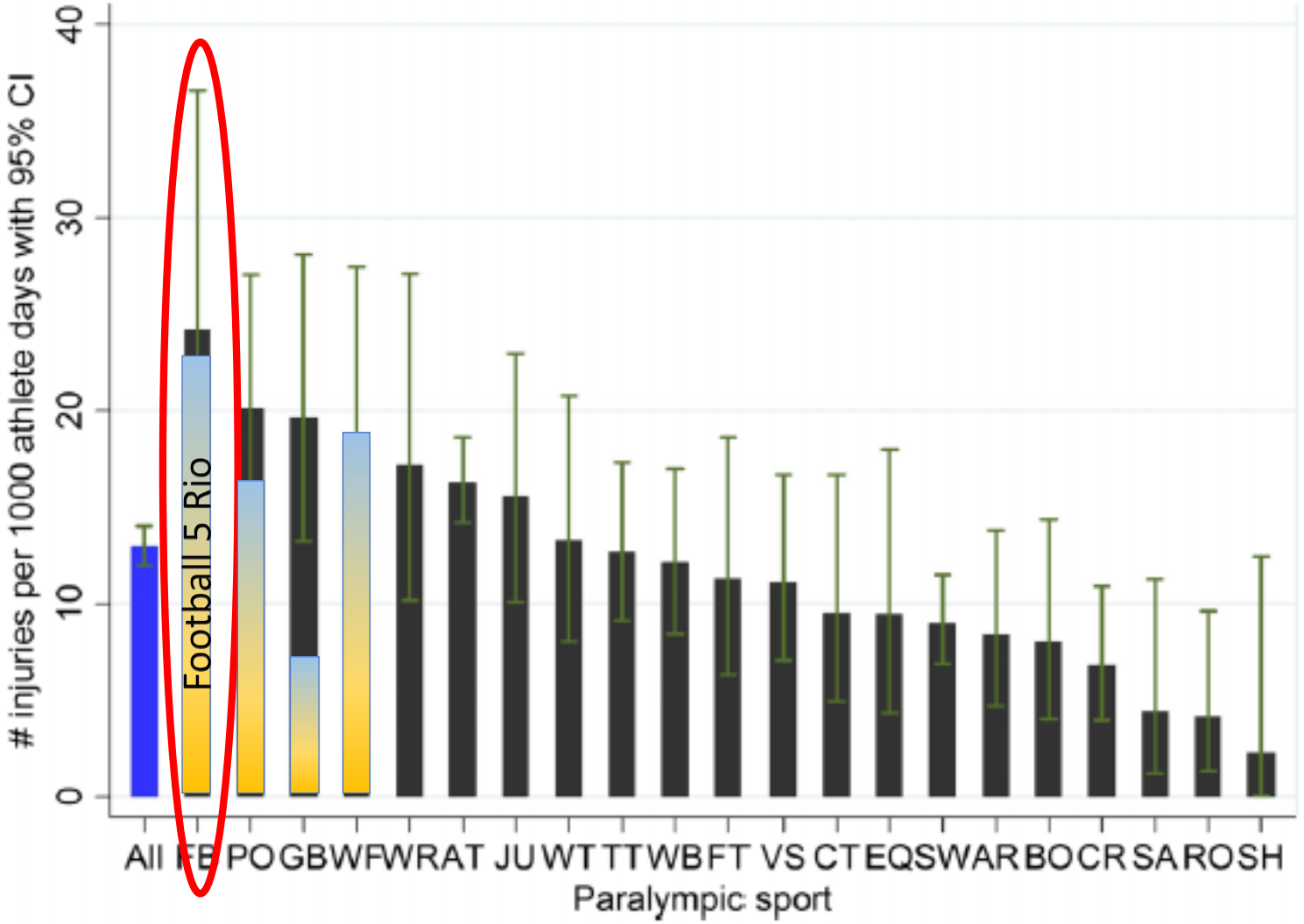
Different Sports – Different Uses – Different Chairs

Different Sports – Different Uses – Different Chairs

Different Sports – Different Uses – Different Chairs

Different Design =
Different Pushing Techniques &
Different Sport Demands =
Different Mechanical Loads

Injury rate by sport – London 2012



Injury Mechanism FB5

Mechanism of Acute Injury in Competition

- 7/8 injuries - contact with other athletes
- 5 out of 8 (62.5%) were reported as relating to foul play and contact with other athlete.

Collecting Concussion Data

Wearable Technology
Implanted in head protection

Real-time Data

NPC Team Physician

Assist Clinical Decision Making

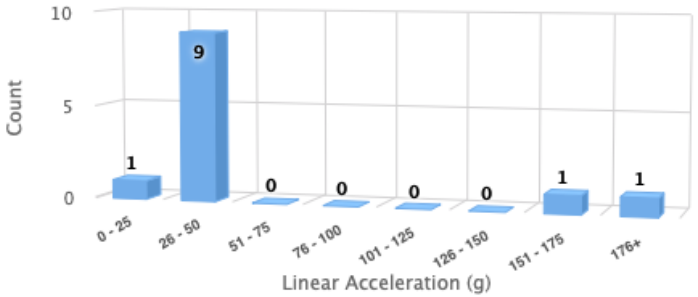
GFT™ IMPACTS

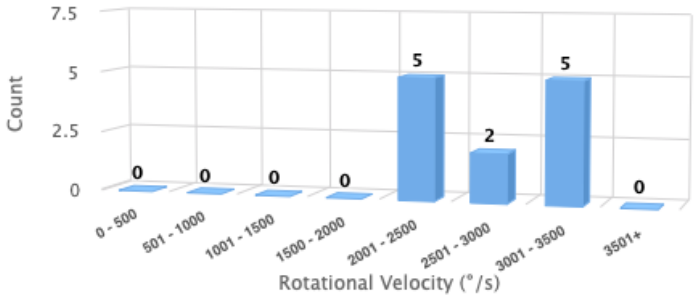
IPC Research Team

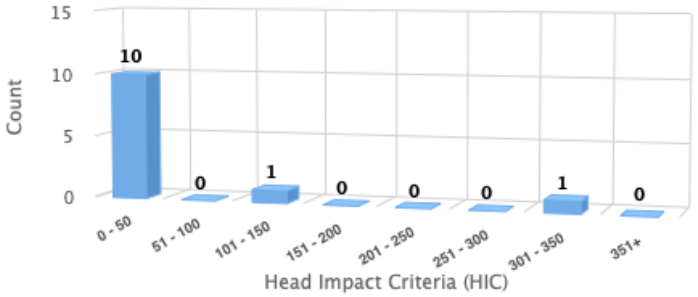
Collate info on Impacts and Risk

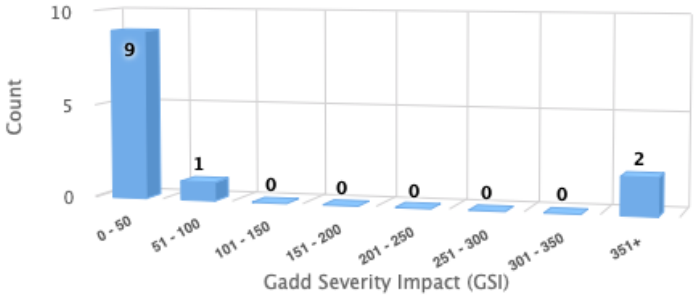
GFT™ RESEARCH

Collecting Concussion Data

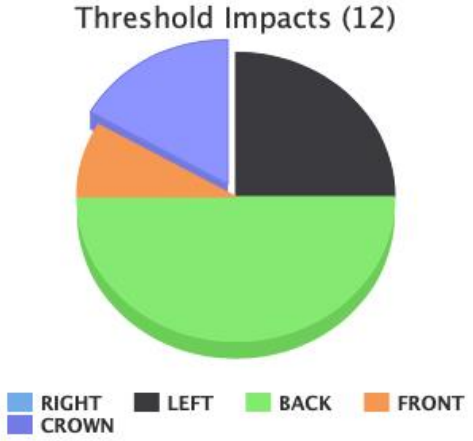








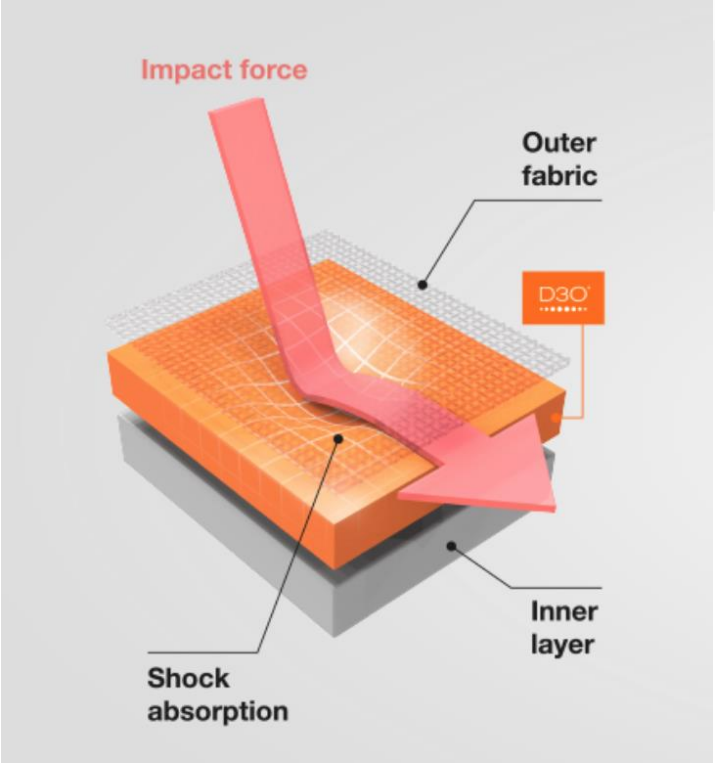
GFT™
IMPACTS



Integration of Innovative Materials and Sport Specific Design

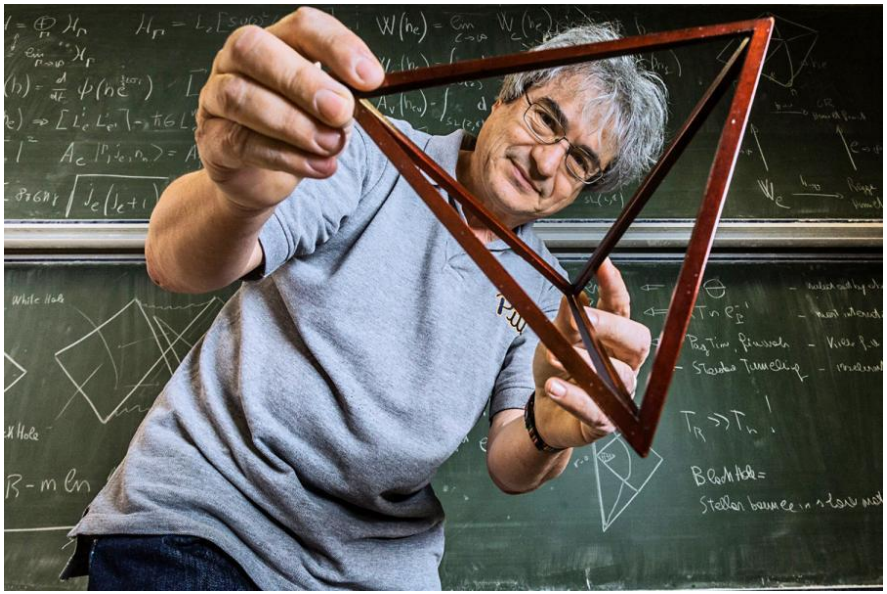
Integration of Innovative Materials and Sport Specific Design

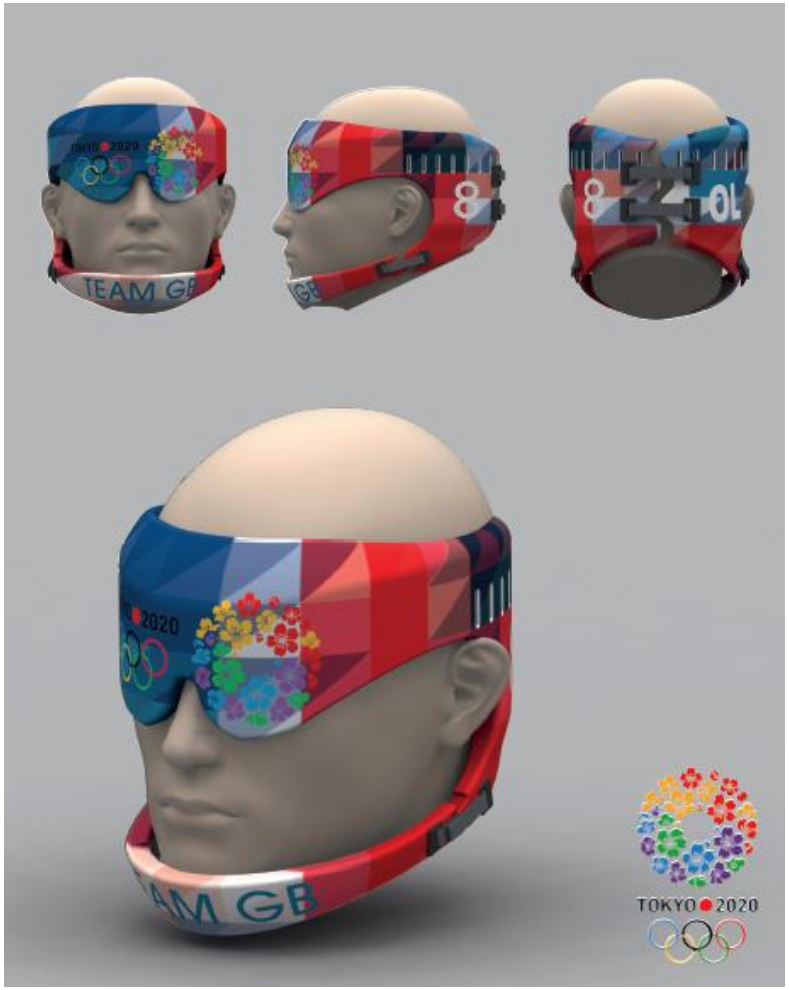
- D30 - rate-sensitive, soft, flexible materials with high shock absorbing properties
- Based on non-Newtonian principles, molecules flow freely, but on impact, lock together to dissipate impact energy and reduce transmitted force.



Carlo Rovelli

"Science is an acute awareness of the extent of our ignorance"





Integration into International Sport Regulations

- Engagement with IF regarding head protection trials
- Consider mandatory implementation
- Referee, player and coach education
- Longitudinal study to assess effect

Heads up on concussion in para sport

Nick Webborn,[1,2] Cheri A Blauwet,[1,3]
Wayne Derman,[1,4,5] Guzel Idrisova,[1,6] Jan Lexell,[1,7] Jaap Stomphorst,[1,8]
Yetsa A Tuakli-Wosornu,[1,3] James Kissick[1,9]

Concussion in Para Sport

James Kissick, MD, CCFP (SEM), Dip Sport Med[a,*],
Nick Webborn, MB BS, FFSEM, MSc[b]

KEYWORDS

• Concussion • Para sport • Para athlete • Athletes with a disability • Injury

KEY POINTS

- Para athletes are exposed to concussion risk, particularly in speed, collision, and contact sports.
- There are few incidence data on concussion in Para athletes.
- Current assessment guidelines and tools (eg, Sport Concussion Assessment Tool—5th Edition) are not applicable to some Para athlete populations.
- The management of concussion in the Para athletes may need to be adapted depending on the athlete impairment and sport.
- Risk reduction strategies, in particular education, must be implemented.


Allianz
QATAR
WOMEN'S
SHOT PUT
20.40h FZ0
32.5

Head Injury and Concussion Risk

Table 1
Summer and Winter Paralympic sports with best estimate of concussion risk based on impairment impact speed, collision potential, head protection and risk rating (1 = low to 5 = high)

Summer Sports	Impairment	Collision Potential	Impact Speed	Head Protection	Risk Rating
Archery	Multiple	Very low	Very low	No	1
Boccia	CP	Very low	Very low	No	1
Cycling road	Handcycle	Moderate	High	Yes	5
Cycling road	Trike	Moderate	Moderate–High	Yes	3
Cycling road	Bike	Moderate	High	Yes	5
Cycling track	Multiple	Moderate	Moderate	Yes	3
Equestrian	Multiple	Low	Moderate	Yes	2
Football 5-a-side	VI	High	Low	No	4
Football 7-a-side	CP	Moderate	Low–Moderate	No	2
Goalball	VI	Moderate	Moderate	No	3
Judo	VI	Moderate	Moderate	No	2
Para athletics field	Wheelchair	Low	Very low	No	1
Para athletics field	Amputee	Low	Moderate	No	2
Para athletics field	VI	Low	Moderate	No	2
Para athletics field	CP	Low	Moderate	No	2
Para athletics track	Wheelchair	Moderate	Moderate	Yes	3
Para athletics track	Amputee	Low	Moderate	No	1
Para athletics track	VI	Low	Moderate	No	1
Para athletics track	CP	Low	Moderate	No	1
Para canoe	Multiple	Low	Low	No	2
Para powerlifting	Multiple	Very low	V low	No	1
Para swimming	Multiple	Low	Low	No	2
Para triathlon—bike	Multiple	Moderate	High	Yes	4
Para triathlon—run	Multiple	Low	Low	No	2
Para triathlon—swim	Multiple	Low	Low	No	2
Rowing	Multiple	Very low	Low	No	2
Sailing	Multiple	Moderate	Moderate	No	3
Shooting Para sport	Multiple	Very low	Very low	No	1
Sitting volleyball	Multiple	Low	Low	No	2
Table tennis	Multiple	Low	Low	No	1
Wheelchair basketball	Multiple	Low	Low	No	2
Wheelchair fencing	Multiple	Low	Low	Yes	2
Wheelchair rugby	SCI	High	Low	No	3
Wheelchair tennis	Multiple	Low	Low	No	2

Upper Limb Injury

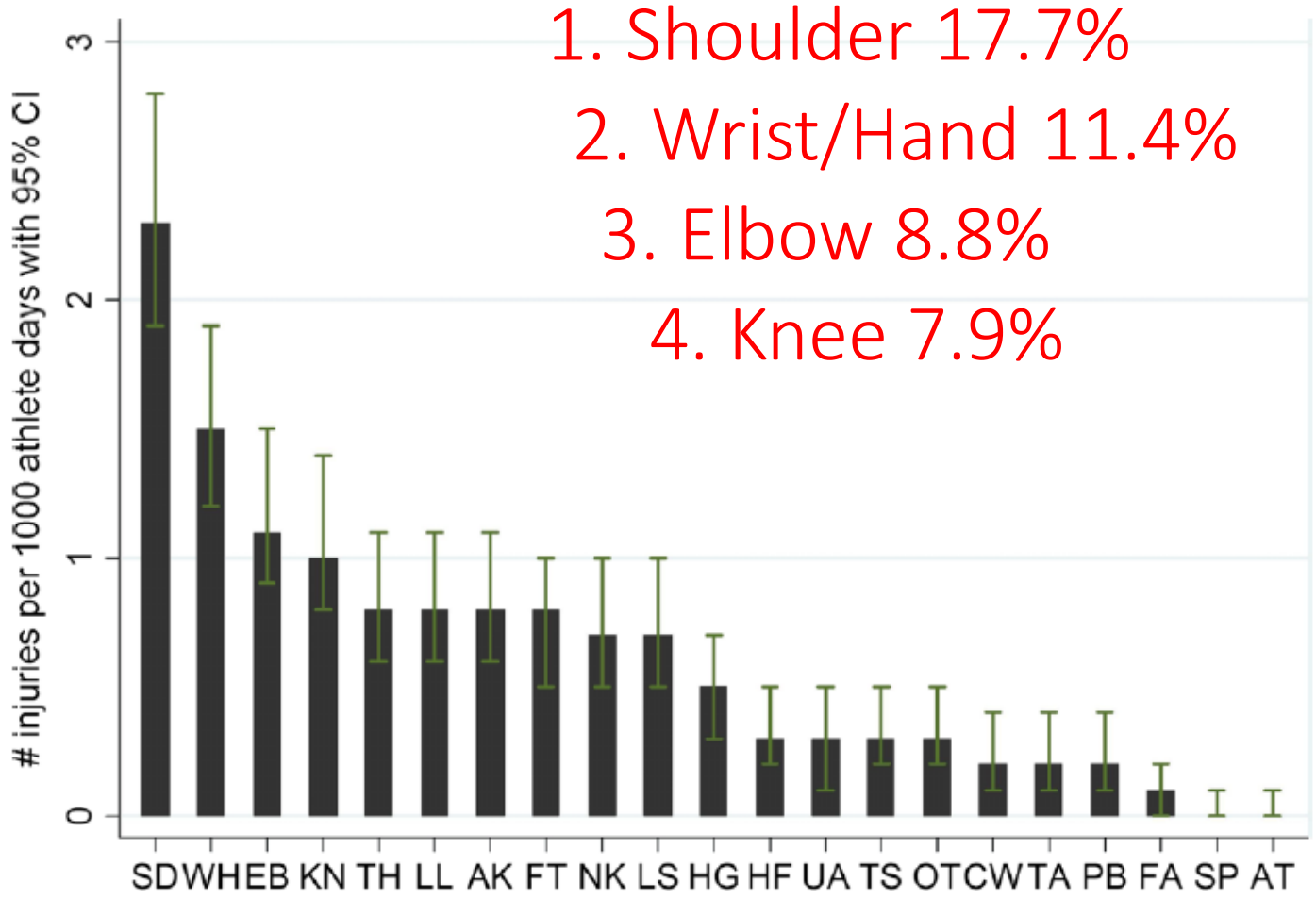
Important Consequences of Upper Limb Injury

Impact on Activities of Daily Living:

- Propulsion
- Transferring – chair to bed, toilet, car
- Self-care – bladder/bowel
- Driving


swatch
6

INJURY RATE BY BODY PART



Willick SE, Webborn N, Emery C, et al. Br J Sports Med Published Online First
doi:10.1136/bjsports-2013- 092374

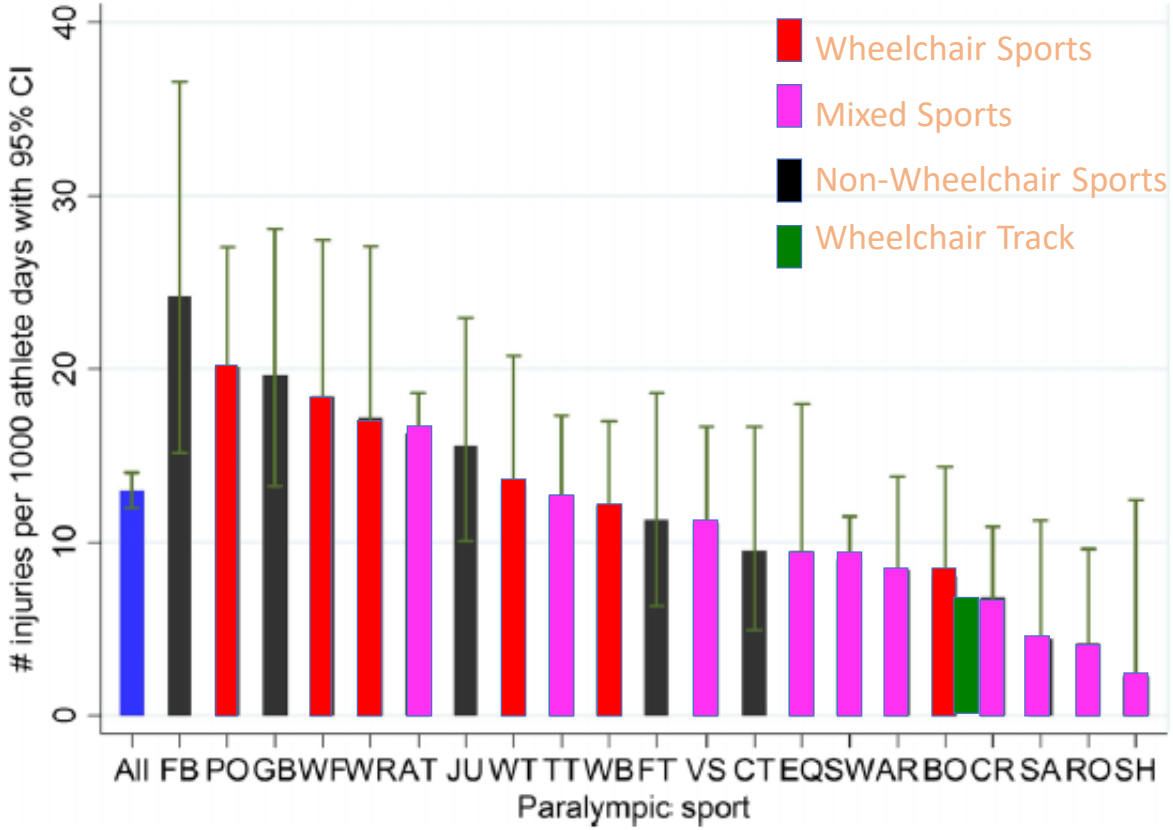
Injury Location is Impairment/Event Specific

Ambulant Athletes	Wheelchair/Seated Athletes
1. Thigh	1. Shoulder/clavicle
2. Knee	2. Elbow
3. Lumbar spine	3. Knee
4. Lower leg	4. Upper arm
5. Foot	5. Wrist

Lower extremity involvement

Upper extremity involvement

Injuries/1000 athlete days - Sport v Athletics Track Wheelchair



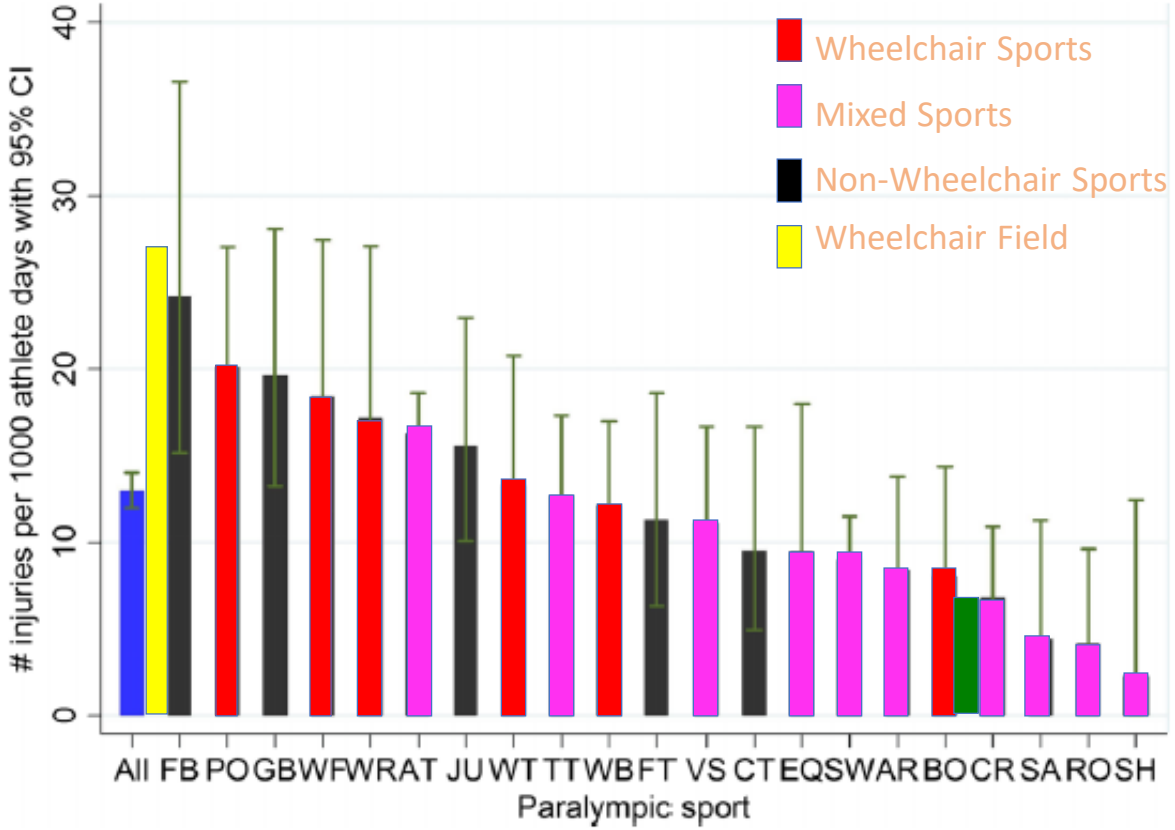
Injuries Wheelchair Athletics by Event Type

	Sprints	Long distances	Throws
Athletes participating	110	32	177
Acute Traumatic (IR)	6 (5.5)	4 (12.5)	18 (6.8)
Acute on Chronic (IR)	2 (1.8)	0 (0)	10 (4.5)
Overuse injury (IR)	3 (2.7)	0 (0)	14 (7.9)
Total	11(10)	4 (12.5)	42 (23.7)
0-1 days missed (IR)	9 (8.2)	3 (9.4)	32 (14.7)
> 1 day missed (IR)	2 (1.8)	1 (3.1)	10 (4.5)

Injuries Wheelchair Athletics by Event Type

	Sprints	Long distances	Throws
Athletes participating	110	32	177
Acute Traumatic (IR)	6 (5.5)	4 (12.5)	18 (6.8)
Acute on Chronic (IR)	2 (1.8)	0 (0)	10 (4.5)
Overuse injury (IR)	3 (2.7)	0 (0)	14 (7.9)
Total	11(10)	4 (12.5)	42 (23.7)
0-1 days missed (IR)	9 (8.2)	3 (9.4)	32 (14.7)
> 1 day missed (IR)	2 (1.8)	1 (3.1)	10 (4.5)

Injuries/1000 athlete days - Sport v Athletics Field Wheelchair



Top 5 Injuries by Anatomical Region in Wheelchair Athletes

Region	Track	Field	No. of injuries	% of all injuries	Incidence rate
Shoulder/clavicle	2	9	11	19.3%	3.4
Elbow	1	8	9	15.8%	2.8
Knee	1	5	6	10.5%	1.9
Upper arm	2	3	5	8.8%	1.6
Wrist	1	3	4	7.0%	1.3

Top 5 Injuries by Anatomical Region in Wheelchair Athletes

Region	Track	Field	No. of injuries	% of all injuries	Incidence rate
Shoulder/clavicle	2	9	11	19.3%	3.4
Elbow	1	8	9	15.8%	2.8
Knee	1	5	6	10.5%	1.9
Upper arm	2	3	5	8.8%	1.6
Wrist	1	3	4	7.0%	1.3

Problem of the throwing athlete

World Para Athletics

IPC MEDICAL COMMITTEE

SHOULDER STUDY IN WHEELCHAIR ATHLETES

TRACK OR FIELD

PAIN

Ultrasound Scan of the Shoulder

REATMENT

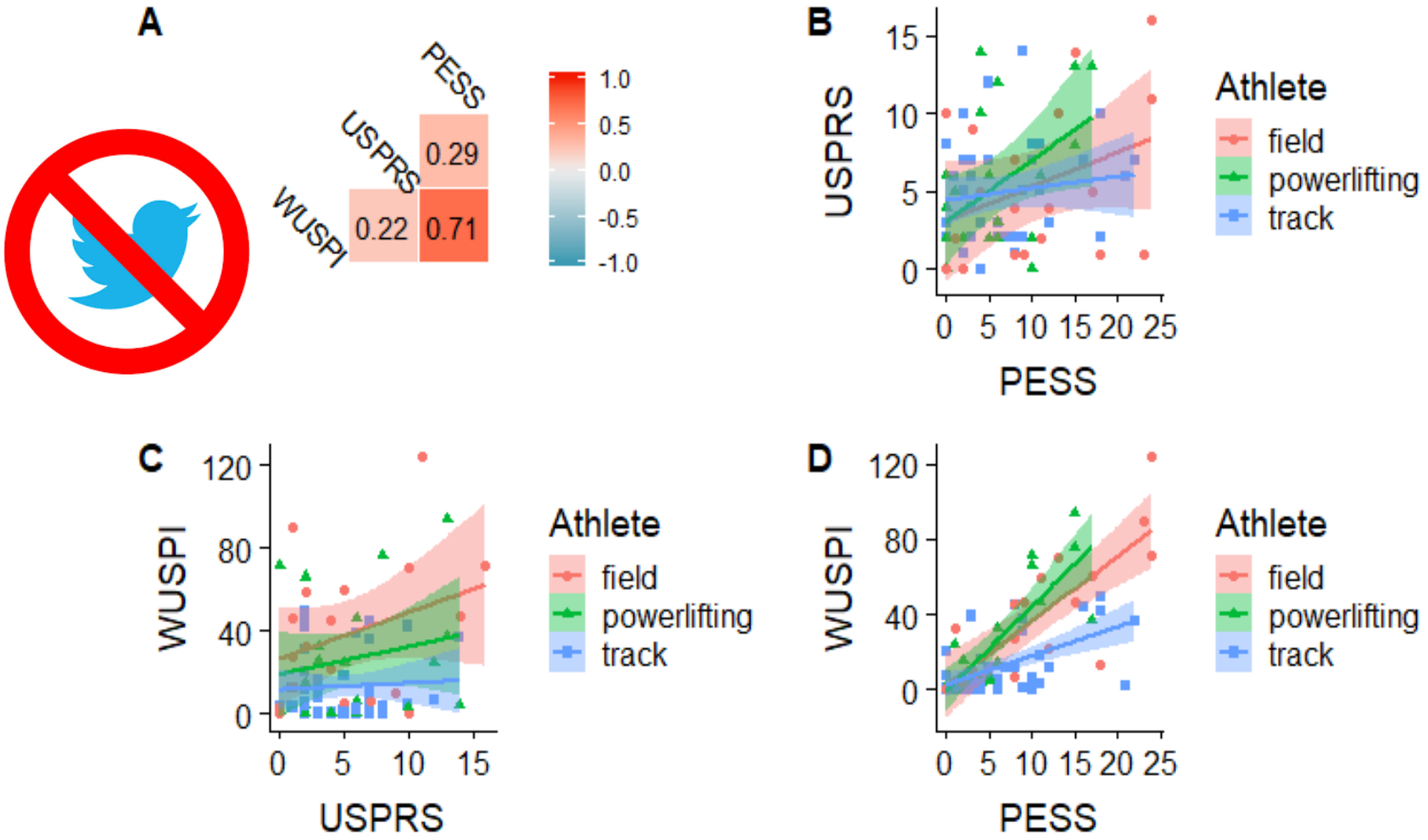
IPC MEDICAL COMMITTEE

SHOULDER STUDY IN WHEELCHAIR ATHLETES

POWERLIFTING

AGE 18-50 MALE OR FEMALE

Associations between the three different assessments for all athletes combined (A) and for each of the three types of athletes (B-D).



[Key PESS = Physical Examination of the Shoulder Scale; WUSPI = Wheelchair User's Shoulder Pain Index; USPRS = Ultrasound Shoulder Pathology Rating Scale]

ORIGINAL ARTICLES:

AD Webborn

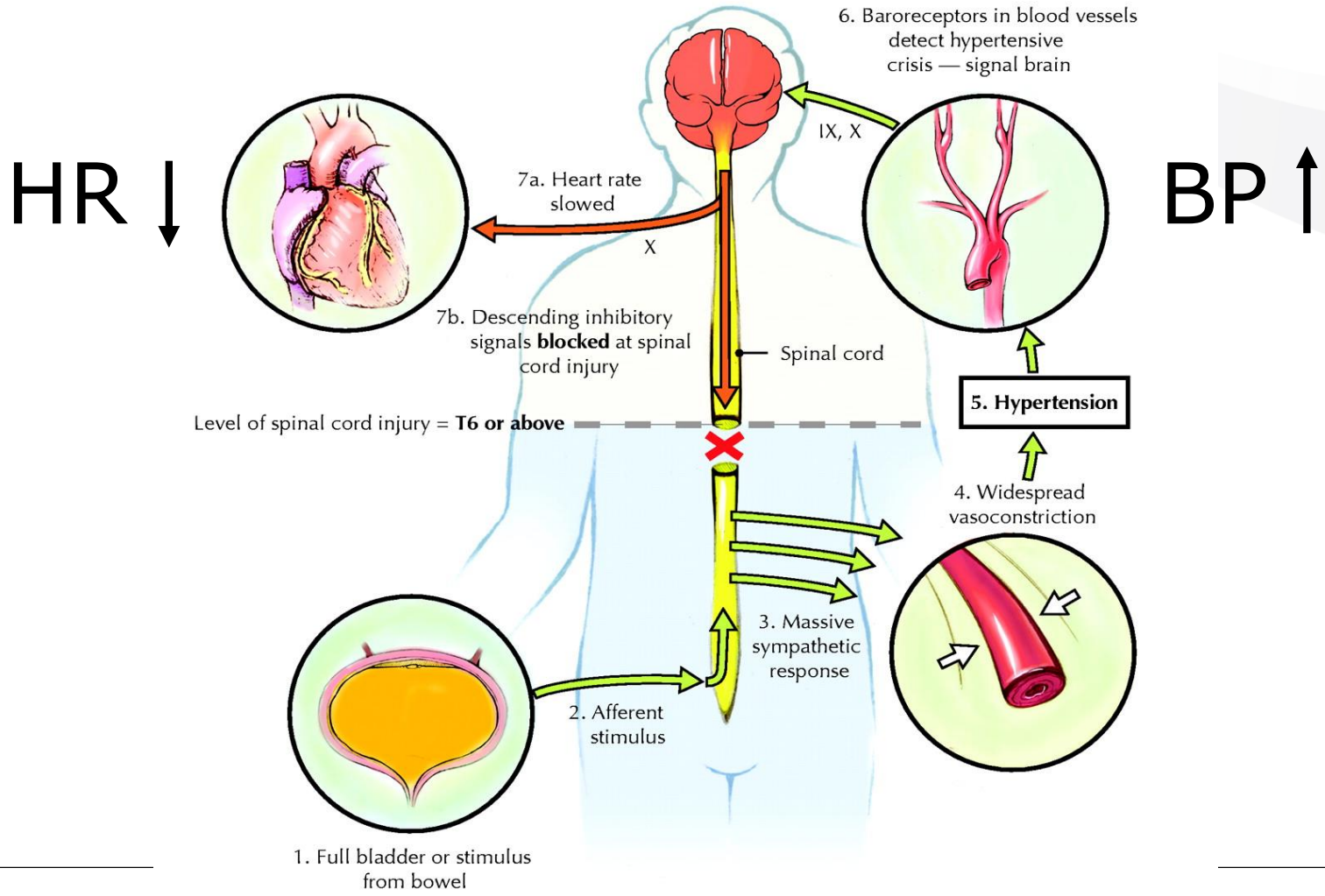
"Boosting" performance in disability sport

Br. J. Sports Med., Apr 1999; 33: 74 - 75.

...Original articles "**Boosting**" performance in disability sport "**Boosting**" performance in disability sport. | Sussex Centre for Sport and Exercise Medicine. | Journal Article | Autonomic Nervous System physiopathology | Blood Pressure physiology.....

Prof Nick Webborn
IPC Medical Committee

Autonomic Dysreflexia (AD)



Disability and Rehabilitation, 2010; Early Online, 1–19

informa
healthcare

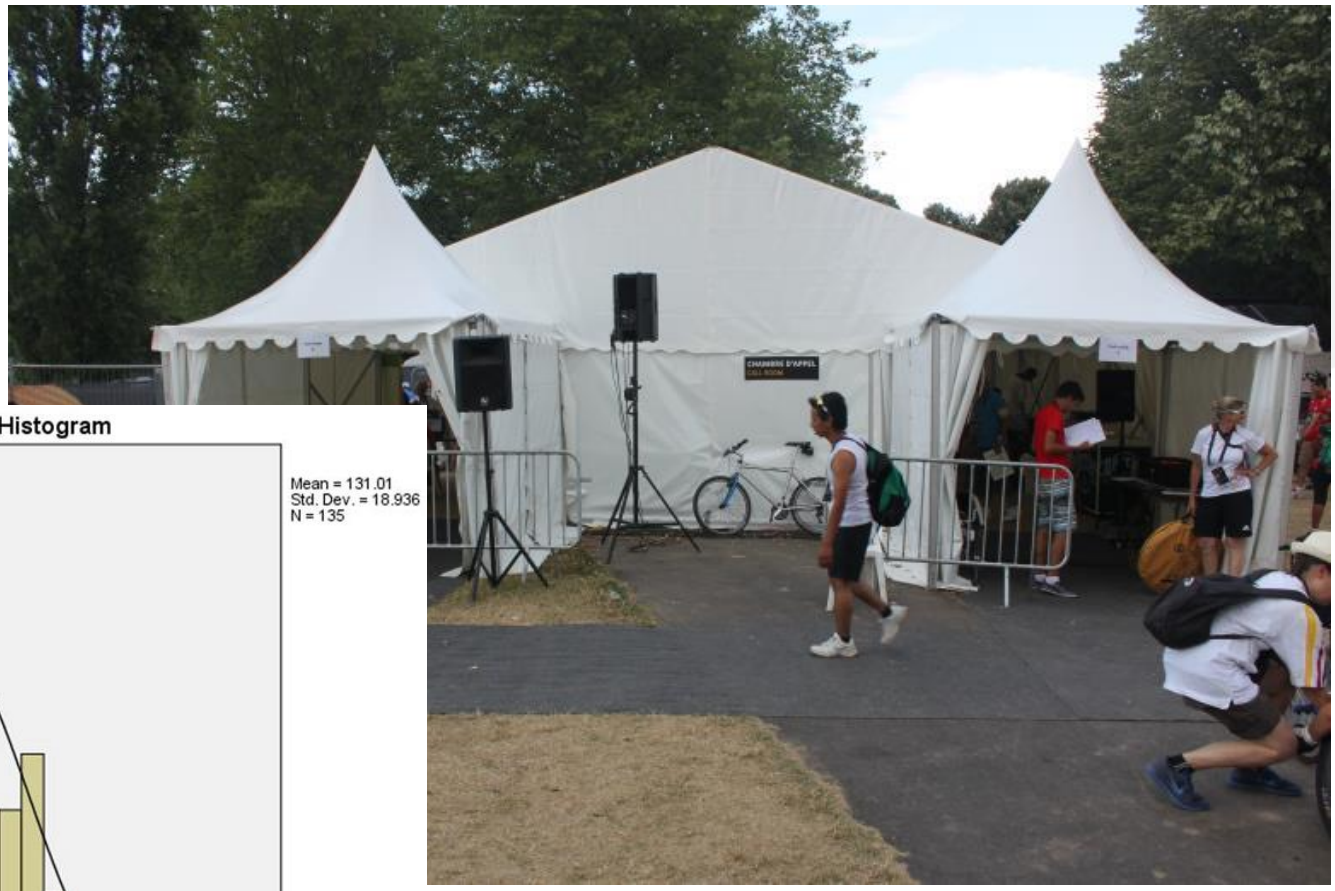
RESEARCH PAPER

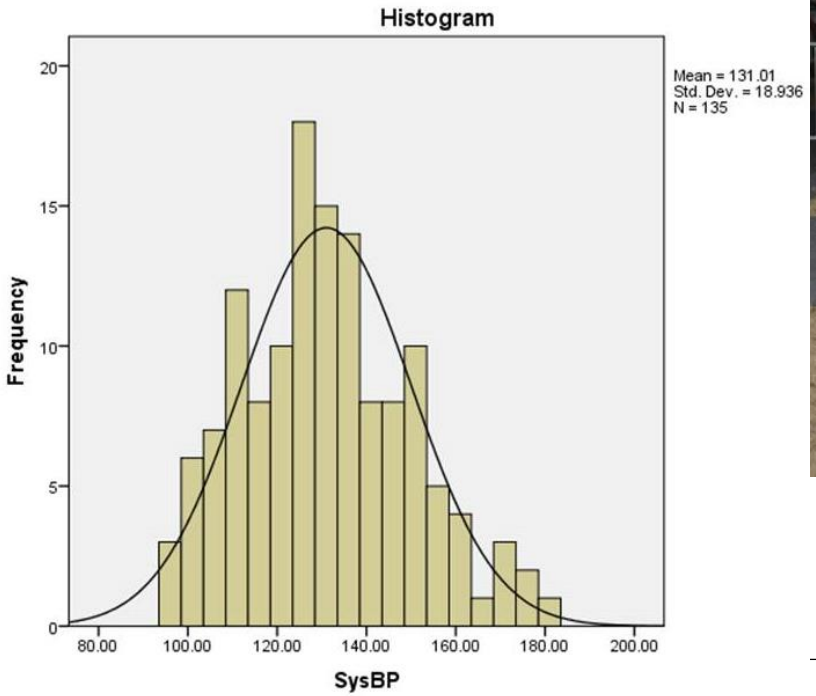
Boosting in athletes with high-level spinal cord injury: knowledge, incidence and attitudes of athletes in paralympic sport

YAGESH BHAMBHANI[1], JENNIFER MACTAVISH[2], SHARON WARREN[1], WALTER R. THOMPSON[3], ANTHONY WEBBORN[4], ELIZABETH BRESSAN[5], MARCO TUILO DE MELLO[6], SEAN TWEEDY[7], LAURIE MALONE[8], KENNET FROJD[9], PETER VAN DE VLIET[10] & YVES VANLANDEWIJCK[11]

- 40% of susceptible athletes questioned were unaware of boosting
- 17% of athletes questioned admitted to using boosting during training and/or competition

IPC Boosting Testing Programme 2008 - 2016





Chapter 4.2 - Position Statement on Autonomic Dysreflexia and Boosting

April 2016

International Paralympic Committee
Adenauerallee 212-214 Tel. +49 228 2097-200
53113 Bonn, Germany Fax +49 228 2097-209
www.paralympic.org
info@paralympic.org

3. A hazardous dysreflexic state is considered to be present when the systolic blood pressure is above 160mm Hg.

4. An athlete with a systolic blood pressure of above 160mm Hg will be re-examined approximately ten minutes after the first examination. If on the second examination the systolic blood pressure remains above 160mm Hg the person in charge of the examination shall inform the Technical Delegate to withdraw the athlete from the particular event in question.

Optimising the Care of the Athlete
The Team Physician


Good luck follow your dreams.
RULE BRITANNIA


Yakult
Yakult
Yakult
Yakult


aff
Vicky
Consultant
hysiologist
to
Radiologist
uise
herapist
oy
ologist
WIFI Access
WIN PRIZES!


ParalympicsGB


OUR GREATEST TEAM
ParalympicsGB
CET CryoSpas
CET CryoSpas
CLEANING IN

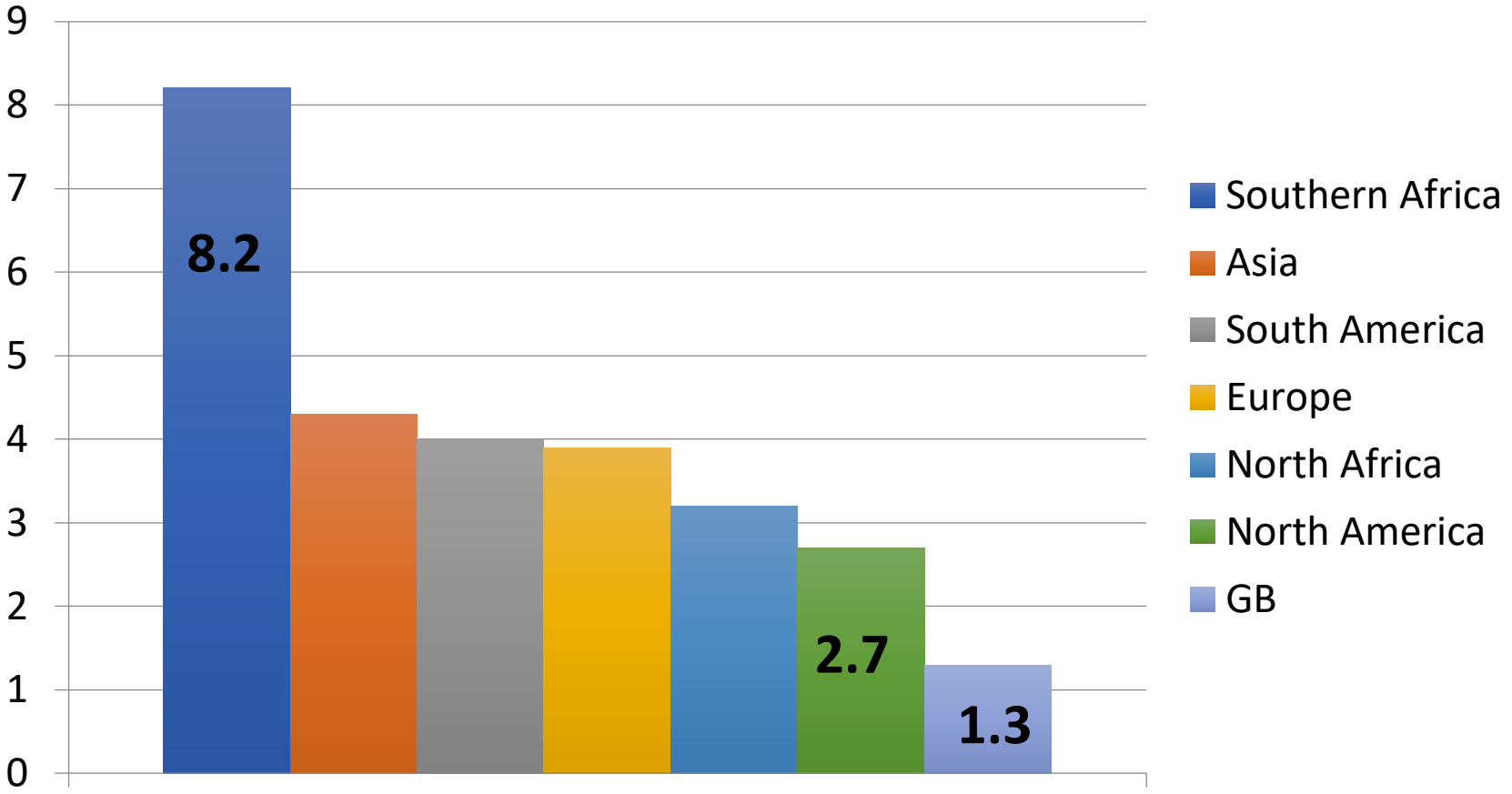
The importance of sleep

"If sleep does not serve an absolutely vital function, then it is the biggest mistake the evolutionary process ever made[1]"

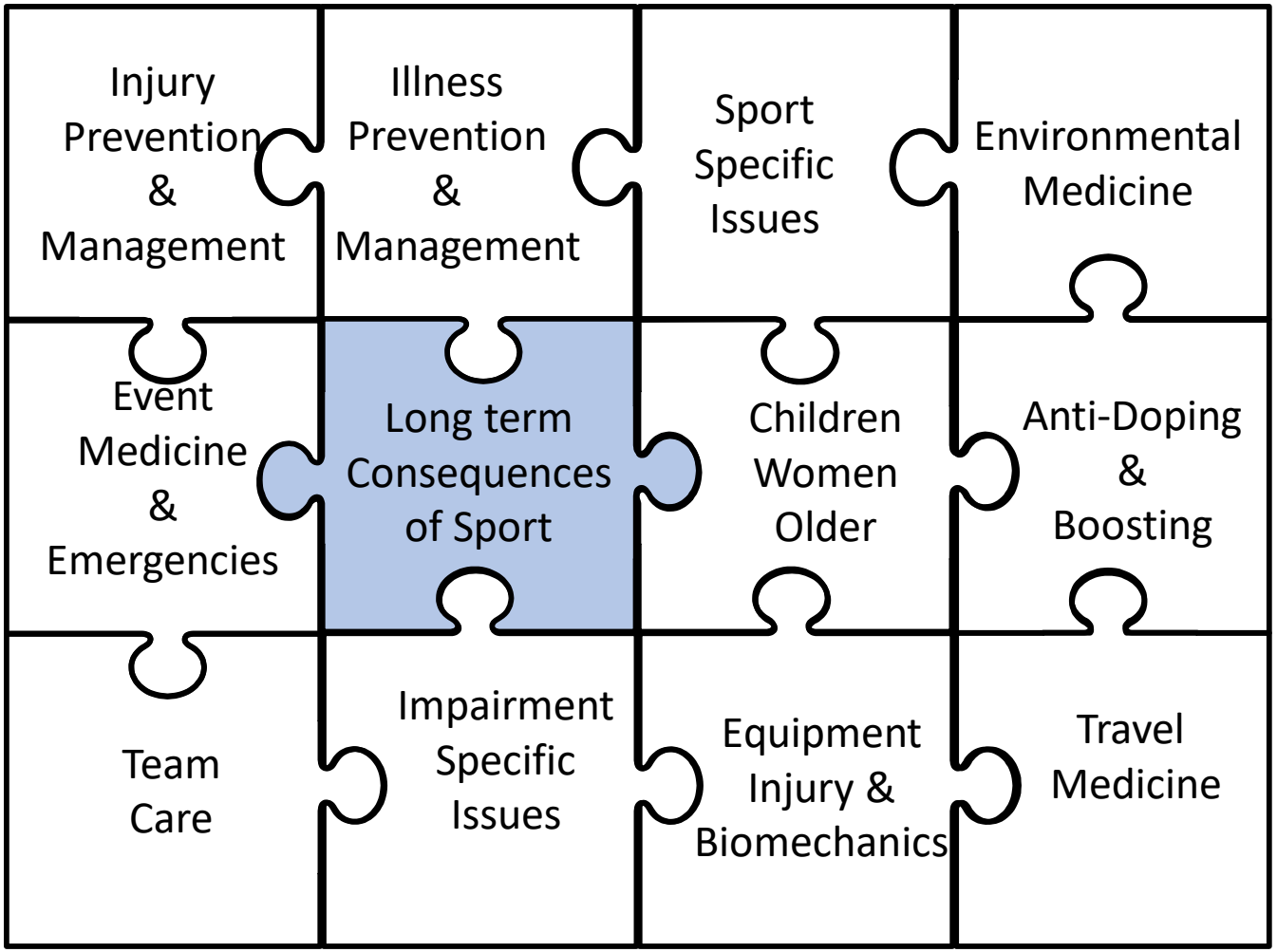
Rechtschaffen. The control of sleep. In: Hunt, editor. Human behaviour and its control. Cambridge, MA: Schenkman; 1971


LIGHT/DARK
Noise
Temp/Humidity
Pillow
Room Mate
Comfort - Mattress
Bathroom

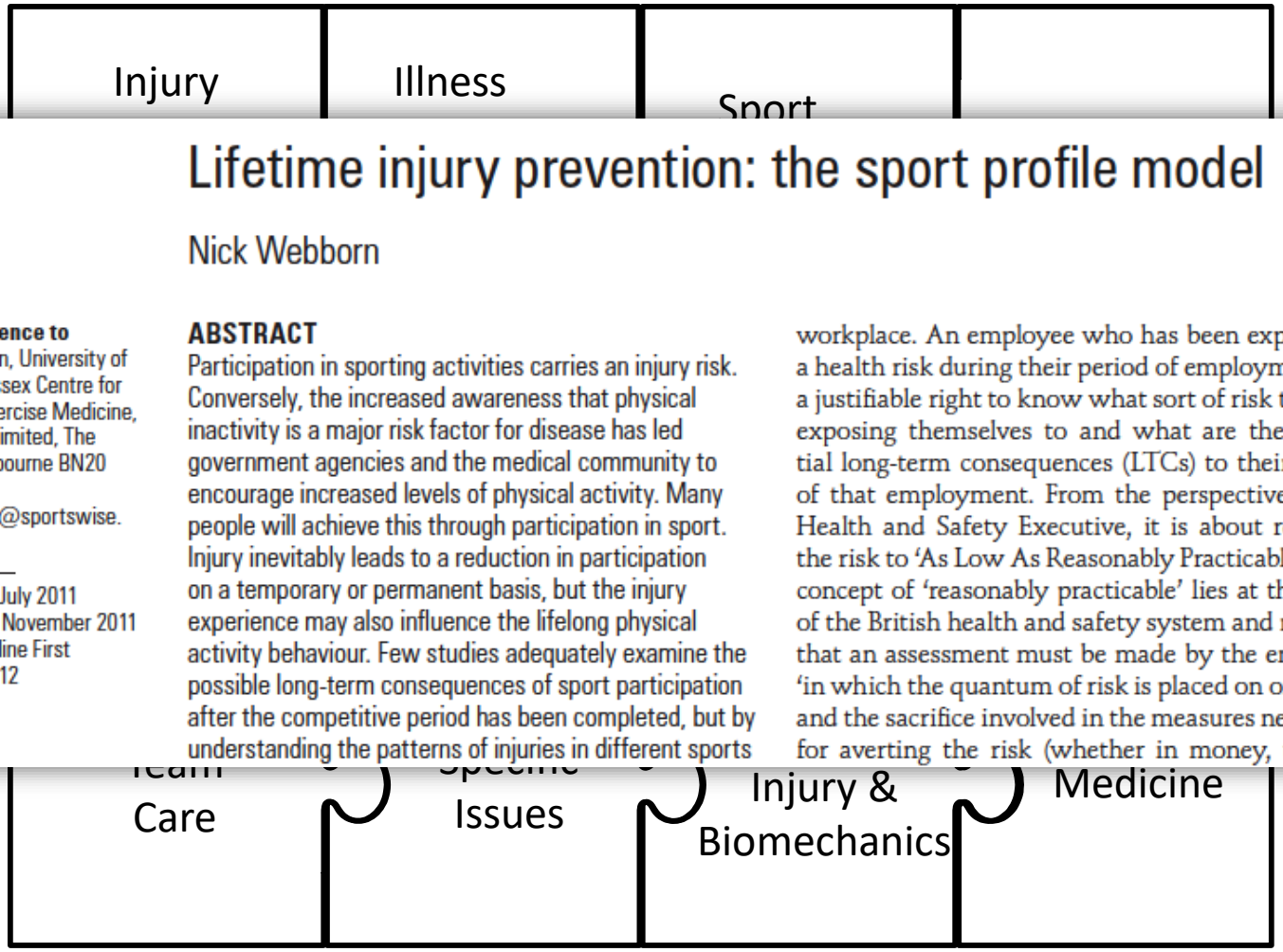
Illness at the London 2012 Paralympic Games and country clusters: Respiratory illness/1000 athlete days



Paralympic Sports Medicine Specialty Components - examples



Paralympic Sports Medicine Specialty Components - examples



Lifetime injury prevention: the sport profile model

Nick Webborn

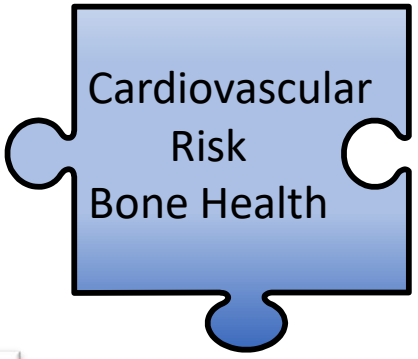
Correspondence to
Nick Webborn, University of Brighton, Sussex Centre for Sport and Exercise Medicine, Sportswise Limited, The Welkin, Eastbourne BN20 7SN, UK;
nickwebborn@sportswise.org.uk

Received 19 July 2011
Accepted 26 November 2011
Published Online First
4 January 2012

ABSTRACT
Participation in sporting activities carries an injury risk. Conversely, the increased awareness that physical inactivity is a major risk factor for disease has led government agencies and the medical community to encourage increased levels of physical activity. Many people will achieve this through participation in sport. Injury inevitably leads to a reduction in participation on a temporary or permanent basis, but the injury experience may also influence the lifelong physical activity behaviour. Few studies adequately examine the possible long-term consequences of sport participation after the competitive period has been completed, but by understanding the patterns of injuries in different sports

workplace. An employee who has been exposed to a health risk during their period of employment has a justifiable right to know what sort of risk they are exposing themselves to and what are the potential long-term consequences (LTCs) to their health of that employment. From the perspective of the Health and Safety Executive, it is about reducing the risk to 'As Low As Reasonably Practicable'.[9] The concept of 'reasonably practicable' lies at the heart of the British health and safety system and requires that an assessment must be made by the employer 'in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or

Cardiovascular Health



Original article

Cardiovascular diseases in Paralympic athletes

Antonio Pelliccia,[1] Filippo M Quattrini,[1] Maria Rosaria Squeo,[1] Stefano Caselli,[1] Franco Culasso,[2] Mark S Link,[3] Antonio Spataro,[1] Marco Bernardi[2,4]

[1]Institute of Sport Medicine and Science, Rome, Italy
[2]Department of Human Physiology and Pharmacology, University Sapienza, Rome, Italy
[3]TUFTS Medical Center, Boston, Massachusetts, USA
[4]Italian Paralympic Committee, Rome, Italy

Correspondence to
Dr Antonio Pelliccia, Institute of Sport Medicine and Science, Largo Piero Gabrielli 1, Rome 00197, Italy;
antonio.pelliccia@coni.it

Accepted 5 May 2016
Published Online First 26 May 2016

ABSTRACT

Background Sport participation (SP) of individuals with impairments has recently grown exponentially. Scarce scientific data, however, exist regarding cardiovascular (CV) risk associated with competitive SP.

Objective Assessing the prevalence of CV abnormalities and the risk for SP in Paralympic athletes (PA).

Methods PA (n=267; 76% men), aged 35±9 years, engaged in 18 sport disciplines, with a spectrum of lesions including: spinal cord injury (paraplegia and spina bifida) (n=116); amputation, poliomyelitis, cerebral palsy and other neuromuscular and/or skeletal disorders (Les autres) or visual impairment (n=151) entered the study. CV evaluation included history, PE, 12-lead and exercise ECG, echocardiography. Of these, 105 participated in ≥2 consecutive games, and had evaluations available over a 6±4 year follow-up

globally followed by 3.8 billion TV audience spectators.[2]

The astonishing performances that Paralympic athletes achieve have also raised a novel scientific interest, and prompted the issue of proper medical care of this unique athletic population. So far, very few studies, usually restricted to small groups of athletes, have addressed this topic and have reported conflicting functional or clinical features in Paralympic athletes.[3–6]

In this study we sought to assess the prevalence and type of cardiovascular (CV) abnormalities in this athletic population and the risk, if any, inherent to competitive sport participation. To address these objectives, we took advantage of a date set derived from a large cohort of Paralympic athletes, engaged in a broad spectrum of sport disciplines, evaluated in our medical programme before their participa

Dr Marco Bernardi
Univ of Rome Sapienza

Promoting Safe Sport – Dr Yetsa Tuakli

International Paralympic Committee

Non-accidental violence and abuse

February 2018

Introduction

All athletes have a right to safe sport.

The **IPC Policy on Non-Accidental Violence and Abuse in Sport** considers that every individual is entitled to live and work in an environment that is free from embarrassment, discomfort, intimidation or humiliation that undermine both the mental and physical health of the individual and the integrity of sport.

Why should harassment and abuse be reported?

Harassment and abuse have no place in sport. They damage the health of individuals and sports organisations. Preventing harassment and abuse is the responsibility of everyone involved in sport. If you feel threatened or unsafe in your sport, or if you are concerned about something else, please report it so that we can help.

To whom can harassment and abuse be reported during the Paralympic Games?

To learn more or if you suspect an incident of harassment or abuse of any kind during the Games you can report it to the IPC Welfare officer or complete a reporting form at the Polyclinic. Please note that conversations and reporting will be dealt with in full confidentiality.

Contact

You can report to the IPC welfare officer on site in person at the policlinic medical office or via email: Medical@paralympic.org

What is non-accidental violence and abuse?

Non-accidental violence and abuse can take many forms including:

- **Violence and threats**; and other action which tend to threaten, alarm, or cause personal harm or humiliation.
- **Sexual abuse**, in particular unwanted, groomed or forced involvement in sexual behaviour and unwelcome verbal or physical conduct of a sexual nature.
- **Financial abuse**
- **Emotional abuse** such as bullying, hazing, neglect, name calling, offensive text messages, emails or posts on social networking sites
- **Physical abuse**
- **Child exploitation**

Where can I get additional information?

For information on non-accidental violence and abuse in sport, please consult:

- **The IPC policy on harassment and abuse and the IPC Games-Time Reporting Procedure**
  http://www.paralympic.org/the-ipc/handbook
- **The safe sport section on the IOC athletes' hub**
  https://www.olympic.org/athlete365/library/safe-sport/
- **The IOC toolkit on harassment and abuse**
  https://www.olympic.org/news/ioc-launches-toolkit-for-olympic-movement-to-safeguard-athletes-from-harassment-and-abuse-in-sport

Safe Sport

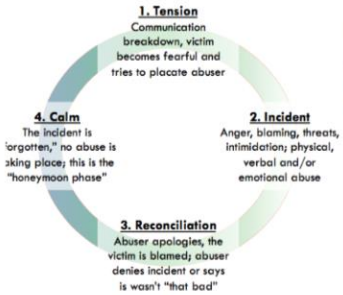
Let's all work together to train, compete and win safely!

All Athletes have a right to 'Safe Sport'

Safe Sport is defined as an athletic environment that is respectful, equitable, and free from all forms of misconduct, harassment and abuse

There are at least five types of abuse in sport:

Physical **Sexual** **Psychological** **Financial** **Neglect**



The cycle of abuse

To learn more or if you suspect abuse of **any** kind, please contact the IPC Welfare Officer, Dr. Yetsa Tuakli, or complete a reporting form at the Polyclinic

Yetsa Tuakli, M.D.
IPC Medical Committee
IPC Athlete Welfare Officer
+55 219 9359 9568

Please note: All Safe Sport data and conversations are kept strictly private and confidential

Reactive and Proactive

Original article

High incidence of injury at the Sochi 2014 Winter Paralympic Games: a prospective cohort study of 6564 athlete days

W Derman,[1,2,3] M P Schwellnus,[2,3,4] E Jordaan,[5] P Runciman,[1] P Van de Vliet,[6] C Blauwet,[7] N Webborn,[8] S Willick,[9] J Stomphorst[10]

For numbered affiliations see end of article.

Correspondence to
Professor Wayne Derman, Institute of Sport and Exercise Medicine, Department of Surgery, Faculty of Medicine and Health Science, Institute of Sport and Exercise Medicine, Room 4019, 4th Floor, Clinical Building, Tygerberg Medical Campus, Francie van Zijl Drive, Bellville, Cape Town 7505, South Africa; ewderman@africa.com

Accepted 19 May 2016
Published Online First 15 June 2016

ABSTRACT

Objective To describe the epidemiology of injuries at the Sochi 2014 Winter Paralympic Games.

Methods A total of 547 athletes from 45 countries were monitored daily for 12 days during the Sochi 2014 Winter Paralympic Games (6564 athlete days). Daily injury data were obtained from teams with their own medical support (32 teams, 510 athletes) and teams without their own medical support (13 teams, 37 athletes) through electronic data capturing systems.

Results There were 174 total injuries reported, with an injury incidence rate (IR) of 26.5 per 1000 athlete days (95% CI 22.7% to 30.8%). There was a significantly higher IR recorded in alpine skiing/snowboarding (IR of 41.1 (95% CI 33.7% to 49.6%) p=0.0001) compared to cross-country skiing/biathlon, ice sledge hockey or wheelchair curling. Injuries in the shoulder region were

from the able-bodied sport to accommodate for the athletes' impairment type, resulting in specific rule and regulation changes within the sports.[4] The sport of snowboarding was introduced for the first time at the Sochi Games and has been adapted from the able-bodied version of the sport where a group of four athletes proceed down the course at the same time to a design where a single athlete proceeds down the course at a time, in an effort to provide a seemingly safer experience. Other adaptations have been made for impairments such as visual impairment, cerebral palsy, spinal cord injury and upper and lower limb loss, among others.[3] For example, the use of a sledge and two adapted hockey sticks in ice sledge hockey has been adapted for use by individuals with lower limb impairment. Other examples include the use of a guide skier for

Reactive and Proactive

- Six fold increase in acute alpine ski injuries from the Vancouver 2010 Paralympic Games
- Risks:
  - Downhill
  - Upper part of course
  - Jumps
  - Snow conditions

Reactive and Proactive

Editorial

Mitigating risk of injury in alpine skiing in the Pyeongchang 2018 Paralympic Winter Games: the time is now!

Wayne Derman,[1,2] Cheri Blauwet,[3] Nick Webborn,[4] Martin Schwellnus,[2,5] Peter Van de Vliet,[6] Dimitrije Lazarovski[6]

downhill event, to familiarise athletes with the course and to allow for continuous adjustments to the course line prior to the official competitions. Earlier start times in the day to take advantage of more optimal snow conditions.

- The Alpine venue allows for a more optimal start location on the course avoiding steep grades in response to previously reported high injury risks

Reactive and Proactive

Original article

High incidence of injuries at the Pyeongchang 2018 Paralympic Winter Games: a prospective cohort study of 6804 athlete days

Wayne Derman,[1,2] Phoebe Runciman,[1,2] Esme Jordaan,[3,4] Martin Schwellnus,[5,6] Cheri Blauwet,[7] Nick Webborn,[8] Jan Lexell,[9] Peter van de Vliet,[10] James Kissick,[11] Jaap Stomphorst,[12] Young-Hee Lee,[13] Keun-Suh Kim[14]

For numbered affiliations see end of article.

Correspondence to
Professor Wayne Derman, Institute of Sport and Exercise Medicine, Department of Surgical Sciences, Stellenbosch University, Cape Town, South Africa; ewderman@lafrica.com

Accepted 3 February 2019

ABSTRACT

Objective To describe the epidemiology of sports injury at the Pyeongchang 2018 Paralympic Winter Games.

Methods 567 athletes from 49 countries were monitored daily for 12 days over the Pyeongchang 2018 Paralympic Winter Games (6804 athlete days). Injury data were obtained daily from teams with their own medical support (41 teams and 557 athletes) and teams without their own medical support (8 teams and 10 athletes) through two electronic data capturing systems.

Results 112 of 567 athletes (19.8%) reported a total

athlete days. The overall IR of the 12-day Sochi 2014 Paralympic Winter Games was 26.5 injuries per 1000 athlete days (95% CI 22.7 to 30.8).[4] The combined sports of para alpine skiing and para snowboard (a subdiscipline of para alpine skiing at the Sochi Games) had a higher rate of injury (IR of 41.1 [95% CI 33.7 to 49.6], p=0.0001) compared with all other sport categories. Subsequent analysis indicates an individual IR of 43.8 (95% CI 35.0 to 54.9) for para alpine skiing and an IR of 30.3 (95% CI 17.7 to 52.0) for para snowboard). At the Sochi

When van Mechelen's sequence of injury prevention model requires a pragmatic and accelerated action: the case of para alpine skiing in Pyeong Chang 2018

Cheri Blauwet,[1,2] Nick Webborn,[3] James Kissick,[4] Jan Lexell,[5] Jaap Stomphorst,[6] Peter van de Vliet,[7] Dimitrije Lazarovski,[8] Wayne Derman[9,10]

When van Mechelen's sequence of injury prevention model requires a

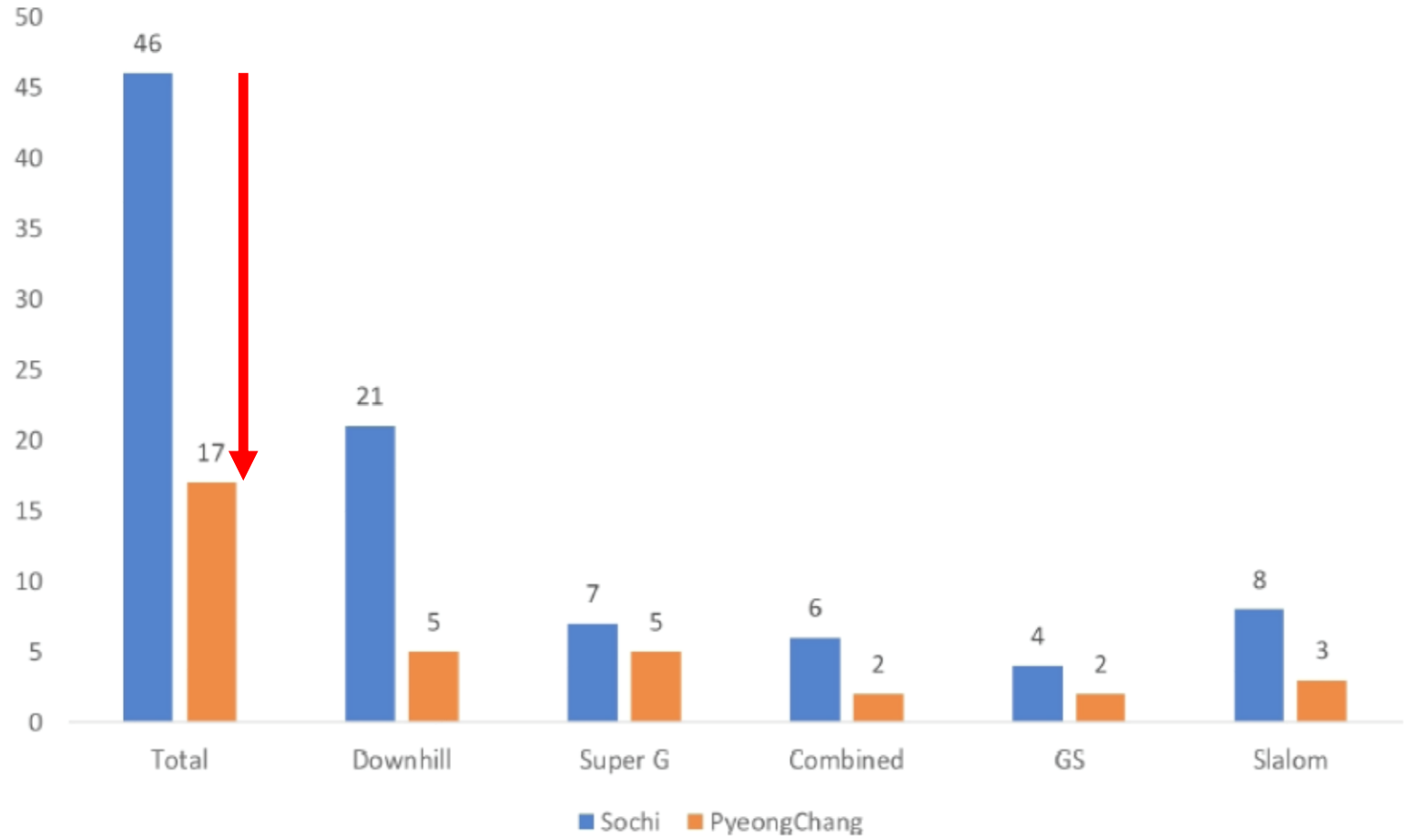
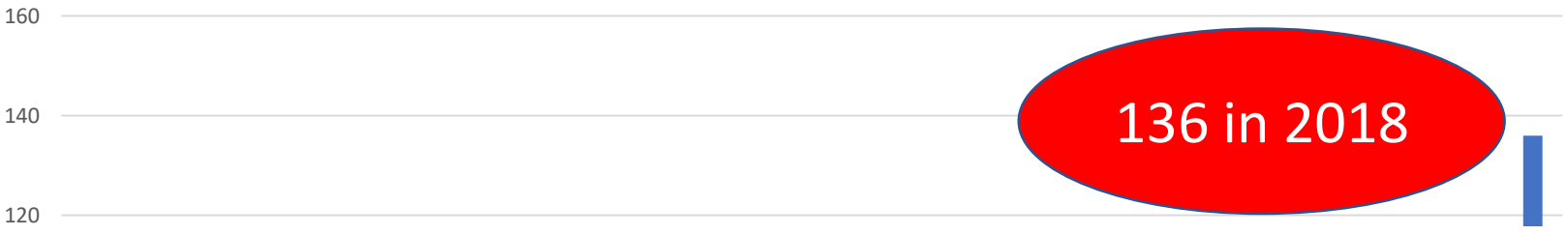


Figure 1 Total acute injuries by Para alpine ski event at the Sochi 2014 Paralympic Winter Games versus the PyeongChang 2018 Paralympic Winter Games.

No. of Articles in PubMed Disability Sport / Paralympic



Sports and Exercise Medicine 2

Paralympic medicine

Nick Webborn, Peter Van de Vliet

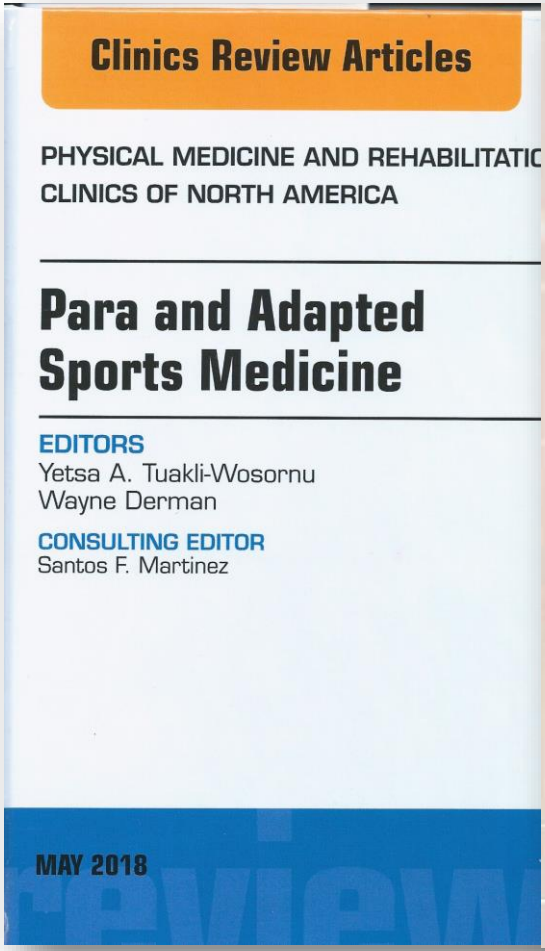
Paralympic medicine describes the health-care issues of those 4500 or so athletes who gather every 4 years to compete in 20 sports at the Summer Paralympic Games and in five sports at the Winter Paralympic Games. Paralympic athletes compete within six impairment groups: amputation or limb deficiencies, cerebral palsy, spinal cord-related disability, visual impairment, intellectual impairment, or a range of physically impairing disorders that do not fall into the other classification categories, known as les autres. The variety of impairments, many of which are severe, fluctuating, or progressive disorders (and are sometimes rare), makes maintenance of health in thousands of Paralympians while they undertake elite competition an unusual demand on health-care resources. The increased physical fitness of athletes with disabilities has important implications for cardiovascular risk reduction in a population for whom the prevalence of risk factors can be high.

Lancet 2012; 379: 65–71

See Comment page 4

This is the second in a Series of two papers about sports and exercise medicine

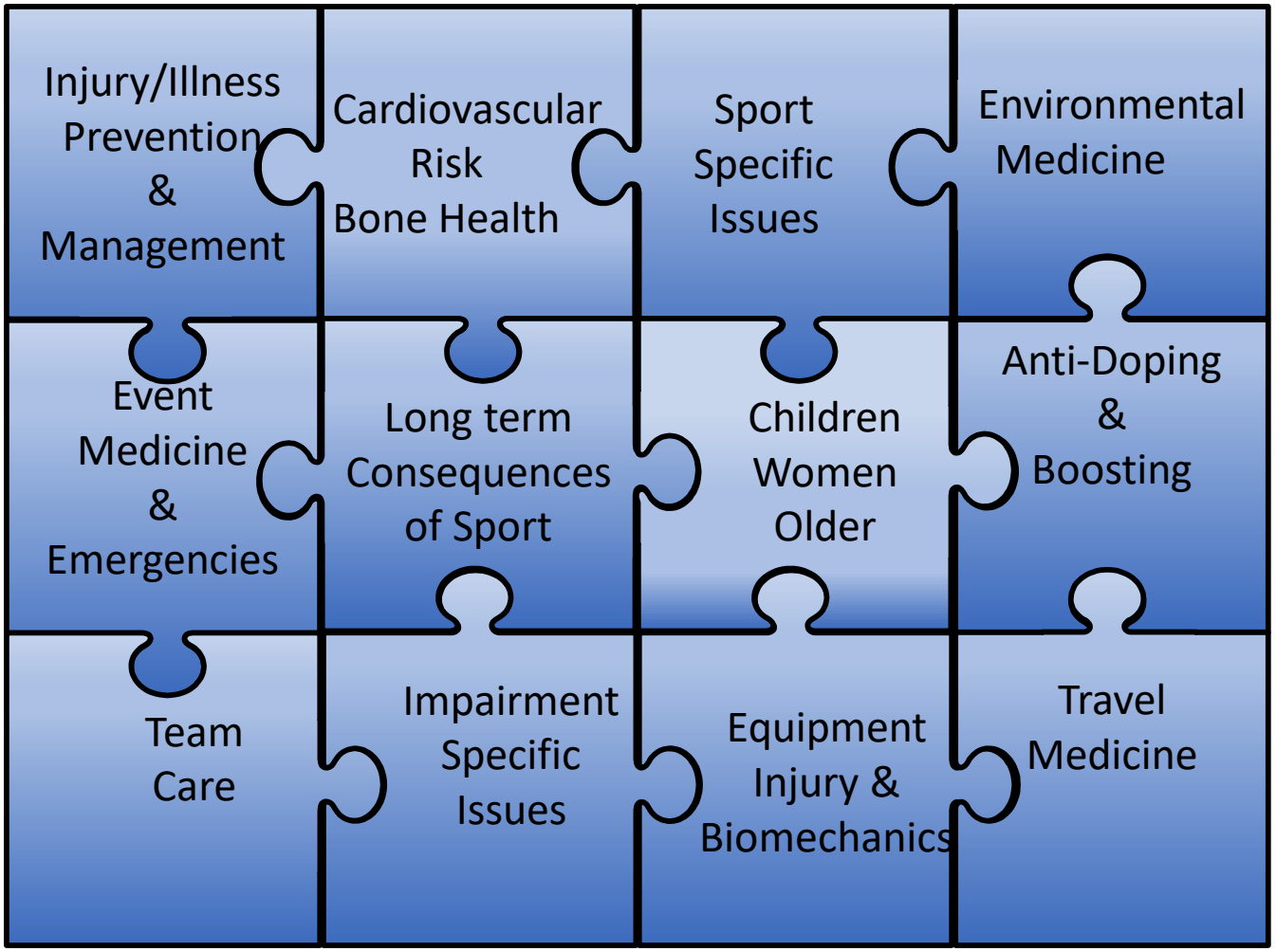
Centre for Sport Research, Chelsea School of Sport, University of Brighton, Eastbourne, UK (NWebborn MBBS); British Paralympic Association,


Clinics Review Articles
PHYSICAL MEDICINE AND REHABILITATIC
CLINICS OF NORTH AMERICA
Para and Adapted Sports Medicine
EDITORS
Yetsa A. Tuakli-Wosornu
Wayne Derman
CONSULTING EDITOR
Santos F. Martinez
MAY 2018


Handbook of
Sports Medicine
and Science
The Paralympic Athlete
EDITED BY
Yves Vanlandewijck
and Walter R. Thompson
WILEY-BLACKWELL


Training and Coaching the Paralympic Athlete
EDITED BY
Yves C. Vanlandewijck
Walter R. Thompson
WILEY Blackwell

Paralympic Sports Medicine Specialty Components




FENWAY PARK
GATE B • ENTRANCE ALL SECTIONS
N NESS STREET • IPSWICH STREET
GATE B
BLUE JAYS
ORACLE


SURROUND
YOURSELF WITH
PEOPLE WHO
MAKE YOU A
BETTER PERSON


ParalympicsGB
dearest
Going the extra mile...
GERMS
COST MEDALS
PLEASE USE HAND FOAM


WHERE
ARE WE
GOING
NEXT?

Where do we go next?

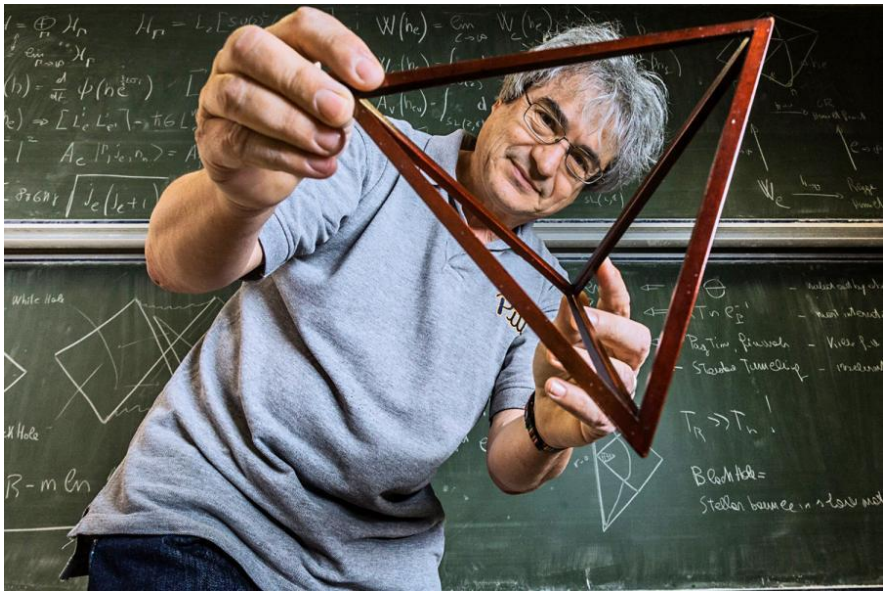
- **Longitudinal sport specific injury and illness surveillance in Para athletes**
- **Leading to effective prevention programmes including sports policy changes –** e.g. rule changes, equipment, training, athlete behaviours
- **The Older Para Athlete: morbidity and mortality in past Paralympic athletes**

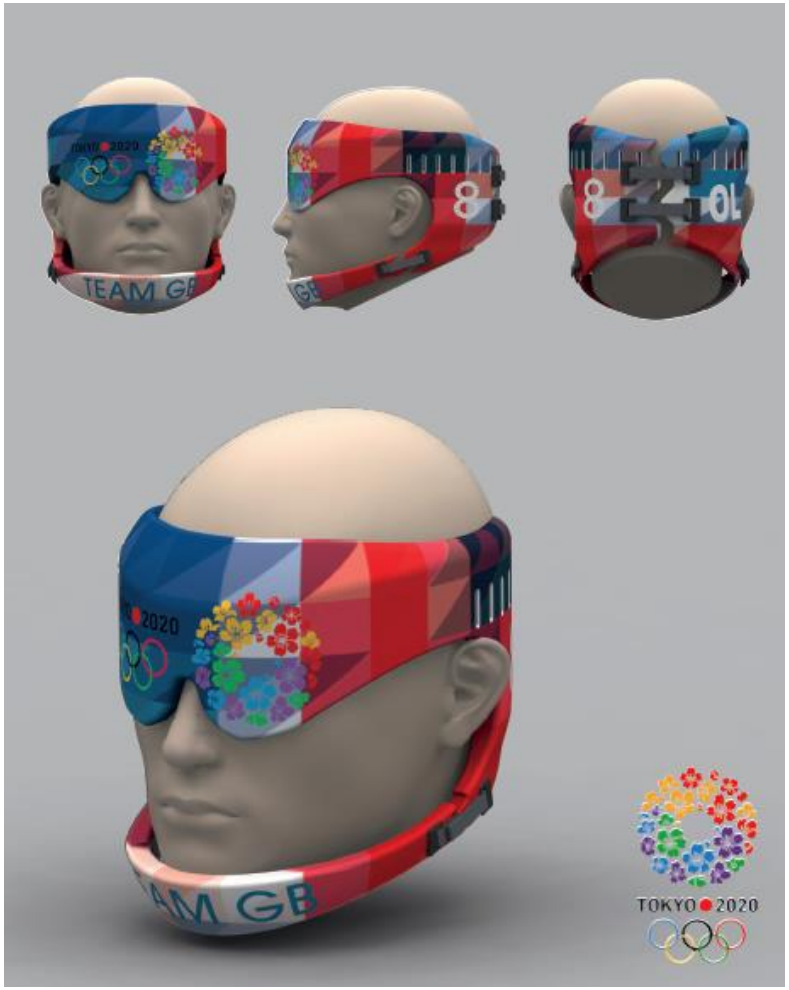
What would I like to see over the next 10yrs?

- Every International Federation with a longitudinal injury and illness surveillance programme
- An IPC branded team clinician course with global reach to help train NPC clinicians in the regions to train others
- Paralympic sports medicine as a recognised specialty with training programmes
- An ongoing research programme into the health outcomes and life quality of former Paralympians

Carlo Rovelli

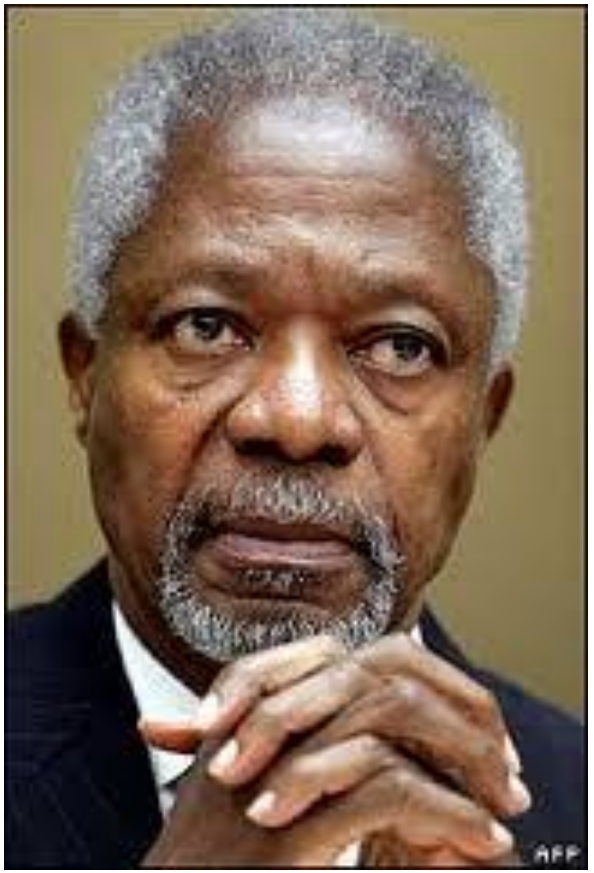
"Science is an acute awareness of the extent of our ignorance"





- The Paralympic Games are a powerful demonstration of the vitality and achievements of disabled persons world-wide…”

- Kofi Annan, United Nations Ex-Secretary General (letter dated 7 September 2004




OUTGOING CALLS ONLY
SEVENTEEN PAGES ON A FANTASTIC FIRST DAY FOR THE GAMES
The INDEPENDENT
STOREY BEGINS
Unstoppable cyclist storms to a world record and takes Britain's first gold of the Games Page 4
GOALBALL: BEST SPORT YOU'VE NEVER HEARD OF
SECRETS OF THE OPENING CEREMONY
THE MAN BEHIND GB'S BID FOR TRACK GLORY
Students face deportation as university visa row ignites
Warnings that reputation and revenue of British education at risk as Government threatens to send thousands home
INSIDE YOUR 16-PAGE PARALYMPICS PULL-OUT WITH THE SPORT SECTION
The Daily Telegraph
DREAM COME TRUE
Record-breaking cyclist begins the Paralympic gold rush on day one with eighth of her career, closely followed by backstroke swimmer
LONDON 2012
NATIONAL TREASURE
BRITAIN OFF TO A FLYING START AS STOREY CLAIMS HER EIGHTH PARALYMPIC GOLD
1
The essential daily briefing
INSIDE TODAY
Daily Cockerel
2,600 students face deportation in visa wrangle
Wettest summer for 100 years; but ...you knew that!
The night that could make Mitt president
Stunning Storey leads GB medal rush
Cyclist demolishes rivals to land Britain's first gold
FOX wins first swimming gold; breaks world record
ParaGB ends first day in third place behind China


MEDAL TABLE
theguardian
What's the Storey Golde glory


Y LEY
STANLEY LEY
OLDE COCK TAVERN
GREAT BRITAIN


MO BOT
WELL DONE
PROUD TO BE BRITISH!
CHISLEHURST SCOUTS
THANK YOU
TEAM GB
VISA


AIN

London 2012 Paralympic Games: bringing sight to the blind?

Nick Webborn

BJSM

London 2012 Paralympic Games: bringing sight to the blind?

Nick Webborn

Br J Sports Med published online March 6, 2013
doi: 10.1136/bjsports-2013-092340

sporting facilities. The athletes encompass a huge range of impairment types that have many different needs. Through adequate planning and preparation the 4000 athletes lived together in a village that met their needs and they trained and competed in accessible facilities. It is not

home games, there was certainly a greater media interest for ParalympicsGB going into the Games, but we were unprepared for the extent of the reaction to the sporting achievements of the athletes by both media and public. The coverage was unprecedented, the crowds of paying public were record breaking and people were clamouring for tickets or seeking the opportunity to glimpse a Paralympian.

The Paralympics were talked about on the tube or bus on the way to work by the usually reserved commuting public. It was news, it was interest, but moreover it was the sport. Sitting in the stadium of 80 000 people seeing David Weir win one of his gold medals was an electric and uplifting experience that I will not forget. The wall of sound that resonated around the stadium literally made the hairs on the

Sussex Centre for Sport and Exercise Medicine, University of Brighton, Eastbourne, UK

Correspondence to Dr Nick Webborn, Sussex Centre for Sport and Exercise Medicine, University of Brighton, Eastbourne BN20 7SN, UK; nickwebborn@sportswise.org.uk

Figure 1 The front pages of national newspapers the day after Dame Sarah Storey wins the 1st gold medal for ParalympicsGB.

Prof Nick Webborn OBE

Chairman, British Paralympic Association

London 2012, Chief Medical Officer, ParalympicsGB

1974 - 1980

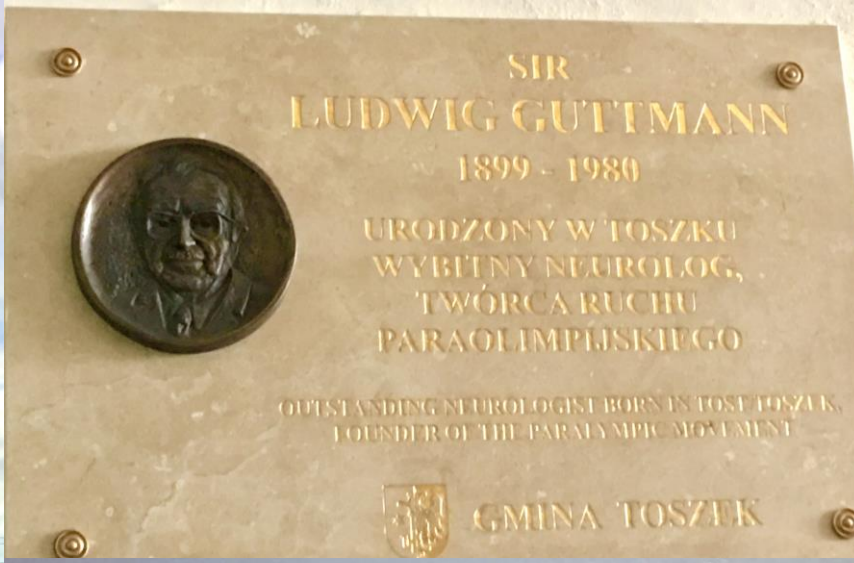

NOTTINGHAM INDOOR WHEELCHAIR
TENNIS TOURNAMENT 2001
MENS C DIVISION SINGLES
RUNNER UP

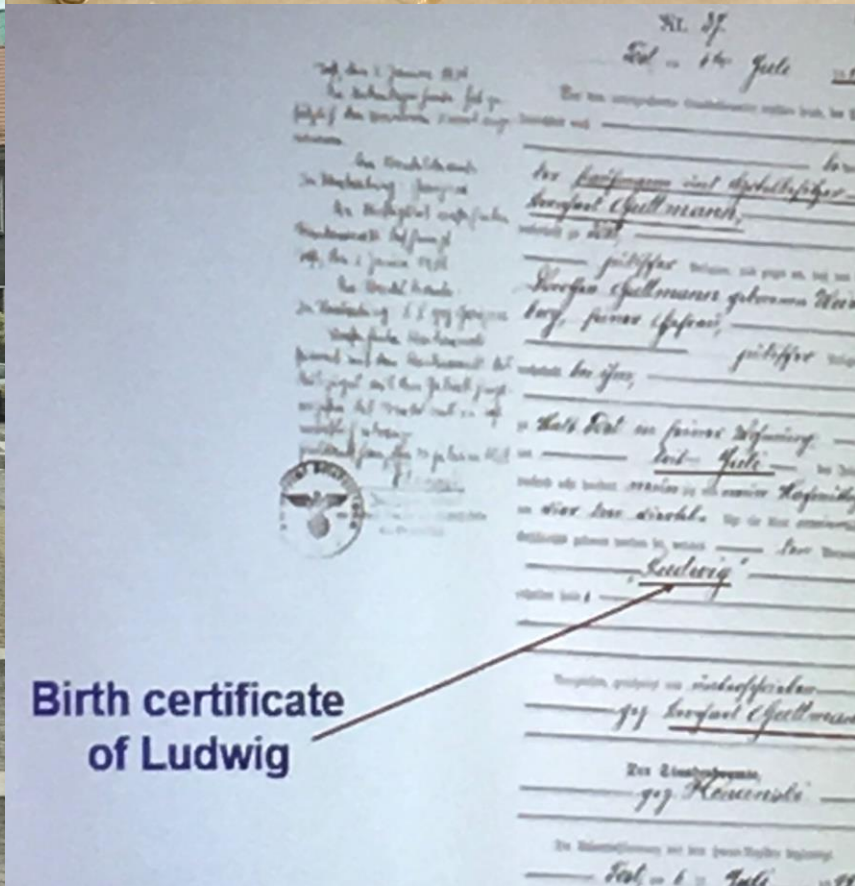










SIR
LUDWIG GUTTMANN
1899 - 1980
URODZONY W TOSZKU
WYBITNY NEUROLOG,
TWÓRCA RUCHU
PARAOLIMPIJSKIEGO
OUTSTANDING NEUROLOGIST BORN IN TOST TOSZEK,
FOUNDER OF THE PARALYMPIC MOVEMENT
GMINA TOSZEK


Birth certificate
of Ludwig


British Paralympic Association
THANK YOU