SPORTS MEDICINE in the OLYMPIC CODES

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Why do we do it: Self/Personal Goals

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Why do we do it? Medals

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Why do we do it? Country

TEAM SOUTH AFRICA

SOUTH AFRICA

LONDON 2012

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Why do we do it? Coaches

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Why do we do it? Family

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Why do we do it? Politicians and Administrators

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Medical Teams

	DOCTORS	PHYSIOTHERAPIST	TEAM SA
CWY 2006	4	11	314
AAG 2007	5	14	505
Paralympic Games 2008	2	8	102
Olympic Games 2012	3	9	209
Paralympic Games 2012	2	8	114
Olympic Games 2016	4	10	192

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Commonwealth Games Melbourne
2006

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AAG Algeria 2007

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Beijing 2008

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London 2012

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RIO 2016

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Team USA – Olympics 2012

- Dr Cindy Chang CMO
- Team size – 530
- Doctors – 20
  - Orthopods – 16
  - Sports Physicians – 4 (Provided by the Federations)
- Other Medical Personnel – 60
  - Massage Therapists
  - Physiotherapists
  - Kinesiologists
  - Chiropractitioners
  - 4 Sports Psychologists
  - 3 Nutritionists

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Team Wales – CWG 2014

- Team size – 233
- Doctors – 4
  - 3 Sports Physicians
  - 1 Emergency Medicine Physician
- Physiotherapists – 12
- Sports Masseur - 1

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- Travelling with multi-coded teams presents the medical team with various challenges.
- Members of the medical team have to adopt various roles:
  - Doctor
  - Dietician
  - Psychologist
  - Travel Co-coordinator
  - Physiotherapist
  - Baggage Supervisor
  - Masseur
  - Statistician
  - Podiatrist
  - Trainer
  - Fitness adviser
  - Politician

- Although these roles are defined, you have to be versatile to adapt in certain circumstances.

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A new addition to the role following the YOG – **FASHION DESIGNER**

+

=

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CONSULTATIONS – Daily Consultations

DAILY CONSULTATIONS					
DATE	**ILLNESS**	**INJURY**	**TOTAL**	**ATHLETE**	**MANAGEMENT**
2012/07/22	6	1	**7**	5	2
2012/07/23	8		**8**	5	3
2012/07/24	10	4	**14**	9	5
2012/07/25	7	1	**8**	4	4
2012/07/26	3	2	**5**	3	2
2012/07/27	6	4	**10**	8	2
2012/07/28	3		**3**	3	
2012/07/29	1	2	**3**	2	1
2012/07/30	5	5	**10**	9	1
2012/07/31	5	6	**11**	10	1
2012/08/01	10	3	**13**	10	3
2012/08/02	1	10	**11**	9	2
2012/08/03	2	6	**8**	8	
2012/08/04	1	5	**6**	6	
2012/08/05	2	4	**6**	6	
2012/08/06	6	1	**7**	4	3
2012/08/07	3	5	**8**	8	
2012/08/08	5		**5**	2	3
2012/08/09	1	1	**2**	2	
2012/08/10	1	1	**2**	2	
2012/08/11	1	1	**2**	2	
TOTAL	**87**	**62**	**149**	**117**	**32**

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NUMBER OF CONSULTATIONS PER CODE															
CODE	Athletics	Aquatics	Archery	Boxing	Beach Volleyball	Cycling	Equestrian	Hockey-M	Hockey-F	Judo	Triathlon	Weighlifting	GTM	Medical	ADMIN
	42	17	2	0	2	6	2	19	31	3	3	6	12	3	1

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CONSULTATION FOR ILLNESSES PER SYSTEM	
ENT/URTI	38
GIT	4
DERMATOLOGY	17
GYNAECOLOGY	2
UROLOGY	3
Cardiovascular	1
Central Nervous System	7
Respiratory /LRTI	2
Dental	2
Fatigue/Malaise	6
Endocrine	3

Total Consultations – Illnesses = 85
URTI/LRTI = 40 (47%)

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SITE OF INJURY	
Back	2
Lower Leg	4
Thigh	10
Shoulder	4
Foot	9
Knee	12
Ankle	8
Hand	6
Elbow	1
Hip	3
Face	2
Buttock	1
TOTAL	62

Total Consultations – Injury = 62

Lower Limb Injuries = 46 (74%)

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NUMBER OF INJURIES PER TYPE										
Muscle Strain	Muscle Tear	Tendon	Ligament	Bone	Synovium	Laceration	Bruise	Blister	Contusion	Abrasion
9	2	14	9	11	2	2	1	3	5	4
NOTE:										
Number include repeat consultation for same injury i.e.follow up/review										
Muscle strain includes Grade 1-2										
Ligament includes Grade 1-3										
Bone- Includes bone bruise, fracture and osteoarthritis										

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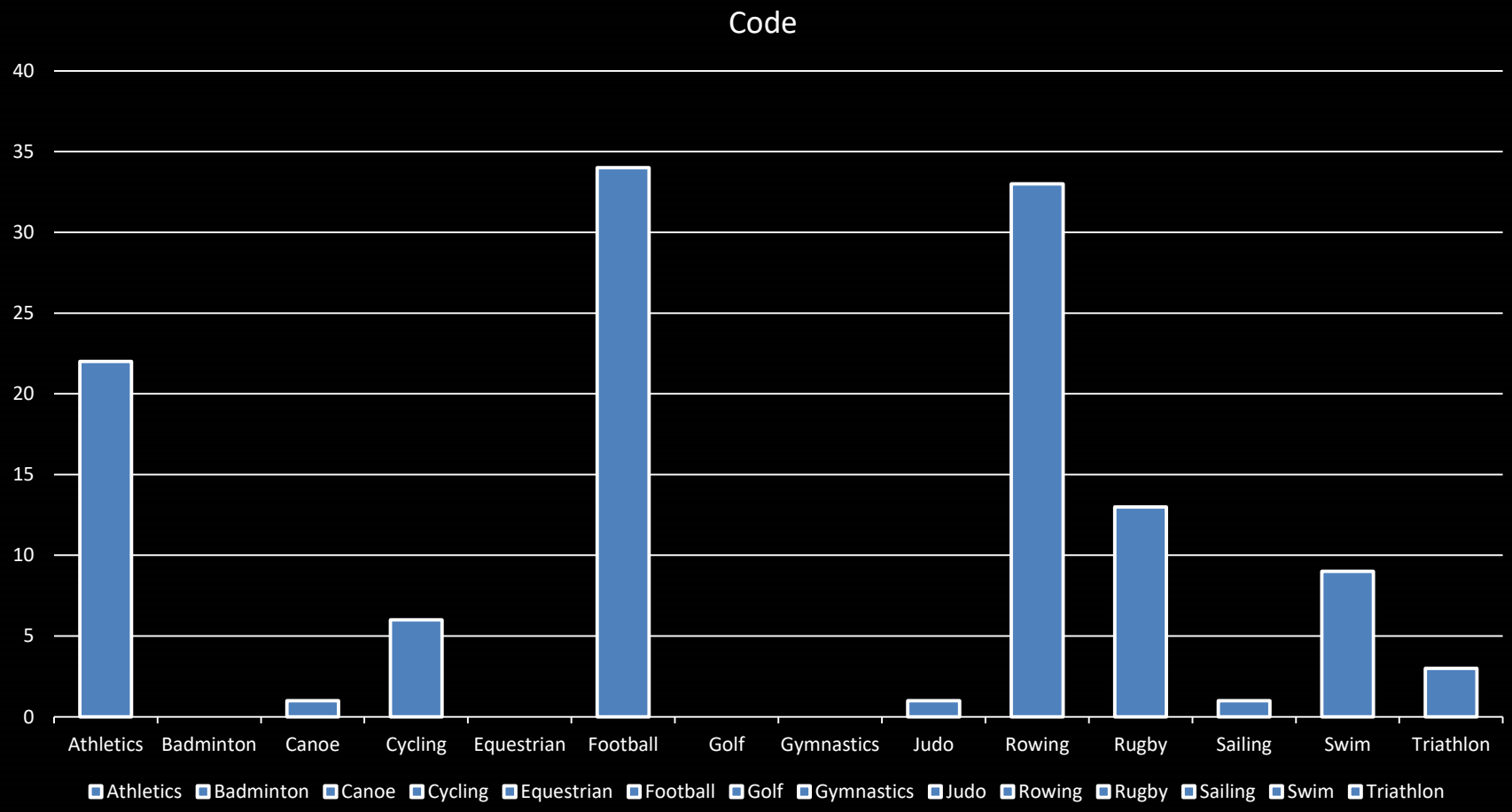

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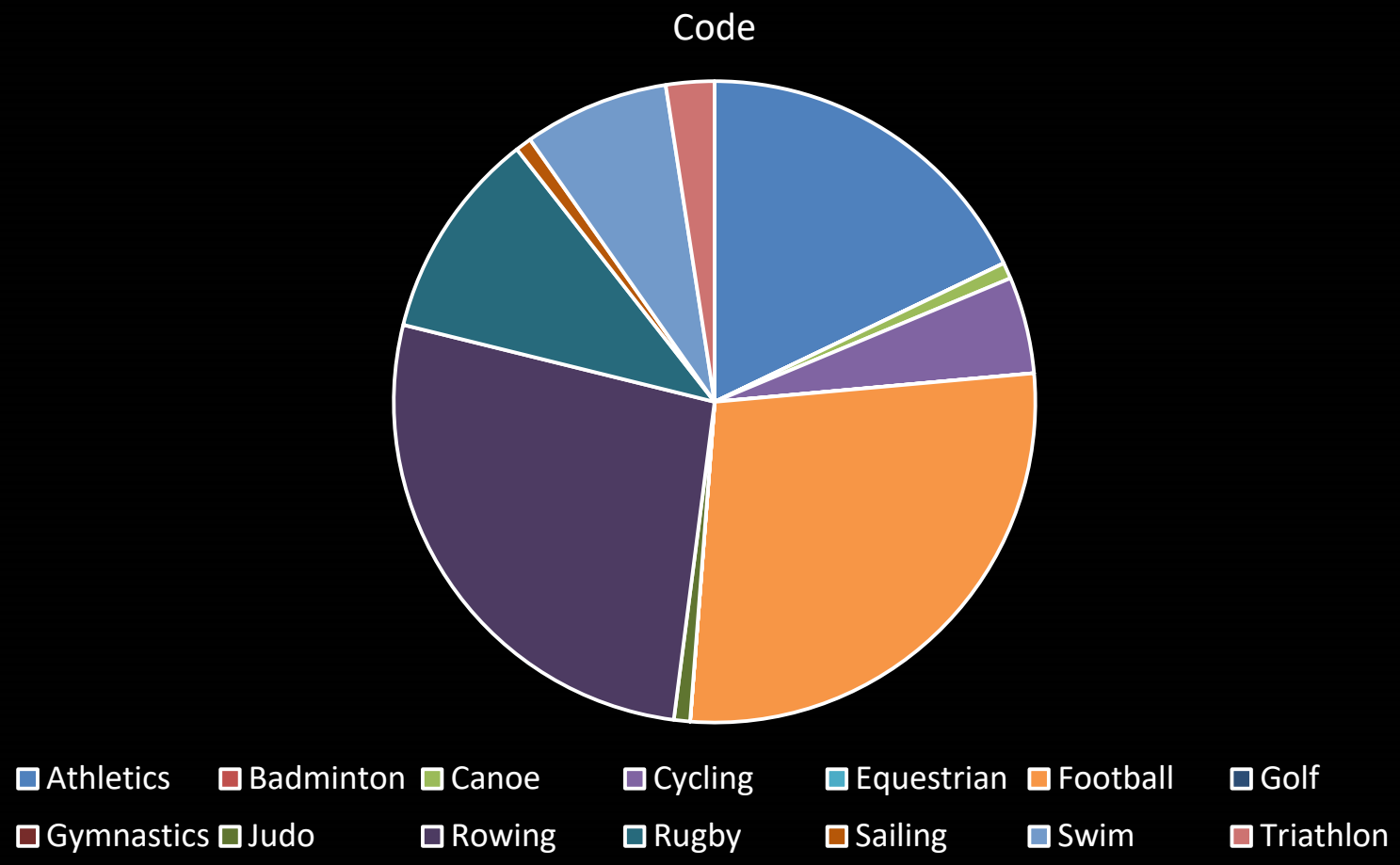

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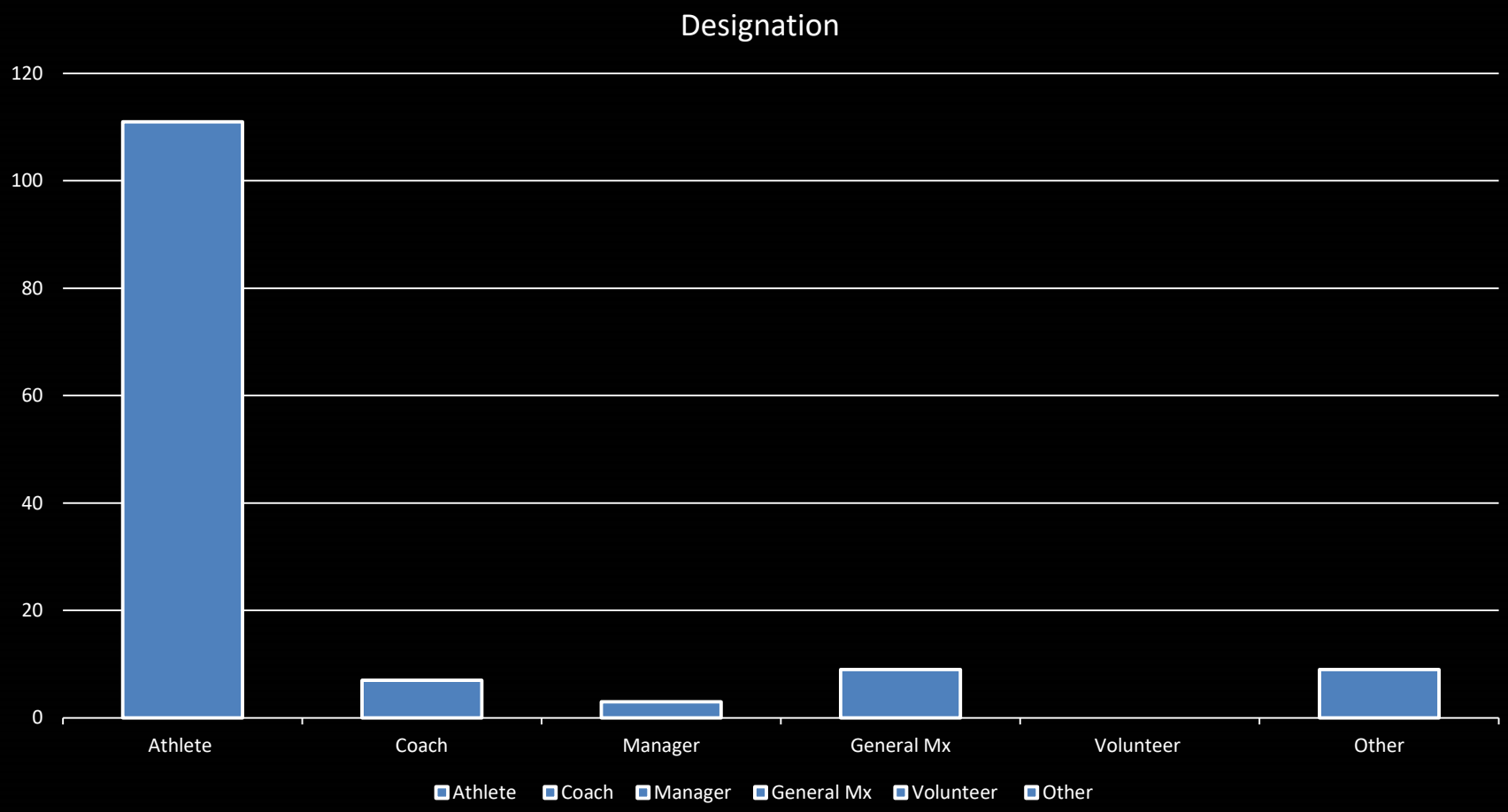

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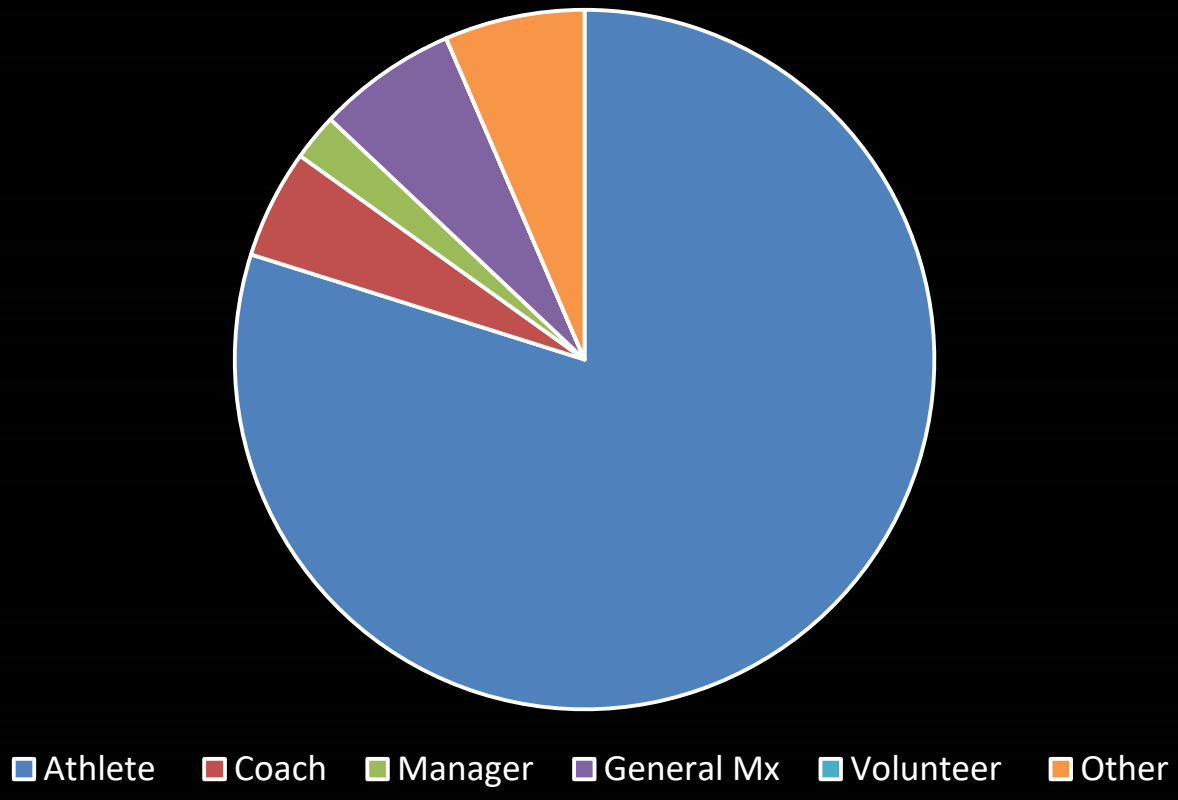
Designation



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CONSULTATIONS PER SYSTEM

CONSULTATIONS PER SYSTEM	
URTI	48
DERMATOLOGICAL	24
MUSCLE	25
TENDON	19
HAEMATOLOGICAL	5
LRTI	3
VASCULAR	2
GIT	12
CNS	5
JOINT	9
ORAL/DENTAL	2
ENT (OTHER)	3
UROLOGICAL	2
ENDOCRINE	3
OPTHALMIC	1
GYNAE	1
BURSA	1
FATIGUE/MALAISE	9
	174

31% of total consultations =RTI

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INJURY PER REGION

INJURY PER REGION	
Elbow	18
Shoulder	12
Thigh	24
Wrist	4
Lower Leg	2
Neck	1
Knee	1
Back	3
Ankle	1
Face	2
Upper Arm	1
Buttock	11
	80

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INJURY PER TYPE

INJURY PER TYPE	
Tendonopathy	11
Muscle Strain	14
Muscle Tear	6
Sprain	2
Abrasion	13
Tendon Rupture	8
Ligament Rupture	1
Contusion	1
Bursitis	1
Dental Injury	1
	58

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ONSET OF INJURY

ONSET OF INJURY

ACUTE	35
CHRONIC	9
ACUTE ON CHRONIC	14

Importance of diagnosing and picking up chronic injuries. Early diagnosis. Proper rehabilitation. Return to Play Guidelines must be adhered to. Athletes doctor often GP plays important role here

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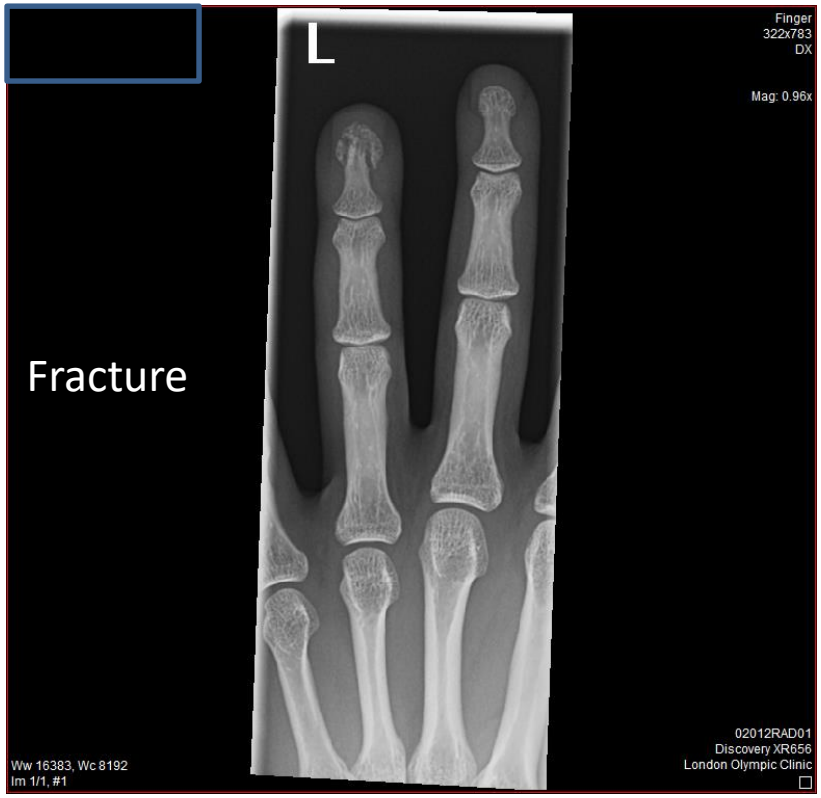

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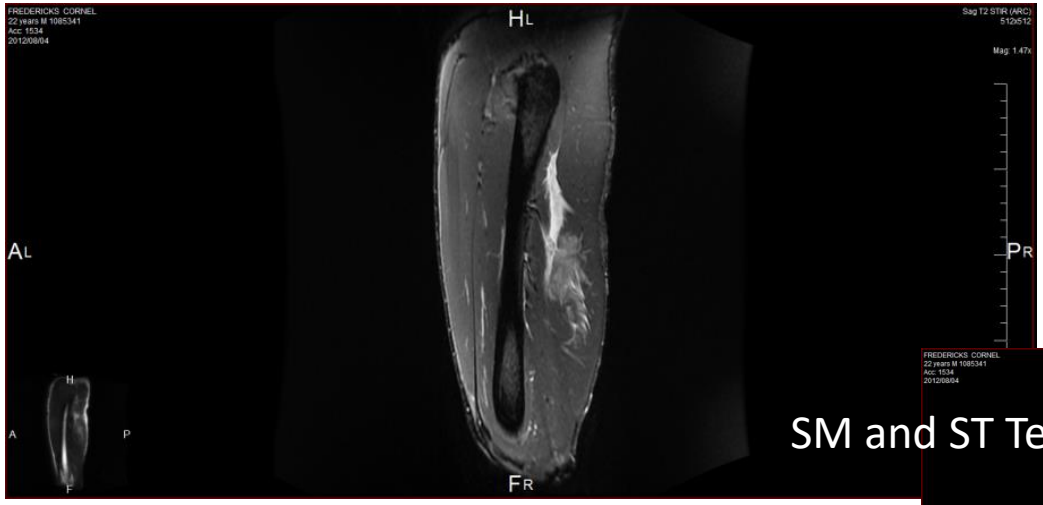
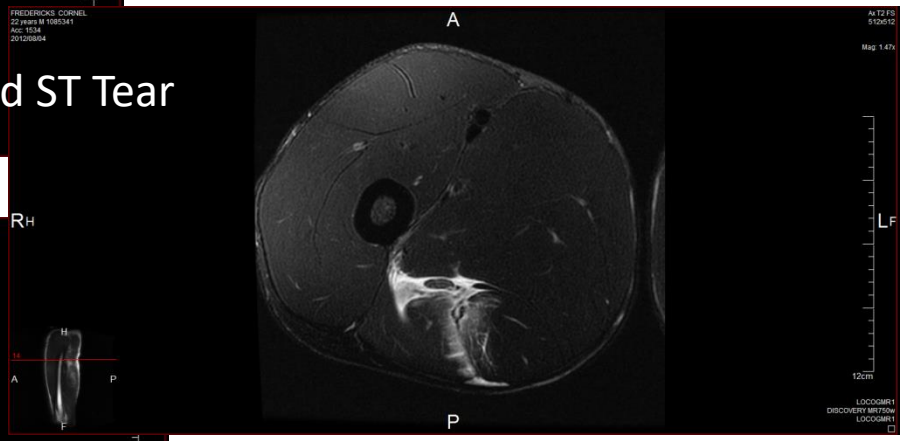
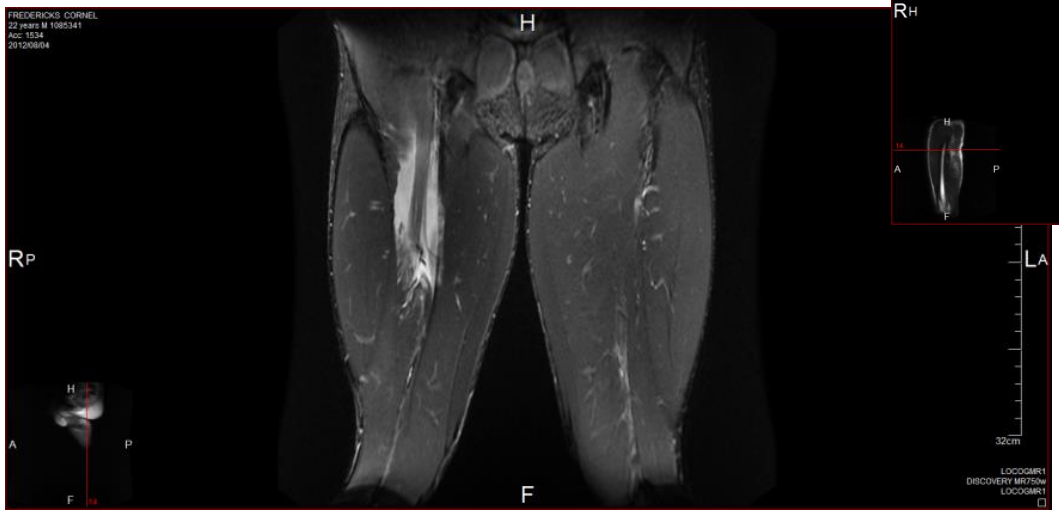


SM and ST Tear





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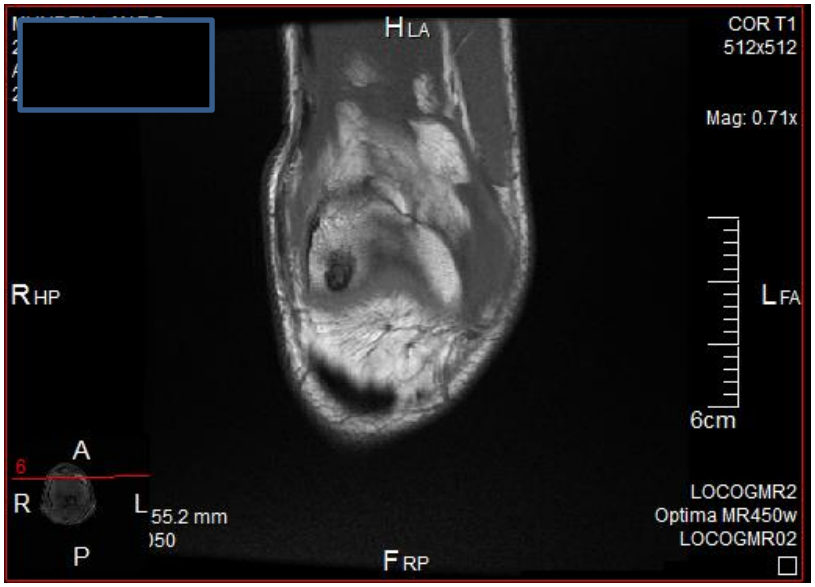

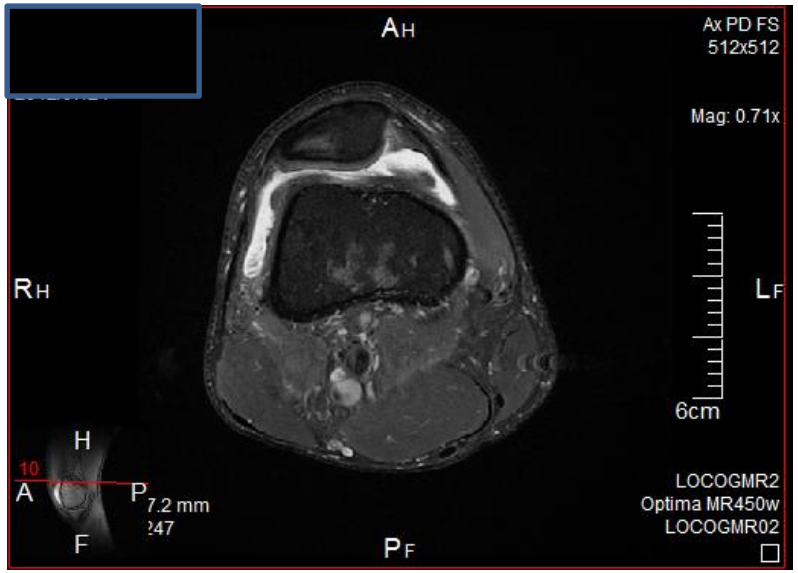

Osteochondral Defect/Joint Effusion

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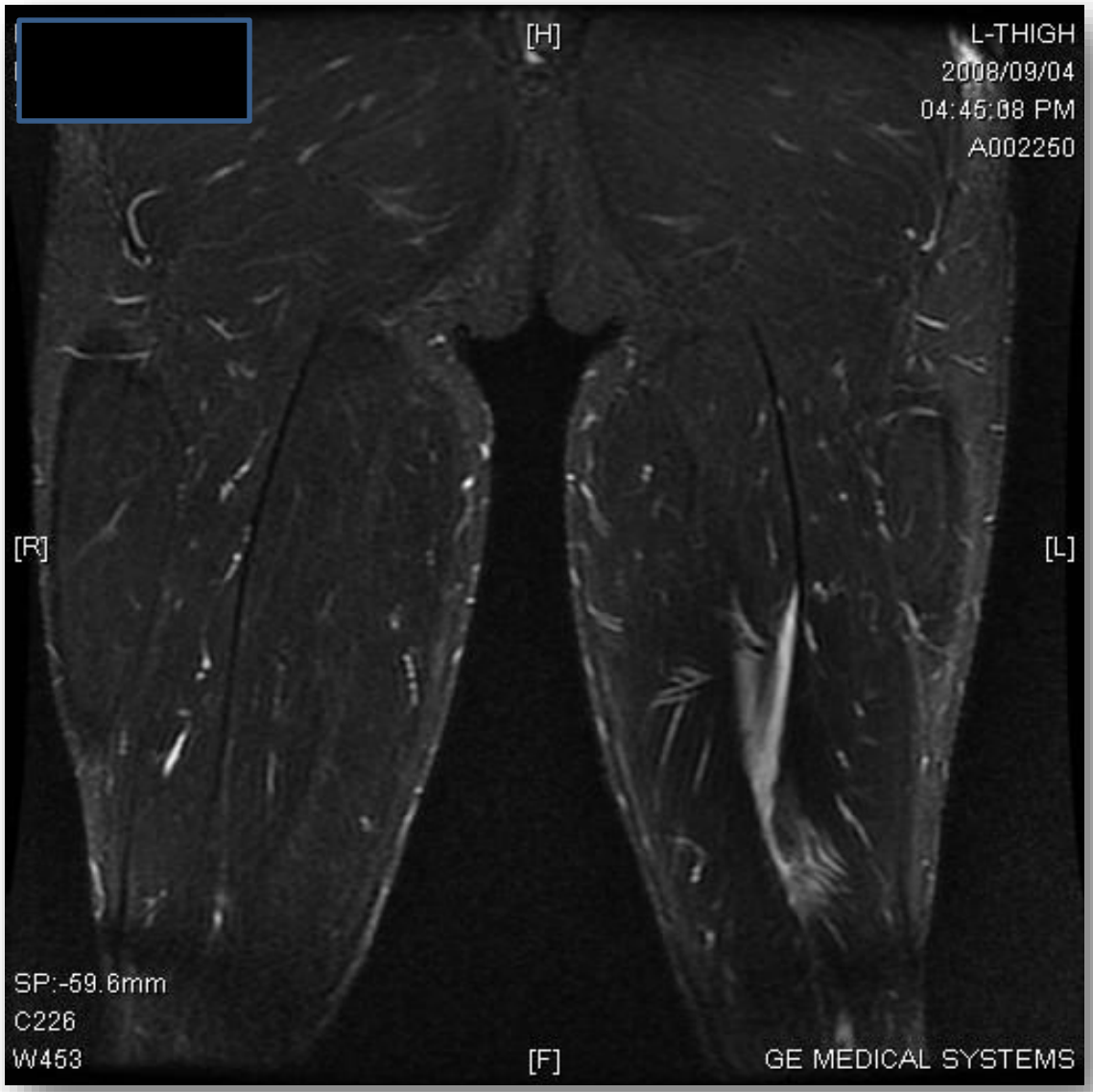

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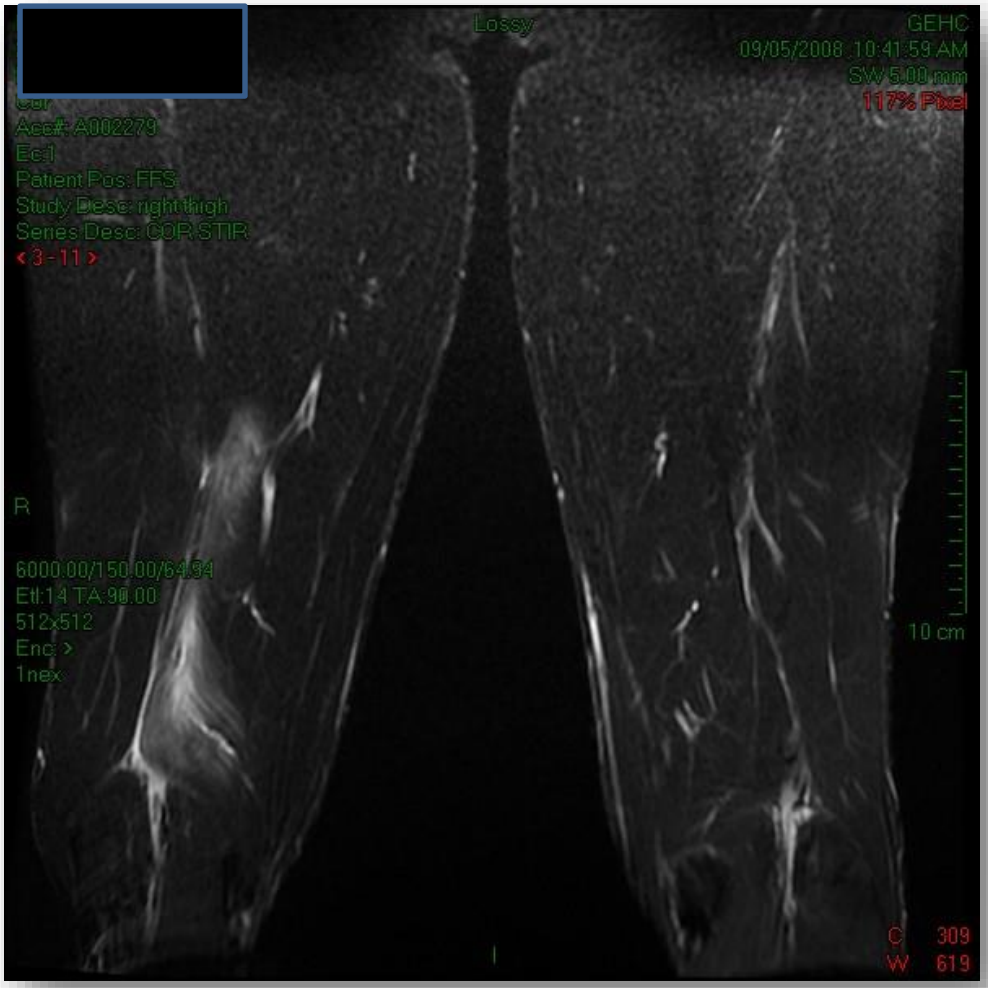

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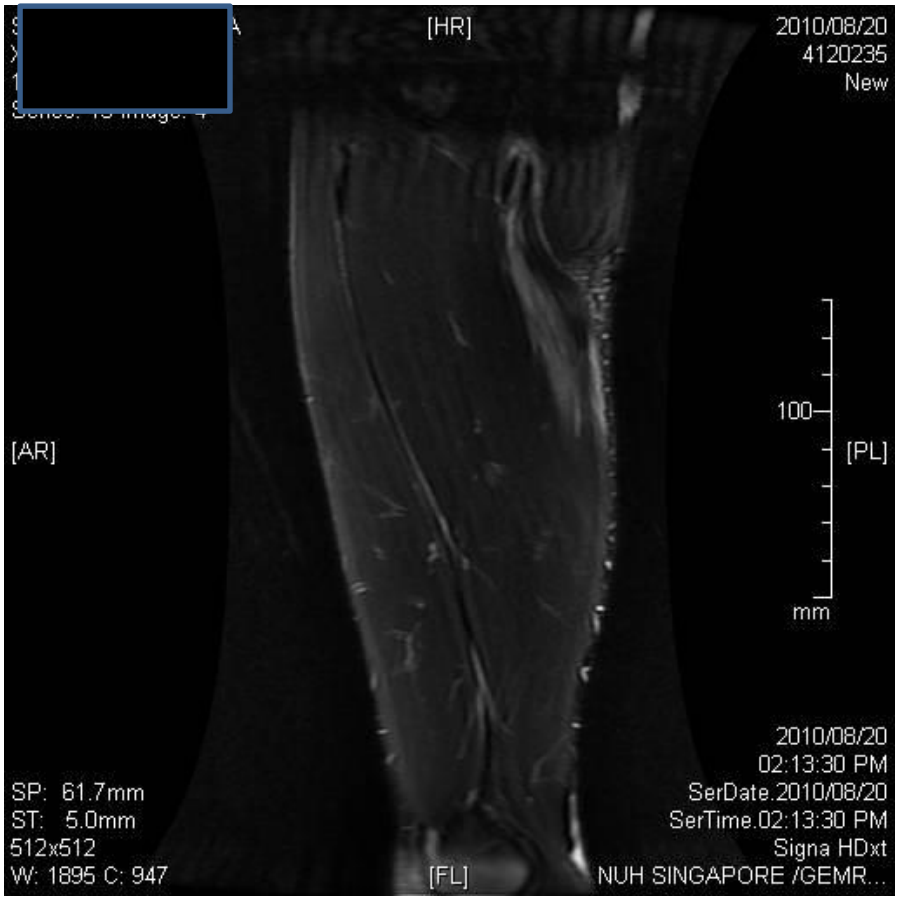

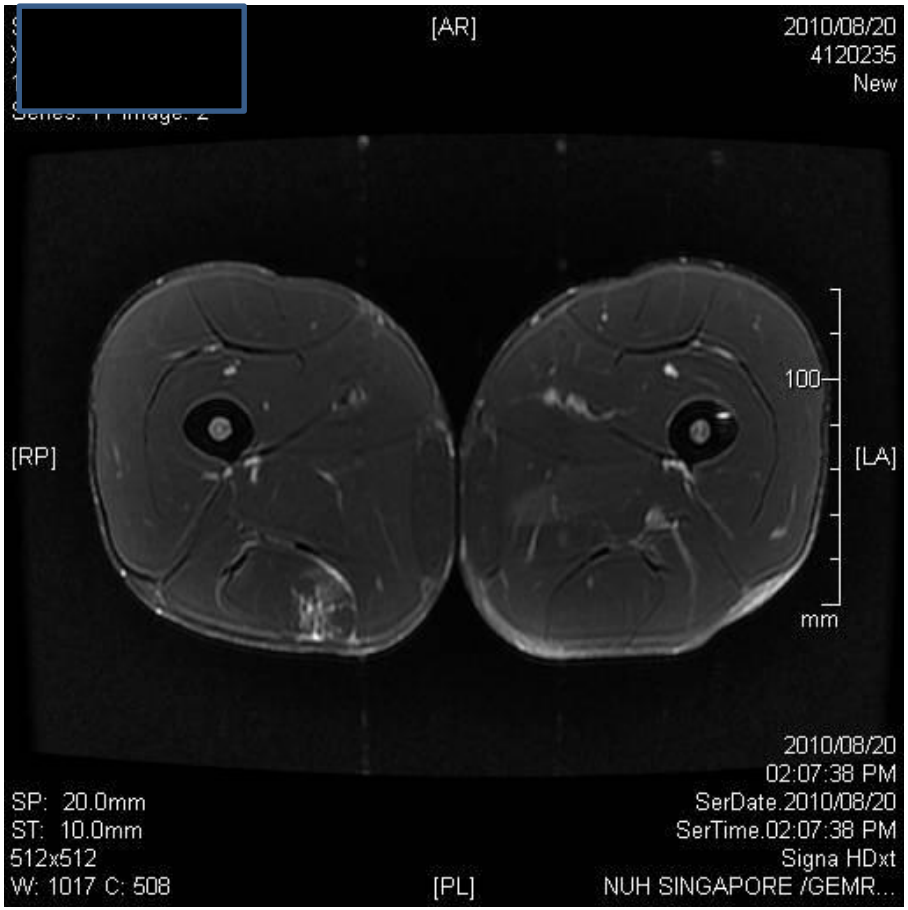

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Radiological Investigations

- Total = 39 (34 Athletes, 5 Officials)
- MRI 18
- U/S 12
- X-ray 6
- U/S Guided Injections 3 (1 PRP)

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IMAGING EASILY ACCESIBLE AND AVAILABLE

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Facilities during the Games - POLYCLINIC

Pharmacy

Eye Clinic

Orthotist

Dentistry

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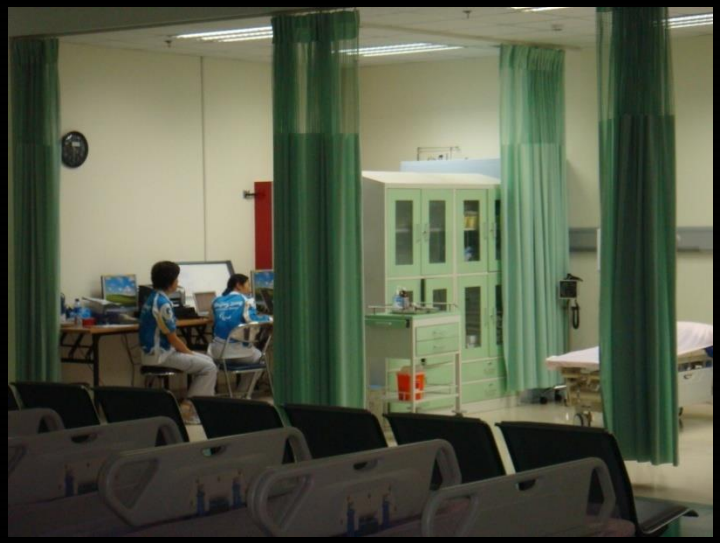

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Sports Vision

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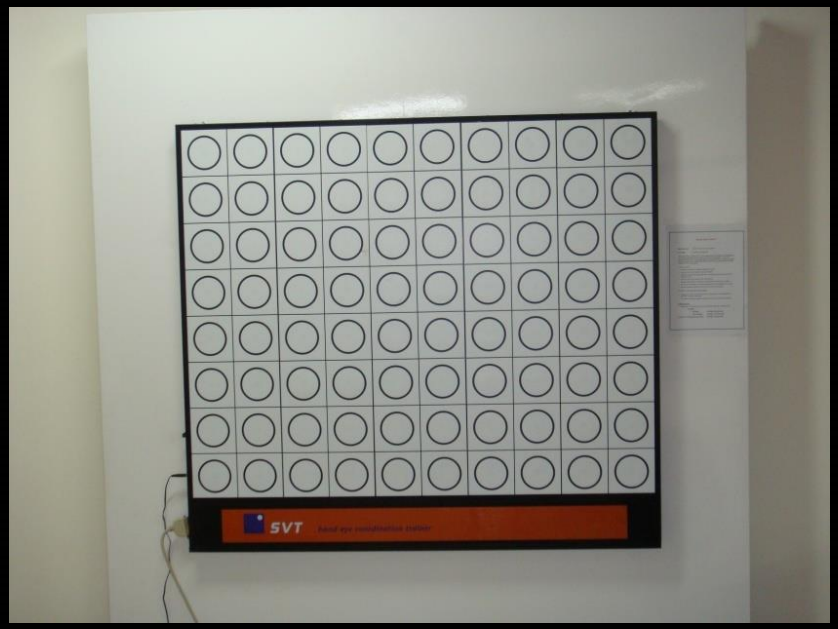

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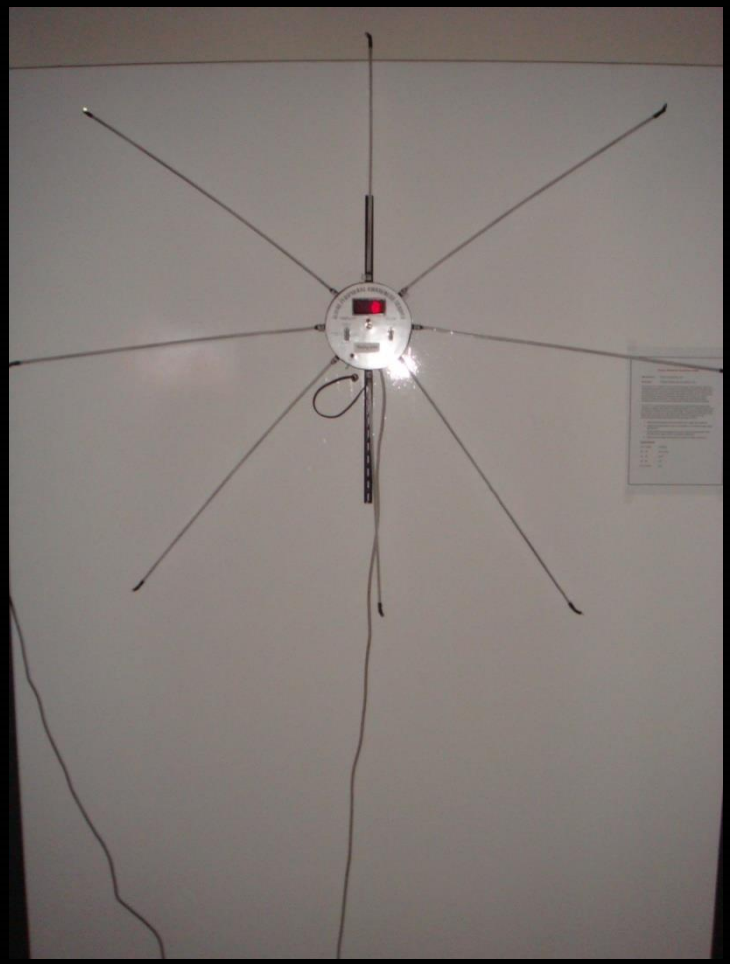

Wayne Peripheral Awareness Tester

Manufacturer: Wayne Engineering, USA

Evaluates: Peripheral awareness and reaction time

The Wayne PAT ("Spider") is the first developmental vision training instrument designed specifically for the enhancement and testing of peripheral awareness, a crucially important visual skill in almost all athletic activities. It can also be used for developing eye-hand coordination, decreasing reaction time to visual stimuli, and integrating visual and directional responses—all of which are vital for optimum athletic performance. College, professional, and Olympic teams worldwide use the PAT as a basic instrument in their sports vision programs.

The PAT is a compact wall-mounted instrument. Eight peripheral target lights mounted on plastic rods extend at 45-degree angles from a cylinder that contains a 4-digit LED display and a central fixation light. The peripheral target lights light up at random and the user responds by pointing a joystick in the direction of the target light while fixating on the central light. The PAT contains an Intel microcomputer programmed to perform the following functions:

1. **Test** peripheral awareness and reaction time in eight field locations.
2. Display the actual reaction time in hundredths of a second for each target light position.
3. **Train** peripheral awareness by forcing the user to centrally fixate while simultaneously responding to a peripheral target light.
4. Adjust stimulus speed automatically to match the user's proficiency.

Testing Norms

.29 or faster	Excellent
.39 - .29	Very Good
.49 - .39	Good
.59 - .49	Fair
.60 or slower	Poor

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Bassin Anticipation Timer

Manufacturer: Lafayette Instrument, USA

Evaluates: Anticipation timing, eye-hand coordination

Developed by Dr. Stanley Bassin at California State Polytechnic University, Pomona, the Bassin Anticipation Timer may be used to test the area of human visual performance related to eye-hand coordination and anticipation.

The subject is instructed to watch a light as it travels down the runway. They must anticipate the light reaching the target and press a pushbutton, or perform some other action, to coincide with the arrival of the light at the target. The goal is to time the approach so that the infrared beam is broken at the same time that the light reaches the end of the runway. This unit can be applicable for a bat swing, tennis swing, or even a soccer kick. The control box displays in milliseconds, the amount of time that the swing or kick was too early or too late.

Features:

- Selectable speed from 1 - 255 MPH
- Selectable Cue delay from 0.5 - 30.0 seconds
- Random Cue delay setting
- Runway interconnection has been improved for increased life and reliability
- Storage of all test settings
- Independent blanking of any light or section of lights along the runway
- Stand-alone instrument with small portable control panel

Testing Norms

Average of 5 trials – average of early and late responses

less than .005	Excellent
.006 – .010	Very Good
.011 - .050	Good
.051 - .100	Fair
.100 or greater	Poor

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- These facilities (apparently basic in China) available to athletes during their preparation for the Games.
- Often athletes with Refractory errors are picked up during the PHE.
- Can train your eyes as you would the rest of the body.

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Recovery

- Body needs to recover after high intensity training:
  - Rest
  - Nutrition
  - Ice Baths
  - Massage
  - Compression Garments

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ACCOMODATION

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Marking your Territory

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Nutrition

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“The BIG MAC”

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Periodic Health Evaluation (PHE)

- IOC Consensus Statement
  - Sports participation at Elite Level
    - Winning Medals
    - Fame and other rewards
  - Important from a general health perspective
  - No longer any doubt that regular exercise reduces mortality (CHD, H/T, D/M, Obesity, CA Colon)

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- IOC Priority – PROTECT THE HEALTH OF THE ATHLETE
- During recent years – Prevention of Injury and Illness – high on the agenda.
- Injury and Illness surveillance
  - IOC ran a injury surveillance system for the first time covering all athletes(10500) – showed a 10% incidence (Junge et al 2008)
  - Vancouver and London – surveillance included diseases.

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- PHE serves many purposes.
  - Firstly it is the entry point for medical care for the athlete.
  - Main purpose is to screen athletes for injuries or medical conditions that may place the athlete at risk for safe participation.
  - Includes a comprehensive assessment of the athletes current health status.
  - Assessment of risk for future illness or injury.
  - Serves as a toll for continuous health monitoring of the athlete

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- Athletes may have conditions that do not have overt symptoms
  - Cardiovascular abnormalities (HOCM, Arrythmogenic right ventricular cardiomyopathy, congenital coronary artery abnormalities) – these are typically silent but potentially fatal
  - Some other minor conditions picked up on PHE
    - Mild iron deficiency anaemia especially in female athletes.
    - Astigmatism, which can be picked up on a visual acuity

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ATHLETE MONITORING

- AMAS – Athlete Monitoring and Assessment System
- Used for Olympic and Paralympic Athletes for London
- Ability to track and predict athletes response to training loads
- Helps athletes and coaches
  - Periodisation
  - Overtraining
  - HIMS (Heart Rate Interval System)
  - Physiological Assessments

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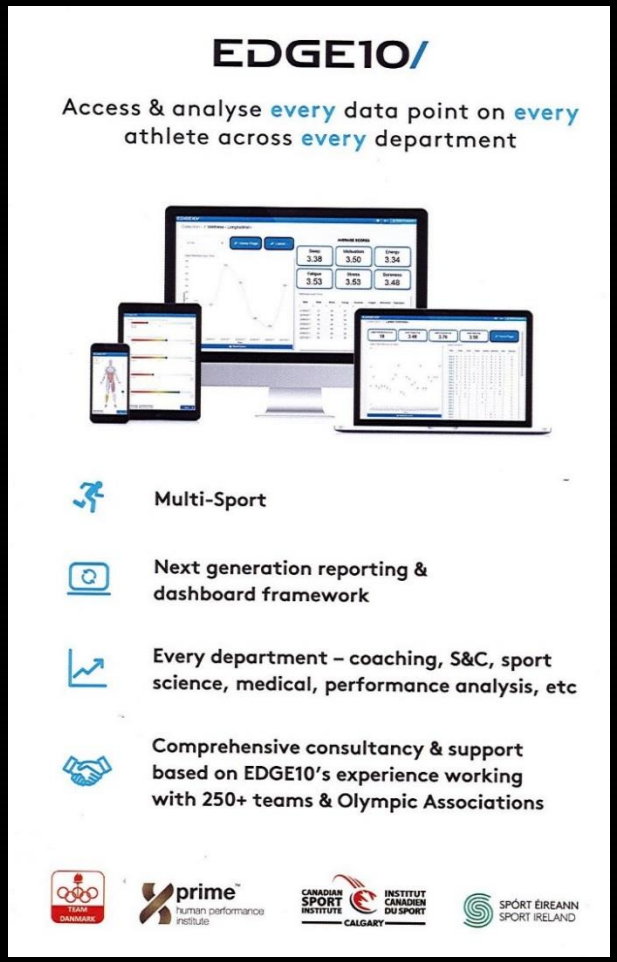
Athlete Monitoring and Data Management



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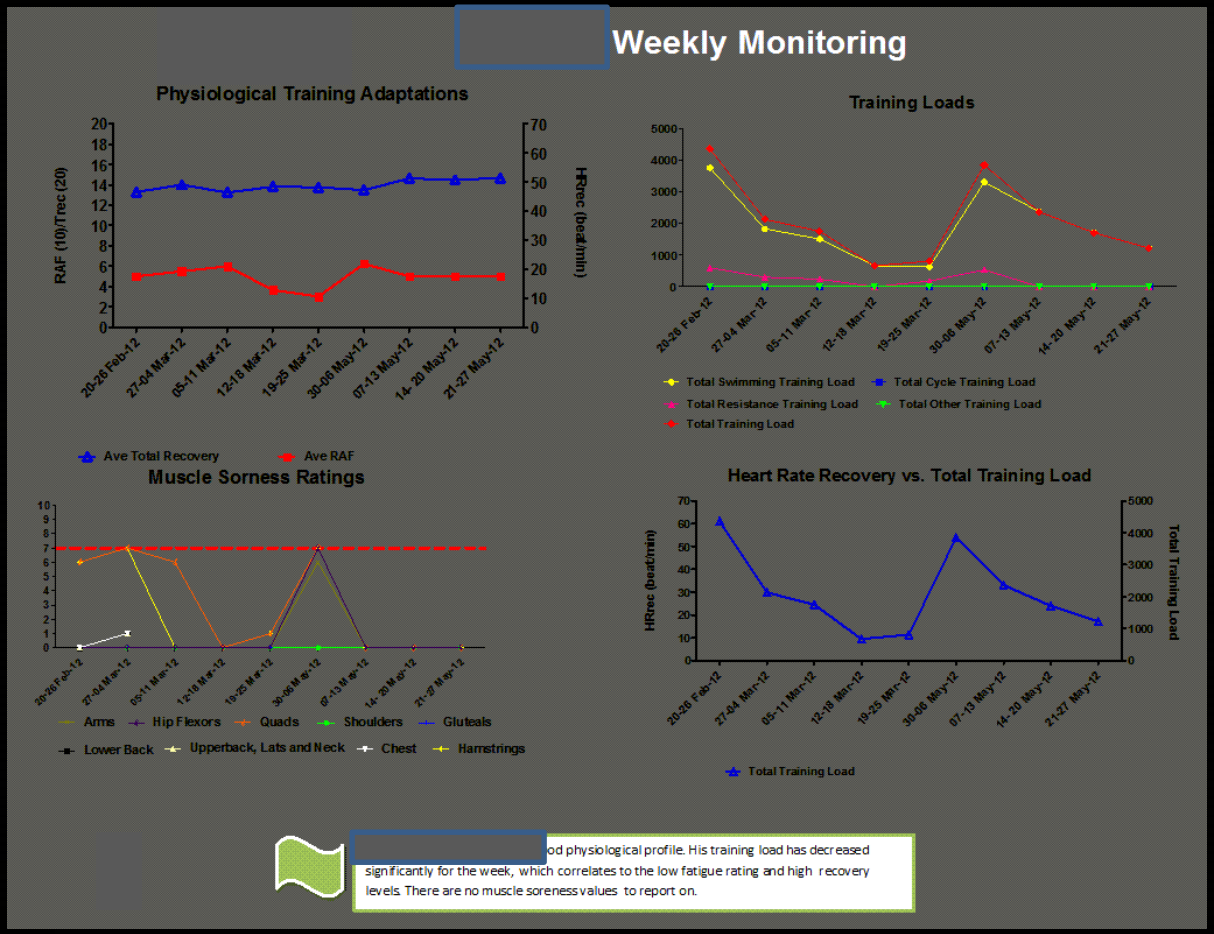
Example of Monitoring Training Status



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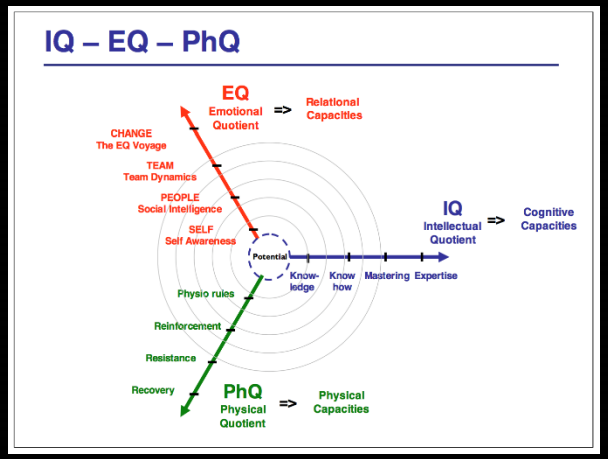
Challenges that need to be addressed

- Administrators and Federations
- Funding
- Coaches
- Medical Team -Inter-disciplinary as opposed to multi-disciplinary
- Sports Science Integration
- Athlete EQ



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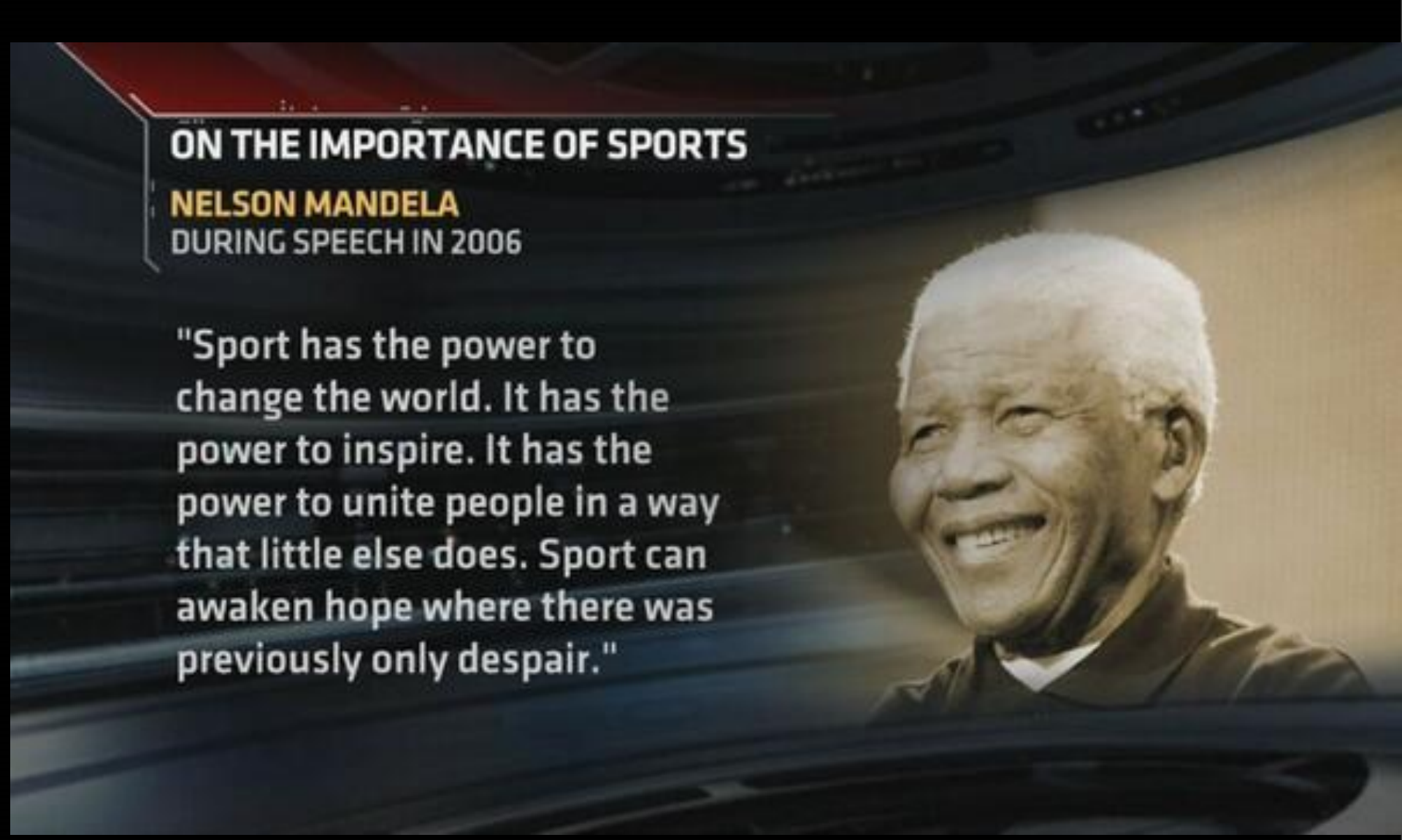
ON THE IMPORTANCE OF SPORTS

NELSON MANDELA
DURING SPEECH IN 2006

"Sport has the power to change the world. It has the power to inspire. It has the power to unite people in a way that little else does. Sport can awaken hope where there was previously only despair."



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THANK YOU