



Science, Medicine & Engineering in British Sport

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Performance, UK Sport



1991 days to the Rio 2016 Summer Olympic Games
1994 days to the Rio 2016 Summer Paralympic Games



Introduction

- UK approach
- What concepts and why?
- A vision and legacy concept - ESPRIT



UK Sport



Government

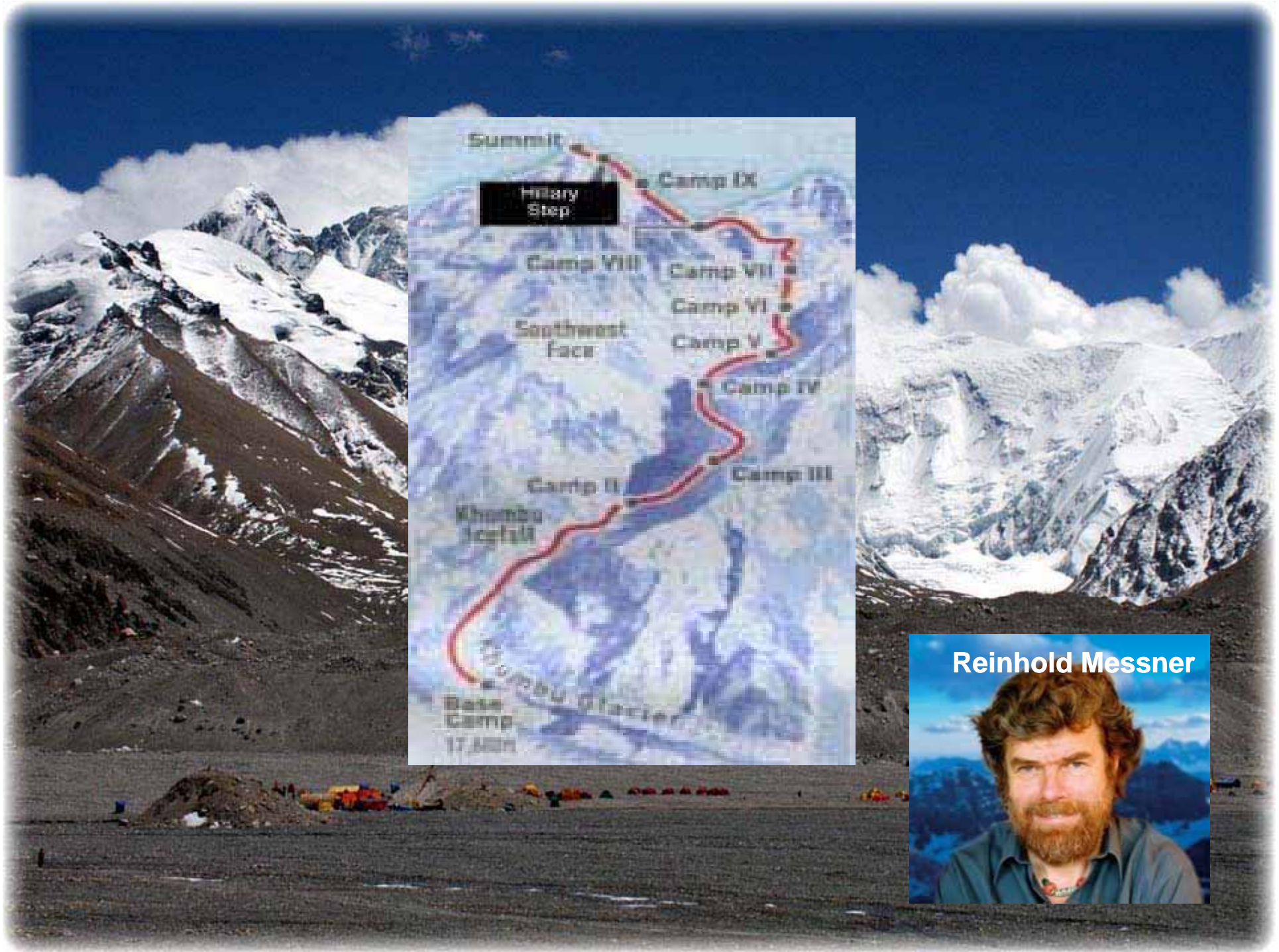
DCMS



Sport

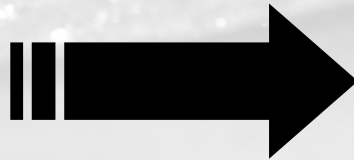
Athlete



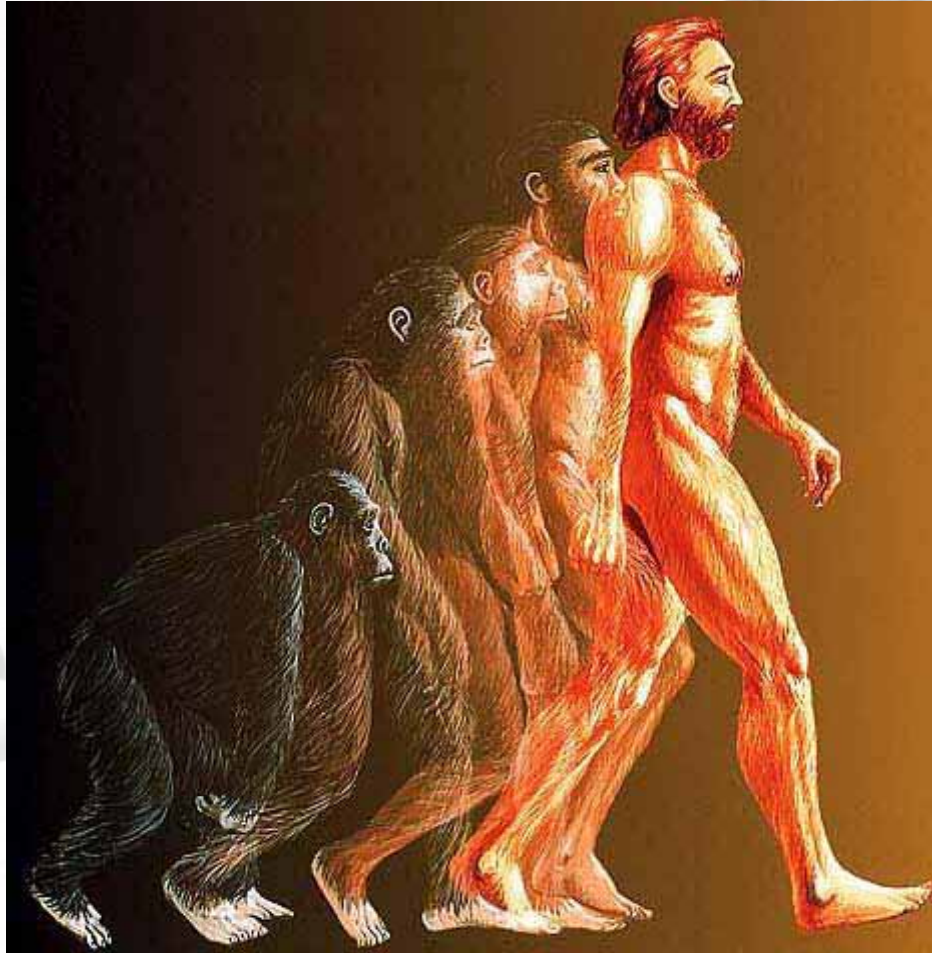


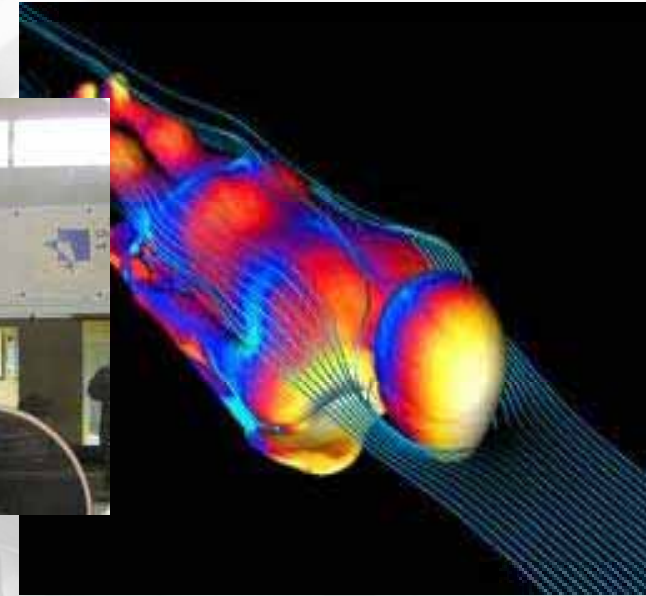
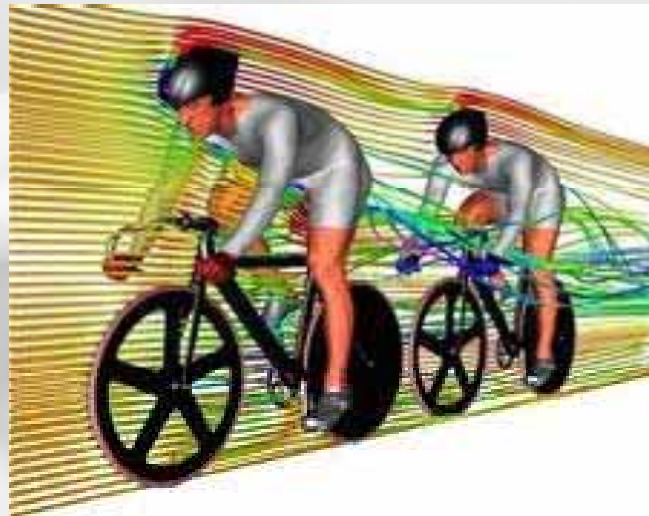
UK approach to R&I

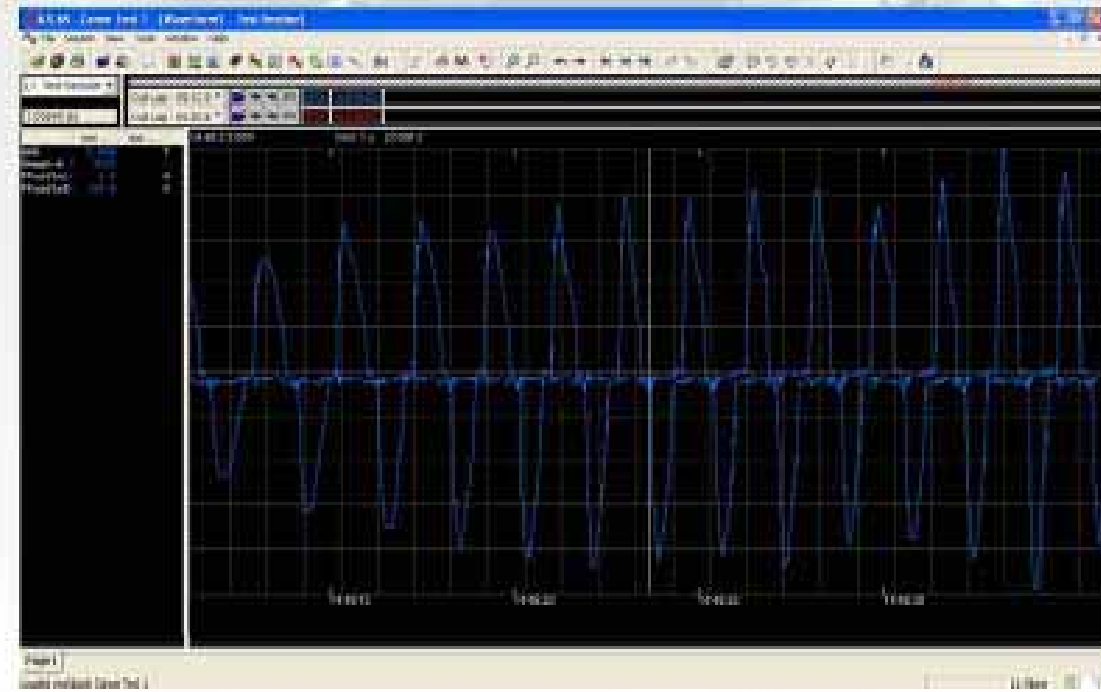


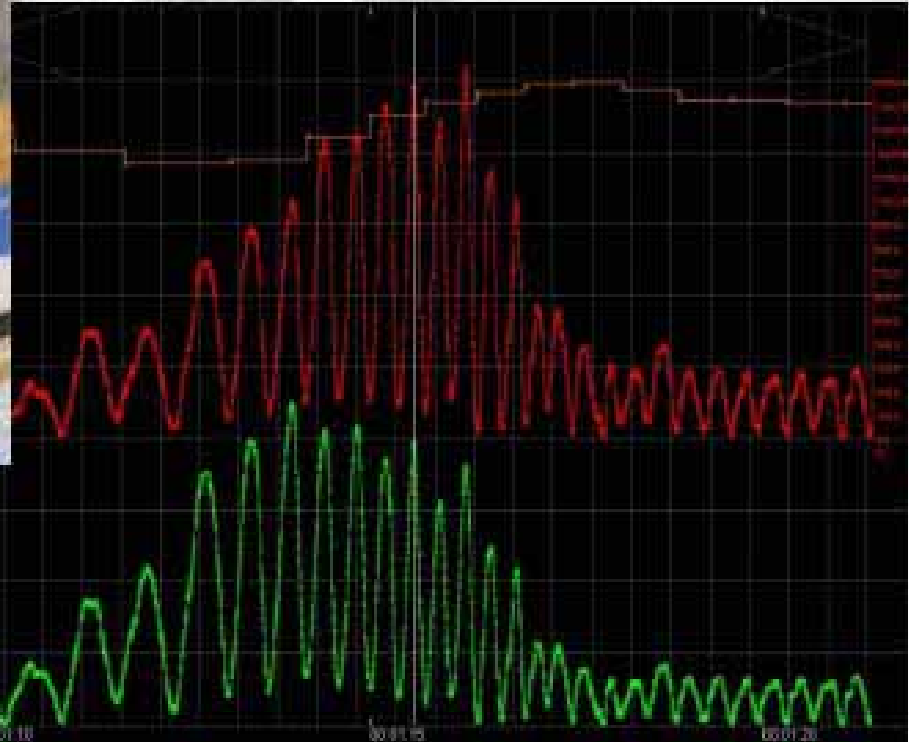


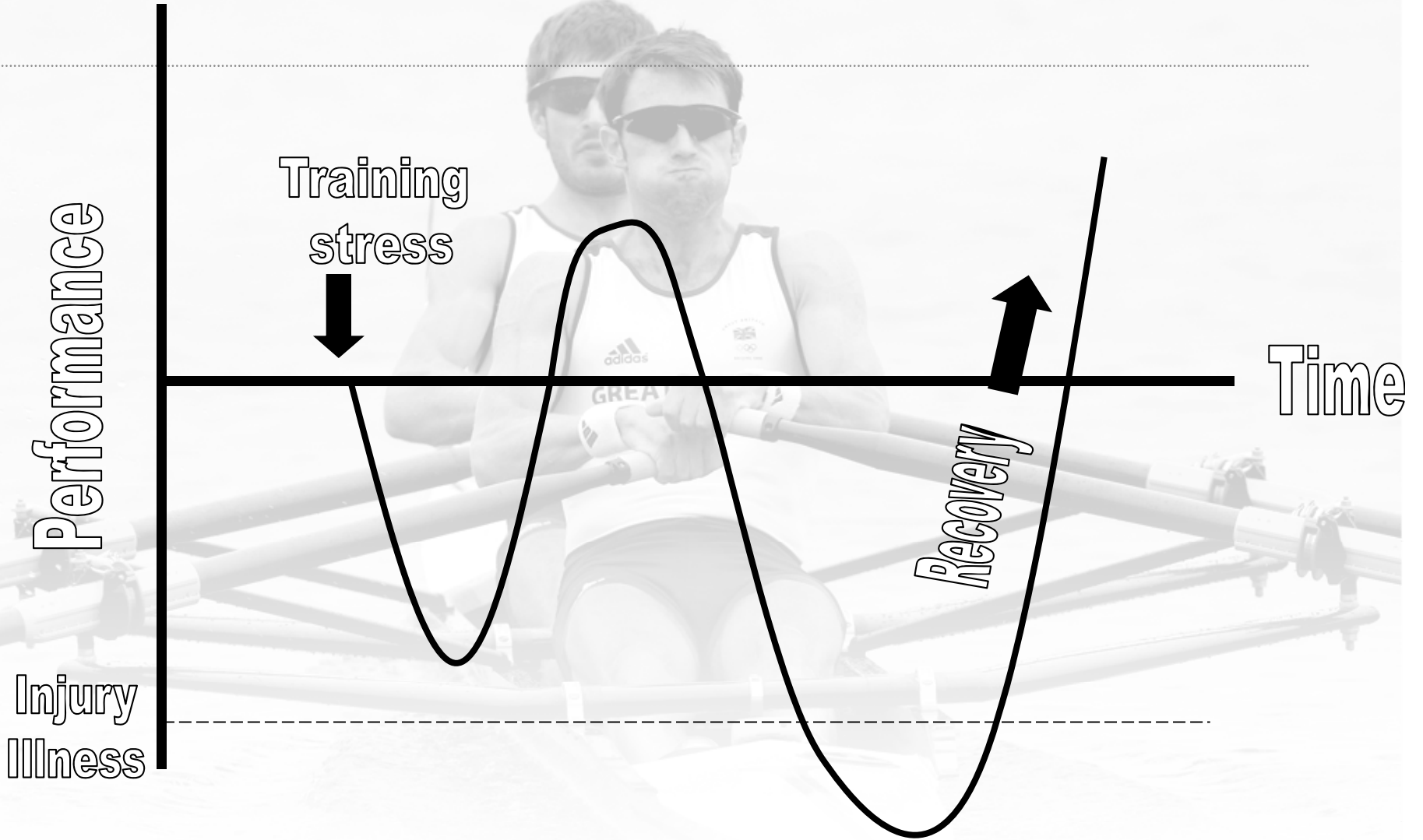
Time motion of athlete's life











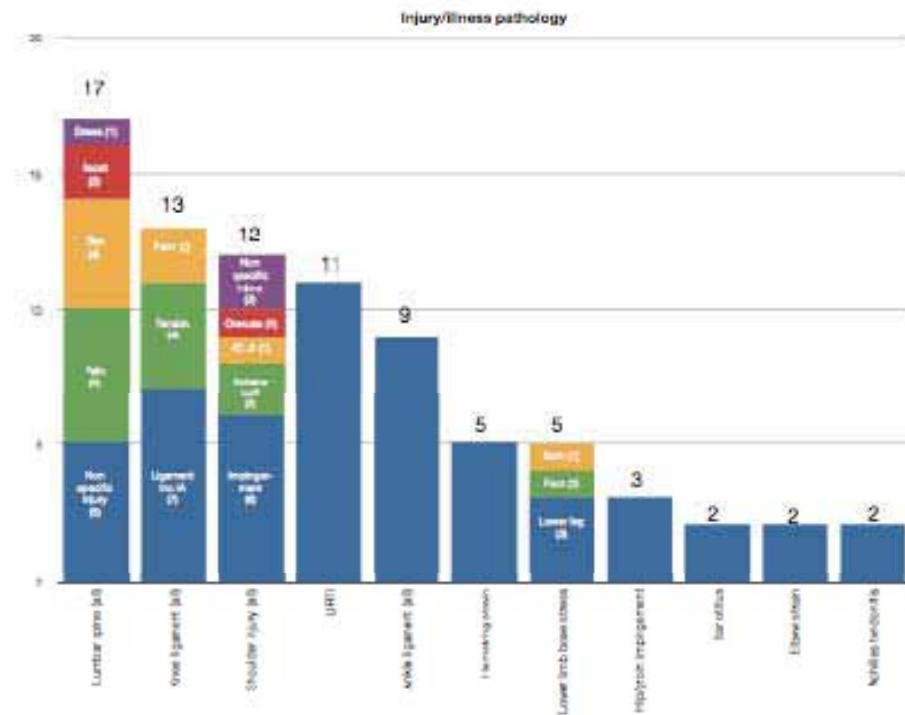


Injury & illness in Great Britain Sport

Olympiad review August 2009



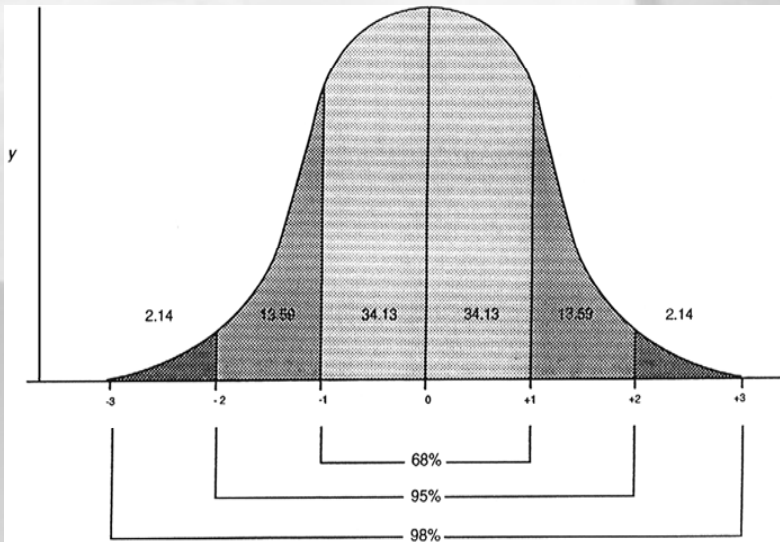
Figure 3



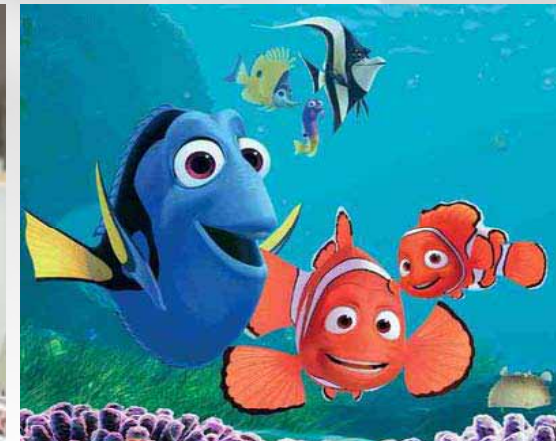
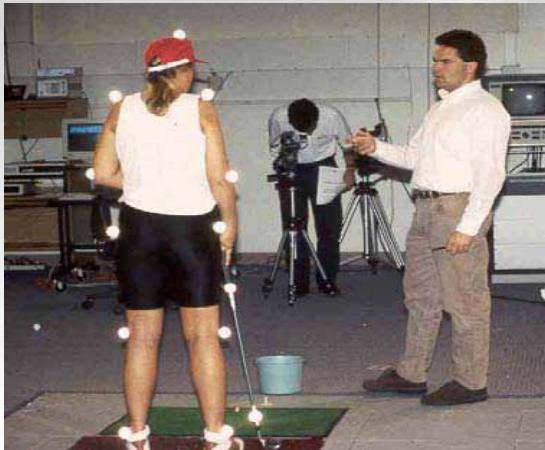


Academic Collaborations: Legacy

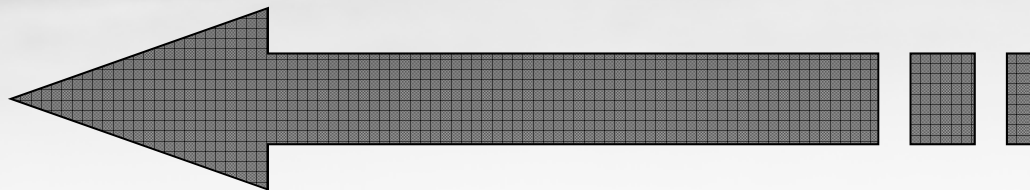
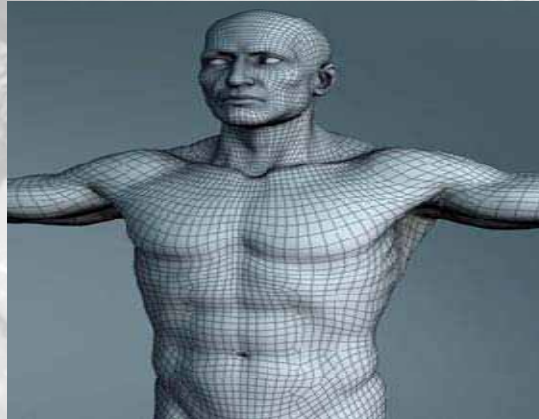
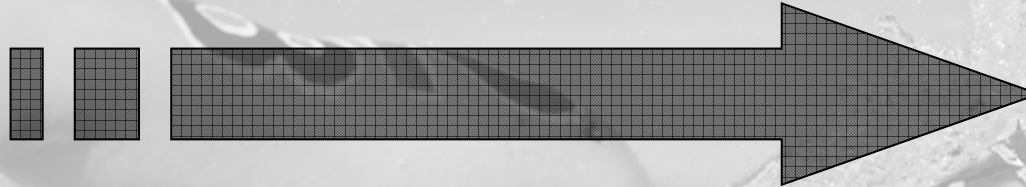
Science & engineering in sport



VS

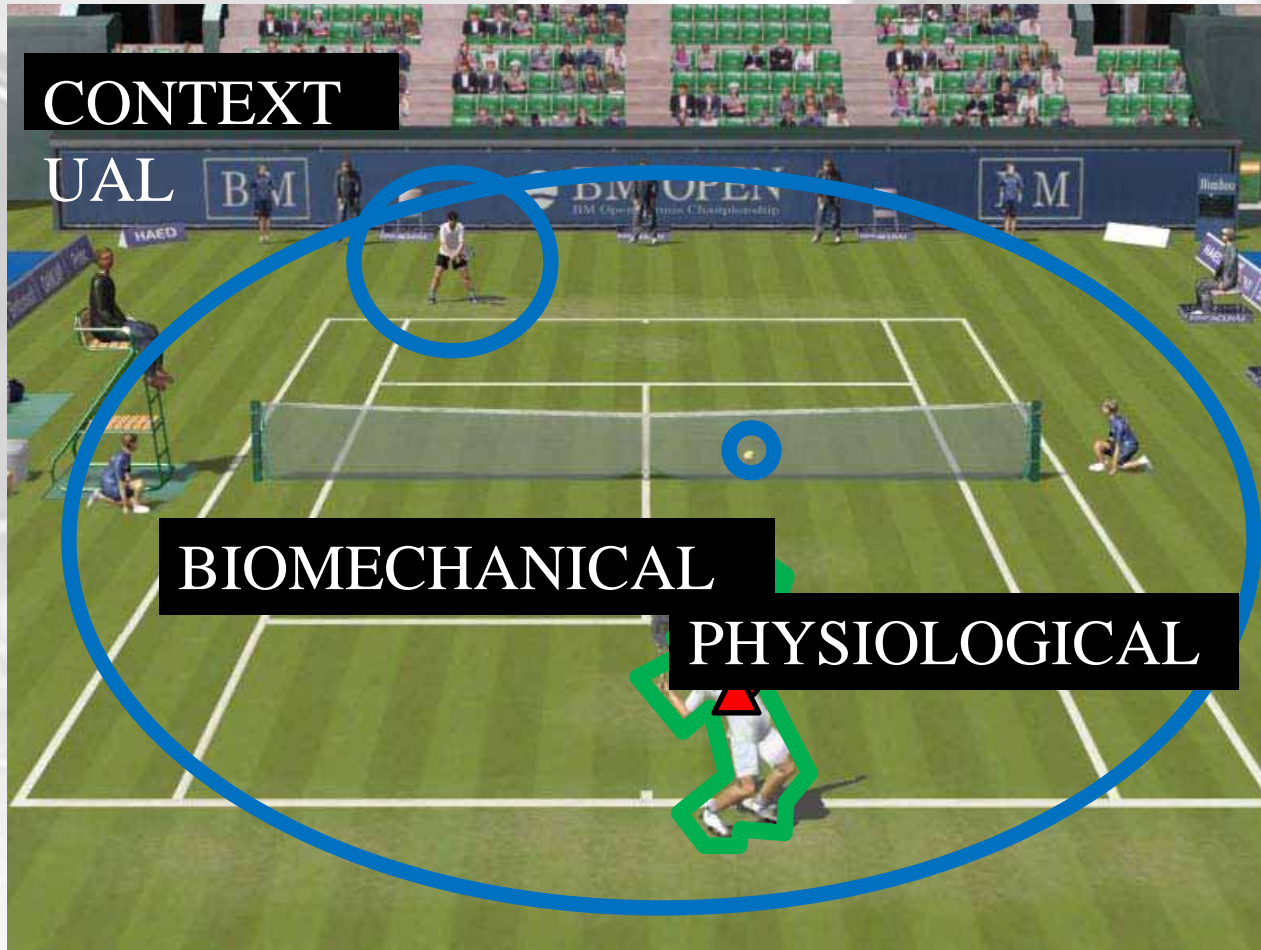


ESPRIT – Vision for the future



What is ESPRIT?

- A £8.5M (£2.5M from UKS) research programme funded by EPSRC (www.esprit-sport.org)
- The purpose of the programme is to develop the 'tools' that **increase the probability** of the right coaching decision at the right time in the athlete development timeline.
- High performance sport is the model being used to test and prototype the technologies with a view to cross transfer to health, wellness and aging populations.
- The philosophy and novelty behind the programme is to provide a **systems based approach to performance science** (measure – model – manipulate).

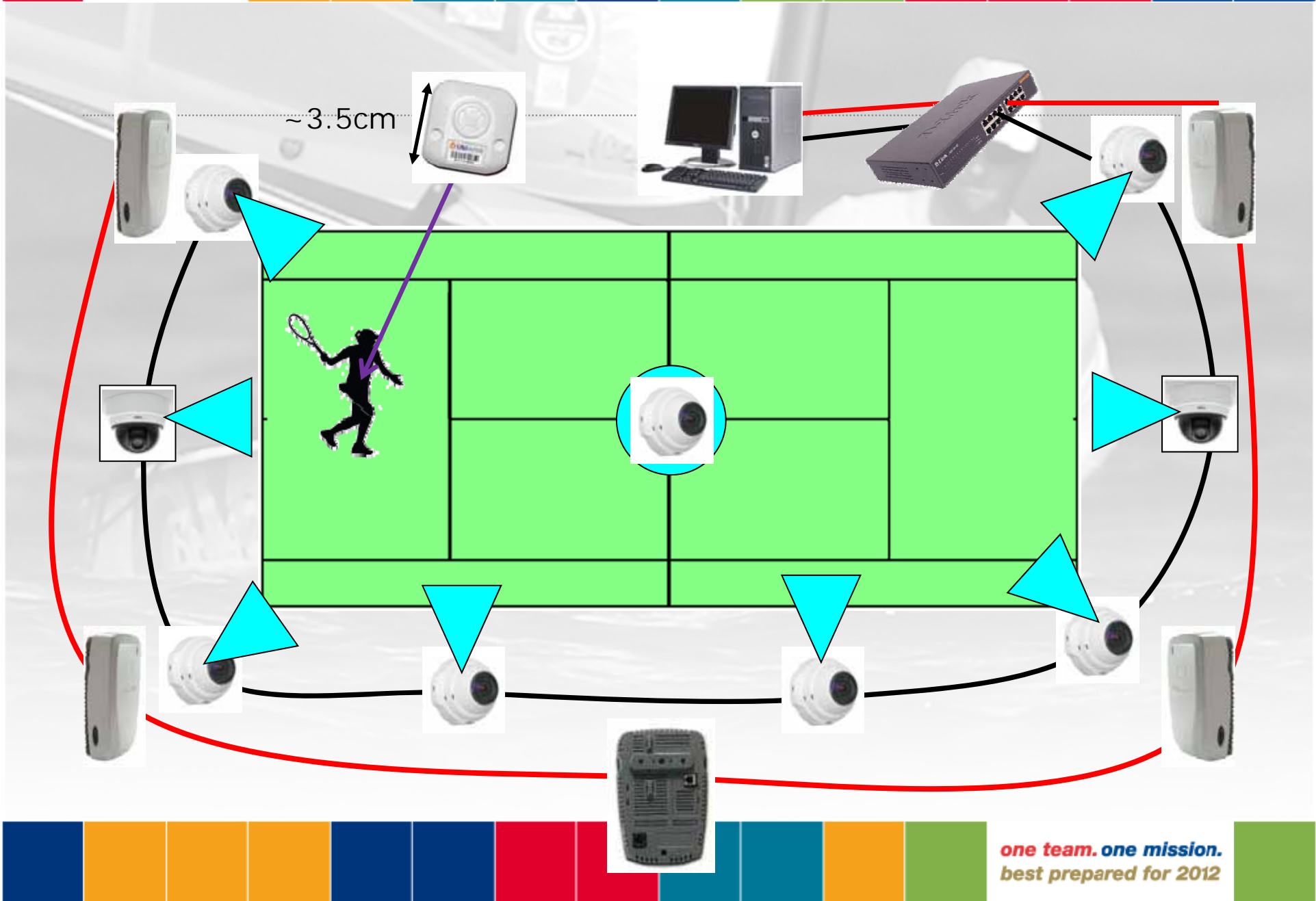


CONTEXT

UAL

BIOMECHANICAL

PHYSIOLOGICAL



Biomechanical Data

Wireless Inertial Measurement Units (WIMUs)

Features:

3-axis Accelerometers

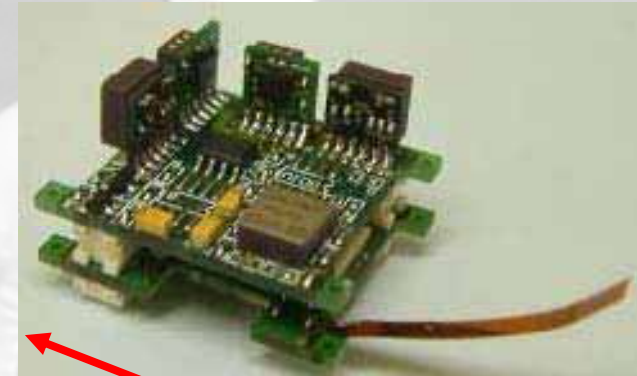
3-axis Gyroscopes

3-axis magnetometers

ADC: analog-digital converter

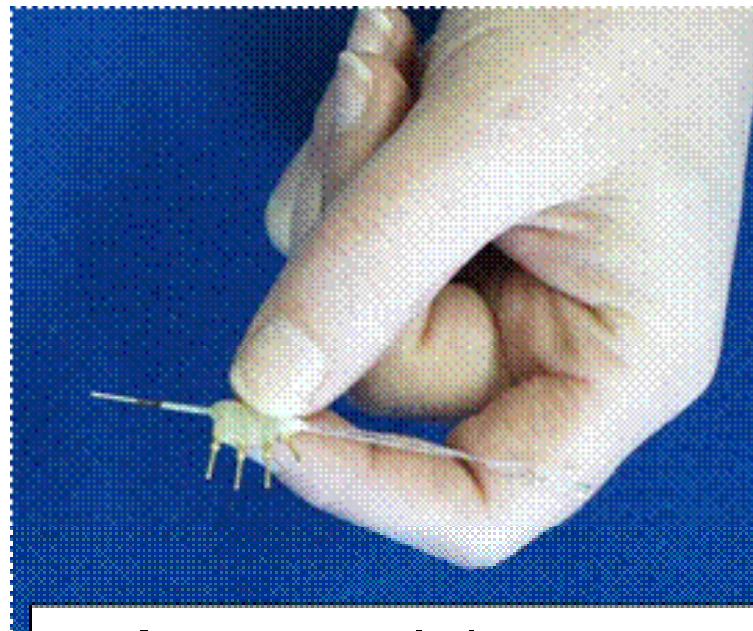
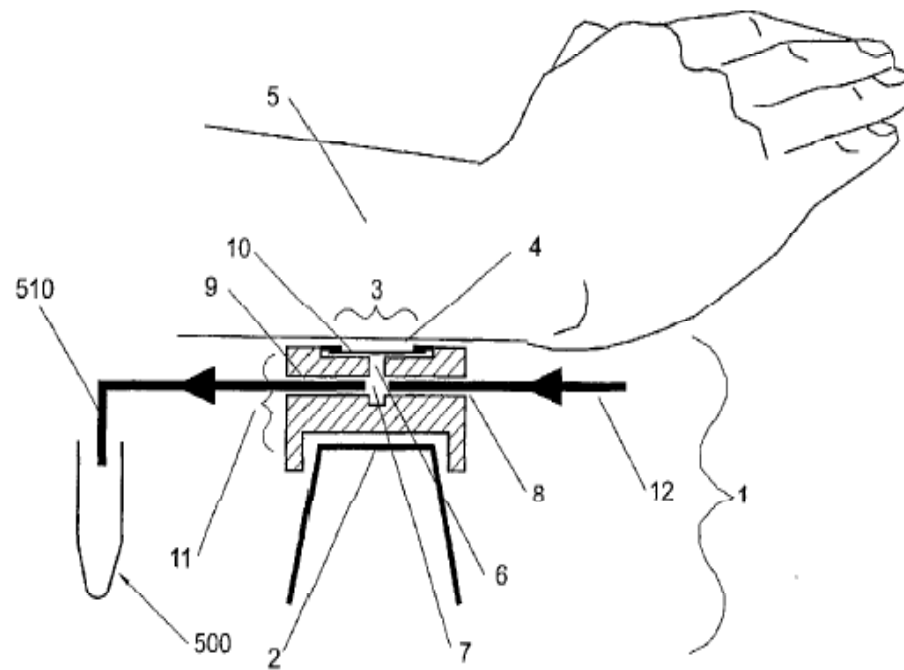
Microprocessor

Serial Wireless Link



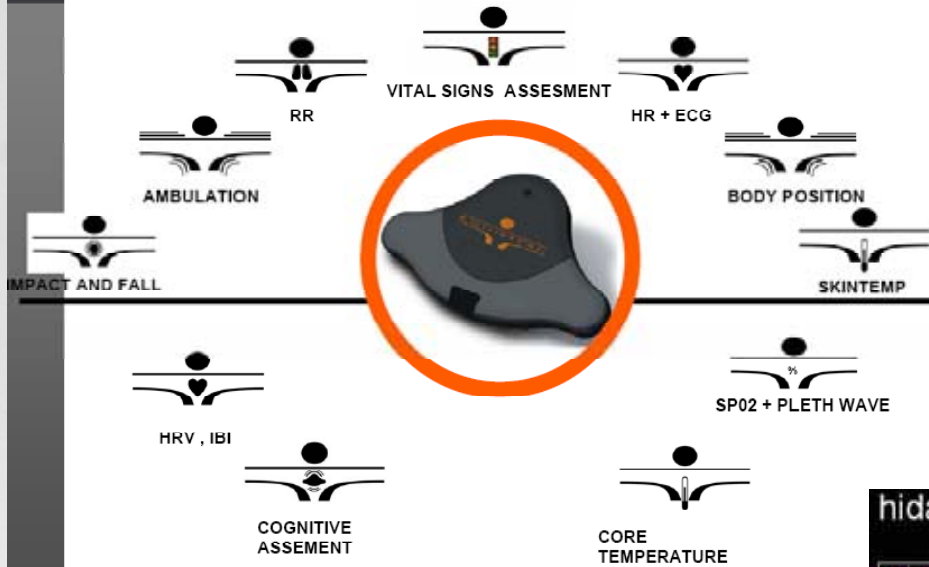
25mm



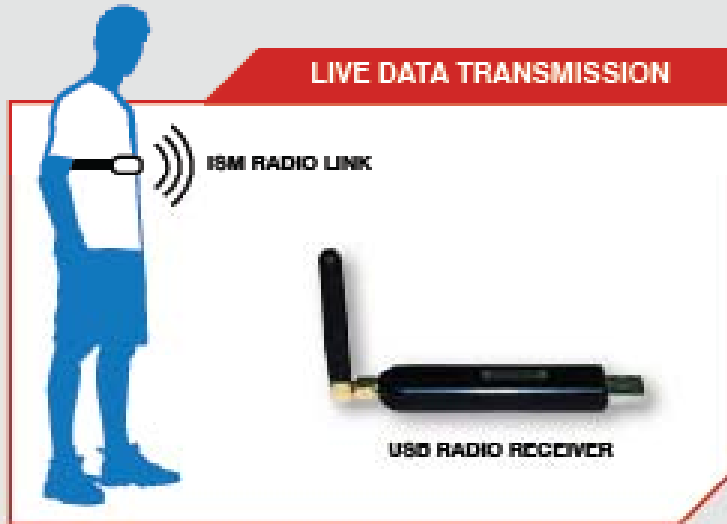


Immunosensor for human use

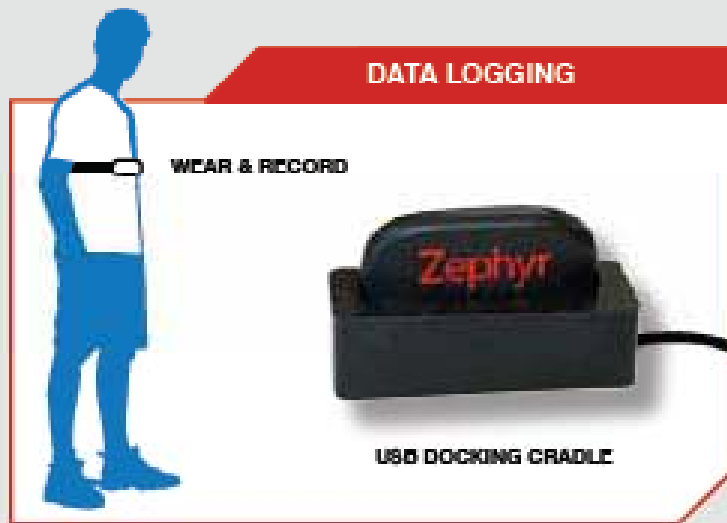
What does it do ?



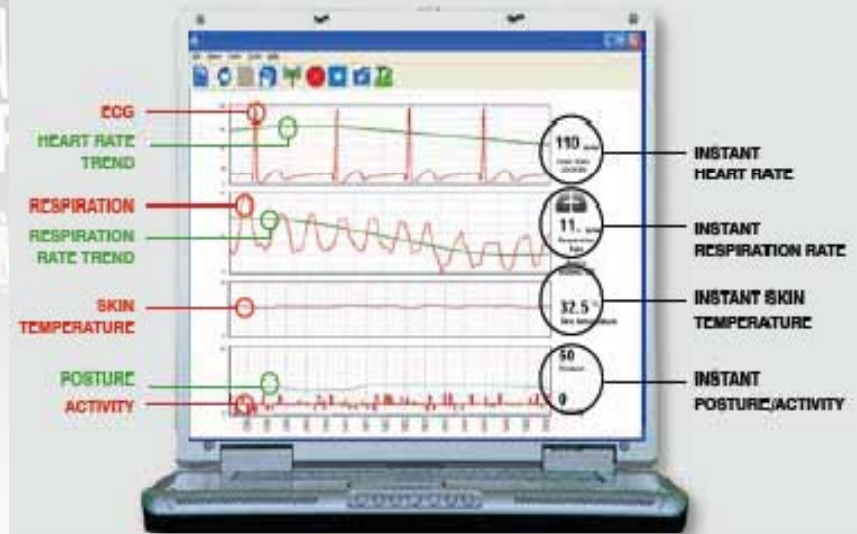
LIVE DATA TRANSMISSION



DATA LOGGING



GRAPHIC DISPLAY



END

