Terrestrial Rescuer fitness

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Why study?

- Time to hospital is important for the casualty's outcome; rescuer fitness is a component of this
- The quality of work is 'better' the fitter the operator
- Infrequent heavy physical exertion is associated with sudden death; fitter persons have some protection
- So, should we define a minimum fitness standard for terrestrial mountain rescuers?

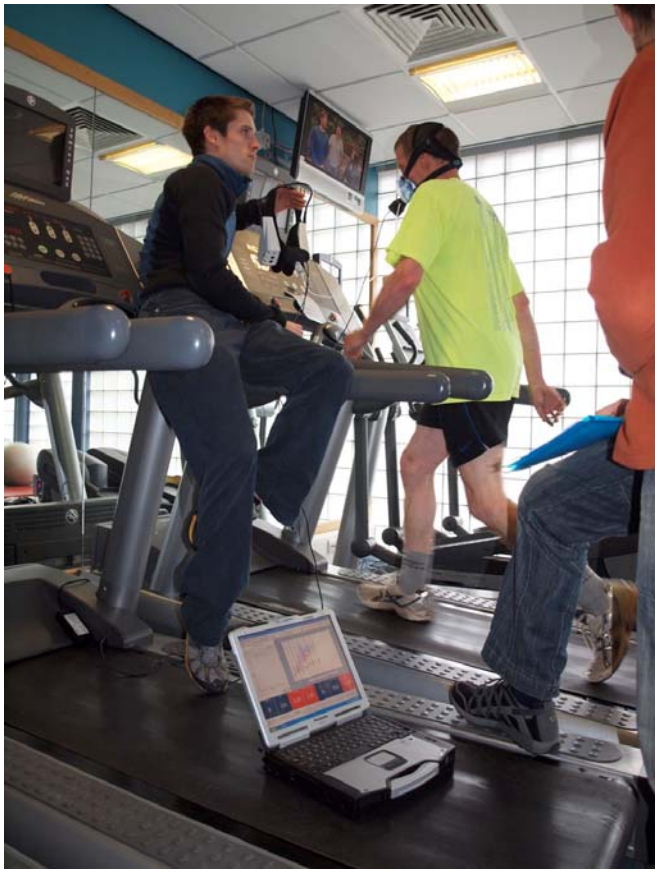
Aims

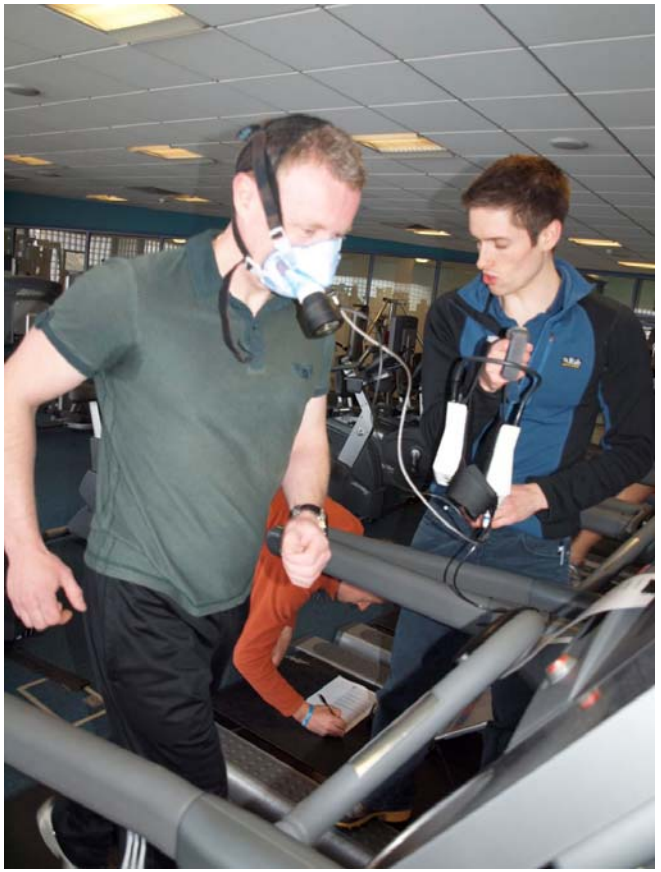
- Determine the aerobic fitness of rescuers – VO_2 max
- Measure the work during a simulated rescue and compare it with other emergency services
- Can heart rates be used as a marker of work?

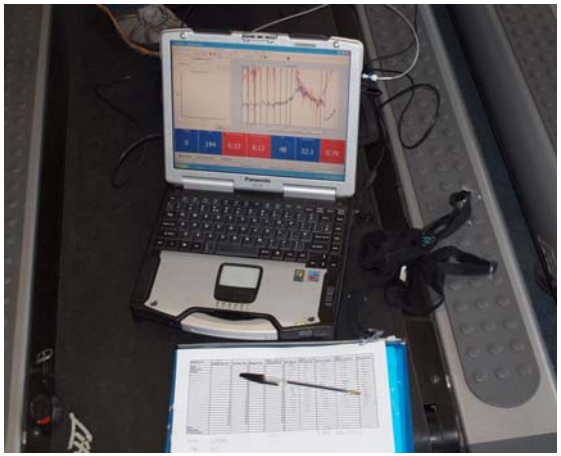
Collaboration with School of Sport, Health and Exercise Sciences, Bangor University

Funding from Mountain Rescue England & Wales

Determine the aerobic fitness of rescuers – **VO_2 max**





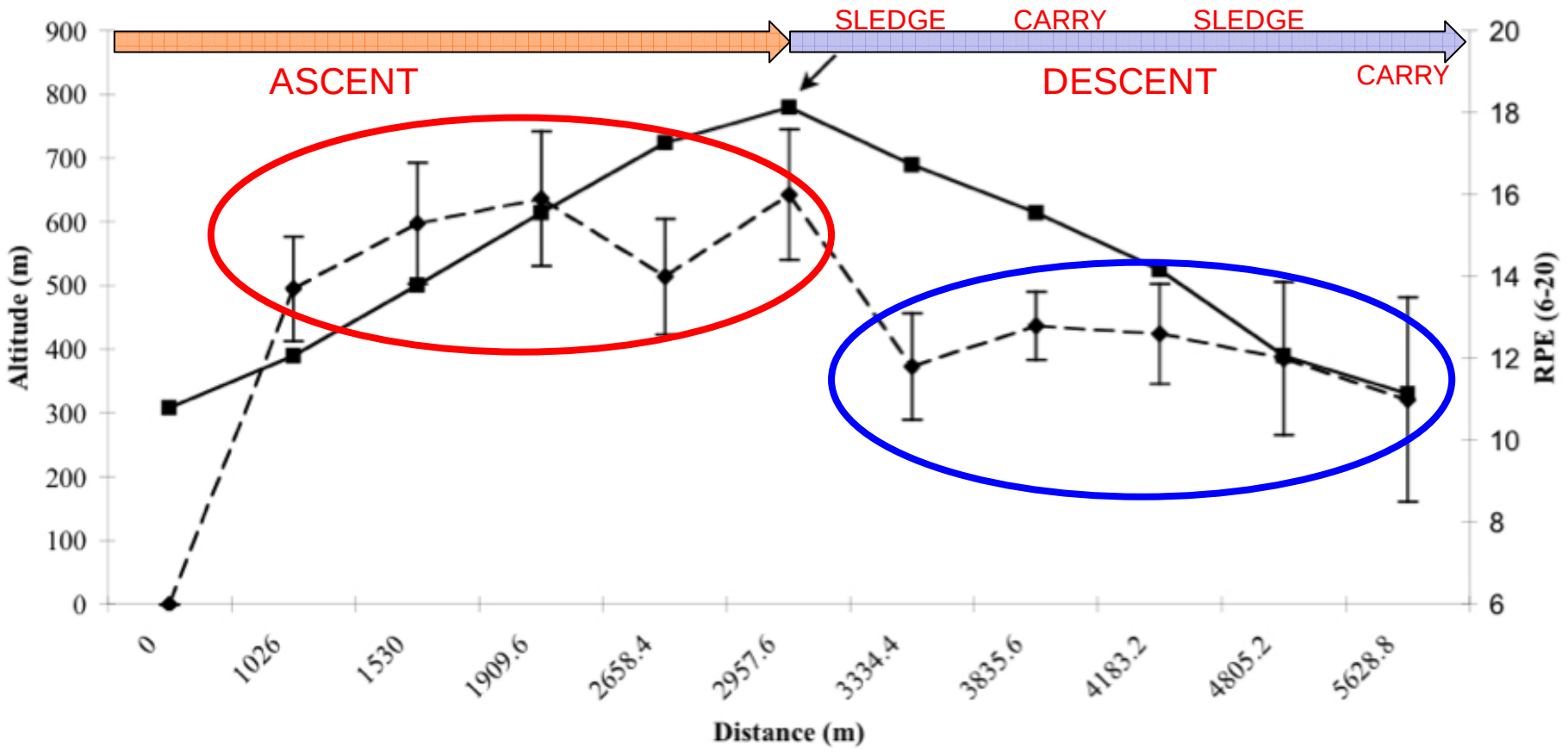


Average age 46 ± 9 yrs (team 45 yr); VO_2 max 52.6 ± 4

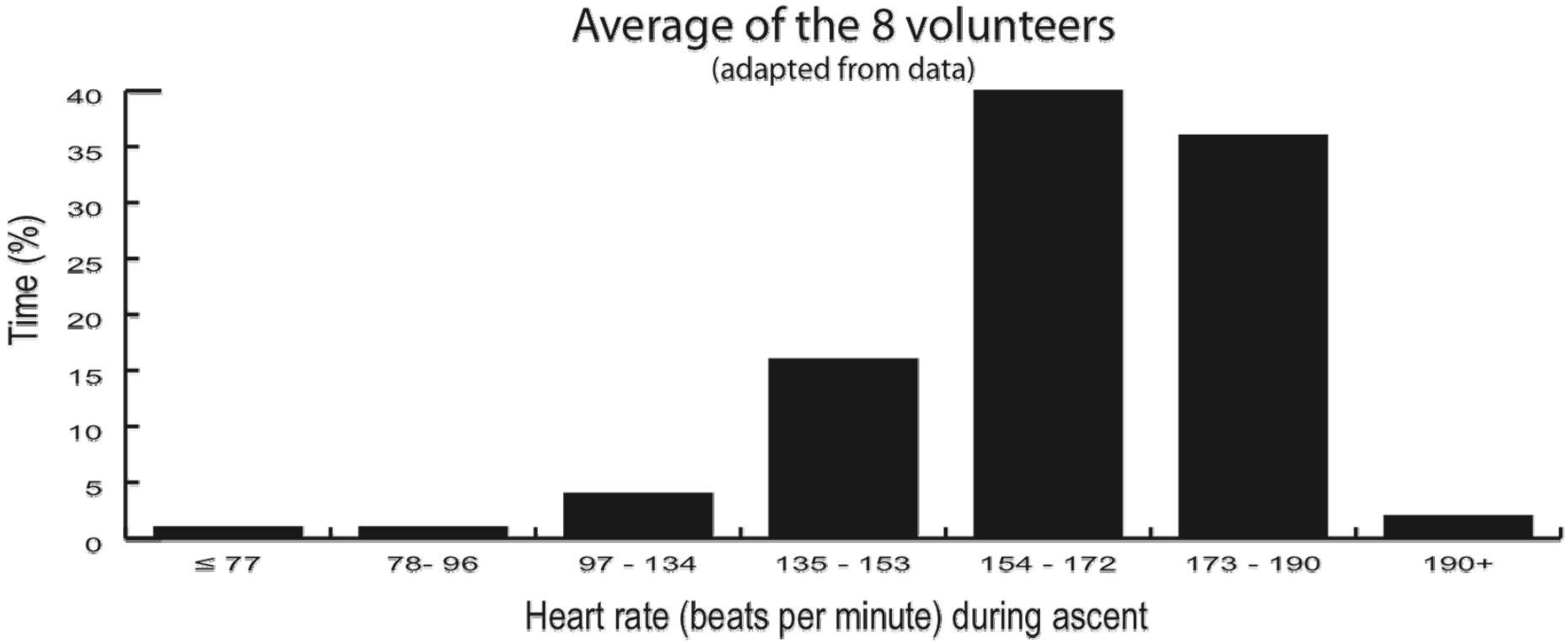
Compared with naval firefighters (52; 26 yr old); city ambulance (37; 45 yr old); Lance Armstrong (84; 30 yr old)

Measure the work during a simulated rescue

Results


SLEDGE
CARRY
SLEDGE
ASCENT
DESCENT
CARRY
Altitude (m)
RPE (6-20)
Distance (m)
0
100
200
300
400
500
600
700
800
900
6
8
10
12
14
16
18
20
0
1026
1530
1909.6
2658.4
2957.6
3334.4
3835.6
4183.2
4805.2
5628.8

Results



Typical load was 17% of body mass
HR > 154 for 80% of ascent (6% in descent)
114 min of exertion compared with < 25 min naval firefighters

Heart rates be used as a marker of work?

Yes

- Study real callouts
- Greater numbers
- Different kit/loads
- Different types of rescue
- Different weather

Should there be a minimum standard of fitness?

- Self-selection
- Political rather than medical decision