

# Recovery heart rate as a predictor of workload and cardiovascular health

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CRICOS No. 00213J



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## INJURY PREVENTION

The mining industry has almost twice the injury incidence rate of the national average (ABS, 2002)

The preferred injury prevention strategy is to reduce the physical demands of the job by:

- redesigning the task
- reducing the loads handled
- using equipment to eliminate heavy lifting

Not possible to eliminate all physically demanding tasks, therefore it is important to ensure that the functional capacity of the individual is adequate to safely match the task demands.

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# PRE-EMPLOYMENT SCREENING

## Health-Related

Medical examination

Objective measures of functional fitness

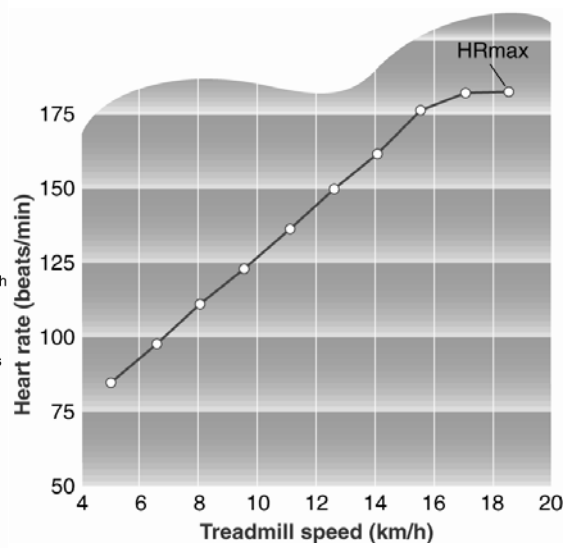
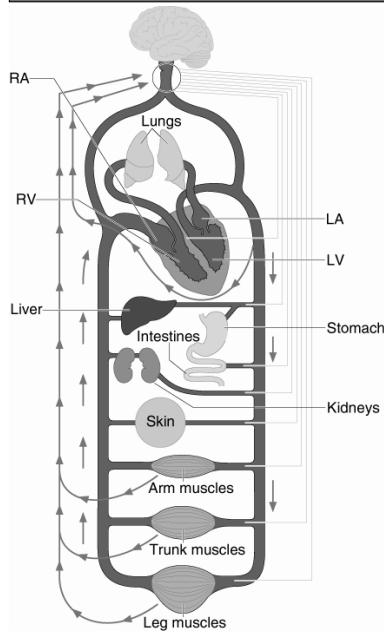
## Work-Related

Task analysis



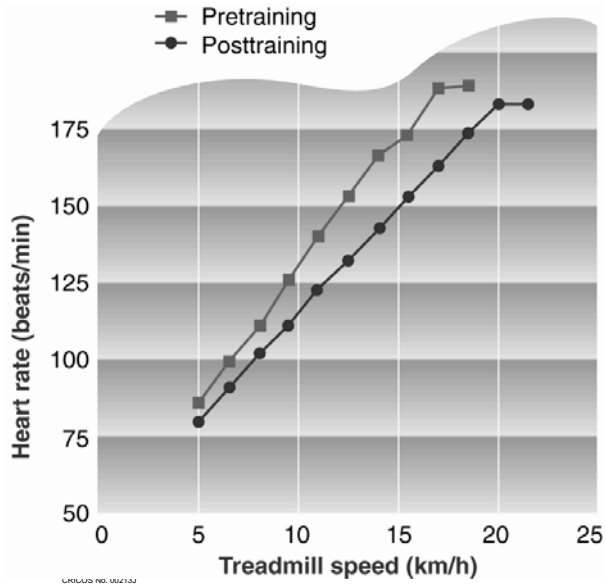
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# CARDIOVASCULAR HEALTH



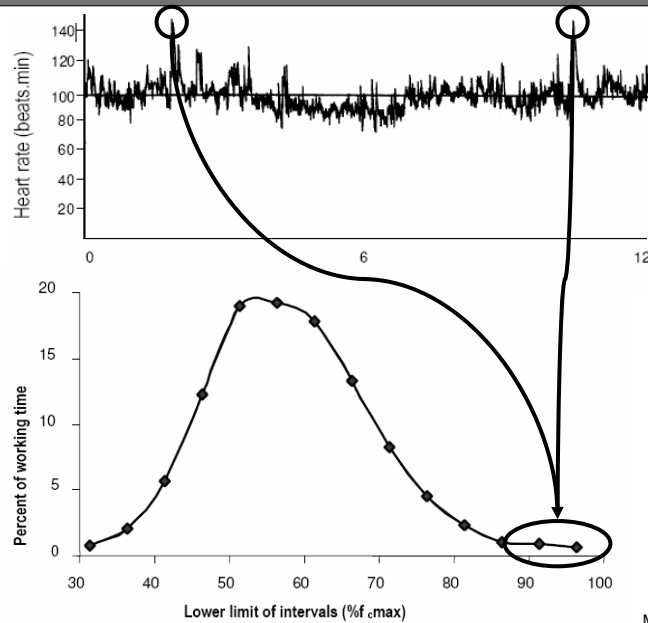
Wilmore and Costill, 2005

## HEART RATE & FITNESS



Wilmore and Costill, 2005

## ACROSS THE SHIFT



Abt & Tranter, 1999

Montoluit et al, 1995

## WORK-RELATED TESTS

	Average (bpm)	Peak (bpm)
<b>Incremental Carry</b>	165 (10.3)*	180 (10.5)*
<b>Coal Shovel</b>	174 (10.0)	184 (9.4)
<b>Cable Drag</b>	174 (9.2)	183 (9.0)



## RECOVERY HEART RATE

### Definition

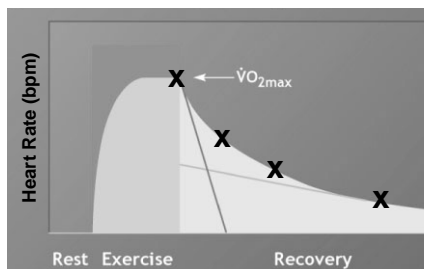
Heart rate recovery refers to the decline in heart rate (HR) after exercise

### Quantification

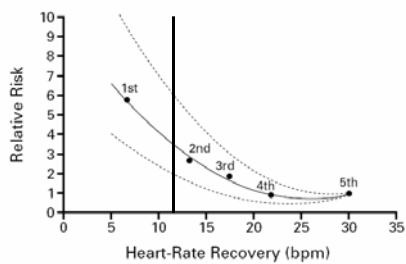
Peak HR – HR @ 30, 60, and 120 seconds

### Classification

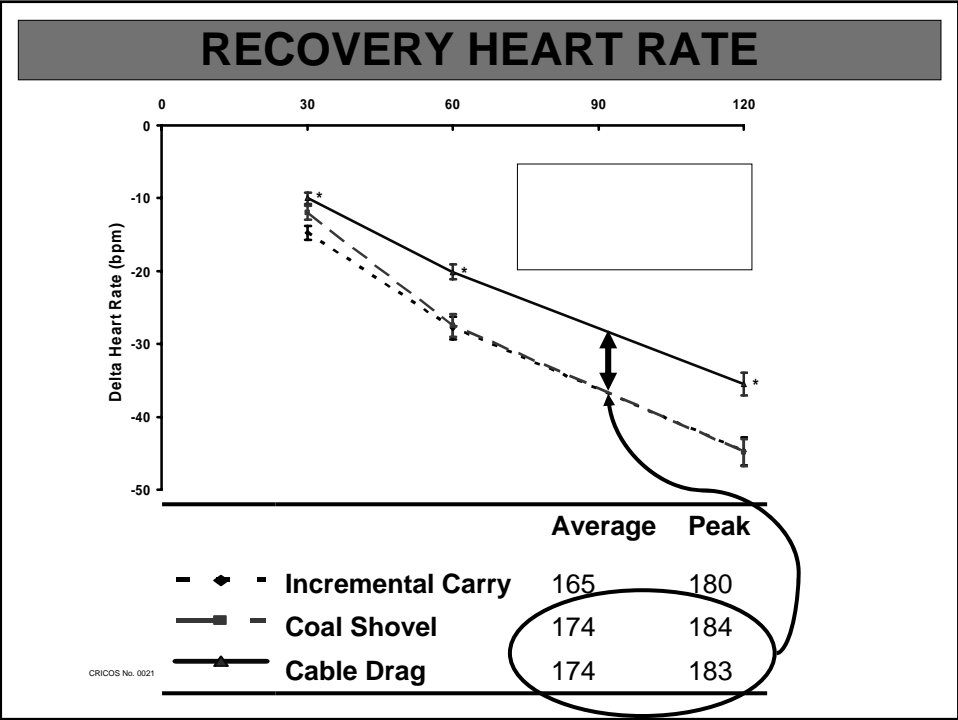
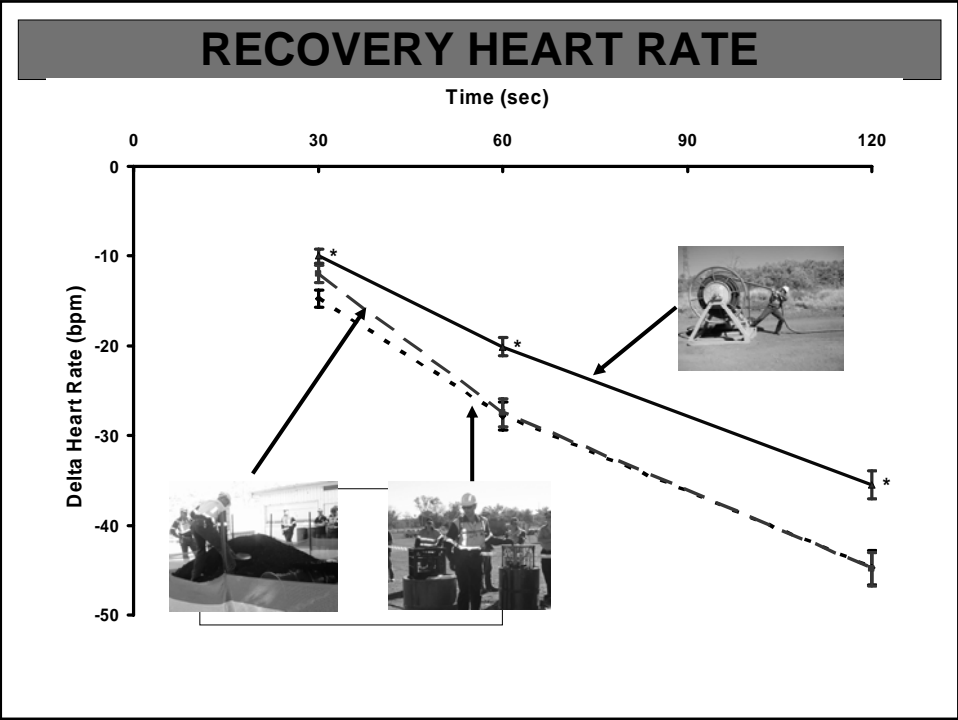
Abnormal value is classified as recovery HR < 12 bpm at 60 seconds

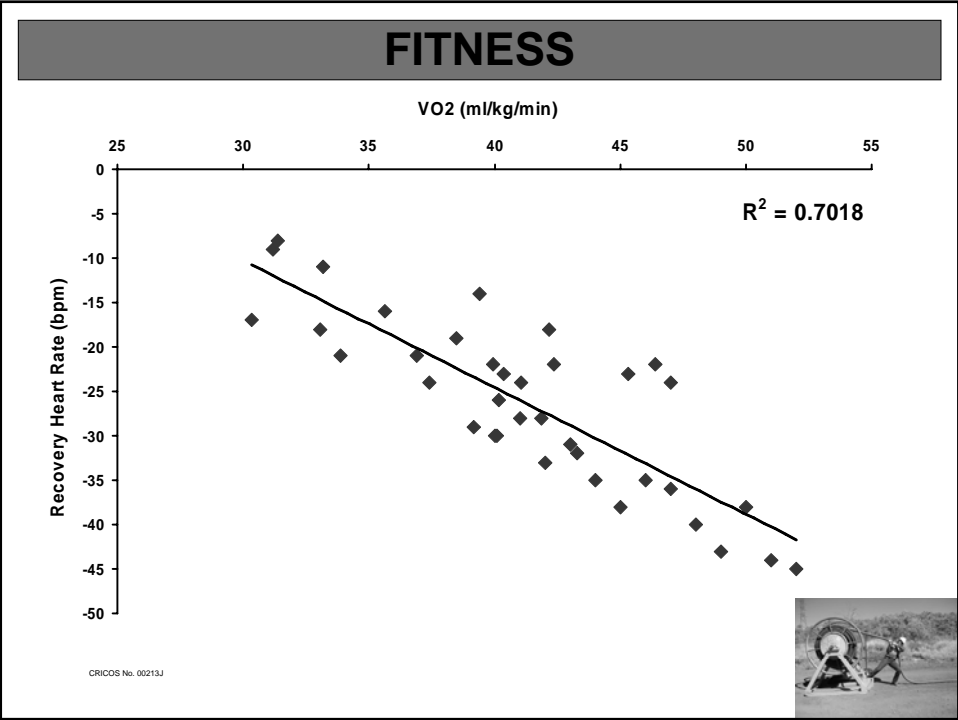
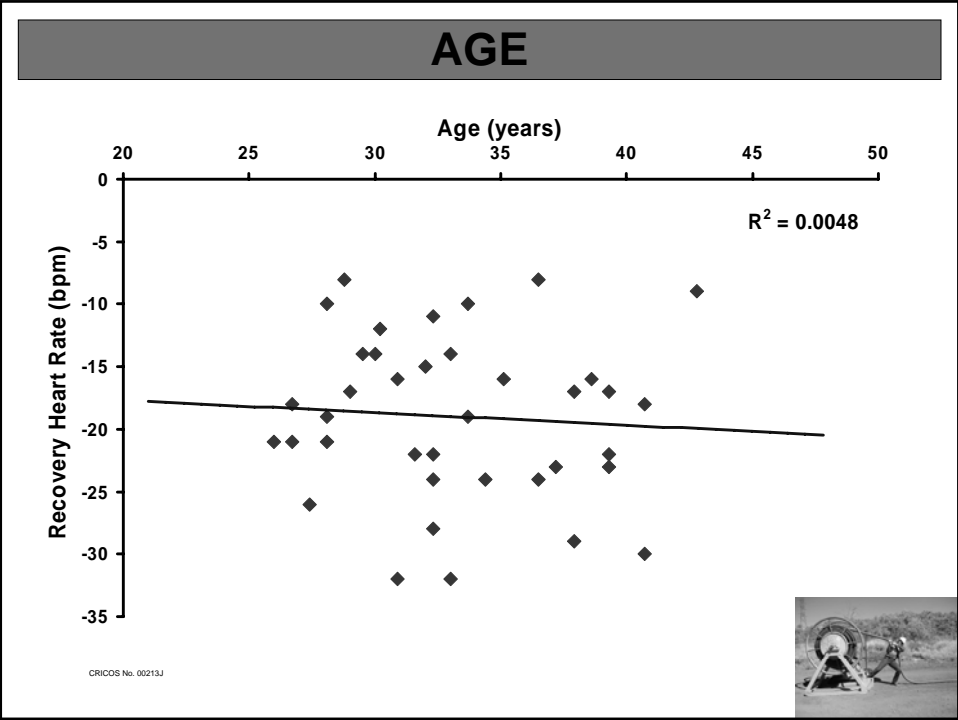


McArdle, Katch & Katch 2006



Cole et al, 1999





## SUMMARY

Recovery heart rate enables quantification of the intensity of the preceding work

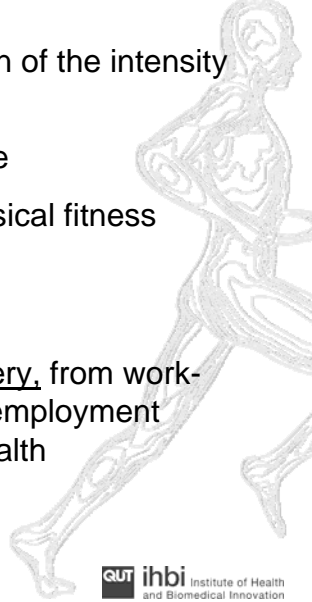
Recovery heart rate is independent of age

Recovery heart rate is dependent on physical fitness

Monitoring heart rate during and in recovery, from work-related tasks, is an important part of pre-employment screening in determining cardiovascular health

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