



# Why Monitor Physical Activity?

- PA participation - physical and psychological health benefits
- High levels of inactivity in Britain
- Need for physical activity promotion
- Need for valid epidemiological assessment tools



# Measurement Methods

- Objective
- Subjective





# Objective Measurement

- Doubly-Labelled Water
- Accelerometry/Pedometry
- Heart Rate Monitoring/Oxygen Consumption Testing
  
- Advantages
- Disadvantages





# Subjective Measurement

- Physical Activity Recall Questionnaires
- Physical Activity Log
  
- Advantages
- Disadvantages



# Development of the Scottish Physical Activity Questionnaire

- Developed from Stanford 7-day Recall Questionnaire by Loughlan & Mutrie (1995) and Lowther et al (1999)
- Measurement of leisure and occupational PA in minutes per week (moderate and vigorous PA)
- Includes SEBCS categorical scale
- Previous work - community sample

# Validating the SPAQ in Female Students

- Is the SPAQ valid for use in a female student population?
  - Selecting an objective method for validating the SPAQ

# Choice of Objective Measure

- HRM
  - piloting
  - strong positive association with energy expenditure during PA (Haskell et al, 1992)
  - comparable units (minutes)

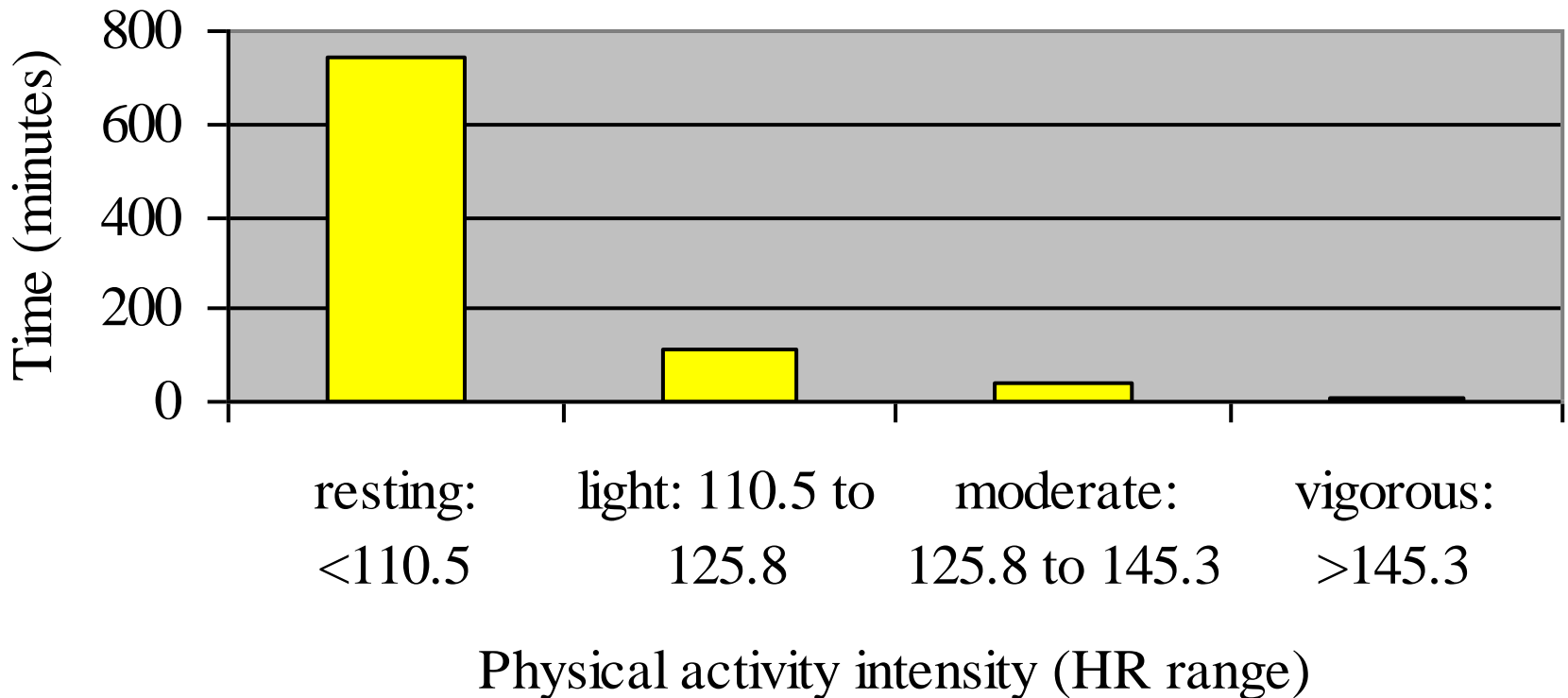


# Trial 1 - Method

- 24 subjects, female students
- Recordings of HR for 3 waking days
- Completion of SPAQ
- Calibration for HR at *light, moderate and vigorous* intensity activity

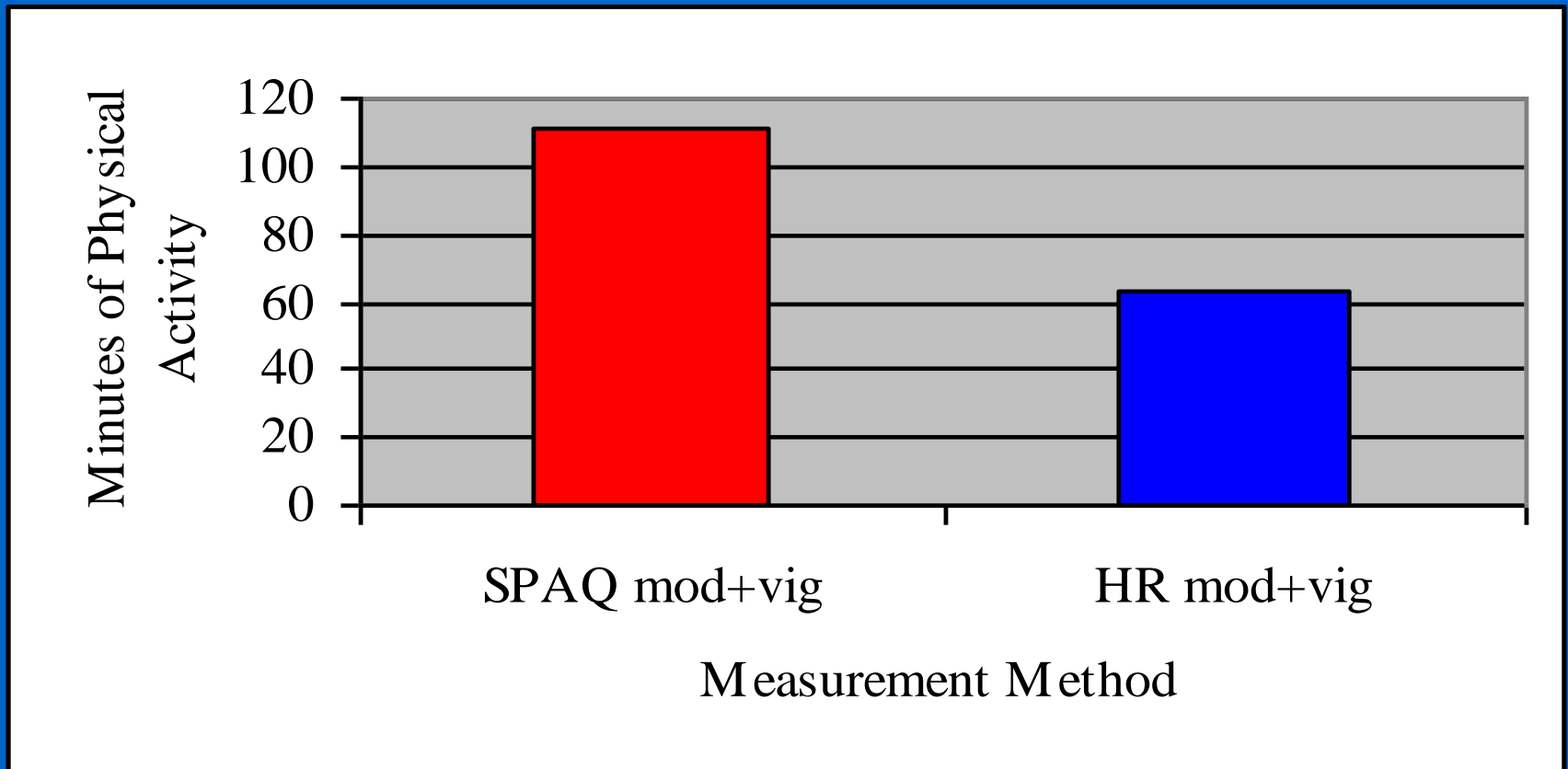
# Trial 1 - Analysis

- Histogram demonstrating time spent at different intensities of activity during one waking day



# Trial 1 - Results

- Histogram comparing the differences between means of 3 days of estimations of physical activity by the SPAQ and HRM



# Trial 1 - Results

- T test: 0.019  
( $t=-2.52$ ;  $df=23$ ; 95% CI= $-87.21$ ,  $-8.52$ )
- Cronbach's Alpha: 0.34
- Limits of Agreement Analysis: higher levels of PA appear to be associated with poorer agreement between methods (SPAQ>HRM)

# Trial 1 - Focus Groups

- 53% (16) of study participants
- ~ 50% completed the SPAQ for the previous complete week (Mon-Sun)
- Few utilised a strategy in calculating time spent in physical activity
- Most difficult category to complete: leisure walking, occupational activity
- Negative visual impact

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# Conclusions and SPAQ Modification

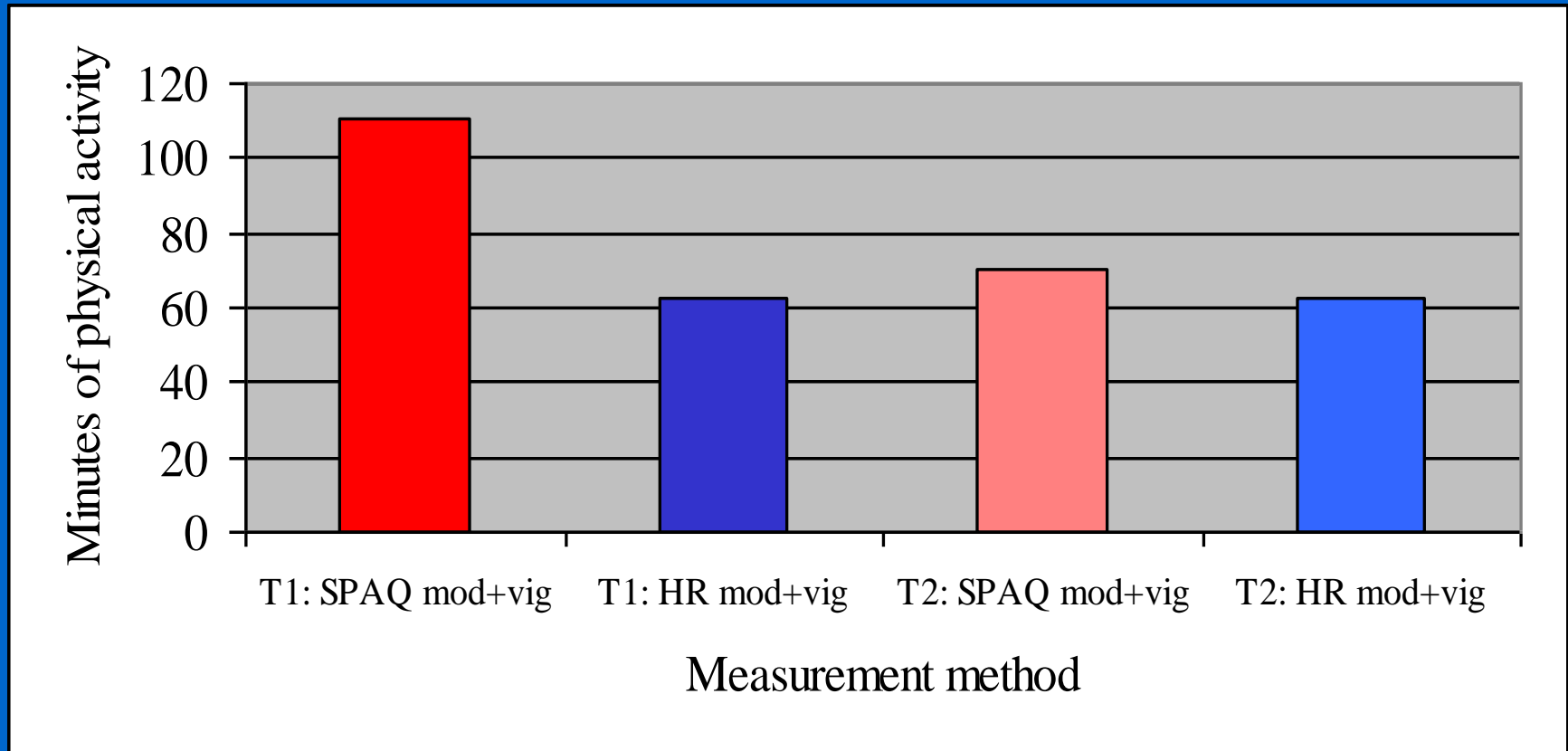
- Specific examples given
- Rearrangement of questions
- Graphic design

# Trial 2 - Method & Results

- Method:
  - Subjects - N=22; Protocol as before;
- Results:
  - T test: 0.526  
( $t=-0.64$ ;  $df=21$ ;  $CI=-31.89, 16.80$ )
  - Cronbach's Alpha: 0.58
  - Limits of Agreement Analysis: greater agreement between the measures; (95% limits of agreement: -114.24 to 129.12)

# Trials 1 & 2 - Comparison

- Histogram comparing the differences between mean estimations of physical activity by the SPAQ and HRM in Trials 1& 2







# Conclusions

- Improvement in agreement between subjective and objective data.
- SPAQ - a potentially useful tool for use in student population studies.
- Cautions: situation specific, subjects were motivated.
- Future work: reliability work; use in population studies.

