

# **Scarring a Generation of School Children through Poor Introduction of Information Technology in Schools**

Dr Leon Straker

Courtenay Harris

Dr David Zandvliet

# Outline

- Background to interest in issue
- Overview of past studies
- Update on current studies
- Aims
  - sharing of ideas
  - potential collaboration

# Background

- 1980s rapid increase in use of computers by adults in office workplaces:
  - Increased reports of psychosocial problems
  - Increased reports of visual discomfort
  - Increased reports of musculoskeletal disorders
  - Failure to achieve expected productivity gains

# Children and Computers

- late 1990s rapid increase in computer use by some school children
  - even more use planned
- Government schools - 1:5 ratio
- Private schools - 1:1 ratio
- Computer in 48% Australian households

# Potential Problem Emerging

- Analogous to adults in early 1980s
- Poorly managed computer use by school children could result in:
  - Reduced learning
  - Dissatisfaction with computers
  - Attitudinal aversion to computer use
  - Increased visual problems
  - Musculoskeletal disorders

# What do we know?

- Very limited knowledge base about children and computers
  - Educational literature extolling potential productivity (learning) gains
  - physical ergonomics studies suggesting repeating mistakes of 1980s
- Adult research suggests rapid increase in problems associated with computer use



# Initial studies - 1 Computing 'laboratory' classroom

- aims
  - describe IT rich classrooms in 1990s
  - explore physical and psychosocial factors
- 43 classrooms in Canada and Australia
- 1,404 students, teacher interviews
- physical workspace poorest rating factor
- some psychosocial and physical factors related





# Initial studies - 2 Laptop integrated classroom

- aims
  - describe exposure and outcomes
- 3 schools in Australia - mandatory laptops
- 314 students, www questionnaire
- 3.2 hours/day, 17 hours/week
- desk sitting only 1/3
- 60% discomfort (neck, low back)

# Current studies - epidemiological

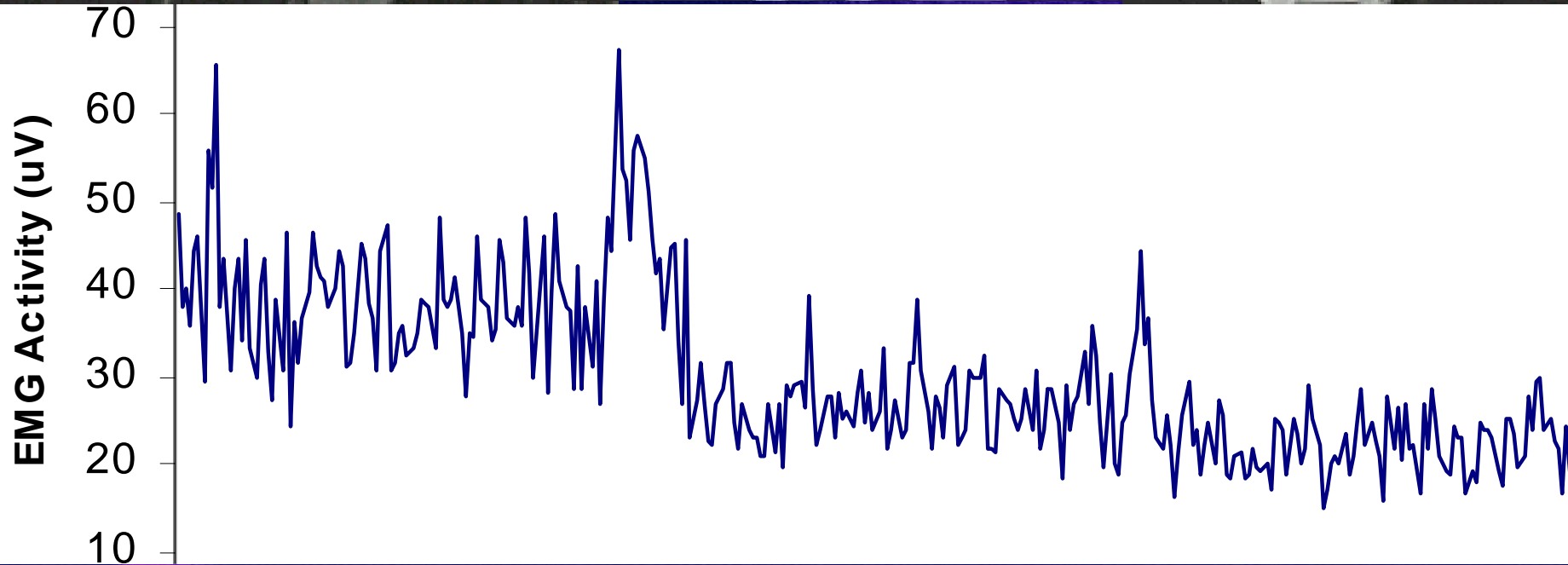
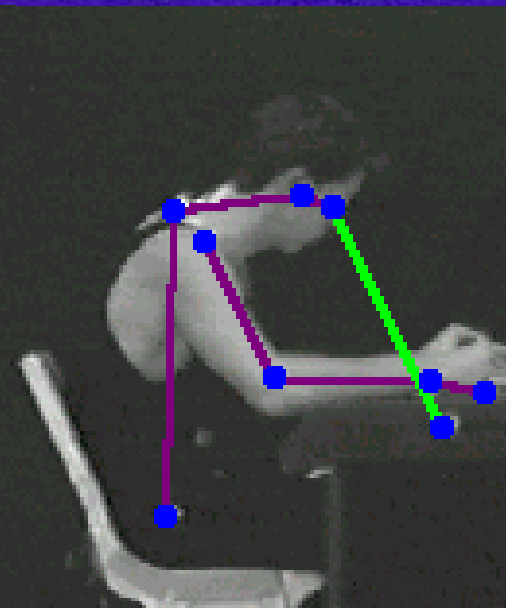
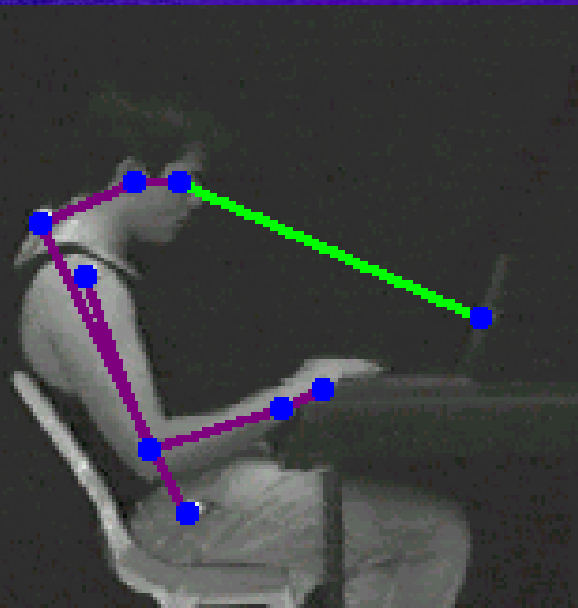
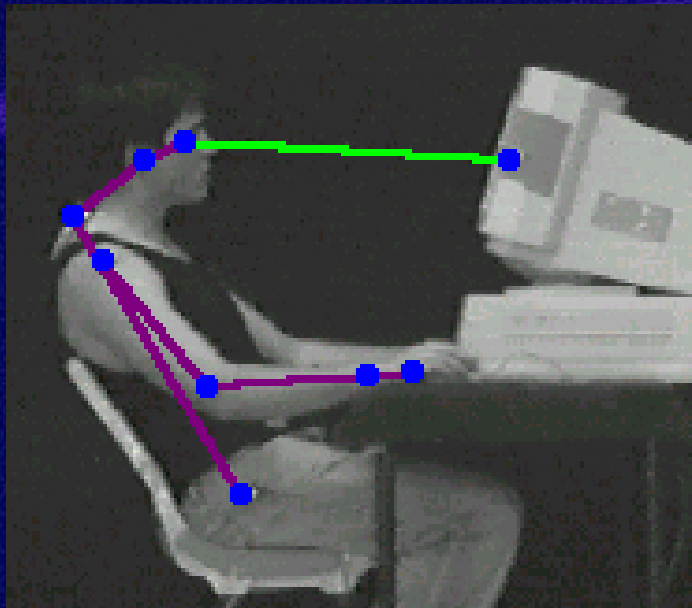
- RASCALS
- random sample 5% all WA births in 1995
- exposure - type, frequency and duration of IT use
- outcome - MS and visual discomforts
- socioeconomic factors

# Current studies - field

- School based for more detailed exposure and outcome assessment
- www based student questionnaire
- teacher questionnaire
- observations school and home
- majority in discomfort with IT tasks
- small minority in severe discomfort

# Current studies - laboratory

- Comparison of posture and EMG
  - old IT- new IT
  - laptop - desktop
  - standard - adjustable desk
- 5, 11 and 17 year olds (and adults)
- laptop compromise MS stress between book and desktop?



Desktop

Laptop

Book

# Summary

- rapid increase in use
- most significant change to children's tasks since books
- very limited knowledge
  - guidelines guesswork
- potential to scar a whole generation
- international collaboration

# Acknowledgments

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