

# ***Shape up for Life: A community based trial to manage obesity and improve metabolic and physical fitness***

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# the project...

## ■ why whyalla?

- UniSA (CRE) only rural university campus in SA
- representative population
- circumscribed, minimal external contamination
- high rates overweight/obesity
- SGRHS' past community activity (COAG, QUM, CDSM )



# the background...

- presently;
  - no long-term Australian RCTs
  - still no consensus on what is the best method for:
    - reduction in body fat/weight
    - metabolic syndrome mgt
  - few studies show **sustainable** improvement



# the difference...

- we test a lifestyle program involving
  - *ad-libitum* dietary intake (not energy-restricted) *combined with* achievable physical activity
  - change in body fat – not just weight
  - effectiveness and sustainability
    - ‘free-living’, real world environment
    - to be maintained by community



# the study aim...

- *to assess the efficacy and sustainability of a combined lifestyle program (dietary modification with moderate physical activity) to*
  - reduce **body fat**
  - improve **body shape**
  - increase **physical** and **metabolic fitness**
  - improve general **well-being** and **quality of life**
  - assess factors influencing **health behaviour**



# the method...

- design: 12-month **randomised controlled** parallel-group comparison
- participants: n~150 block-matched, randomly allocated to 1 of 3 groups

- **control group**

- (assessments only)

- **intervention group A**

- (intervention + monthly support)

- **intervention group B**

- (intervention only)

- structured 16-week lifestyle intervention program



# outcome measures...

## ■ body composition

- DEXA, BIA

## ■ anthropometry

- waist and hip circumference, BMI

## ■ biomarkers

- total cholesterol, HDL, LDL, triglycerides, fatty acid profile, glucose and insulin

## ■ cardiovascular fitness

- blood pressure, arterial compliance

## ■ physical fitness

- physical work capacity, handgrip strength

## ■ quality of life

- WHO-QoL



# other assessments...

## ■ dietary intake

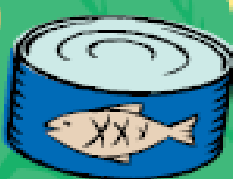
- food frequency questionnaire (Anti-Cancer Council Vic)
  - less intensive than WFR
  - tested for validity

## ■ energy expenditure

- 3-day phys. activity record (C.Bouchard et al 1983)
  - estimate of energy expenditure
  - tested for reliability and validity

## ■ factors influencing food choices and lifestyle changes (UTS)

- discrete choice experiment



# the criteria...



## ***inclusion***

- meet **IDF metabolic syndrome definition**; central obesity ( $\geq 90$  cm, females  $\geq 80$  cm) + *two of the following*, untreated
  - $\uparrow$  **BP** (systolic  $>130$ mmHg or diastolic  $>85$ mmHg)
  - $\uparrow$  **TG** (serum fasting  $>1.7$ mmol/L)
  - $\downarrow$  **HDL** (serum fasting  $<1.03$ mmol/L men,  $< 1.29$  women)
  - $\uparrow$  **FPG** (fasting plasma  $>5.6$ mmol/L)

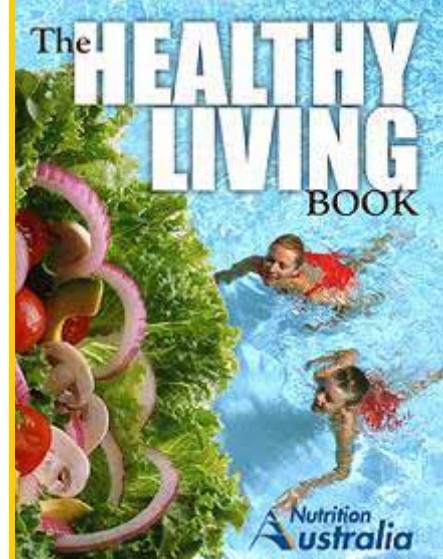
## ***exclusion***

- participation in weight loss programs or another clinical trial
- existing significant chronic conditions (diabetes/CVD), concomitant medications likely to interfere with participation or affect outcome measures (eg. anti-HT's, lipid-lowering)
- pregnancy, lactation or intention to fall pregnant



# the dietary advice...

- adopt Australian dietary guidelines
  - using AGHE
- encourage foods that are:
  - low saturated fat, rich in polyunsaturated FA (esp. omega-3)
  - low glycemic index, high in fibre
- improve diet **quality**, not restrict calories/kilojoules
  - monitor progress by FFQ



# the activity advice...

- aim to meet NPAG
- aerobic, flexibility and resistance
  - 1 x supervised session/week
  - 45min, 75% age-predicted max HR
  - progressive resistance
  - cardio/weights gym and rooms
- progress tracked in PA diary



# the way we do it...

- peer-group setting
- inspired by Stanford CDSM model – ‘LIFE’ course
  - uses ‘peer leaders’, peer support
  - action-planning, problem-solving
  - self management tools
  - cognitive symptom management
    - build self-efficacy, empowerment
    - aid health behaviour change



L.I.F.E.

*Living Improvements For Everyone*

*A Course in Chronic Disease  
Self-Management*

LEADERS MANUAL

LICENSED TO



*'In Our Hands'  
Health Information & Resource Centre*

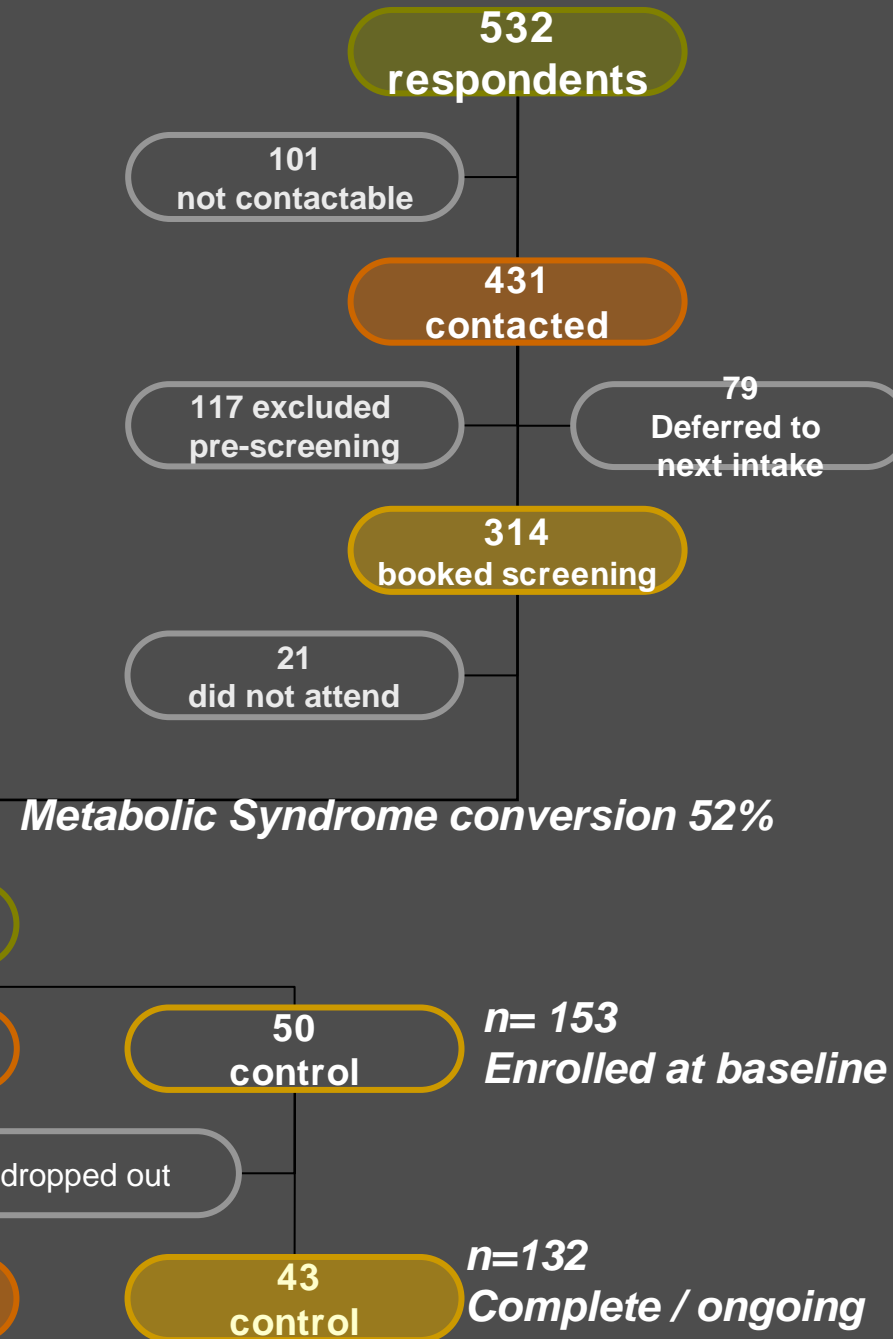


*Pika Wiya Health Service*



*Spencer Gulf Rural Health School*

# recruitment...



# the cohort...



- baseline characteristics (cohorts 1,2)

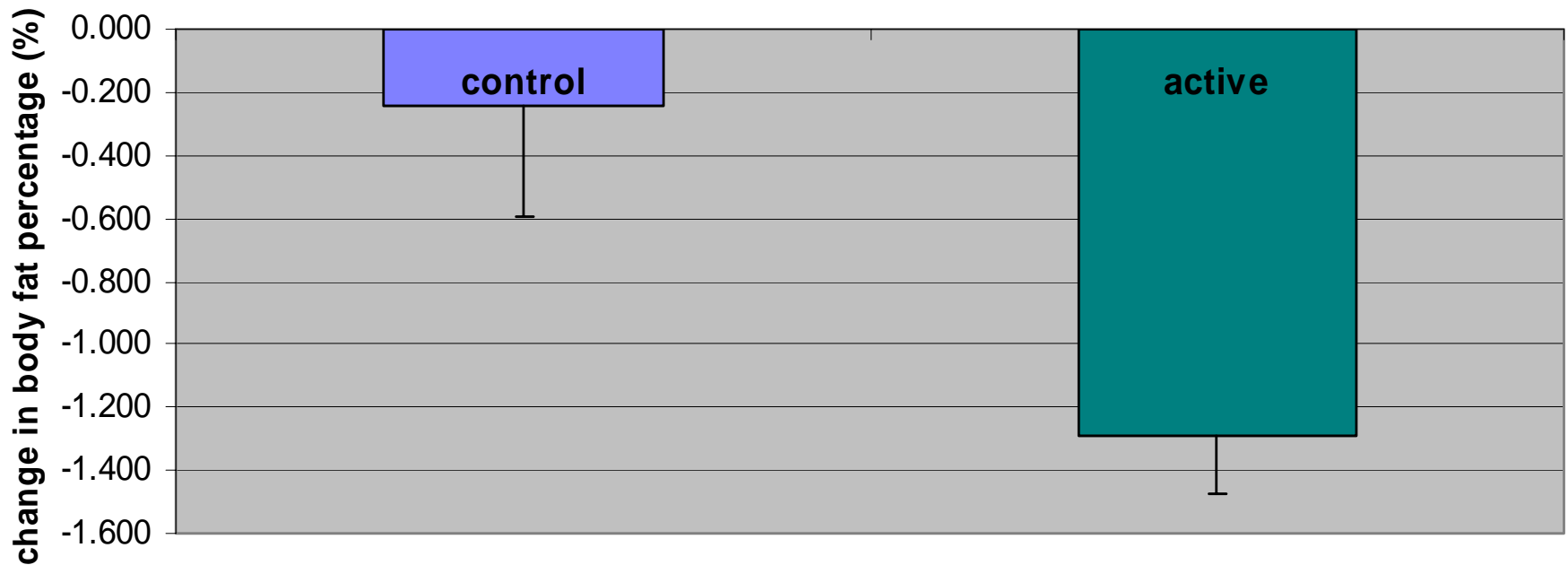
Variable	Lifestyle Intervention (n=97)	Control group (n=35)
Age	46.3 (23-72)	44.8 (25-58)
Gender (% female)	73.2%	68.6%
Waist circumference	115.8 cm ( $\pm$ 12.1)	117.1 cm ( $\pm$ 14.4)
Body Mass Index	36.8 ( $\pm$ 6.4)	37.2 ( $\pm$ 6.3)
Body fat percentage	46.7 % ( $\pm$ 7.7)	45.5 % ( $\pm$ 7.9)
Diastolic blood pressure	75.0 mmHg ( $\pm$ 8.7)	71.8 mmHg ( $\pm$ 7.8)
Fasting Triglycerides	2.0 mmol/L ( $\pm$ 1.1)	1.7 mmol/L ( $\pm$ 0.6)
High-Density Lipoprotein	1.2 mmol/L ( $\pm$ 0.3)	1.1 mmol/L ( $\pm$ 0.2)
Fasting plasma Glucose	5.8 mmol/L ( $\pm$ 0.7)	5.7 mmol/L ( $\pm$ 0.6)

# the results...



- total body fat percentage (%)

change in percent body fat (DEXA), 0-4 months

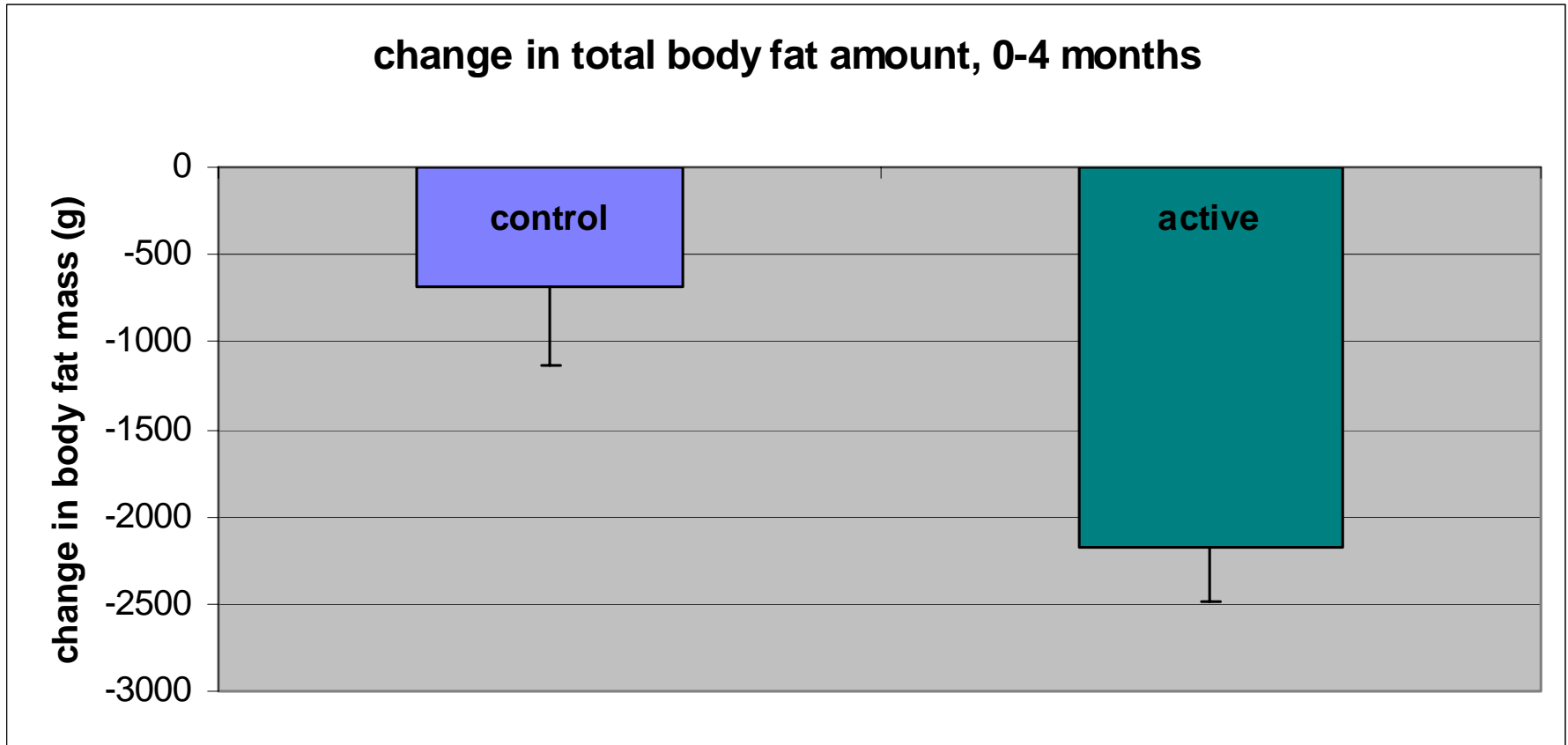


$p = 0.008$

# the results...



- total body fat mass (g)

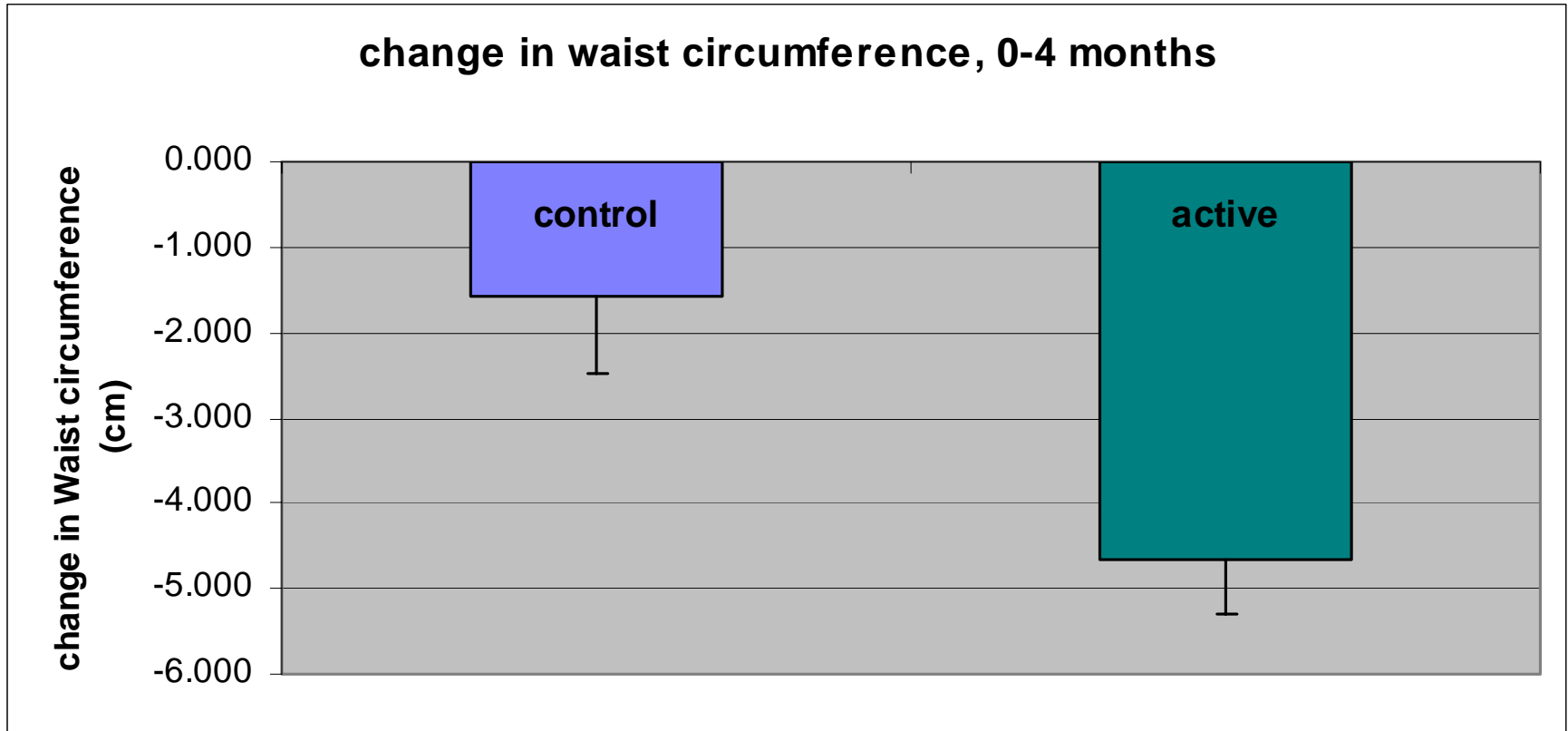


$p = 0.016$ .

# the results...



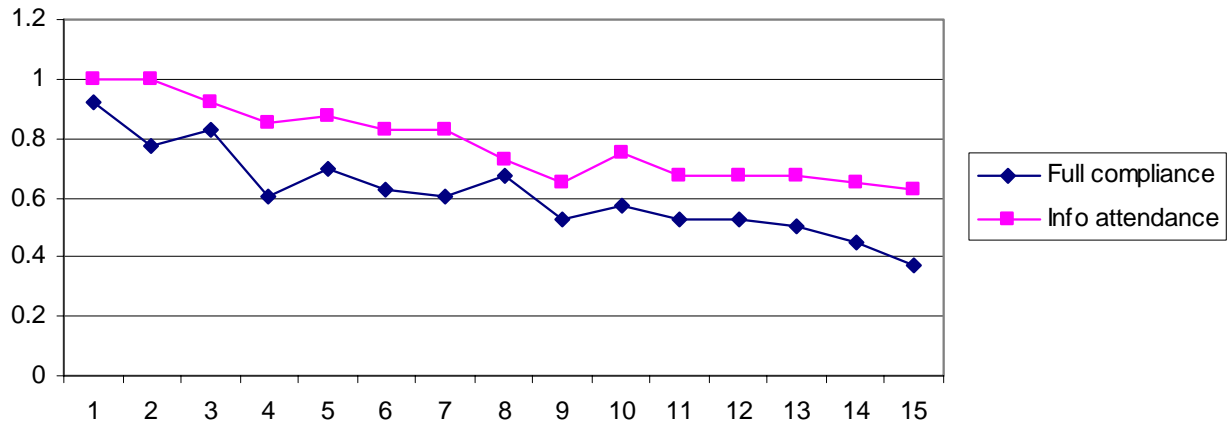
- waist circumference (cm)



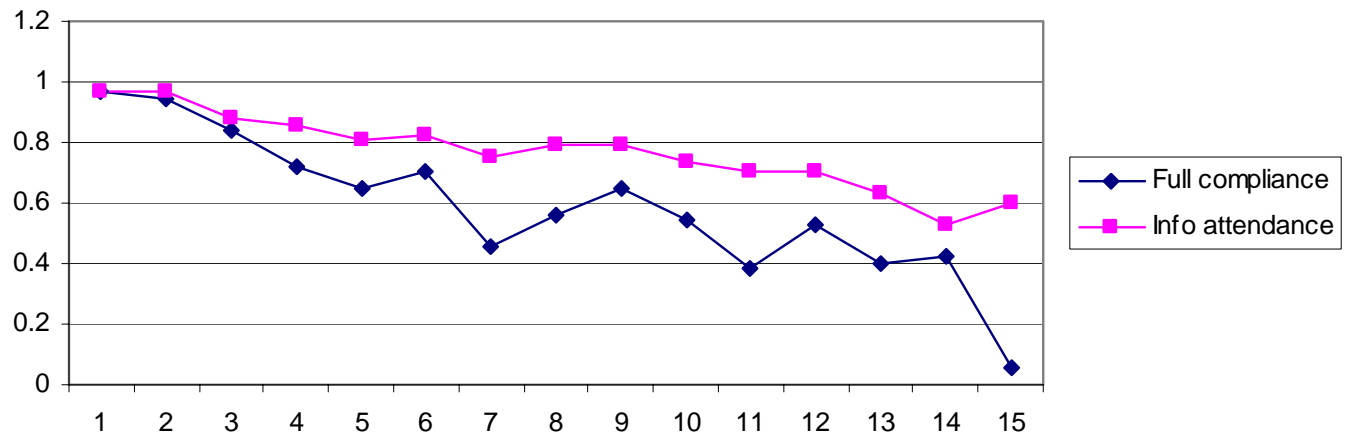
$p = 0.016$

# intervention compliance...

Cohort 1 intervention compliance



Cohort 2 intervention compliance



# summary...

- preliminary data show:
  - significant reductions in intervention group
    - body fat, waist, weight, BMI
    - systolic blood pressure
  - significant improvement in intervention group
    - physical work capacity (aerobic fitness)
  - no significant changes in lean tissue
- sustainability currently being assessed
  - data collection will be complete May 2008



# *thankyou*

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- Acknowledgements
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    - My PhD supervisors
    - ATN centre for Metabolic Fitness
    - Spencer Gulf Rural Health School
    - Nutrition and Physiology Research Centre

**“Eat less and exercise more? That’s the most ridiculous fad diet I’ve heard of yet!”**