

# Reduction of psychological distress and obesity by increasing physical activity; The ‘Farming Fit’ study



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## Active farmers?

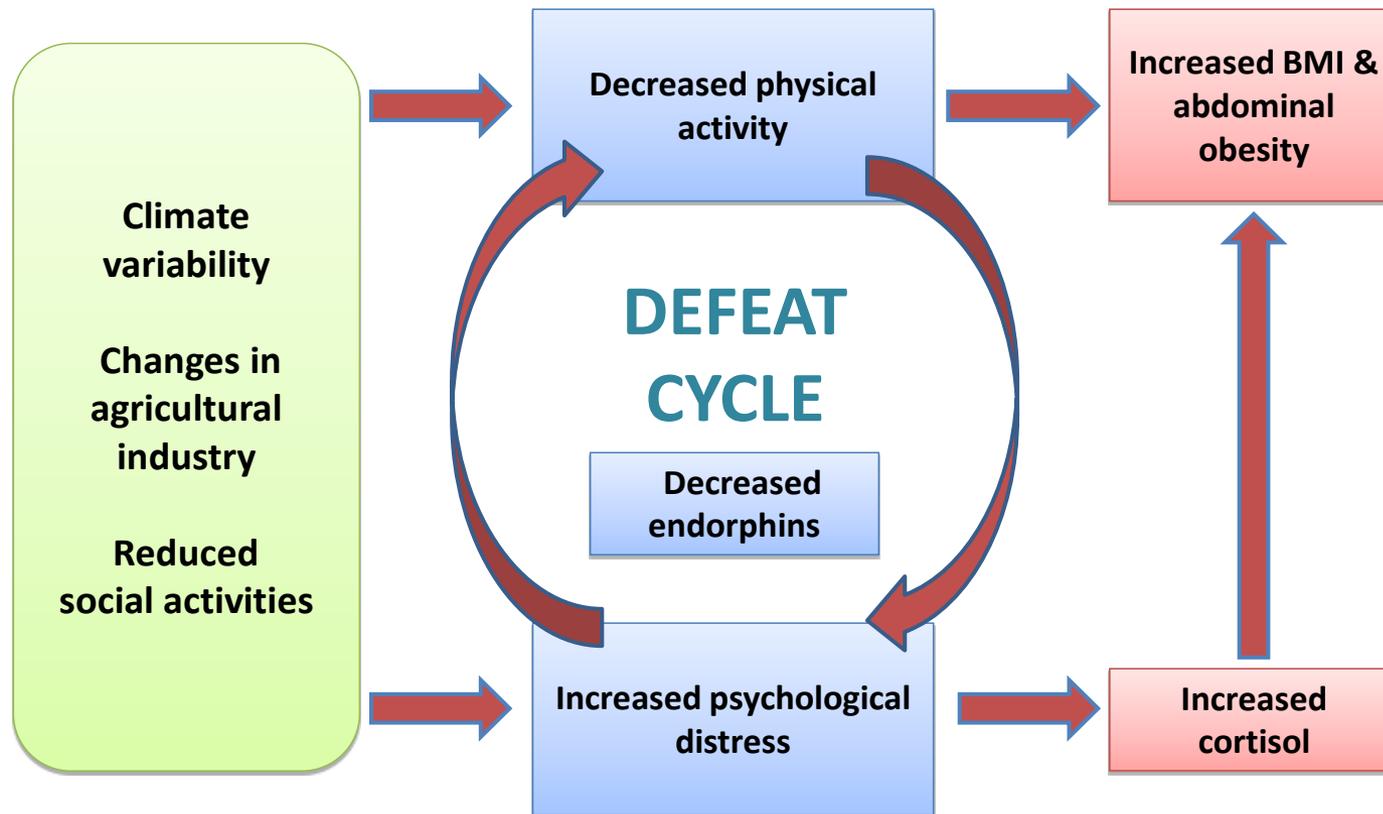
Farmers are no longer as active as they used to be due to

- increased mechanisation & decreased physical work in farming,
- decreased local recreational activities (sports),
- decreasing social opportunities,
- isolation
- ageing
- and climate variability.

# Hypothesis

Decrease in physical activity has negatively impacted mental health led to increased prevalence of overweight and obesity in Australian farming population

# Farming Fit Hypothesis



**Ref:** Brumby, S., A. Chandrasekara, S. McCoombe, P. Kremer and P. Lewandowski (2011).  
"Farming fit? Dispelling the Australian agrarian myth." BMC Research Notes 4(1): 89.

## Aims of the study

Identify the effect that increased physical activity had on biochemical health indicators including circulating cortisol levels, anthropometric measurements and psychological distress

## Quasi-experimental controlled intervention study

### Subjects

- Farm men and women participating in the Sustainable Farm Families programs
- 18-75 years
- BMI  $\geq$  25 kg/m<sup>2</sup>

### Exclusion criteria

- Chronic terminal illness
- Pregnant or lactating

1. Participants were pre-assigned to intervention and control groups.
2. Data were collected at three occasions during the 6 months period of study.
3. Intervention group was given an exercise program devised with the supervision of exercise physiologist with ongoing support through phone coaching by the research assistant.

Ref: Brumby, S., A. Chandrasekara, S. McCoombe, S. Torres, P. Kremer and P. Lewandowski (2011). "Reducing psychological distress and obesity in Australian farmers by promoting physical activity." BMC Public Health 11 (1): 362.

<b>Baseline</b>	<b>3 Month</b>	<b>6 Month</b>
Physical Assessment	Salivary tests	Physical Assessment
Anthropometric	N/A	Anthropometric
Blood tests	N/A	Blood tests
Salivary tests	N/A	Salivary tests
Questionnaires	Questionnaires	Questionnaires

## **Physical assessment**

- BP
- Body fat percentage

## **Questionnaires**

- Physical Activity
- DASS 21

## **Anthropometry**

- Height, weight,
- Waist/hip circumference

## **Biochemical**

- Venous blood for glucose, cortisol, total cholesterol, triglycerides, HDL and LDL
- Salivary cortisol tests done at four times during the day (9am, 12 noon, 4pm and 8pm) and then posted back to the laboratory

# Salivary cortisol



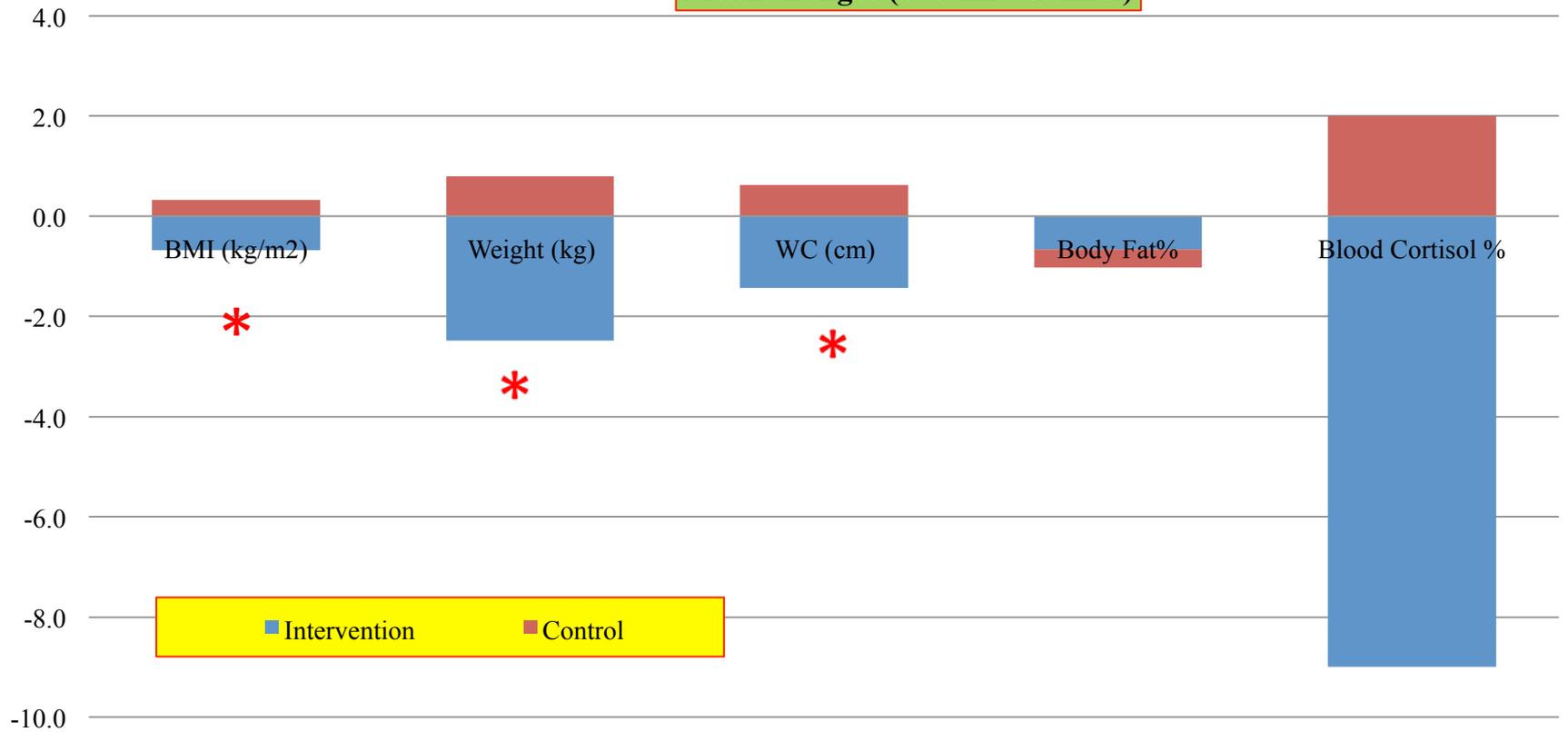
- Total of 68 (34 control, 34 intervention) completed study.
- Significant post-intervention reductions detected for body weight, BMI, waist circumference, serum triglycerides and systolic/diastolic blood pressure intervention group.
- No such reductions were observed within the control group.

Among the intervention group, positive (more healthy) trends were observed including reduction of salivary cortisol, serum cortisol, total DASS score and increases of physical activity.

These trends of improvement were only in the intervention group however, they were not statistically significant.

# Results

## Study group comparison Mean changes (baseline & final)



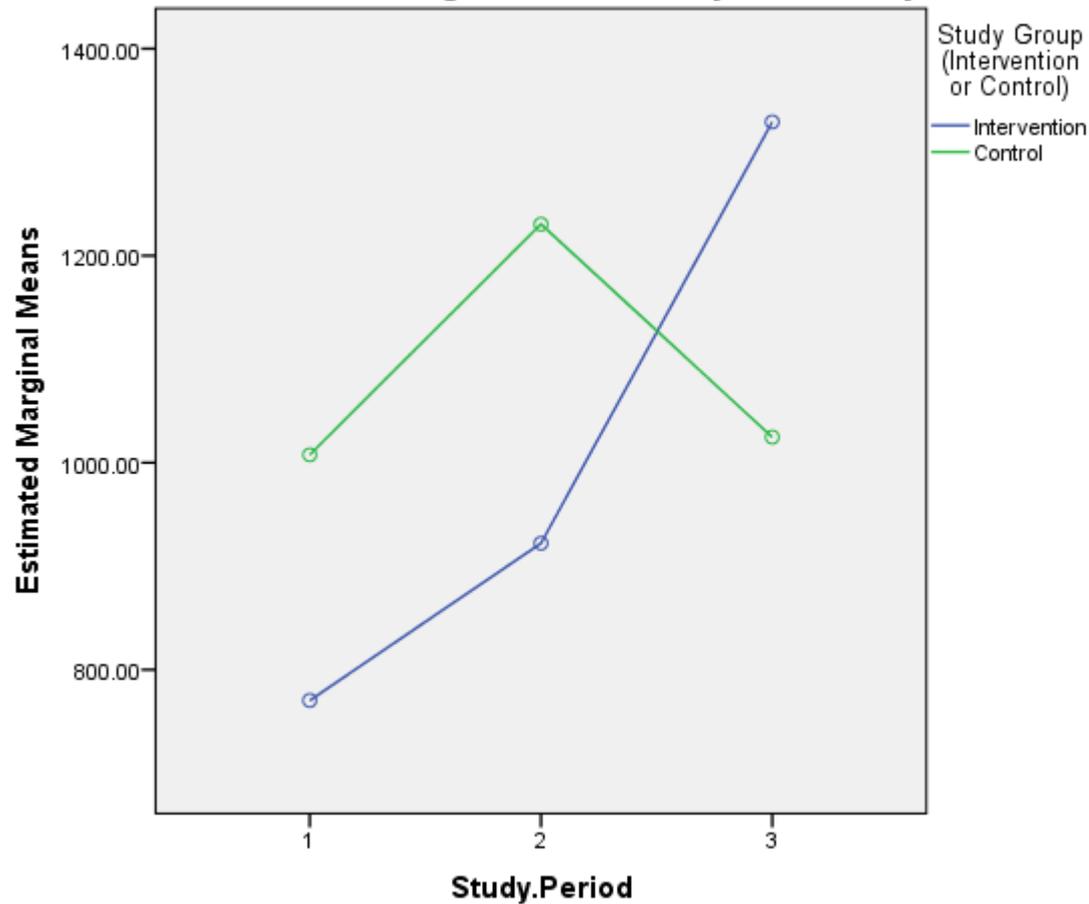
**Intervention group**

**Control group**

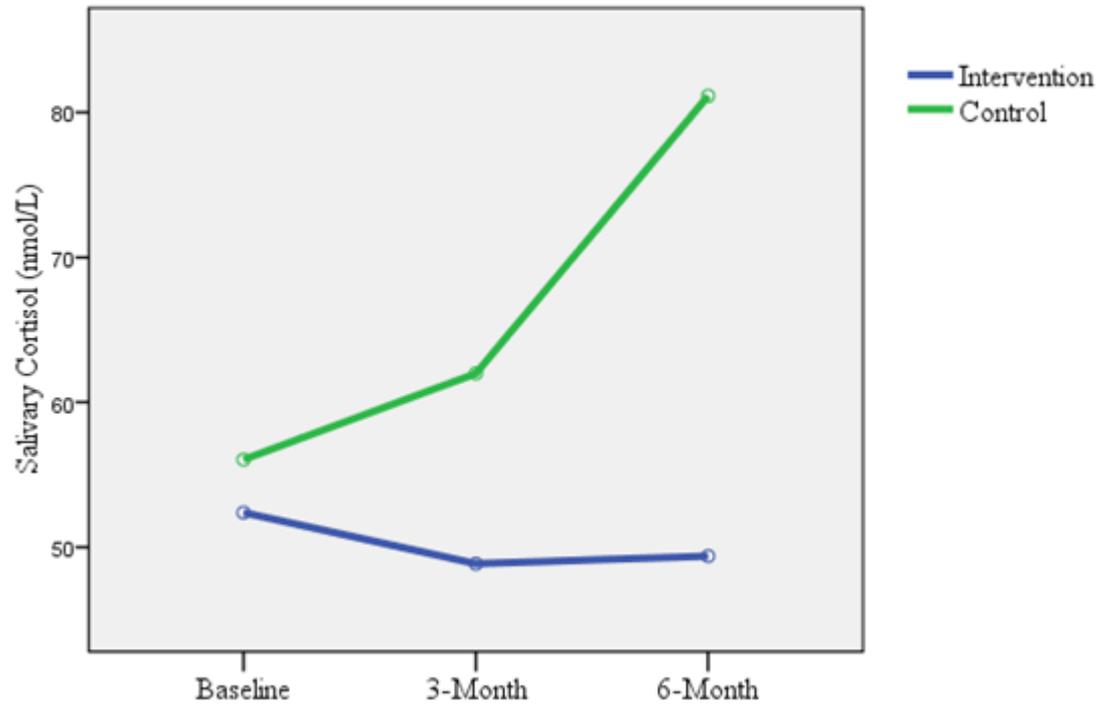
	<b>Baseline (SD)</b>	<b>final (SD)</b>	<b>P</b>	<b>Baseline (SD)</b>	<b>Final (SD)</b>	<b>P</b>
<b>Weight (kg)</b>	94.90 (14.83)	92.84 (14.03)	<0.001*	90.22 (12.35)	91.03 (12.39)	0.566
<b>Body Mass Index</b>	32.19 (3.39)	31.51 (3.32)	<0.001*	30.56 (3.66)	30.87 (3.90)	0.048
<b>Waist circumference (cm)</b>	102.56 (10.58)	101.12 (9.86)	0.05*	101.72 (9.90)	102.35 (10.34)	0.395
<b>Body fat %</b>	35.47 (7.29)	34.82 (7.31)	0.279	33.57 (7.78)	33.21 9.65	0.772
<b>Total cholesterol (mmol/L)</b>	5.58 (1.00)	5.39 (0.89)	0.261	6.02 (0.93)	5.61 (0.95)	0.084
<b>Triglyceride (mmol/ L)</b>	1.49 (0.50)	1.271 (0.54)	0.015*	1.62 (0.64)	1.49 (0.67)	0.233
<b>HDL Cholesterol (mmol/L)</b>	1.47 (0.34)	1.42 (0.32)	0.180	1.47 0.36	1.42 (0.31)	0.08
<b>LDL cholesterol (mmol/L)</b>	3.42 (0.93)	3.36 (0.80)	0.717	3.80 0.80	3.50 (0.83)	0.134
<b>Blood Cortisol (nmol/ L)</b>	409.5 (120.97)	373.68 (131.12)	0.180	370.88 (110.24)	377.68 (120.67)	0.712

# Physical Activity

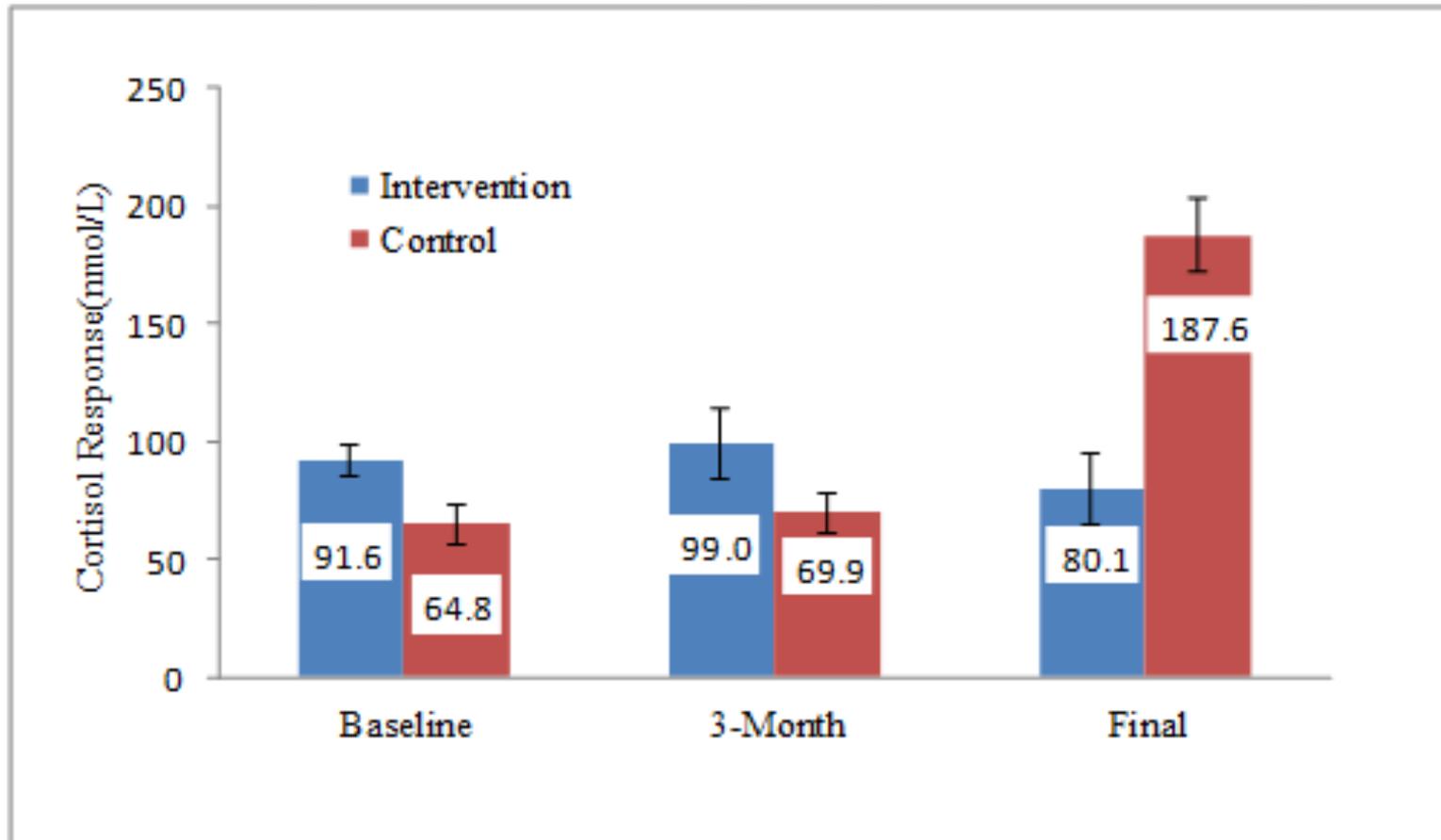
Estimated Marginal Means of Physical.Activity.Time



# Salivary Cortisol



# Incremental area under the curve (AUC) (mean $\pm$ se) of salivary cortisol



# Conclusion

- Increasing physical activity positively influence both the physical and mental health of farm men and women
- Further intervention research on well-structured randomly selected samples are required to help close the gap in physical and mental health experienced by the agricultural communities.

# Farming Fit Video



<http://www.farmerhealth.org.au>

[http://www.youtube.com/watch?v=vOUt19aV5QE&feature=player\\_detailpage](http://www.youtube.com/watch?v=vOUt19aV5QE&feature=player_detailpage)

# Acknowledgment

Authors acknowledged the support of all farm men and women who participated in this project, the NCFH teams, vitality rehab and **beyondblue** for research funding

