

# The role of exercise in treatment of women with Polycystic Ovary Syndrome (PCOS): mechanisms of action

<b>Submission date</b> 22/12/2008	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 23/01/2009	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 28/08/2012	<b>Condition category</b> Nutritional, Metabolic, Endocrine	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

**Plain English summary of protocol**  
Not provided at time of registration

## Contact information

**Type(s)**  
Scientific

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## Additional identifiers

## Study information

**Scientific Title**

A prospective cohort study examining the effect of 12 weeks of intensive endurance exercise on insulin sensitivity and muscle insulin signalling in overweight women with or without polycystic ovary syndrome (PCOS)

### **Acronym**

PCOS

### **Study objectives**

Women with polycystic ovary syndrome (PCOS) have both intrinsic insulin resistance and extrinsic obesity-related insulin resistance mediated via different mechanisms. Exercise is an effective intervention decreasing central adiposity reducing extrinsic insulin resistance and improving symptoms.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Received from the Southern Health Human Ethics Committee in March 2005

### **Primary study design**

Interventional

### **Study design**

Prospective cohort non-randomised un-blinded controlled trial

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Polycystic ovary syndrome

### **Interventions**

Both PCOS and non-PCOS women underwent the same study protocol. From baseline, participants in the two groups undertook a 12 week programme of supervised intensified endurance exercise (1 hr/day; 3 x per week). Two different exercise sessions alternated, performing 1 hour of moderate intensity treadmill walking to elicit work rates of 70% of maximal oxygen consumption (VO<sub>2</sub>max) or 75 - 85% of maximal heart rate (HRmax). These were adjusted as fitness improved. Alternate sessions involve high intensity exercise with intermittent walking up an incline with 6 - 8 repetitions (5 minutes walking, 2 minutes recoveries) targeting 90 - 100% VO<sub>2</sub>max or 95 - 100% HRmax. Participants progress to 8 repetitions by the 4th week, with 1 minute of recovery. After 12 weeks of exercise all baseline measurements were repeated.

### **Intervention Type**

Other

### **Phase**

Not Applicable

### **Primary outcome(s)**

Effects on insulin resistance, measured at baseline and after 12 weeks of exercise.

**Key secondary outcome(s)**

1. Clinical symptom improvement
2. Insulin signalling
3. Mitochondrial function

Measured at baseline and after 12 weeks of exercise.

**Completion date**

01/03/2008

**Eligibility****Key inclusion criteria**

1. Overweight women (body mass index [BMI] greater than 27 kg/m<sup>2</sup>)
2. Aged 18 - 40 years with PCOS and without
3. Diagnosed from a history of perimenarchal onset of irregular cycles (less than 21 days or greater than 35 days)
4. Clinical manifestations of hyperandrogenism (hirsutism, acne) or biochemical hyperandrogenism with elevation of at least one circulating ovarian androgen (1990 National Institute of Health [NIH] criteria)

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Lower age limit**

18 Years

**Upper age limit**

40 Years

**Sex**

Female

**Key exclusion criteria**

1. BMI less than 27 kg/m<sup>2</sup>
2. Other concurrent medical conditions
3. Ongoing use of the oral contraceptive pill (OCP)
4. Pregnancy or desire for pregnancy
5. Secondary causes of amenorrhoea and hyperandrogenism

**Date of first enrolment**

01/03/2005

**Date of final enrolment**

01/03/2008

## Locations

**Countries of recruitment**

Australia

**Study participating centre**

**SHPM, Monash Institute of Health Services Research**

Melbourne

Australia

3168

## Sponsor information

**Organisation**

Southern Health (Australia)

## Funder(s)

**Funder type**

University/education

**Funder Name**

Monash University (Australia) - New Investigator Award 2005

## Results and Publications

**Individual participant data (IPD) sharing plan****IPD sharing plan summary**

Not provided at time of registration

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/05/2012		Yes	No
<a href="#">Study website</a>	Study website	11/11/2025	11/11/2025	No	Yes

