

# LET'S GET PHYSICAL: THE ROLE OF EXERCISE IN PROSTATE CANCER MANAGEMENT



**Prue Cormie, PhD, AEP**

Senior Research Fellow, Edith Cowan University Health and Wellness Institute  
[p.cormie@ecu.edu.au](mailto:p.cormie@ecu.edu.au)

# EXERCISE & SURVIVAL

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ORIGINAL REPORT

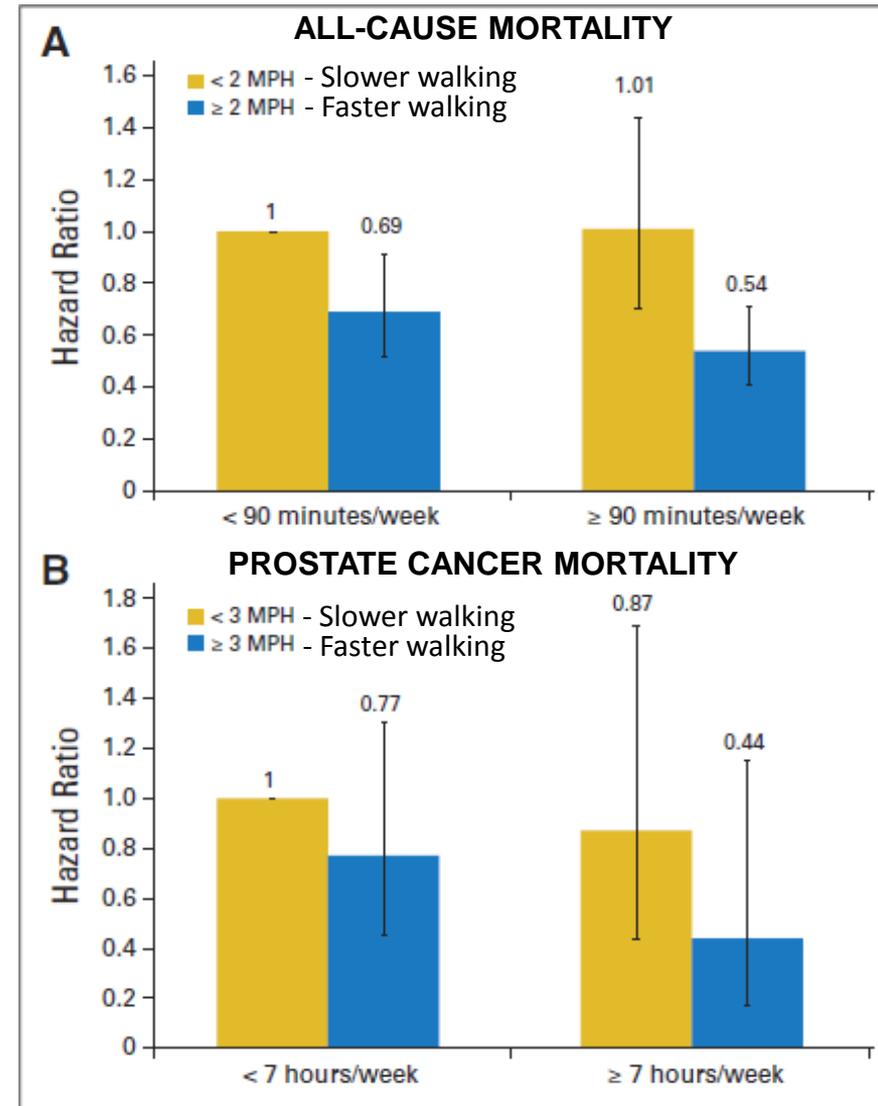
## Physical Activity and Survival After Prostate Cancer Diagnosis in the Health Professionals Follow-Up Study

Stacey A. Kenfield, Meir J. Stampfer, Edward Giovannucci, and June M. Chan

≥ 3 hours per week of **vigorous** activity after PCa diagnosis:

- 49% lower risk of all-cause mortality ( $p < 0.001$ )
  - HR 0.51; 95% CI 0.36- 0.72
- 61% lower risk of prostate cancer mortality ( $p = 0.030$ )
  - HR 0.39; 95% CI 0.18 - 0.84

Kenfield et al. J Clinical Oncology 2011



# TARGETED EXERCISE PRESCRIPTION

- Specific exercise prescription dictates the type and magnitude of physiological adaptations

## Aerobic Exercise



## Resistance Exercise



- The most significant benefits arise from targeted exercise prescription (individualised; monitored; appropriate exercise selection, volume & intensity; progressive)

# EXERCISE TO PREVENT ADT TOXICITY

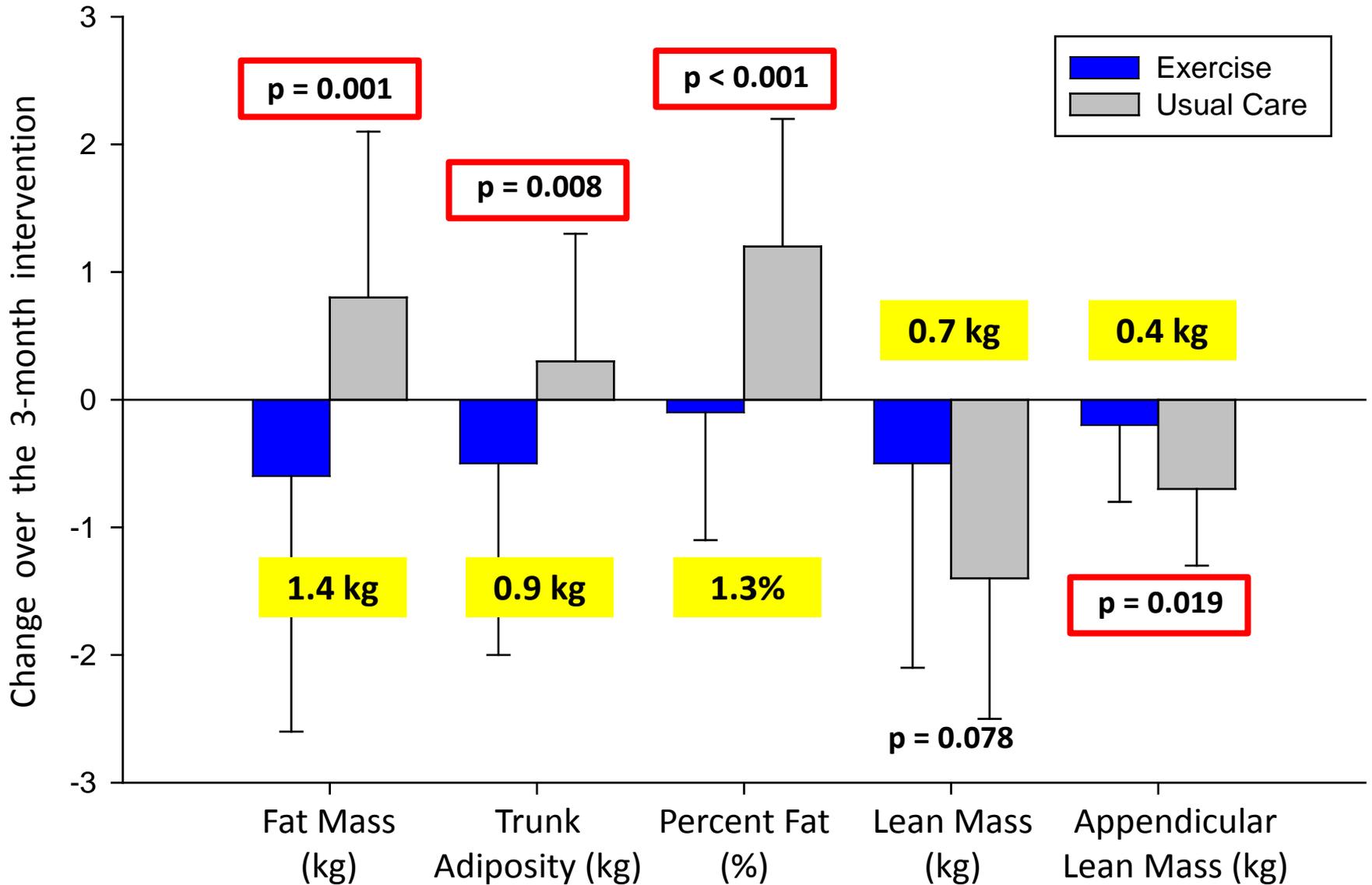
**Can supervised exercise prevent treatment toxicity in patients with prostate cancer initiating androgen-deprivation therapy: a randomised controlled trial**

Prue Cormie\*, Daniel A. Galvão\*, Nigel Spry\*<sup>†‡§</sup>, David Joseph\*<sup>†‡</sup>, Raphael Chee<sup>‡§</sup>, Dennis R. Taaffe\*<sup>¶</sup>, Suzanne K. Chambers\*<sup>·\*\*††‡‡</sup> and Robert U. Newton\*

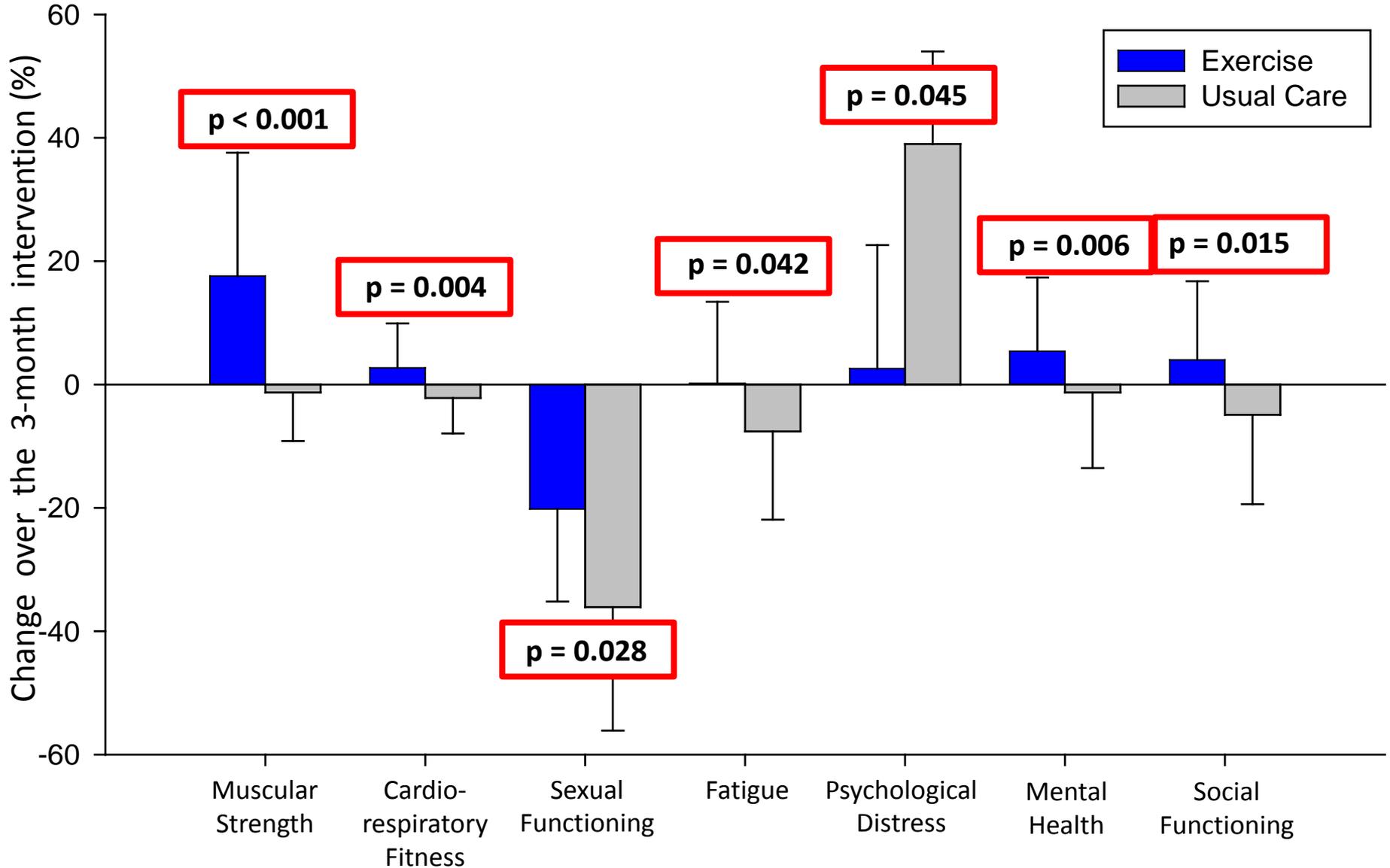
**BJUI**  
BJU International

<b>Treatment</b>	Initiating ADT (previously: 29% RT, 21% PT) 6 days between 1 <sup>st</sup> ADT injection & baseline test
<b>Design</b>	RCT (Exercise vs. Usual Care)
<b>Sample</b>	63 men (age = 68.4 ± 7.1 years)
<b>Intervention</b>	3 months; group-based; AEP supervised
<b>Protocol</b>	Resistance & aerobic exercise (2 x weekly)
<b>Primary endpoint</b>	Body composition (fat & lean mass)

# EXERCISE TO PREVENT ADT TOXICITY



# EXERCISE TO PREVENT ADT TOXICITY



# PREVENTING ADT TOXICITY – CURRENT TRIAL

Newton et al. *BMC Cancer* 2012, **12**:432  
<http://www.biomedcentral.com/1471-2407/12/432>



**STUDY PROTOCOL**

**Open Access**

Can exercise ameliorate treatment toxicity during the initial phase of testosterone deprivation in prostate cancer patients? Is this more effective than delayed rehabilitation?

Robert U Newton<sup>1\*</sup>, Dennis R Taaffe<sup>1,2,3</sup>, Nigel Spry<sup>1,4,5</sup>, Prue Cormie<sup>1</sup>, Suzanne K Chambers<sup>1,6</sup>, Robert A Gardiner<sup>1,7</sup>, David HK Shum<sup>6</sup>, David Joseph<sup>1,4,5</sup> and Daniel A Galvão<sup>1</sup>



**Australian Government**  
**Cancer Australia**

# PREVENTING ADT TOXICITY – CURRENT TRIAL



# EXERCISE & SEXUAL WELLBEING

## OPINION

### Exercise therapy for sexual dysfunction after prostate cancer

Prue Cormie, Robert U. Newton, Dennis R. Taaffe, Nigel Spry and Daniel A. Galvão

nature  
REVIEWS UROLOGY

#### PROSTATE CANCER TREATMENT

- Erectile dysfunction
- Loss of libido
- Penile shortening
- Altered orgasm experience
- Reduced/absent ejaculation
- Testicular atrophy
- Urinary & bowel issues
- ↑ Risk of comorbid conditions (CVD, diabetes, obesity)
- Depression and anxiety
- Body feminization (↓ muscle mass, female pattern weight gain, hot flashes, gynecomastia, ↓ body hair)
- Fatigue
- ↓ Physical fitness
- ↓ Physical activity levels
- ↓ Masculine self-esteem
- ↓ Quality of life
- Emotional lability
- Altered intimate relationship

#### SEXUAL DYSFUNCTION

# EXERCISE & SEXUAL WELLBEING

## OPINION

### Exercise therapy for sexual dysfunction after prostate cancer

Prue Cormie, Robert U. Newton, Dennis R. Taaffe, Nigel Spry and Daniel A. Galvão

nature  
REVIEWS UROLOGY

#### EXERCISE

- Positive body composition changes (↑ muscle mass and ↓ fat mass)
- ↓ Fatigue
- ↓ Risk of co-morbid conditions (CVD, diabetes, obesity)
- ↓ Depression and anxiety
- ↑ Physical fitness (muscle strength, aerobic capacity, function)
- ↑ Physical activity level
- ↑ Masculine self-esteem
- ↑ Quality of life

#### IMPROVED SEXUAL HEALTH

# EXERCISE & SEXUAL WELLBEING

## Prostate Cancer

and Prostatic Diseases

### ORIGINAL ARTICLE

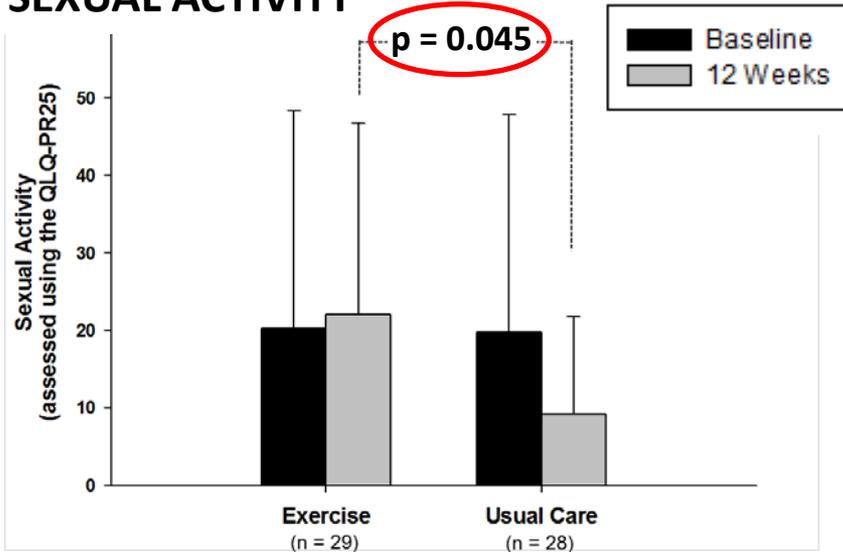
Exercise maintains sexual activity in men undergoing androgen suppression for prostate cancer: a randomized controlled trial

P Cormie<sup>1</sup>, RU Newton<sup>1,2</sup>, DR Taaffe<sup>1,3</sup>, N Spry<sup>1,4,5</sup>, D Joseph<sup>1,4,6</sup>, M Akhlil Hamid<sup>7</sup> and DA Galvão<sup>1</sup>

<b>Treatment</b>	ADT (previously: 37% radiation, 40% surgery)
<b>Design</b>	RCT (Exercise vs. Usual Care)
<b>Sample</b>	57 (age = 69.5 ± 7.3 years)
<b>Intervention</b>	3 months; group-based; AEP supervised
<b>Protocol</b>	Resistance & aerobic exercise (2 x weekly)
<b>Primary endpoint</b>	Sexual activity (EORTC QLQ-PR25)

# EXERCISE & SEXUAL WELLBEING

## SEXUAL ACTIVITY

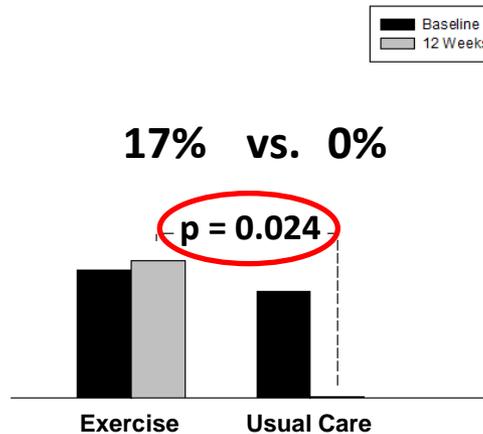
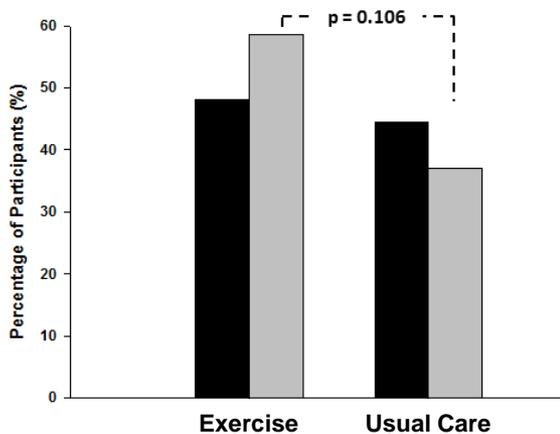


- Exercise maintained sexual activity
- Driven by changes in libido
- Related to change in quality of life ( $p \leq 0.030$ )

## LIBIDO

(a) Any Interest in Sex

(b) Major Interest in Sex



# EXERCISE & SEXUAL WELLBEING

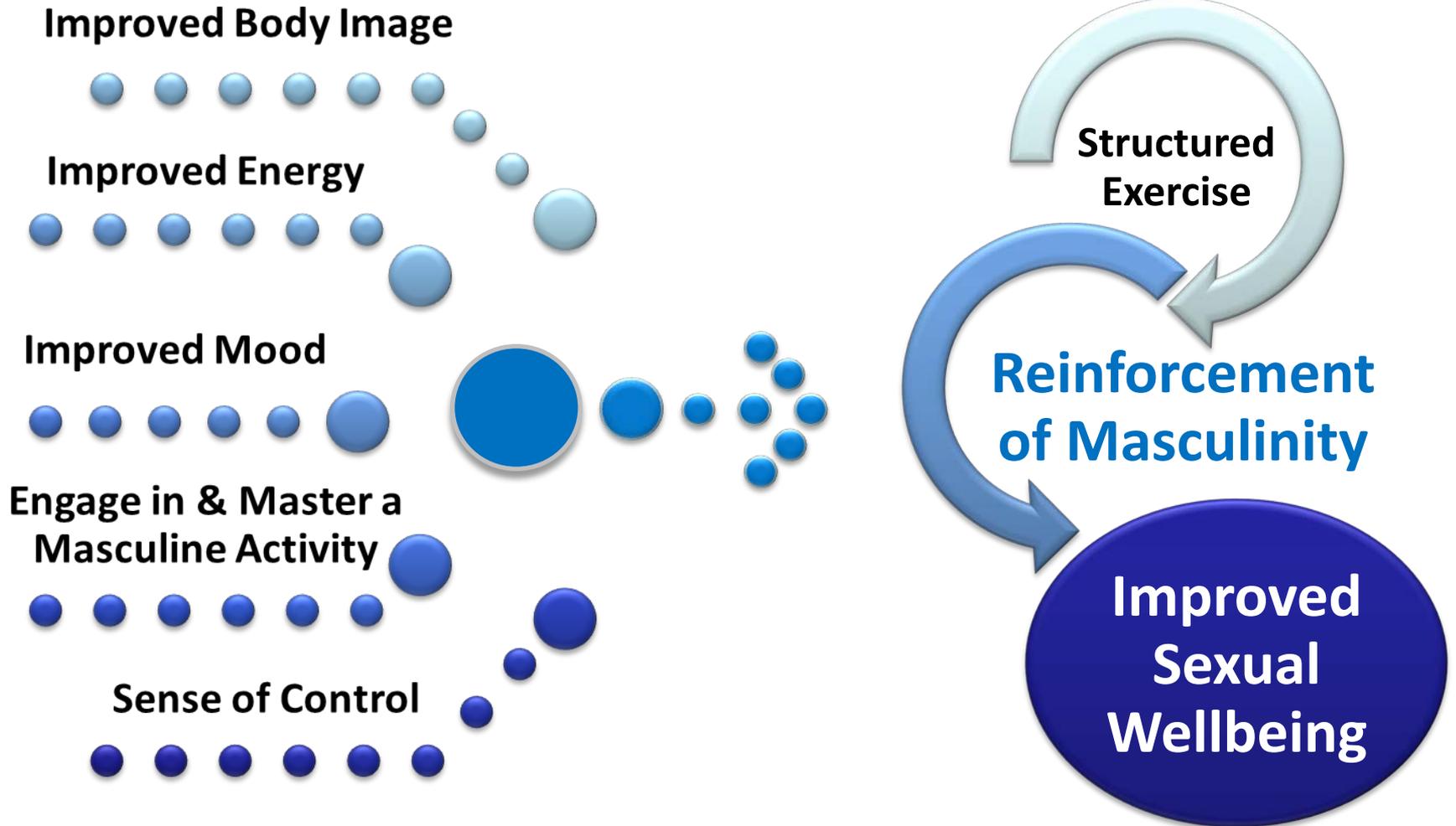
## Sexuality and exercise in men undergoing androgen deprivation therapy for prostate cancer

K. Hamilton • S. K. Chambers • M. Legg • J. L. Oliffe • P. Cormie



<b>Treatment</b>	ADT (previously: 83% radiation, 11% surgery)
<b>Design</b>	Descriptive, qualitative design
<b>Sample</b>	18 men (age = 61.7 ± 5.4 years)
<b>Intervention</b>	4.3 ± 2.4 months; group-based; AEP supervised
<b>Protocol</b>	Resistance & aerobic exercise (2 x weekly)
<b>Outcome Measures</b>	Thematic content analysis

# EXERCISE & SEXUAL WELLBEING



# SEXUAL WELLBEING – CURRENT TRIAL

Cormie *et al.* *BMC Cancer* 2014, **14**:199  
<http://www.biomedcentral.com/1471-2407/14/199>



**STUDY PROTOCOL**

**Open Access**

## Improving sexual health in men with prostate cancer: randomised controlled trial of exercise and psychosexual therapies

Prue Cormie<sup>1\*</sup>, Suzanne K Chambers<sup>1,2,3,4,6</sup>, Robert U Newton<sup>1</sup>, Robert A Gardiner<sup>1,5,6</sup>, Nigel Spry<sup>1,7,8</sup>, Dennis R Taaffe<sup>1,9</sup>, David Joseph<sup>1,7,8</sup>, M Akhlil Hamid<sup>1,10</sup>, Peter Chong<sup>11</sup>, David Hughes<sup>12</sup>, Kyra Hamilton<sup>2</sup> and Daniel A Galvão<sup>1</sup>



Australian Government  
National Health and  
Medical Research Council

N H M R C

# SEXUAL WELLBEING – CURRENT TRIAL

## OPTIMAL MANAGEMENT OF SEXUAL DYSFUNCTION

### PHARMACOLOGICAL INTERVENTION

#### Penile rehabilitation & other therapy to address:

- Erectile dysfunction
- Loss of libido
- Penile shortening
- Altered orgasm experience
- Reduced/absent ejaculation
- Testicular atrophy
- Incontinence
- Hot flashes
- Gynecomastia

### EXERCISE INTERVENTION

#### Aerobic & resistance exercise to address:

- Body feminisation (↓ muscle mass, female pattern weight gain)
- Fatigue
- Risk of co-morbid conditions (CVD, diabetes)
- ↓ Physical fitness and physical activity levels
- Depression
- Anxiety
- ↓ Quality of life
- ↓ Masculine self-esteem
- ↓ Libido

### PSYCHOLOGICAL INTERVENTION

#### Psycho-oncologic & sexual counselling to address:

- Altered intimate relationships
- Depression
- Anxiety
- Emotional lability
- ↓ Quality of life

# EXERCISE & ADVANCED DISEASE

## Prostate Cancer

and Prostatic Diseases

### ORIGINAL ARTICLE

## Safety and efficacy of resistance exercise in prostate cancer patients with bone metastases

P Cormie<sup>1</sup>, RU Newton<sup>1</sup>, N Spry<sup>1,2,3</sup>, D Joseph<sup>1,2,3</sup>, DR Taaffe<sup>1,4</sup> and DA Galvão<sup>1</sup>

<b>Treatment</b>	ADT (previously: 55% radiation, 20% surgery)
<b>Design</b>	RCT (Resistance Exercise vs. Usual Care)
<b>Sample</b>	20 men (age = 72.2 ± 7.2 years)
<b>Intervention</b>	3 months; group-based; AEP supervised
<b>Protocol</b>	Modular resistance exercise; 2 x week
<b>Primary endpoint</b>	Physical function

# EXERCISE & ADVANCED DISEASE

## Prostate Cancer

and Prostatic Diseases

### ORIGINAL ARTICLE

## Safety and efficacy of resistance exercise in prostate cancer patients with bone metastases

P Cormie<sup>1</sup>, RU Newton<sup>1</sup>, N Spry<sup>1,2,3</sup>, D Joseph<sup>1,2,3</sup>, DR Taaffe<sup>1,4</sup> and DA Galvão<sup>1</sup>

<i>Metastases site</i>	<i>Body region to target</i>		
	<i>Upper body</i>	<i>Trunk</i>	<i>Lower body</i>
Pelvis	✓	✓	✓ <sup>b</sup>
Lumbar spine	✓	—	✓
Thoracic spine and/or ribs	✓ <sup>a</sup>	—	✓
Femur	✓	✓	✓ <sup>b</sup>
All regions	✓ <sup>a</sup>	—	✓ <sup>b</sup>

✓ = Target exercise region.  
<sup>a</sup>Exclusion of shoulder flexion/extension/abduction/adduction; inclusion of elbow flexion/extension.  
<sup>b</sup>Exclusion of hip extension/flexion; inclusion of knee extension/flexion.



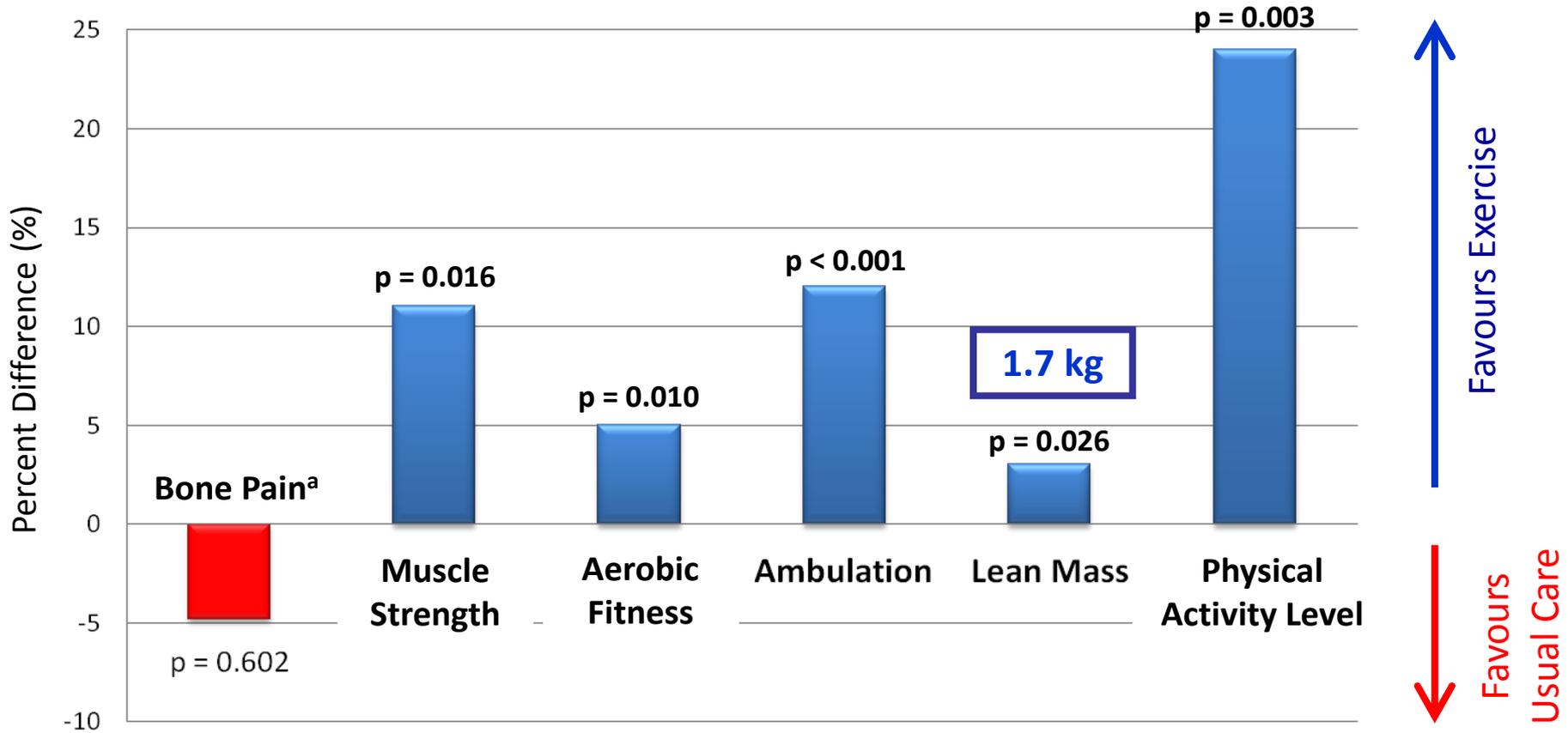
# EXERCISE & ADVANCED DISEASE

Adverse events during the exercise sessions	0
Attendance (out of 24 sessions)	20.2 ± 7.6
Compliance (% of successfully completed sessions)	93.2 ± 6.3
Perceived tolerance of the exercise sessions (0 = intolerable; 7 = highly tolerable)	6.1 ± 0.7
Perceived exercise intensity (session RPE)	13.8 ± 1.5
Severity of bone pain at the start of each session (average of all sessions; 0 = no pain; 10 = very severe pain)	0.6 ± 0.7
Incidence of bone pain negatively affecting the ability to undertake ADL between exercise sessions	0

- No change in use of pain medication throughout 3 months

# EXERCISE & ADVANCED DISEASE

## Adjusted Group Difference in Mean Change Over 12 weeks\*



\*Between group change by ANCOVA adjusted for baseline values; <sup>a</sup>Includes adjustment for use of pain medication

# ADVANCED DISEASE – CURRENT TRIAL

Galvão *et al.* *BMC Cancer* 2011, **11**:517  
<http://www.biomedcentral.com/1471-2407/11/517>



**STUDY PROTOCOL**

**Open Access**

## Efficacy and safety of a modular multi-modal exercise program in prostate cancer patients with bone metastases: a randomized controlled trial

Daniel A Galvão<sup>1\*</sup>, Dennis R Taaffe<sup>2</sup>, Prue Cormie<sup>1</sup>, Nigel Spry<sup>3,4</sup>, Suzanne K Chambers<sup>5,6</sup>, Carolyn Peddle-McIntyre<sup>1</sup>, Michael Baker<sup>1</sup>, James Denham<sup>7,8</sup>, David Joseph<sup>3,4</sup>, Geoff Groom<sup>9</sup> and Robert U Newton<sup>1</sup>



Prostate Cancer  
Foundation  
of Australia

# SUPERVISED VS. PA RECOMMENDATION

**A Multicentre Year-long Randomised Controlled Trial of Exercise Training Targeting Physical Functioning in Men with Prostate Cancer Previously Treated with Androgen Suppression and Radiation from TROG 03.04 RADAR**

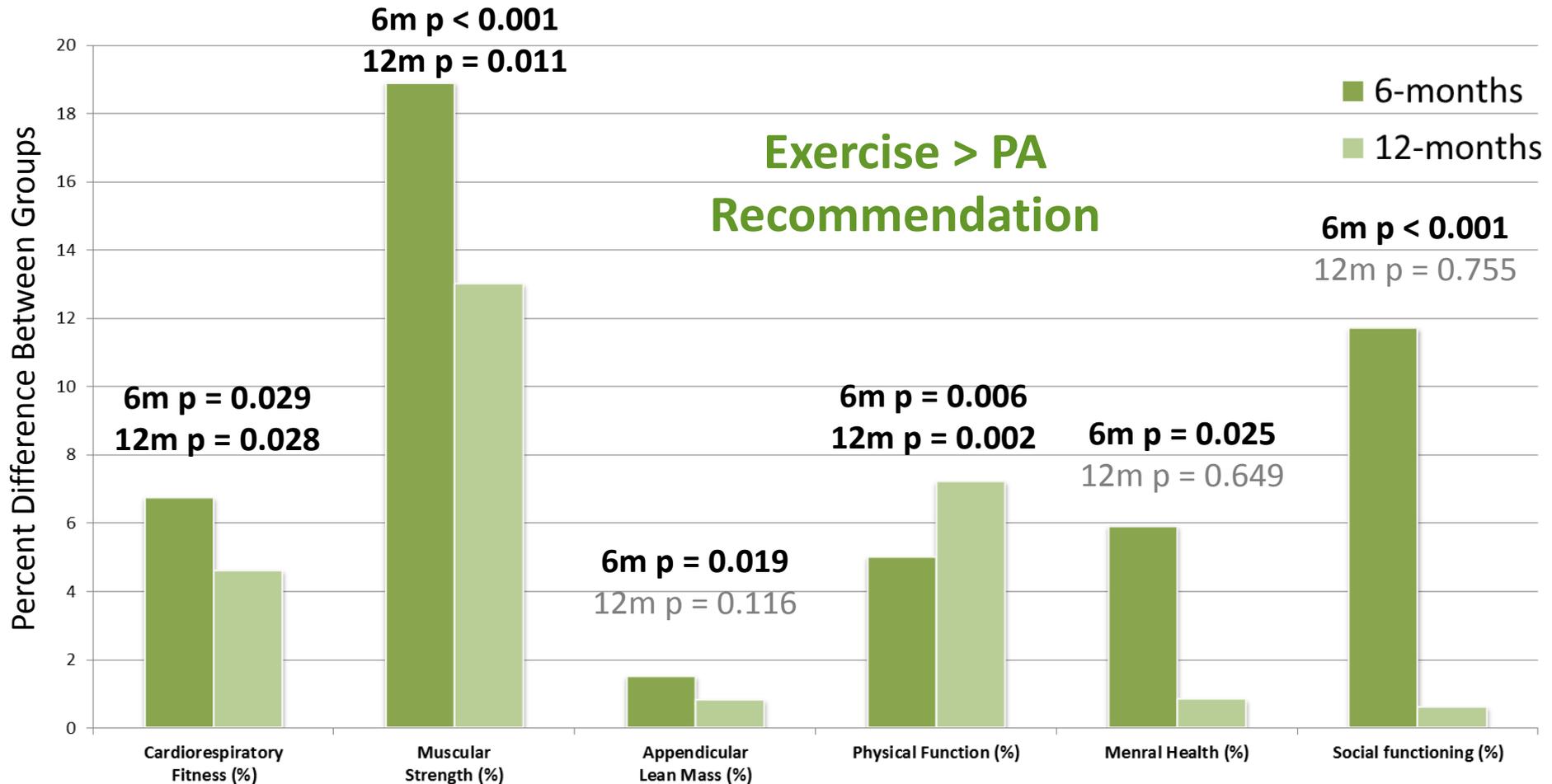


*Daniel A. Galvão<sup>a,\*</sup>, Nigel Spry<sup>a,b,c</sup>, James Denham<sup>d,e</sup>, Dennis R. Taaffe<sup>a,f</sup>, Prue Cormie<sup>a</sup>, David Joseph<sup>a,b,c</sup>, David S. Lamb<sup>g</sup>, Suzanne K. Chambers<sup>a,h,i</sup>, Robert U. Newton<sup>a</sup>*

<b>Treatment</b>	Previous ADT & RT (5.6 ± 2 years post diagnosis)
<b>Design</b>	RCT (Exercise vs. Physical activity education)
<b>Sample</b>	100 men (age = 71.7 ± 6.4 years)
<b>Intervention</b>	12 months (6 months of group-based, AEP supervised)
<b>Protocol</b>	1) Resistance & aerobic exercise (6 months supervised + 6 months home based) vs. 2) Printed physical activity education material
<b>Outcome Measures</b>	Cardiorespiratory fitness (400 m walk)

# SUPERVISED VS. PA RECOMMENDATION

## Group Difference in Mean Change Over 12 months



# PATIENT EXPERIENCE OF EXERCISE

## A Qualitative Exploration of the Experiences of Men With Prostate Cancer Involved In Supervised Exercise Programs

ONCOLOGY NURSING  
**FORUM**<sup>®</sup>

Prue Cormie PhD, Brooke Turner MPsych, Elizabeth Kaczmarek PhD, Deirdre Drake PhD and Suzanne K. Chambers RN, PhD

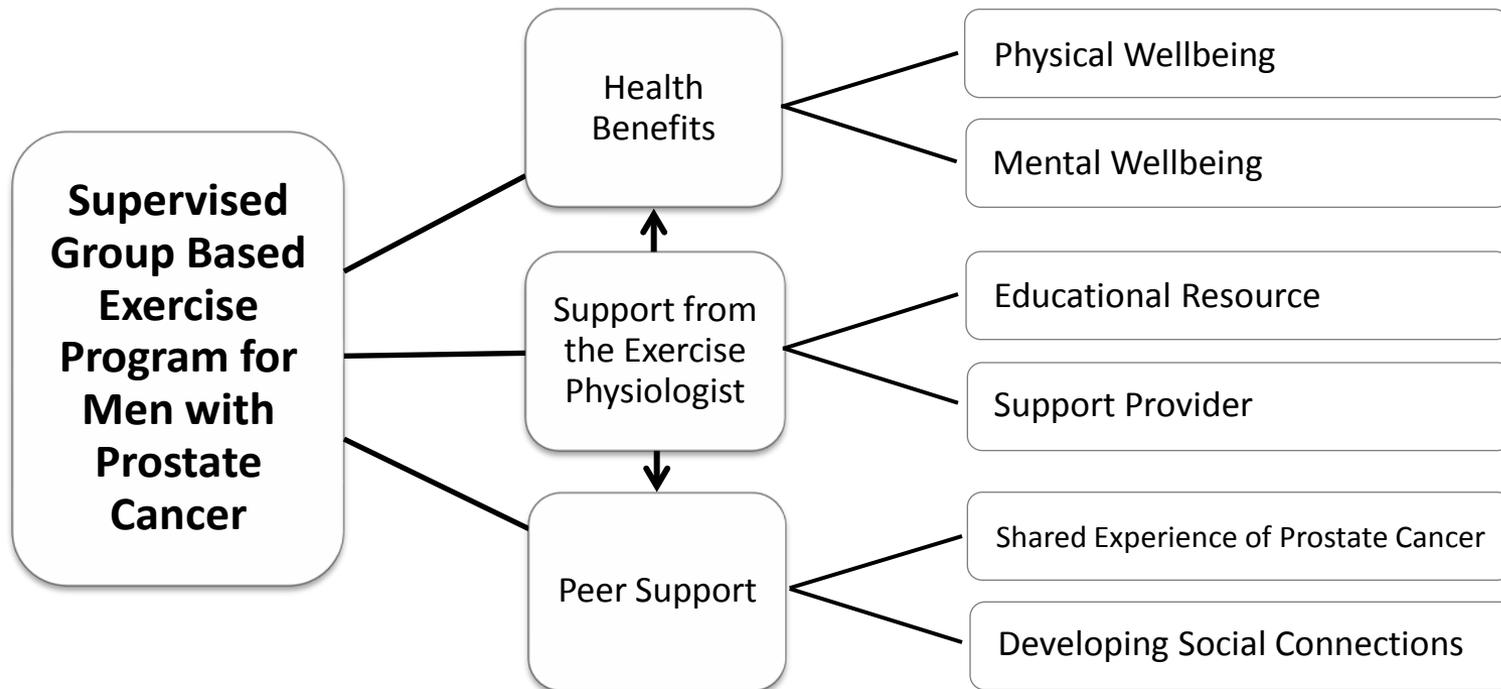
<b>Treatment</b>	ADT (previously: 100% RT, 25% PT)
<b>Design</b>	Descriptive, qualitative design
<b>Sample</b>	12 men (age = 75.3 ± 4.5 years)
<b>Intervention</b>	6.0 ± 3.1 months; group-based; AEP supervised
<b>Protocol</b>	Resistance & aerobic exercise (2 x weekly)
<b>Outcome Measures</b>	Thematic content analysis

# PATIENT EXPERIENCE OF EXERCISE

## A Qualitative Exploration of the Experiences of Men With Prostate Cancer Involved In Supervised Exercise Programs

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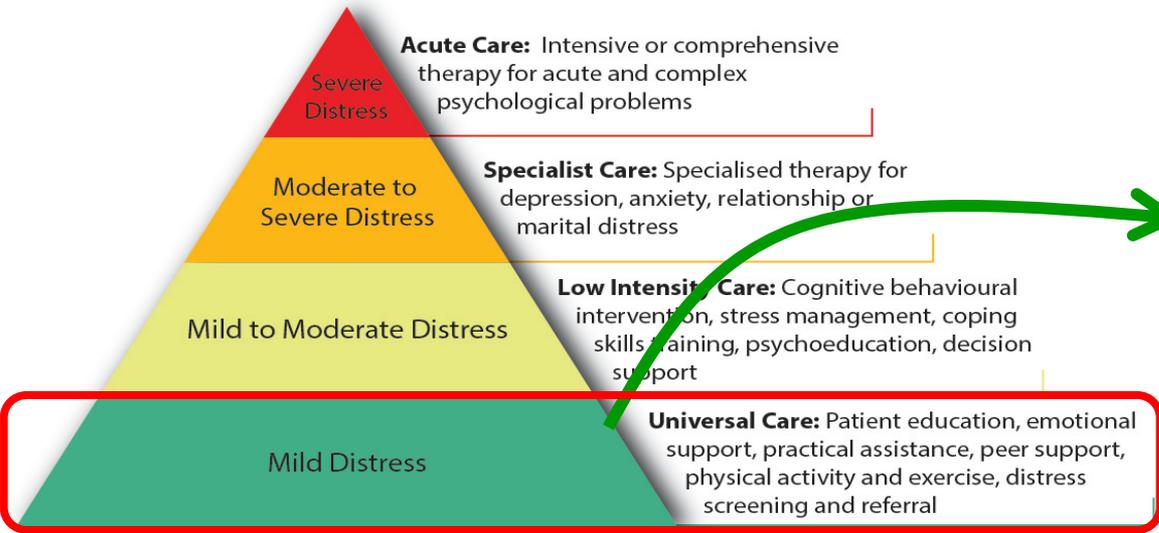
# EXERCISE & PSYCHOSOCIAL WELLBEING



**A support group tailored for men:**

- Activity based
- Casual environment
- Positive atmosphere
- Humour
- Facilitated by an allied health professional
- Extends social networks

# EXERCISE & PSYCHOSOCIAL WELLBEING



## PROSCARE: A PSYCHOLOGICAL CARE MODEL FOR MEN WITH PROSTATE CANCER

Suzanne K Chambers<sup>1-5</sup> Jeff Dunn<sup>1-2,6</sup> Mark Lazenby<sup>7</sup> Samantha Clutton<sup>2</sup> Robert U Newton<sup>4</sup>  
Prue Cormie<sup>4</sup> Anthony Lowe<sup>1,3</sup> David Sandoe<sup>3</sup> Frank Gardiner<sup>5,8,9</sup>



Chambers et al. PCFA & Griffith Uni 2013



# EXERCISE IS MEDICINE

On present knowledge,  
exercise offers **the  
greatest potential as an  
adjunct therapy** to  
reverse treatment related  
side-effects and increase  
the quality & potentially  
quantity of life in men  
with prostate cancer



# RESEARCH TEAM

Robert Newton (ECU)  
Daniel Galvão (ECU)  
Carolyn Peddle-McIntyre (ECU)  
Nigel Spry (SCGH, ECU)  
David Joseph (SCGH, ECU)  
Suzanne Chambers (GU, ECU)  
Dennis Taaffe (UWoll, ECU)  
Frank Gardiner (RBH, UQ, ECU)  
James Denham (UNew, NMH)  
David Lamb (UOtago)  
Thomas Shannon (HH)  
Akhil Hamid (RPH, ECU)  
Dickon Hayne (FH, UWA)  
Raphael Chee (Genesis, UWA)  
Jerard Ghossein (JHC)  
Gregory Bock (WA Dept of Health)  
Lisa Ferri (PCFA)

Edith Cowan University  
Health and Wellness Institute



VARIO wellness clinic



Sir Charles  
Gairdner Hospital



Royal Perth  
Hospital

HOLLYWOOD  
PRIVATE HOSPITAL

UNIVERSITY OF  
WOLLONGONG



THE UNIVERSITY OF  
NEWCASTLE  
AUSTRALIA

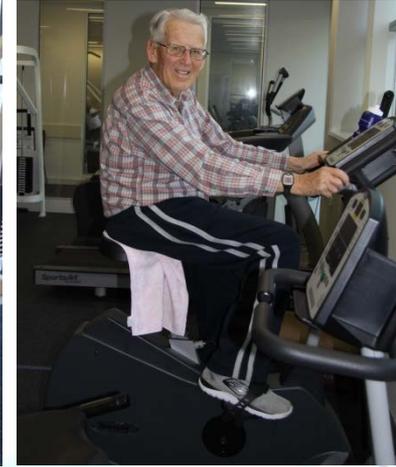
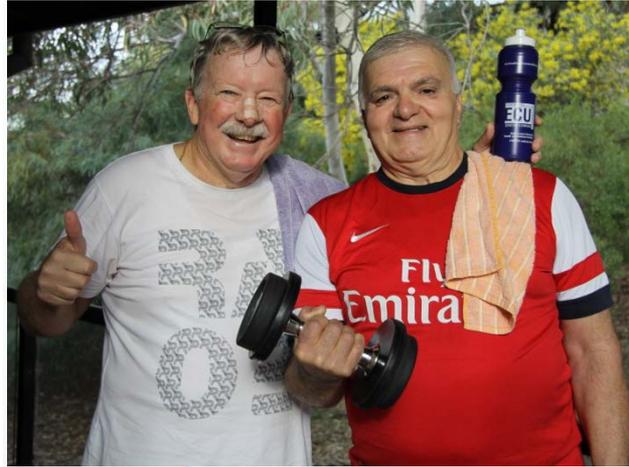


Fremantle Hospital &  
Health Service

## Accredited Exercise Physiologists:

Mark Trevaskis  
Courtney Ishiguchi  
Kelly Vibert

# THANK YOU



Prue Cormie: [p.cormie@ecu.edu.au](mailto:p.cormie@ecu.edu.au)