Keep Playing!

Experiencing the JOY of Movement until the end of life

Dr. Bobby Cheema, PhD, Accredited Exercise Physiologist

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Part 1: Staying Strong for Life

Part 2: Exercise at the End of Life: The evidence

Part 3: The positive role model

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Part 1: Staying Strong for Life

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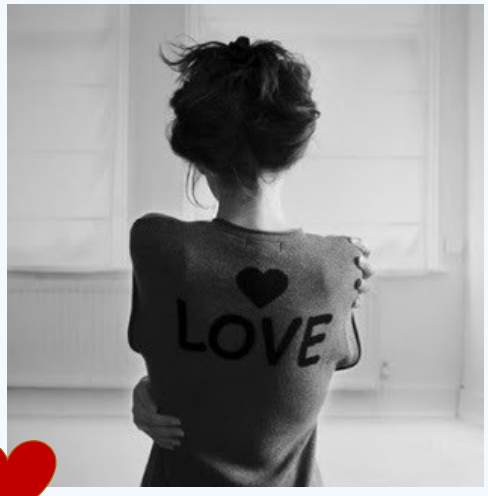
Relationship to Self

...And everyone's got their own stories,
Of sorrows and glories,
We can laugh, we can cry,
We play out these lives,
And one day, this body will die.

-Tubby Love, All Ways Love



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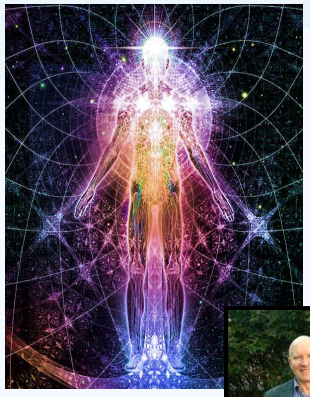
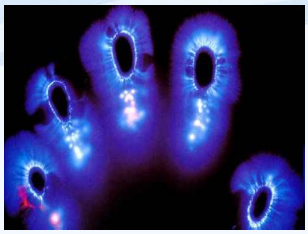
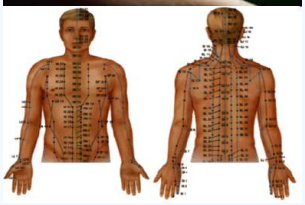


The Metaphysical Body



"All life is on this planet is based on the absorption and processing of light energy (photons)."

-Konstantin Korotkov, PhD



The Energy Network in TCM

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Strength, Health and Life Experience

Thriving

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The Era of Non-Communicable Diseases

- NCDs are the leading cause of death globally and account for >2/3 of all deaths annually
- NCDs caused primarily **by four behavioral risk factors:**
  - Tobacco use
  - Unhealthy diet
  - Insufficient physical activity
  - Alcohol abuse.
- **Economic impact: $30 trillion (2010-2030)**

Source: Global status report, WHO, 2010

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Physical Activity and Exercise

- **Physical activity:** Any bodily movement requiring energy expenditure, e.g. activities of daily living (ADLs)
- **Exercise:** Physical activity that is planned, structured, and repetitive to improve or maintain one or more components of physical fitness.

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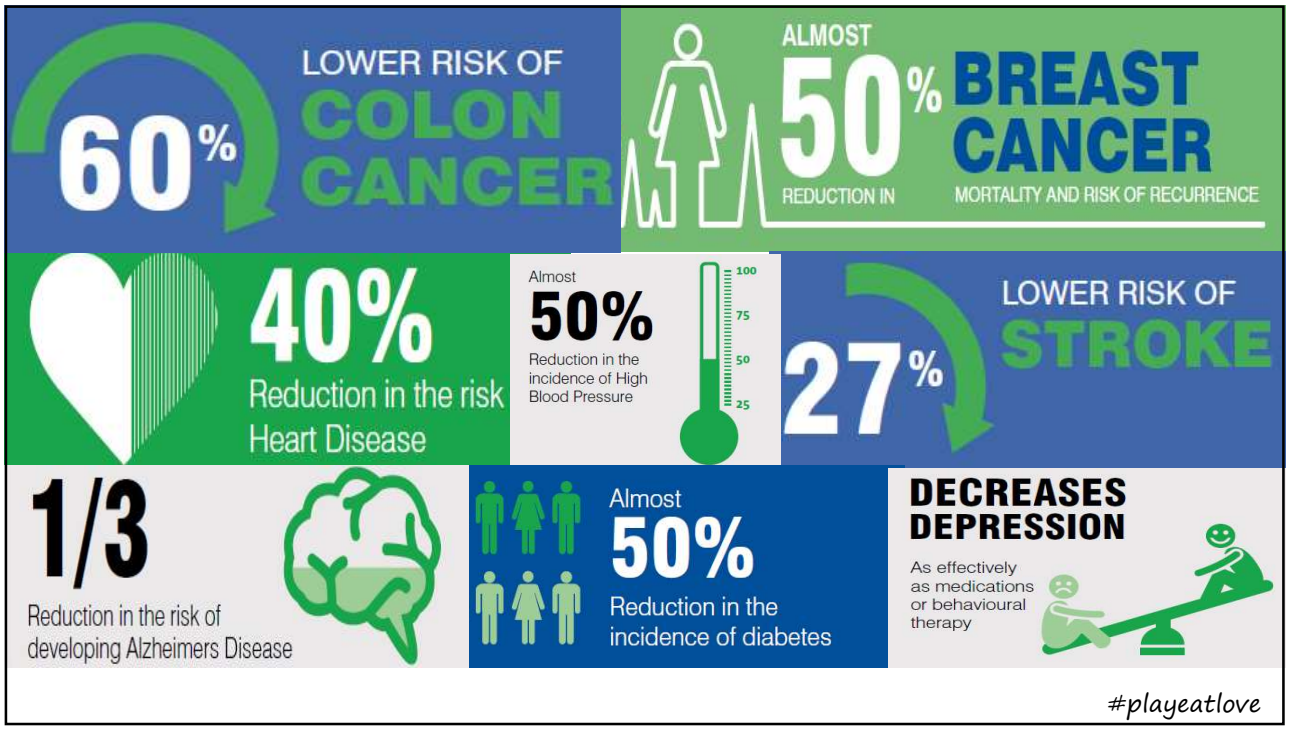
60%
LOWER RISK OF
COLON CANCER
ALMOST
50%
REDUCTION IN
BREAST CANCER
MORTALITY AND RISK OF RECURRENCE
40%
Reduction in the risk
Heart Disease
Almost
50%
Reduction in the incidence of High Blood Pressure
100
75
50
25
27%
LOWER RISK OF
STROKE
1/3
Reduction in the risk of developing Alzheimers Disease
Almost
50%
Reduction in the incidence of diabetes
DECREASES DEPRESSION
As effectively as medications or behavioural therapy
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Exercise Guidelines
Cardiovascular training
HOW MUCH?
2 ½ to 5 hours of moderate intensity physical activity or 1 ¼ to 2 ½ hours of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities, each week.
150-300 minutes moderate or
75-150 minutes vigorous
activities per week
Resistance (strength) training
DO MUSCLE STRENGTHENING
activities on at least
2 days a week
Physical Health
Exercise
Real Food
Sleep
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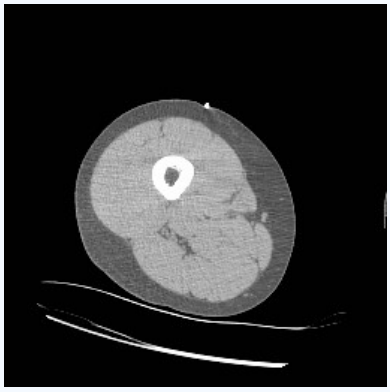
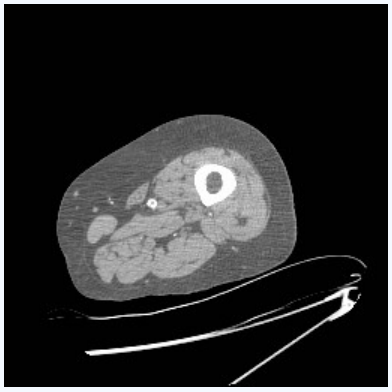
Ageing, Sarcopenia and Chronic Disease



36 year old



80 year old

CT images at mid thigh

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Australia: The Lucky (and the Lazy)

More than 80% of adults do not meet minimum physical activity guidelines

Physical inactivity is estimated to be the main **cause** for approximately **21–25%** of **breast** and **colon cancers, 27%** of **diabetes** and approximately **30%** of ischaemic **heart disease** burden

Physical inactivity is the **second greatest contributor**, behind tobacco smoking, to the **cancer burden** in **Australia**

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The San, South African hunter-gatherers
Image: Jeff Leach

Our Natural State

"...our genetic makeup is largely shaped to support the physical activity patterns of hunter-gatherer societies... The energy expenditure of hunter-gatherers can be reached with 3–4 h/day of moderate-to-vigorous physical activity..."

-Fuiza-Luces et al, Physiology, 2013

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The Joy of Play

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What is Play?

- "Play is a behaviour traditionally defined by the inability to satisfactorily define it."
- Elements of play:
  1. Does not contribute to survival (no tangible goal or outcome)
  2. Spontaneous and voluntary, not enforced
  3. Involves repetitive elements, e.g. movements
  4. Requires stress-free conditions
  5. Pleasurable and rewarding (JOYFUL! FUN!)

-Karen P. Lewis, *From Landscapes to Playscapes*, 2010

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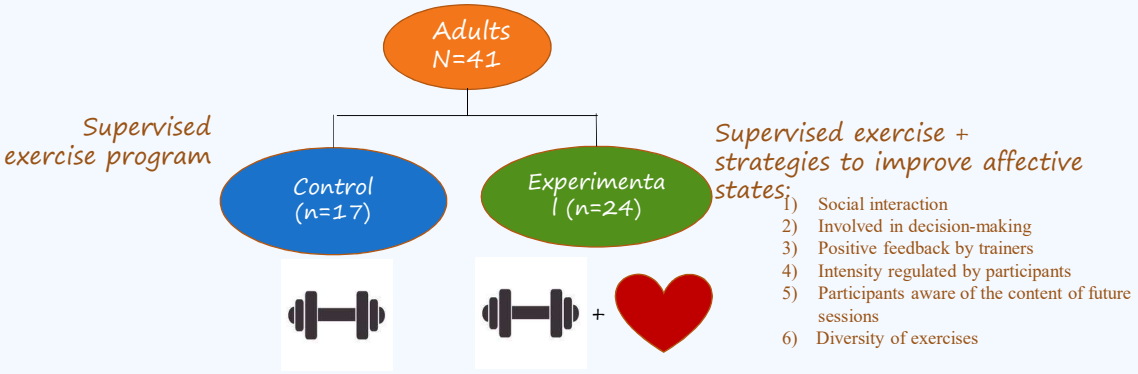
Jekauc, Psychology, 6(1), 2015

Enjoyment affects Adherence



Conclusion: Affective states during exercise can be systematically influenced to increase physical activity adherence.

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The Schism

Physical activity or Play?

Exercise or Play?

Play or Exercise or Physical Activity?

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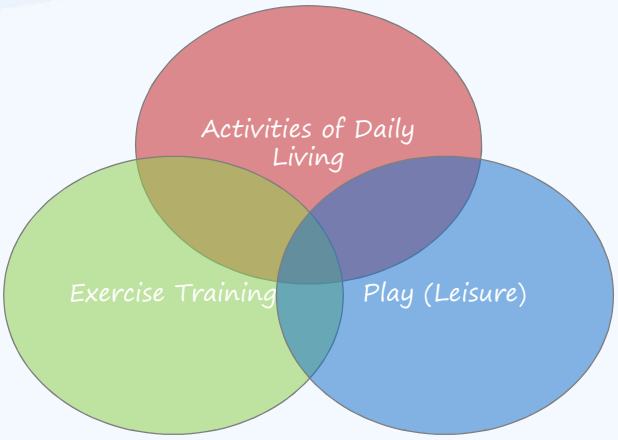
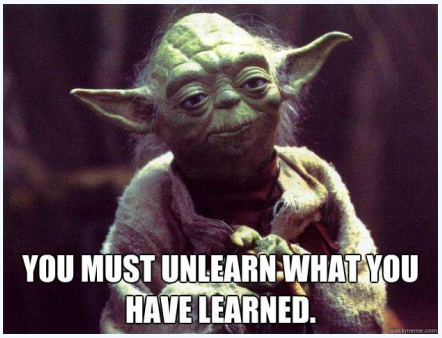
Healing the Schism





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> A master in the art of living draws no sharp distinction between his work and his play; his labor and his leisure; his mind and his body; his education and his recreation. He hardly knows which is which. He simply pursues his vision of excellence through whatever he is doing, and leaves others to determine whether he is working or playing. To himself, he always appears to be doing both.
>
> L.P. Jacks

A State of Being

Rabbindranath Tagore and LP Jacks, Manchester College

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Three Keys to Active Living for Life

Relationship to Self

Relationship to Community

Relationship to Nature

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AEP's: Here to support and advise

- Accredited Exercise Physiologists are university qualified allied health professionals equipped with the knowledge, skills and competencies to design, deliver and evaluate exercise interventions for people with acute, sub-acute or chronic medical conditions, injuries or disabilities.
- Pathology domains: conditions for which there is evidence that exercise can improve clinical status.
- Professional accrediting body: Exercise & Sport Science Australia (ESSA)

Source: www.essa.org.au

Michael Marthick, AEP
Chris O'Brien Lifehouse

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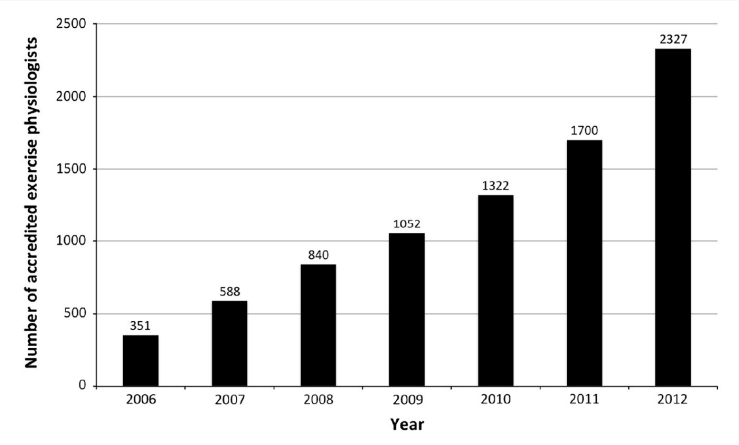
Fastest growing healthcare profession



Cheema et al., Sports Medicine 2014

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Table 1 Accredited exercise physiologist scope of practice (Exercise and Sports Science Australia)

1. Screening and risk stratifying to ensure the safety and appropriateness of exercise and physical activity interventions
2. Assessing a person's 'movement' capacity in people of all ages and levels of health, well-being, or fitness
3. Development of safe, effective, individualized exercise interventions
4. Provision of health education, advice, and support to enhance health and well-being
5. Provision of exercise intervention and advice for those at risk of developing a chronic condition or injury
6. Provision of clinical exercise prescription, for those with existing chronic and complex medical conditions
7. Provision of rehabilitation and advice for patients following the acute stage of injury, surgical intervention, or during recovery to restore functional capacity and well-being
8. The above tasks may occur at any level of primary, secondary, or tertiary healthcare, and may include employment or volunteer work at an individual, community, or population health level through various employers or industries

Accredited exercise physiologist scope of practice, June 2012. Available at: http://www.essa.org.au)

Source: www.crossfit204.com

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AEPs and other exercise professionals

Accredited Exercise Physiologist (AEP)	**Physiotherapist**	**Personal Trainer**
Qualification: Min 4 years University **Accreditation**: ESSA **Profession**: Allied Health **Rebates**: Medicare, DVA, WorkCover, Private Health **Patient risk level**: High **Specialty**: Chronic conditions and injuries, long term behaviour change, self-managed exercise programs	**Qualification**: Min 4 years University **Accreditation**: AHPRA **Profession**: Allied Health **Rebates**: Medicare, DVA, WorkCover, Private Health **Patient risk level**: High **Specialty**: Acute conditions and injuries, manual therapy	**Qualification**: Cert IV in as little as 6 weeks **Accreditation**: n/a **Profession**: Fitness **Rebates**: Private Health **Patient risk level**: Low **Specialty**: General fitness

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Part 2: Exercise at the End of Life: The Evidence.

- End-stage renal disease
- Advanced Cancer

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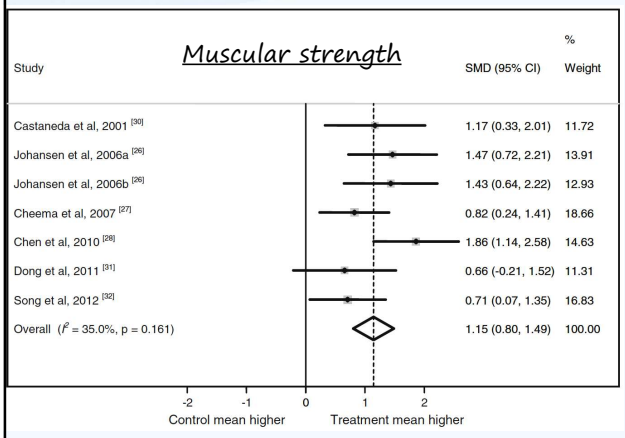
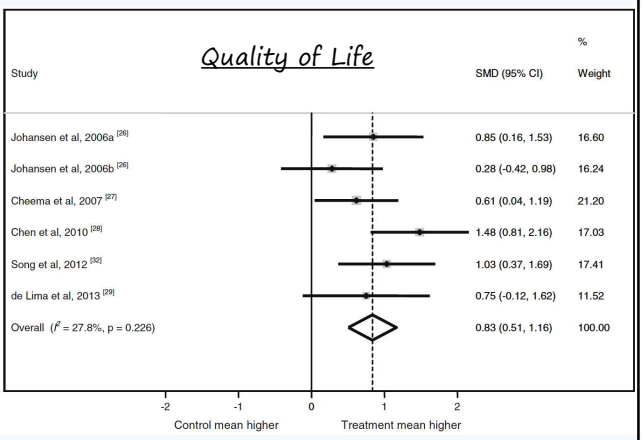
Physical and Psychological Effects





Cheema et al., Sports Medicine, 2014

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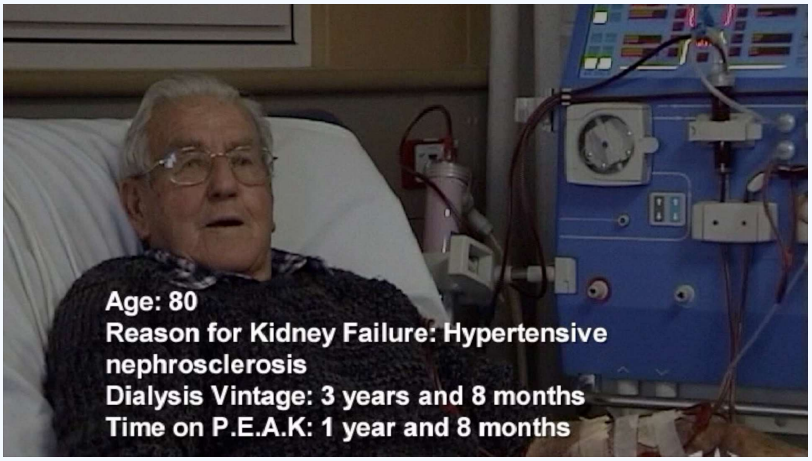
Qualitative Outcomes



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Position statement summary

Clinical Oncology Society of Australia position statement on exercise in cancer care

Prue Cormie[1], Morgan Atkinson[2], Lucy Bucci[3], Anne Cust[4,5], Elizabeth Eakin[6], Sandra Hayes[7], Sandie McCarthy[8], Andrew Murnane[7], Sharni Patchell[3], Diana Adams[2]

Abstract

Introduction: Clinical research has established exercise as a safe and effective intervention to counteract the adverse physical and psychological effects of cancer and its treatment. This article summarises the position of the Clinical Oncology Society of Australia (COSA) on the role of exercise in cancer care, taking into account the strengths and limitations of the evidence base. It provides guidance for all health professionals involved in the care of people with cancer about integrating exercise into routine cancer care.

Main recommendations: COSA calls for:

- exercise to be embedded as part of standard practice in cancer care and to be viewed as an adjunct therapy that helps counteract the adverse effects of cancer and its treatment;
- all members of the multidisciplinary cancer team to promote physical activity and recommend that people with cancer adhere to exercise guidelines; and
- best practice cancer care to include referral to an accredited exercise physiologist or physiotherapist with experience in cancer care.

Changes in management as a result of the guideline: COSA encourages all health professionals involved in the care of people with cancer to:

- discuss the role of exercise in cancer recovery;
- recommend their patients adhere to exercise guidelines (avoid inactivity and progress towards at least 150 minutes of moderate intensity aerobic exercise and two to three moderate intensity resistance exercise sessions each week); and
- refer their patients to a health professional who specialises in the prescription and delivery of exercise (ie, accredited exercise physiologist or physiotherapist with experience in cancer care).

The term physical activity applies to any movement produced by skeletal muscles that requires the body to exert energy. Exercise is structured physical activity for the purpose of conditioning the body to improve health and fitness. To maximise the therapeutic potential of exercise, well established principles of training (including specificity, progression, overload, individualisation) should be applied and operationalised using the FITT formula: frequency (number of exercise sessions), intensity (how hard per session), time (session duration), and type (exercise modality).[1,2] For a glossary of exercise terminology, see the Appendix.

Clinical research has established exercise as a safe and effective intervention to counteract many of the adverse physical and psychological effects of cancer and its treatment. To date, the strongest evidence exists for improving physical function (including aerobic fitness, muscular strength and functional ability), attenuating cancer-related fatigue, alleviating psychological distress and improving quality of life across multiple general health and cancer-specific domains.[3-17] Emerging evidence highlights that regular exercise before, during and following cancer treatment decreases the severity of other adverse side effects and is associated with reduced risk of developing new cancers and comorbid conditions such as cardiovascular disease, diabetes and osteoporosis.[1,4] Moreover, epidemiological research suggests that being physically active provides a protective effect against cancer recurrence, cancer-specific mortality and all-cause mortality for some types of cancer (research has predominantly focused on breast, colorectal and prostate cancers).[5,18-27] These findings have set the scene for a number of clinical trials, which are currently underway to rigorously evaluate the effects of exercise on cancer survival.

The convincing body of epidemiological and clinical trial evidence on the benefits of exercise has led to the endorsement of exercise guidelines for people with cancer by major organisations internationally.[28-33] These guidelines largely mirror guidelines for the general population. Despite this advice being widely disseminated by government and non-government cancer organisations, the majority of Australians with cancer do not meet these recommended targets.[34-36] Reports indicate that 60–70% of people with cancer do not meet aerobic exercise guidelines and it is estimated that 80–90% do not meet resistance exercise guidelines.[34-36] Thus, although many people with cancer have indicated a desire to participate in appropriately designed and supervised exercise programs,[37,38] only a minority are engaging in sufficient levels of exercise.

The COSA position statement on exercise in cancer care outlines the Society's position on exercise recommendations,[28-33] taking into account the strengths and limitations of the epidemiological and clinical trials evidence base.

The key points are:

- being physically active and exercising regularly are important for the health, function, quality of life and, potentially, survival of people with cancer;
- the majority of people with cancer do not meet exercise recommendations;

[1]Mary MacKillop Institute for Health Research, Australian Catholic University, Melbourne, VIC. [2]Youth Cancer Services South Australia and Northern Territory, Adelaide, SA. [3]Peter MacCallum Cancer Centre, Melbourne. [4]Cancer Epidemiology and Prevention Research Group, University of Sydney, Sydney, NSW. [5]Melanoma Institute Australia, Sydney, NSW. [6]University of Queensland, Brisbane, QLD. [7]Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, QLD. [8]University of Auckland, Auckland, NZ. [9]Macarthur Cancer Therapy Centre, South Western Sydney Local Health District, Sydney, NSW. ✉prue.cormie@acu.edu.au

doi: 10.5694/mja18.00199 • Published online 07/05/2018

COSA 2018 Position Statement

Cormie et al. Med J Aus, May 2018

2 The Clinical Oncology Society of Australia calls for:

- Exercise to be embedded as part of standard practice in cancer care and viewed as an adjunct therapy that helps counteract the adverse effects of cancer and its treatment.
- All members of the multidisciplinary cancer team to promote physical activity and recommend people with cancer adhere to exercise guidelines.
- Best practice cancer care to include referral to an accredited exercise physiologist or physiotherapist with experience in cancer care.

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Physical activity interests and preferences in palliative cancer patients

Sonya S. Lowe · Sharon M. Watanabe · Vickie E. Baracos · Kerry S. Courneya

Support Care Cancer (2010) 18:1469–1475

Purpose: To examine the physical activity interests and preferences in palliative care cancer patients via interviewer-administered surveys

Patients: 50 adult patients with incurable cancer and locally recurrent or metastatic cancer; life expectancy 3-12 months, Palliative Performance Scale ≥30

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Table 1 Descriptive statistics for physical activity preferences of study participants (n=50)

Preference variable	N (%)
Is being physically active important to you now?	
Yes	47 (94%)
No	3 (6%)
Are you interested in a physical activity program now?	
Yes	39 (78%)
No	4 (8%)
Maybe	7 (14%)
Do you think you would be able to participate in a physical activity program now?	
Yes	29 (58%)
No	4 (8%)
Maybe	17 (34%)
If you were to begin a physical activity program, who would you like to participate with?	
Alone	27 (54%)
With caregiver/spouse	5 (10%)
With family/friends	3 (6%)
With other cancer patients	0
No preference	15 (30%)
If you were to begin a physical activity program, where would you like to participate?	
At home	42 (84%)
At a hospital-based center	0
At a cancer center	0
At a local fitness center	0
No preference	8 (16%)
If you were to begin a physical activity program, would you prefer to participate in the:	
Morning	20 (40%)
Afternoon	16 (32%)
Evening	2 (4%)
No preference	12 (24%)

Lowe et al., 2019

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Safety/Feasibility

Support Care Cancer (2017) 25:3031–3050
DOI 10.1007/s00520-017-3827-0

REVIEW ARTICLE

Safety and feasibility of exercise interventions in patients with advanced cancer: a systematic review

Reginald Heywood [1] · Alexandra L. McCarthy [2] · Tina L. Skinner [1]

Received: 16 January 2017 / Accepted: 10 July 2017 / Published online: 25 July 2017

Abstract
Goals of work The beneficial effects of exercise in cancer patients are reasonably well-established, although research in this field has predominantly investigated cancer patients in the earlier stages of disease. However, the most recent evidence surrounding exercise interventions in advanced cancer populations has yet to be systematically evaluated. This review critically analyses the safety and feasibility of exercise interventions in patients with advanced cancer.
Methods All randomised, non-randomised and prospective observational trials of exercise training interventions in patients with advanced cancer were included. 'Safety' was defined as the number and severity of reported adverse events during exercise training. 'Feasibility' was determined by participant adherence, attendance and/or study completion rates.
Results A total of 25 studies involving 1088 patients were included: 16 randomised controlled and nine prospective observational cohort trials. Seven studies included advanced lung cancer patients exclusively, while eight involved patients with various cancer diagnoses. Aerobic exercise was investigated in five studies, resistance training in two studies and combination training (aerobic and resistance) in 14 studies. Six minor adverse events were reported due to exercise. All of these were musculoskeletal in nature, resulting in two participants' withdrawal from the study. Exercise adherence ranged from 65 to 89% but was only described in nine studies. Attendance at each exercise session was described in a further nine studies, ranging from 59 to 100%.
Conclusions Implementation of exercise interventions appears to be safe and feasible in advanced cancer clinical practice, although targeted studies are required to determine the optimal exercise dose for specific cancer diagnoses.

Keywords Exercise · Safety · Feasibility · Advanced cancer · Incurable cancer

Introduction

Marked improvements in physical and psychosocial symptoms have been reported in response to exercise interventions in patients with various cancers, including those of the breast, colorectum, prostate, lung and endometrium [1]. However, studies in this field have almost exclusively investigated the effects of exercise in patients during the early stages of disease. Although patients with advanced cancer could benefit from carefully prescribed physical activity to enhance functional capacity and health-related quality of life [2], most studies in the field of exercise oncology specifically exclude patients with advanced cancer. The frequent exclusion of patients with advanced cancer from exercise interventions could be attributable to concerns regarding the safety and feasibility of exercise in this group, considering their compromised life expectancy, likely treatment-related side effects and the debilitating symptoms associated with advanced stages of disease. Preliminary research suggests that advanced cancer patients with higher baseline symptom prevalence achieve greater improvements in response to exercise [3], although further evidence is required to substantiate these claims.

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[1] School of Human Movement and Nutrition Sciences, The University of Queensland, Brisbane, Australia
[2] School of Nursing, University of Auckland, Auckland, New Zealand

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Safety and Feasibility

- 25 trials (incl. 16 RCT)
- 1088 patients with advanced cancers (mean age: 18-88)
- Cancer types: Lung, breast, prostate, HL, NHL, GI, and mixed cancer
- Exercise Interventions:
  - Aerobic training (5)
  - Resistance training (2)
  - Aerobic + or vs. resistance (16)
  - Yoga (1)
  - Seated exercise using video recording (1)

Heywood et al. *Support Care Cancer* (2017) 25:3031–3050

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Safety and Feasibility

- **Safety:**
  - 22/25 (88%) reported on adverse events.
  - Only 6 adverse events due to exercise across 1088 patients. All minor (musculoskeletal)
  - No severe adverse events
  - 55 non-exercise related deaths across 25 studies
- **Feasibility**
  - Attendance (sessions attended): 59-100%
  - Adherence (exercises completed): 65-89%

Heywood et al. *Support Care Cancer* (2017) 25:3031–3

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Med Sci Sports Exerc. 2018 Mar;50(3):393-399. doi: 10.1249/MSS.0000000000001454.

Exercise Preserves Physical Function in Prostate Cancer Patients with Bone Metastases.

Galvão DA[1,1], Taaffe DR[1,1,1], Spry N[1,1,1], Cormie P[1], Joseph D[1,1,1,1], Chambers SK[1,1,1,1], Chee R[1,1], Peddle-McIntyre CJ[1,1], Hart NH[1,1], Baumann FT[1], Denham J[1], Baker M[1], Newton RU[1,1,1].

Author information

Abstract

PURPOSE: The presence of bone metastases has excluded participation of cancer patients in exercise interventions and is a relative contraindication to supervised exercise in the community setting because of concerns of fragility fracture. We examined the efficacy and safety of a modular multimodal exercise program in prostate cancer patients with bone metastases.

METHODS: Between 2012 and 2015, 57 prostate cancer patients (70.0 ± 8.4 yr; body mass index, 28.7 ± 4.0 kg·m) with bone metastases (pelvis, 75.4%; femur, 40.4%; rib/thoracic spine, 66.7%; lumbar spine, 43.9%; humerus, 24.6%; other sites, 70.2%) were randomized to multimodal supervised aerobic, resistance, and flexibility exercises undertaken thrice weekly (EX; n = 28) or usual care (CON; n = 29) for 3 months. Physical function subscale of the Medical Outcomes Study Short-Form 36 was the primary end point as an indicator of patient-rated physical functioning. Secondary end points included objective measures of physical function, lower body muscle strength, body composition, and fatigue. Safety was assessed by recording the incidence and severity of any adverse events, skeletal complications, and bone pain throughout the intervention.

RESULTS: There was a significant difference between groups for self-reported physical functioning (3.2 points; 95% confidence interval, 0.4-6.0 points; P = 0.028) and lower body muscle strength (6.6 kg; 95% confidence interval, 0.6-12.7; P = 0.033) at 3 months favoring EX. However, there was no difference between groups for lean mass (P = 0.584), fat mass (P = 0.598), or fatigue (P = 0.964). There were no exercise-related adverse events or skeletal fractures and no differences in bone pain between EX and CON (P = 0.507).

CONCLUSIONS: Multimodal modular exercise in prostate cancer patients with bone metastases led to self-reported improvements in physical function and objectively measured lower body muscle strength with no skeletal complications or increased bone pain.

TRIAL REGISTRATION: ACTRN12611001158954.

Benefits of Exercise in Advanced Cancers

-Heywood et al., Arch Phys Med Rehab, 2018

- Critical review of 25 studies (16 RCT, 9 UCT)
- Most studies (n=15) involved both aerobic and resistance training
- Sig. time and b/w group differences reported for:
  - Sleep quality (100%)
  - Physical functioning (83%)
  - Quality of life (55%)
  - Body composition (56%)
  - Fatigue (50%)
  - Pain (25%)

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Dying at Home: Ars Amandi-Ars Moriendi

Founders: Gerard and Dr. Helen-Anne Manion

www.dyingathome.org

- "Palliative Care is holistic best care for the person with attention to body-mind-spirit, and also addresses the needs of the carer, because they are intimately involved."
- About Exercise…
  - "I can't think of any reason for a patient to be told not to move (exercise)"
  - "Exercise lifts the spirit."

– Dr. H.A. Manion

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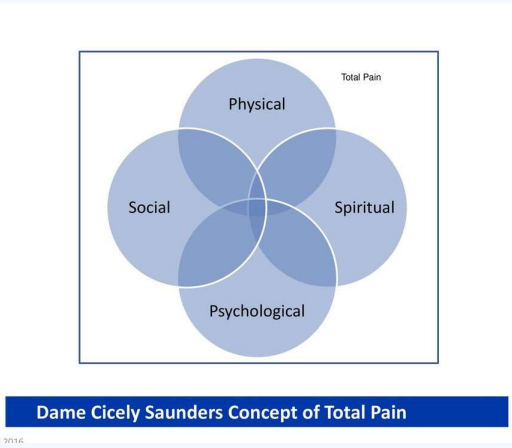
Is Pain a Barrier to Exercise?

- Pain is multidimensional
- There is a need to assess and address 'total pain', esp. spiritual pain
- Can exercise/movement play a role? 'Exercise lifts the spirit'
- 'Why are we sedating people at the end of life'

  – Dr. Helen-Anne Manion



Dame Cicely Saunders Concept of Total Pain

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Exercise program for patients (persons) at the EOL

-Manion & Cheema, 2017

RENAL SUPPORTIVE CARE EXERCISE PROGRAM

Medical research has shown that a simple exercise program will help you feel better and lift your spirits. The benefits may include improving tiredness, sleep, breathing difficulties, swelling in legs and feet, back pain, arthritis and restless legs.

EXERCISE PROGRAM EACH DAY

1. Continue your daily activities as tolerated and walking (always use your walking aid)

2. Do all exercises SITTING IN A CHAIR

1. Arms down at sides
   Breathe comfortably in and out
   Raise arms stretch out in front of you
   Relax arms back down
   (10 to 20 times)

2. Raise foot on to toes
   foot back down onto floor relax
   (10 to 20 times)

3. Marching with balls of feet
   not leaving the floor.

Note: For people with restless legs try exercise 2 sitting on edge of bed before sleep.

Enjoy helping yourself feel better!

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Case Studies

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Case 1: Kate (48years)

- **Diagnosis:** Metastatic breast cancer, hormone receptor positive with moderate volume bone disease, metabolic syndrome (obesity 100cm waist, insulin resistance)
- **Medications:** Palliative endocrine therapy (Letrozole, denosumab), caltrate, and metformin
- **Medical History:**
  - Broken collarbone/ankle in teens/30's due to horse-riding accidents
  - 2013 Lumpectomy, palliative radiotherapy to T9 and bilateral sacroiliac joints and right Acetabulum (30 gy, 12 fractions completed in June 2013), good response symptomatically
  - January 2014, partial response in bone scan, minor progression 8th rib, stable bone mets.

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Kate's Assessment

- **Symptoms:** achy and stiff joints (back and shoulders), fatigue (probably medication related?), sleep disturbance
- **Lifestyle:** non-smoker, no alcohol, very good diet, 2-3 coffee per day
- Caregiver role: Daughter (12 years old)
- **Current physical activity:**
  - Walking: 30 minutes moderate-intensity x 5 days/wk (treadmill or outdoors)
  - Swimming: 1 session per week
  - Horseback riding: weekends
- **No experience with resistance training**

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Kate's Exercise Rx (Active Living Program)

- October 2014: consulted with endocrinologist: recommended return to horse riding plus daily aerobic exercise
- Patient referred to EP (Cheema) May 2015.
- 12 week exercise prescription:
  - Continue aerobic conditioning (walking)
  - Continue with play/leisure activity (horseback riding)
  - Continue with daily activities
  - Include resistance training (hypertrophy-based)
    - 2-3 sessions/week
    - 8 exercises (functional/fundamental movements)
    - Instructional videos provided
    - 2 sets per exercise

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Kate in May 2019 (4 Years Later)

- She is… 'Very, very well' according to oncologist
- No notable symptoms
- Stable bone disease
- Still engaging in exercise on a daily basis, incl. resistance training
- Maintains good physical functioning and quality of life
- Significant fat loss (-10cm off waist) and improvement in metabolic outcomes

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Case 2:
Jim (62 years)

- **Diagnosis and history:** Metastatic prostate cancer (bone mets) with full course of treatment (chemo, radio, hormone)
- Told 'nothing could be done',
- Given <6 months to live
- **Socioeconomic Status: Former airline pilot, wealthy with properties in Australia, Spain and Canada**
- **Markedly compromised physically – weak, walking with cane and assistance**
- **Contacted the Cancer Care Program**

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Jim's Program with Dying at Home

- Attended the Bundeena clinic 5 d/wk with wife
- **Provided techniques to facilitate:**
  - **Relaxation (Guided Imagery)**
  - **Pain Management**
  - **Engagement in Life**
    - **Goal Setting: 'To Fly Again'**
    - **Defining '20 Ways to Play': He chose walking in nature and swimming**

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Jim, 3-4 Years Later

- Visited by Dr. Manion in Canada
- Looking strong
- Flying an ultralight plane
- **Lived to the age of 71 (9 years) with a terminal illness having achieved everything he wanted to achieve in his life**

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The Positive Role Model

Determinants of Health

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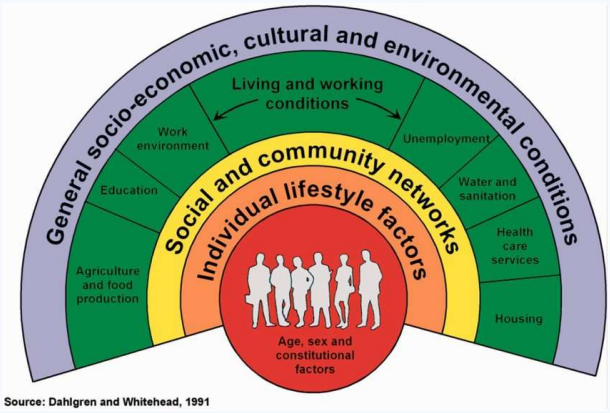
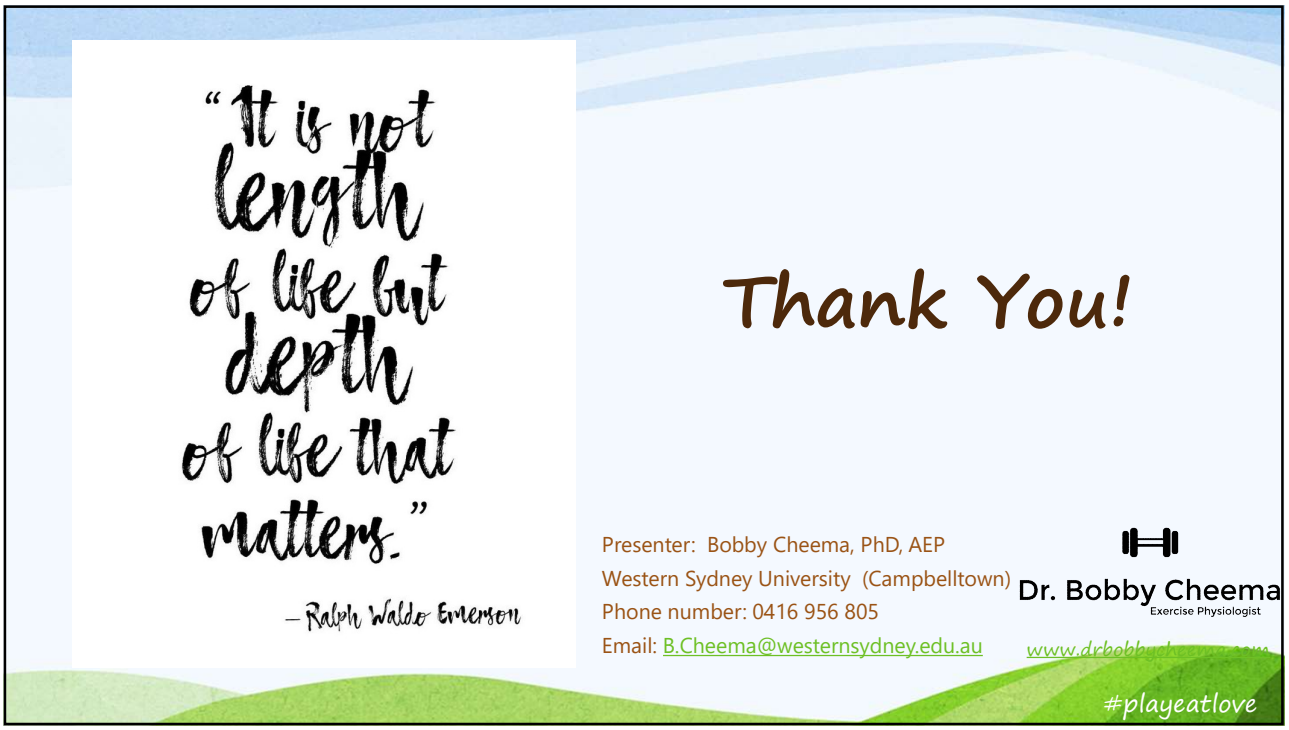
Determinants of Health



Source: Dahlgren and Whitehead, 1991


"It is not length of life but depth of life that matters."
– Ralph Waldo Emerson
Thank You!
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