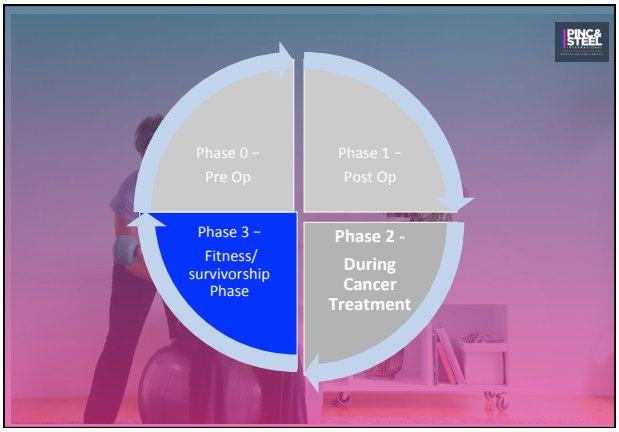
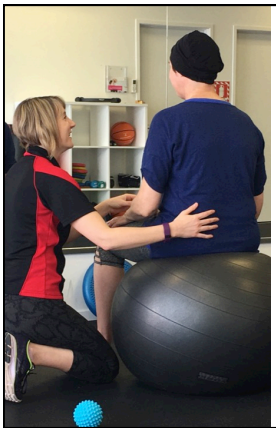


Fitness Phase - Objectives

- Designed to make meaningful improvements in the lives of people through effective exercise medicine
- Aims to promote overall wellbeing, facilitate conditioning and increase physical stamina
- Continued emphasis on strengthening and stretching weakened muscles from any surgical intervention
- The exercise selection focuses on improving physical functioning to maximise recovery to return to work, and living as fully and actively as possible
- It aims to motivate and encourage good exercise habits for life and help people reach their goals

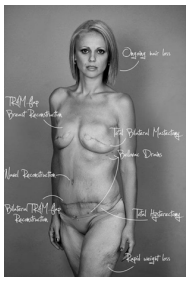


- Cancer rehab therapists can help people to overcome the **physical and functional barriers**, which may stop them from participating in physical activity or responding well to a group program
- Look at the wellbeing of the 'whole' person and help them to **reach their short, long-term and futuristic goals**

Chronic sequelae of cancer

- Second cancers
- Bone
- Metabolic
- Cardiac
- Neurological and cognitive
- Psychological
- Fatigue
- Fertility, sexuality, menopause
- Social and financial
- Etc etc etc....

What lies beneath the surface

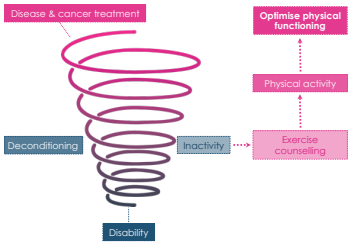


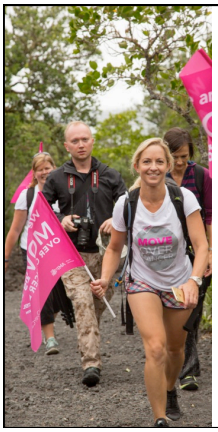
" I think the hardest part of cancer treatment is at the end – when everyone assumes you're "cured" and you no longer need their help.
You're in your weakest, most devasted state, plus you no longer have the mission you had when you began this journey: to kill the cancer.

The cancer is toast, but so are you, and now, like a soldier at the end of war, you need help putting yourself back together, only everyone has gone home since they assume the war has been one."

Deconditioning

One of the most prevalent cancer related treatment complications





The case for exercise

- World-wide evidence-based research
- Potential to provide both physical and psychological benefits simultaneously
- Majority of cancer survivors are **NOT meeting PUBLIC HEALTH GUIDELINES**

Success of physical activity in cancer 1

- Evidence from single studies, systematic reviews and meta-analysis
- Highest clinical evidence the top 5
  - Breast >60 studies
  - Colorectal >50 studies
  - Prostate >35 studies
  - Endometrial cancer >20 studies
  - Lung cancer >20 studies
- Decrease risk of
  - Lung cancer 20%
  - Breast cancer 20-80%
  - Colon cancer 30-50%
  - Prostate cancer 70%

Success of physical activity in cancer 2

- Mixed tumour groups - cancer not specified
- Ovarian
- Lung
- Endometrial
- Melanoma
- Brain
- Non-Hodgkin's Lymphoma
- Palliative care
- Evidence in adult patients groups and childhood cancer patient groups

What is the link between exercise and cancer survival?

- In a recent systematic review of over 100 research studies investigating the impact of exercise on the prognosis and wellbeing of people with cancer
- Greater levels of exercise after cancer is assoicated with a **reduction in cancer related death by nearly 50%**
- Exercise may also **reduce the risk of cancer recurrence by up to 35%**
- Exercise is the NUMBER ONE treatment **for reducing the most common and debilitiing side effects of cancer treatment**

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There is a dose response relationship to exercise – the better 'quality' exercise people do the more pronounced benefit that they get

This really comes down to intensity so it's **not** just about the length or minutes of exercise people do each week

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Success of physical activity with cancer symptoms and management

- Fatigue
- Self-esteem
- Depression
- Bone mineral density
- Anxiety
- Overall QOL
- Lymphoedema
- Weight management
- Stress management

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Success of physical activity in palliative care

- Estimated that 1/3 of cancer patients' reduction in physical functioning may be down to physical inactivity
- Disease and treatments also have catabolic effects on muscle
- Even bedridden people with cancer can benefit from exercise
- Palliative patients ask how they can improve their situation
- Uncertain of how much and what type of physical activity
- Doctors often vague and answers unsatisfactory

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Progressive Resistance Training (PRT)

- Largely ignored in cancer management
- Potent stimulus for enhancing muscle growth / strength and mass
- 2.5 times a week for 12 weeks, significant increases in total body skeletal muscle mass
- PRT safe and effective with no exacerbation of the activity of the disease

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Weight Loss

- A particular concern in some cancer patients is weight loss
- Depletion in muscle mass is associated with increased risk of recurrence as well as overall mortality - finding countermeasures while not compromising safety is crucial
- For optimal hypertrophic response **progression in training intensity** is essential
- When designing exercise interventions, it is important to consider essential principles of training, = **individualization, specificity, progression, and recovery**
- Resistance training needs to be individualized and prescribed relative to baseline muscular strength status.
- If weight loss is an issue working with a dietitian maybe necessary and coordinating training and meal times

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Benefits of exercise post treatment

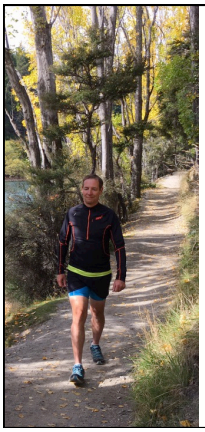
Improves:

- Aerobic fitness
- Muscle strength
- Functional capacity
- Shoulder function
- Bone health
- Quality of life
- Body image
- Self Esteem

Decreases:

- Lymphoedema risk
- lymphoedema symptoms/ flare ups
- Fatigue
- Pain
- Depression
- Anxiety

➢ **Evidence of decreased risk of recurrence**
➢ **Decreased risk of non cancer-related mortality**



How can exercise provide benefit across such a broad range of health outcomes?

- Fact: there is no medication or treatment that can positively influence as many body systems as exercise can
- Exercise may reduce the rate and magnitude of cancer therapy dose modifications by:

➢ ↑ factional capacity & ↓ severity of treatment related side effects, therefore allowing for higher treament completion rates.

What are the barriers?

- Confusion from patients and doctors about when the best time to start an exercise program
- Difficulty accessing certified cancer rehab exercise therapists
- Health issues
- Lack of perceived ability
- Fear
- Lack of professional guidelines
- Work issues/ family issues
- Lack of time / Lack of support /Lack of motivation
- Tiredness
- Exercises require too much time and don't fit into daily routine

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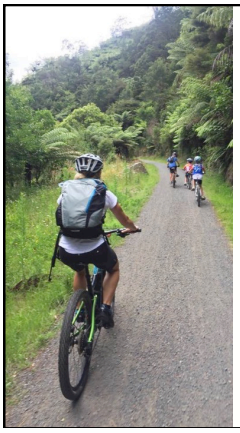


National and International guidelines

- NCCN, American Cancer Society & American Institute Cancer Research
- Look for programs designed for cancer patients
- ACS – 30 - 60 min moderate to vigorous exercise 5 times a week
- Aerobic workout, strength training and stretching
- If receiving radiotherapy treatment avoid swimming pools due to bacteria
- Listen to your body

Critical adjuvant in management of cancer

- Reduce risk of cancer
- Reduce symptoms during treatment
- Improve progression free survival and overall survival

Exercise prescription considerations

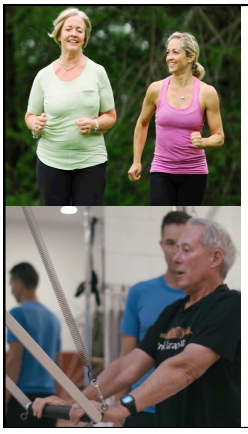
- Level of fitness before diagnosis
- Activity levels during treatment
- Fatigue scale
- Co-morbidities
- Care about fracture risk
- Care about risk of infection
- Pain control/symptom management

Cardiovascular sequelae after cancer treatments

- Slash/Poison/Burn
  - Reduced physical function, ↓ strength, tiredness, ↓ body confidence
  - Chemo →bone marrow damage →↓ red blood cells →cardiotoxicity →↓cardiac output
  - Hazards of immobility →cardiovascular/pulmonary/ metabolic loss →muscle atrophy

Exercise Prescription

- A Plan - a detailed exercise prescription can help to keep people motivated and feeling supported
- Encouragement – exercise is within their reach
- Baseline measurements
- Focus on health and movement
- Begin with short and achievable
  - 10 – 15 minute sessions, twice a day 4-5 days a week
- Progress intensity and review regularly how patient is responding
- Walking, cycling, swimming, paddling ….
- Resistance training – a vital component



Current recommended guidelines

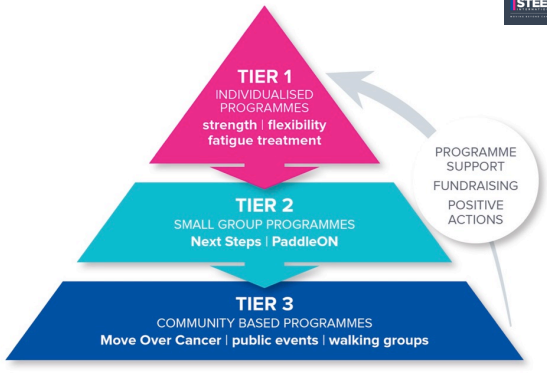
- Avoid inactivity
- 150 minutes per week of moderate intensity AEROBIC exercise
- 2 to 3 sessions per week RESISTANCE exercise
- Needs to be: Individually tailored and progressed

The Borg rating of perceived exertion

6	No exertion
7	
8	
9	
10	
11	Light
12	
13	Somewhat hard
14	
15	Hard (heavy)
16	
17	Very hard
18	
19	
20	Maximal exertion

- Subjective sensations of effort
- Increased heart rate, increased respiration or breathing rate, increased sweating, and muscle fatigue
- A fairly good estimate of the actual heart rate during physical activity* (Borg, 1998)
- 12 to 14 on the Borg Scale = moderate level of intensity
- Self-monitoring how hard your body is working can help you adjust the intensity of the activity by speeding up or slowing down your movements

… The Borg Scale	The Breathing scale	
6		
7 Very light	WHISTLE	
8		
9 Very light		
10		
11 Fairly light	SING	
12		
13 Somewhat hard		
14	TALK	
15 Hard		
16		
17 Very hard		
18		
19 Very, very hard	GASP	
20		



Fitness phase considerations

- Starting point – often 6 months to a year after diagnosis, cancer treatments complete
- Loss of confidence in their bodies
- Fear of doing the wrong exercises
- Depression and cognitive issues
- Need weekly motivation to stay on track with fitness regime
- Increasing general fitness and encouraging other forms of regular exercise (walking etc)
- Equipment classes, mat classes, cardio/pilates, circuit classes,
- Next Steps and PaddleOn programs

The importance of having a community that **'Just Gets It'** can't be overstated. Our **Paddleon** and **Nextsteps** programs, bring people recovering from cancer together and the bonds they make form a very important support network going forward

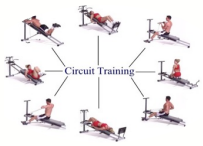
Phase Three Protocol

ACTION	RATIONALE
Assess any lasting side effects from adjuvant treatment	Side effects can last for many years post treatment. This can have an impact on type and intensity of exercises
Assess quality of movement	May have developed poor movement patterns due to surgery and pain
Assess muscular strength	Can be affected by disuse Important to build strength at this stage to regain normal function
Assess pelvic and core awareness/ strength	For general posture and strengthening

Phase Three Protocol continued

ACTION	RATIONAL
Gait Analysis	General gait and biomechanical analysis
Assess pre op and current exercise programme	To establish pre op fitness Goal setting Progress exercise programme if participated in earlier PINC or STEEL Phases • Pilates Equipment Classes • Pilates Mat Classes • Cardio/Pilates Classes/ circuit classes • Advice regarding returning to other forms of independent exercise
Assess co morbidities	Due to age of some PINC & STEEL patients may have have co morbidities Have goals based on this, ie knee strengthening, exercises for back pain etc

Circuit Resistance Training



- Circuit training is an excellent way to improve mobility, strength and stamina
- Intersperse resistance exercises and aerobic based exercises
- Exercises are symptom limited
- Can be started at a very basic level
- Can be modified if someone is particularly fatigued on the day

Progressing from individual sessions to classes

- Develop individual exercise program
- Supervise through each exercise
- When patient is ready, progress to an equipment or circuit style class (2-4 people)
- Team up with another patient in a similar stage or fitness level
- Review program every 4/6 weeks and progress
- Could then progress from equipment to mat class or cardio/pilates class/next step class or paddleon

Progressing to monthly monitoring

- For ongoing motivation and re-assessment
- Encourage to join move over cancer and train for a local challenge or event
- To adapt and progress program

Summary

- Exercise needs to become a standard component of cancer care
- Exercise for secondary prevention is just as important as exercise for primary prevention
- People who take their exercise medicine regularly:
  - experience fewer treatment related side effects
  - have a lower relative risk of dying from their cancer, their cancer coming back and dying from any other cause