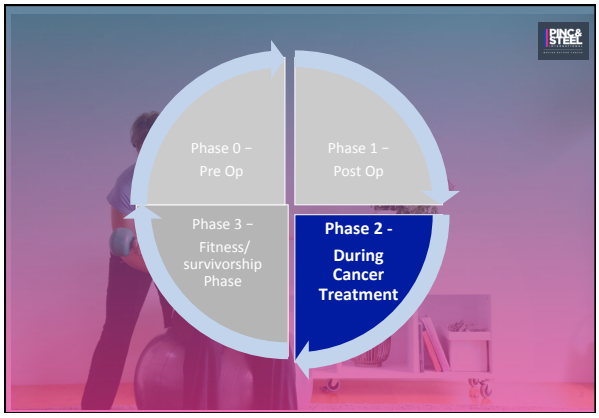

During active treatment - Phase 2

Objectives:

- Designed to improve energy levels and maintain health during cancer treatments to reduce the impact on physical functioning and overall conditioning.
- It aims to help individuals minimise loss of function and thereby assisting with reducing time o work.
- Strategies to help manage fatigue and anxiety
- Education and reassurance
- Restore post op ROM and strength
- Prevention of soft tissue fibrosis, myofascial pain, and lymphoedema

Side effects of chemotherapy

- nausea, vomiting, loss of appetite
- hair loss – temporary
- sore mouth
- fatigue
- sun sensitivity, dry itchy skin, cracked fingers, rash
- bowel changes, constipation or diarrhoea
- weight gain
- "Chemo-brain"
- menopause symptoms, a decrease in fertility
- barrier contraceptive needed for up to 2 years after treatment
- **bone marrow suppression**: low platelet, white and red blood cell counts cause easy bruising, problems with **wound healing**, **infection**, anaemia – delays next cycle

Rehab considerations during chemotherapy

- Plenty of fluids, relaxation and rest
- Healthy nutrition, smaller, more frequent meals
- Food safety
- No Aspirin
- Discuss medications, home remedies, complementary and alternative medicines (CAMs) with oncologist first
- Exercise – safe and helpful, **unless** very low blood counts, infection
- Refer to clinician if any fever or infection = urgent
- Please phone patients on Chemo to cancel if you have a cold
- Schedule exercise during high energy periods
- Use interval exercise with work – rest intervals

Summary of the Effects of Radiation treatment

Effects of radiation therapy

- **Acute**: dry skin burn reaction, moist blistering, breast oedema, tenderness, nipple excoriation, **fatigue**
- **Intermediate**: pneumonitis, **fatigue**
- **Late**: skin telangiectasia, dryness or pigmentation, breast pain, firmness or swelling, sun sensitivity, lung fibrosis, cardiac effects, rib osteopenia or fracture, lymphoedema
  - Skin
  - Connective tissue
  - Vascular damage – capillaries and arterioles
  - CNS and PNS
  - Lymphatics
  - Wound healing

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Wound healing can be seriously affected by radiation therapy

The long term side effects include:

- Skin atrophy, soft tissue fibrosis and micro-vascular damage leading to a higher risk of developing problematic, non-healing wounds
- Skin reactions depend on a number of factors including
  - Patients age, skin integrity, type of radiation, chemical and skin irritants used by the patient, nutritional status, presence of skin folds and concurrent chemotherapy

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Rehab considerations during radiotherapy

Physiotherapists should regularly check the skin of patients undergoing radiotherapy and check the wound colour, appearance, presence of exudate and any signs of infection

- aqueous cream
- mild soap, pat skin dry
- cool with a fan
- no cosmetics, perfumes, deodorants
- no shaving
- loose cotton clothing
- plenty of **fluids**
- keep physically active
- avoid **sun exposure** during and for 1 year after
- resume usual skin care when skin has healed
- **Baseline measures**

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Exercise during treatment

- The evidence shows that there is neither additional risk of harm to the patient nor any adverse interactions with treatment when exercise is **individually prescribed and supervised**
- During treatment, body-weight control and **energy-balance** stability are important
- Previously active patients – continue as much as possible within limitations of their treatment plan
- Previously sedentary patients – commence slowly and progress steadily under supervision
- **Monitor fatigue**

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What impact does exercise rehab have on treatment-related side effects?

Preservation or improvements	Reductions
Muscle mass, strength, power	Symptoms and side-effects reported: nausea, fatigue, pain
Cardiovascular fitness	Intensity of symptoms reported
Physical function	Duration of hospitalisation
Physical activity levels	Psychological and emotional stress
Range of motion	Depression and anxiety
Immune function	
Chemotherapy completion rates	
Body image, self esteem and mood	

Hayes S, et al. (2009). J Sci Med Sport;12:428-34; Schmitz KH, et al. (2005). Cancer Epi & Biomarkers; 14:1588-95

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Exercise and chemotherapy research

- It is widely reported that chemotherapy can cause unfavorable changes in physical functioning, body composition, psychosocial functioning, and quality of life
- Patients on chemotherapy can experience declines in lean body mass and muscle strength and a subsequent increase in body weight
- **Combined resistance and aerobic training shown to improve self esteem, physical fitness, body composition, and chemotherapy completion rate** without causing lymphoedema or any significant adverse affects
- Preference for type of exercise

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Compromised immunity

The guidelines from the Vario Health Institute at Edith Cowan University for implementing exercise for cancer patients suggests:

- If a patient is neutropaenic avoid public gyms and training venues
- When leukocyte (white blood cell) count is low – reduce the risk of cross-infection by limiting physical interpersonal contact and cleaning any equipment prior to use.
- **Lowering the intensity and volume** of exercise program is a good way to allow the patient to maintain some physical activity without over loading the immune system
- **Ongoing training can improve immunity and lymphatic circulation**

Summary of safety of exercise during treatment

- **Age appropriate** guidelines for aerobic activity
- **Exercise is safe** during cancer treatments, including bone marrow transplant
- **Resistance and flexibility exercises** are recommended with adaptations for those at risk of lymphoedema, care about facture risk (osteoporsis and bony metastases)
- **Care about infection risk among those who are immune-compromised** because of treatment

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One of the areas in which exercise has the greatest impact is quality of life.

In a recent study, *Italian* researchers found that among patients who had little or no exercise there **was a greater perception of disease severity** and that strenuous exercise was strongly associated with improved quality of life measures

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Phase Two Protocol - commencing treatment

ACTION	RATIONALE
Assess ROM, quality of movement and baseline measures	**The treatment may impact your client differently throughout this phase so they need regular assessment . They may develop abnormal movement patterns due to pain and lack of education**
Check scarring and complications	**Can be well adhered at this point** **Seromas can be quite scarred**
Assess risk of lymphodema	**Some people may have forgotten the info given by Drs or us.** **Education on prevention**
Check core awareness	**To assist with posture and pain prevention**
Assess breathing pattern	**Whether poor patterns have been adopted due to pain, stress etc**
Assess impact of chemotherapy/ radiotherapy/HSCT	**To establish exercise goals and side effect symptoms**
Assess fatigue	**Maximising treatment sessions** **Self management plan**

Phase Two Protocol – throughout phase

ACTION	RATIONALE
Assess general upper and lower limb function and strength	Increase strength for function and self confidence
Assess core awareness / strength	Avoid back pain Important to gain general core strength for posture etc
Monitor scarring/ adhesions	Scar tissue continues to mature for 2 years Can still be influenced in this time
Monitor effects of adjuvant treatment	Symptoms can change throughout treatment therefore rehab priorities may alter
Increase core awareness/ strength and stability	Can begin to increase difficulty for function
Progression of all exercises	Overload principle

Guide for sequencing of phase two exercises

- Breathing control
- Stretches to restore ROM, strength and stability
- Improve posture and promote abdominal recruitment
- General stretches
- General conditioning exercises

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When is exercise important for cancer patients?

- **As soon as possible!**
- Preferably during treatment
- Evidence that exercise can offset effects of cancer treatment and complete treatment
- If unable to exercise during treatment, then as soon as capable post treatment

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Summary

- Cancer Rehab sessions during cancer treatment can reduce unnecessary disability and improve physical and functional outcomes
- Focus is on ↑ energy levels and making patients feel more comfortable
- Often patients comment once they have done some exercise, **they feel better!**
- **Be gentle and kind**