



Exercise and Prostate Cancer: It's Time to Move!



Prostate Cancer Canada Network - Brampton
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Overview

- Introduction
- The Importance of Physical Activity & Exercise
- Exercise Throughout the Cancer Continuum
- Exercise Guidelines
- Exercise Considerations
- Pelvic Floor Muscle Exercises (Kegels)

Introduction

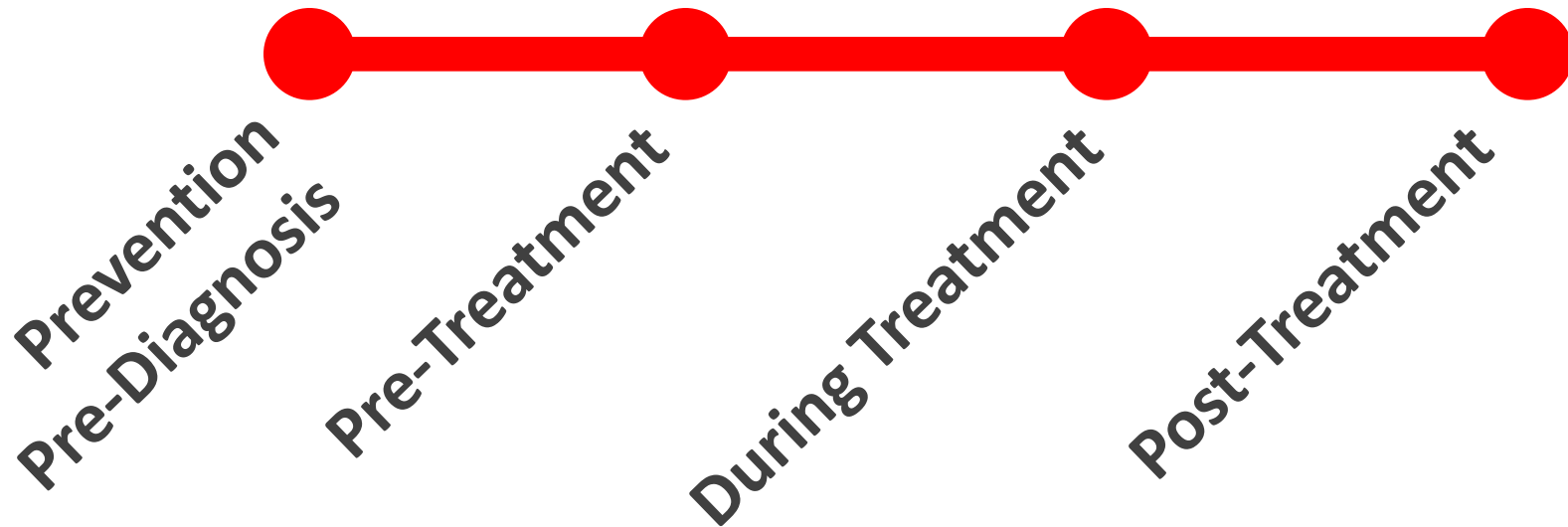
Thank you!

- PhD Candidate at York University
 - Examining exercise during prostate cancer care
- Certified Exercise Physiologist (CSEP)
- Certified Cancer Exercise Specialist (UNCo)
- Research Coordinator (Princess Margaret Hospital)
 - Survivorship Exercise Program

When To Start Exercising?

Now!

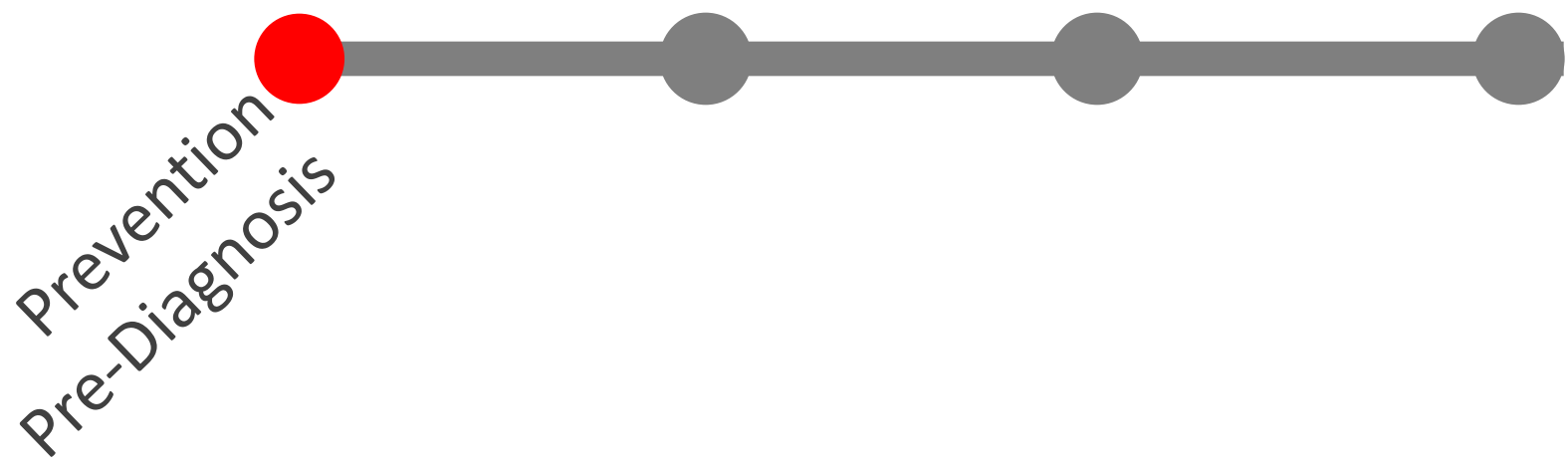
Exercise is beneficial during every phase of cancer:



Exercise vs Physical Activity



Exercise for Prevention Prevention / Pre-Diagnosis



Prevention



More than 250 studies have examined the role of physical activity in cancer prevention.

(Friedenreich & Orenstein; J. Nutr. 132:3456S-3464S, 2002)

- In prostate cancer, physical activity likely reduces the risk of incidence by 10-30%**

(Friedenreich, 2001; Torti, 2004)



Possible Mechanisms of Prevention

- Reduced levels of circulating testosterone and other growth factors (e.g. IGF-1)
(Leung et al, 2004, J Appl Phys; Westerlind, 2003, MSSE)
- Improved immune system function
(Jones, 2010)
- Increased anti-tumour proteins (p53)
(Leung et al, 2004, J Appl Phys)

Detection



Exercise may indirectly affect cancer detection by facilitating adherence to cancer screening behaviors, thereby resulting in earlier detection.

(Larson et al, BMC Gastroenterology, 2006; Courneya & Friedenreich, 2007, Sem Oncol Nursing)

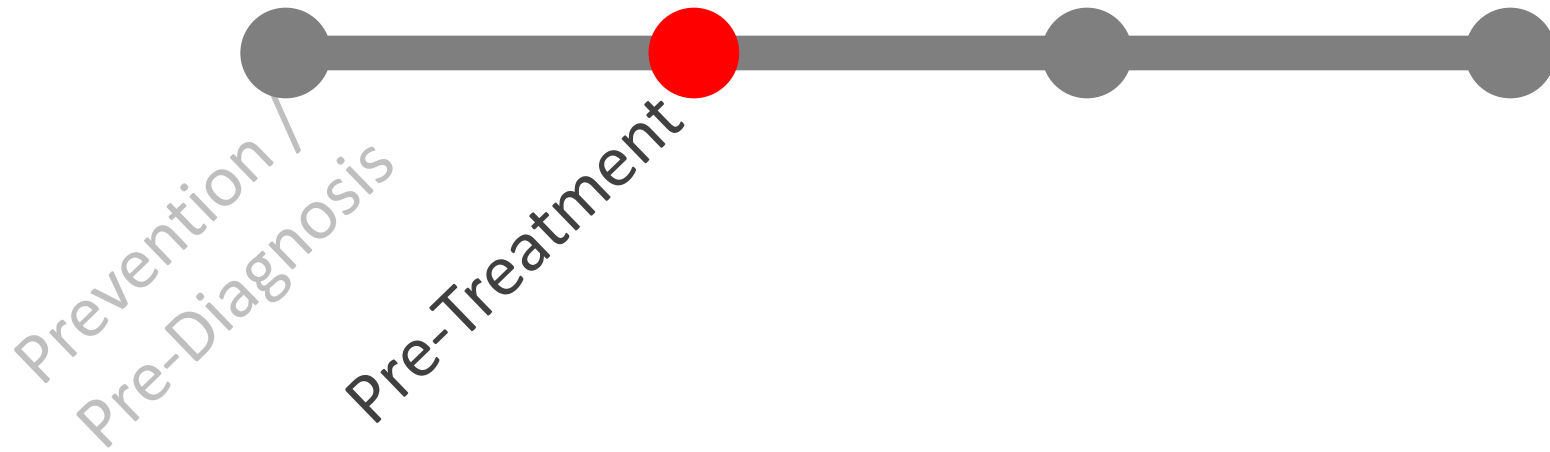
Bike Riding and PSA

- No acute increase in PSA after long bout of intense cycling or exercise

(Luboldt et al, 2003, Urology; Hermann et al, 2004, Clin Chem Lab Med.; Lippi et al, 2005, Int J Sports Med; Swain et al, 1997, Arch Fam Med)

- No evidence re: motorcycle riding

Exercise During Pre-Treatment Phase



Pre-Treatment



- Improved treatment tolerance with pre-treatment exercise
- Improved coping & reduced emotional distress
- Allow difficult treatments to proceed
 - e.g. surgery, chemotherapy
- Possibly quicker recovery time
- Reduced treatment & post-treatment side-effects

Preoperative Pelvic Floor Muscle Exercise for Early Continence After Radical Prostatectomy: A Randomised Controlled Study

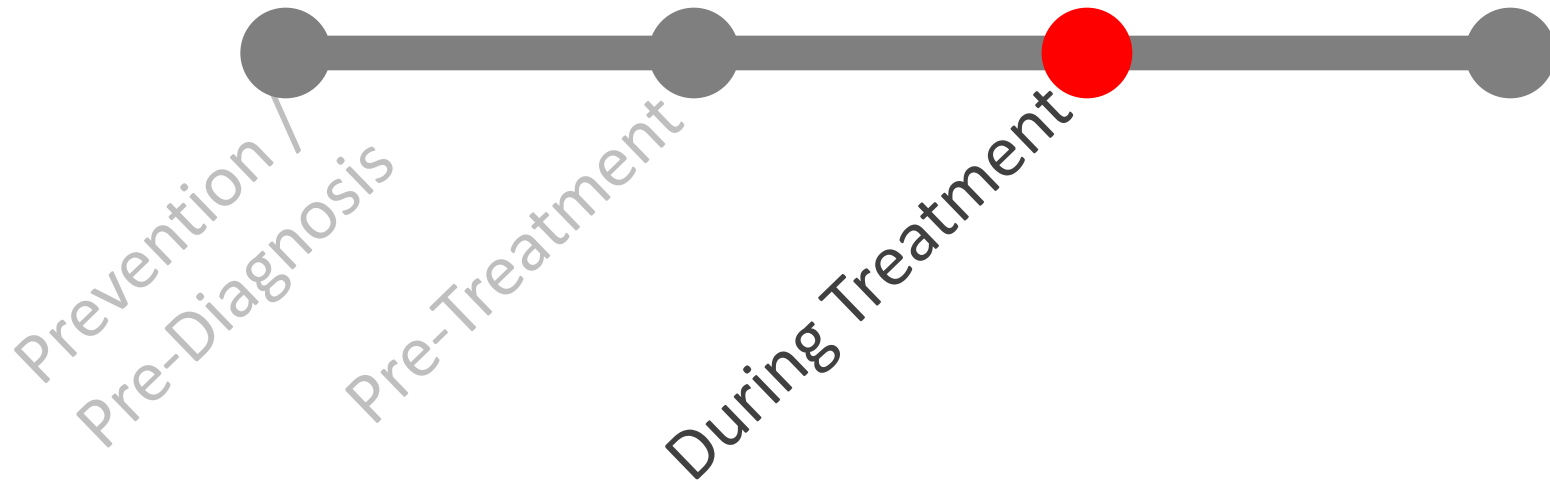
Antonia Centemero^{a,1}, Lorenzo Rigatti^{a,1}, Donatella Giraudo^a, Massimo Lazzeri^a, Giovanni Lughezzani^a, Daniela Zugna^b, Francesco Montorsi^a, Patrizio Rigatti^a, Giorgio Guazzoni^{a,*}



118 patients




- n=59 patients assigned to PFM exercises for 30 days before radical prostatectomy
- n=59 patients assigned to usual care
- All patients underwent open, nerve-sparing radical prostatectomy
- At 1 and 3 months after surgery, self-reported urinary incontinence was better in the PFM exercise group ($p < 0.02$)
 - Quality of life was also improved with preop PFMX

Exercise During Treatment



Exercise During Treatment: New Research

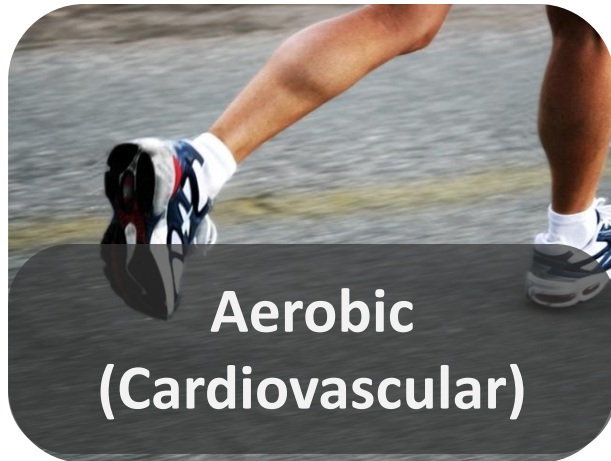
Radiation

-  1. Windsor et al, 2004 (Cancer)
-  2. Monga et al, 2007 (Arch Phys Med Rehab)
-  3. Segal et al, 2009 (JCO)

Hormone Therapy (ADT)

-  1. Segal et al, 2003 (JCO)
-  2. Galvao et al, 2006 (MSSE)
-  3. Culos-Reed et al, 2007 (J Sport Exer Psych)
-  4. Culos-Reed et al, 2009 (Sup Care Cancer)
-  5. Galvao et al, 2009 (JCO)
-  6. Santa Mina et al (in progress)
-  7. Newton et al (in progress)

Types of Exercises



Exercise During Treatment: Benefits

- Cardiovascular & musculoskeletal fitness
- Physical functioning
- Treatment side-effects (e.g. pain, nausea)
- Quality of life
- Body composition
 - (fat %, weight, waist girth, muscle mass, bone mineral density)
- Physical activity volume
- Fatigue

Exercise Does NOT:

- Worsen treatment or disease-related symptoms
- Undermine treatment efficacy

During Treatment:

Potential Benefits

- Slow growth of cancer cells in humans
- Improved treatment completion rates
- Reduced hospitalization time (costs)
- Many others...

Much more research is needed...



Fatigue

“Cancer fatigue is a crushing, all-encompassing, incapacitating fatigue that is indescribable other than to say that it is completely draining.”

- 59 year old man with prostate cancer

(From Schwartz, A.L., 2004)

- Fatigue is the primary side-effect of cancer and affects nearly 100% of patients undergoing treatment

(Courneya et al, 2000)

- Research in many cancers demonstrates that exercise during chemotherapy, immunotherapy, hormone therapy, radiation, and bone marrow transplant can reduce fatigue

(Dimeo, 2004; Lucia Earnest & Perez, 2003, Lancet)

- Resistance and/or aerobic training are effective in reducing (or maintaining) fatigue for prostate cancer patients undergoing ADT or radiation

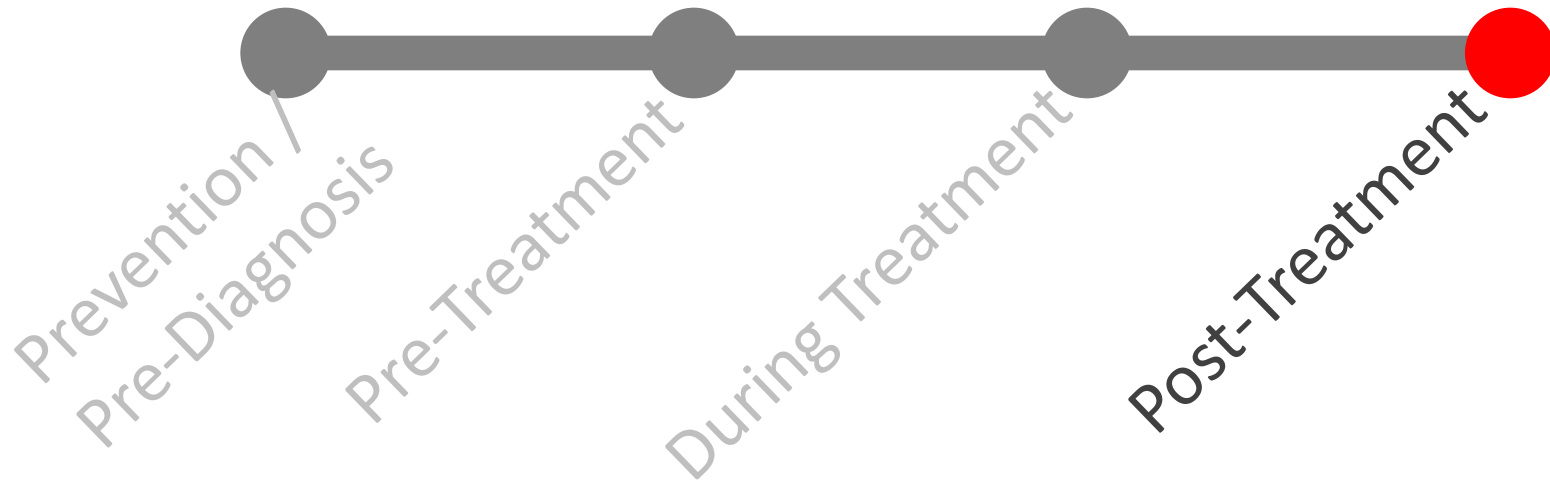
(Santa Mina et al, 2009)

Psychosocial Factors

- Body Image
- Self Esteem
- **Increased control**
- Anxiety & Depression
- Quality of Life
 - *physical, functional, and emotional well-being*



Exercise Post-Treatment



Post-Treatment



No research specific to prostate cancer, **yet...**

In other cancers, exercise after treatment improves:

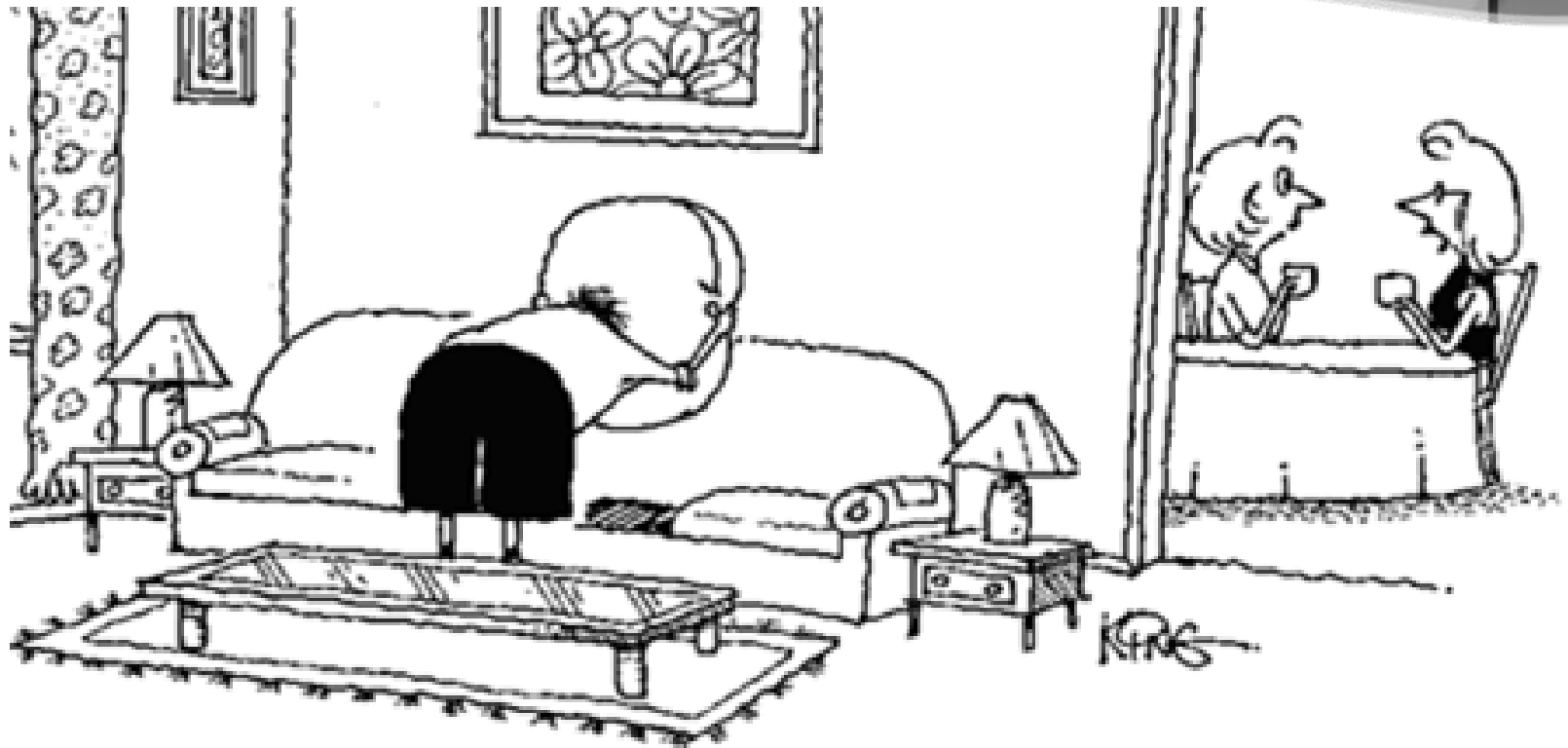
- Improved cardiovascular & musculoskeletal fitness
- Improved physical functioning
- Reduced fatigue
- Improved body composition
- Improved joint mobility
- Improved immune factors
- Improved quality of life
- Reduced risk of other chronic diseases
- Reduced chronic treatment-related side-effects
- Improved body image and self-esteem

Post-Treatment - Survival

- No evidence in prostate cancer...**yet.**
- In breast and/or colon cancer survivors, exercise is associated with
 - Reduced risk of cancer recurrence
 - Reduced cancer-specific mortality
 - Reduced all-cause mortality

(Holmes et al, 2005, JAMA ; Meyerhardt, Heseltine et al, 2006, JCO;
Meyerhardt, Giovanucci et al, 2006, JCO; Courneya et al, 2010, Current Oncology)

Your Exercise Program!



The doctor said he needed more activity. So I hide his T.V. remote three times a week.


Your Exercise Program

Each program should be **individualized**

Must consider:

- Type, stage, and grade of cancer
- Treatment(s)
- Any physical or functional limitations
- Any health or medical concerns
- Activity preference
- Availability of exercise equipment/facility
- Goals

Goals

- For those *undergoing treatment*,
 - maintain strength, endurance, and daily functioning
 - For those who have *completed treatment*
 - return to their former level of physical and psychological functioning
 - Safety is the primary issue!
- 
- A person is standing on a high mountain peak, arms raised in a gesture of triumph or achievement. The background shows a vast, snow-capped mountain range under a clear sky. The person is silhouetted against the bright sky.

Exercise Guidelines For Men with Prostate Cancer

- Each program should be **patient-specific**
- Recommendations are **evidenced-based** from **prostate cancer** research trials

(Santa Mina et al, 2009)

FITT PRINCIPLE

- **F**requency (Days/Week)
- **I**ntensity (%MHR, RPE, Talk Test)
- **T**ime (hours:minutes)
- **T**ype (modality)



Exercise Prescription

Frequency

- Aerobic Exercise: 3-5 days per week
- Resistance Exercise: 2-5 days per week

Intensity

- Moderate intensity
 - 50-75% maximum heart rate; 4-7/10 rating of perceived exertion; talk test
 - 60-70% of 1 repetition maximum (but may progress)

Time

- 20-60 minutes of continuous exercise
- *May combine several bouts (min. 10 mins)

Type of Exercise

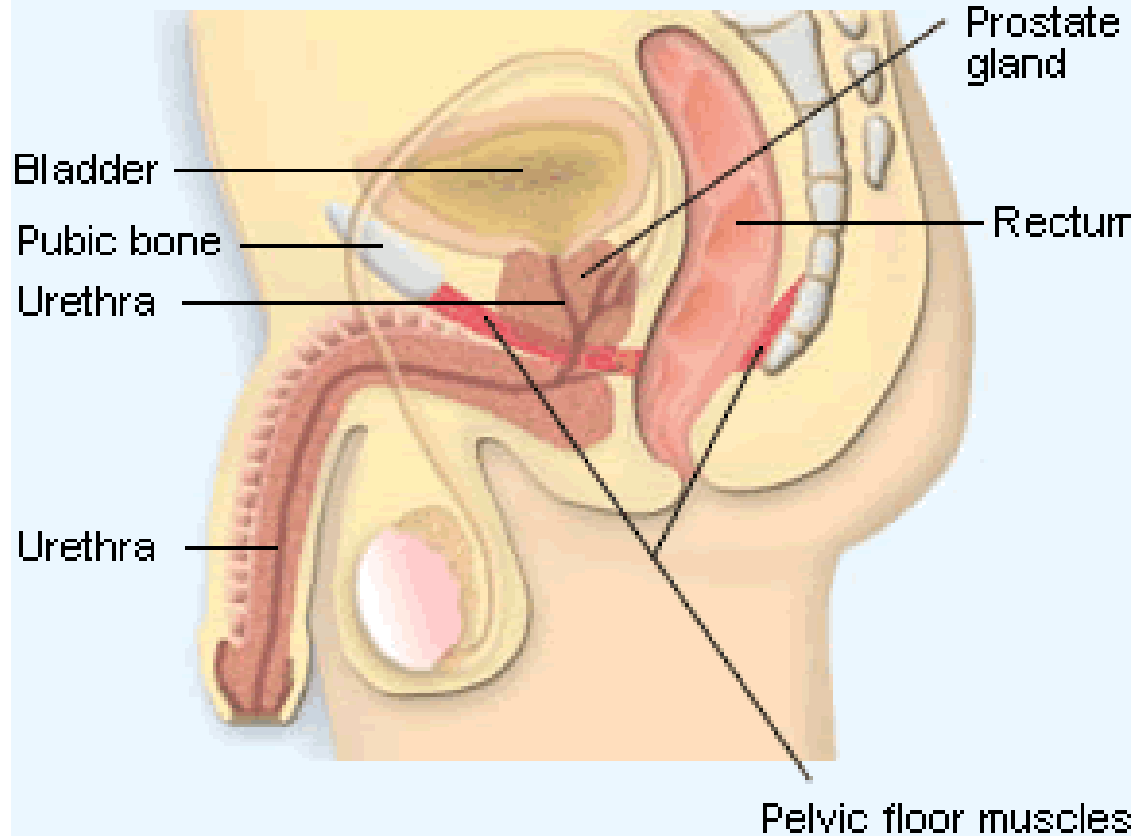
- Large muscle groups
 - (e.g. walking, cycling, rowing, etc.)
- Any exercise is appropriate if it is safe and can elicit the desired cardiovascular or musculoskeletal response
- Consider any limitations due to cancer or treatment-related side effects.
- **Do what you enjoy!**

Treatment Consideration

- Edema (swelling)
- Leukopenia (suppressed immune system)
- Thrombocytopenia (impaired clotting)
- Anaemia (impaired O₂ saturation)
- Fatigue
- Reduced muscle and/or bone density
- Dehydration (nausea/diarrhea)
- Urinary symptoms (urgency/leakage/catheter)
- Pain

Pelvic Floor Muscle Exercises

PELVIC FLOOR MUSCLES



Pelvic Floor Muscle Exercises

- Also known as Kegel Exercises
- Strengthen the pubococcygeous muscle group
 - Control the opening and closing of the urethral sphincter, key for urinary control
- Regular training can build strength and endurance in these muscles, which can aid in the recovery of urinary control
- Pre- AND post-operative PFEs are effective at improving continence after radical prostatectomy

How to do PMF Exercises (Kegels)

1. Identify the correct muscles

- Stop and start flow while urinating
- Sensation of upward & inward contractions
- Similar to squeezing the rectal area as if holding gas

2. Frequency

- Develop a routine (can be done anywhere)
- Work up to >100 reps/day

3. Contraction Type

- Always contract maximally (as hard as you can)
- Quick contractions- tighten and relax muscles rapidly
- Slow contractions - contract and hold (up to 10s)

Enable. Empower. Exercise



Clinical-Research Program

- Fitness Assessment
- Exercise Prescription
& Routine Follow-up
- Exercise & Nutrition Seminars
- Education Materials

Directed by:

- Dr. Paul Ritvo, Dr. Shabbir Alibhai
- Dr. Andrew Matthew, and
- Dr. John Trachtenberg

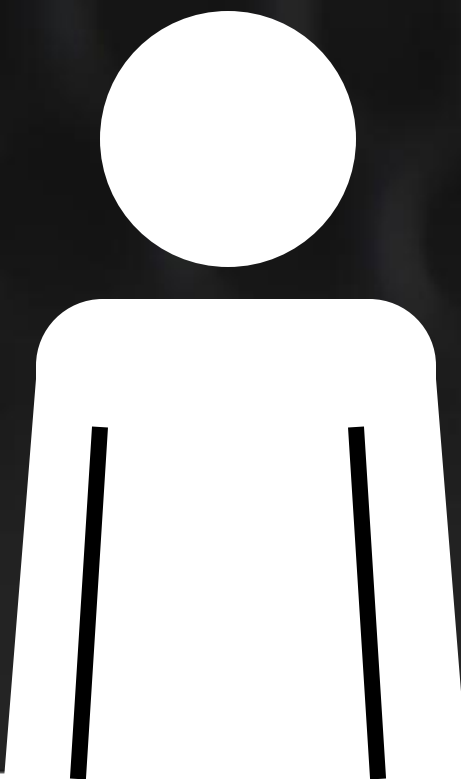
Survivorship Exercise Program

For more information, contact:
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www.uhn.on.ca/prevention_exercise.html



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