From Research to Practice

Yoga for Cancer Survivors

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Background

- Professor, Faculty of Kinesiology, University of Calgary
- Adjunct, Department of Oncology, Cumming School of Medicine
- Researcher, Department of Psychosocial Resources, Tom Baker Cancer Centre
- Funding – CIHR, PCC/Movember, AIHS, CIBC, CCSRI
- Co-Founder, Thrive Health Services
  — Cancer and Exercise Online Training
Yoga adds contemplative element to exercise

‘Mindfulness in motion’.

- **Research knowledge**
  - Yoga in Cancer Survivors, Yoga in “Exercise is Medicine”

- **Addressing moving research to practice**
  - Knowledge Translation – Knowledge to Action; Dissemination and Implementation Science
  - Role of researchers
  - Role of the yoga therapist

- **Practical Examples**
  - Yoga Thrive
  - TrueNTH Lifestyle Management and Alberta Cancer Exercise (ACE)
Receiving diagnosis of cancer and undergoing treatment associated with lowered psychological and emotional quality of life.

— Most common symptoms are:
  - Anxiety, depression, fatigue and pain.
— Many patients turn to complementary therapies to help manage their symptoms

Yoga one of the most popular of the CAM therapies

The effect of complementary and alternative medicine on the quality of life of cancer survivors: A systematic review and meta-analyses

Catherine Shneerson, Taina Taskila, Nicola Gale, Sheila Greenfield, Yen-Fu Chen
Yoga's Impact on Inflammation, Mood, and Fatigue in Breast Cancer Survivors: A Randomized Controlled Trial

Psychoneuroendocrinology

Volume 43, May 2014, Pages 20–29

Yoga reduces inflammatory signaling in fatigued breast cancer survivors: A randomized controlled trial

Julienne E. Bower\textsuperscript{a, b, c, d, \textbullet, \textvisiblespace}, Gail Greendale\textsuperscript{e}, Alexandra D. Crosswell\textsuperscript{a}, Deborah Garet\textsuperscript{c}, Beth Sternlieb\textsuperscript{f}, Patricia A. Ganz\textsuperscript{d, g}, Michael R. Irwin\textsuperscript{a, b, c, d}, Richard Olmstead\textsuperscript{b, c}, Jesusa Arevalo\textsuperscript{h},
EXPLORE: The Journal of Evidence-Based Complementary and Alternative Medicine
Volume 2012 (2012), Article ID 642576, 17 pages
http://dx.doi.org/10.1155/2012/642576

Review Article

Yoga & Cancer Interventions: A Review of the Clinical Significance of Patient Reported Outcomes for Cancer Survivors

S. Nicole Culos-Reed,1,2,3 Michael J. Mackenzie,1 Stephanie J. Sohl,4 Michelle T. Jesse,5,6 Ashley N. Ross Zahavich,1 and Suzanne C. Danhauer4,5

Physical Health of Patients with Cancer: A Meta-Analysis

Kuan-Yin Lin,1 Yu-Ting Hu,1 King-Jen Chang,2 Heui-Fen Lin,1,3 and Jau-Yih Tsauo1
- Review of 13 RCT yoga studies have found...
- Large reductions in distress, stress, anxiety & depression
- Reductions in fatigue and improved sleep quality
- Improved mood
- Improved social and emotional function
- Increased functional well-being
- Enhanced quality of life
- Small effects on physical function

Research Question

1. Is a cancer-specific yoga program offered to prostate cancer (PC) survivors a viable physical activity option?

2. What are the benefits – physical and psychosocial?

- Pre/Post Class Ratings

**Week 1 – Pre-class**

First, please circle the number (0-10) that best describes how much stress you are currently feeling.

Next, please circle the number (0-10) that best describes the amount of fatigue you are currently experiencing.

Finally, please circle the number (0-10) that best describes your current mood.
Prostate Cancer Survivors

- Stress: Before Class: 3.6 ± 2.2, After Class: 1.7 ± 1.4, *P* < 0.001
- Fatigue: Before Class: 3.7 ± 1.7, After Class: 2.9 ± 1.3, *P* < 0.001
- Mood: Before Class: 6.0 ± 1.9, After Class: 7.1 ± 2.1, *P* = 0.004

Thermometer Scale Rating

Before Class | After Class
--- | ---
Stress | Fatigue | Mood
3.6 ± 2.2 | 3.7 ± 1.7 | 6.0 ± 1.9
1.7 ± 1.4 | 2.9 ± 1.3 | 7.1 ± 2.1

Prostate Cancer Survivors
Support Persons

**Thermometer Scale Rating**

- **Stress**
  - Before Class: 3.9 ± 1.7
  - After Class: 1.9 ± 1.4
  - Significance: P = 0.004

- **Fatigue**
  - Before Class: 3.9 ± 1.6
  - After Class: 2.3 ± 1.8
  - Significance: P = 0.001

- **Mood**
  - Before Class: 6.1 ± 1.2
  - After Class: 7.2 ± 2.2
  - Significance: P = 0.030
Exploring the pharmacological and pharmacotherapeutic effects of yoga

Subramani Parasuraman¹, Lim Ee Wen¹, Khor Ming Zhen¹, Chin Kean Hean¹ and Aaseer Thamby Sam²

Units of ¹Pharmacology and ²Pharmacy Practice, Faculty of Pharmacy, AIMST University, Bedong 08100, Kedah, Malaysia.

ABSTRACT
Yoga is a spiritual technique incorporating a wide variety of practices, whose goal is developing a state of mental and physical health, well-being, inner harmony and ultimately, achieving a state of oneness with the universe. Yoga can modify disease state(s) and pave the way for a healthy life. Many systemic disorders are associated with due to stress. Regular yoga practice may improve the adaptive autonomic response(s) to stress. Yoga can be used as supportive or complementary therapy in conjunction with medical therapy for the treatment of any systemic disorder. Recent studies have showed the beneficial effects of yoga on the management/treatment of diabetes, blood pressure, atherosclerosis etc. The main objective of this review is to summarize the pharmacological aspects, medical and health benefits of yoga.

Key words: GABA, Meditation, Mental health, Yoga.

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Email: parasuraman@aimst.edu.my
DOI: 10.5530/PTB.2016.1.2
An update of controlled physical activity trials in cancer survivors: a systematic review and meta-analysis

Authors
Rebecca M. Speck, Kerry S. Courneya, Louise C. Mässé, Sue Duval, Kathryn H. Schmitz

Cancer Treatment Reviews 40 (2014) 327–340

Evidence-based physical activity guidelines for cancer survivors: Current guidelines, knowledge gaps and future research directions

L.M. Buffart a,⁎, D.A. Galvão b,1, J. Brug a,2, M.J.M. Chinapaw c,3, R.U. Newton b,4
How do we bring yoga into clinical practice?

Integrating Yoga Into Cancer Care

Susan A. DiStasio, MS, ANP-CS, APRN, RYT

Although yoga has been practiced in Eastern culture for thousands of years as part of life philosophy, classes in the United States only recently have been offered to people with cancer. The word yoga is derived from the Sanskrit root yuj, meaning to bind, join, and yoke. This reflection of the union of the body, mind, and spirit is what differentiates yoga from general exercise programs. Yoga classes in the United States generally consist of asanas (postures), which are designed to exercise every muscle, nerve, and gland in the body. The postures are combined with pranayama, or rhythmic control of the breath. As a complementary therapy, yoga integrates awareness of breath, relaxation, exercise, and social support—elements that are key to enhancing quality of life in patients with cancer. Yoga practice may assist cancer survivors in managing symptoms such as depression, anxiety, insomnia, pain, and fatigue. As with all exercise programs, participants need to be aware of potential risks and their own limitations. The purpose of this article is to familiarize nurses with yoga as a complementary therapy, including current research findings, types of yoga, potential benefits, safety concerns, teacher training, and ways to integrate yoga into cancer care.
### Protocols in Publications

#### Table 1. Yoga Class Structure and Components

<table>
<thead>
<tr>
<th>Upper Extremity Focus</th>
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<tbody>
<tr>
<td>a. 10 minutes Organizational Issues/Introduction</td>
</tr>
<tr>
<td>b. 10 minutes Seated Nadi Shodhana and Focusing</td>
</tr>
<tr>
<td>c. 10 minutes Upper Back Movements/Sara Bhadrasana</td>
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<tr>
<td>d. Child’s Pose extended breath into upper back</td>
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<tr>
<td>e. Gentle Twists/arm bands</td>
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<tr>
<td>f. Standing (focusing on opening upper back, chest, and arms)</td>
</tr>
<tr>
<td>i. Tadasana</td>
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<tr>
<td>ii. Virabhadrasana I (arms up variation)</td>
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<tr>
<td>iii. Trikonasana (arms wide variation)</td>
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<tr>
<td>iv. Adhomukha Sarvasana (knees bent)</td>
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<tr>
<td>v. Padotthasana (arms behind back)</td>
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<tr>
<td>vi. Ardha Utkatasana (halfway up)</td>
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<tr>
<td>g. Seated (focus on upper back, chest, and extremities)</td>
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<tr>
<td>i. Navasana (supported)</td>
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<tr>
<td>ii. Dandasana</td>
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<tr>
<td>iii. Janu Sirsasana/Pascimottanasana</td>
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<tr>
<td>iv. West Work</td>
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<tr>
<td>h. Supine Twist (thoracic focus)</td>
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<tr>
<td>i. Sarvasaana</td>
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<th>Lower Extremity Focus</th>
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<td>a. 10 minutes Organizational Issues/Introduction</td>
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<tr>
<td>b. 10 minutes Seated Nadi Shodhana and Focusing</td>
</tr>
<tr>
<td>c. 10 minutes Lower Back Movements/Sara Bhadrasana</td>
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<tr>
<td>d. Child’s Pose Toes Under extended breath into lower back</td>
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<tr>
<td>e. Standing (focusing on opening lower back and hips)</td>
</tr>
<tr>
<td>i. Tadasana to Ardha Chandrasana (supported)</td>
</tr>
<tr>
<td>ii. Virabhadrasana I (arms up variation)</td>
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<tr>
<td>iii. Ajanutkiri (knee down lunge)</td>
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<tr>
<td>iv. Lunges with knee at wall on blocks</td>
</tr>
<tr>
<td>v. Adhomukha Sarvasana (against wall or straightening legs)</td>
</tr>
<tr>
<td>vi. Padotthasana (arms under shoulders/wrists)</td>
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<tr>
<td>vii. Gandhasana (Chair Balance variations-no arms)</td>
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<tr>
<td>viii. Bhasicana</td>
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<tr>
<td>e. Seated (focus on lower back and hips)</td>
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<tr>
<td>i. Bishujasana (supported variation)</td>
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<tr>
<td>ii. Bhasicana/Janu Sirsasana (forward extension)</td>
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<tr>
<td>iii. Ankle and Foot Rolls</td>
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<tr>
<td>g. Supported Backbends with blocks</td>
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<tr>
<td>h. Supine twist (hamstring focus)</td>
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<td>i. Sarvasana</td>
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<th>Open Focus</th>
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<tbody>
<tr>
<td>a. 10 minutes Organizational Issues/Introduction</td>
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<tr>
<td>b. 10 minutes Seated Nadi Shodhana and Focusing</td>
</tr>
<tr>
<td>c. 10 minutes Hip and back Movements/Sara Bhadrasana</td>
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<tr>
<td>d. Sukhasana with twists and side extensions</td>
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<tr>
<td>e. Child’s pose side to side</td>
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<tr>
<td>f. Cat/Cow</td>
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<tr>
<td>g. Adhomukha Sarvasana-Sara Knees</td>
</tr>
<tr>
<td>h. Standing</td>
</tr>
<tr>
<td>i. Tadasana to Ardha Chandrasana (supported)</td>
</tr>
<tr>
<td>ii. Virabhadrasana I</td>
</tr>
<tr>
<td>iii. Parivrttanasana</td>
</tr>
<tr>
<td>iv. Padotthasana (with extended twist)</td>
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#### Table 1. continued

| House yoga practice sequence. An abbreviated version of the full yoga program was introduced for home practice, which also teaches subjects to become increasingly self-sufficient and increases the likelihood that a yoga intervention will decrease subjective pain (Table 2). Additionally, this small amount of daily practice has been used in other mind-body therapy trials. The home program consisted of participants choosing and performing three out of the 10 asanas, three times per week for a total of 30-40 minutes on days when yoga sessions did not take place. |

| Data collection. Participants were given a book with five guiding questions and various home practice options based in the cover of the journal. The study questions were completed after each yoga session and home exercise program and collected at the end of the study. The following questions were determined by two qualitative researchers (M.G., E.G.) |

1. What was the greatest benefit from this yoga session? |
2. What was the greatest challenge from this yoga session? |
3. How has your joint pain/stiffness changed (improved or worsened) since your last yoga session? |
4. Describe the benefits of your home exercise program. |
5. What is the driving force to bring you to each session? |

Participants were encouraged to contact the researchers if any questions or problems arose. Weekly phone calls were made by |

<table>
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<th>Table 2. Home Practice Options (15-30 Minutes)</th>
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<tbody>
<tr>
<td>Pranayama/Meditation</td>
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<tr>
<td>Lower Back Movements</td>
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<tr>
<td>i. Ankle rolls</td>
</tr>
<tr>
<td>ii. Lunges with knees at wall</td>
</tr>
<tr>
<td>iii. Lower back twists</td>
</tr>
<tr>
<td>Upper Back</td>
</tr>
<tr>
<td>i. Arm and shoulder shoulder with blocks</td>
</tr>
<tr>
<td>ii. Upper back twists</td>
</tr>
<tr>
<td>iii. Sarvasana</td>
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</tbody>
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THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE

Editors
Sat Bir Singh Khalsa • Lorenzo Cohen
Timothy McCall • Shirley Telles

Forewords by
Dean Ornish, MD • Belle Monappa Hegde, MD, PhD, FRCP
Increase number of exercise/yoga trainers certified to counsel/exercise train cancer survivors
Increase opportunity/resources for physical activity/yoga
Increase tailoring of exercise/yoga programmes
Figure 7. Social Ecological Framework

- **Individual** (i.e., demographics)
- **Interpersonal** (i.e., social support)
- **Organizational** (i.e., community care facility education)
- **Community** (i.e., available programming)
- **Society** (i.e., medical system)
Knowledge Translation:

- Dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system.
There is a gap between what we know (evidence for exercise and yoga) and what is being offered (exercise and yoga programs for cancer survivors)

Role of yoga professional in KT / implementation

Exercise/Yoga plays a key role in the management and improvement of cancer-related symptoms and treatment side effects, improving physical and functional wellbeing, quality of life and return to work (Fong et al., 2012).

Over 80% of patients report wanting to learn more about exercise following a cancer diagnosis (Jones et al., 2007).


Glasgow RE. (2013). What does it mean to be pragmatic? Pragmatic methods, measures, and models to facilitate research translation. *Health Educ Behav* 40:257.
IMPROVING KNOWLEDGE TRANSLATION

CLINIC TO COMMUNITY STRATEGIES

**BUILD A NETWORK**
Central team support
• Spread to reach more rural locations

**PROFESSIONAL TRAINING**
Training of professionals

**COMMUNITY PROGRAMS**
Facilitate uptake via community cancer care programs

**CLINIC INTERGRATION**
Integration of CEP / Kinesiologist / Yoga Therapist in clinic setting
The ‘teachable moment’ is the phenomenon where patients may be more receptive to hear health information and lifestyle behaviour change recommendations following a diagnosis.

Demark-Wahnefried et al., 2005
Overview:

1. Screening & Intake
2. Applying information from screening
3. Absolute and Relative contraindications for exercise/yoga
4. Tailoring Yoga for cancer survivors
   - Based on tumor type
   - Place on cancer continuum
   - Based on treatment type
   - Individual factors: cancer and treatment-related side effects, other chronic conditions, preference and barriers, access to resources, goals.
Screening & Intake Considerations

- Psychosocial considerations
- Demeanor of yoga professional
  - Be prepared to listen
  - Research
- Be aware of cancer stigmas
- Get a sense of support systems and other factors that could aid in adherence
- Maintain and develop a thorough referral network
  - Dieticians, physiotherapists, nurse practitioners, oncologists, osteopaths, naturopaths, etc.
- Know when to refer on!
Should my student get clearance from a doctor before starting a new yoga program?

- PAR-Q Form (*Physical Activity Readiness Questionnaire*) positive answers
  - YES!
- Other questionable items on Client Screening
  - YES!
- If in doubt.....
  - YES!
**PARmed-X PHYSICAL ACTIVITY READINESS MEDICAL EXAMINATION**

The PARmed-X is a physical activity-specific checklist to be used by a physician with patients who have had positive responses to the Physical Activity Readiness Questionnaire (PAR-Q). In addition, the Conveyance/Referral Form in the PARmed-X can be used to convey clearance for physical activity participation, or to make a referral to a medically-supervised exercise program.

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. The PAR-Q by itself provides adequate screening for the majority of people. However, some individuals may require a medical evaluation and specific advice (exercise prescription) due to one or more positive responses to the PAR-Q.

Following the participant's evaluation by a physician, a physical activity plan should be devised in consultation with a physical activity professional (CESEP-Certified Personal Trainer™ or CSEP-Certified Exercise Physiologist™). To assist in this, the following instructions are provided:

**PAGE 1:**
- Sections A, B, C, and D should be completed by the participant BEFORE the examination by the physician. The bottom section is to be completed by the examining physician.

**PAGES 2 & 3:**
- A checklist of medical conditions requiring special consideration and management.

**PAGE 4:**
- Physical Activity & Lifestyle Advice for people who do not require specific instructions or prescribed exercise.
- Physical Activity Readiness Conveyance/Referral Form - an optional tear-off tab for the physician to convey clearance for physical activity participation, or to make a referral to a medically-supervised exercise program.

### A PERSONAL INFORMATION:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
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<tbody>
<tr>
<td>PHONE</td>
<td>BIRTHDATE: GENDER</td>
</tr>
<tr>
<td>MEDICAL No.</td>
<td></td>
</tr>
</tbody>
</table>

### B PAR-Q: Please indicate the PAR-Q questions to which you answered YES

- Q 1 Heart condition
- Q 2 Chest pain during activity
- Q 3 Chest pain at rest
- Q 4 Loss of balance, dizziness
- Q 5 Bone or joint problem
- Q 6 Blood pressure or heart drugs
- Q 7 Other reason:

**Please note:** Many of these risk factors are modifiable. Please refer to page 4 and discuss with your physician.

### C RISK FACTORS FOR CARDIOVASCULAR DISEASE:

Check all that apply

- Less than 30 minutes of moderate physical activity most days of the week.
- Currently smoker (tobacco smoking 1 or more times per week).
- High blood pressure reported by physician after repeated measurements.
- High cholesterol level reported by physician.

### D PHYSICAL ACTIVITY INTENTIONS:

What physical activity do you intend to do?

**Physical Activity Readiness Conveyance/Referral:**

Based upon a current review of health status, I recommend:

- No physical activity
- Only a medically-supervised exercise program until further medical clearance
- Progressive physical activity:
  - with assistance of:
  - with inclusion of:
  - under the supervision of a CSEP-Certified Exercise Physiologist™
- Unrestricted physical activity–start slowly and build up gradually

© Canadian Society for Exercise Physiology  www.csep.ca
General Contraindications for Starting Yoga/Movement

- Allow adequate time to heal after surgery
  - May be as long as 8 weeks (request specific recommendations from patient’s physician along with clearance)
- No participation for patients experiencing severe:
  - Fatigue
  - Anemia
  - Pain

Health and Wellness Lab, Irwin, 2012
Other Limitations and Implications for Exercise

Cancer and Treatment Related Side-Effects that Impact Exercise or Yoga participation:

- Lymphedema
- Body Composition
- Anemia
- Cancer Related Fatigue (CRF)
- Peripheral Neuropathy
- Nerve Damage
- Bone Density
- Heart Function Considerations
  - Blood Pressure
- Immune Function
Programming Suggestions

- Programming Ideas:
  - Provide options based on symptom severity and fatigue:
    - Example: red light, yellow light, green light programs
  - Assess before each class/session
    - Use visual analog scales
  - Ensure individualization
    - Patient specific – individualized
  - “Start Low, Progress Slow”
    - Working below threshold – even if history of exercise/yoga
Moving from research to a community-based program

- Yoga Thrive Teacher Training
  - Over 150 Yoga instructors across Canada.
- Yoga Thrive DVD
- Sustainability
  - Over 800 program registrants
- Best Evidence (research → practice)
How are we empowering survivors?

General Cancer Programs

Prostate Cancer Specific Programs and Resources

ACE
ALBERTA CANCER EXERCISE

TRUE\textsuperscript{NTH}
A MOVEMBER INITIATIVE

LIFESTYLE MANAGEMENT
Dr. S. Nicole Culos-Reed | E: nculosre@ucalgary.ca | Twitter: @NCulosReed
Evidence for PA for CA Survivors:


Guidelines:


PA Clearance for CA Survivors: