

Exercise is Medicine in Oncology: Implementation Based on Solid Evidence

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@fitaftercancer



@fitnessaftercancer

#ExerciseOncology



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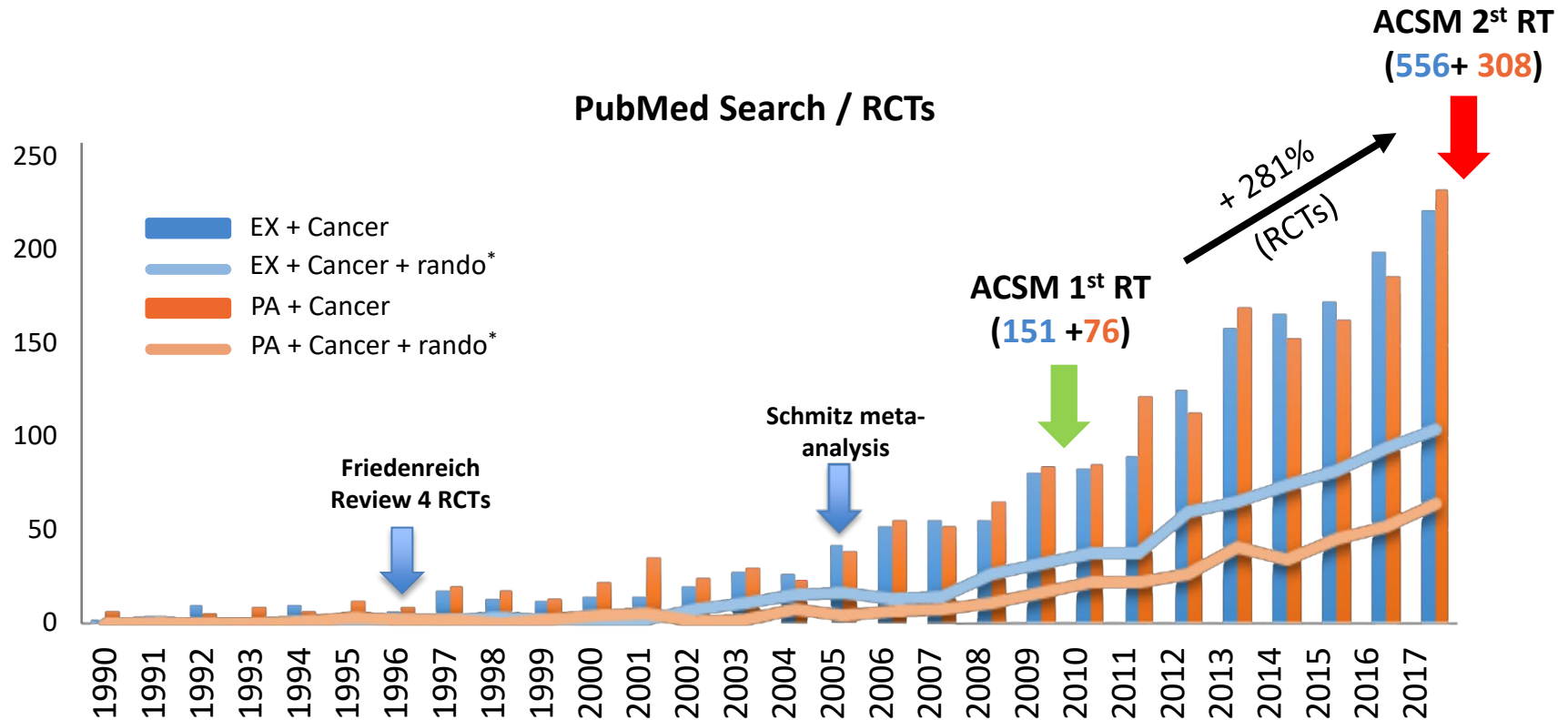


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RCTs in the Field of Exercise Oncology



American College of Sports Medicine Roundtable Report on Physical Activity, Sedentary Behavior, and Cancer Prevention and Control

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ABSTRACT

PATEL, A. V., C. M. FRIEDENREICH, S. C. MOORE, S. C. HAYES, J. K. SILVER, K. L. CAMPBELL, K. WINTERS-STONE, L. H. GERBER, S. M. GEORGE, J. E. FULTON, C. DENLINGER, G. S. MORRIS, T. HUE, K. H. SCHMITZ, and C. E. MATTHEWS. American College of Sports Medicine Roundtable Report on Physical Activity, Sedentary Behavior, and Cancer Prevention and Control. *Med. Sci. Sports Exerc.*, Vol. 51, No. 11, pp. 2391–2402, 2019. **Introduction:** The American College of Sports Medicine convened an International Multidisciplinary Roundtable on Exercise and Cancer in March 2018 to evaluate and translate the evidence linking physical activity and cancer prevention, treatment, and control. This article discusses findings from the Roundtable in relation to the biologic and epidemiologic evidence for the role of physical activity in cancer prevention and survival. **Results:** The evidence supports that there are a number of biologically plausible mechanisms, whereby physical activity can influence cancer risk, and that physical activity is beneficial for the prevention of several types of cancer including breast, colon, endometrial, kidney, bladder, esophageal, and stomach. Minimizing time spent in sedentary behavior may also lower risk of endometrial, colon and lung cancers. Conversely, physical activity is associated with higher risk of melanoma, a serious form of skin cancer. Further, physical activity before and after a cancer diagnosis is also likely to be relevant for improved survival for those diagnosed with breast and colon cancer; with data suggesting that postdiagnosis physical activity provides greater mortality benefits than prediagnosis physical activity. **Conclusions:** Collectively, there is consistent, compelling evidence that physical activity plays a role in preventing many types of cancer and for improving longevity among cancer survivors, although the evidence related to higher risk of melanoma demonstrates the importance of sun safe practices while being physically active. Together, these findings underscore the importance of physical activity in cancer prevention and control. Fitness and public health professionals and health care providers worldwide are encouraged to spread the message to the general population and cancer survivors to be physically active as their age, abilities, and cancer status will allow. **Key Words:** PHYSICAL ACTIVITY, SEDENTARY TIME, CANCER, PREVENTION, SURVIVAL

Exercise For Cancer Prevention and Treatment



Exercising during and after cancer treatment:

- decreases fatigue, anxiety and depression
- improves physical function and quality of life
- does **NOT** exacerbate lymphedema



For cancer survivors, incorporate exercise to improve survival after a diagnosis of breast, colon and prostate cancer

Citation: <http://bit.ly/moving-through-cancer>

Exercise
is Medicine

AMERICAN COLLEGE
of SPORTS MEDICINE

Summary of Evidence base

- **Prediagnosis** Physical Activity for primary prevention
 - Magnitude of risk reduction is 10-20%
- **Postdiagnosis** Physical Activity and
 - Cancer specific mortality = 31-50% reduced risk
 - Specific to Breast, Colon, Prostate

Exercise Prescription for Cancer Primary Prevention and Cancer Survivors

- Prescription
 - 150-300 min/week moderate intensity activity
 - 2x weekly resistance exercise

Exercise Guidelines for Cancer Survivors: Consensus Statement from International Multidisciplinary Roundtable

KRISTIN L. CAMPBELL¹, KERRI M. WINTERS-STONE², JOACHIM WISKEMANN³, ANNE M. MAY⁴, ANNA L. SCHWARTZ⁵, KERRY S. COURNEYA⁶, DAVID S. ZUCKER⁷, CHARLES E. MATTHEWS⁸, JENNIFER A. LIGIBEL⁹, LYNN H. GERBER^{10,11}, G. STEPHEN MORRIS¹², ALPA V. PATEL¹³, TRISHA F. HUE¹⁴, FRANK M. PERNA¹⁵, and KATHRYN H. SCHMITZ¹⁶

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ABSTRACT

CAMPBELL, K. L., K. M. WINTERS-STONE, J. WISKEMANN, A. M. MAY, A. L. SCHWARTZ, K. S. COURNEYA, D. S. ZUCKER, C. E. MATTHEWS, J. A. LIGIBEL, L. H. GERBER, G. S. MORRIS, A. V. PATEL, T. F. HUE, F. M. PERNA, and K. H. SCHMITZ. Exercise Guidelines for Cancer Survivors: Consensus Statement from International Multidisciplinary Roundtable. *Med. Sci. Sports Exerc.*, Vol. 51, No. 11, pp. 2375–2390, 2019. **Purpose:** The number of cancer survivors worldwide is growing, with over 15.5 million cancer survivors in the United States alone—a figure expected to double in the coming decades. Cancer survivors face unique health challenges as a result of their cancer diagnosis and the impact of treatments on their physical and mental well-being. For example, cancer survivors often experience declines in physical functioning and quality of life while facing an increased risk of cancer recurrence and all-cause mortality compared with persons without cancer. The 2010 American College of Sports Medicine Roundtable was among the first reports to conclude that cancer survivors could safely engage in enough exercise training to improve physical fitness and restore physical functioning, enhance quality of life, and mitigate cancer-related fatigue. **Methods:** A second Roundtable was convened in 2018 to advance exercise recommendations beyond public health guidelines and toward prescriptive programs specific to cancer type, treatments, and/or outcomes. **Results:** Overall findings retained the conclusions that exercise training and testing were generally safe for cancer survivors and that every survivor should “avoid inactivity.” Enough evidence was available to conclude that specific doses of aerobic, combined aerobic plus resistance training, and/or resistance training could improve common cancer-related health outcomes, including anxiety, depressive symptoms, fatigue, physical

STRONG

Anxiety

Depressive Sx

Fatigue

HR-QOL

Lymphedema

Physical Function

MODERATE

Bone Health

Sleep

INSUFFICIENT

Cardiotoxicity

CIPN

Cognitive
Function

Falls

Nausea

Pain











Sexual Function

Treatment
Tolerance

Exercise guidelines **DURING** cancer treatment

- To improve symptoms/side effects, it is recommended that cancer patients perform:
 - 3x weekly aerobic exercise 30 minutes/session
 - 2x weekly strengthening exercise

Exercise Is Medicine in Oncology: Engaging Clinicians to Help Patients Move Through Cancer

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Multiple organizations around the world have issued evidence-based exercise guidance for patients with cancer and cancer survivors. Recently, the American College of Sports Medicine has updated its exercise guidance for cancer prevention as well as for the prevention and treatment of a variety of cancer health-related outcomes (eg, fatigue, anxiety, depression, function, and quality of life). Despite these guidelines, the majority of people living with and beyond cancer are not regularly physically active. Among the reasons for this is a lack of clarity on the part of those who work in oncology clinical settings of their role in assessing, advising, and referring patients to exercise. The authors propose using the American College of Sports Medicine's Exercise Is Medicine initiative to address this practice gap. The simple proposal is for clinicians to assess, advise, and refer patients to either home-based or community-based exercise or for further evaluation and intervention in outpatient rehabilitation. To do this will require care coordination with appropriate professionals as well as change in the behaviors of clinicians, patients, and those who deliver the rehabilitation and exercise programming. Behavior change is one of many challenges to enacting the proposed practice changes. Other implementation challenges include capacity for triage and referral, the need for a program registry, costs and compensation, and workforce development. In conclusion, there is a call to action for key stakeholders to create the infrastructure and cultural adaptations needed so that all people living with and beyond cancer can be as active as is possible for them. *CA Cancer J Clin* 2019;0:1-17. © 2019 American Cancer Society.

Keywords: exercise, physical medicine and rehabilitation, physical therapy, supportive care

Exercise Is Medicine Approach

Oncology Clinician's Guide to Referring Patients to Exercise

Step 1: ASSESS

Question #1: How many days during the past week have you performed physical activity where your heart beats faster and your breathing is harder than normal for 30 minutes or more?

Question #2: How many days during the past week have you performed physical activity to increase muscle strength, such as lifting weights?

Question #3: Would this patient be safe exercising without medical supervision (e.g.; walking, hiking, cycling, weight lifting)

Question #3 answer is Yes.

(Patient is ambulatory,
ECOG score 0-2)

- Step 2: ADVISE
 - EIM ExRx for Oncology, based on current report of activity to increase to:
 - Moderate intensity aerobic exercise (talk but not sing) for up to 30 min, 3 times/wk
 - Resistance exercise 2x weekly 20-30 min
- Step 3: REFER to best available community program

Question #3 answer is No

Or

I'm not sure and I don't have the capacity to evaluate.

(ECOG score 3+ or other complications present)

- Step 2: ADVISE
 - Advise patient to follow-up with outpatient rehabilitation healthcare professional for further evaluation
- Step 3: REFER
 - Outpatient rehabilitation health care professional will recommend best available program

REPEAT AT REGULAR INTERVALS AT CLINICAL ENCOUNTERS DURING AND AFTER ACTIVE TREATMENT

Guidelines

SPECIAL COMMUNICATIONS

CA CANCER J CLIN 2022;0:1–33

Exerci
Conse
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KRISTIN L. CAI
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FRANK M. PER

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ASCO special articles

American Cancer Society nutrition and physical activity guideline for cancer survivors

Exercise, Diet, and Weight Management During Cancer Treatment: ASCO Guideline

Jennifer A. Ligibel, MD¹; Kari Bohlke, ScD²; Anne M. May, PhD³; Steven K. Clinton, MD, PhD⁴; Wendy Demark-Wahnefried, PhD, RD⁵; Susan C. Gilchrist, MD, MS⁶; Melinda L. Irwin, PhD, MPH⁷; Michele Late⁸; Sami Mansfield, BA⁹; Timothy F. Marshall, PhD, MS¹⁰; Jeffrey A. Meyerhardt, MD, MPH¹; Cynthia A. Thomson, PhD, RD¹¹; William A. Wood, MD, MPH¹²; and Catherine M. Alfano, PhD¹³

Summary of Guidelines

	During Treatment		Post Treatment	
	Aerobic	Resistance	Aerobic	Resistance
ACSM	30 min 3x weekly	2x weekly	150-300 min/weekly	2x weekly
ACS	Recommended but not specific		150-300 min/weekly	No comment
ASCO	Recommended	Recommended	Not the focus of the guideline	

Growth of the Evidence Base

- Ongoing clinical trials of
 - Exercise and cancer recurrence
 - Personalized exercise oncology (dose finding)
- Chemotherapy treatment tolerance
 - LEANER
 - FORCE
 - ENICTO initiative
- Growing efforts in health services research and implementation science to discern how best to make exercise standard of care

What if we treated chemo like exercise?

‘There is evidence that chemo might help you. Here’s a handout about it. You can call the YMCA and see whether there are classes starting soon. If not, you can wait 12 weeks. The classes are only offered on Tuesdays at 7 pm. I hope that works for you.’

OR

‘We’d like you to get some chemo, it has been shown to improve survival in people with your type of cancer. The handout will explain what to do.’



For patients/survivors to succeed with exercise, they will need:

- Policies, Funding, Sustainability
- Clinical cancer care delivery implementation strategies to ensure appropriate referral
- Adequate programming, when and where it's needed
- An adequate workforce to deliver exercise oncology interventions
- Increased awareness of stakeholders regarding the value of exercise during/after cancer

MOVING THROUGH CANCER

A stylized blue figure is positioned behind the word 'CANCER', appearing to run or move forward. The figure is composed of a solid blue circle for the head and a blue, elongated, arrow-like shape for the body and limbs, pointing towards the right.

Policy, Funding, Sustainability

- Advocate for policies that support exercise oncology programming
 - Policy review – submitted
 - DPP, SET for PAD, Cancer Rehabilitation as examples
 - Major lessons
 - Protocolize exercise oncology
 - Coverage doesn't equal implementation
 - Watch for a policy window to seek an NCD
 - Need clarification regarding workforce
 - Outcomes that might help with an NCD may not have been studied yet



Mary Kennedy et al, submitted

Policy, Funding, Sustainability

- National organizations
 - NAPBC Standards Revision
 - New standards, recently adopted, will require breast centers to declare a plan for exercise referrals in medical oncology and survivorship
 - COC
 - There IS a standard on Oncology Rehabilitation
 - As written, it does not point accredited sites toward exercise oncology as standard of care



Clinical Cancer Care Delivery Implementation Strategies

< 50% of cancer patients are adequately
active



Multifactorial causes include:

Lack of referral from clinicians

- 9% of nurses refer patients to exercise
- 20% of physicians refer patients to exercise

ASCO Survey of the Oncology Workforce

- Ligibel et al. 2019
 - Question: It is the responsibility of the treating physician to recommend weight loss, increased physical activity, and improved nutrition (N=819)
 - 78.9% agreed or strongly agreed
 - 5.2% disagreed or strongly disagreed

Barriers to Providing Behavioral Interventions to Cancer Patients

Barrier	Agree or Strongly Agree
Lack of time for counseling or to set up a referral	67%
Patient resistance to behavioral interventions*	73.4%
Lack of training or experience about discussing weight issues and behavior change with patients	49.1%
Lack of available resources for referrals to interventions	63.1%

* Other studies show 78% of patients are interested in advice from clinicians on exercise, so clinician impression may not reflect patient interest

Training Clinicians to Talk to Patients about Exercise

Active Conversations Pilot



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Active Conversations Course

- A practical, evidence-based online learning course
 - developed by clinicians, for clinicians
 - teaches how to have quick, effective and positive conversations that encourage patients to do more physical activity
 - Motivational Interviewing based
 - Research based behavioral skills training (Miller and Moyers, Journal of Teaching in the Addictions 2006)

Active Conversations

- 6 modules
 - 2 weeks btwn module to practice
 - Discussion board
 - Balance of
 - Reading
 - Handouts
 - Video examples
 - Skill development

Skill Building

Scaling

Ask Share Ask

OARS

- Open Ended Questions
- Affirmation
- Reflective Listening
- Summary Reflections

Avoiding the 'Expert
Trap'

Example Skill: Scaling

- A way to explore and build importance
 - What to say:
 - ‘I’m wondering, how important is it to you to become more physically active... perhaps you could indicate on a scale of 0-10 where 0 is not at all important and 10 is very important’
 - *Assume they say 5*
 - ‘You said 5. Why 5, and why not a lower number? What are some of your personal reasons for becoming more active?’

Pilot Study

- 11 clinicians
 - 3 breast surgeons
 - 2 medical oncologists
 - 2 oncology nurse practitioners
 - 1 radiation oncologist
 - 3 primary care docs

Feedback:

Did you change your practice?

- 10 said yes
- “Use the scaling questions now, and not just for exercise. Asking the key questions taught in the course has **shortened my appt times** because the patient is more engaged and gets to the point quicker”
- “previously told patients about exercise – and **it went in one ear and out the other**. This course changed how I talk about exercise. I spend more time finding out information from the patient, letting patients bring out what is important to them”

Course Net Promoter Score

Oncology
Clinician
average = 9.4

Primary care
average = 7.3

Changes to Active Conversations

- Based on the pilot
 - New 'Foundations' course, half as long
 - Working on getting U.S. based CME credits
 - Available at: **activeconversations.co.uk**

0.5 CME Course from ACS:

<https://acssurvivors.kognito.com/>



**OPEN-ENDED
QUESTIONS**



AFFIRMATIONS



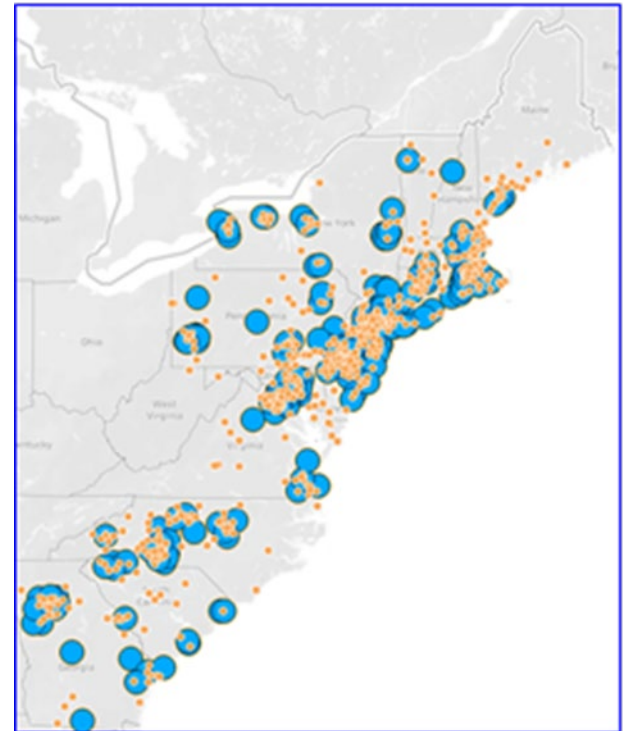
ELICIT-PROVIDE-ELICIT

These are fundamental techniques in **motivational interviewing**, an evidence-based framework for promoting behavior change.

Reference: Miller, William R., and Stephen Rollnick. Motivational Interviewing: Helping People Change. Guilford press, 2012.

Programming When, Where Needed

- Moving Through Cancer Initiative
- Development of a program directory
 - >1800 programs so far
 - Hiring staff to help NOW!
- ID programming across U.S.
- Goal:
 - Complete identification of programming across the United States
 - Map the programming
 - Identify the gaps



How does exercise oncology currently work in practice?

- Exercise Oncology Practice Models

- Group Fitness
- Consultation Model
- 1:1 Model
- Virtual



The ONE Group
Oncology • Nutrition • Exercise



Group Fitness Model

- Examples
 - Livestrong at the YMCA
 - Dragon boat racing teams
 - Fitsteps for Life
 - 2Unstoppable.org
- What is it?
 - Group fitness classes specifically for cancer patients and survivors offered by professionals with specialty training in exercise oncology



Group Fitness Model

Advantages

- Brochure therapy becomes an option
- Completely offloaded from clinic

Disadvantages

- Brochure therapy doesn't work
- Serious health equity challenges of these programs based on assumptions of time availability and transportation
 - Imagine only offering chemo if patients could come at 4 pm on Tuesdays....
- Who is this serving?
 - LiveStrong at the YMCA has served ~68000 survivors in the U.S. after over a decade of service

Consultation Model

- Examples:
 - Cancer Wellness for Life
 - ONE Group (Schmitz led)
 - Sunflower Wellness (now MTCA)
- What is it?
 - EMR based referral of cancer patients to an exercise oncology professional for
 - Assessment
 - Exercise prescription
 - Minimal guided exercise (amount determined by assessment)
 - Referrals to appropriate community resources or home exercise
 - Appropriate triage to PMR and PT as needed
 - EMBEDDED into cancer clinic – no need for referral to separate location or additional appts.



Consultation Model

Advantages

- Better reach than group fitness approach
- Personalized attention, personalized timing of sessions
- Addresses safety concerns
 - Capacity for exercise oncology pro to coordinate with PT and PMR regarding referrals
- Same location, no extra appts
- Can be done over via telehealth platforms

Disadvantages

- Requires
 - Identification of an exercise oncology professional to come work in your oncology clinic
 - Salary for exercise oncology professional
 - Adding referral to your EMR

1:1 Exercise Oncology Model

- Examples
 - Maple Tree Cancer Alliance
 - is in 55 locations across US and beyond
- What is it?
 - Cardiac rehabilitation type model of 1:1 assessment and personal training during and after treatment
 - Phase 0 - prehabilitation
 - Phase 1 – during treatment
 - Phase 2 – 12 week post treatment program
 - Phase 3 – 12 week long term survivor program
 - Embedded within cancer centers or offered as a virtual 1:1 telehealth program



1:1 Exercise Oncology Model

Advantages

- Most likely to reach patients (>11,000 served in 10 yrs, 50+ locations)
- Model with the most personalized attention
- Can also serve as a triage tool to PT and PMR
- Onsite or telehealth models reduce travel/transportation concerns
- Documented efficacy, most resembles exercise research trials from which evidence base was developed

Disadvantages

- Requires:
 - Space onsite
 - Exercise oncology professionals (likely more than one)
 - Equipment
 - Method of referral from clinicians (EMR approach works here too)

Workforce Enhancement



- Primary Focus
 - Prepare exercise professionals to work in oncology
- Goals:
 - Survey exercise professionals regarding ex onc knowledge
 - Delphi project first
 - Build training capacity
 - Undergraduate Textbook by 2024
 - Essentials of Exercise Oncology (Schmitz, Schwartz, Campbell)

- # Mary Kennedy



Delphi products

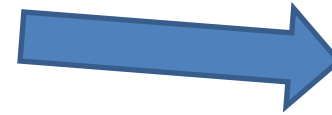
- Will lead to a revision of the ACS/ACSM Cancer Exercise Trainer Certification to be a credential that:
 - Better meets the needs of the field
 - Is easier to obtain
 - Moves us closer to the workforce needs in exercise oncology



Stakeholder Awareness, Empowerment, Engagement

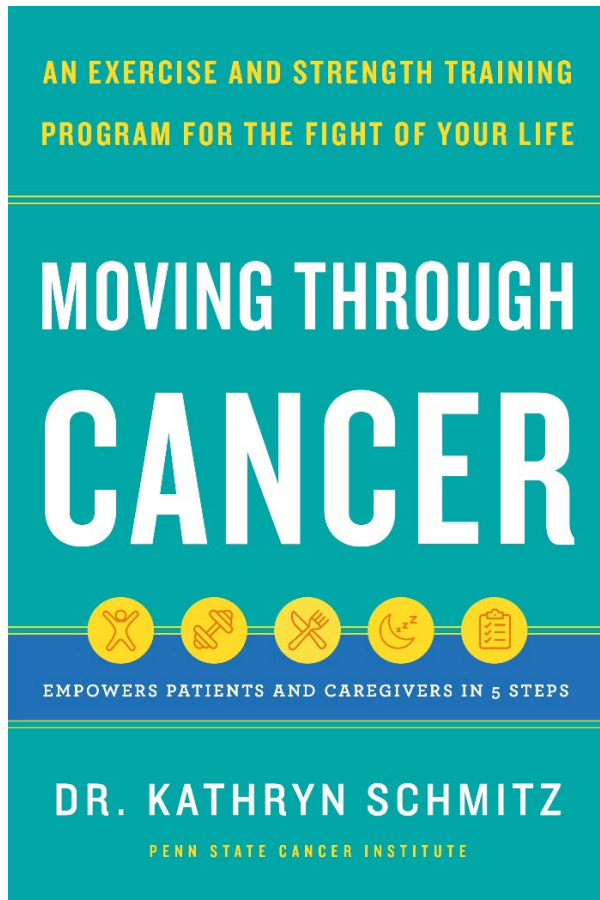


- Ensure everyone living with cancer is aware of exercise benefits
 - Brochure development and distribution
- Goals:
 - Distribution of brochure
 - Social media campaign – ACSM and ACS in collaboration
 - NCCS HELP?
 - Measure improvement in levels of awareness among patient and providers
 - Surveys before and after brochure distribution



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New Book for patients and caregivers



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 - Amazon
 - Barnes and Noble
 - Bookshop.com
- Book purchase = 1 year free membership to **MyVictory.com**
- **Website:**
 - www.movingthroughcancer.com

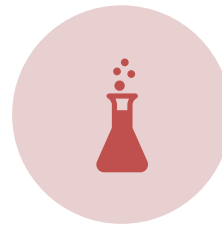
In summary, to make exercise standard, it will take:



POLICIES



PROGRAMS



IMPLEMENTATION
SCIENCE



WORKFORCE



BEHAVIORAL
SCIENCE



STAKEHOLDER
ENGAGEMENT

Exercise
is Medicine®

MOVING
THROUGH
CANCER

I am grateful to MANY colleagues around the world, patient participants, and for all of my current funding, including:

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ACS Clinical Research Professorship

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And collaborative work.

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