



**Wisconsin  
Cancer  
Collaborative**  
REDUCING THE BURDEN TOGETHER

## **Breakout Session D | Cancer Survivorship**

**1:00-2:00**

# SPEAKER



**Dr. Matt Wiggins**

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# Cancer Recovery & Fitness Community Outreach Program

Professor Matt Wiggins, Ed.D.  
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# Community Outreach

- Reaching the community through exercise, health, and physical activity programs
  - Cancer Recovery & Fitness
  - Community Fitness Program
  - Parkinson's Exercise Program
  - PRIDE (Physical activity and Recreation for Individuals with Disabilities in the Eau Claire area)
- Providing students w/ applied learning opportunities

# Introduction

- Why exercise and cancer?
- Cancer is related to lifestyle
  - 50% to 75% of cancer deaths in the US are related to several risk factors such as smoking, poor dietary choices, and physical inactivity (National Cancer Institute, 2007, Siegel et al., 2014).

# Introduction

- Cancer is related to lifestyle
  - Wiggins, M. S., & Simonavice, E. M. (2010). Cancer prevention, aerobic capacity, and physical functioning in survivors related to physical activity: A recent review. *Cancer Management and Research*, 2, 157-164.
  - Obesity and/or a sedentary lifestyle increases the risk for developing several types of cancer such as breast, colon, kidney, and endometrial cancer.
  - Strong link between physical activity and reduced risk of breast and colon cancer
    - Moderate link w/ lung, endometrial & prostate cancer with increases in physical activity

# Survivorship Research

- I. Physiological changes and adaptations through exercise
  - Exercise capacity (i.e., cardiorespiratory fitness, stroke volume, red blood cells, BP)
    - e.g., Adamsen et al., 2003; Courneya et al., 2003; de Paleville et al., 2007; Pinto et al., 2002; Schwartz, 1999; Thorsen et al., 2005; Young-McCaughan et al., 2003
  - Body fat % & body weight control
    - e.g., Thomas et al., 2016; Quist et al., 2006; Schwartz, 2000
    - Excess body fat produces estrogen and may/can increase the risk of breast cancer
    - Fat tissue can cause overproduction of cytokines (proteins) that cause inflammation/disease; can promote cancer in healthy cells

- I. Physiological changes and adaptations through exercise (continued)

- Muscular strength and endurance (breast cancer survivors)

- Physical Assessment Means (SDs) over Time

	<u>Baseline</u>	<u>3 months</u>	<u>6 months</u>	<u>9 month</u>	<u>12 months</u>
• VO <sub>2</sub> Fitness_____	30.5 (10.6)	35.8 (3.5)	33.6 (4.5)	35.8 (6.7)	33.0 (6.8)
• <b>Leg Press (lbs.)___</b>	<b>126.7 (52.8)</b>	<b>166.7 (54.3)</b>	<b>183.3 (60.2)</b>	<b>188.3 (54.6)</b>	<b>196.7 (41.3)</b>
• <b>Bench Press (reps.)__</b>	<b>5.3 (3.9)</b>	<b>18.6 (10.3)</b>	<b>21.6 (8.1)</b>	<b>20.7 (10.3)</b>	<b>24.3 (10.9)</b>
• Sit & Reach (in.)_____	7.6 (4.0)	10.9 (2.9)	11.6 (2.5)	11.8 (2.4)	11.8 (2.8)
• Shoulder Stick (in.)__	39.1 (9.3)	35.7 (12.3)	28.8 (6.7)	26.4 (6.6)	29.9 (7.6)

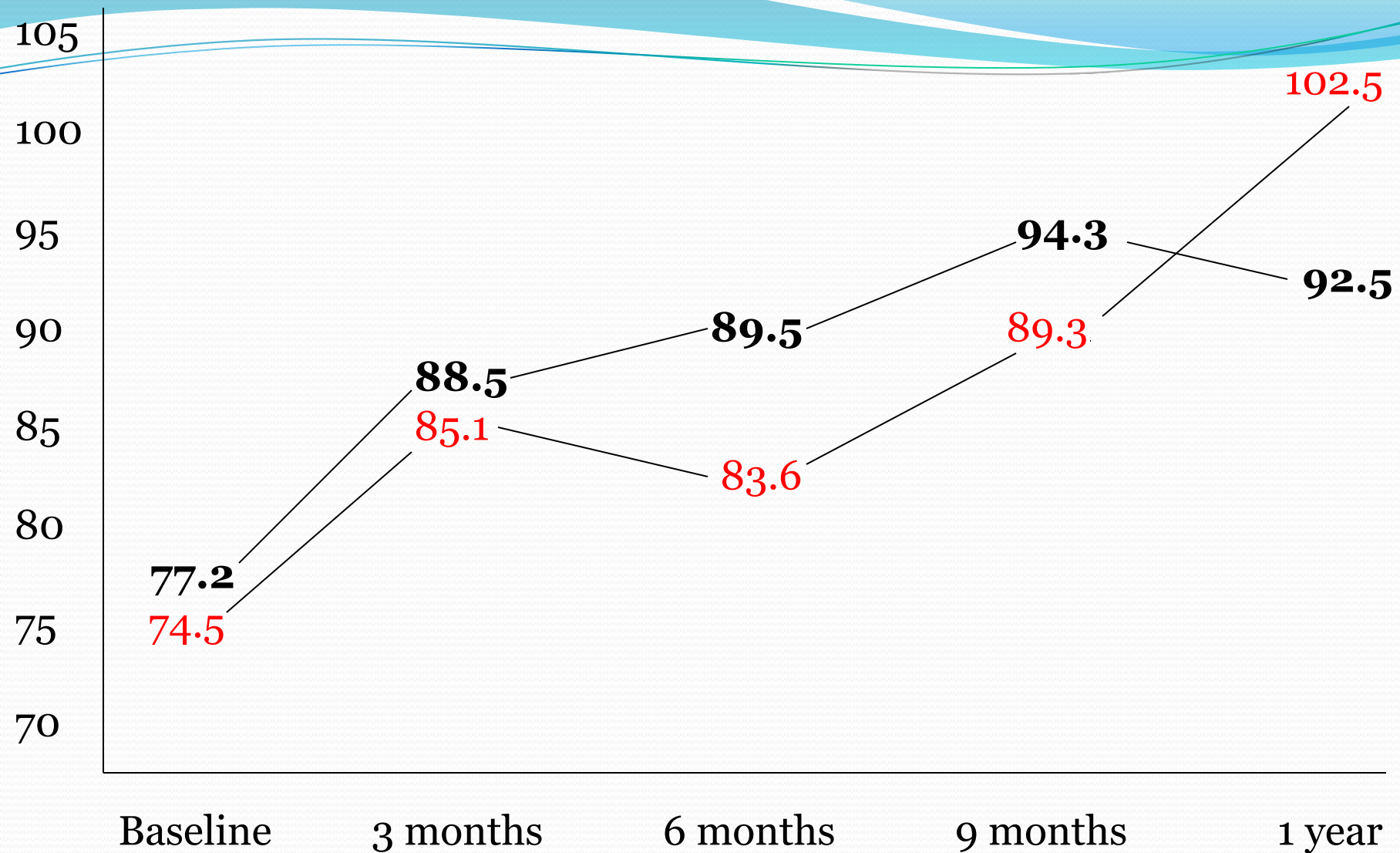
Wiggins & Simonavice (2008)



- I. Physiological changes and adaptations through exercise (continued)
  - Lymphedema (generally breast cancer survivors)
    - Exercise generally helps (Kirshbaum, 2005), remaining lymphatic vessels may weaken if not physically trained (Lane et al., 2005)
  - Immune functioning
    - Mild intensity improves, high intensity depresses (McTiernan, 2003)
    - No immunological changes after exercise (Hayes et al., 2003)

- II. Psychological changes/quality of life perceptions
  - Anxiety/depressive symptoms
    - Courneya et al., 2003; 2000; Craft et al., 2011; Mock et al., 2001
  - Self-esteem/self-efficacy
    - Wiggins, Simonavice, & Erdmann, 2007; Wiggins & Simonavice, 2008
  - Emotional & social well-being
    - Courneya et al., 2003
  - Body image/body esteem
    - Pinto et al., 2002
  - Fatigue & Quality of Life
    - Maybe the most important area

- Fatigue & Quality of Life (QOL)
  - Fatigue is the most frequently reported symptom of cancer treatment (e.g., Schneider et al., 2003)
  - Rest is the most common medical advice (Coon & Coleman, 2004; Courneya et al., 2000; Douglas, 2005; Watson & Mock, 2004) which leads to de-conditioning, lower functional capacity (Courneya et al., 2005)
  - Higher levels of exercise (> 60 min) increased fatigue & decreased QOL (Douglas, 2005)
    - High intensity resistance and cardio training/no adverse effects (Quist et al., 2006)
  - QOL can be increased and maintained thru 12 months and beyond (Wiggins & Simonavice, 2009; 2008)



**Total Quality of Life**, possible range of scores 0 to 104

**Self-Efficacy to Overcome Barriers**, possible range of scores 12 to 120

# Survivorship Research

- Patients completed more planned chemotherapy with resistance training (vs. usual care or aerobic training, Courneya et al., 2007)
- “Perceived” results/benefits for cancer survivors
  - Fatigue labeled as a positive perception when associated w/ exercise (Blaney et al., 2010 qualitative study)
  - Exercise increases perceived physical functioning in healthy adults (Wiggins, 2002) and cancer survivors (Courneya et al., 2003)

- Why exercise and cancer?





- Background/experience

- Exercise & Cancer Recovery (ECR)

- Murray State University (2004-2008)
  - Progressive Radiation Oncology (2005)

- Cancer Recovery & Fitness (CRF)

- University of Wisconsin—Eau Claire (2009-2023)
  - Marshfield Clinic & Sacred Heart (2009)
  - Mayo Clinic Health System (2010)

# **Our Mission**

To increase the quality of life in cancer survivors by providing a community outreach program that supports individuals physically, emotionally, and socially through exercise with students trained as “cancer fitness specialists”



# CRF Program Details

- McPhee Center (UWEC campus)
- Workout sessions are two times each week
  - 12 weeks (fall & spring, Tuesday & Thursday afternoon)
  - 2:00 to 4:40 (participant is assigned a specific time)
  - 3 to 4 participants per session



- General fitness/exercise plan
  - Sample exercises
    - Therabands vs. weight machines
  - Modifications
    - Individual exercise prescriptions
    - Exercise sessions last about 30 to 40 minutes

# Getting into the CRF Program

- Referrals to the program are necessary
  - Oncologist Referral
  - Informed Consent
- **The program is free!**



- Wiggins, M. S. (2014). Exercise and perceived quality of life during survivorship: A pilot study comparing traditional and non-traditional cancer recovery programs. *Advanced Studies in Medical Sciences*, 2, 31-36.
- Cancer survivors using the both non-traditional and tradition training programs significantly increased their perceived QOL,  $F(1, 118) = 7.71, p = .006$ .

# Traditional vs. non-traditional



- Braun, K., Chelberg, M., Hanke, E., Lefaive, S., Lenz, L., & Wiggins, M. S. (2018). Impact of a functional-based exercise program on fatigue, quality of life, and muscular endurance in cancer patients: A pilot study. *Integrative Cancer Science and Therapeutics*, 5(5), 1-5.
- The purpose of this 6-week study was to investigate the impact of a functional-based exercise program on fatigue (FSI), quality of life (QOL), and muscular endurance (ME) in cancer patients. Significant differences were found for ME; no significant differences were found for the FSI and QOL surveys.

# Strength & Endurance



# General Exercise Recommendations

- Most research indicates ACSM guidelines for intensity, frequency, duration is too high
- Guidelines should be ...
  - Strength/endurance/cardio intensity 40-60% (maybe less with fragile/frail survivors)
  - Modes should involve large muscle groups (walking, cycling, elliptical, etc.)
  - ROM and building endurance are highest priorities



# General Exercise Recommendations

- Avoid high intensity exercise
  - especially during treatment – immune problems, increases in psychological distress and fatigue
  - High intensity resistance and cardio training/no adverse effects during chemo treatment (mean age 43 [range 18-65], 86% mean HR intensity, 6 wk. program, 3 x 1.5 hrs. per wk.; Quist et al., 2006)

# General Exercise Recommendations

- Intervention program after treatment
  - RMCRI (2003) advocates concentrating on whole body exercises for 1<sup>st</sup> three months of program, then focusing on specifically correcting weaknesses from the cancer treatment
    - e.g., breast – muscular strength & endurance increases
    - e.g., brain – balance/changing directions

# Flexibility/ROM/Balance





## ***Benefits***

- Increased strength & endurance
- Improved balance
- Increases in flexibility and range of motion
- Enhanced confidence & social well-being
- Decreased fatigue levels
- Lymphedema/peripheral neuropathy improvements
- Improved (real & perceived) overall Quality of Life

# Benefits



- Goals
  - Traditional and/or Physiological Goals vs. Personal Goals

- Email: Sometimes assessments may not capture all of one's psychological or emotional health:
  - “It is very hard to say exactly what the program means to me or has done for me. I can do more without getting so tired in all aspects of my life. For example, I did more Christmas shopping this year than I have done in ages and was not worn out by it. I have gotten back in the show ring sort of.” [dog shows]
  - ***“I do not avoid going places like I used to. But it is much more than a physical thing. I was sitting home letting life sort of slip by as an observer. This program gets me up and out and doing and interacting with some very special people. The small successes have been real ego boosters. I still have some issues, the world as I said, is not flat and carpeted, but I am making small strides in improving myself mentally and physically, and that is great.”***

## CRF: A great experience for our students ...



...and great for our community!





# Questions?