The Role of Exercise in Cancer Rehabilitation

Jonas M. Sokolof, DO
Assistant Clinical Member/Attending Physician
Department of Neurology, Division of Rehabilitation Services
Memorial Sloan-Kettering Cancer Center
Assistant Professor
Department of Rehabilitation Medicine
Weill Cornell Medical College

2009 ACS Cancer Statistics

• Nearly 1.5 million new cases of cancer diagnosed in the U.S.
• 500,000 cancer related deaths
• Currently 12 million cancer survivors with the number growing each year.

American Cancer Society/National Cancer Institute Statistics

• The number of Americans living with cancer will increase by nearly a third to almost 18 million by 2022.
• The number of cancer survivors is on the rise due to a growing - and aging - U.S. population.
• Nearly one-half of American cancer survivors are age 70 or older.
• Only 5% are 40 or younger.
• The median age of patients at the time of diagnosis is 66.
American Cancer Society/National Cancer Institute Statistics

- The three most common cancers among men living with the disease are prostate cancer, colorectal cancer and melanoma.
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- 58,510 survivors of childhood cancer living in the United States.
- 12,060 more children will be diagnosed in 2012.

Need For Improved Care

- Survivors must cope with the long-term effects of treatment, as well as psychological concerns such as fear of recurrence.
- 94% of U.S. primary care doctors were unaware of the long-term side effects of some of the most commonly used chemotherapy drugs.
- Increasingly important that the medical community understand their unique healthcare needs.

Cancer Rehabilitation

- Sub-specialty of rehabilitation medicine concerned with restoring the highest possible functional status and quality of life to cancer patients and or survivors.
- Rehabilitation medicine physicians specialize in the evaluation and treatment of neuromuscular, musculoskeletal, and functional complications of cancer and cancer treatments (i.e. surgery, radiation, and chemotherapy).
Cancer Rehabilitation

• Has a role in patients undergoing active treatment for cancer and in cancer survivors.

• Offers a unique opportunity to effectively prescribe exercise for rehabilitative purposes.

Cancer Survivor Definition

NCI Definition of Cancer Survivor-

"An individual is considered a cancer survivor from the time of diagnosis, through the balance of his or her life. Family members, friends, and caregivers are also impacted by the survivorship experience and are therefore included in this definition."

NCI Definition of Cancer Survivorship

"In cancer, survivorship focuses on the health and life of a person with cancer post treatment until the end of life. It covers the physical, psychosocial, and economic issues of cancer, beyond the diagnosis and treatment phases. Survivorship includes issues related to the ability to get health care and follow-up treatment, late effects of treatment, second cancers, and quality of life. Family members, friends, and caregivers are also considered part of the survivorship experience."

EXERCISE IS MEDICINE
The Case For Exercise

• Exercise has been shown to improve QoL in cancer survivors.

• Improvement in physical function following rehabilitation is associated with decreased fatigue in cancer patients.

• Increased physical activity after cancer diagnosis reduces risk of recurrence and mortality.

The Case For Exercise In Cancer Rehab

• Growing body of evidence suggests exercise decreases the risk of many cancers.

• Data including RCTs support the role of exercise in the extension of survival in breast and colon cancer.


Benefits of Exercise in Cancer Patients and or Survivors

• Potential to reduce body fat.

• Lowers levels of insulin

• Lowers levels of sex hormones (androgens and estrogens)

• Lowers IGF-1 and IGFBP

• Lowers levels of adipokines

• Lowers inflammation (CRP)
The Most Important and Long-Lasting Physical Problems in Cancer Patients

- Decreased maximal oxygen uptake (VO2Max<20 ml/kg min)- Compounded by CTX and RTX.
- Muscle wasting followed by loss of strength- Affects about 50% of cancer patients.
- Fatigue- Experienced in 61-99% of cases
- Reduced physical and reduced role functioning

ACSM Guidelines for Healthy Adults

Healthy Adults Under 65 Years
- Do moderately intense aerobic/cardio exercise 30 minutes a day 5 days a week.
  Or
- Do vigorously intense aerobic/cardio exercise 20 minutes a day, 3 days a week
- Do 10 strength training exercises, 8-12 repetitions of each exercise twice per week.

ACSM Guidelines for Healthy Adults

Healthy Adult Over 65 years
- Do moderately intense aerobic/cardio exercise 30 minutes a day 5 days a week.
  Or
- Do vigorously intense aerobic/cardio exercise 20 minutes a day, 3 days/wk
- Do 10 strength training exercises, 10-15 repetitions of each exercise twice per week.
- Perform Balance Exercises
- Have an activity plan
**ACSM Roundtable on Exercise Guidelines for Cancer Survivors**

- **AVOID INACTIVITY**

- Return to normal activities as quickly as possible after surgery. Continue normal daily activities and exercise as much as possible during/after nonsurgical treatments.

- Aerobic, PRE, and flexibility exercise recommendations are the same as age-appropriate physical activity guidelines for Americans.

**ACSM Roundtable on Exercise Guidelines for Cancer Survivors**

- Individuals with known metastatic bone disease may require modifications and greater supervision for safety.

**ACSM Roundtable on Exercise Guidelines for Cancer Survivors**

- The exercise prescription should be adjusted based on the unique impairments present for any given cancer diagnosis.

- When appropriate further testing should be performed and clearance granted by referring oncologist and or internal medicine specialist.
ACSM Roundtable on Exercise Guidelines for Cancer Survivors

- Exercise program may need to be adapted for the individual survivor on the basis of health status.

- Exercise prescriptions should be individualized according to a cancer survivor’s pretreatment aerobic fitness, medical comorbidities, response to treatment, and immediate persistent negative effects of treatment experienced.

ACSM Roundtable on Exercise Guidelines for Cancer Survivors

- The guidelines clearly list cancer diagnosis specific precautions and reasons for stopping exercise.

- Provides recommendations for pre-exercise assessments and testing specific to the most common forms of cancer.

ACSM Guidelines Exercise Risk Assessment

- Formal risk assessment recommended for men over 40 and women over 50 unaccustomed to exercising before embarking on a vigorous program.

- Physical Activity Readiness (PAR-Q) Form-Consists of 7 screening questions that identifies risk factors requiring patients to undergo further pre-exercise assessment.
General Contraindications For Starting An Exercise Program After a Cancer Diagnosis

• Allow adequate time to heal after surgery
• Do not exercise in setting of extreme fatigue, anemia, or ataxia.

ACSM Exercise Risk Assessment Algorithm

• Low Risk- No clearance for moderate or vigorous activity. No supervision
• Moderate Risk- Need clearance for vigorous activity. Recommend professional supervision.
• High Risk- Needs clearance for all activity and requires clinical supervision.

Future Directions

• Is it more feasible to administer exercise prescription interventions in a group setting via trained health counselors and educators?
• Can also be done remotely over the telephone or internet.
• Requires additional training in the psycho-social aspects of helping patients change behavior.
• Physiatry consultation is beneficial to safely guide the exercise prescription and handle any resulting injuries or difficulties the patient may have after starting regimen.
Thank You