

Lifestyle Practices among Cancer Survivors: A Need to Intervene



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Objectives

- Review data on survivors' lifestyle practices
 - weight management
 - physical activity
 - diet
 - smoking
 - alcohol-use
- Review potential benefits of lifestyle interventions and challenges



Associations between Behavior and Cancer Risk

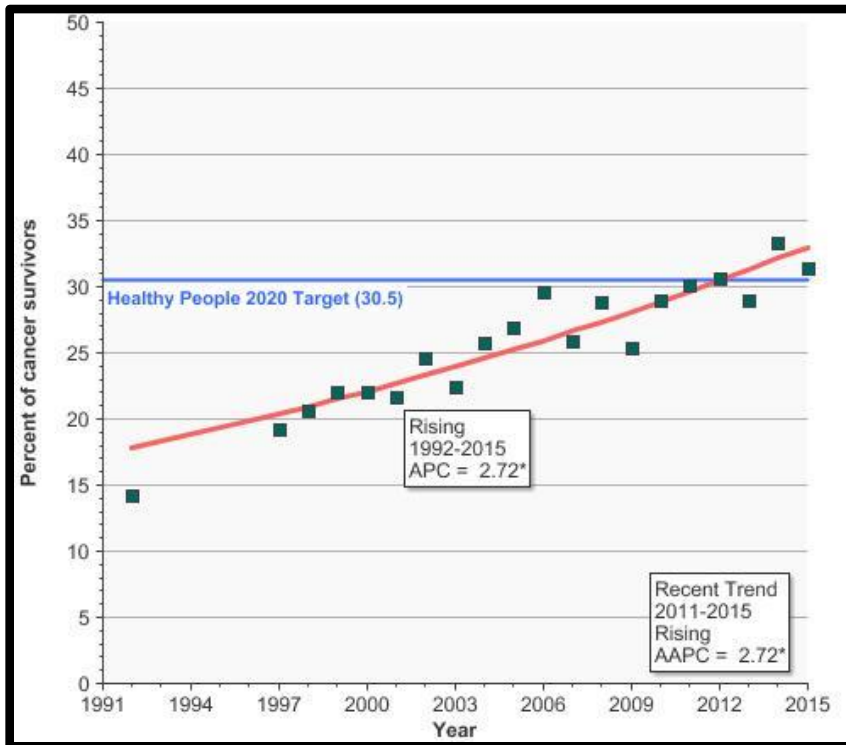
Risk Factor	Cancer-type		Relative Risk (95% CI)
Obesity (BMI $\geq$ 30)	- Endometrium - Gastric Cardia - Liver - Meningioma - Colorectum - Ovary - Thyroid	- Esophagus (Adenocarcinoma) - Kidney - Multiple Myeloma - Pancreas - Gallbladder - Breast (post-menopause) <i>[fatal prostate, , male breast, B-cell lymphoma]</i>	7.1 (6.3–8.1) to 1.1 (1.0–1.1)
Physical Inactivity (<10 min MV)	Colon		1.61 (1.03-2.50) to 1.14 (1.06-1.20) <i>adj. weight)</i>
Tobacco Use	Poor Diet 		3.96 (6.73–12.11) to 1.52 (1.33-1.74)
Alcohol ($\geq$ 50 g d ⁻¹)	- Head and Neck - Liver - Colorectal	- Esophagus (Squamous Cell) - Breast	5.13 (4.31–6.10) to 1.44 (1.25–1.65)

The cancer diagnosis can provide the impetus for behavior change

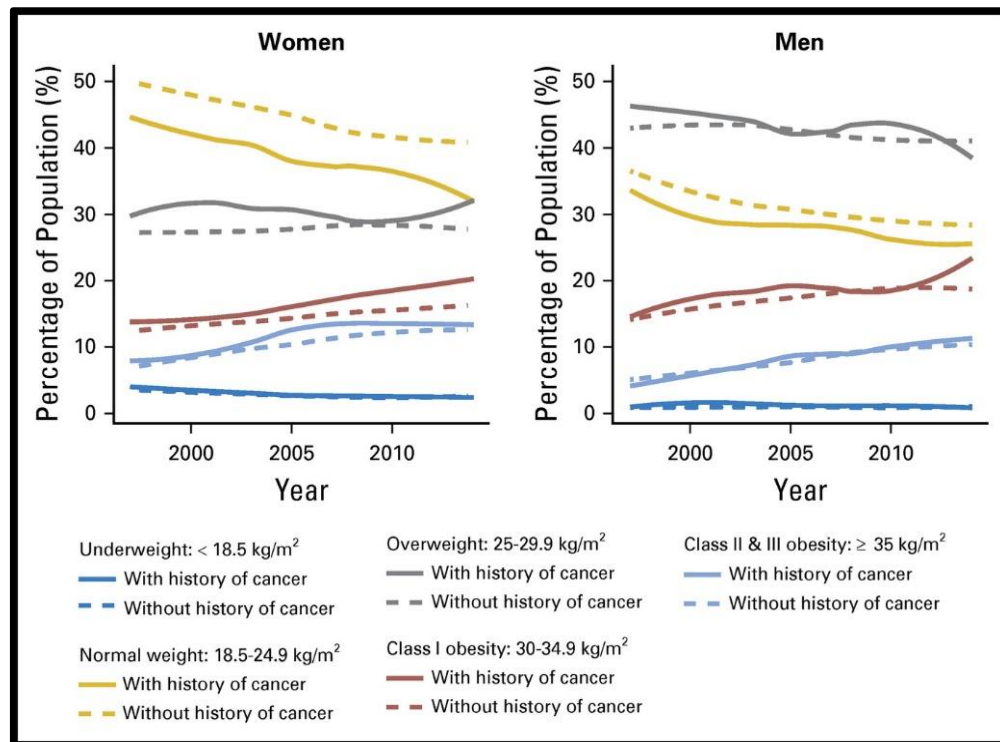


...but few can transform themselves without support

Obesity Rates in Cancer Survivors (age 20+), 1992-2015

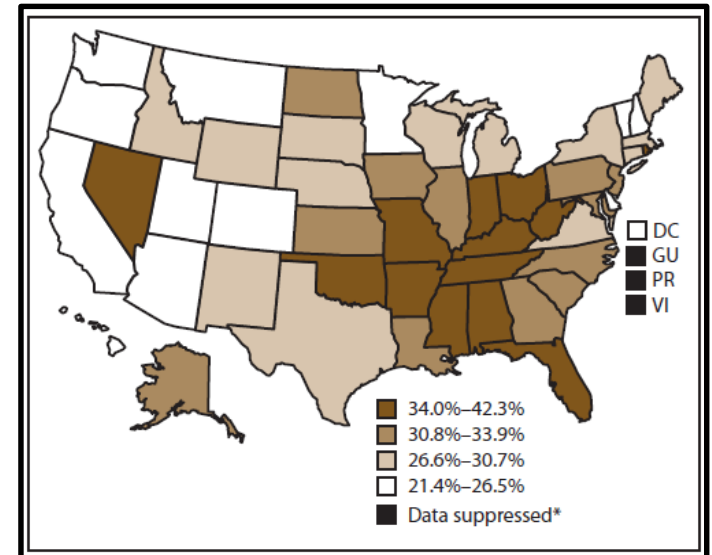
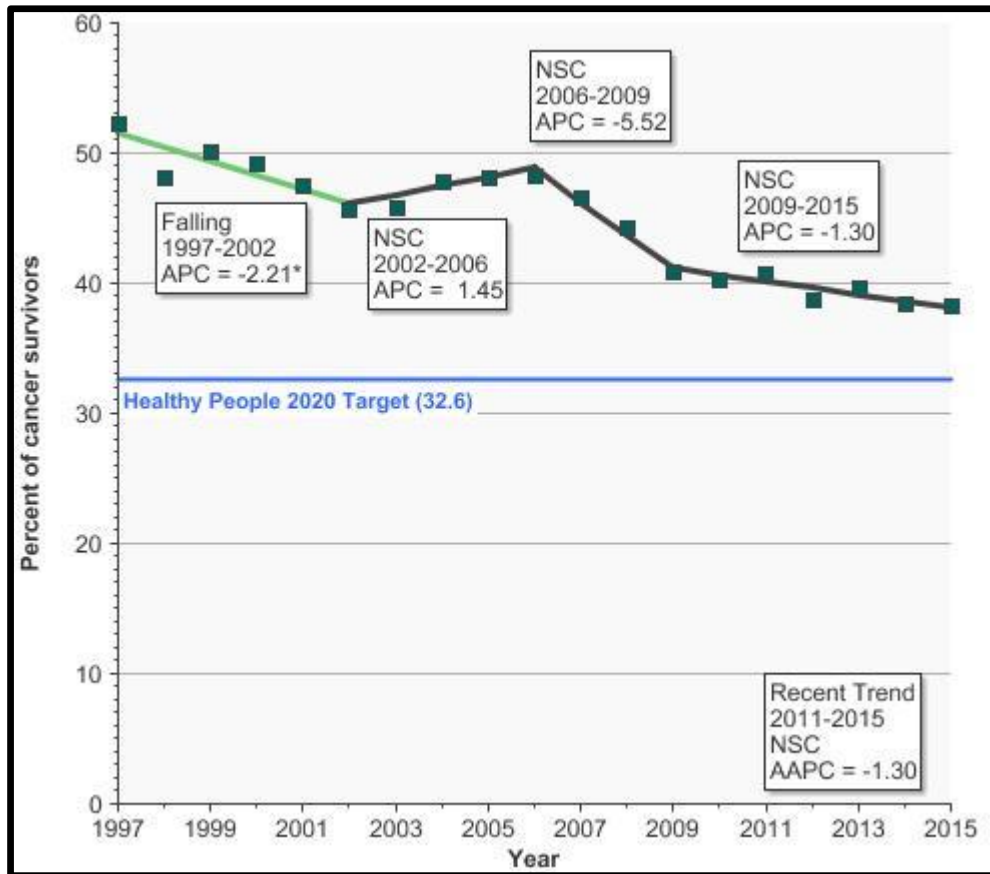


Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2015



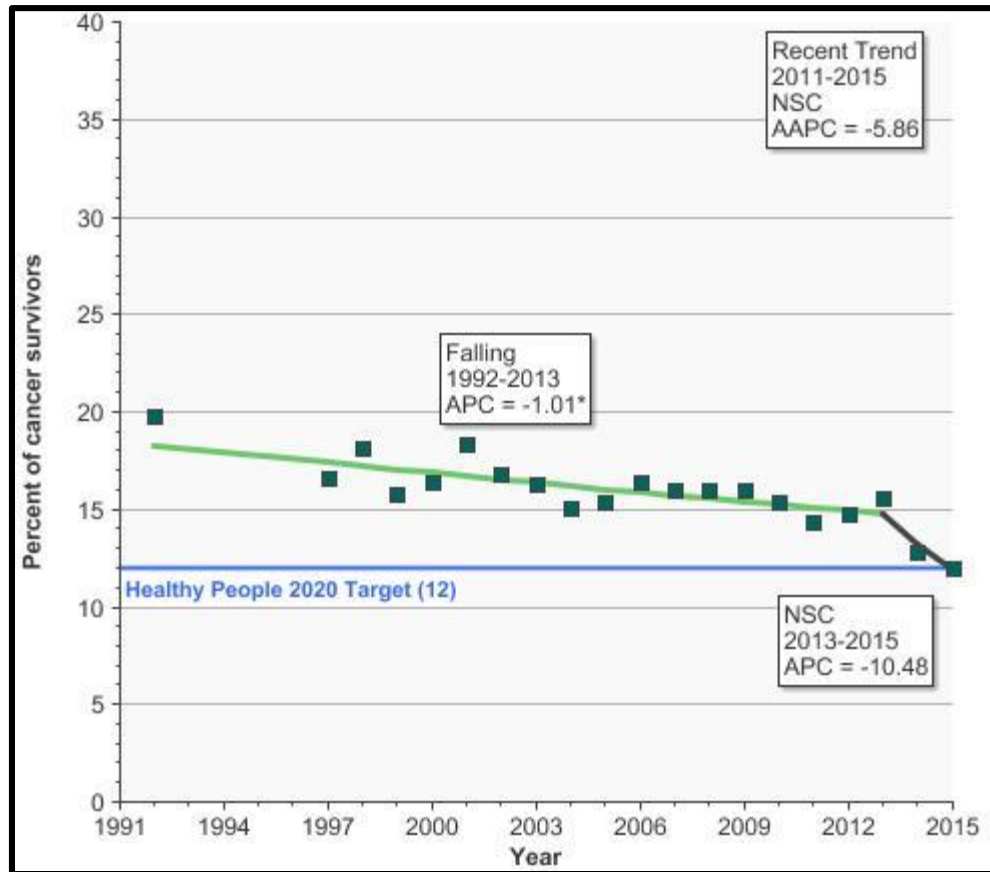
Greenlee H et al. JCO 2016

Rates of No Leisure Time Physical Activity among Cancer Survivors (age 18+), 1997-2015

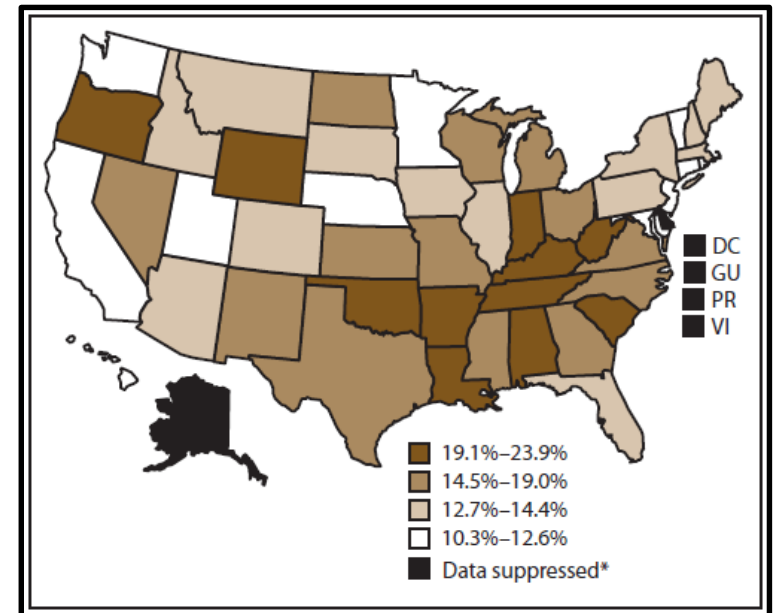


Underwood JM et al. MMWR 2012

Smoking Rates among Cancer Survivors (age 18+), 1992-2015



Centers for Disease Control and Prevention, National Center for Health Statistics. National Health Interview Survey, 1992–2015.



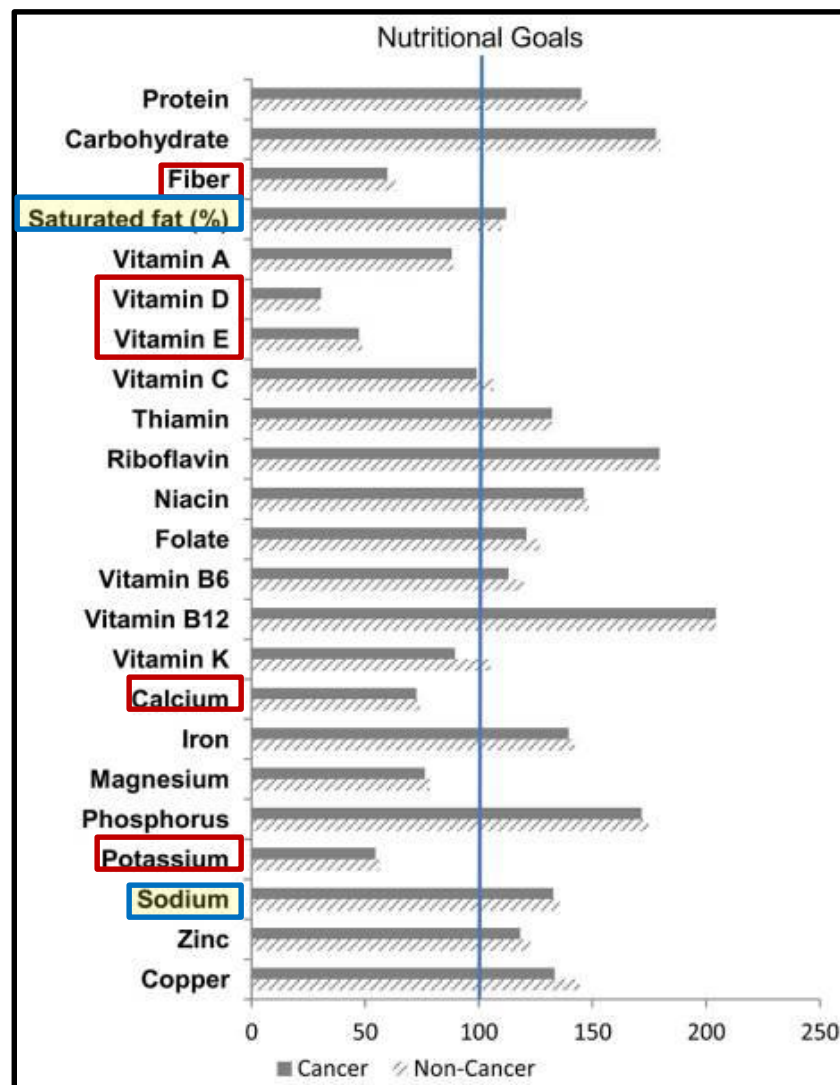
Underwood JM et al. MMWR 2012

But, younger survivors (18-40 y)
at greater risk for continued
smoking Bellizzi et al. JCO 2005;

Dietary Comparison NHANES 1999-2010

Cancer Survivors (n=1533) vs. Non-Cancer Controls (n=3075)

- Healthy Eating Index (2010)
47.2 ± 0.5 vs 48.3 ± 0.4; p=0.03
- Empty calories
13.6 vs 14.4; p= 0.001
- Higher intake of solid fats, alcohol, and added sugars.



...so, many cancer survivors have poor adherence to healthy lifestyle behaviors – Why do we care?

**Turn
around
when
possible**

	Diet	Exercise	Smoking Cessation
Recurrence	✓✓	✓✓	✓✓✓
2 nd Cancers	✓✓	✓✓	✓✓✓
Comorbidity	✓✓✓	✓✓✓	✓✓✓
Adverse Δ Body Composition and Functional Decline	✓	✓✓✓	✓✓
Fatigue	✓	✓✓	✓

✓ Possible benefit ✓✓ Probable benefit ✓✓✓ Convincing benefit



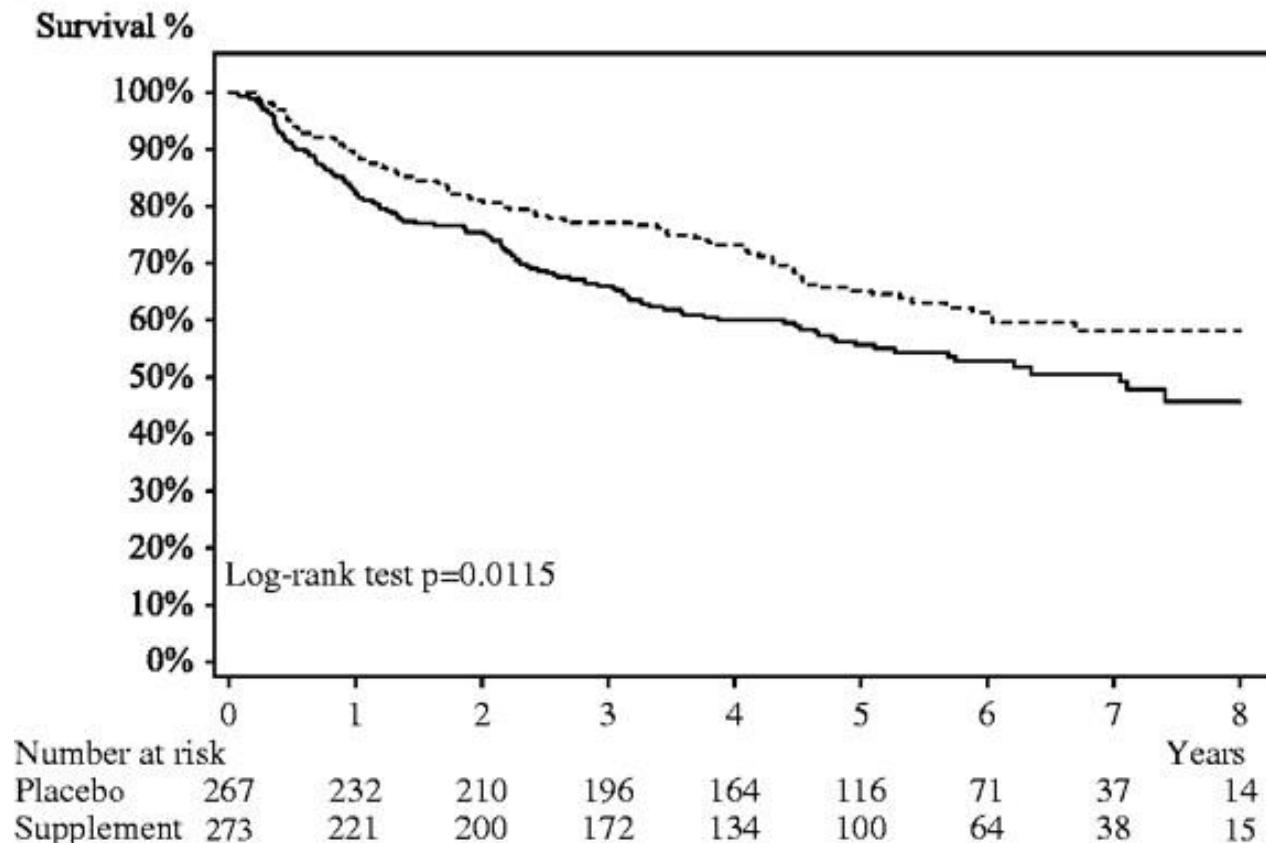
RCT of α -Tocopherol + β -Carotene vs. Placebo

(52M median follow-up)

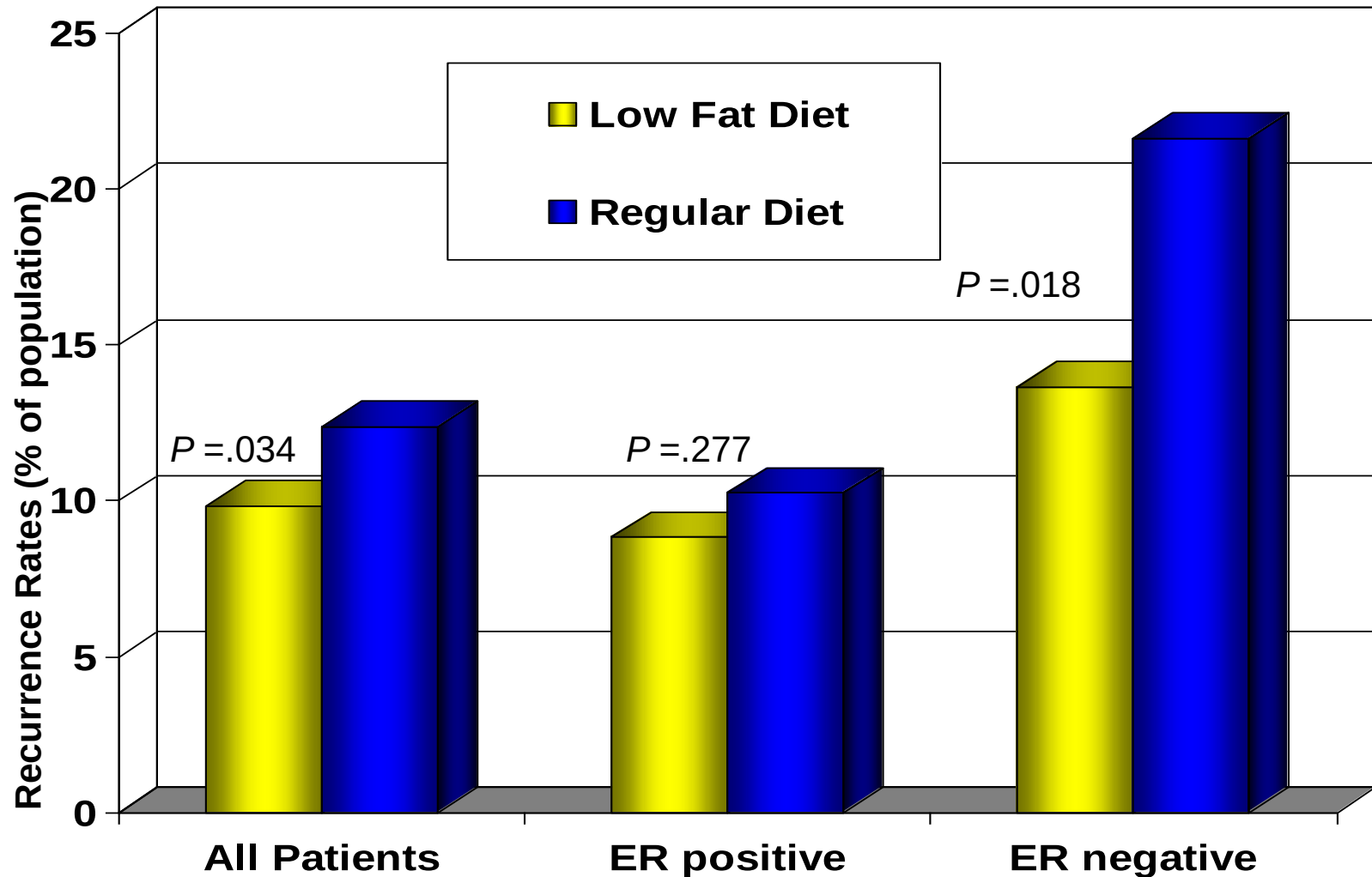
540 Cases w/ Stage I/II Head & Neck Squamous Cell Cancer

Cancer-free survival (no recurrence & no SPT among participants randomly assigned to the supplement arm (solid line) or to the placebo arm (dotted line))

Second Primary HR 2.88 (95%CI 1.56-5.31)



Results of the Women's Intervention Nutrition Study (WINS) Show Reduced Rates of Recurrence in Patients Assigned to a Low Fat Diet (n=2,437)





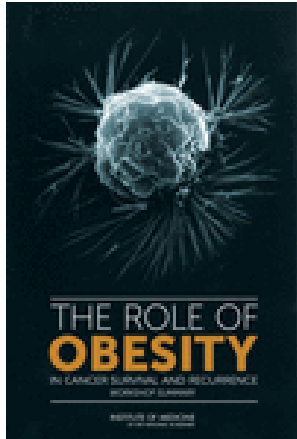
Weight Loss Interventions in Breast Cancer Survivors

- **1st trial de Waard 102 post-menopausal breast cancer survivors (1993)**
- **Review by Reeves et al. (2014) 14 weight loss trials (10 RCTs, 4 1-arm)**
 - 2-18 months in duration (n's 10-102)
 - No serious adverse events
 - 57% resulted in $\geq 5\%$ loss of body weight.
 - Clinically significant benefits in Hb_{A1C}, insulin, inflammatory markers, QoL, lipids, physical functioning and B/P with 5-9% weight loss.
- **In field or in analysis or reported in past 2 years.**
 - Sheppard et al. (2016) (n=22/12 week)
 - Swisher et al. (2015) (n=28/12 weeks)
 - Travier et al. (2014) (n=42/12 weeks)
 - DAMES (n=68/1-yr)
 - LEAN (n=100/6-mths)
 - CHOICE (n=249/6-mths)
 - LISA (n=338/2-yrs)
 - ENERGY (n=692/2-yrs)
 - DIANA-5 (n=1,417/5-yrs)
 - SUCCESS-C pre/post breast cancer (n= 3,642 [1,400-1,600]/5-yrs)
 - BWEL (n=3136 Stage II/III breast cancer within 5 yrs – Alliance)

de Waard et al. Europ J Cancer Prev 2:233, 1993; Reeves et al Obes Rev 15:749, 2014; Sheppard et al. Contemp Clin Trials 46:106, 2016; Swisher et al. Support Care Cancer 23: 2995, 2015; Travier et al. Med Oncol 31: 783, 2014; Demark-Wahnefried et al. Cancer 120:2522, 2014; Harrigan et al. JCO 34:669, 2016; Thompson et al PLoSOne 10: 2015; Goodwin JCO 32:2231; 2014; Rock et al JCO 33:3169, 2015; Villarini et al Tumori 98:1, 2012; Rack et al. Breast Care 5:395, 2010.

Obesity and Cancer

IOM Workshop on Cancer Survival and Recurrence Oct 2011



JOURNAL OF CLINICAL ONCOLOGY

ASCO SPECIAL ARTICLE

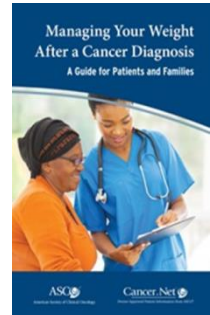
American Society of Clinical Oncology Position Statement on Obesity and Cancer

Jennifer A. Ligibel, Catherine M. Alfano, Kerry S. Courneya, Wendy Demark-Wahnefried, Robert A. Burger, Rowan T. Chlebowski, Carol J. Fabian, Ayca Gucalp, Dawn L. Hershman, Melissa M. Hudson, Lee W. Jones, Madhuri Kakarala, Kirsten K. Ness, Janette K. Merrill, Dana S. Wollins, and Clifford A. Hudis

ABSTRACT

Rates of obesity have increased significantly over the last three decades in the United States and globally. In addition to contributing to heart disease and diabetes, obesity is a major unrecognized risk factor for cancer. Obesity is associated with worsened prognosis after cancer diagnosis and also negatively affects the delivery of systemic therapy, contributes to morbidity of cancer treatment, and may raise the risk of second malignancies and comorbidities. Research shows that

Jennifer A. Ligibel, Dana-Farber Cancer Institute, Boston, MA; Catherine M. Alfano, National Cancer Institute, Bethesda, MD; Kerry S. Courneya, University of Alberta, Edmonton, Alberta, Canada; Wendy Demark-Wahnefried, University of Alabama at Birmingham, Birmingham, AL; Robert



INCORPORATING WEIGHT MANAGEMENT AND PHYSICAL ACTIVITY THROUGHOUT THE CANCER CARE CONTINUUM

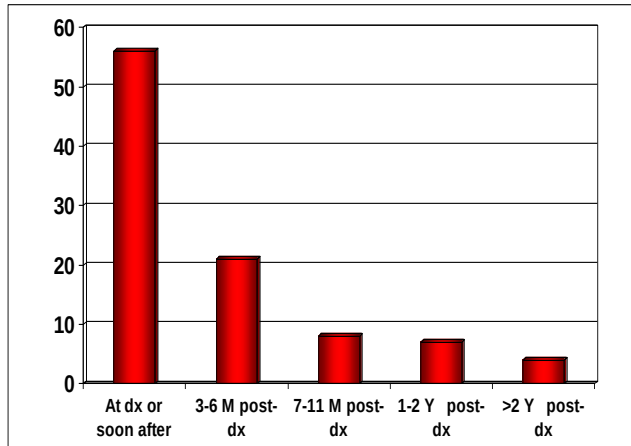
A WORKSHOP | FEBRUARY 13-14, 2017



#NatlCancerForum

When?

Response to: “When after diagnosis is the best time to provide instruction on healthy lifestyle behaviors
(n=988 Breast & Prostate Cancer Survivors)



Demark-Wahnefried et al. *Cancer* 88:674,2000

Adams RN et al (2015) Integrative analysis on largest home-based diet and exercise intervention trials for cancer survivors (n = 23,841)

OR (95% CI) more proximal vs less to dx
Willing to Participate: 0.95 (0.92-0.98)

Enrolled: 0.93 (0.89-0.97)

No difference in adherence/completion

Nayan S et al (2013) Pooled analysis of 13 studies. Identical smoking cessation interventions instituted in the perioperative period had a pooled odds ratio of 2.31 (95% CI, 1.32-4.07) of successfully leading to cessation vs. non-significant effects later

How (to get started): 5–A's

Ask:

- Have you heard about the relationship between <smoking, body weight, diet, physical activity> and cancer?
- Have you tried to <stop smoking, lose weight, start eating a healthier diet, get more physical activity> recently?

Advise:

- Orient to <educational materials, BMI chart>.

Assess:

- Readiness to pursue behavior change

Assist:

- Set a start date, an incremental goal, simple changes (including environmental control)
- Provide more specific brochures, point to select websites

Arrange:

- Refer to primary care physician, allied health (clinical psychologist, registered dietitian, certified trainer/exercise physiologist/physical therapist), or specialist (physiatrist, bariatric medicine)

Key Elements of Behavior Change

- Self-monitoring
- Self-efficacy
- Support (long-term and by many)



Behavioral change may be more attainable if address
at multiple levels



Workforce and Infrastructure Needs

- Training (clinicians, but also in allied health – only 600 Dietitians who are Certified Specialists in Oncology, of 465 Certified Exercise Trainers)
- Development of Competencies
- Reimbursement



How well are clinicians prepared to deliver lifestyle guidance?



- Survey among 768 colorectal cancer clinicians
- 323 respondents (42% response rate)
- 77% thought reducing weight was important for improving health
- 75% endorsed offering lifestyle advice to people with BMI>30
- 52% reported that they were familiar with guidance for lifestyle advice for cancer survivors.
- 50% reported that weight reduction is an important service priority for clinical practice.
- 50% would value additional training in this area.

Synergy between Lifestyle Practices?

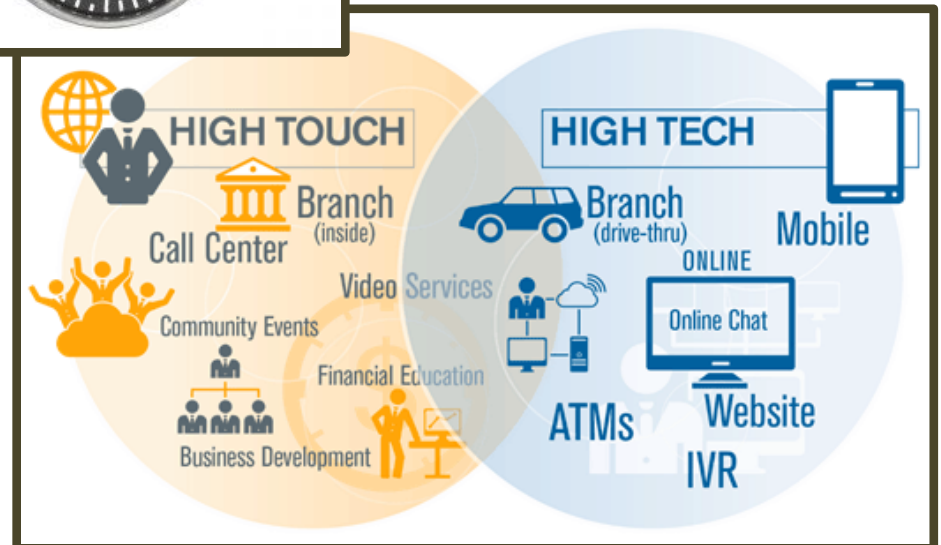
- 670 Early stage breast cancer survivors in Multi-ethnic Cohort Inactive survivors eating poor-quality diets vs. Active survivors eating better-quality diets had an 89% reduced risk of death from any cause HR: 0.11 (0.04-0.36) and a 91% reduced risk of death from breast cancer HR: 0.09 (0.01- 0.89). George et al. 2011
- 1490 early stage breast cancer survivors who ate 5+ daily servings of F&V and who were active (540+ MET-min/w) had a doubling of survival HR: 0.56 (0.31 - 0.98) Pierce et al. 2007
- 2193 post-menopausal breast cancer survivors in Iowa Woman's Health Study, those who adhered to 6-8 AICR/WCRF guidelines vs. 0-4 had a 33% lower mortality rate Inoue-Choi et al. 2013



Discovery in Dissemination and Implementation Science

Need for optimal, effective options

- Combine, Sequence
- Delivery Channels
- Messaging
- Triage



Conclusions

- Cancer survivors are a vulnerable population at risk for recurrence, second cancers, comorbidities, functional decline and poor quality of life who may benefit greatly from lifestyle interventions
- There are some barriers that must be addressed in terms of training, research, policy and infrastructure that must be addressed before holistic, optimal care is available to all survivors

