

Yoga in Cancer Care: A Comprehensive Approach to Transform Your Life and Health

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**Richard E Hayes Distinguished Professorship for
Clinical Cancer Prevention**
Director, Integrative Medicine Program



**The
Economist**

SEPTEMBER 16TH-22ND 2017

Vestager v the Valley

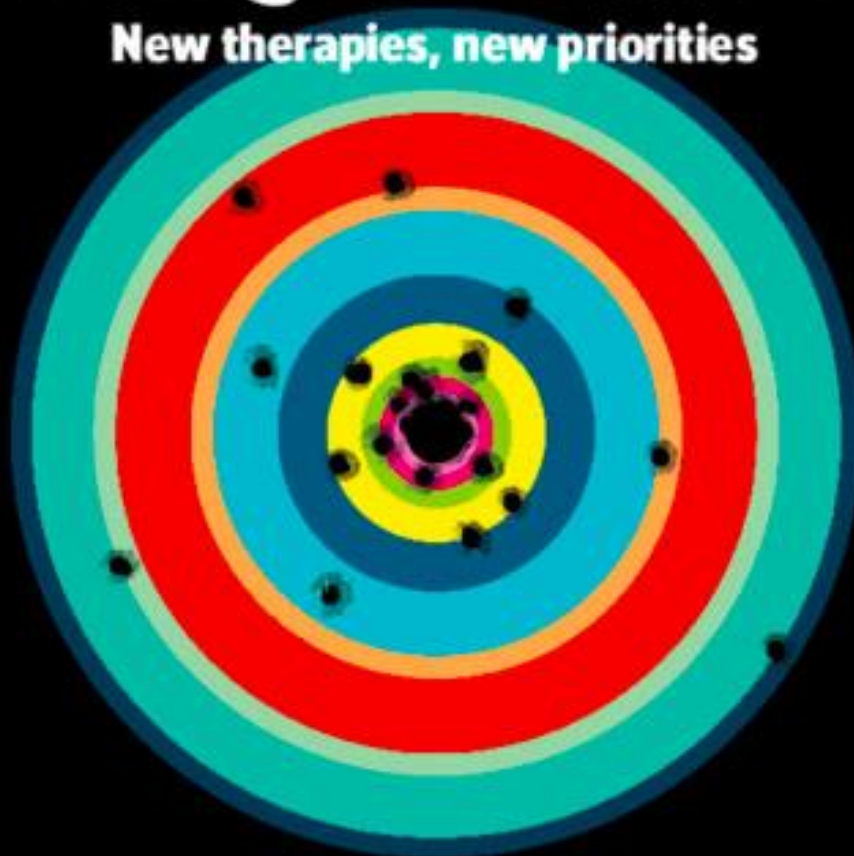
America's incoherence on Iran

The case for reappointing Janet Yellen

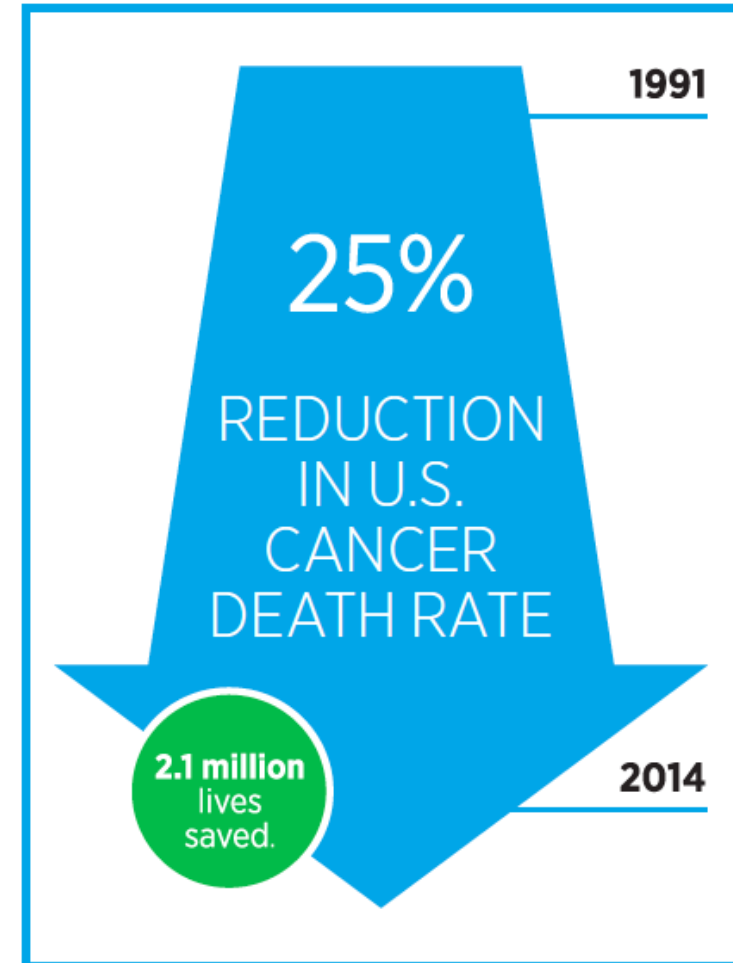
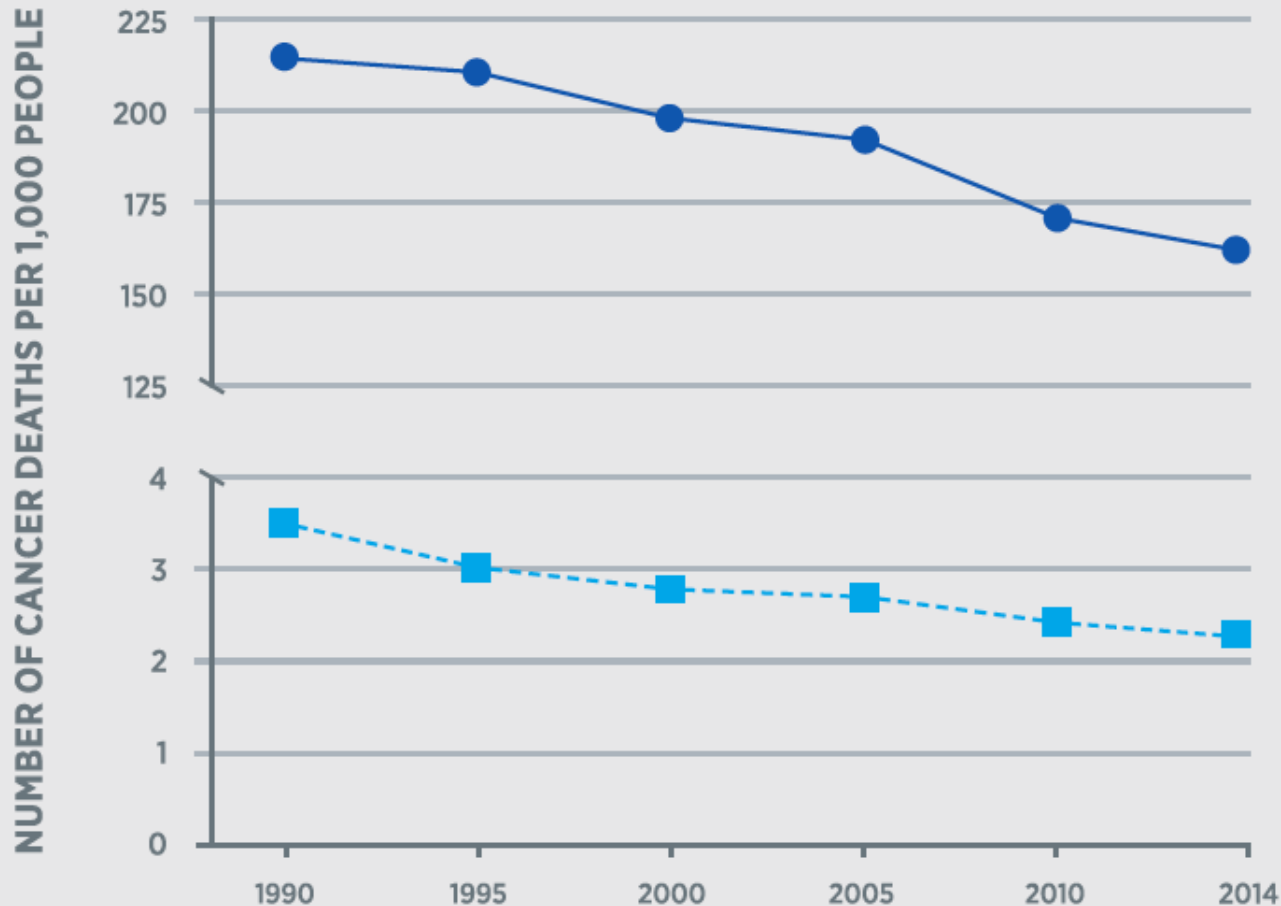
Seed capital: the sperm-bank business

Closing in on cancer

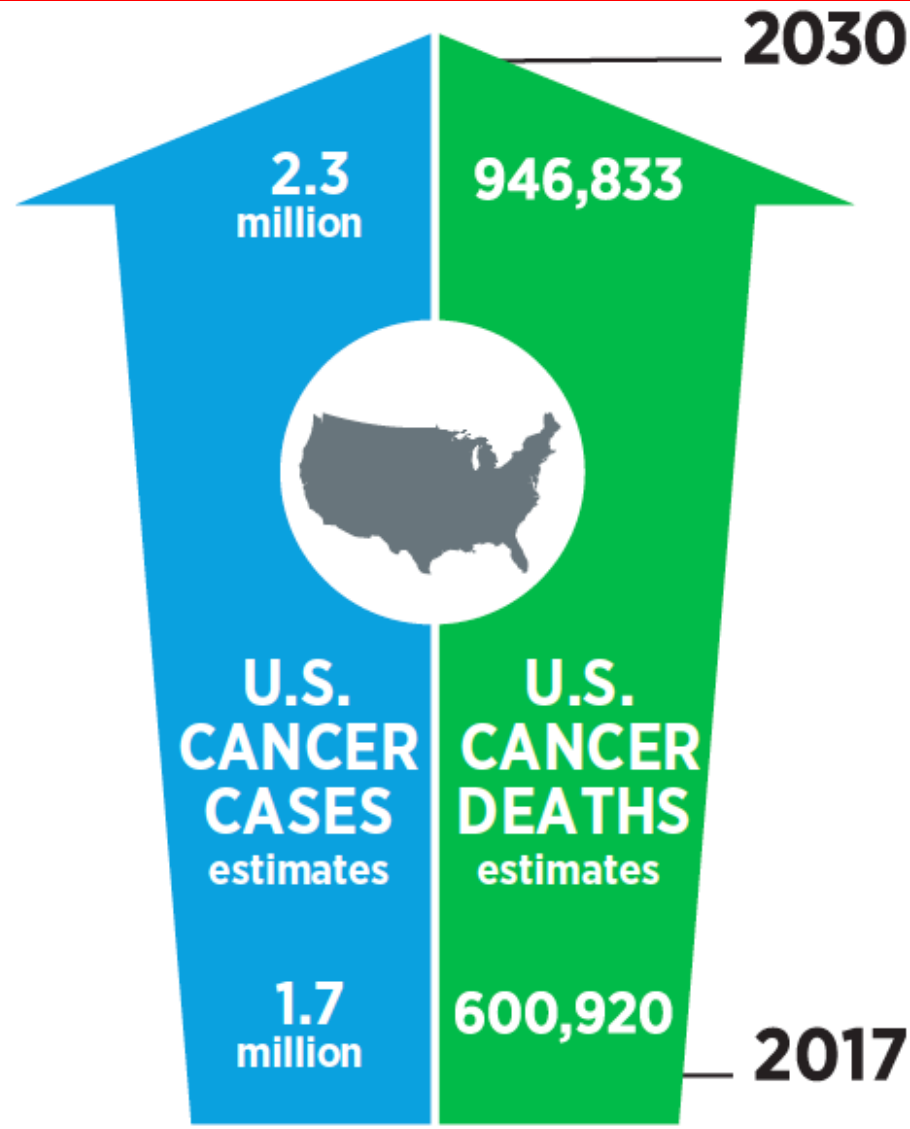
New therapies, new priorities



Making Progress

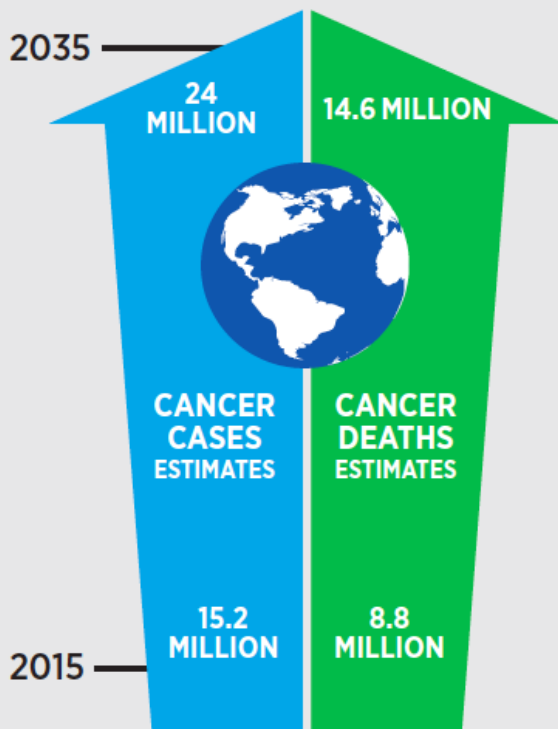


Challenges Ahead



Challenges Ahead

The number of global deaths from cancer is rising, as is the proportion of deaths that cancer accounts for (6).



In 2005, cancer accounted for 7.5 million of the 53.6 million deaths worldwide, meaning it accounted for **1 in 7 deaths.**

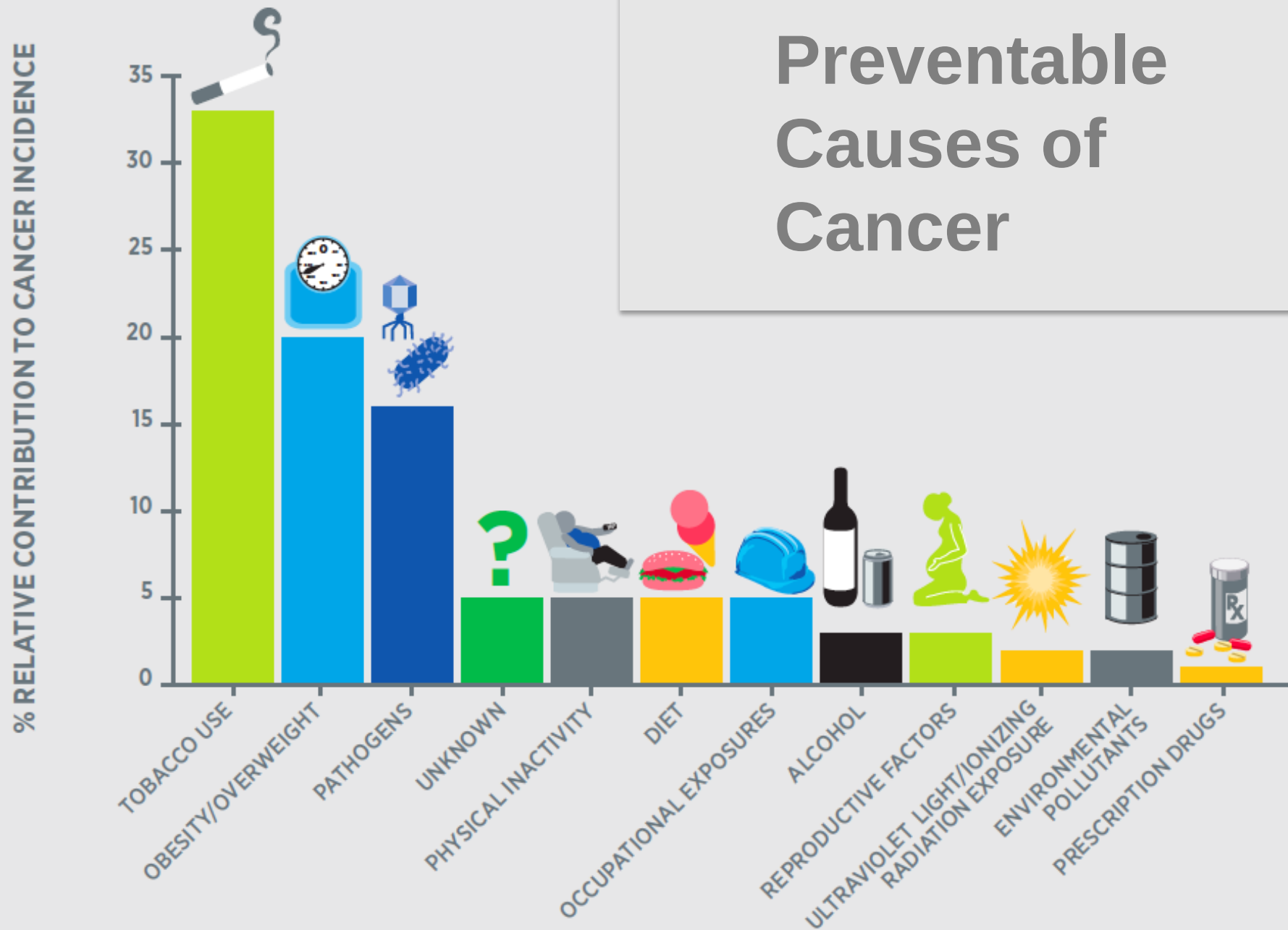


In 2015, cancer accounted for 8.8 million of the 55.8 million deaths worldwide, meaning it accounted for almost **1 in 6 deaths.**



The devastating impact of cancer will grow significantly in the coming decades if new and more effective approaches to cancer prevention, early detection, and treatment are not developed and effectively implemented (6,7).

Preventable Causes of Cancer



CANCER RISK FACTORS

American Association
for Cancer Research

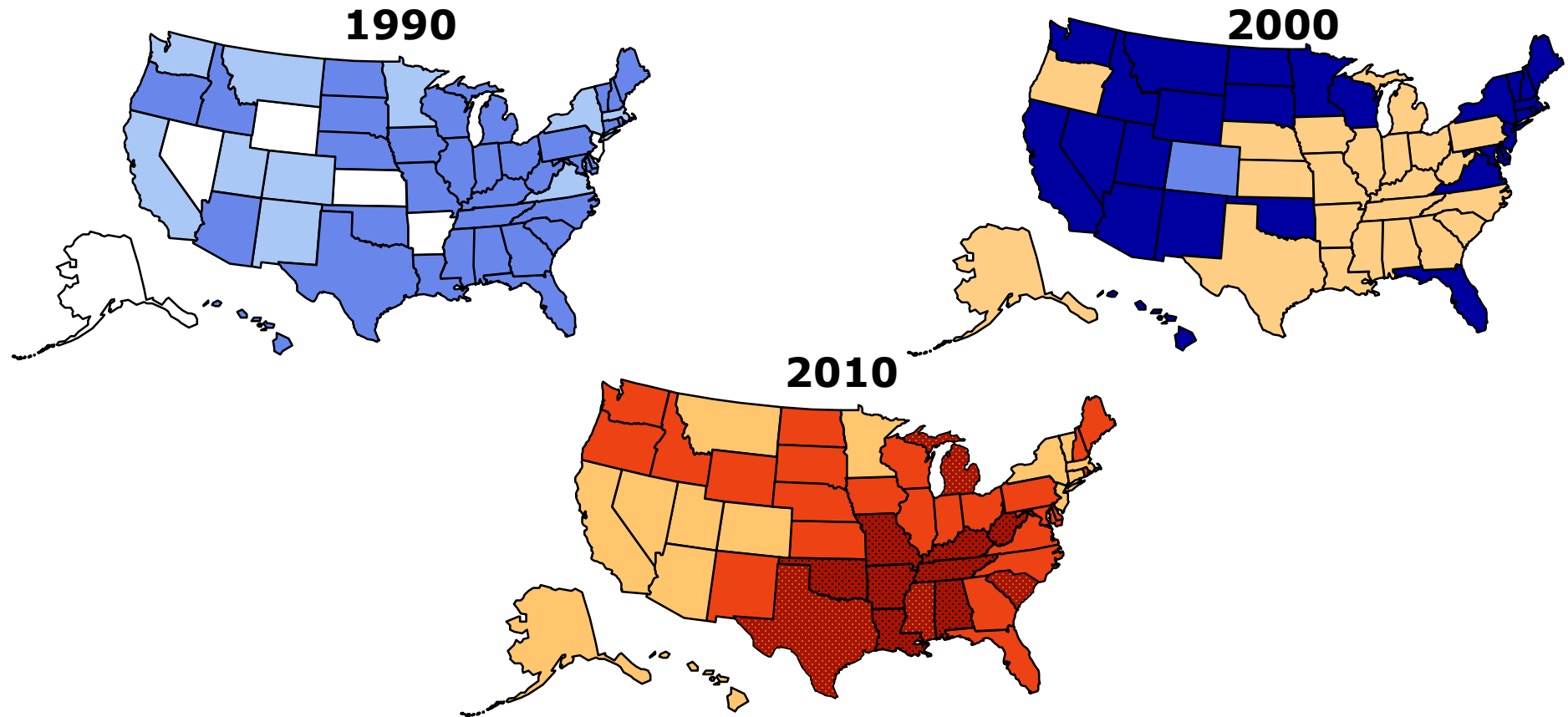


What
Obesity
Epidemic?

Obesity Trends* Among U.S. Adults

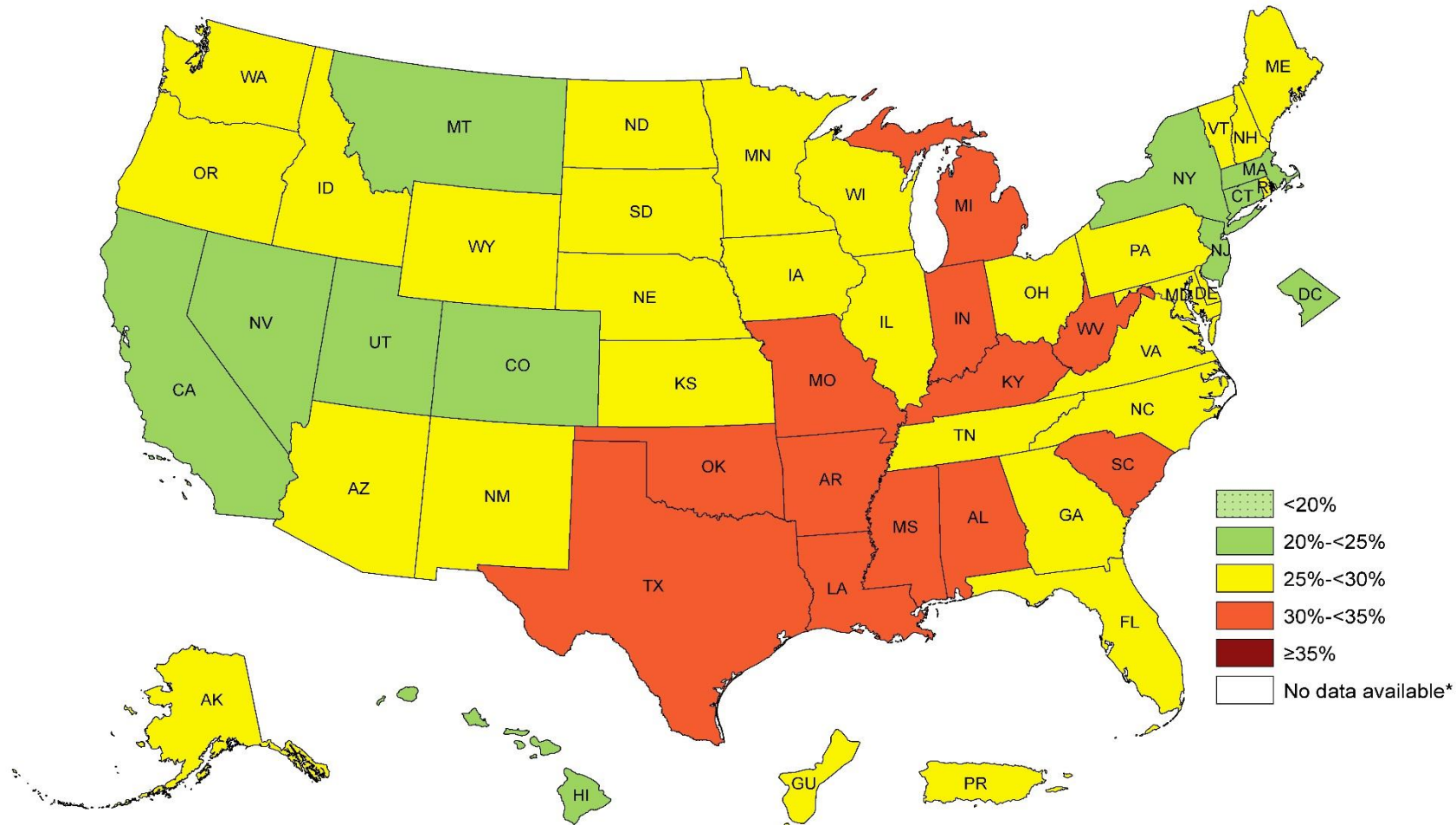
BRFSS, 1990, 2000, 2010

(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4")



Prevalence¹ of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2011

† Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

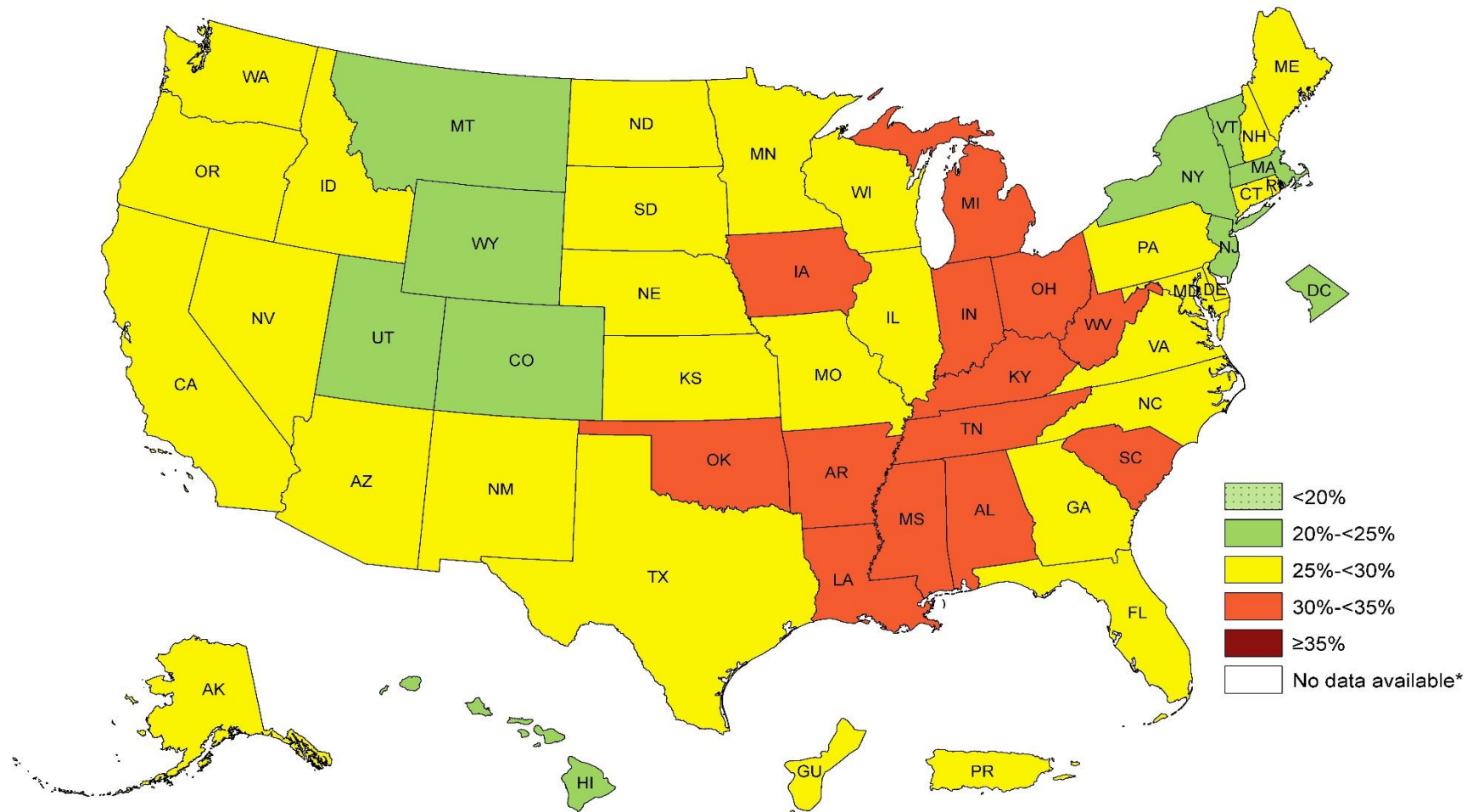


***Sample size <50 or the relative standard error (dividing the standard error by the prevalence) $\geq 30\%$.**



Prevalence[†] of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2012

[†] Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

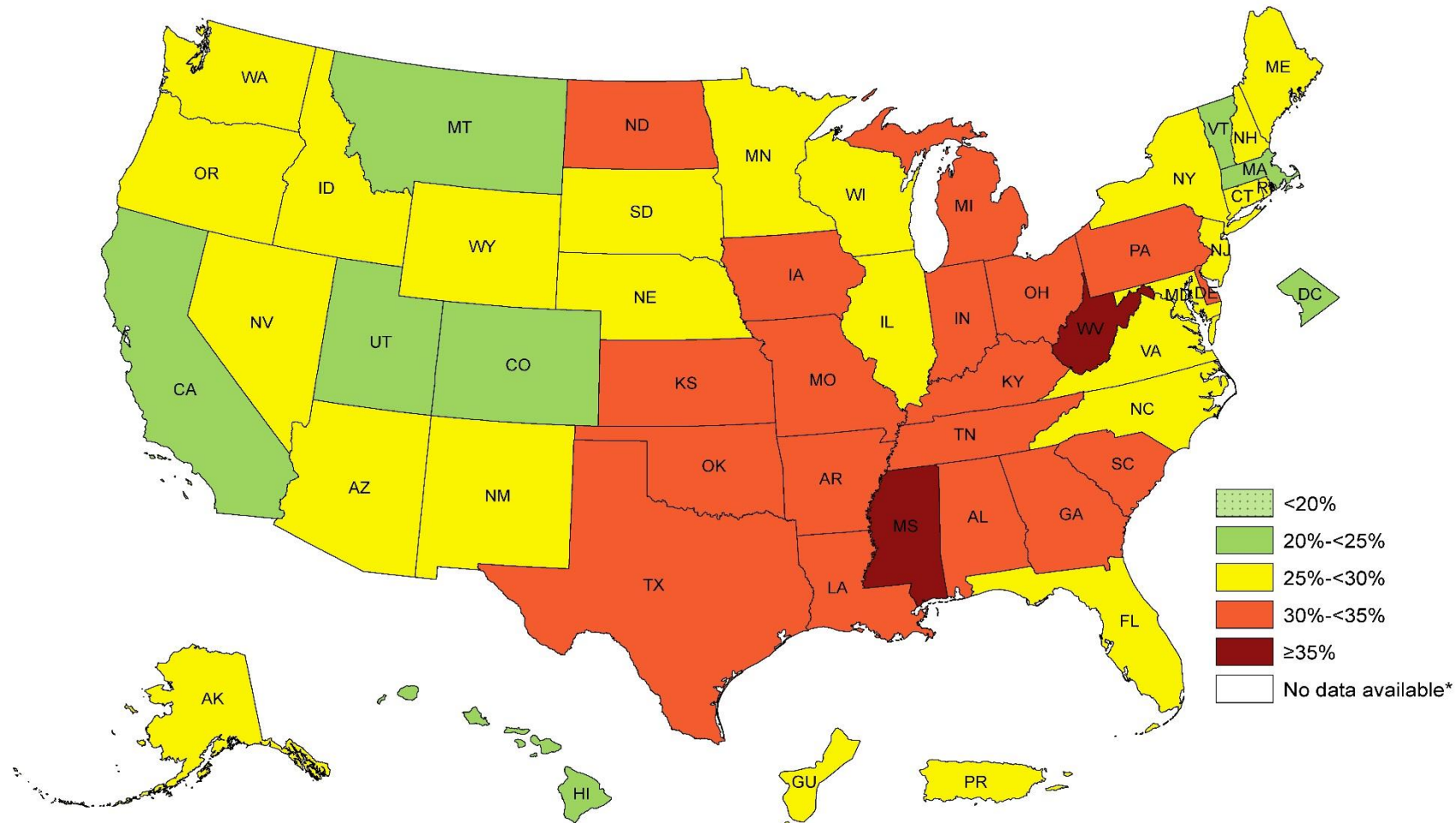


*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.



Prevalence[†] of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2013

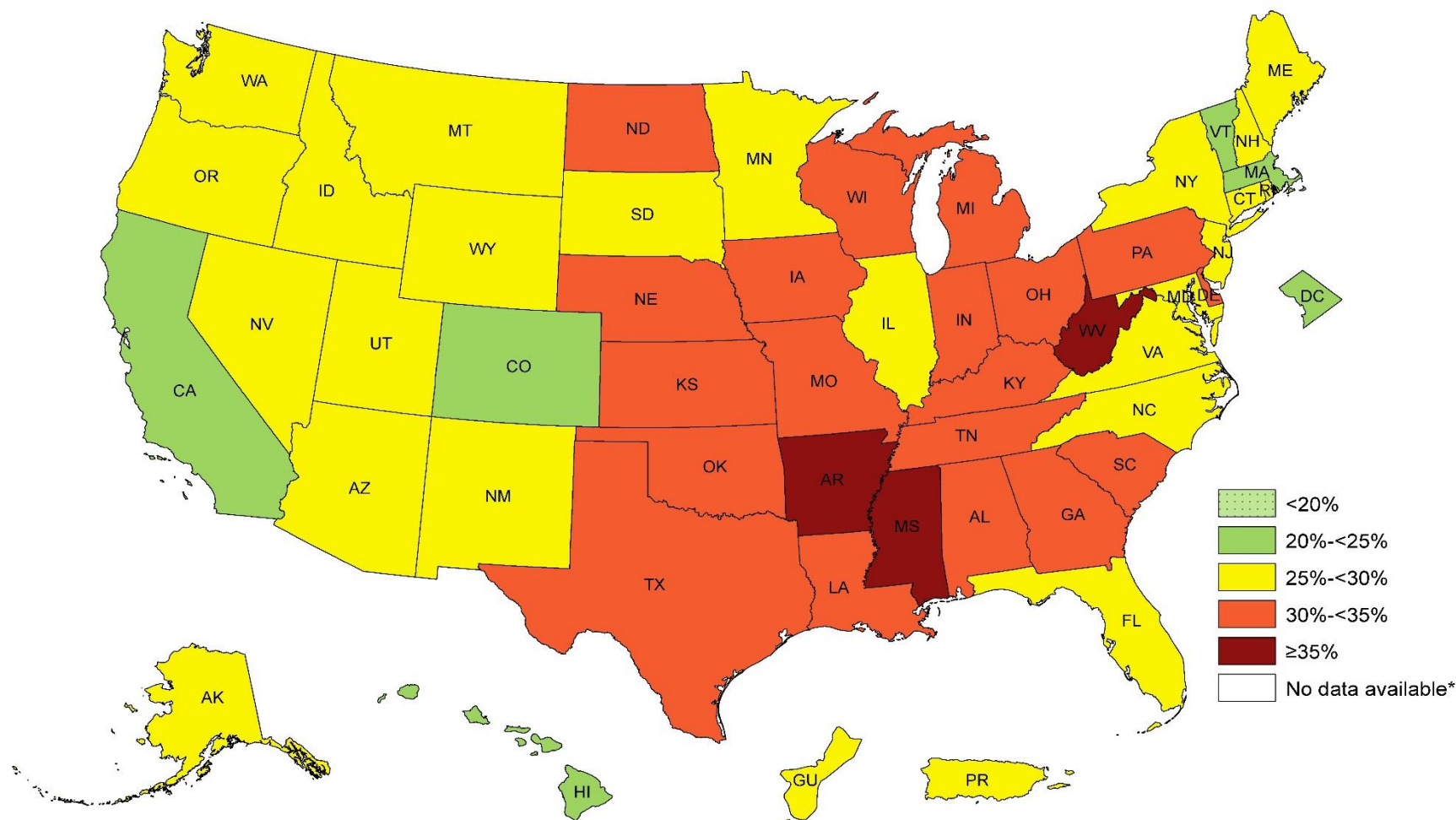
[†] Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.



*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

Prevalence[†] of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2014

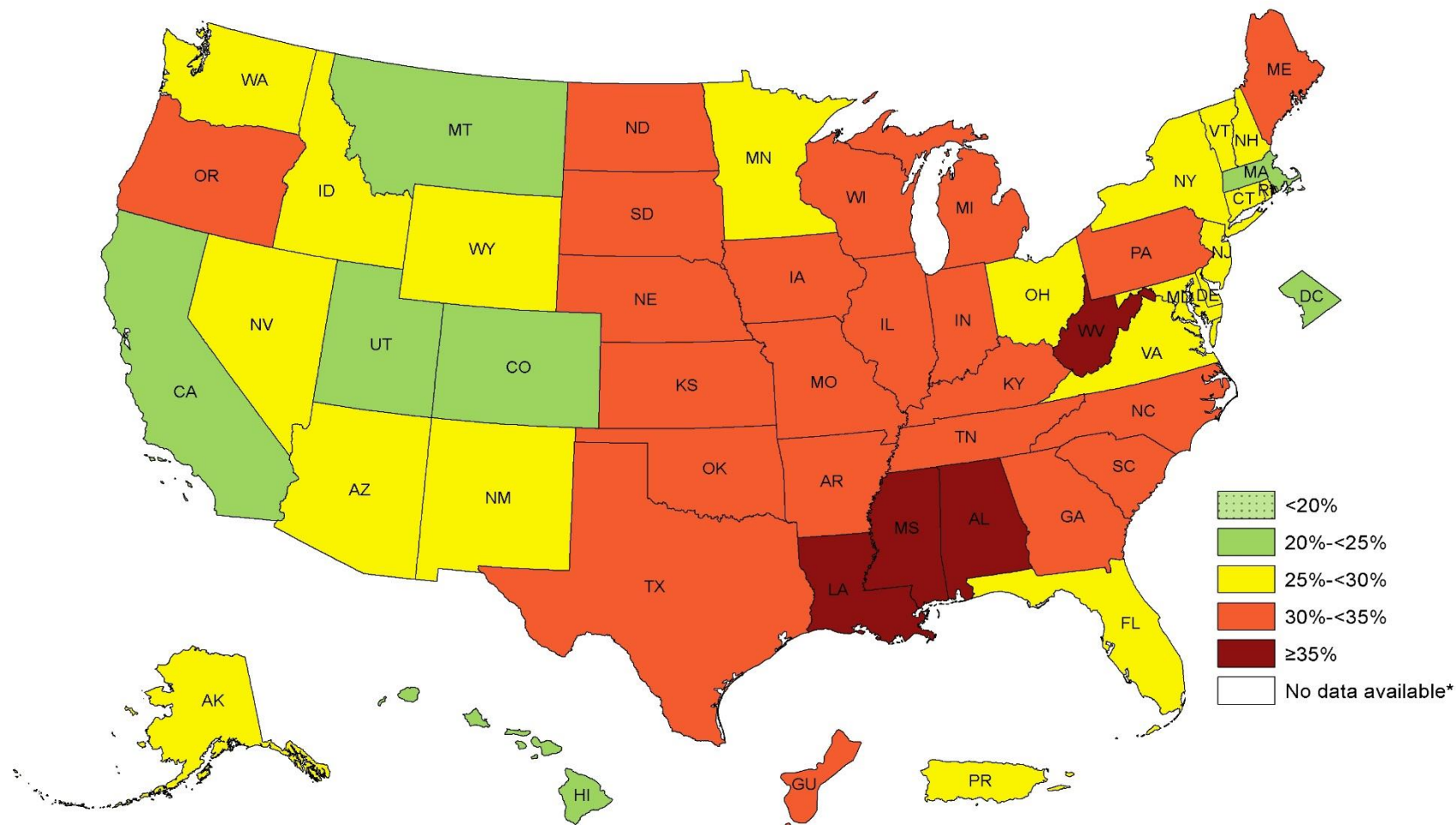
[†] Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.



*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

Prevalence[†] of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2015

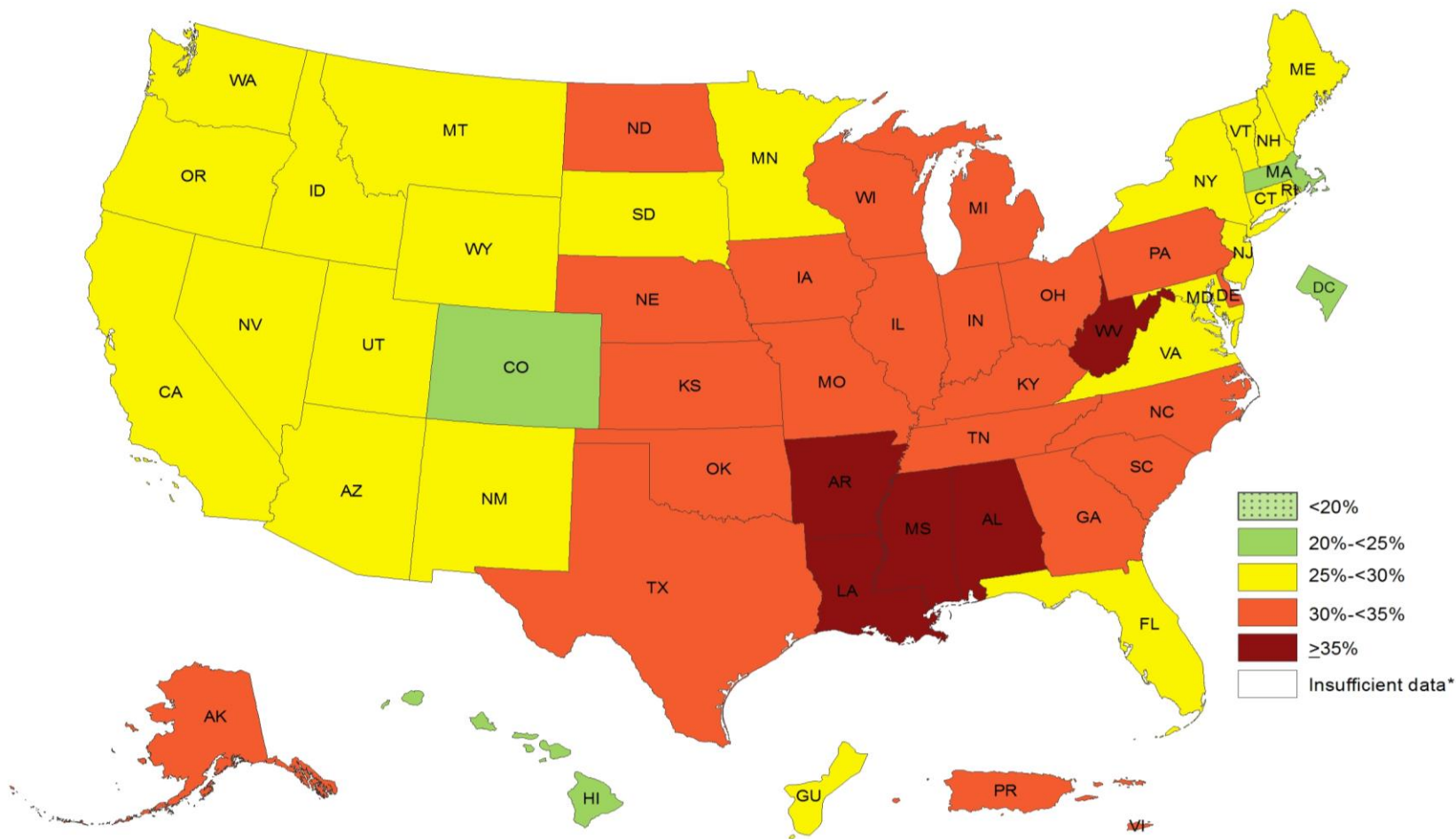
[†] Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.



*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

Prevalence¹ of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2016

† Prevalence estimates reflect BRFSS methodological changes started in 2011. These estimates should not be compared to prevalence estimates before 2011.

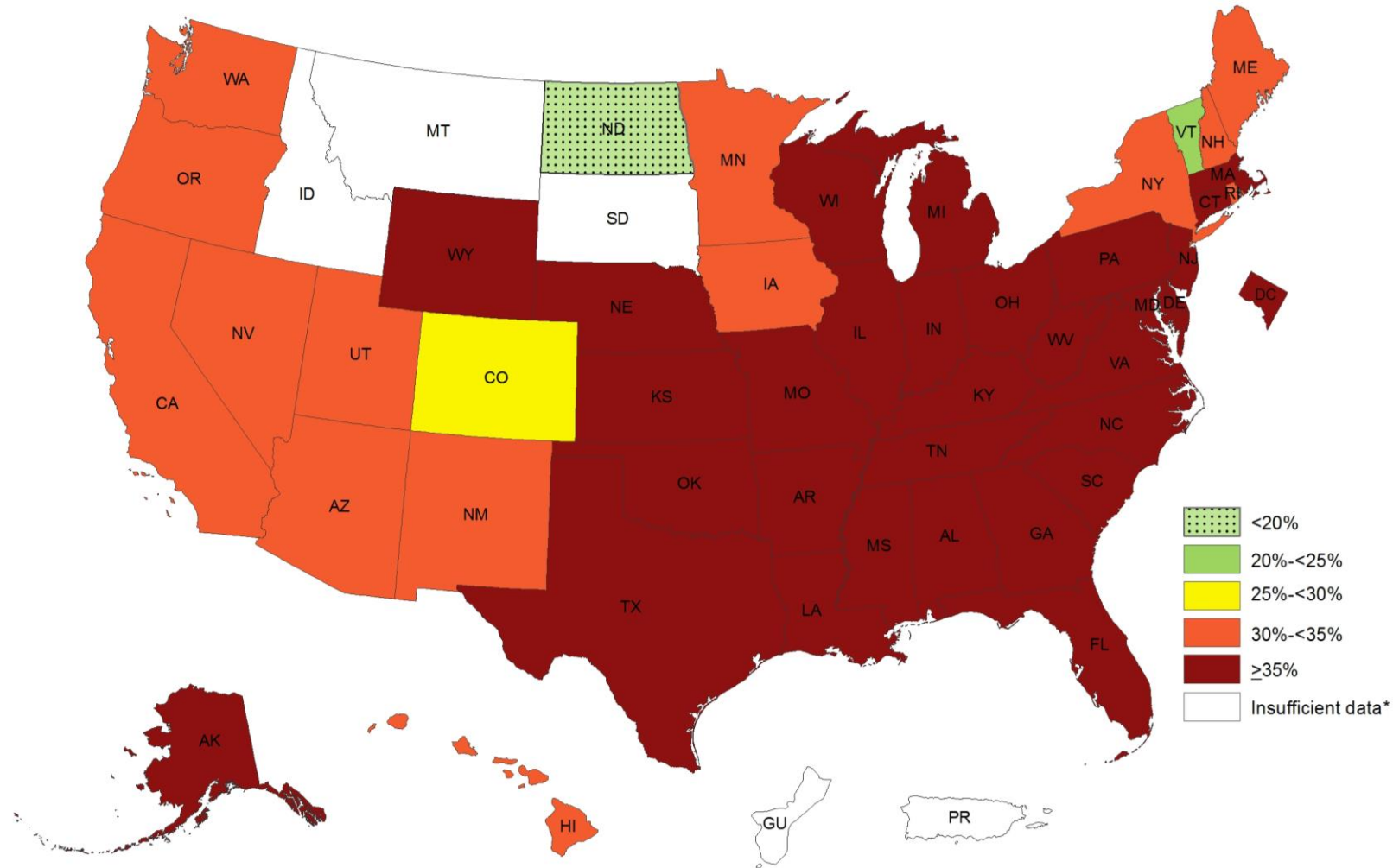


39.8%

***Sample size <50 or the relative standard error (dividing the standard error by the prevalence) $\geq 30\%$.**

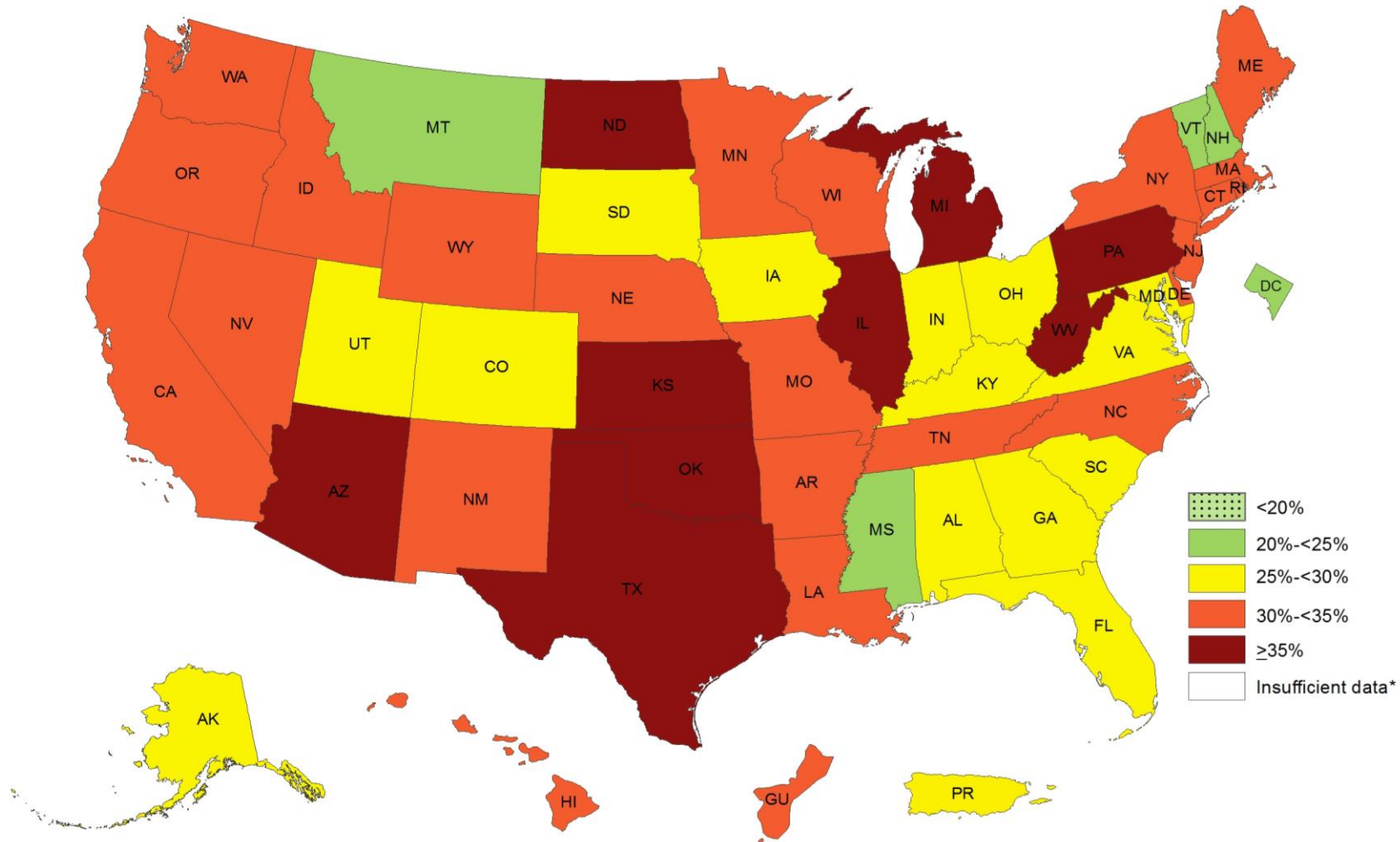


Prevalence of Self-Reported Obesity Among Non-Hispanic Black Adults, by State and Territory, BRFSS, 2014-2016



*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

Prevalence of Self-Reported Obesity Among Hispanic Adults, by State and Territory, BRFSS, 2014-2016

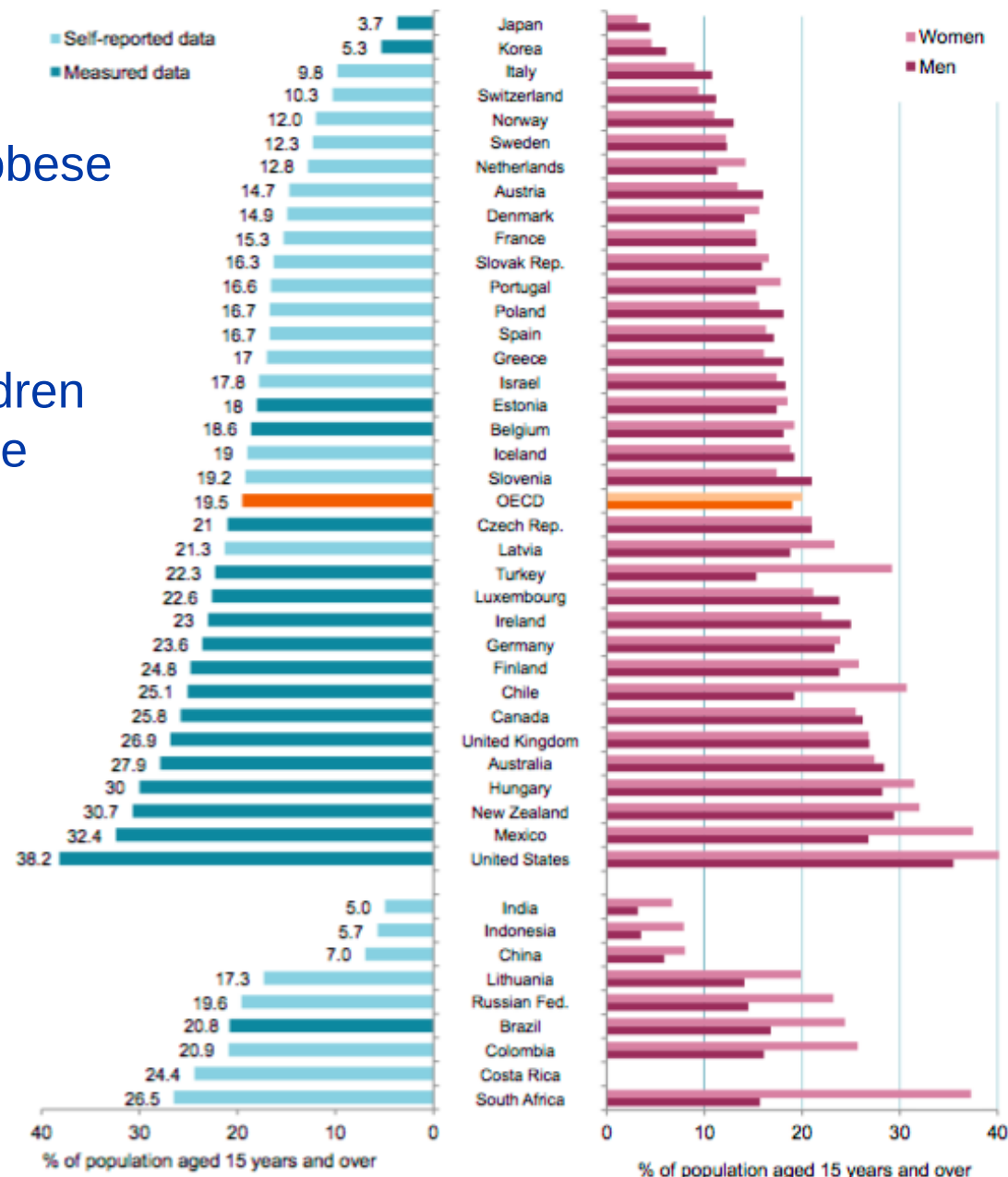


*Sample size <50 or the relative standard error (dividing the standard error by the prevalence) ≥ 30%.

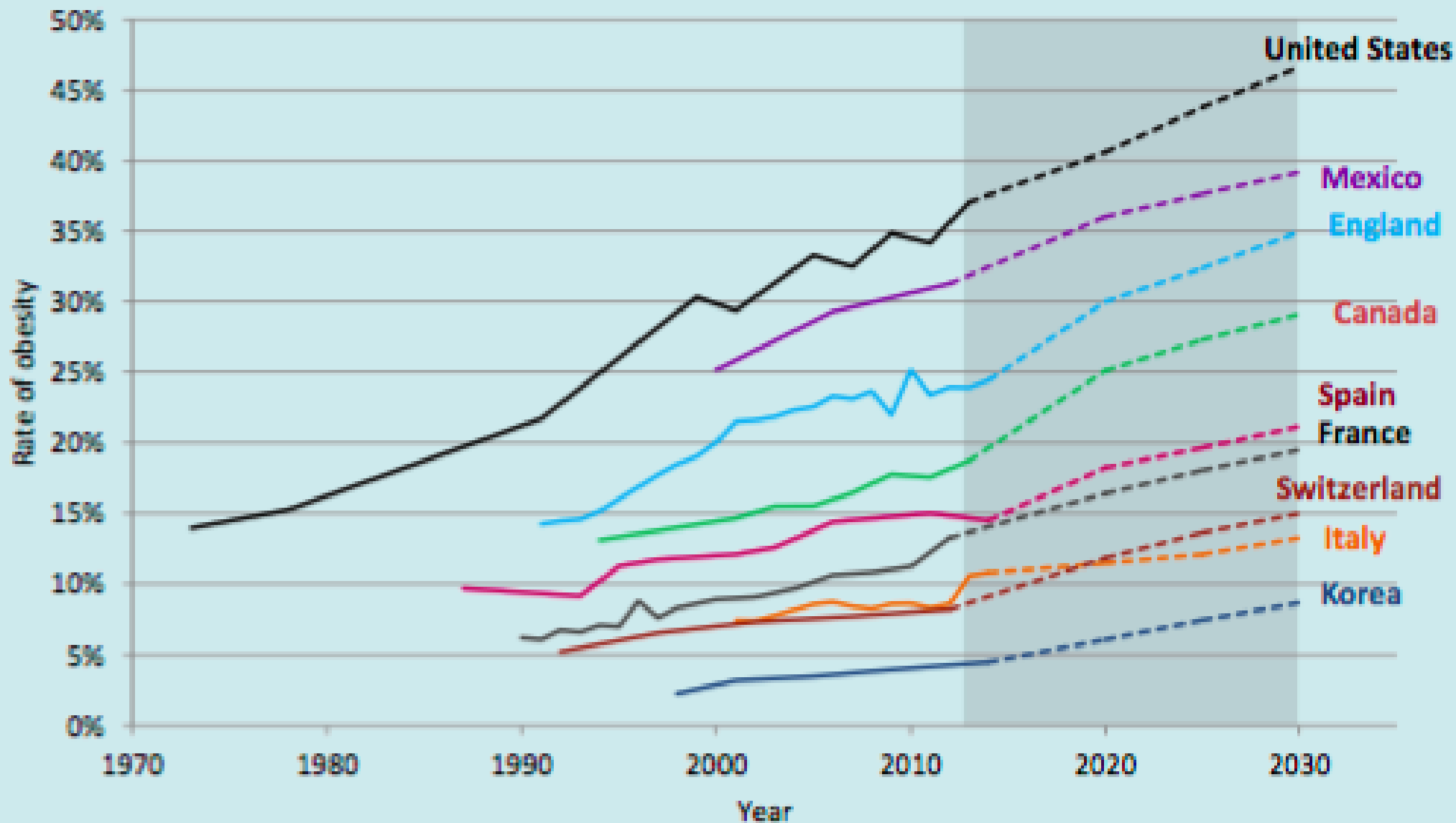
Obesity among adults, 2015 or nearest year in OECD Countries

One in five adults is obese
in OECD countries

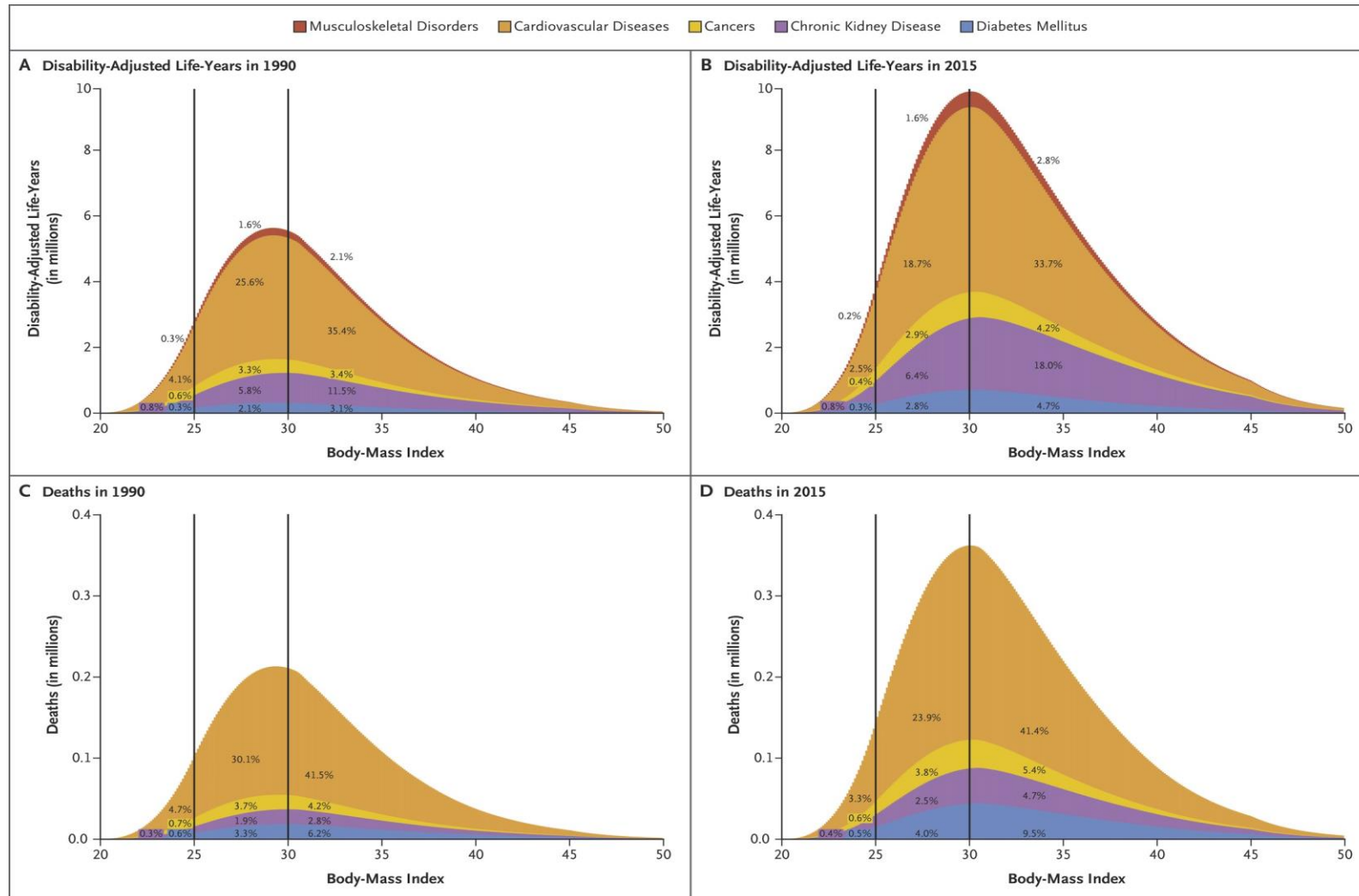
Nearly one in six children
is overweight or obese



Projected Rates of Obesity



Global Disability-Adjusted Life-Years and Deaths Associated with a High BMI (1990–2015)



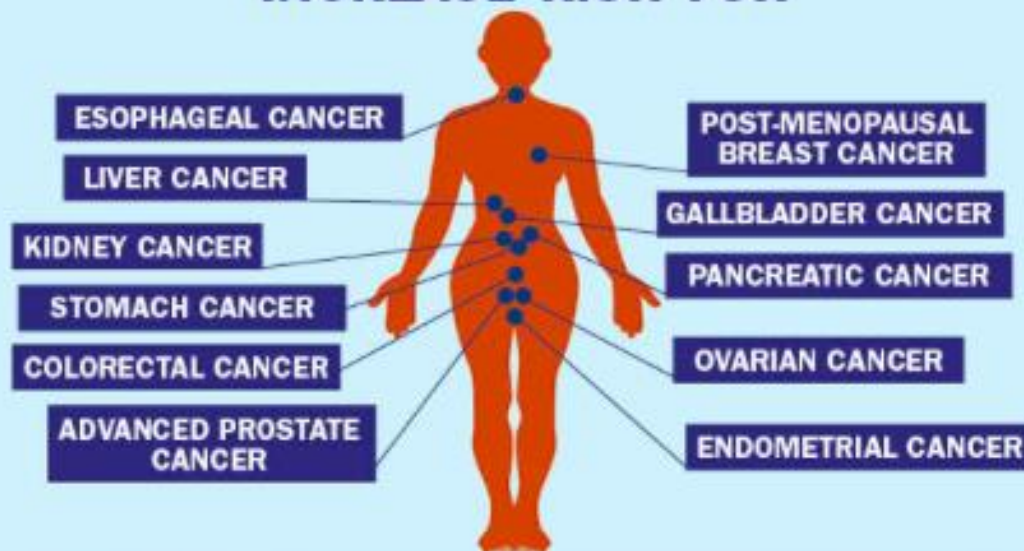
WHAT YOU NEED TO KNOW ABOUT OBESITY AND CANCER



After not smoking,
BEING AT A HEALTHY WEIGHT
Is **THE MOST IMPORTANT THING** you can do
to prevent cancer.



Overweight and obesity INCREASE RISK FOR



AICR ESTIMATES THAT **EXCESS BODY FAT** IS A CAUSE OF APPROXIMATELY

132,800

U.S. CANCER CASES EVERY YEAR.

AND YET...

7 in 10 Americans
are currently
overweight or obese.



AND ...

**Only about half of
all Americans**
are even aware of the
obesity-cancer link.



OCTOBER 2017

^{CDC}
Vitalsigns™

Cancer and obesity

Overweight and obesity are associated with cancer

2 in 3

Two in three US adults weigh more than recommended.

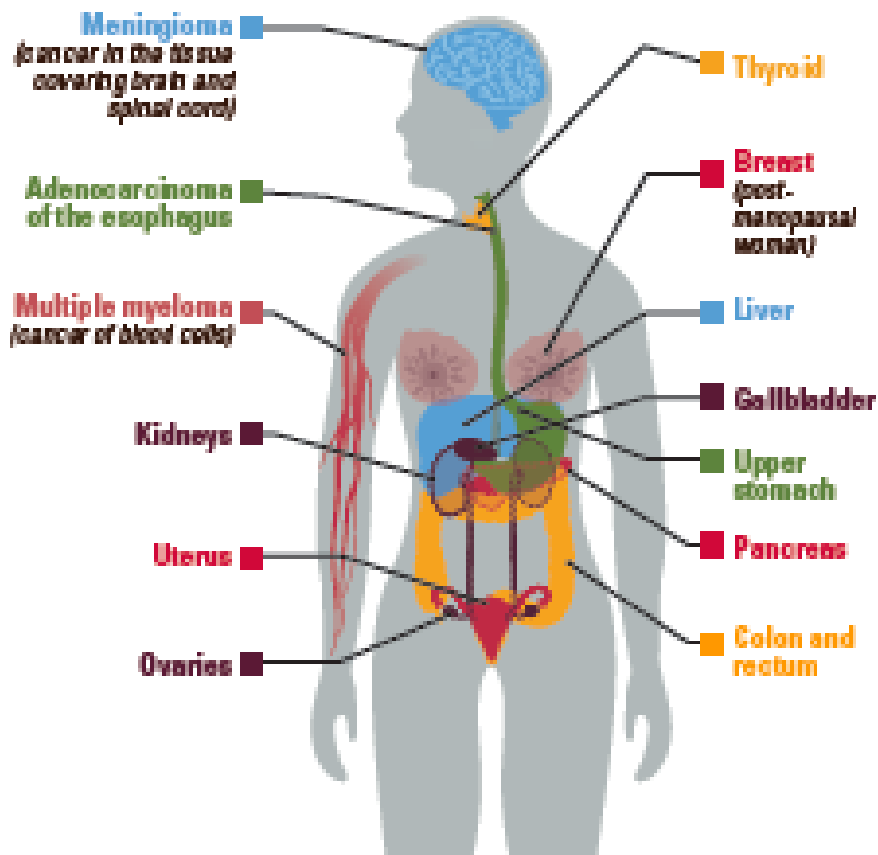
13

Overweight and obesity are associated with at least 13 types of cancer.

630,000

More than 630,000 people in the U.S. are diagnosed with a cancer associated with overweight and obesity.

13 cancers are associated with overweight and obesity



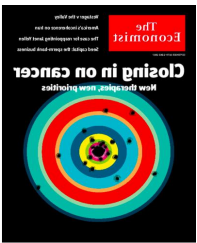


How Big Business Got Brazil Hooked on Junk Food

As growth slows in wealthy countries, Western food companies are aggressively expanding in developing nations, contributing to obesity and health problems.

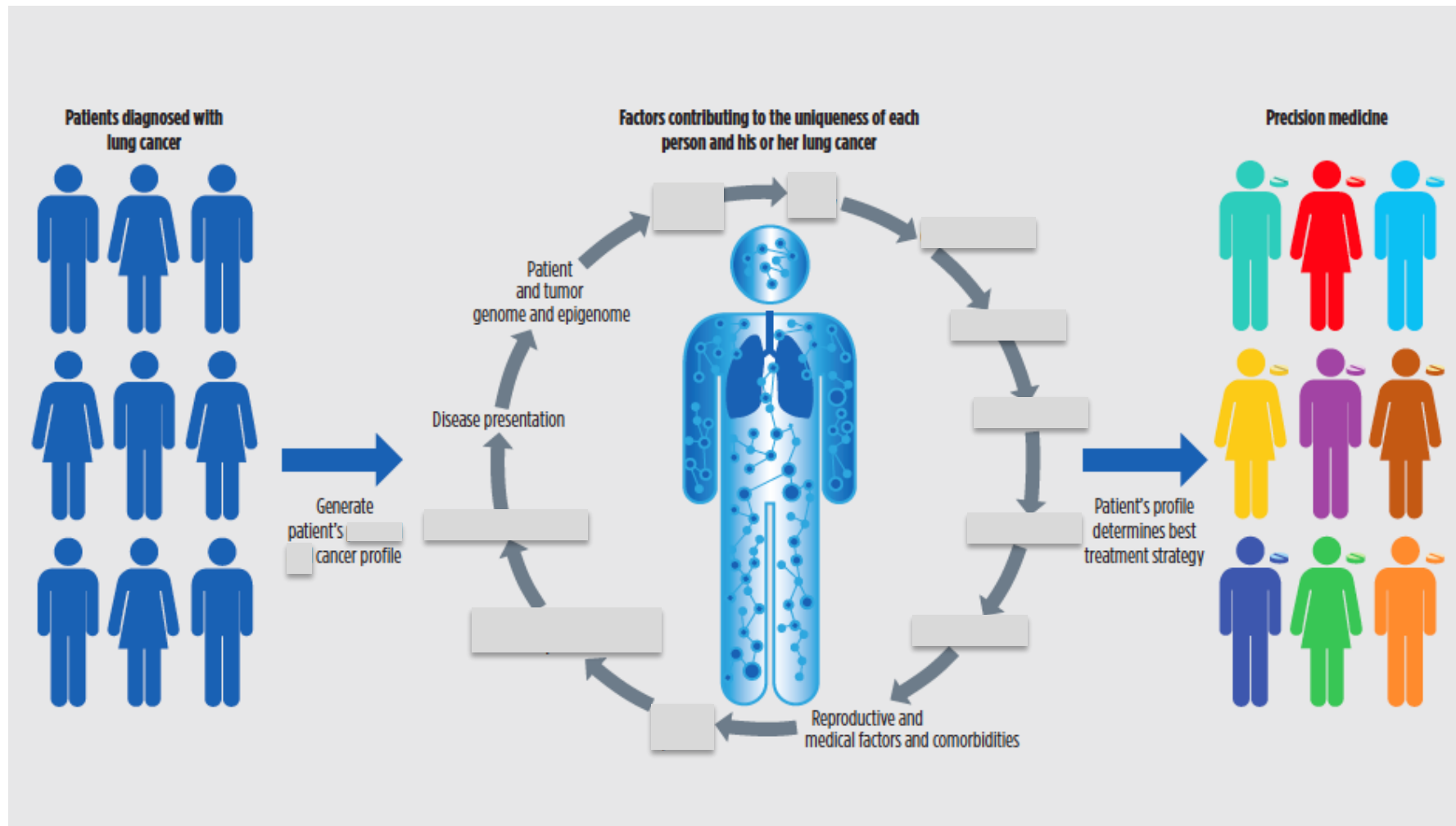
Policy, Policy, Policy

“Taxes and budgeting are a lot less exciting than tumor-zapping proton beams and antibodies with superpowers. But the decisions of technocrats are as important as the work of technicians. Cancer kills millions of people not simply for want of scientific advance, but also because of bad policy.”

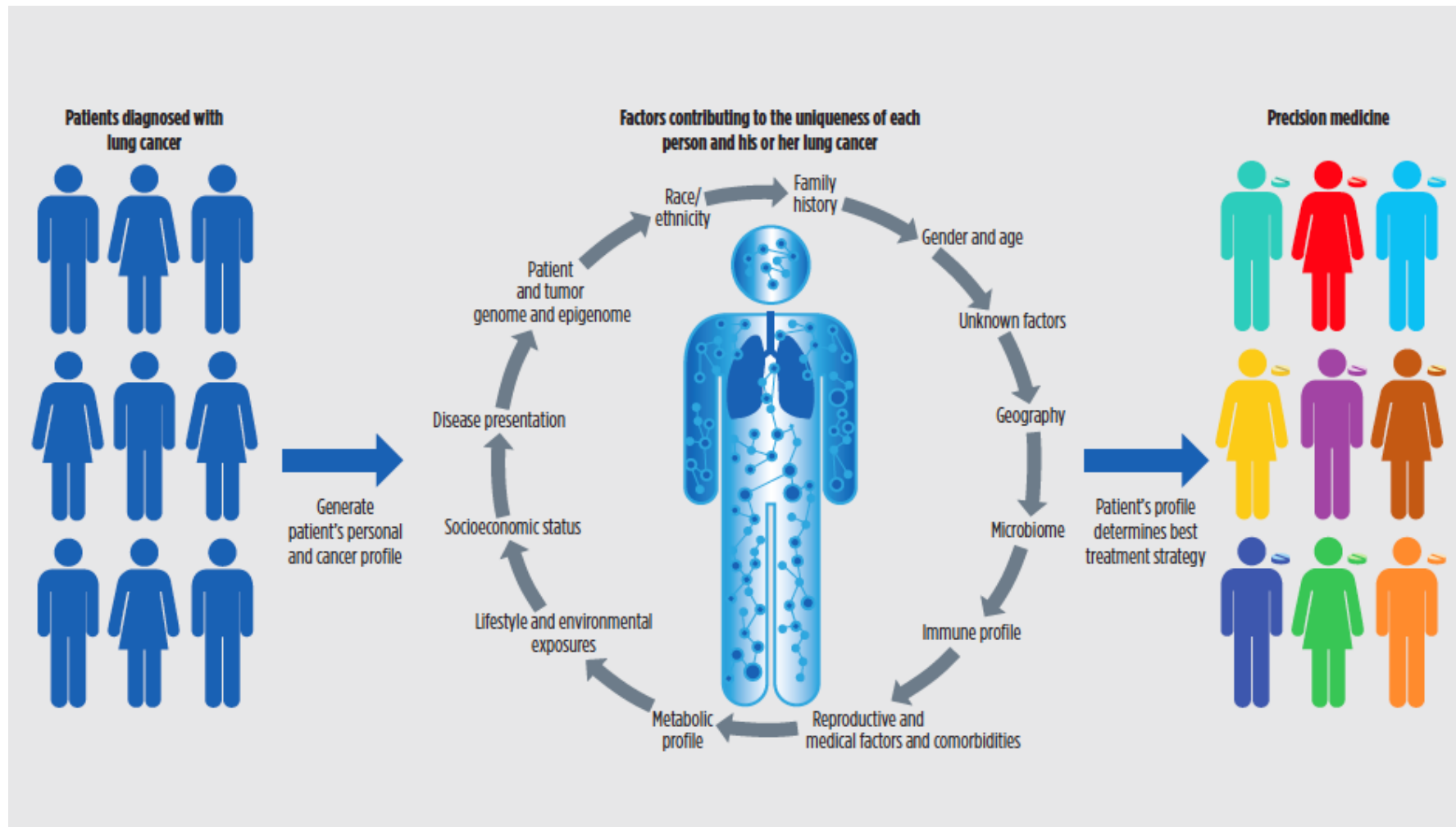


The Economist, September 16, 2017

Precision Medicine



Precision Medicine



Substantial contribution of extrinsic risk factors

Song Wu^{1,2}, Scott Ponder¹

“environmental exposures, lifestyle choices and other factors that could be changed or avoided account for between 70% and 90% of the gene mutations that make cancerous tumors progress.”

Recent research has shown that the lifetime number of cancerous tumors is a key public health debate with the dissemination of the ‘bad luck’ hypothesis. Here we provide evidence that intrinsic risk factors contribute only modestly (less than ~10–30% of lifetime risk) to cancer development. First, we demonstrate that the correlation between stem-cell division and cancer risk does not distinguish between the effects of intrinsic and extrinsic factors. We then show that intrinsic risk is better estimated by the lower bound risk controlling for total stem-cell divisions. Finally, we show that the rates of endogenous mutation accumulation by intrinsic processes are not sufficient to account for the observed cancer risks. Collectively, we conclude that cancer risk is heavily influenced by extrinsic factors. These results are important for strategizing cancer prevention, research and public health.

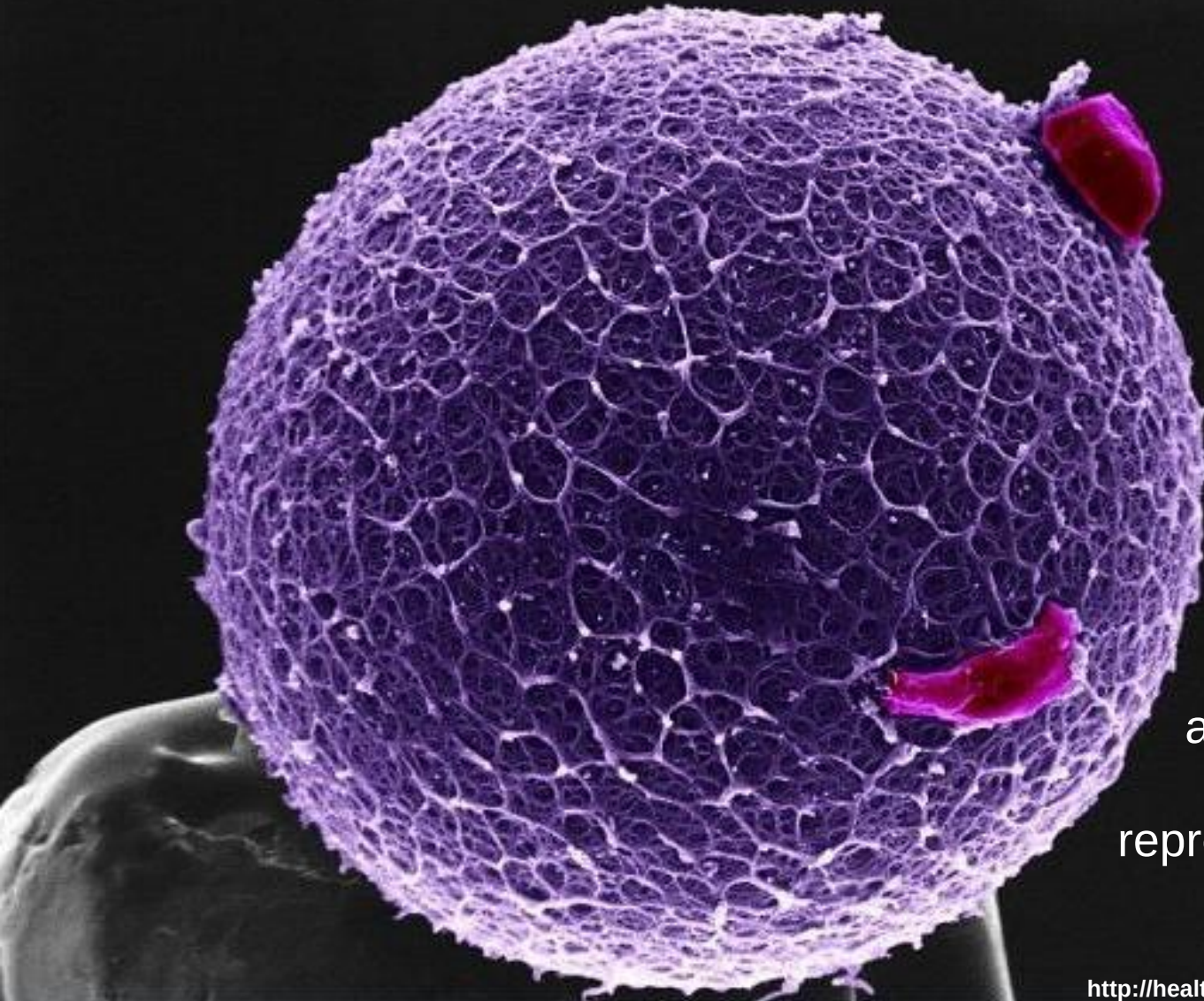
lifetime number of cancerous tumors has become

Cancer Prevention and Control:

THE MIX OF SIX

- No tobacco
- Improve nutrition, including moderate alcohol use
- Reduce sedentary behaviors
- **Reduce stress**
- **Increase social support**
- **Improve sleep quality**
- **Decrease enviromental toxins**
- Reduce obesity

Cancer Hallmarks



sustaining proliferative signaling

evading growth suppressors

resisting cell death

enabling replicative immortality

inducing angiogenesis

evading immune destruction

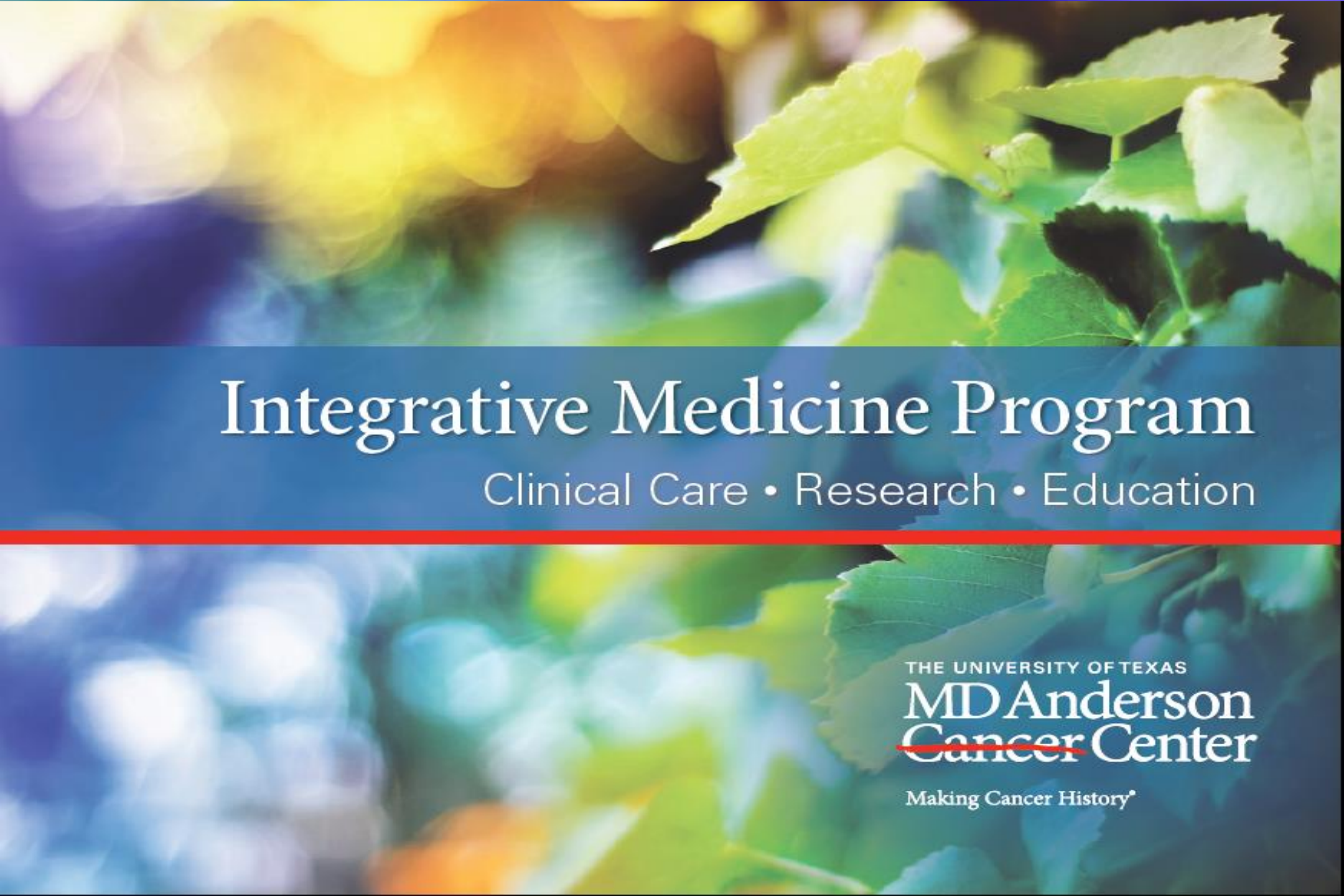
activating invasion and metastasis

reprogramming of energy metabolism

Hannahan & Weinberg. Cell 2011

<http://healthsciencedegree.info/cancer-cells-under-electron-microscope/>

“See You in Six Months”



Integrative Medicine Program

Clinical Care • Research • Education

THE UNIVERSITY OF TEXAS

MDAnderson
Cancer Center

Making Cancer History®

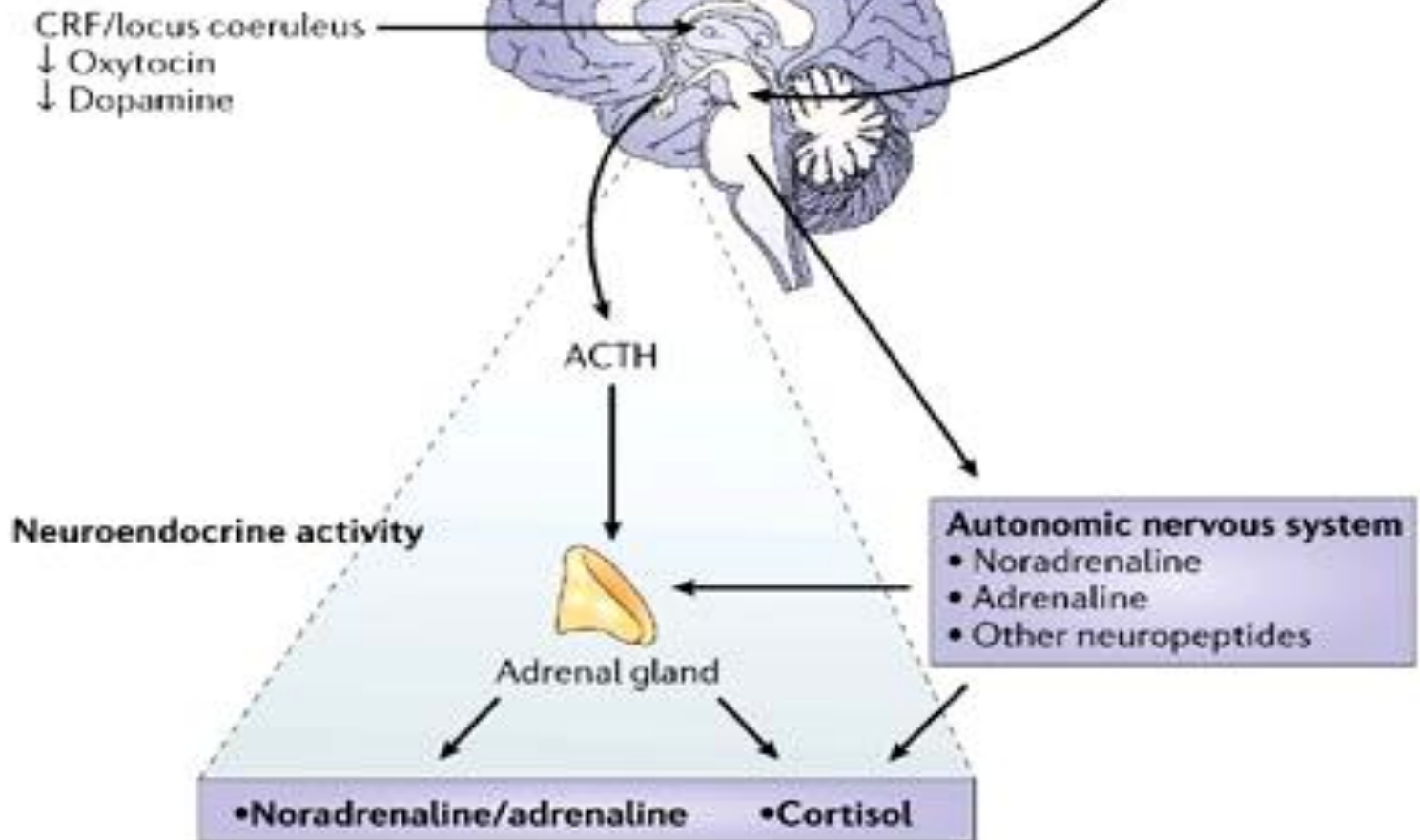
Stress Response

Stressors

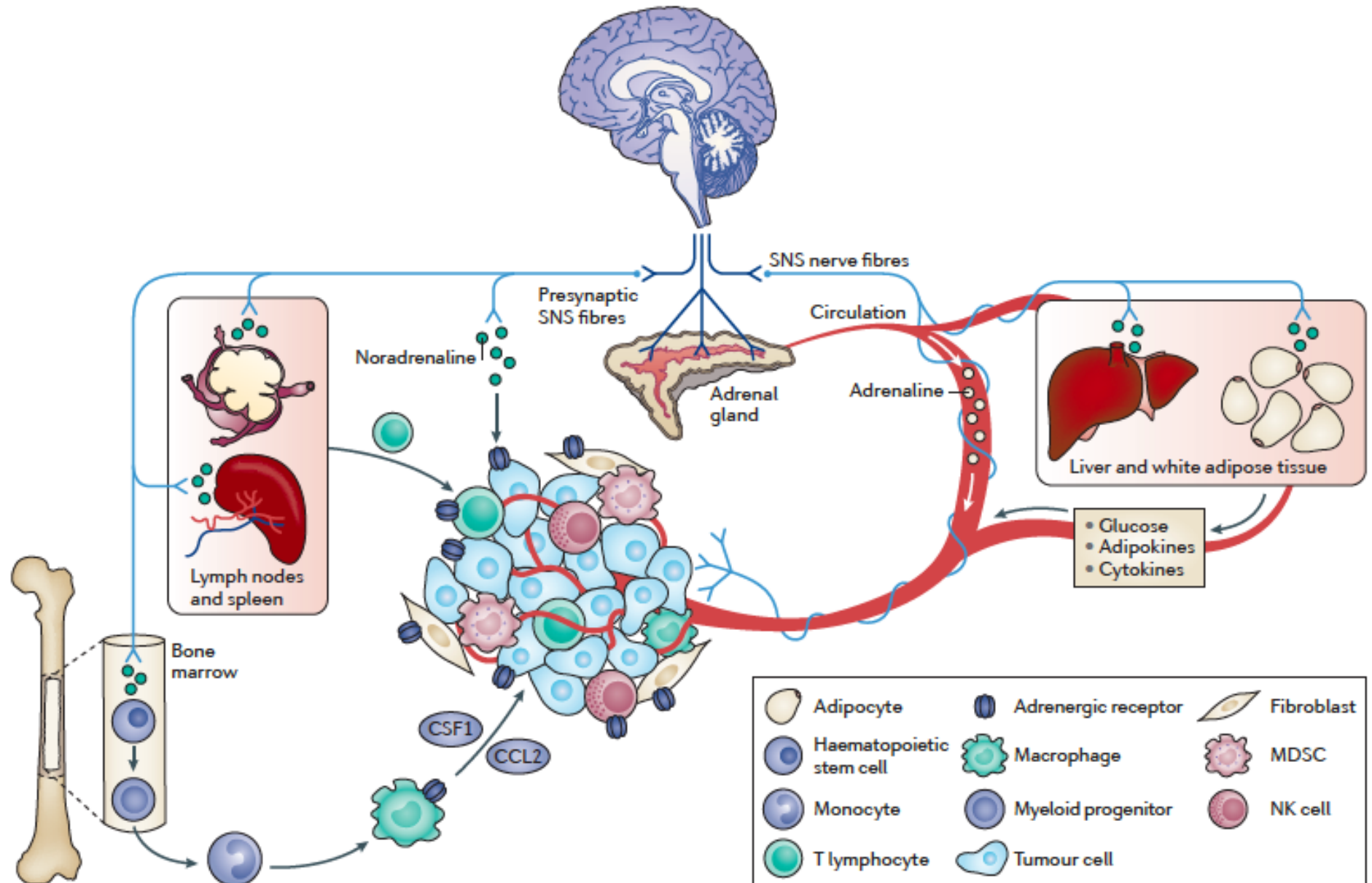
Social isolation
Negative life events
Socio-economic burden

Psychological responses

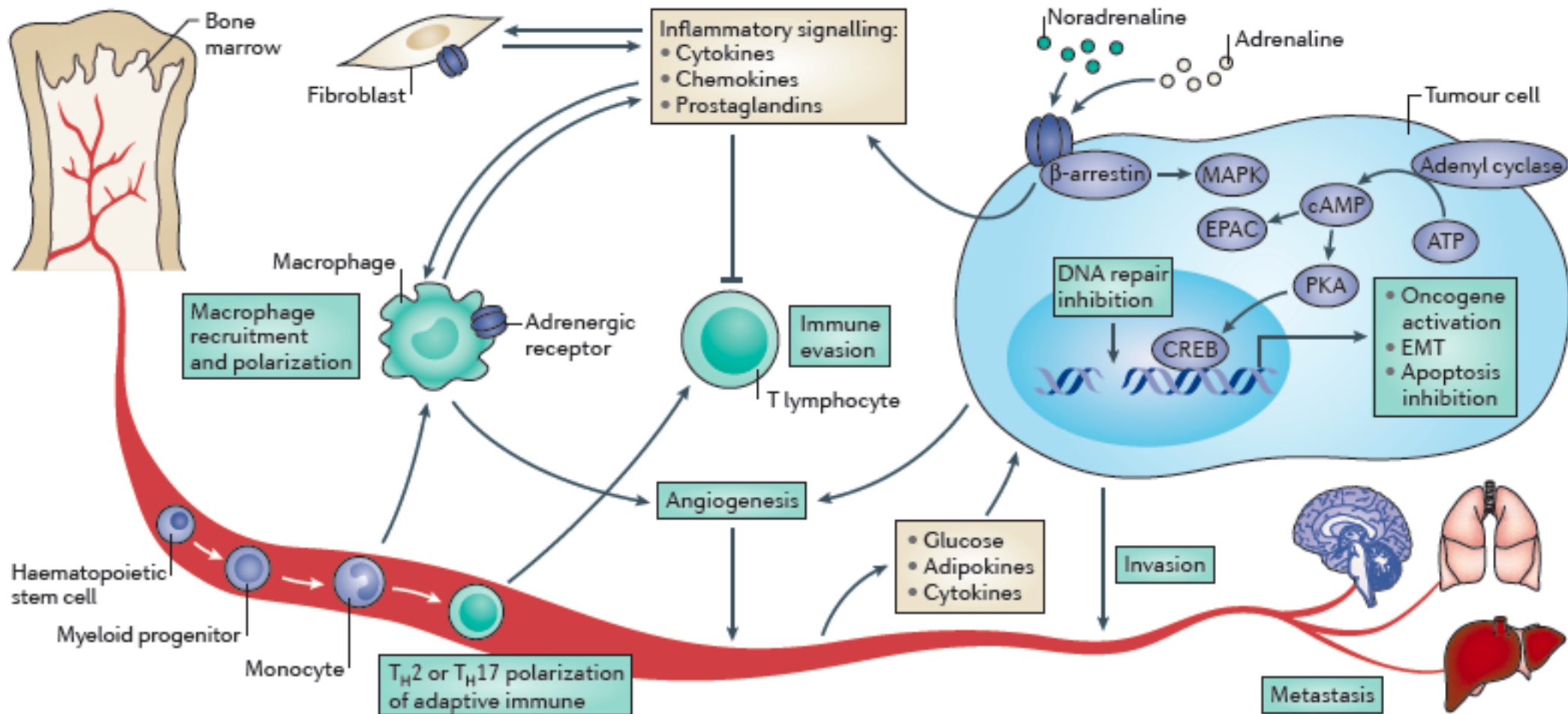
Optimism
Perceived stress
Depression



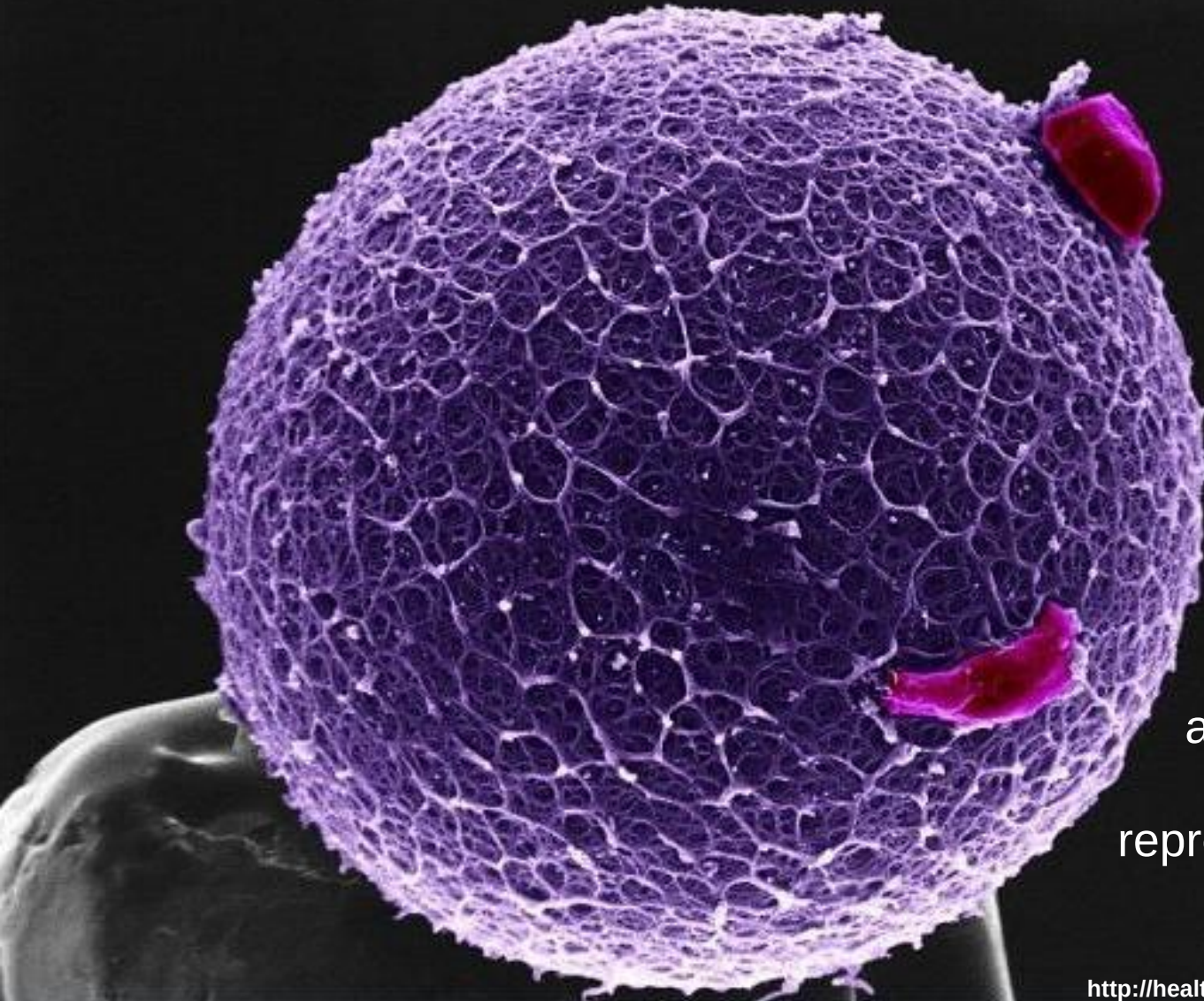
SNS regulation of the tumor microenvironment



Molecular mechanisms for SNS regulation of tumor progression



Cancer Hallmarks



sustaining proliferative signaling

evading growth suppressors

resisting cell death

enabling replicative immortality

inducing angiogenesis

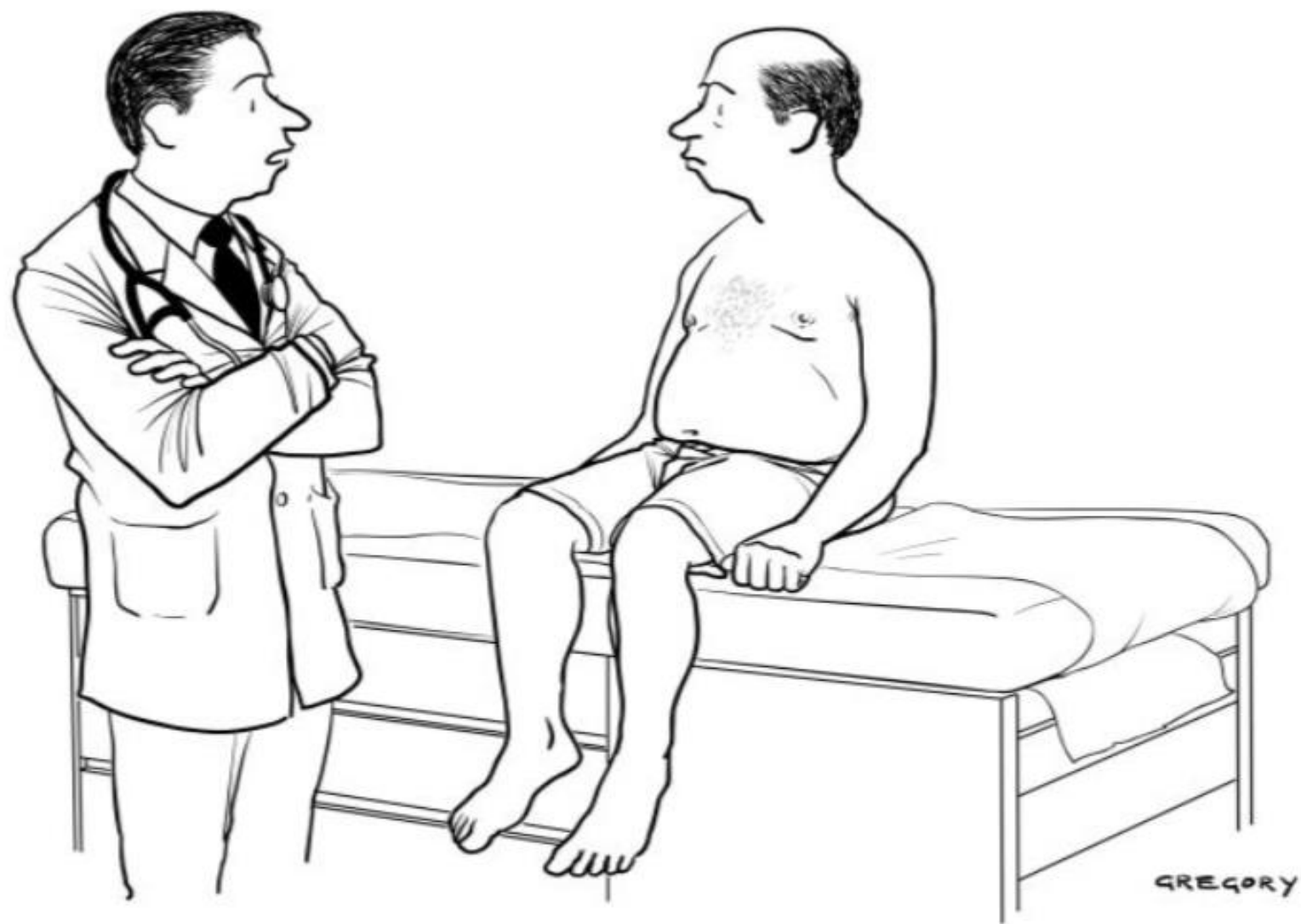
evading immune destruction

activating invasion and metastasis

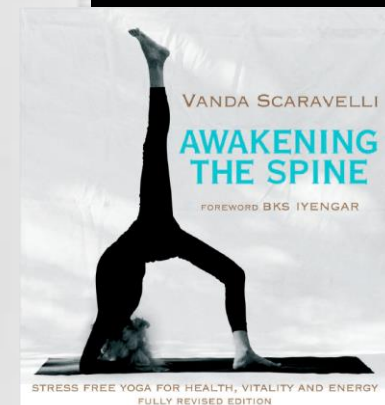
reprogramming of energy metabolism

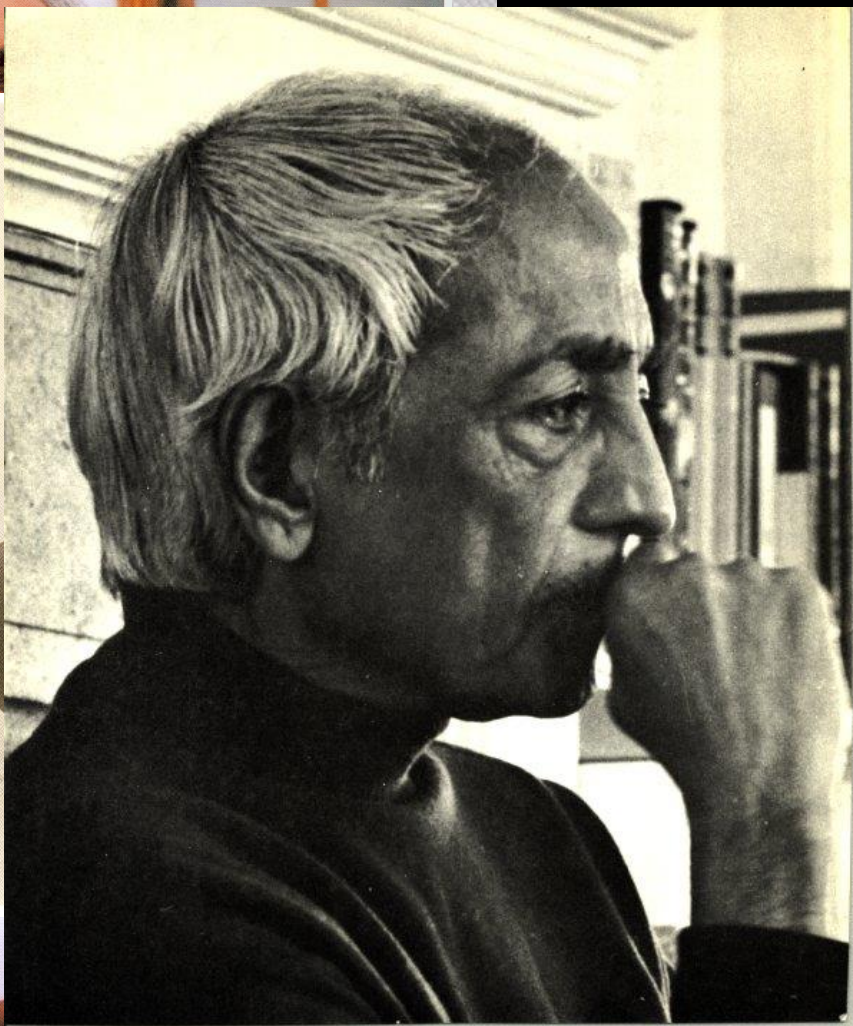
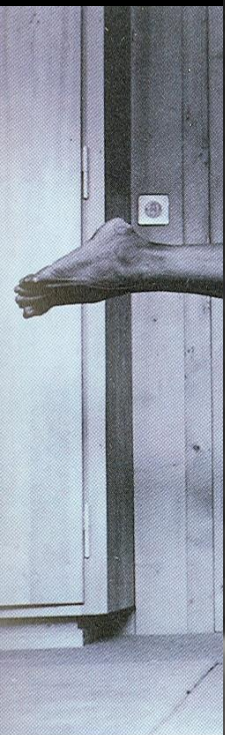
Hannahan & Weinberg. Cell 2011

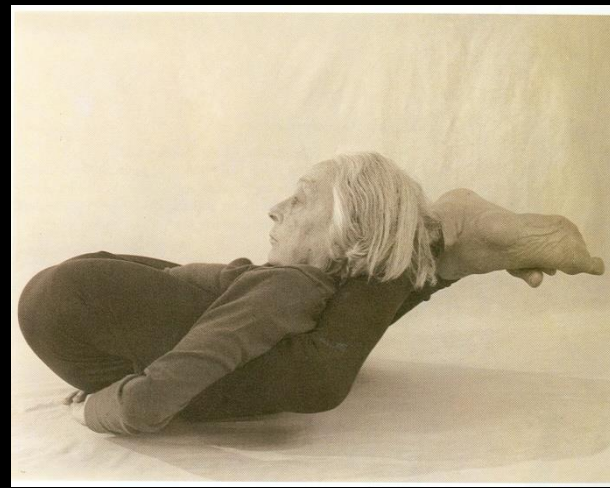
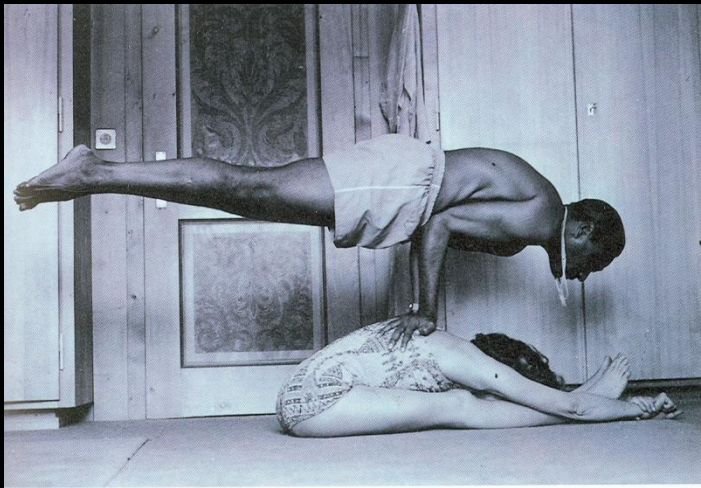
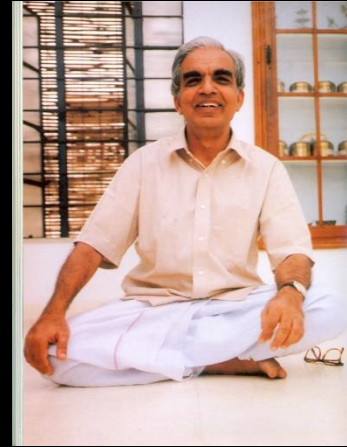
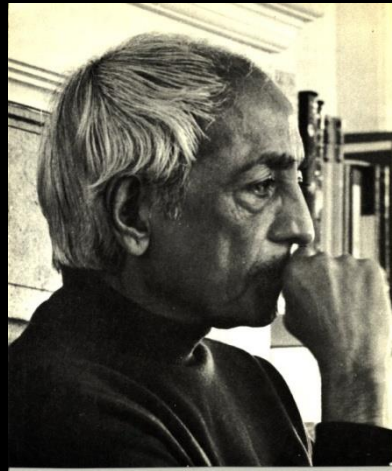
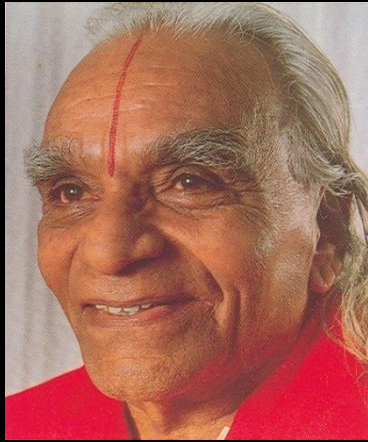
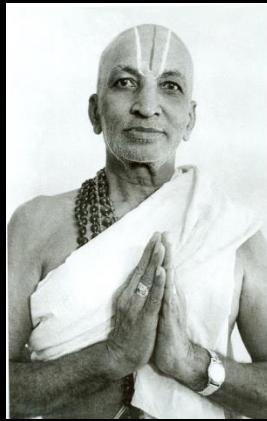
<http://healthsciencedegree.info/cancer-cells-under-electron-microscope/>



“Stress is killing you—you need an easier job, a smaller house, and a different family.”







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MD Anderson ~~Cancer~~ Center

Making Cancer History[®]



VYASA.org
Vivekananda Yoga Anusandhana Samasthana

Swami Vivekananda Yoga Anusandhana Samasthana
(Deemed to be University)



Psychological Adjustment and Sleep Quality in a Randomized Trial of the Effects of a Tibetan Yoga Intervention in Patients with Lymphoma

Lorenzo Cohen, PhD,^{1,2}
Carla Wernke, PhD³

BACKGROUND. Research suggests that stress management helps patients cope with the

Published Ahead of Print on March 3, 2014 as 10.1200/JCO.2012.48.2752
The latest version is at <http://jco.ascopubs.org/cgi/doi/10.1200/JCO.2012.48.2752>

JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

Psycho-Oncology
Psycho-Oncology (2013)
Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/pon.3296

Tibetan sound meditation for cognitive dysfunction: results of a randomized controlled pilot trial

K. Milbury^{1,†}, A. Chaoul^{1,†}, K. Biegler², T. Wangyal³, A. Spelman¹, C. A. Meyers⁴, B. Arun⁵, J. L. Palmer⁶, J. Taylor⁴ and L. Cohen^{1*}

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[†]Both authors contributed equally
to the development of this
manuscript and are considered
first authors.

Abstract

Objective: Although chemotherapy-induced cognitive impairment is common among breast cancer patients, evidence for effective interventions addressing cognitive deficits is limited. This randomized controlled trial examined the feasibility and preliminary efficacy of a Tibetan Sound Meditation (TSM) program to improve cognitive function and quality of life in breast cancer patients.

Methods: Forty-seven breast cancer patients (mean age 56.3 years), who were staged I–III at diagnosis, 6–60 months post-chemotherapy, and reported cognitive impairment at study entry were recruited. Participants were randomized to either two weekly TSM sessions for 6 weeks or a wait list control group. Neuropsychological assessments were completed at baseline and 1 month post-treatment. Self-report measures of cognitive function (Functional Assessment of Cancer Therapy (FACT)-Cog), quality of life (SF-36), depressive symptoms (Center for Epidemiologic Studies Depression Scale), sleep disturbance (Pittsburgh Sleep Quality Index), fatigue (Brief Fatigue Inventory), and spirituality (FACT-Sp) were completed at baseline, the end of treatment, and 1 month later.

Results: Relative to the control group, women in the TSM group performed better on the verbal memory test (Rey Auditory Verbal Learning Test trial 1) ($p = 0.06$) and the short-term memory and processing speed task (Digit Symbol) ($p = 0.09$) and reported improved cognitive function ($p = 0.06$), cognitive abilities ($p = 0.08$), mental health ($p = 0.04$), and spirituality ($p = 0.05$) at the end of treatment but not 1 month later.

Conclusions: This randomized controlled trial revealed that TSM program appears to be a feasible and acceptable intervention and may be associated with short-term improvements in objective and subjective cognitive function as well as mental health and spirituality in breast cancer patients.

I. D. Chandwani, University of Rochester Medical Center, Rochester, NY; Kavita Chandwani, George Perkins, Amy Arun, Kayla Johnson, Adoneca Fortier, Arun, Qi Wei, Robin Haddad, Janet Stz, Alejandro Chaoul, and Lorenzo Cohen, The University of Texas MD Anderson Cancer Center, Houston, TX; G. van Montic, St. Jude Children's Research Hospital, Memphis, TN; Alessandra Ramarao Nagendra, Nalini V. Raghuram, Raghuram Nagendra Swami Vivekananda Yoga Anandana Samsthana, Bangalore, India; Clemens Kirschbaum, Technical University of Dresden, Dresden, Germany.

shod online ahead of print at jco.org on March 3, 2014.

unded in part by Grants No. A102935 and R01CA136800 from National Cancer Institute; National Cancer Institute Cancer Center Grant No. CA016672; National Cancer Institute Grant No. R05CA106118; philanthropic support for the Integrative Medicine Program, The University of Texas MD Anderson Cancer Center.

unded in part at the American Psychosomatic Society Annual Meeting, San Antonio, TX, March 2011; the American Society of Clinical Oncology Meeting, Chicago, IL, June

Randomized, Controlled Trial of Yoga in Women With Breast Cancer Undergoing Radiotherapy

Kavita D. Chandwani, George Perkins, Hongasandra Ramarao Nagendra, Nelamangala V. Raghuram, Amy Spelman, Raghuram Nagarathna, Kayla Johnson, Adoneca Fortier, Banu Arun, Qi Wei, Clemens Kirschbaum, Robin Haddad, G. Stephen Morris, Janet Scheerz, Alejandro Chaoul, and Lorenzo Cohen

ABSTRACT

Purpose

Previous research incorporating yoga (YG) into radiotherapy (XRT) for women with breast cancer finds improved quality of life (QOL). However, shortcomings in this research limit the findings.

Patients and Methods

Patients with stages 0 to III breast cancer were recruited before starting XRT and were randomly assigned to YG ($n = 53$) or stretching (ST; $n = 56$) three times a week for 6 weeks during XRT or waitlist (WL; $n = 54$) control. Self-report measures of QOL (Medical Outcomes Study 36-item short-form survey; primary outcomes), fatigue, depression, and sleep quality, and five saliva samples per day for 3 consecutive days were collected at baseline, end of treatment, and 1, 3, and 6 months later.

Results

The YG group had significantly greater increases in physical component scale scores compared with the WL group at 1 and 3 months after XRT ($P = .01$ and $P = .01$). At 1, 3, and 6 months, the YG group had greater increases in physical functioning compared with both ST and WL groups ($P < .05$), with ST and WL differences at only 3 months ($P < .02$). The group differences were similar for general health reports. By the end of XRT, the YG and ST groups also had a reduction in fatigue ($P < .05$). There were no group differences for mental health and sleep quality. Cortisol slope was steepest for the YG group compared with the ST and WL groups at the end ($P = .023$ and $P = .008$) and 1 month after XRT ($P = .05$ and $P = .04$).

Conclusion

YG improved QOL and physiological changes associated with XRT beyond the benefits of simple ST exercises, and these benefits appear to have long-term durability.

J Clin Oncol 32. © 2014 by American Society of Clinical Oncology

Couple-based Mind-body Practices



PI: Dr. Kathrin Milbury, Assistant Professor

Clinical Correspondence

Couple-based Tibetan yoga program for lung cancer patients and their caregivers

Kathrin Milbury^{1*}, Alejandro Chaoul¹, Rosalinda Engle¹, Zhongxing Liao², Chunyi Yang², Cindy Carmack³, Vickie Shannon⁴, Amy Spelman¹, Tenzin Wangyal⁵ and Lorenzo Cohen¹

¹Department of General Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

²Department of Radiation Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

³Department of Palliative Care & Rehabilitation Medicine, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

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⁵Department of Tibetan Buddhist Studies, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

Research Article

Yoga Program for High-Grade Glioma Patients Undergoing Radiotherapy and Their Family Caregivers

Kathrin Milbury, PhD¹, Smitha Mallaiah, MA¹, Anita Mahajan, MD¹, Terri Armstrong, PhD, RN¹, Shioa-Pei Weathers, MD¹, Kathryn E. Moss, MA¹, Nazli Goktepe, MA¹, Amy Spelman, PhD¹, and Lorenzo Cohen, PhD¹

Abstract

Background: Despite their high symptom burden and poor prognosis, evidence-based supportive care interventions for adults with high-grade glioma (HGG) and their caregivers are lacking. Thus, we aimed to establish feasibility of a patient-caregiver dyadic yoga program (DYP) for newly diagnosed HGG patients and their family caregivers targeting quality-of-life (QOL) outcomes. **Method:** In this single-arm pilot trial, dyads participated in a 12-session DYP program across the course of patients' radiotherapy. The intervention focused on breathing exercises, gentle movements, and guided meditations. We tracked feasibility data and assessed levels of cancer-related symptoms (MD Anderson Symptom Inventory [MDASI]), depressive symptoms (Centers for Epidemiological Studies-Depression scale), fatigue (Brief Fatigue Inventory), sleep disturbances (Pittsburgh Sleep Quality Index [PSQI]), and overall mental and physical QOL (36-item Short-Form Survey [SF-36]) at baseline and post-DYP, which was at the end of radiotherapy. **Results:** We approached 6 dyads of which 5 dyads (86%) consented and completed all 12 sessions and pre/post assessments. All patients (mean age: 52 years, 80% female, 80% grade IV) and caregivers (mean age: 58 years, 80% female, 60% spouses) perceived benefit from the program. Paired *t* tests revealed a marginally significant, yet clinically meaningful, decrease in patient's cancer symptoms ($t = 2.32$, $P = .08$; MDASI mean; pre = 1.75, post = 1.04). There were clinically significant reductions in patient sleep disturbances (PSQI mean: pre = 10.75, post = 8.00) and improvements in patient and caregiver mental QOL (MCS of SF-36 mean: pre = 42.35, post = 52.34, and pre = 45.14, post = 51.43, respectively). **Conclusions:** This novel supportive care program appears to be safe, feasible, acceptable, and subjectively useful for HGG patients and their caregivers. There was also preliminary evidence regarding QOL treatment gains for both patients and caregivers.

Integrative Cancer Therapies
1–5
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1–6
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DOI: 10.1177/1534735415583554
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Research Articles

Vivekananda Yoga Program for Patients With Advanced Lung Cancer and Their Family Caregivers

Kathrin Milbury, PhD¹, Smitha Mallaiah, BS¹, Gabriel Lopez, MD¹, Zhongxing Liao, MD¹, Chunyi Yang, APN¹, Cindy Carmack, PhD¹, Alejandro Chaoul, PhD¹, Amy Spelman, PhD¹, and Lorenzo Cohen, PhD¹

Abstract

Background. The primary purpose of this study was to establish the feasibility of a couple-based Vivekananda Yoga (VKC) intervention in lung cancer patients and caregivers. Secondly, we examined preliminary efficacy regarding quality of life (QOL) outcomes. **Method.** In this single-arm feasibility trial, patients with lung cancer undergoing radiotherapy and their caregivers participated in a 15-session VKC program that focused on the interconnectedness of the dyad. We assessed pre-and post-intervention levels of fatigue, sleep disturbances, psychological distress, overall QOL, spirituality, and relational closeness. We tracked feasibility data, and participants completed program evaluations. **Results.** We approached 28 eligible dyads of which 15 (53%) consented and 9 (60%) completed the intervention. Patients (mean age = 73 years, 63% female, all stage III) and caregivers (mean age = 62 years, 38% female, 63% spouses) completed a mean of 10 sessions and 95.5% of them rated the program as very useful. Paired *t* tests revealed a significant increase in patients' mental health ($d = 0.84$; $P = .04$) and a significant decrease in caregivers' sleep disturbances ($d = 1.44$; $P = .02$). Although not statistically significant, for patients, effect sizes for change scores were medium for benefit finding and small for distress ($d = 0.65$ and 0.37 , respectively). For caregivers, medium effects were found for improvement in physical functioning ($d = 0.50$). **Conclusion.** This novel supportive care program appears to be safe, feasible, acceptable, and subjectively useful for lung cancer patients and their caregivers and lends support for further study.

PAPER

Qigong/tai chi for sleep and fatigue in prostate cancer patients undergoing radiotherapy: a randomized controlled trial

Jennifer L. McQuade¹ | Sarah Prinsloo² | David Z. Chang³ | Amy Spelman² | Qi Wei² | Karen Basen-Engquist⁴ | Carol Harrison⁴ | Zonghao Zhang⁵ | Debra Kuban⁶ | Andrew Lee⁷ | Lorenzo Cohen^{2*}

¹Department of Melanoma Medical Oncology, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

²Department of Palliative Care, Rehabilitation

Abstract

Objectives Sleep disturbances and fatigue are common in prostate cancer patients undergoing radiotherapy. Prior research suggests mind-body techniques may improve these outcomes. We conducted a randomized controlled trial of qigong/tai chi (QGTC) in men with prostate cancer undergoing radiotherapy.

Methods Men with prostate cancer starting definitive radiation were randomized to 1 of 3 groups: (1) QGTC; (2) light exercise (LE); or (3) waiting list control. Sleep disturbances (Pittsburgh Sleep Quality Index) and fatigue (Brief Fatigue Inventory) were assessed at baseline, midway through radiotherapy (T2), during the last week of radiotherapy (T3), and at 1 (T4) and 3 months (T5) after the end of radiotherapy. Patients in the QGTC and LE groups attended three 40-minute classes per week throughout radiotherapy.

Results Ninety patients were randomized to the 3 groups (QGTC = 26; LE = 26; waiting list control = 24). The QGTC group reported longer sleep duration midway through radiotherapy (QGTC = 7.01 h; LE = 6.42; WL = 6.50; $P = .05$), but this difference did not persist over time. There were no group differences in other domains of sleep or fatigue. Exploratory analyses conducted to examine the effect of health-related quality of life (Expanded Prostate Cancer Index Composite and American Urological Association Symptom score) on sleep and fatigue showed significant correlations across multiple domains.

Original Article

Qigong Improves Quality of Life in Women Undergoing Radiotherapy for Breast Cancer

Results of a Randomized Controlled Trial

Zhen Chen, MD¹; Zhiqiang Meng, MD, PhD¹; Kathrin Milbury, PhD²; Wenying Bei, RN¹; Ying Zhang, RN¹; Bob Thornton, MD³; Zhongxing Liao, MD⁴; Qi Wei, MS³; Jiayi Chen, MD⁵; Xiaoma Guo, MD⁵; Luming Liu, MD, PhD¹; Jennifer McQuade, MD⁶; Clemens Kirschbaum, PhD⁷; and Lorenzo Cohen, PhD^{2,3}

BACKGROUND: Radiotherapy may lead to side effects that undermine patients' quality of life (QOL). Although mind-body practices like qigong appear to improve QOL in cancer survivors, little is known about their benefits for patients who are receiving radiotherapy. Thus, in the current randomized controlled trial, the authors examined the efficacy of a qigong intervention on QOL in women with breast cancer during and after treatment. **METHODS:** Ninety-six women with breast cancer were recruited from a cancer center in Shanghai, China, and were randomized to a qigong group (N = 49) or a waitlist control group (N = 47). Women in the qigong group attended 5 weekly classes over 5 or 6 weeks of radiotherapy. QOL outcomes (ie, depressive symptoms, fatigue, sleep disturbance, and overall QOL) and cortisol slopes were assessed at baseline, during treatment, at the end of treatment, 1 month later, and 3 months later. **RESULTS:** The mean age of the women was 46 years (range, 25-64 years). Seven percent of women had stage 0 disease, 25% had stage I disease, 40% had stage II disease, and 28% had stage III disease. Fifty-four percent of women underwent mastectomy. Multilevel analyses revealed that women in the qigong group reported less depressive symptoms over time than women in the control group ($P = .05$). Women who had elevated depressive symptoms at the start of radiotherapy reported less fatigue ($P < .01$) and better overall QOL ($P < .05$) in the qigong group compared with the control group, and these findings were clinically

Effects of Tibetan Yoga on Fatigue and Sleep in Women with Breast Cancer

NCI R01 CA105023



Randomized Trial of Tibetan Yoga in Patients With Breast Cancer Undergoing Chemotherapy

Alejandro Chaoul, PhD¹; Kathrin Milbury, PhD¹; Amy Spelman, PhD¹; Karen Basen-Engquist, PhD²; Martica H. Hall, PhD³; Qi Wei, MS¹; Ya-Chen Tina Shih, PhD⁴; Banu Arun, MD⁵; Vicente Valero, MD⁵; George H. Perkins, MD⁶; Gildy V. Babiera, MD⁷; Tenzin Wangyal, Geshe⁸; Rosalinda Engle, MA¹; Carol A. Harrison, MEd²; Yisheng Li, PhD⁹; and Lorenzo Cohen, PhD ¹

BACKGROUND: The current randomized trial examined the effects of a Tibetan yoga program (TYP) versus a stretching program (STP) and usual care (UC) on sleep and fatigue in women with breast cancer who were undergoing chemotherapy. **METHODS:** Women with stage (American Joint Committee on Cancer (AJCC) TNM) I to III breast cancer who were undergoing chemotherapy were randomized to TYP (74 women), STP (68 women), or UC (85 women). Participants in the TYP and STP groups participated in 4 sessions during chemotherapy, followed by 3 booster sessions over the subsequent 6 months, and were encouraged to practice at home. Self-report measures of sleep disturbances (Pittsburgh Sleep Quality Index), fatigue (Brief Fatigue Inventory), and actigraphy were collected at baseline; 1 week after treatment; and at 3, 6, and 12 months. **RESULTS:** There were no group differences noted in total sleep disturbances or fatigue levels over time. However, patients in the TYP group reported fewer daily disturbances 1 week after treatment compared with those in the STP (difference, -0.43; 95% confidence interval [95% CI], -0.82 to -0.04 [$P=.03$]) and UC (difference, -0.41; 95% CI, -0.77 to -0.05 [$P=.02$]) groups. Group differences at the other time points were maintained for TYP versus STP. Actigraphy data revealed greater minutes awake after sleep onset for patients in the STP group 1 week after treatment versus those in the TYP (difference, 15.36; 95% CI, 7.25-23.48 [$P=.0003$]) and UC (difference, 14.48; 95% CI, 7.09-21.87 [$P=.0002$]) groups. Patients in the TYP group who practiced at least 2 times a week during follow-up reported better Pittsburgh Sleep Quality Index and actigraphy outcomes at 3 months and 6 months after treatment compared with those who did not and better outcomes compared with those in the UC group. **CONCLUSIONS:** Participating in TYP during chemotherapy resulted in modest short-term benefits in sleep quality, with long-term benefits emerging over time for those who practiced TYP at least 2 times a week. *Cancer* 2017;000:000-000. © 2017 American Cancer Society.

KEYWORDS: breast cancer, chemotherapy, patients, sleep quality, Tibetan yoga.

Study Aims

- Primary Aim:

Determine the extent to which the Tibetan Yoga program (TYP) decreases fatigue and sleep disturbances during and after chemotherapy for breast cancer

Study Design

- Randomized to:
 - TYP
 - Stretching
 - Usual Care

Tibetan Yoga Program

4 sessions, 3 boosters

Session 1 – Breathing and visualization exercises and mindfulness techniques;
9 breathings of purification

Session 2 – Tsa-lung exercises

Session 3 – Tsa-lung exercises and use of subtle channels

Session 4 – Breathing and Tsa-lung together/review whole program

Stretching Program

4 sessions, 3 boosters

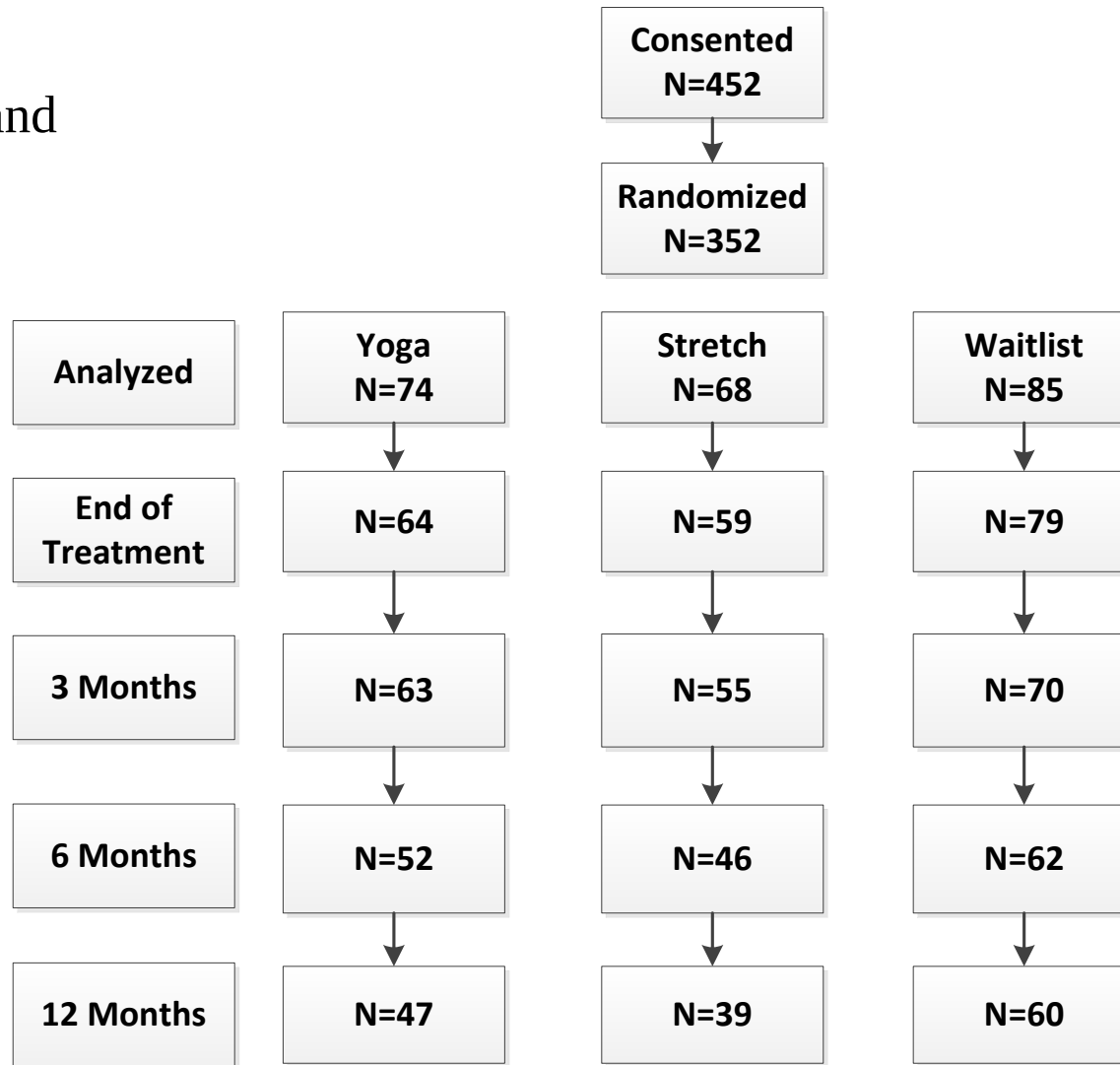
STP

Sessions 1-2 – learning stretching exercises
in a stepped fashion

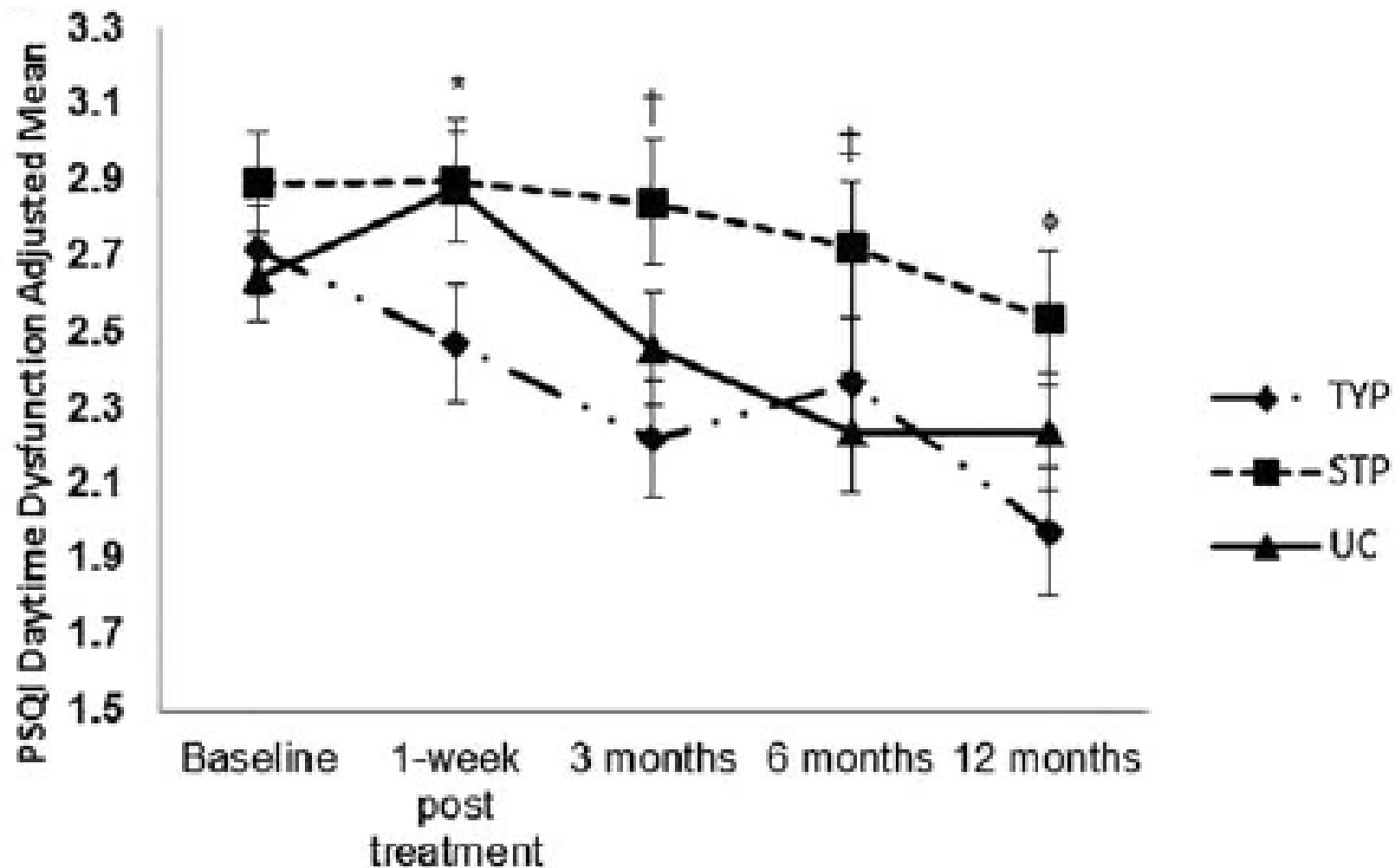
Session 3-4 – practice all exercises

Study Flow

227 analyzed = baseline and
at least one follow-up



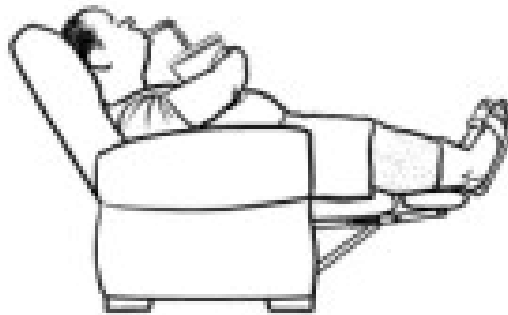
Daytime Dysfunction



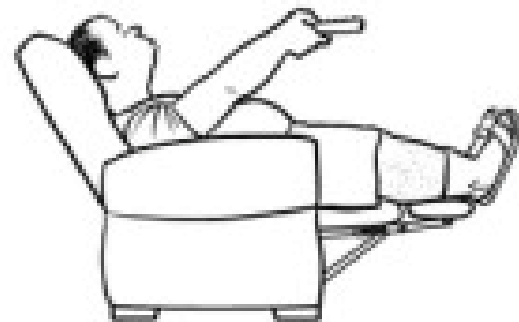
WESTERN YOGA POSES



Hungry Panda



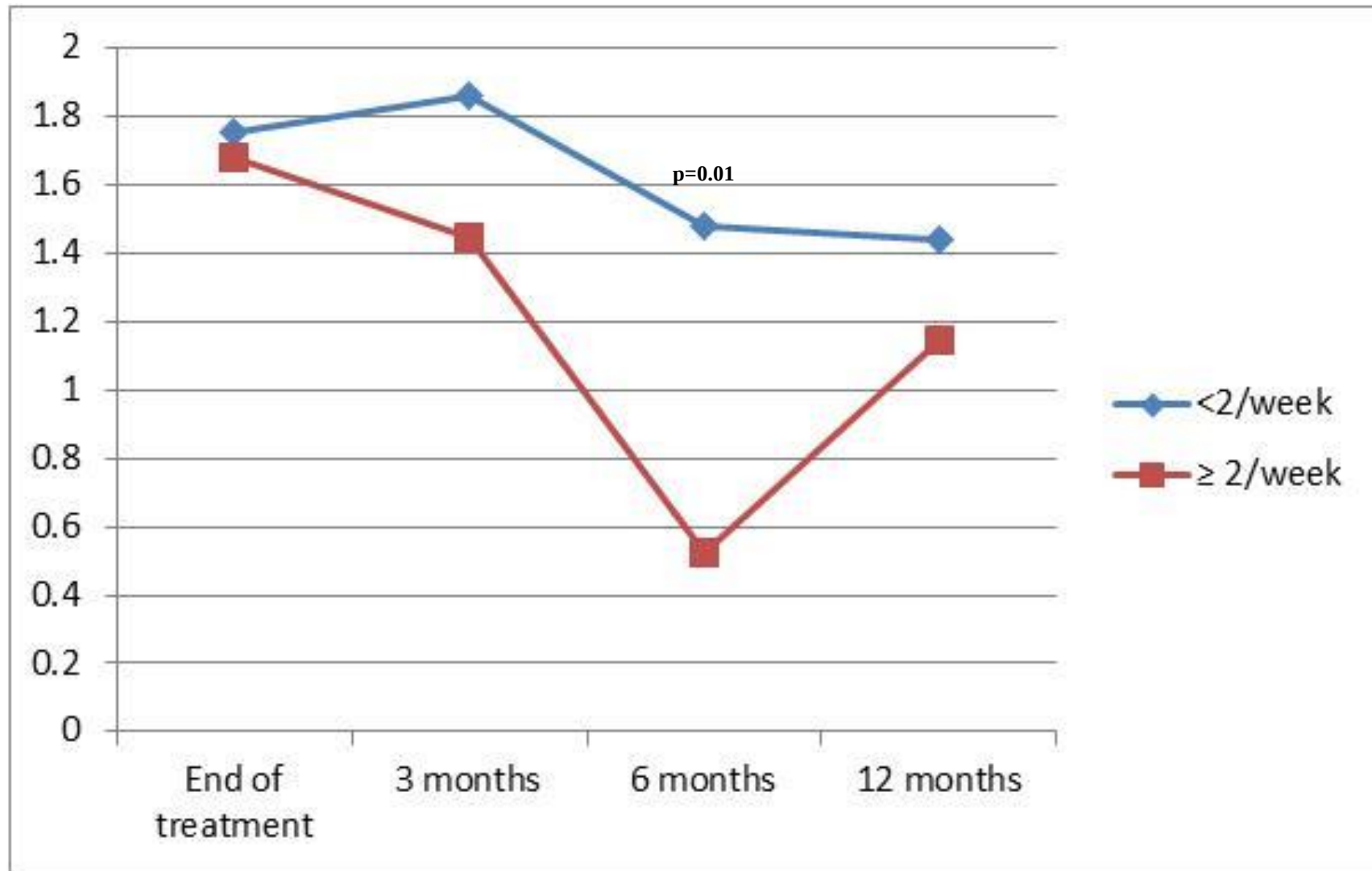
Thirsty Hippo



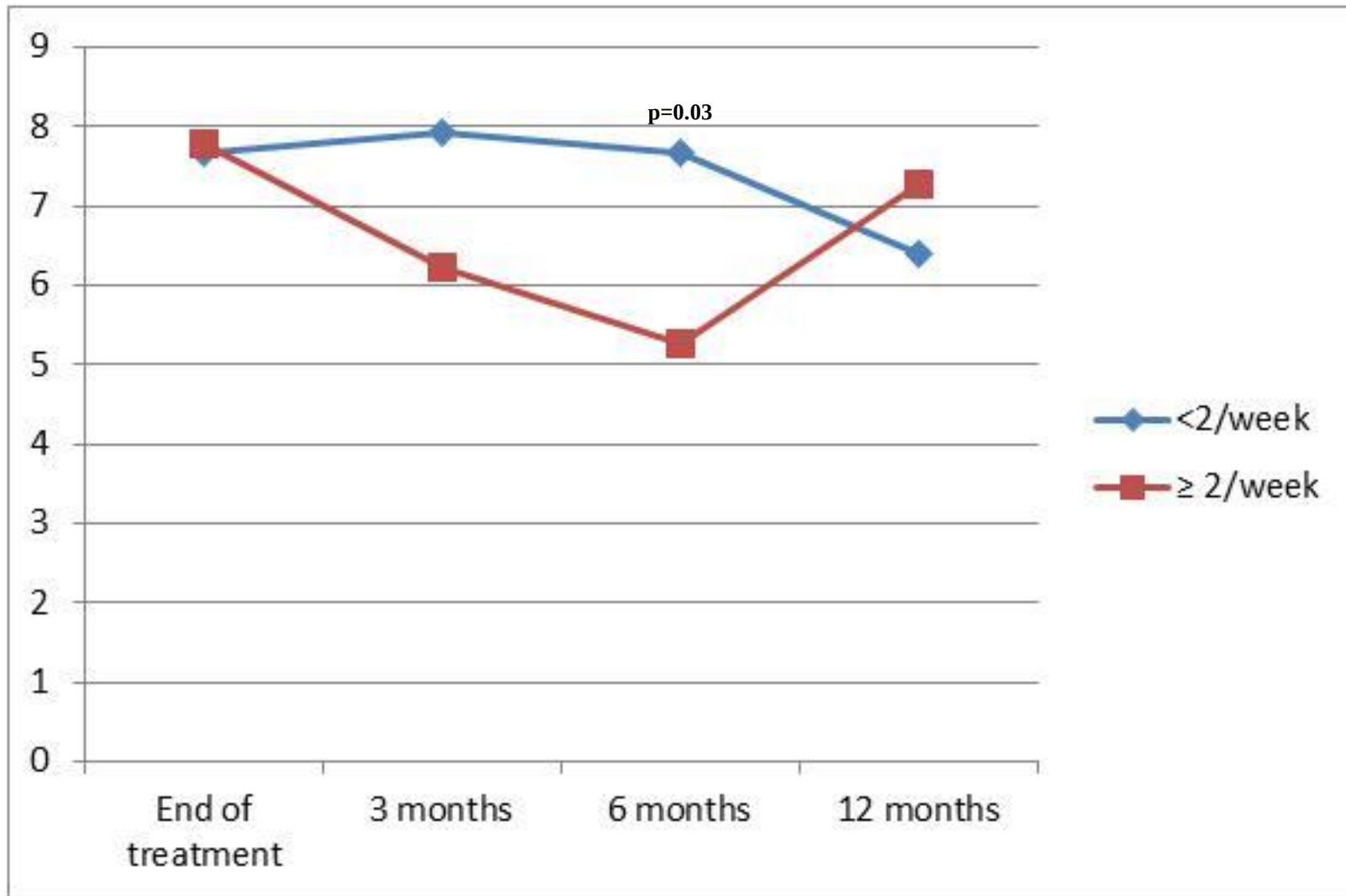
Curious Sloth

GREGORY

Sleep Efficiency (within TY)



Sleep Quality (within TY)



Experiences of paradox: a qualitative analysis of living with cancer using a framework approach

Isabel Leal^{1,2}, Joan Engebretson³, Lorenzo Cohen^{2*}, Alma Rodriguez^{4,5}, Tenzin Wangyal⁶, Gabriel and Alejandro Chaoul²

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 Oncology, Unit 460, The
 University of Texas, MD
 Anderson Cancer Center, 1515
 Holcombe Blvd, Houston, TX
 77030, USA. E-mail: kohen@
 mdanderson.org

Abstract

Objectives: Life-threatening diseases such as cancer represent unique traumas—lar, time-limited traumatic events—given their multidimensional, uncertain, a However, few studies have examined the impact of cancer on patients as a p aim of this qualitative study is to explore patients’ ongoing experiences of livin changes encountered in this experience over time.
Methods: Written reflections to three open-ended questions collected from 28 rience of cancer at two time points were analyzed to explore participants’ experi over time. Content analysis using a framework approach was employed to code marize data into a thematic framework.
Results: Data analysis yielded the thematic framework—*living with paradox* terrelated themes: sources, experiences, resolution of paradox, and challenges treatment. The primary theme concerned moving through a dualistic and com of concurrently negative and positive emotional states across the course of can
Conclusions: Respondents indicated that cycling through this contradictory linear, nor singular, nor conclusive in nature, but reiterative across time. Rec cancer experience may be paradoxical and tumultuous throughout the cancer t how practitioners provide patients with needed support during diagnosis, tre This also has implications for interventions, treatment, and care plans, and s to the diversity of patient’s psychosocial, physical, existential, and spiritual ex
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Received: 6 November 2013
 Revised: 12 April 2014
 Accepted: 18 April 2014

Empirical Research

An Exploration of the Effects of Tibetan Yoga on Patients’ Psychological Well-Being and Experience of Lymphoma: An Experimental Embedded Mixed Methods Study

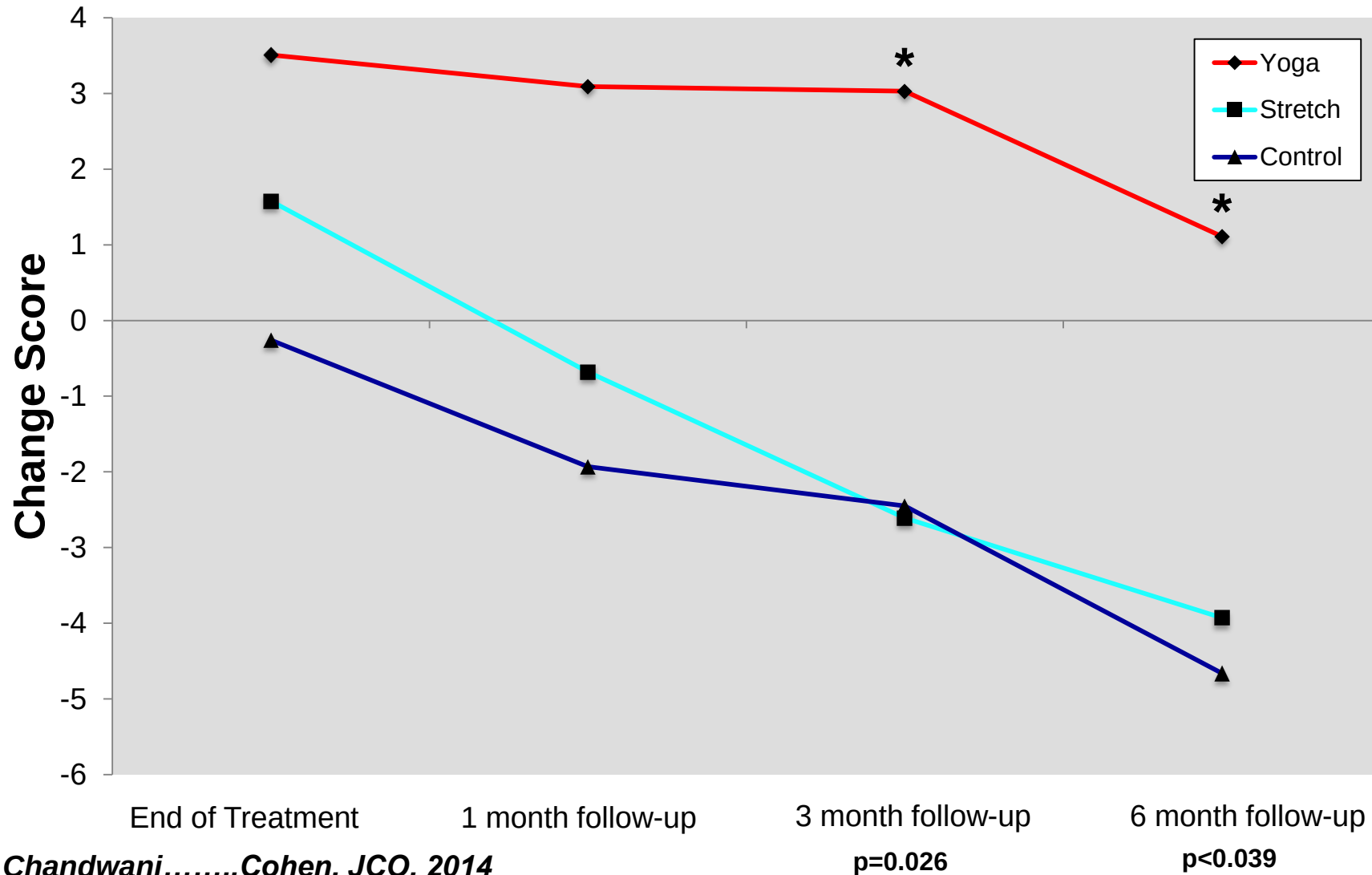
Isabel Leal¹, Joan Engebretson², Lorenzo Cohen¹, Maria Eugenia Fernandez-Esquer³, Gabriel Lopez¹, Tenzin Wangyal⁴, and Alejandro Chaoul¹

Abstract

As an emergent care model combining conventional with complementary therapies, integrative interventions challenge evaluation, necessitating approaches capable of capturing complex, multilevel interactions. This article evaluates the effects of a Tibetan yoga intervention on lymphoma patients’ quality-of-life and cancer experience. Our methodological aims were to explore differences in therapeutic effect between treatment and control group using qualitative data, and explain equivocal findings between data sets. Use of both data transformation techniques—qualitizing and quantitizing—within an experimental embedded design comparing and integrating data between data sets and treatment groups allowed us to develop this innovative evaluative approach. Findings clarify convergence and divergence between data sets, explore participants’ complex cancer experience, and capture dimensions and intervention effects inaccessible through either method alone.

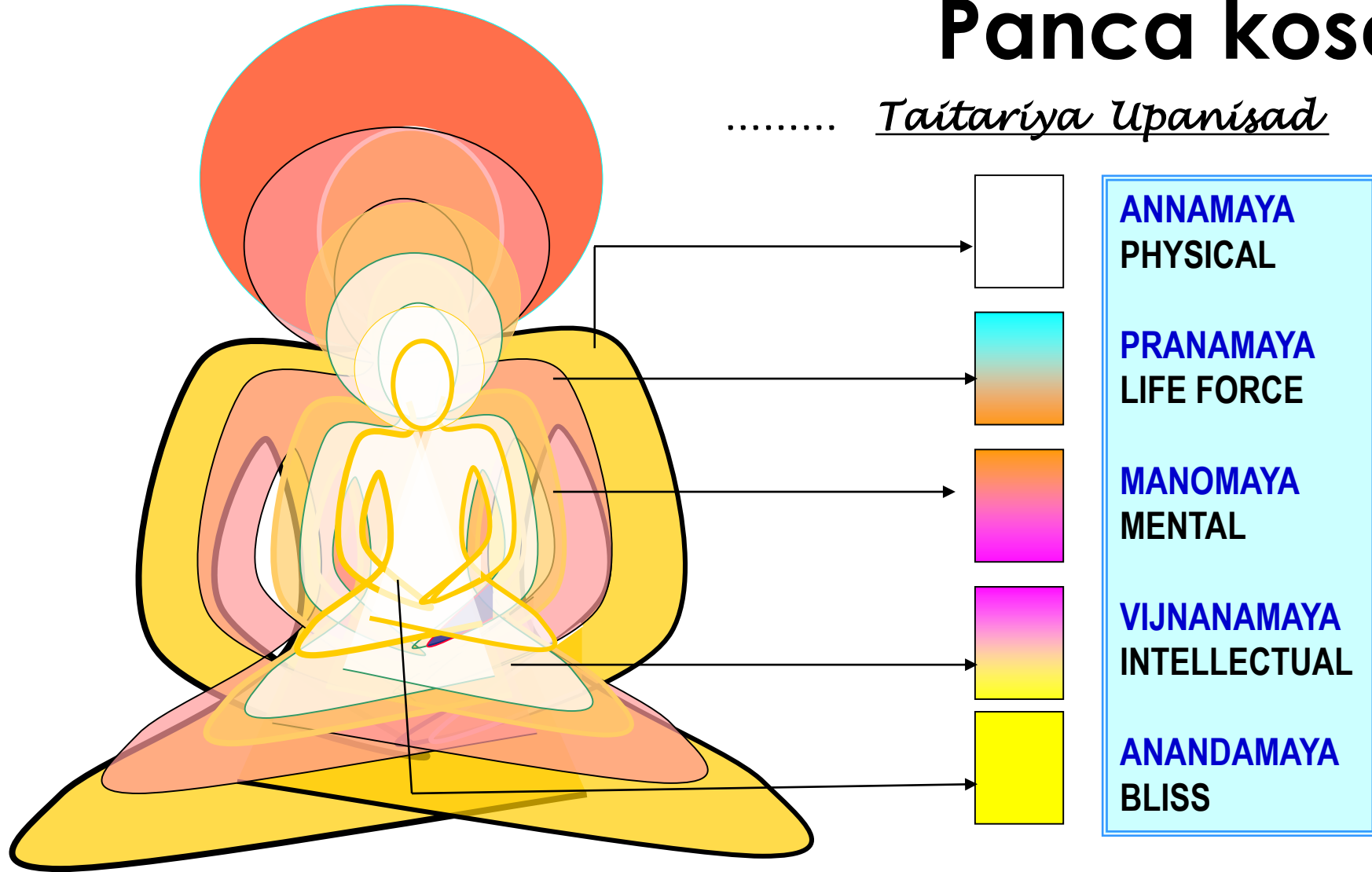
Journal of Mixed Methods Research
 1–24
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 DOI: 10.1177/1558689816645005
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Benefit Finding



Panca kosa

..... Taittiriya Upanisad



These Kosas are subtleties of existence, and not water tight compartments. They are one merging into other.

DEFINITION OF YOGA

- *YUJYATE ANENA ITI YOGAH*
 - **JOINING INDIVIDUAL SOUL TO UNIVERSAL SOUL**

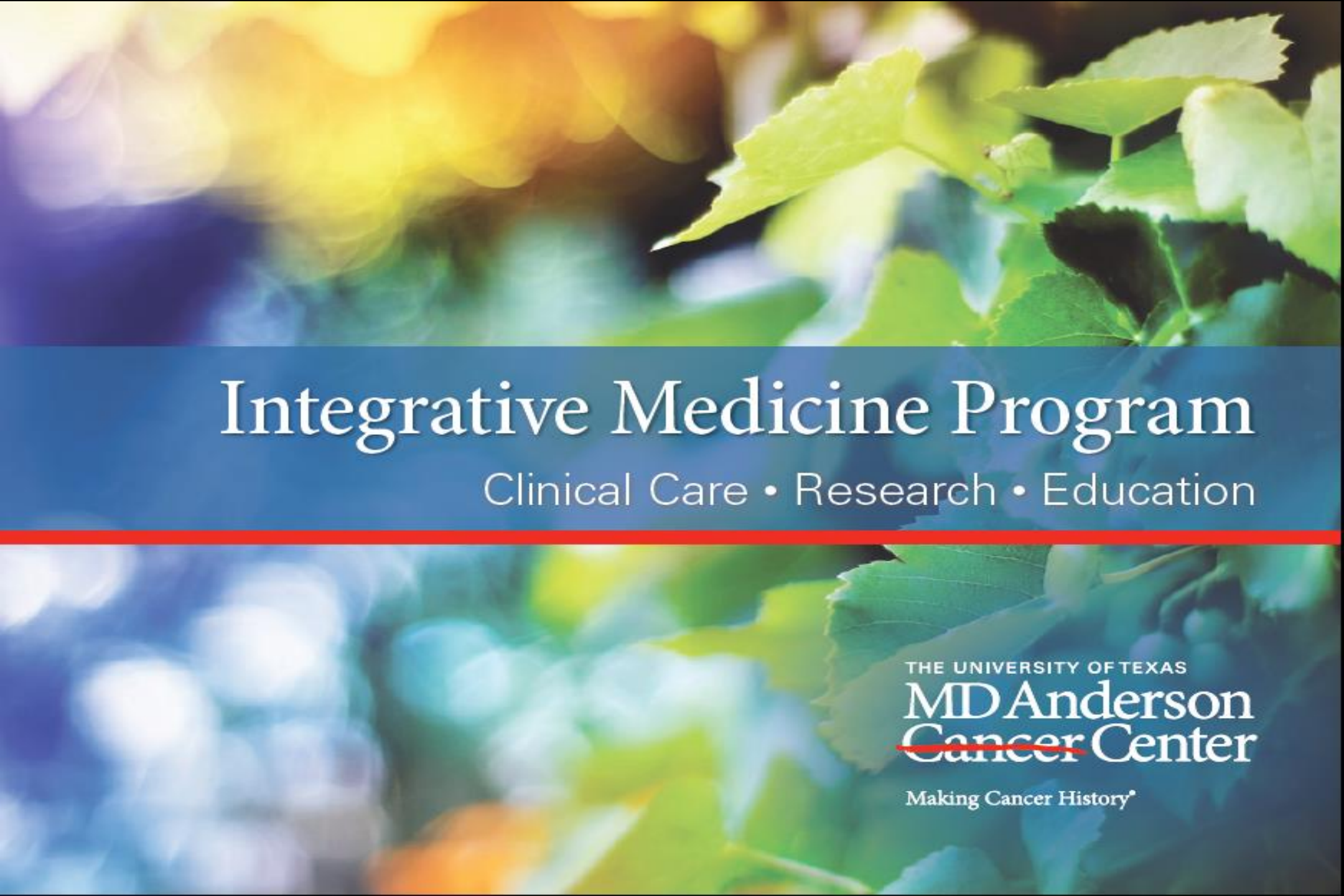
Classical
- *TAM YOGAM ITI MANYANTE STIRAM INNDRIYA DHARANAM*
 - **YOGA IS HOLDING THE SENSES STEADY**

Upanishad
- *MANH PRASAMANA UPAYAH YOGAH*
 - **A TECHNIQUE TO MAKE THE MIND QUIET**

Yoga Vasista
- *SAMATVAM YOGA UCCHYATE*
 - **YOGA IS A STATE OF EQUANIMITY**

Bhagavad-Gita
- *YOGAH CHITTA VRITTI NIRODHAH*
 - **YOGA IS CONTROLLING THE DISTURBANCES OF THE MIND**

Patanjali Yoga Sutras



Integrative Medicine Program

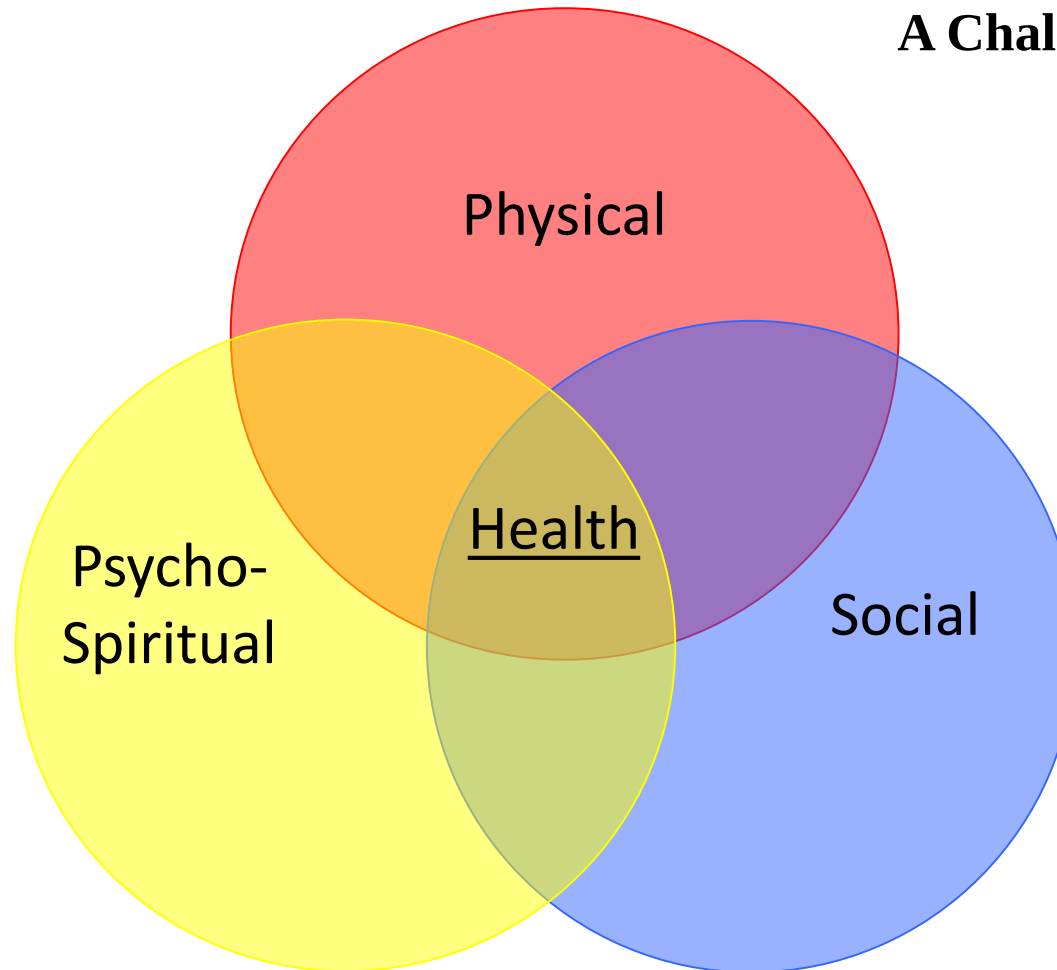
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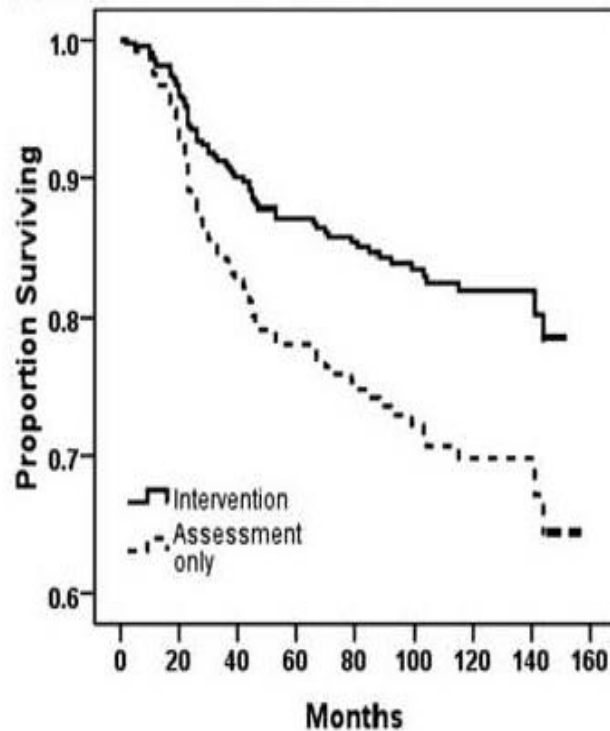
Integrative Medicine Clinical Model

The Need for a New Medical Model
A Challenge for Biomedicine
George L. Engel

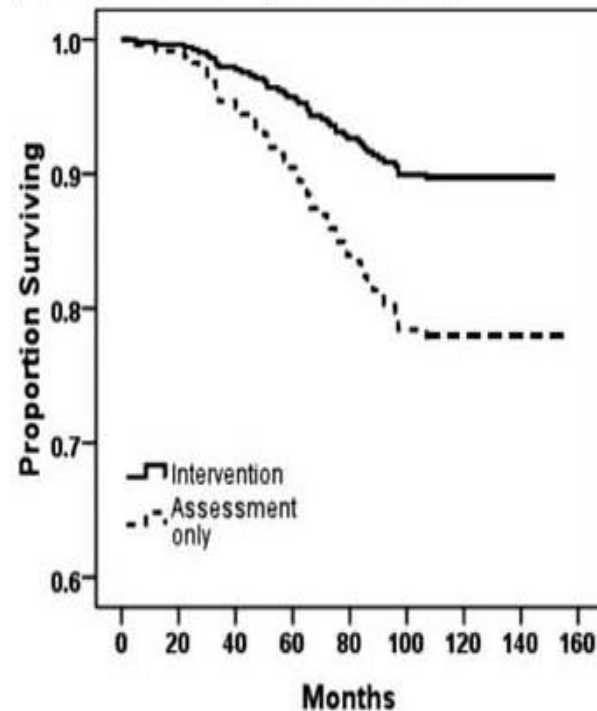


Psychologic Intervention Improves Survival for Breast Cancer Patients

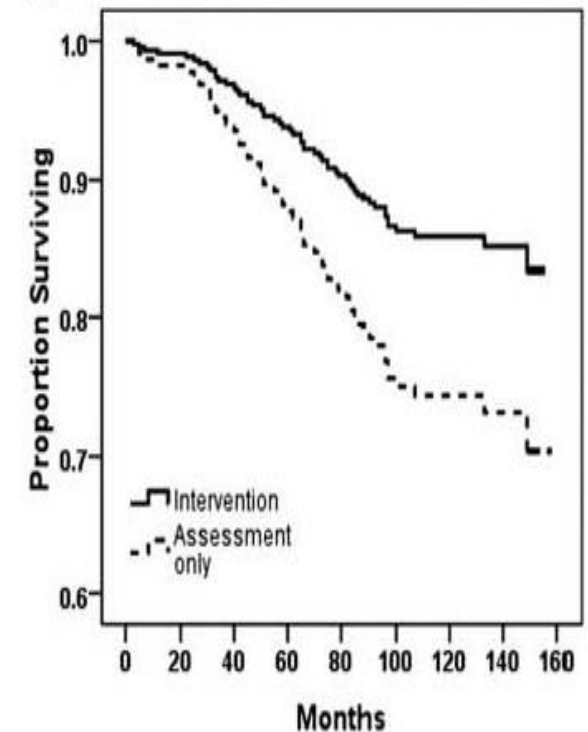
(a) Recurrence free survival



(b) Breast cancer specific survival



(c) Overall survival



Effect of Comprehensive Lifestyle Change on Telomere Length

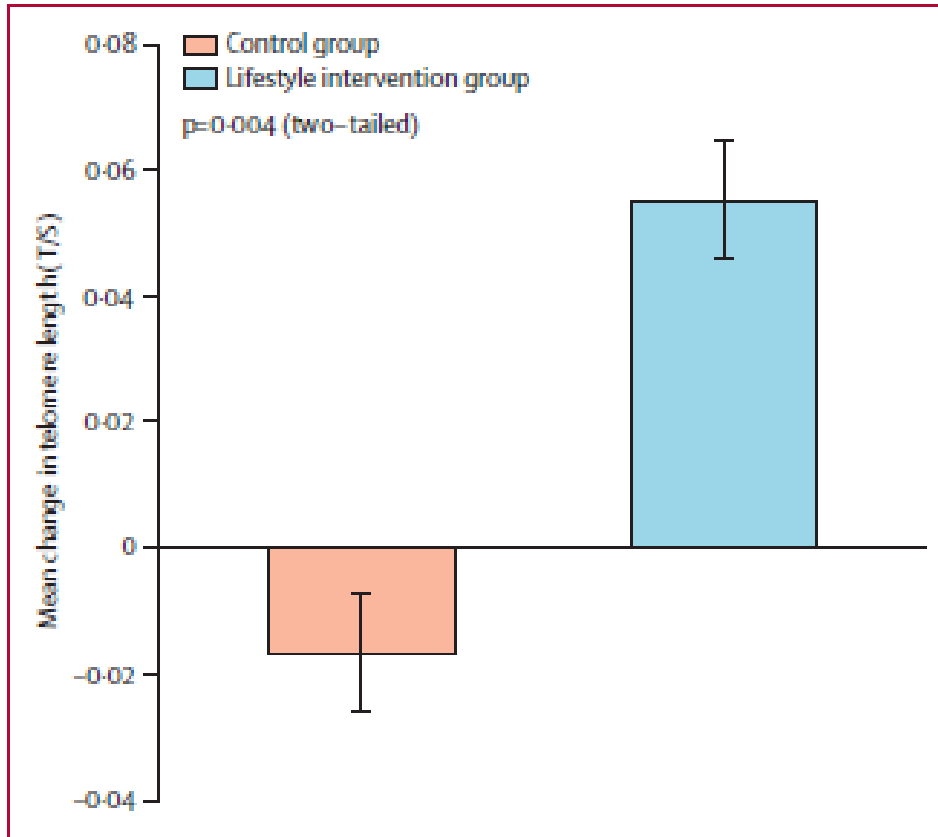


Figure 1: Mean change in relative telomere length over 5 years with lifestyle intervention compared with control
Vertical lines represent 1 SEM. T/S=telomere to single-copy gene ratio units.

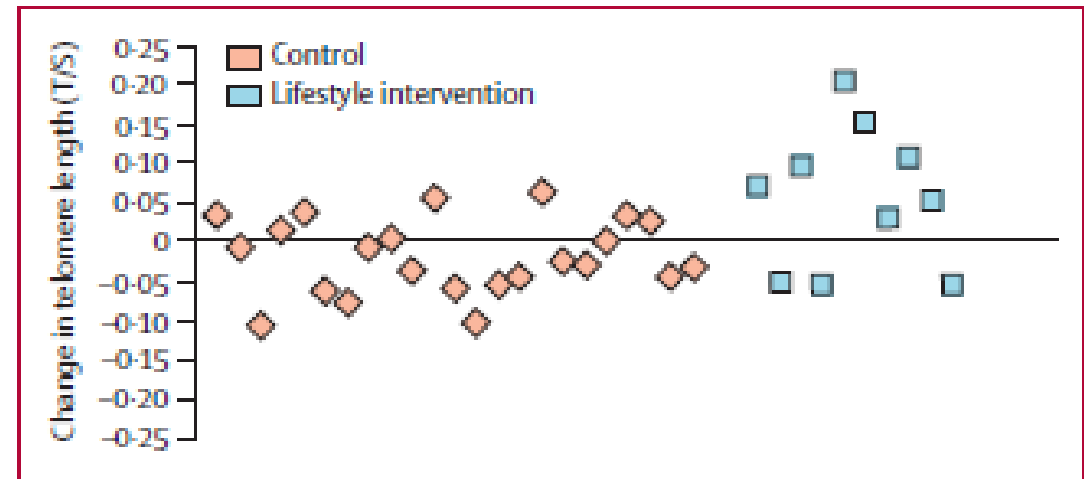


Figure 2: Changes in telomere length for individual participants in the lifestyle intervention and control groups
T/S=telomere to single-copy gene ratio units.

**Clinical Trial of a Novel, Comprehensive Integrative Oncology
Intervention for Women with Stage II and III Breast Cancer
*At MD Anderson Cancer Center***



The Comprehensive Lifestyle Change Clinical Trial

(aka – Yoga with a “Y”)

- **Randomized controlled trial of an Integrative Oncology approach to health and recurrence prevention in women with Stage III breast cancer.**
- **N=160; half randomized to the Integrative Oncology group (aka: MyLifeStylist) and half to usual care.**
- **Aims: Prevent recurrence; increase survival time; increase QOL; biological outcomes/HRV/microbiome; fitness levels/diet; cost-effectiveness analysis**

Week 1

Day 1		Day 2		Day 3		Day 4	
Orientation	Mind-Body	Exercise	Nutrition	Counseling	Mind-Body	Exercise	Nutrition
							

Weeks 2-6

Day 1	Day 2		Day 3		Day 4	
Mind-Body	Exercise	Nutrition	Counseling	Mind-Body	Exercise	Nutrition
						

Weeks 7-24

Follow-up Counseling
Sessions via Facetime
Once Per Week



Weeks 25-52

Follow-up Counseling
Sessions via Facetime
Once Per Month



Study Personnel



Lisa Connelly, MEd, LPC
Counselor



Sue Thompson, RD, LD
Dietitian



Courtney Blair West, CI-CPT
Exercise Coach



Smitha Mallaiah, DYSc, YICC
Mind-Body Specialist

A Comprehensive Lifestyle Randomized Clinical Trial: Design and Initial Patient Experience

Integrative Cancer Therapies
1–18

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Tools



The Full Yield

mdanderson.thefullyield.com

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The Full Yield
it's your right™

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For more information on this study, contact the team at MD Anderson
[SEND E-MAIL](#)

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What is MyLifeStylist?
MyLifeStylist is an MD Anderson Cancer Center plan developed to help prevent recurrence and improve outcomes for women with a recent history of breast cancer. By following this plan you (and your loved ones) will learn how to live a health-supporting, anticancer life, lowering your risk of recurrence and improving your quality of life.

MD Anderson has teamed up with experts at [The Full Yield, Inc.](#) to create a comprehensive, integrated program to help you succeed in



“Through meditation and deep relaxation my
answers are **flowing**”



Change Happens



Next Steps



"The health care revolution continues... an accessible, science-based approach to wellness."

—ANDREW WEIL, MD

Anti cancer Living

TRANSFORM YOUR LIFE AND
HEALTH WITH THE MIX OF SIX



Lorenzo Cohen, PhD
Alison Jefferies

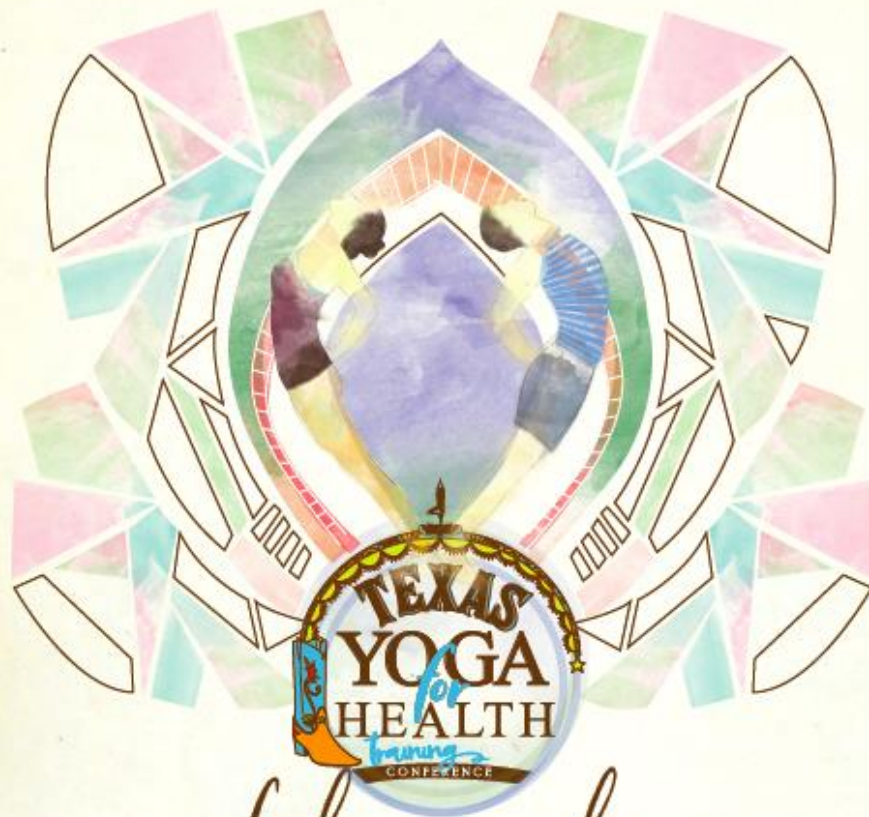
~~“See You in Six Months”~~

Yoga with a Capital “Y”



“Yoga...it is a living process that changes moment by moment. Watching when we eat - how we eat; when we walk - how we walk; what we say - how we say it. All these things are in us and we must be pationately interested in them all.”

Vanda Scaravelli: *Awakening The Spine*.



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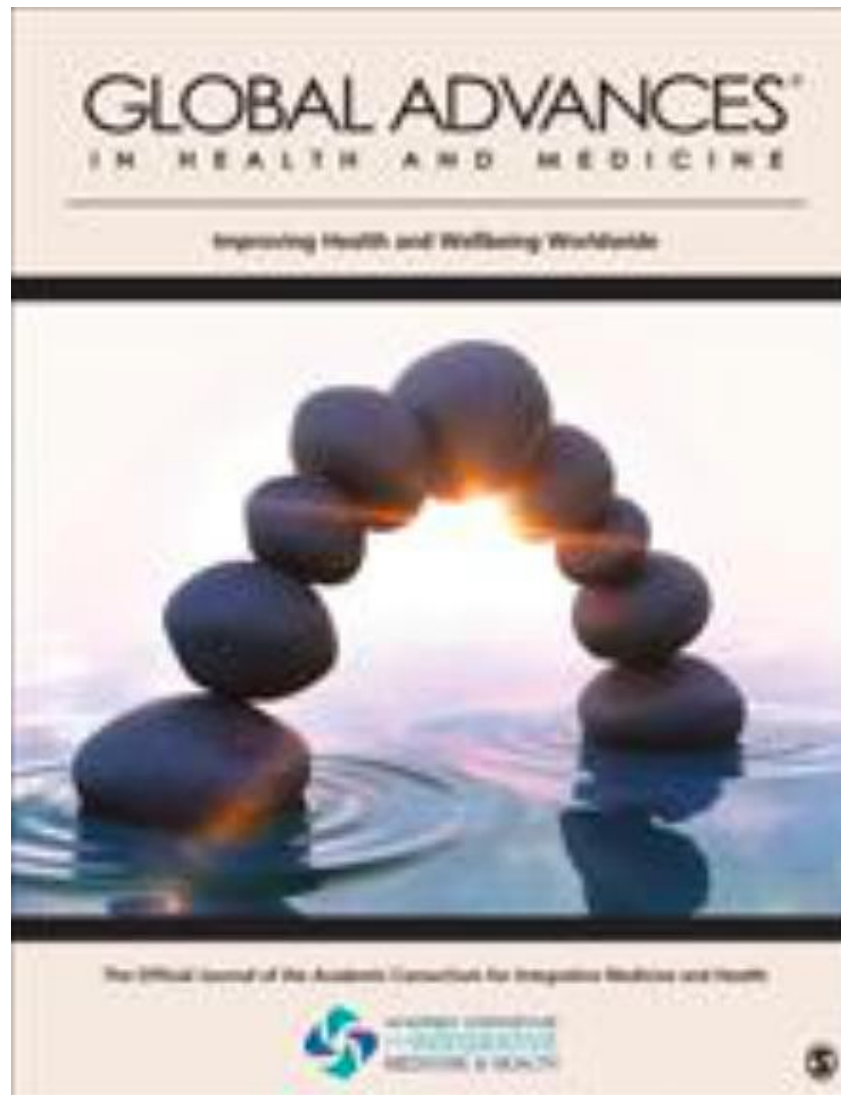
Academic Consortium for Integrative Medicine and Health

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ACADEMIC CONSORTIUM FOR
INTEGRATIVE MEDICINE & HEALTH



New Journal



“DISEASE CARE” PROVIDERS

HEALTHCARE PROVIDERS

THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE



Sat Bir Khalsa



Lorenzo Cohen



Timothy McCall



Shirley Telles

The Principles and Practice of Yoga in Health Care is a professional-level textbook with contributions by multiple expert researchers and therapists in the field.

This book

- brings together the science and the practice of yoga therapy
- supports the emergence of yoga therapy as a credible profession
- comprehensively summarizes research findings and their practical implications for professionals who use yoga or refer patients for yoga practice
- includes chapter contributions by leading biomedical researchers of yoga
- reviews the scientific evidence base for yoga for a wide variety of medical conditions
- Provides brief contributions by expert yoga therapists describing practical implementation issues relevant to yoga for specific conditions.

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This book will prove essential to yoga therapists, physical therapists, medical doctors, psychologists and other health professionals interested in yoga as a therapeutic intervention.



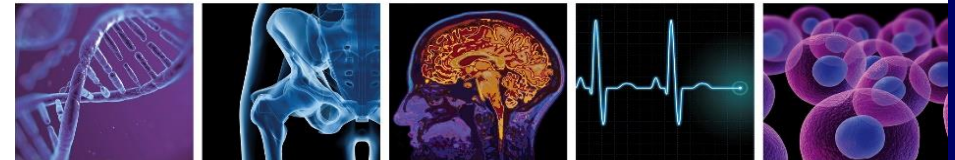
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THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE

Khalsa et al

THE PRINCIPLES AND PRACTICE OF YOGA IN HEALTH CARE



Sat Bir Khalsa • Lorenzo Cohen
Timothy McCall • Shirley Telles



- 23 chapters with theory, rationale, research & practice
- ~60 chapter contributors, ~30 yoga therapist contributors