

# Optimizing Lifestyle to Live Your Best Life with Prostate Cancer

Stacy Loeb, MD MSc PhD (Hon) DiplABLM

Professor of Urology and Population Health

NYU Langone Health and Manhattan Veterans Affairs

# Why Healthy Lifestyle is Important for People with Prostate Cancer

- Low-risk prostate cancer → >9x more likely to die from cardiovascular disease than prostate cancer
- Metastatic prostate cancer → 17% die from noncancer causes (e.g., cardiovascular disease)

# 6 Pillars of Lifestyle Medicine



Whole Food Plant-  
Predominant  
Nutrition



Physical  
Activity



Restorative  
Sleep



Avoidance of  
Toxic Substances

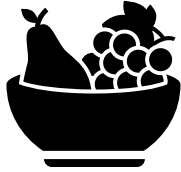


Social Connection &  
Positive Psychology



Stress  
Management

# Why Lifestyle Medicine Pillars Are Important for Prostate Cancer



Plant-based nutrition →  
Lower risk of fatal  
prostate cancer and  
better quality of life



Physical Fitness →  
Lower risk of  
prostate cancer and  
better quality of life



Sleep disturbances are  
common and morbid  
for prostate cancer  
survivors



Smoking is associated  
with prostate cancer  
progression



Having a good  
support system is  
very important in  
prostate cancer



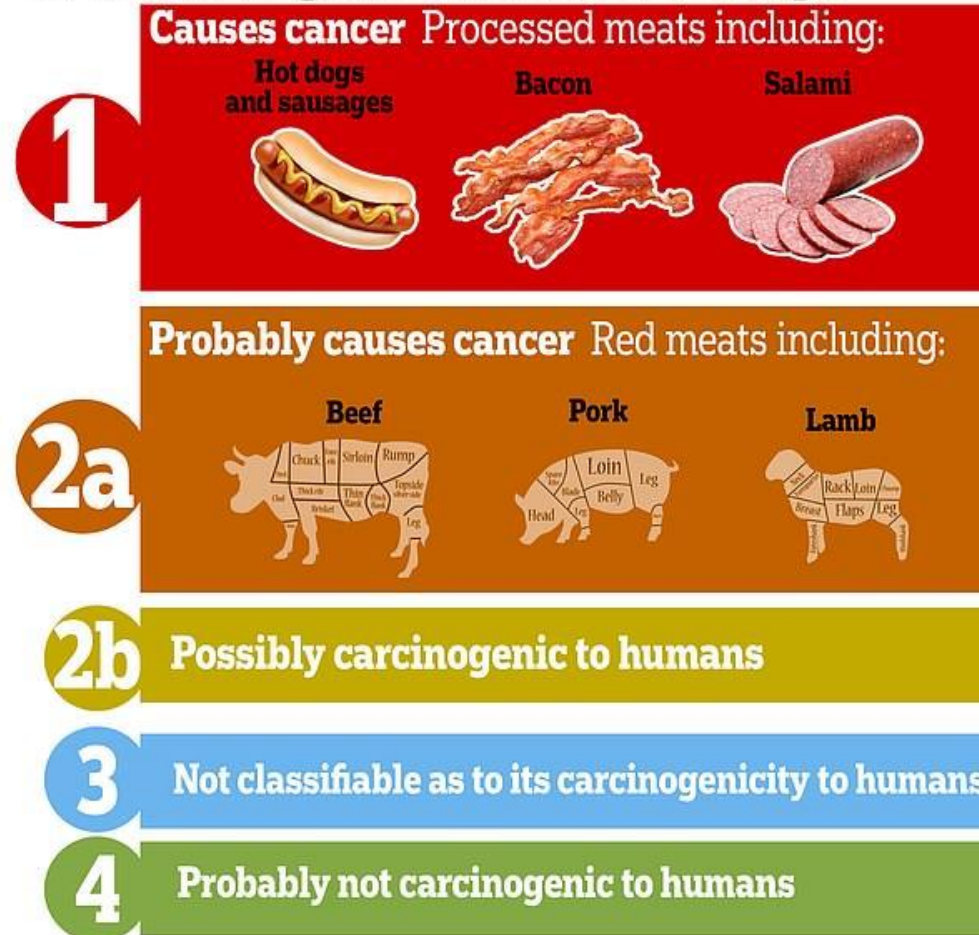
Mindfulness  
meditation is very  
helpful in prostate  
cancer

# Nutrition



# WHO Classifies Meat as a Carcinogen

## IARC Carcinogenic Classification Groups



Same category as  
arsenic and  
asbestos



Same category as  
DDT, lead and  
mustard gas

# Why Meat is Carcinogenic

- Formation of heterocyclic amines during high-temperature cooking
- Hormonal effects
- Nutrient composition
  - Lower levels of anti-carcinogenic compounds (e.g., fiber, antioxidants) in meats vs plants

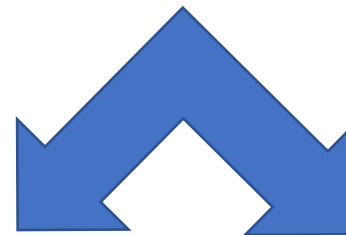


# Specific Foods Linked With Risk of Clinically Significant Prostate Cancer

## Beneficial



## Harmful



Mediterranean or plant-based dietary patterns



# Whole Foods Plant-Based Diet (“WFPB”)



- Emphasizes whole, minimally processed foods
- Limits or avoids animal products (e.g., meat, dairy, eggs)
- Avoids highly processed/refined foods (e.g., sweeteners, white rice, bleached flours)
- Staples are legumes, fruits, vegetables and whole grains

# Benefits of Plant-Based Diets



Plant-based diets reduce risk of numerous health conditions, including ischemic heart disease, diabetes, hypertension, certain types of cancer, and obesity



Plant-based diets are more environmentally sustainable (less greenhouse gas emissions, land and water use, biodiversity loss) and environmental/social justice



72 billion land animals and >1.2 trillion aquatic animals are killed for food around the world every year.

## **Position of the Academy of Nutrition and Dietetics: Vegetarian Diets**



- Appropriately planned vegetarian, including vegan, diets are healthful, nutritionally adequate, and may provide health benefits for the prevention and treatment of certain diseases.
- These diets are appropriate for all stages of the life cycle, including pregnancy, lactation, infancy, childhood, adolescence, older adulthood, and for athletes.
- Plant-based diets are more environmentally sustainable because they use fewer natural resources and are associated with much less environmental damage.
- Vegetarians and vegans are at reduced risk of certain health conditions, including ischemic heart disease, type 2 diabetes, hypertension, certain types of cancer, and obesity.

# Plant-Based Dietary Patterns & Prostate Cancer

## *Benefits Across the Spectrum of Disease*

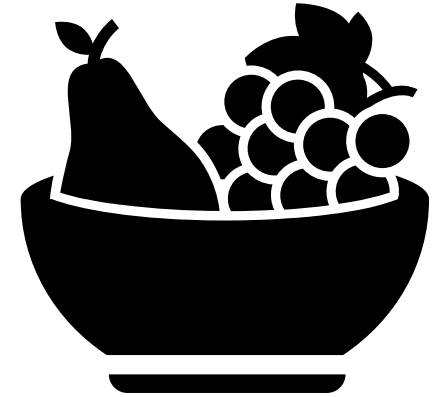
- Lower risk of elevated PSA
- Lower risk of diagnosis with aggressive prostate cancer
- Lower risk of progression among men on active surveillance
- Lower risk of progression among men with recurrent/advanced disease

# **Plant-Based Diet → Lower Risk of Elevated PSA**

- N=1399 men in National Health and Nutrition Examination Survey
- Higher consumption of healthy plant-based diet associated with lower probability of having elevated PSA (0.47, 95% CI 0.24-0.95, p=0.034)





# Higher Plant-Based Diet Index → Lower Risk of Fatal Prostate Cancer

- Prospective cohort study, n=47,239 men in the Health Professionals Follow-up Study (1986-2014)
- Greater overall plant-based consumption was associated with a significantly lower risk of fatal prostate cancer (p-trend = 0.04)





# Systematic review of the impact of a plant-based diet on prostate cancer incidence and outcomes

Natasha Gupta <sup>1,2</sup>✉, Hiten D. Patel<sup>3</sup>, Jacob Taylor<sup>1</sup>, James F. Borin<sup>1</sup>, Kenneth Jacobsohn<sup>4</sup>, Stacey A. Kenfield <sup>5</sup>, Scott E. Eggener<sup>6</sup>, Carrie Price <sup>7</sup>, Meena Davuluri<sup>8</sup>, Nataliya Byrne<sup>1,2</sup>, Trinity J. Bivalacqua<sup>9</sup> and Stacy Loeb <sup>1,2</sup>

## INTERVENTIONAL STUDIES (N=5)

### Active Surveillance: *Prostate Cancer Lifestyle Trial*

Group 1: Intensive Lifestyle Program

**Low-fat vegan diet** with  
supplements, moderate aerobic  
exercise and stress management



- **Fewer progressed to treatment**
- **↓PSA**
- **↓Cholesterol**
- **↓Saturated fat intake**
- **↑Fiber intake**
- **↑Weight loss**
- **Nutritional adequacy (except vitamin D3)**
- **95% adherence**





Group 2: Control group

Usual care



- **More progressed to treatment**
- **↑PSA**

# Systematic review of the impact of a plant-based diet on prostate cancer incidence and outcomes

Natasha Gupta <sup>1,2</sup>✉, Hiten D. Patel<sup>3</sup>, Jacob Taylor<sup>1</sup>, James F. Borin<sup>1</sup>, Kenneth Jacobsohn<sup>4</sup>, Stacey A. Kenfield <sup>5</sup>, Scott E. Eggener<sup>6</sup>, Carrie Price <sup>7</sup>, Meena Davuluri<sup>8</sup>, Nataliya Byrne<sup>1,2</sup>, Trinity J. Bivalacqua<sup>9</sup> and Stacy Loeb <sup>1,2</sup>

## INTERVENTIONAL STUDIES (N=5)

**Biochemical recurrence:** 3 trials (1 RCT, 2 nonrandomized)

Lifestyle programs with  
**plant-based diet**



- ↑Median PSA doubling time at 6 months post-intervention (from 11.9 to 112.3 months)
- ↓Mean slope of PSA change (from 0.124 to 0.031)
- ↓Rate of PSA rise
- ↑Vegetable protein & fiber intake
- ↑Lycopene intake
- ↓Saturated fat intake

# Downsides to Plant-Based Diets




# Added Perk to Plant-Based Diet: Better Erections!

Consumption of a Healthy Plant-based Diet is Associated With a Decreased Risk of Erectile Dysfunction: A Cross-sectional Study of the National Health and Nutrition Examination Survey

[Chase Carto](#) • [Manjari Pagalavan](#) • [Sirpi Nackeeran](#) • ... [Eliyahu Kresch](#) • [Manish Kuchakulla](#) • [Ranjith Ramasamy](#)   • [Show all authors](#)

## Plant-based diet index and erectile dysfunction in the Health Professionals Follow-Up Study

[Heiko Yang](#) , [Benjamin N. Breyer](#), [Eric B. Rimm](#), [Edward Giovannucci](#), [Stacy Loeb](#), [Stacey A. Kenfield](#), [Scott R. Bauer](#) ... [See fewer authors](#) ^





# Plant-Based Diet Associated with Better Quality of Life in Prostate Cancer Survivors

Stacy Loeb, Qi Hua, Scott Bauer, Stacey A. Kenfield, Alicia K. Morgans, June M. Chan, Erin Van Blarigan, Alaina Shreves and Lorelei A Mucci

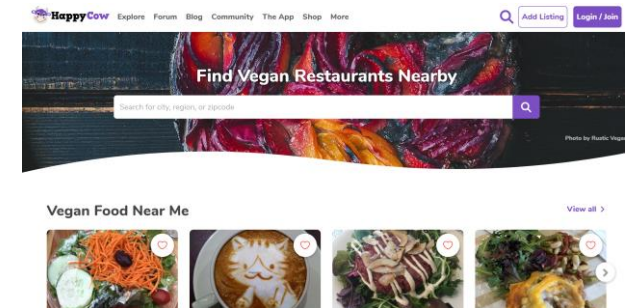
- 3505 patients with non-metastatic prostate cancer in Health Professionals Follow-up Study
- Greater plant-based consumption is associated with better scores for multiple quality of life domains (sexual, urinary, bowel and vitality)

# Resources for Plant-Based Diet

- Documentaries
  - Game Changers
  - You Are What You Eat: A Twin Experiment
  - Forks Over Knives
  - What the Health
- Books
  - How Not To Die (by Dr Greger)
  - The China Study (by Dr Campbell)
- Website for Information & Recipes from MD's/RD's:
  - Physicians Committee for Responsible Medicine (pcrm.org)
  - Nutrition Facts (nutritionfacts.org)

- Meal Service
  - Purple Carrot

- App/Website
  - Happy Cow





# Physical Activity



Barbara Olsen, Pexels



# Physical Activity Guidelines for Americans

## How much activity do I need?

### Moderate-intensity aerobic activity

Anything that gets your heart beating faster counts.



AND

### Muscle-strengthening activity

Do activities that make your muscles work harder than usual.



Tight on time this week? **Start with just 5 minutes.** It all adds up!

Or get the same benefits in half the time. If you step it up to **vigorous-intensity** aerobic activity, aim for at least **75 minutes** a week.

# Look for activities that you enjoy!

- Moderate - intensity aerobic activity
  - Brisk walking, dancing, gardening, light cycling, doubles tennis
- Vigorous – intensity aerobic activity
  - Jumping rope, running, vigorous cycling, singles tennis, swimming
- Strength training
  - Resistance bands, weights
- Flexibility and Mind/Body
  - Yoga, mindfulness meditation

# Exercise for Men with Prostate Cancer: A Systematic Review and Meta-analysis

*Liam Bourke<sup>a,\*</sup>, Dianna Smith<sup>b</sup>, Liz Steed<sup>c</sup>, Richard Hooper<sup>c</sup>, Anouska Carter<sup>a</sup>, James Catto<sup>d</sup>, Peter C. Albertsen<sup>e</sup>, Bertrand Tombal<sup>f</sup>, Heather A. Payne<sup>g</sup>, Derek J. Rosario<sup>h</sup>*

16 randomised controlled trials (RCTs) , 1574 men with prostate cancer, Follow-up varied from 8 wk to 12 mo



- No difference in disease progression/ PSA
- Moderate improvement in cancer-specific quality of life in the high-quality studies



- Improvement in cancer-related fatigue
- Borderline increase in sexual activity, but no difference in sexual function



- Improvement in lower body strength
- No difference in blood pressure



- Improvement in lower body strength
- Improvement in aerobic fitness

# Effects of Exercise on Cardiorespiratory Fitness and Biochemical Progression in Men With Localized Prostate Cancer Under Active Surveillance

## The ERASE Randomized Clinical Trial

Dong-Woo Kang, PhD; Adrian S. Fairey, MD; Normand G. Boulé, PhD; Catherine J. Field, PhD; Stephanie A. Wharton, BSc; Kerry S. Courneya, PhD

High intensity  
interval training  
3x/wk x 12 weeks



Versus  
Usual care



Intervention arm:

- Improved cardiopulmonary fitness
- Decreased PSA

## **Physical Activity after Diagnosis and Risk of Prostate Cancer Progression: Data from the Cancer of the Prostate Strategic Urologic Research Endeavor**

Erin L. Richman<sup>1,2,4</sup>, Stacey A. Kenfield<sup>1,3</sup>, Meir J. Stampfer<sup>1,2,3</sup>, Alan Paciorek<sup>4</sup>, Peter R. Carroll<sup>4,6</sup>, and June M. Chan<sup>4,5,6</sup>

- Men who walked briskly for  $\geq 3$  h/wk had a 57% lower rate of progression than men who walked at an easy pace for less than 3 h/wk
- More brisk walking pace was associated with decreased risk of progression independent of duration



# Physical activity, sedentary behavior, and health-related quality of life in prostate cancer survivors in the health professionals follow-up study

[Siobhan M. Phillips](#) , [Meir J. Stampfer](#), [June M. Chan](#), [Edward L. Giovannucci](#) & [Stacey A. Kenfield](#)

- Examined physical activity after prostate cancer diagnosis and quality of life
- Higher duration of total, non-vigorous, and walking activity was associated with higher vitality/hormonal functioning scores ( $p$ -trends,  $<0.0001$ )

# Sleep Health



Lisa Fotios, Pexels

# How is your sleep?

- Do you have trouble falling asleep or staying asleep?
- Do you wake up more than once in the middle of the night?
- Do you snore, or wake up choking or gasping?
- Do you feel fatigued during the daytime?
- Are you likely to doze off in a meeting, a public place or while driving?
- Do you have any of these risk factors?
  - Are you overweight?
  - Is your shirt collar larger than 17 inches?
  - Do you have high blood pressure?

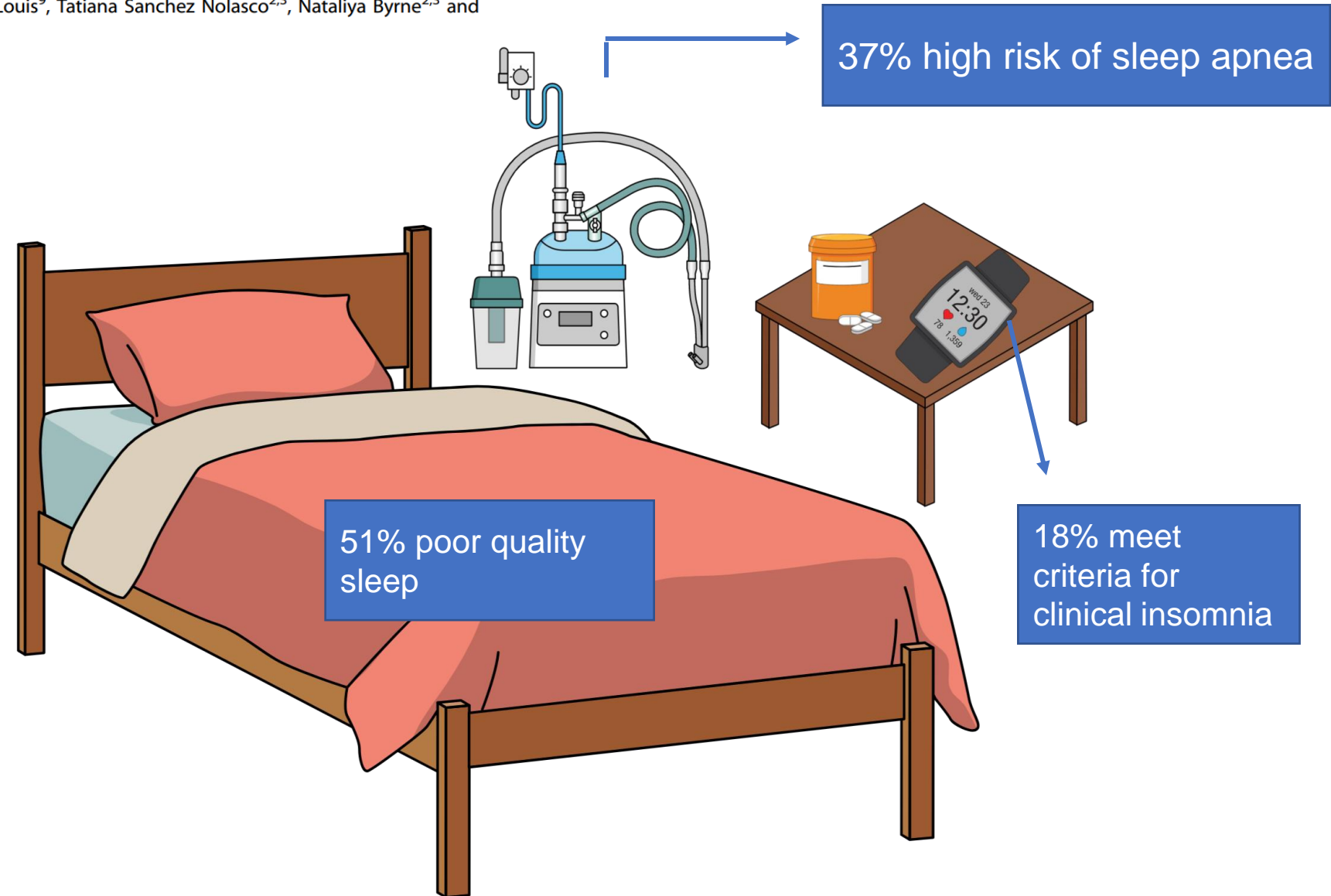
# Types of Sleep Problems

- Insomnia
  - Difficulty falling asleep, staying asleep, or waking earlier than you would like and cannot get back to sleep
- Sleep Apnea
  - Potentially serious condition where breathing repeatedly stops and starts
- Others (e.g., narcolepsy, restless leg syndrome)- less common

# Sleep disturbances are underappreciated in prostate cancer survivorship

Fred Gong<sup>1</sup>✉, Stacy Loeb<sup>2,3</sup>, Katherine Siu<sup>2,3</sup>, Akya Myrie<sup>4</sup>, Stephanie Orstad<sup>2,3</sup>, Stacey A. Kenfield<sup>5</sup>, Alicia Morgans<sup>6</sup>, Sameer Thakker<sup>2</sup>, Rebecca Robbins<sup>7</sup>, Patricia Carter<sup>8</sup>, Girardin Jean-Louis<sup>9</sup>, Tatiana Sanchez Nolasco<sup>2,3</sup>, Nataliya Byrne<sup>2,3</sup> and Natasha Gupta<sup>2,3</sup>

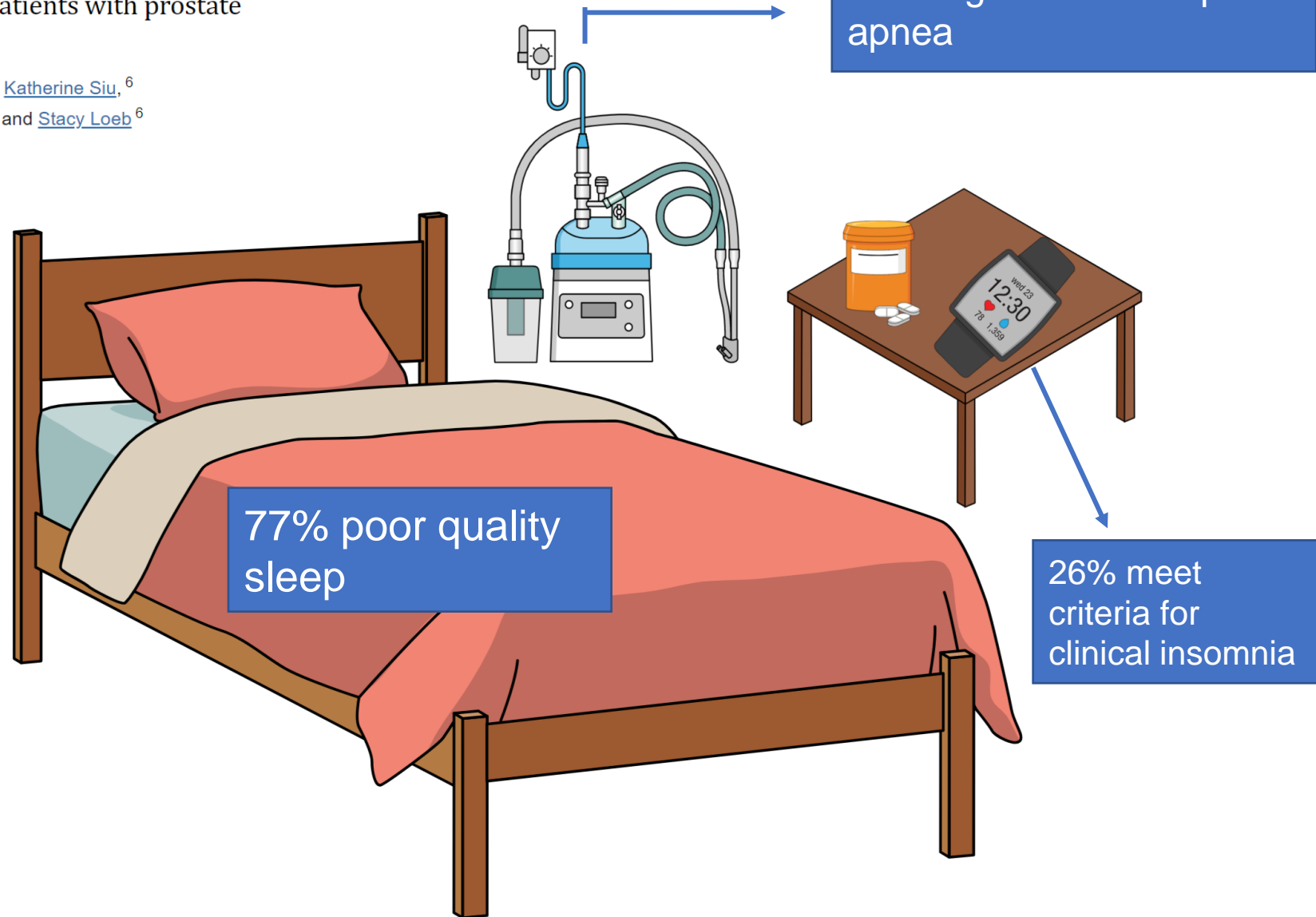
*Survey of patients with prostate cancer*



## Poor sleep health and quality of life among caregivers of patients with prostate cancer

[Sameer Thakker](#),<sup>1</sup> [Rebecca Robbins](#),<sup>2,3</sup> [Patricia Carter](#),<sup>4</sup> [Girardin Jean-Louis](#),<sup>5</sup> [Katherine Siu](#),<sup>6</sup> [Tatiana Sanchez Nolasco](#),<sup>6</sup> [Nataliya Byrne](#),<sup>6</sup> [Stephanie L. Orstad](#),<sup>7</sup> [Akya Myrie](#),<sup>8</sup> and [Stacy Loeb](#)<sup>6</sup>

### *Survey of caregivers/partners of patients with prostate cancer*





# Sleep Disturbances are Morbid!



Mental health consequences:

↑ Depression, ↓ QOL/well-being



Increased risk of chronic disease:

Hypertension, diabetes, obesity,  
depression, heart attack, and stroke



↑ Accidents and injuries

↑ Healthcare Utilization

# What to do if you are experiencing sleep problems

- Improve sleep hygiene
- Mindfulness meditation
- Cognitive behavioral therapy for insomnia
- Caution with sleep medications
- See a sleep specialist (especially if snoring/gasping for air)

# Sleep Hygiene Tips



✓ Regular bedtime & wake time

✓ Avoid looking at clock if awoken



✓ Regular physical activity in morning/afternoon



✓ Limit caffeine consumption

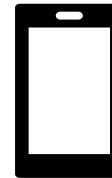


✓ Avoid big meals & limit fluid within 3h of bedtime



✓ Bright light in morning

✓ Avoid bright light at night



✓ Turn off electronics at night



✓ Enhance the sleep environment (e.g., temperature, comfort)

# Smoking



Systematic or Meta-analysis Studies

## Tobacco smoking and survival after a prostate cancer diagnosis: A systematic review and meta-analysis

Ellie Darcey<sup>a,b</sup>, Terry Boyle<sup>a,c,d,\*</sup>



- Compared to never smokers, current smokers have:
  - Worse overall mortality (Summary HR = 1.96, 95% CI = 1.69, 2.28)
  - Greater prostate cancer-specific mortality (Summary HR = 1.79, 95% CI = 1.47, 2.20)
  - Higher recurrence (Summary HR = 1.48, 95% CI = 1.28, 1.72)

**REVIEW ARTICLE**



# The association of smoking with urinary and sexual function recovery following radical prostatectomy for localized prostate cancer: a systematic review and meta-analysis

Jordi Visscher <sup>1</sup>✉, Mrunal Hiwase <sup>2</sup>, Billie Bonevski<sup>1</sup> and Michael O'Callaghan<sup>1,3</sup>

- Smoking is associated with worse sexual function recovery after prostate cancer treatment
- Sexual function scores improve after smoking cessation

# American Cancer Society Survivorship Guidelines

## **American Cancer Society Prostate Cancer Survivorship Care Guidelines**

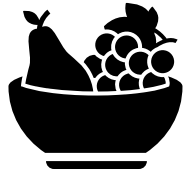
Maintain a healthy weight

Engage in at least 150 mins/week of physical activity

Eat a diet high in fruits, vegetables and whole grains

Avoid smoking

# Evidence-Based Recommendations from Lifestyle Medicine



- Diet focusing on plant-based foods (vegetables, fruits, whole grains, legumes)
- Minimize meat & processed foods



- >150 mins/week of moderate intensity aerobic activity
- 2x/week resistance training



- 7-9 hours sleep/night
- Good sleep hygiene
- Evaluation for sleep apnea if snoring/risk factors



- $\leq 2$  drinks/day (men) and  $\leq 1$  drink/day (women)
- Avoid tobacco



- Social connections benefit physical and emotional health
- Pursue activities that provide a sense of deeper purpose/meaning



- Manage negative stress
- Consider activities such as mindfulness meditation and yoga