Title: Protocol for a randomized clinical trial comparing the effect of increasing levels of web-based behavioral support on changes in physical activity, diet, and symptoms in men with prostate cancer

Authors: Winters-Stone KM, PhD\textsuperscript{1,2}, Kenfield SA, ScD\textsuperscript{5}, Van Blarigan EL, ScD\textsuperscript{5,6}, Moe E, PhD\textsuperscript{3}, Ramsdill J\textsuperscript{4}, Daniel K, MS, ATC\textsuperscript{2}, Macaire G, MA, RD\textsuperscript{7}, Paich K, MPH\textsuperscript{8}, Kessler ER, MD\textsuperscript{9}, Kucuk O, MD\textsuperscript{10}, Gillespie TW, PhD\textsuperscript{10}, Lyons K, PhD\textsuperscript{1,2}, Beer TM, MD\textsuperscript{1}, Broering J, PhD, MPH, RN\textsuperscript{5}, Carroll PR, MD, MPH\textsuperscript{7} Chan JM, ScD\textsuperscript{5,6}.

\textsuperscript{1}Knight Cancer Institute, \textsuperscript{2}School of Nursing, \textsuperscript{3}School of Medicine, \textsuperscript{4}Oregon Clinical Translational Research Institute, Oregon Health & Science University, \textsuperscript{5}Department of Urology, \textsuperscript{6}Department of Epidemiology and Biostatistics, \textsuperscript{7}Helen Diller Comprehensive Cancer Center, University of California, San Francisco, \textsuperscript{8}Movember Foundation, Culver City, CA; \textsuperscript{9}University of Colorado Cancer Center, University of Colorado School of Medicine, Aurora, Colorado, \textsuperscript{10}Winship Cancer Institute of Emory University, Atlanta, GA

Corresponding Author:
Kerri Winters-Stone, PhD, FACSM

Mailcode: SN-ORD

School of Nursing

3455 SW US Veteran’s Hospital Road

Portland, OR 97239

Voice: 503-494-0813 / Fax: 503-418-0903 / email: wintersk@ohsu.edu / twitter: @winters_stone

Funding: Movember Foundation, R01CA218093 (KWS), P30CA069533 (KWS), NCI K07CA197077 (EVB), UL1TR002369 (JWR)
ABSTRACT

Background: More than 3.1 million men in the United States are prostate cancer survivors. These men may improve their physical function, quality of life, and potentially prognosis, by adopting healthier lifestyle habits. The internet provides a scalable mechanism to deliver advice and support about improving exercise and dietary habits, but the feasibility and acceptability of a web-based lifestyle intervention, and the dose of support necessary to improve health behaviors, are not yet known. The Community of Wellness is a web-based intervention focused on supporting exercise and healthy dietary practices for men with prostate cancer.

Objective: To determine the feasibility and acceptability of the Community of Wellness web portal among prostate cancer survivors by conducting a randomized controlled trial comparing four levels of additive web-based content and interaction with participants: Level 1 (Teaching; CONTROL), Level 2 (Teaching + Tailoring), Level 3 (Teaching + Tailoring + Technology), and Level 4 (Teaching + Tailoring + Technology + Touch).

Methods: This is a randomized clinical trial (RCT) comparing the efficacy of three levels of the Community of Wellness web portal intervention (Levels 2-4) to each other and to the control condition (Level 1). The control condition receives general static web-based educational information only on exercise and dietary habits, self-efficacy for behavior change, motivation for exercise, and changes in anxiety and treatment-related side effects. We will enroll and randomize 200 men with prostate cancer equally to four levels of the Community of Wellness web-based intervention for 3 months (50 men per level). Surveys will be completed at baseline, 3 months (immediately post-intervention) and 6 months (3 months post-intervention). Feasibility and acceptability will be assessed via surveys at the 3-month time point. We will also conduct focus groups after the post-intervention follow-up assessment, in a sample of enrolled participants, to evaluate elements of usability and acceptability that cannot be obtained via surveys.
Results: Enrollment is ongoing, with 77 enrolled. Study completion (6-month follow-up) expected by July 2019.

Conclusions: The primary goal of this study is feasibility and acceptability of a web-site-based lifestyle intervention. This study will estimate the impact of three experimental levels of support (e.g., Levels 2, 3, and 4) on patient-reported outcomes compared to control and compared to one another. The goal of the study is to determine the “leanest” level of support that promotes behavior change in men with prostate cancer to inform future efforts to scale the program for broader reach.

Trial Registration: NCT03406013

Key Words: prostate cancer; survivorship; diet; exercise; physical activity; internet; behavior change; text messaging; accelerometry; self-management; coaching
INTRODUCTION

More than 14 million men worldwide are living with prostate cancer [1] and over 90% of men will live 15+ years after diagnosis and initial treatment. During this time, men with prostate cancer may experience adverse effects of aging and persistent side effects of cancer treatment that reduce their physical function, quality of life (QOL), and potentially their prognosis. A cancer diagnosis is a “teachable moment” when individuals are often motivated to change behavior to reduce risk of adverse health outcomes and optimize QOL [2-9]. Yet, advice provided is often inconsistent and current standard of care does not support resources for lifestyle behavior change for men with prostate cancer in the U.S. [10].

For men with prostate cancer, regular exercise is an excellent strategy to offset age- and treatment-related declines in physical functioning, mental health and QOL [11]. We and others have shown that when prescribed appropriate exercise, either aerobic and/or resistance training, may manage acute and chronic treatment-related symptoms and side effects [3, 12-20]. Furthermore, recent observational evidence from our team and others suggests that aerobic exercise may reduce prostate cancer progression [4] and prostate cancer-specific death [21-25]. Despite the evidence for exercise benefits in men with prostate cancer, over 75% of prostate cancer survivors fail to achieve recommended amounts of aerobic exercise, and only 4% engage in any resistance exercise [26]. Prostate cancer survivors may fail to meet the exercise recommendations, because they are not receiving information about the effects of specific types of exercise on the health outcomes that are most important for them. A recent study reported that prostate cancer survivors on androgen deprivation therapy (ADT) regard a physician’s general recommendation to exercise as important; yet are frustrated when providers lack specific knowledge about the type of exercise they should do, and lack knowledge on how exercise specifically affects their cancer and related health issues [27-31].
In addition, accumulating evidence from our team suggests that several dietary factors may reduce the risk of prostate cancer progression and death, including greater intakes of cruciferous vegetables, vegetable fat, fish, and cooked tomatoes and lower intake of whole milk and poultry with skin [4, 32-41]. Many of these dietary factors (e.g., cruciferous vegetables, cooked tomatoes, whole milk) appear to have specific associations with prostate cancer progression and are not included in general nutrition guidelines for cancer survivors [10]. Further, excess supplementation of vitamins or minerals may increase risk of prostate cancer progression, yet cancer survivors, including men with prostate cancer, report high use of dietary supplements [42, 43].

Successful interventions that promote healthy lifestyles can be challenging to scale to the broader population and may not readily reach those persons who are most in need [44]. Center-based lifestyle programs specific to cancer survivors are rare and, if available, tend to be offered only in major academic medical centers in urban areas, while home-based interventions have been tested in other cancers [45], including prostate cancer [46]. They are rarely comprehensive enough to address both physical activity and dietary change and raise challenges for tailoring programs to individual needs, maintaining safety and efficacy, and sustaining motivation, especially when counseling is an integral part and would be difficult to maintain indefinitely. For optimal engagement, there is a need to provide appropriate content, accommodations, and reinforcement in a way that can successfully promote behavior change. The internet provides a potentially scalable and economical way of delivering lifestyle interventions to cancer survivors [47]. One web-based trial (Prostate 8) focused on diet, exercise, and not smoking, has fully enrolled and will be published soon (NCT02470936). No studies that are specific to men with prostate cancer and published to date simultaneously address exercise and dietary change while elucidating the types and levels of behavioral support that are effective [48].
Based on the evidence indicating that diet and exercise habits may offer benefits for men living with prostate cancer, we developed a multi-site, national, pilot feasibility study to build and test a web-based interactive lifestyle management program, the “Community of Wellness,” to provide tools and support for men with prostate cancer to optimize their health through exercise and diet. It is unclear what types and how much support men may need to make meaningful changes using a web-based tool, therefore an objective of this project is to compare the effect of varying types and levels of support for diet and exercise behavior change.

METHODS

Study Design and Setting
The “Community of Wellness” study is supported by the Movember Foundation, and is part of their broader initiative - TrueNTH™ USA [https://us.truenth.org/]. The study is a 4-arm randomized controlled trial (RCT) comparing three levels of increasing behavioral support to a usual care group that receives online general educational information only. We aim to enroll and randomize 200 men with prostate cancer equally to one of four study arms for 3 months. Surveys are administered at baseline, 3 months (post-intervention), and 6 months (3 months post-intervention). We will also conduct focus groups after the post-intervention follow-up assessment in a subsample of enrolled participants to evaluate elements of usability and acceptability that cannot be obtained via standardized surveys.

Study Population
The study population is men with a history of prostate cancer. Men are eligible to participate if they self-report receiving a prostate cancer diagnosis; are 18 years of age or older; able to read English on a computer screen; have a personal device that has Internet access and text messaging and a personal email address. Men are not eligible to participate if they report any
contraindications to exercise based on the American College of Sports Medicine exercise pre-participation screening criteria [45] and do not receive a physician clearance to participate in moderate intensity physical activity. In addition, men who are currently receiving chemotherapy or radiation therapy will be required to receive a physician clearance prior to enrollment. Eligibility is assessed via phone screening, and eligible men provide consent online.

Consented participants are randomly assigned to one of four levels of intervention (n= 50 per group). Recruitment is based out of four academic medical centers (Oregon Health & Science University (OHSU, primary study coordinating center), University of California San Francisco (UCSF), University of Colorado Denver (UC Denver), and Emory University). Any man with prostate cancer who meets the above criteria and completes a screening survey and phone call may be eligible. The study is approved by three Institutional Review Boards at OHSU, UCSF, and UC Denver, and is under review at Emory University.

Study Arms
Our overarching goal is to support healthy diet and physical activity among men with prostate cancer. The intervention is structured around supporting 3 specific physical activity recommendations (aerobic, strength, and flexibility/balance training) and 8 dietary recommendations (guidance on intake of cruciferous vegetables, cooked tomatoes, fish, processed meat, poultry with skin, whole milk, vegetable fat, and vitamin supplements).

Each study arm provides additive levels of behavioral support accessed via a web portal – Teaching (Level 1; usual care control), Tailoring (Level 2), Technology (Level 3), and Touch (Level 4). Each level receives the tools and resources of the prior level, such that Level 4 participants receive the most intervention components. Table 1 summarizes the intervention components that are accessible for men who are randomized to each of the four arms.
<table>
<thead>
<tr>
<th>Level</th>
<th>Type of Support</th>
<th>Component*</th>
</tr>
</thead>
</table>
| 1     | Teaching       | - Educational information about exercise and diet, presented in static website format  
         |                 | - Exercise guidelines for prostate cancer survivors*  
         |                 | - Diet guidelines for prostate cancer survivors*  
         |                 | - Exercising safely with various health issues*  
         |                 | - Resources (exercises, recipes for recommended foods)* |
| 2     | Tailoring      | - Personalized exercise prescription and diet recommendation*  
         |                 | - Videos of recommended exercises* |
| 3     | Technology     | - Text messaging to support and reinforce diet & exercise behaviors  
         | Levels 1-2 plus technology support | - Fitbit Alta™ plus physical activity progress reports based on physical activity tracker data*  
         |                 | - Self-report log of progress toward diet and exercise goals* |
| 4     | Touch          | - Phone consult with diet and exercise coaches (30 minutes each)  
         | Levels 1-3 plus “live” personal support from a health coach | - Ongoing online (via email) tech support from diet and exercise coaches |

*Items available on the web portal are starred

Each progressive level receives the intervention components of the level before it – e.g., a participant randomized to Level 3 Technology receives all the components of Levels 1-3 but not 4.

The intervention components are described in more detail below.

**Level 1: Teaching** contains online static information about exercise and diet advice for men with prostate cancer.

**Level 2: Teaching + Tailoring** contains the content in Level 1 plus personalized exercise and diet advice. Men in this group answer a series of questions about their exercise and diet habits and preferences at baseline to generate a personalized exercise and diet
program. In addition, men in this group receive access to instructional exercise videos. The exercise programs generated for men are based on the evidence for exercise as a strategy to manage side effects and symptoms for prostate cancer, slow prostate cancer progression, reduce overall mortality risk, and/or improve physical functioning [2, 3, 12-20, 25]. Tailoring of each program is based upon a man's response to a series of questions that ask about his health status, current and past prostate cancer treatments, health goals for exercise, current exercise levels, resources for exercise (i.e., access to an exercise facility, home exercise equipment, etc.), and time available for exercise. A man's stated health goals dictates the mode (aerobic and/or resistance training) of exercise training in his prescription; his exercise resources further dictate the type of training selected for his program (i.e., machine weights in a gym vs. resistance bands at home); his health status, prostate cancer treatments, and current exercise levels dictate the exercise intensity of his prescribed program; and, his available time dictates the frequency and length of prescribed training sessions.

Similarly, we assess men's usual dietary habits using a validated food frequency questionnaire [49], benchmark his usual diet against 8 dietary recommendations we have developed based on the literature, and provide tailored advice on how he can improve his diet. Our recommendations are based on a review of the literature on diet and prostate cancer progression as of August 2016 [9], and also take into consideration recommendations from the American Cancer Society and dietary guidance provided for prevention of major chronic illnesses (e.g., American Heart Association, American Diabetes Association recommendations). See Figure 1 for an example of how information would be provided back to participants about whether or not they are meeting dietary recommendations.
**Figure 1.** Example of the assessment and feedback provided to a participant about how well he meets the dietary recommendations in the Community of Wellness.

**Level 3:** Teaching + Tailoring + Technology contains the content provided in Levels 1-2 plus technology support for changing exercise and diet habits. Men in this group are asked to log their diet and exercise behavior through the website and can view their progress over time. These men also receive a physical activity tracking device (Fitbit Alta™; mailed to the participant) that interfaces with the web portal and educational and
motivational text messages about healthy diet and exercise habits. A total of 90 text messages are sent over the entire intervention period, averaging 4 texts per week.

**Level 4:** Teaching + Tailoring + Technology + **Touch** contains the content provided in Levels 1-3 plus interactive support via phone and online with research staff to support diet and exercise behavior change. Men in this group have the option to receive two 30-minute phone consultations, one with an exercise coach (certified athletic trainer) and one with a diet coach (registered cancer dietician). Participants also have the ability to receive ongoing advice from coaches via the web portal. Figure 2 provides a screenshot of a Level 4 dashboard.

**Figure 2.** Example of a Level 4 “Dashboard” to help men navigate to different elements of the portal.
An important consideration for any program that delivers an exercise prescription or recommendation via the Internet is ensuring participant safety. Information about how to perform the prescribed exercises and general tips for safe exercising are available on the web portal. In addition, we have attempted to minimize the risk of adverse events during exercise by excluding men who may be at risk due to their current health status and/or prostate cancer treatment, unless they receive clearance from their physician to participate in moderate intensity exercise. In addition, the generated exercise prescription takes into account a man’s current health status, including whether or not he is currently receiving treatment for his prostate cancer with surgery, radiation or chemotherapy, androgen deprivation therapy, or immunotherapy. For example, any man currently in active treatment is prescribed a low-intensity exercise program, regardless of other health indicators. If a man has no health indicators that dictate that he receives a low-intensity exercise program, the intensity of exercise is prescribed based on his self-reported baseline exercise levels so that the program is both safe, yet effectively provides a sufficient stimulus for adaptation.

**Outcome Measures**

We will evaluate acceptability and feasibility of the Community of Wellness intervention after 3 months via surveys, usage analytics from the web portal, and focus groups. Secondarily, we will estimate the effectiveness of the different levels of the intervention on changes in diet or exercise habits, QOL, and self-efficacy after 3 months and 6 months.

**Acceptability and Feasibility**

To assess acceptability and feasibility of the web-based intervention levels, we will evaluate accrual, participant retention, and adherence. We will measure the technical usage statistics for the web-portal, including frequency of logins, individual page views, and access of exercise videos. Intervention adherence is measured by: 1) assessing participants who start using, and
2) those who continue to access, the web portal during the intervention period (quantified as the number of logins). Post-intervention, participants in each level are asked to assess their use and the helpfulness of the web portal, its components, and other study tools.

Adherence to Diet & Exercise Recommendations

To estimate the effect of the intervention on behavior change, we will compare item level data (e.g., minutes per week of moderate and vigorous activity, servings per week of cruciferous vegetables) at baseline and 3 months from the CHAMPS (Community Healthy Activities Model Program for Seniors) physical activity survey [50, 51] and a validated food frequency questionnaire (FFQ). We will examine behaviors overall as part of a “score” (see below), and with a focus on activities and dietary components that correspond to our recommendations.

The CHAMPS survey is administered at baseline, 3 and 6 months. This validated survey estimates total weekly energy expenditure (in kilocalories per week) from physical activities for older adults. The 41-item questionnaire asks about recent engagement in specific types of vigorous, moderate, and light intensity activities per week and the frequency and duration of participation. Specific items can be categorized as aerobic or resistance exercise and responses to these items will be evaluated to determine how closely a man complied adhered with to his prescribed training program.

The validated Harvard T.H. Chan School of Public Health FFQ for adults from 2007 is administered at baseline, 3 and 6 months [52]. This 132-item survey assesses dietary intake in categories from “never or less than once per month” to “6 or more times per day.” The original survey asks about intake over the past year; we modified the survey for this study to ask about intake over the last month.
In addition to the responses to standard surveys, participants who receive technology support (Levels 3 and 4) complete weekly online surveys to report their progress toward meeting their exercise and diet recommendations. Participants report the number and type (e.g., aerobic or resistance) of exercise sessions, average session duration, and exercise intensity. Men also report which of the recommended dietary habits they worked on, if they met any of diet goals, and which goals were the most challenging. This type of charting will be used to further evaluate adherence to recommendations but may also provide a form of behavioral support.

We will calculate a “behavior score” based on how well each participants’ self-reported diet and exercise habits match the 8 dietary and 3 physical activity recommendations. For each of the 11 targeted behaviors, participants will be assigned 0 points if they do not meet that recommendation, 1 point if they almost meet the recommendation, and 2 points if they meet the recommendation. The overall score ranges from 0 to 22, with higher values indicating closer adherence to the exercise and diet recommendations. We will examine mean scores for each group at baseline and 3 months, and changes in scores from baseline to 3 months.

To assess adherence to use of technology support via exercise tracking devices for men in Levels 3 or 4, we will assess the number of days they wore their wearable device during the study period. We will also consider data from the wearable device to describe the average number of steps taken per day, active minutes per week, and miles covered per week.

Fatigue and Sleep Quality

Fatigue and sleep quality is assessed using validated instruments at baseline, 3 and 6 months. The Patient Reported Outcome Measurement Information System (PROMIS) 7-item Short Form – Fatigue questions [53] is used to assess changes in cancer-related fatigue. The Pittsburgh Sleep Quality Index is used to assess changes in sleep quality.
Self-Efficacy for Exercise and Diet

Self-efficacy for exercise will be measured with a standard 6-item questionnaire at baseline, 3 months, and 6 months [54]. Self-efficacy for diet will also be collected at 3 and 6 months using a similar approach by having participants rate their confidence in performing each recommended task (e.g., consume two or more servings of cooked tomatoes per week) using a Likert scale. We will evaluate whether baseline self-efficacy predicts response to the intervention arms and whether the interventions improve self-efficacy for exercise and diet compared to control.

Stage of Change for Exercise

The Physical Activity Stage Assessment is a 5-item measure of a person’s readiness to engage in recommended levels of exercise and has been used in prior studies of cancer survivors [45]. We will evaluate the influence of the behavioral support on readiness to engage in exercise.

Focus groups

Focus group will be conducted post intervention to evaluate elements of usability and acceptability that cannot be obtained via surveys. Focus group participants will be recruited from each of the different levels of intervention, to gain insight into participant experience at each of the levels.

Statistical Considerations

Statistical Power - The primary outcomes for this trial are acceptability and feasibility. However, to estimate sample size, we powered the study based on one of our secondary outcomes, i.e., change in mean behavior score from baseline to 3 months. We used SAS power procedure with logistic option (Shieh-O'Brien approximation method) to estimate sample size with the following assumptions: behavior score that corresponds to our 8 diet and 3 exercise recommendations
and range from 0-22 with 45 men in each of four groups, alpha = 0.05, a baseline mean of 15 points for all groups, and assuming no change in mean score for the reference group (group 1), we would have 80% power to detect a 66% increase in score (i.e., mean 25 or greater) for groups 2-4 at 3 months. To account for an estimated 10% attrition across the study period, we aim to recruit a sample of 200 men.

**Proposed Statistical Analyses** – We will check for chance imbalances between arms for important prognostic baseline covariates, selected *a priori* (e.g., age, race, clinical stage, body mass index). We will compare the drop-out rates across arms using chi-square or fisher’s exact tests, as appropriate. We will describe the exercise and diet behavior data at baseline and 3 months for each study arm using descriptive statistics, such as means, medians, and interquartile range, and compare across arms using t-tests and Wilcoxon rank sum tests. We will undertake an intent-to-treat analysis.

Our primary outcomes of this pilot RCT are accrual, participant retention, and adherence. We will summarize eligibility, accrual, and retention using descriptive statistics, and explore whether these factors differ by socio-demographic variables. We will examine adherence using the metrics described above (Outcomes), overall and by randomization group.

We will describe the secondary outcomes metrics (e.g., physical activity, diet, fatigue, sleep quality) at baseline, 3 months, and 6 months for each study arm using descriptive statistics, such as means, medians, and interquartile range. We will also examine whether change in exercise and diet behavior, self-efficacy, fatigue, or sleep quality differs between the four levels of the intervention at baseline vs. 3 months using t-test, chi-square, ANOVA, linear, and logistic regression methods, as appropriate. While randomization, on average, balances covariates between groups, we will consider adjustment for important baseline covariates that may be associated with our outcomes, selected *a priori*. We will also examine if exercise and diet self-
efficacy and exercise stage of change at baseline influence adherence to the intervention or the
effect of the intervention on behavior change outcomes.

RESULTS
Development of the Community of Wellness website is complete, has been beta-tested, and is
currently being evaluated in the RCT. Recruitment is open at three of the four academic
medical centers (OHSU, UCSF, UC Denver, and Emory University (pending)) with the target
population of 50 men enrolled at each site for a total of 200 subjects. OHSU achieved their
recruitment goal and enrolled 50 men. UCSF is actively recruiting, with 27 men currently
enrolled, and UC Denver is just open. We expect to fully accrue to the trial by January 2019
with final data collection complete by July 2019.

DISCUSSION
We have developed a tailored, self-directed, and scalable web-based intervention accessible via
computer, tablet, or phone to promote lifestyle behaviors associated with better quality-of-life
and reduced risk of cancer recurrence/progression for men with prostate cancer. While there are
many general informational websites for cancer patients, the study web-portal provides a variety
of tools and resources to empower prostate cancer survivors to improve their physical,
emotional, and mental health, including tailored exercise and diet recommendations,
contemporary technology-based support tools and health coaching. A recent meta-analysis
identified 15 internet-based programs that delivered a lifestyle-based (i.e., physical activity
and/or diet) intervention in cancer survivors [48]. An overall positive effect was found for
increasing physical activity and reducing BMI, but findings were mixed or inconclusive for
cancer treatment-related symptoms, QOL, self-efficacy, and dietary change. Only three
programs included, but were not specific to, men with prostate cancer. Thus, it is not known
whether a web-based program that delivers both exercise and diet advice and provides multiple
levels of behavior change support is feasible, acceptable and shows preliminary efficacy to improve diet and exercise behaviors in prostate cancer survivors.

While the Internet is an increasingly common approach to building scalable programs for behavioral interventions, it remains unclear how web-based programs should be designed to achieve the intended goal of behavior change. This pilot RCT will address this gap in our knowledge. We will determine the acceptability and feasibility, and estimate the effect on behavior, of four additive levels of web-based tools, from static information (Level 1) to personalized exercise and diet recommendations, training plans, text messages, a physical activity tracker, and one phone counseling session with an exercise trainer and one session with a dietician (Level 4). A tradeoff to adding tools is the resources required to implement and sustain them in an ever-changing technology environment. A purely technology-based program may also lack the interpersonal contact, which has been found to be an important strategy for behavior change. Thus, in comparison to a control level of static educational content on exercise and diet, this study will systematically evaluate layers of additional support for changing exercise and diet behavior.

This RCT is open for enrollment (ClinicalTrials.gov NCT03406013) and anticipates completing enrollment by the end of 2018. For further details on the study and potential participation, please email CommWell@ohsu.edu or call toll free: 833-410-4548.
ACKNOWLEDGEMENTS

The study was funded by the Movember Foundation

CONFLICTS OF INTEREST

The authors have no conflicts to disclose
REFERENCES


40. Richman EL, Kenfield SA, Stampfer MJ, Giovannucci EL, Chan JM. Egg, red meat, and poultry intake and risk of lethal prostate cancer in the prostate-specific antigen-era:


