

4-2017

# Physician Role in Physical Activity for African-American Males Undergoing Radical Prostatectomy for Prostate Cancer

Faustine Williams

*East Tennessee State University, williamsf2@etsu.edu*

Kellie R. Imm

*Washington University in St. Louis School of Medicine*

Graham A. Colditz

*Washington University in St. Louis School of Medicine*

Ashley J. Houston

*The University of Texas MD Anderson Cancer Center*

Lin Yang

*Medical University of Vienna*

*See next page for additional authors*

Follow this and additional works at: <http://dc.etsu.edu/etsu-works>



Part of the [Health Services Research Commons](#), [Oncology Commons](#), [Physical Therapy Commons](#), and the [Race and Ethnicity Commons](#)

---

## Citation Information

Williams, Faustine; Imm, Kellie R.; Colditz, Graham A.; Houston, Ashley J.; Yang, Lin; Gilbert, Keon L.; and Drake, Bettina F.. 2017. Physician Role in Physical Activity for African-American Males Undergoing Radical Prostatectomy for Prostate Cancer. *Supportive Care in Cancer*. Vol.25(4). 1151-1158. <https://doi.org/10.1007/s00520-016-3505-7> ISSN: 1433-7339

This Article is brought to you for free and open access by the Faculty Works at Digital Commons @ East Tennessee State University. It has been accepted for inclusion in ETSU Faculty Works by an authorized administrator of Digital Commons @ East Tennessee State University. For more information, please contact [digilib@etsu.edu](mailto:digilib@etsu.edu).

---

# Physician Role in Physical Activity for African-American Males Undergoing Radical Prostatectomy for Prostate Cancer

## **Creative Commons License**



This work is licensed under a [Creative Commons Attribution-Noncommercial 4.0 License](https://creativecommons.org/licenses/by-nc/4.0/)

## **Creator(s)**

Faustine Williams, Kellie R. Imm, Graham A. Colditz, Ashley J. Houston, Lin Yang, Keon L. Gilbert, and Bettina F. Drake

# Physician role in physical activity for African-American males undergoing radical prostatectomy for prostate cancer

Faustine Williams<sup>1</sup> · Kellie R. Imm<sup>2</sup> · Graham A. Colditz<sup>2,3</sup> · Ashley J. Houston<sup>4</sup> · Lin Yang<sup>5</sup> · Keon L. Gilbert<sup>6</sup> · Bettina F. Drake<sup>2,3</sup>

Received: 21 April 2016 / Accepted: 21 November 2016 / Published online: 21 December 2016  
© The Author(s) 2016. This article is published with open access at Springerlink.com

## Abstract

**Purpose** Physical activity is recognized as a complementary therapy to improve physical and physiological functions among prostate cancer survivors. Little is known about communication between health providers and African-American prostate cancer patients, a high risk population, regarding the health benefits of regular physical activity on their prognosis and recovery. This study explores African-American prostate cancer survivors' experiences with physical activity prescription from their physicians.

**Methods** Three focus group interviews were conducted with 12 African-American prostate cancer survivors in May 2014 in St. Louis, MO. Participants' ages ranged from 49 to

79 years, had completed radical prostatectomy, and their time out of surgery varied from 7 to 31 months.

**Results** Emerged themes included physician role on prescribing physical activity, patients' perceived barriers to engaging in physical activity, perception of normalcy following surgery, and specific resources survivors' sought during treatment. Of the 12 men who participated, 8 men (67%) expressed that their physicians did not recommend physical activity for them. Although some participants revealed they were aware of the importance of sustained physical activity on their prognosis and recovery, some expressed concerns that urinary dysfunction, incontinence, and family commitments prevented them from engaging in active lifestyles.

**Conclusions** Transitioning from post radical prostatectomy treatment to normal life was an important concern to survivors. These findings highlight the importance of physical activity communication and prescription for prostate cancer patients.

**Electronic supplementary material** The online version of this article (doi:10.1007/s00520-016-3505-7) contains supplementary material, which is available to authorized users.

✉ Faustine Williams  
WilliamsF2@etsu.edu

<sup>1</sup> Department of Health Services Management and Policy, College of Public Health, East Tennessee State University, P O Box 70264, Johnson City, TN 37614, USA

<sup>2</sup> Division of Public Health Sciences, Department of Surgery, Washington University in St. Louis School of Medicine, 660 South Euclid Avenue, Campus Box 8100, St. Louis, MO 63110, USA

<sup>3</sup> Alvin J. Siteman Cancer Center, St. Louis, MO, USA

<sup>4</sup> Division of Cancer Prevention and Population Sciences, Department of Health Services Research, The University of Texas MD Anderson Cancer Center, Houston, TX, USA

<sup>5</sup> Department of Epidemiology, Center for Public Health, Medical University of Vienna, Kinderspitalgasse 15, 1st Floor, 1090 Vienna, Austria

<sup>6</sup> Department of Behavioral Science and Health Education, Saint Louis University, St. Louis, MO, USA

**Keywords** African-American · Prostate cancer · Survivor · Physical activity · Physician · Prescription/communication

## Introduction

The number of cancer survivors in the USA is increasing. As of 2014, there were over 14.5 million estimated individuals with a history of cancer, who are considered survivors [1]. Racial disparities are increasingly evident in prostate cancer survival, with African-American men exhibiting notable disadvantages [1–3]. African-American men are nearly 1.6 times more likely to be diagnosed with prostate cancer than white men and almost 2.5 times more likely to die from the disease [2], exhibiting the highest rates of prostate cancer incidence and mortality in the USA [1, 2]. Radical prostatectomy (RP)

provides effective control for prostate cancer resulting in high survival rates subsequently increasing the number of survivors across races [4]. Long-term complications like urinary incontinence and sexual dysfunction are a burden for many men after surgery, and African-American men have reported higher rates of urinary, bowel, and physical issues than Caucasian men [3, 5, 6]. Cancer survivorship is a unique and crucial phase, and there is a pressing need for standardized models of care for survivors [3]. To ensure effective continuity of care for survivors, in 2005, the Institute of Medicine (IOM) Survivorship Committee in their report *From Cancer Patient to Cancer Survivor: Lost in Transition* acknowledged the vital role of communication in the management and coordination of care between healthcare providers and patients [7].

Many cancer survivorship investigations have reported that most patients prefer receiving cancer information from their healthcare provider [6, 8, 9]. Specifically, African-American men are more likely to adhere to medications and treatment plans when they trust their provider [10]. Potential benefits of effective patient-provider communication include the following: better understanding of treatment information and adherence to providers' recommendations, shorter hospital stays, fewer complications, appreciation of care, increased patient satisfaction, decreased anxiety, and improvement in overall health-related quality of life [8, 9, 11, 12]. Nonetheless, studies addressing prostate cancer patients' experiences with physician "prescribed" physical activity are lacking.

Sustaining a physically active lifestyle routine is essential to maintaining healthy conditions and overall quality of life. Physical activity (PA) is recognized as a complementary therapy to improve physical and physiological functions among prostate cancer survivors [5, 13–15]. Epidemiologic data has linked physical activity with better survival outcomes in prostate cancer patients [16, 17]. Meta-analytic data from randomized controlled trials have demonstrated the benefits of engaging in physical activity for improved quality of life, fatigue, fitness, and function for men with prostate cancer [18]. The American Cancer Society recommends that all prostate cancer survivors engage in both aerobic exercise and resistance training for cancer management [19]. Given the documented low PA and poor outcomes on urinary and sexual functions post-RP among African-American men, they are at increased risk of complications from the RP surgical procedure [20, 21]. Nevertheless, little is known about regular PA communication between providers (physicians/urologists) and African-American prostate cancer patients, a high risk population, about the health benefits of regular PA on their prognosis and recovery.

According to the transtheoretical model (TTM), behavioral change occurs in stages rather than one major change [22]. For example, Woods et al. [23] used TTM as an intervention to encourage young adults to become more active. Consequently, the current study is based on theory of the TTM. This model was considered appropriate, given the

evidence of low PA among African-American, and especially poor urinary and sexual functions post-RP among African-American men. Using TTM model and phenomenological approach, the primary aim of this study was to explore African-American prostate cancer survivors' experiences with physical activity prescription from their physicians.

## Method

### Approach

The study employed a qualitative research design using focus groups to encourage participants to share their personal experiences and facilitate deeper discussion. A focus group qualitative interview method is well suited to exploring respondents' beliefs and experiences which could not be feasible using other research methods like questionnaire surveys and observations [23]. For this unique population, this method was considered appropriate to elucidate discussion and interaction among this group of individuals to identify factors inductively rather than deductively. This approach also allowed the participants to name and define their own thoughts about this health behavior.

### Selection and recruitment of participants

Participants were recruited from a larger observational cohort of prostate cancer patients titled "Energy Balance and Post-Radical Prostatectomy Urinary and Sexual Function (IRB #201011787)." This parent study enrolled a total of 440 men diagnosed with localized prostate cancer undergoing radical prostatectomy between September 2011 and January 2014 through Washington University School of Medicine, Alvin J. Cancer Center, in St. Louis, as well as Brigham and Women's Hospital/Dana Farber Cancer Institute. All men undergoing radical prostatectomy for clinically diagnosed prostate cancer were eligible. Further exclusion criteria included previous primary prostate cancer treatment, past radiation treatment to the pelvis (including bladder, rectum, or prostate), major pelvic surgery (including penile implant or urinary sphincter), and having a known urethral stricture, colostomy, or an inability to urinate requiring chronic urinary catheter.

All African-American participants from the larger cohort were eligible to participate in the focus groups. Of the 40 African-American men enrolled in the larger cohort, only 31 were still residing in the immediate area (Missouri). All 31 men were invited to participate in a focus group to discuss their prostate cancer experiences with regard to PA prescription. Those who agreed to participate in this subsample qualitative study were grouped into sessions based on their availability over four-week period in May 2014 in St. Louis, Missouri. The number of participants and focus group sessions were not preset, but determined by data saturation. The

final sample consisted of 12 African-American males, all living in St. Louis, Missouri, with all three focus group interviews taking place in community settings.

### Data collection

The interview questions were open ended, and comprised descriptive, probing, as well as opinion questions [24–27]. The questions addressed experiences with improving urinary and sexual function through increasing physical activity including patient-physician communication during clinic visit, physical activity participation, and barriers to physical activity. As interviews progressed, participant statements also provoked further questions and clarifications.

Each focus group was held in a conference room on the Washington University School of Medicine campus and lasted about 90 minutes. Groups were facilitated by a well experienced moderator and an observer. The moderator assisted in the development of the question guide and was trained to probe for further information. Attendance for each focus group varied, and group size ranged from 3 to 5. The total number of participants was 12, which reflected a 39% recruitment success rate from the pool of eligible participants. The study was approved on April 11, 2014 by the Institutional Review Board at the Washington University School of Medicine, as a continuation of the parent study (IRB #201011787). At the beginning of each focus group section, participants were informed about rights and principles of protection of human subjects, and each approved their participation with a written informed consent under the principle of full disclosure and received a copy of the consent form. Each person received a \$30.00 gift card for participation.

### Data analysis

Focus groups were audio-recorded and transcribed verbatim. Data were analyzed using standard inductive text analysis [27]. Initially, two coders, FW and KI, reviewed the transcripts to familiarize themselves with the data expressions of survivors' in regard to their experience with physician physical activity prescription. In the next level of the analysis, a line-by-line analysis of the data was conducted separately by each coder, and identified statements and phrases that described survivors experience were labeled accordingly. Next, common codes were identified and categorized into concepts. From these concepts, meanings were created bearing in mind not to disrupt the original meaning of what participants said. All meaningful units were assigned codes, which were reviewed again to identify core categories, develop themes, and further cluster the themes. Although this study sought to look at only quotes related to this specific topic, codes were inductively derived from the transcribed

tapes. Through this analysis, no new participants were recruited since thematic saturation was reached as no new codes emerged through coding and verification of the transcripts. Two additional coders, LY and AH, conducted independent review, and the few discrepancies noted were resolved through verification of data.

## Results

### Characteristics of the sample

The participants' mean age was 61.8 years (range 49–79 years), and the average duration since completion of treatment (radical prostatectomy and their time out of surgery) was 19.8 months (range 7–31 months). All participants had at least a high school education, and over 50% were retirees. See Table 1 for details of demographic characteristics of the participants.

### Interview results

Four major themes emerging from the analysis included the following: role of physician on prescribing exercise/physical activity, perceived barriers to physical activity, perception of normalcy post-surgery, and resources prostate cancer survivors seek during diagnosis and treatment. The follow sections describe each of the findings from the focus groups.

### Role of physician on prescribing exercise/physical activity

Results identified extensive diversity of perceived roles of physicians with regard to communication and rapport among prostate cancer survivors' engagement in physical activity. Four (33%) out of twelve men acknowledged that their physicians (urologists) advised them on the broad role of regular PA in their survival, but did not specify which exercise type, and the physiological benefits of which PA post-RP was essential.

My doctor [urologist] he told me that the quicker that I get back to physical activity, the better. He didn't emphasize whether or not it would help me with being able to have sexual activity or being able to help me with my continence.

A number of them mentioned that beyond general advice, their physicians did actually recommend specific exercises and encouraged them to be consistently active. These specific exercises were helpful to participants because they addressed specific post-RP symptoms. One participant described that:

... my doctor gave me exercise that he prescribed... to do buttocks' squeeze...

**Table 1** Demographic and clinical characteristics of participants

Variable	Frequency	Percent
Demographic characteristics, <i>n</i> = 12		
Age at diagnosis (range 49–79 years); mean (SD), <i>n</i> = 12	61 (9.4)	
Education		
Completed high school	3	25.0
College	3	25.0
Postgraduate	2	17.0
Unknown	4	33.0
Marital status		
Married or living as married	2	17.0
Never married or divorced or widowed	4	33.0
Unknown	6	50.0
Employment status		
Working full time	3	25.0
Self-employed	1	8.3
Unable to work	1	8.3
Retired	7	58.3
Household income		
<\$19,999	1	8.3
\$20,000–39,999	2	17.0
≥\$40,000	4	33.0
Unknown	5	41.7
Type of insurance		
Public (including Medicare, Medicaid, and Tricare)	5	41.7
Private	6	50.0
Unknown	1	8.3
Clinical characteristics, <i>n</i> = 12		
Surgery type		
Open	5	42.0
Robotic	7	58.0
Time elapsed since surgery (range 7–31 months); mean (SD), <i>n</i> = 12	19.8 months (7.3)	

One shared his experience as:

[At diagnosis]... he [urologist] said, go think about what you want to do, and he would recommend somebody later. The Kegel [exercise] worked for me. I would say my doctor... that's one of his big things. He'd say, I don't care how much you walk, just do something every hour, so that's why I said I'd walk around my house then I went further. He also encouraged me...just to move so you wouldn't get bed sores this sort of things...

Another revealed that his physician provided him with information on benefits of PA and how to manage his symptoms. He shared this as:

Potential side effects were disclosed to me; the potential for incontinence, the potential for

impotence...I don't know that specifically any doctor told me that exercise increases your circulation, increased circulation is going to help with the healing, and of course increased circulation also helps with your sexual function...I don't know that it was ever delivered to me like that.

On the other hand, more than half (8; 67%) of the participants reported there was no discussion between them and their physician on PA engagement. Participants shared their experience as:

The doctor told me everything [surgery] as to what to expect and what will happen... he didn't tell me that about [PA]...

...for me personally, the physician didn't say anything about the exercise and so forth...

Others noted that while their physicians did not prescribe any exercise program for them, they were aware of its importance and the impact it may have on them and their recovery.

...generally speaking, exercise is always the key to good health anyway regardless of prostate cancer or heart problems or high blood pressure or whatever the case may be.

...sometimes we know what we should do, but some people don't do it.

One participant also mentioned his belief that some men prefer "sedentary lifestyles." Others may understand the overall benefits of PA, but they are unaware of any specific correlates to their individual symptoms and survivorship. Another shared that his doctor never recommended any specific exercises or discussed physical activity following surgery because he was already in "great shape."

...he [urologist] said, you are in great shape, I don't see you have any problems after this. [But] it wasn't quite true.

### Perceived barriers to physical activity

Prostate cancer survivors' mentioned several barriers that impacted their ability to frequently perform any PA and/or engage in any social event after surgery. For all (100%), the most troublesome side effect of RP was urinary dysfunction and incontinence. Even though some shared that they were aware of the importance of PA, they just could not endure the frequent embarrassment from "leaking." As a result, they avoided engaging in certain activities or they would have to modify their routines in order to engage in desired activities. As some participants described:

... [My] biggest barrier was that incontinence thing... going to the gym... and having an accident that was kind of detrimental to going back. I'm not going to lie that was the biggest problem having an accident.

... [PA] improves urinary and sexual function but I would always be embarrassed when I'd have to raise my leg to put on my socks, here come the piss. That's embarrassing to see a puddle of water there where it shouldn't be...

... I practiced going to the bathroom before you leave home. Regardless, sometimes after a while I still may need to go... you don't want to embarrass yourself out there.

Comorbidities like heart disease and neuropathy were also emphasized as concerns. Participants discussed their comorbidities as additional barriers to engaging in PA.

I have a hard time even walking because I've got neuropathy.

I can't do that much physical exercise [because of] the stents in my heart and my incontinence.

Despite acknowledging the benefits of PA, some participants blamed time constraints due to family and very busy work schedules for their reduced activity levels. This time barrier may also describe the priorities and motivation for engaging in physical activity post-RP. As some participants shared:

...it's more scheduling [because of] the kids.

Well, I don't have time like I used to have, I am busy [to exercise]. I have got a heavy schedule.

I need to do a lot of things, but I just have to make the time to go do it.

### Meaning of normalcy post-surgery

Survivors expressed that they faced difficult physiological issues such as urinary incontinence and loss of sexual function which affected their quality of life. Although quality of life and "normal" can be defined differently from individual-to-individual, all participants (100%) agreed that returning to a "normal, healthy, and regular routine" was very important to them after surgery. One participant shared this:

Normalcy for me was just being able to do normal things such as sleep on your stomach, sleep on your side, turn over, and turn while you sleep. Be able to get out of bed without feeling like you are going to draw blood through your urine or have blood in your urine. Being able to find that optimal amount of water that you can drink to keep from having to not make it to the bathroom quick enough. Trying to overcome constipation...

Others also expressed normal meant being able to "freely" engage with family and friends, exercise, regain strength, overcome urinary dysfunction, and enjoy sex.

...just to get back out, mingle with the family and just get back to life...

These activities were described by participants as normal, important activities and the physical symptoms causing barriers to these activities were high priorities for them to address in order to get back to normal.

... I want to get back to where I felt like I was fit and strong. So, my goal was to start working out again... I mean having sex was a priority because I enjoy sex, so that was a priority for me. And so being fit and been able to have sexual function again. Those are my priorities, and of course not leaking.

...to be able to get on a regular routine of walking, being able to sit in a chair...

### Resources prostate cancer survivors' seek during diagnosis and treatment

To deal with their diagnosis and treatment, a variety of approaches/resources were used by participants. Some mentioned "listening carefully" to their physicians, seeking out trustworthy providers/second opinion, and sharing the diagnosis with other survivors who had "experienced" the same diagnosis at "support groups" and "neighbors." Participants valued discussions with physicians and others who had gone through similar health experiences. As participants stated:

Mostly from [urologist] and prostate cancer [survival group] and the internet.

...my [team of healthcare providers]. I listened really carefully to them, went to prostate cancer support meetings which were held monthly, I spoke in confidence with men who had undergone the surgery.

I did some research for the most part, but [most] came from my neighbor [who] had gone through it

A number of participants also revealed that they used "internet" resources such as "WebMD" and "Google" and others referenced "books" from the library.

...I went to library and got books on it... I just chose to research before I made my decision and once I made my decision that was it. You know, the internet, library...

Internet and books seemed to supplement conversations with valued individuals, as one participant described:

I got a bunch information [from] the National Cancer Institute, Siteman, books, Google and WebMD... and of course I asked people who had already been through it.

## Discussion

Cancer diagnosis and treatment is usually considered a traumatic experience with an intense impact on all aspects of life. In addition, the recovery period following surgical treatment can involve a series of adjustments and changes to effectively deal with the physical symptoms and treatment side effects. Maintaining regular physical activity is recognized as an important public health concern [3]. Given the established benefits of participation in regular physical activity and the current high prevalence of obesity and sedentary lifestyle, the current study used a qualitative approach to shed light on the importance of healthcare providers' prescription of exercise and physical activity for African-American prostate cancer survivors. This study adds to the growing literature around African-American men's physical activity [28–30]. Specifically, by broadcasting patients' desires for physician-prescribed PA and suggesting physicians place more importance on PA during recovery and survivorship for better adherence. This has clear and important implications for clinical practice as the number of survivors is growing and survivors are living longer.

Previous research revealed that healthcare providers have a great influence on patients' attitudes towards disease management, regimen, beliefs, and general behavioral lifestyle changes [8, 9]. In spite of the proven advantages associated with physical activity for cancer patients, it was apparent from the findings that only a few physicians engaged in some discussion regarding physical activity and prostate cancer care and survival. Physicians engaging in communication in this context refers to discussion or exchange of information between healthcare providers and patients on the importance of engaging in physical activity and recommendations on the type of exercise deemed to be appropriate for each prostate cancer survivor. Most participants reported that their physicians did not communicate/share this information. Additionally, participants shared that they valued information about physical activity from physicians. Participants also described the benefit of specific physical activity recommendation to address specific symptoms. These results further support the importance of physicians discussing PA with patients going through RP. These findings reinforce the need for every care provider to include physical activity prescription in their discussion during oncological visit with their patients.

This study highlights some of the consequential complications of undergoing RP. Conditions like uncontrollable urinary and sexual dysfunction appeared to be barriers to engaging in physical activity. Participants described anxiety, distress, and frustration concerning "embarrassment" they had to endure in public which prevented them from engaging in physical activity despite the perceived benefits. This may provide a partial explanation for why these men were seeking conversations



with physicians and others who had undergone similar health experiences since these were sensitive and “embarrassing” topics to discuss. Also, even though some men were convinced that physical activity is an important factor in preventing and treating illness, many revealed that family and work commitments often were major challenges limiting them from being physically active. This finding is consistent with previous results which revealed that time constraints prevented many prostate cancer survivors from engaging in regular physical activity [31–33].

Similarly, survey of 452 recently diagnosed breast and prostate cancer survivors to evaluate their concerns with physical activity reported that the biggest barriers for survivors were “being too busy” and/or “having no willpower” to engage in physical activity [33]. The time constraints as a barrier also suggest that physical activity interventions should, ideally, be best designed and implemented to be conveniently incorporated into their daily life [31–33]. For instance, strategies such as enabling walking by promoting walkable neighborhoods, improving infrastructures to provide free or low-cost recreational facilities, and designing cancer survivor-specific wellness programs that support comprehensive care to improve their survival. Additionally, educational efforts are needed to shift the social norm on lifestyle towards being active among African-American prostate cancer survivors. Finally, recommendations for specific exercises to address specific post-RP symptoms are important to men as they are transitioning back into their regular routines. In the future, studies looking into priorities and motivation may support the design of physician led interventions to support physical activity following RP.

### Limitations

The main limitation of this study is that the experiences associated with these men may not reflect the experiences of all African-American prostate cancer survivors; hence, these findings may not be generalizable to all. In addition, the study included the small sample size. One of the challenges as a researcher is to reach the study participants who are difficult to access, especially due to mistrust and history of documented research abuses of African-Americans. Nevertheless, the small sample size is consistent with previously reported difficulties associated with minority participant recruitment [34]. Further, using a focus group design generated rich and thorough discussion for data analysis, enabling thematic saturation. Given the paucity of study on this topic, the present findings provide a foundation for further understanding of the importance of healthcare professionals’ prescription of physical activity for African-American prostate cancer

patients, a high risk population, and emphasize the need for additional inquiry into this area.

### Conclusion

Understanding cancer diagnosis and treatment options is a very stressful journey for cancer patients and survivors, complicated by fear, anxiety, grief, and many emotional issues. This study enhances understanding of health communication between healthcare providers and African-American prostate cancer patients regarding physical activity prescription and its impact on recovery and survival. It is clear from these findings that transitioning from post-RP treatment to “normal life” was an important concern to survivors. Routine participation in physical activity has been reported to improve survival among cancer patients. Given the established evidence that provider-patient communication enhances adherence to care plans, it should be recommended that physicians and other healthcare providers discuss and prescribe exercise/physical activity. Results may aid in the future design of larger-scale interventions to better facilitate physician patient PA communication and thereby increase patients’ PA awareness, adherence, and overall quality of life.

**Acknowledgements** The authors are sincerely grateful to all participants who made this study possible by sharing their wonderful experiences.

### Compliance with ethical standards

**Source of funding** The PIE study is supported by the Transdisciplinary Research on Energetics and Cancer (TREC) Center at Washington University in St. Louis. The TREC Center is funded by the National Cancer Institute at NIH (U54 CA155496), Washington University School of Medicine in St. Louis, and the Alvin J. Siteman Cancer Center. Drs. Colditz and Drake are supported by funding from the National Cancer Institute at NIH (1U54CA153460-01).

**Conflict of interest** The authors declare that they have no competing interests.

**Ethical approval** All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional review board of the Washington University in St. Louis School of Medicine.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

**Open Access** This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, distribution, and reproduction in any medium,

provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

## References

- American Cancer Society (2014) Cancer treatment and survivorship facts and figures 2014–2015. American Cancer Society, Atlanta, GA
- Brawley OW (2012) Prostate cancer epidemiology in the United States. *World J Urol* 30(2):195–200
- McCabe MS, Bhatia S, Oeffinger KC, Reaman GH, Tyne C, Wollins DS et al (2013) American Society of Clinical Oncology statement: achieving high-quality cancer survivorship care. *J Clin Oncol* 31(5):631–640
- Graefen M, Schlomm T (2012) Is radical prostatectomy a useful therapeutic option for high-risk prostate cancer in older men? *Oncologist* 17(suppl 1):4–8
- Galvao D, Nosaka KK, Taaffe D, Kristjanson L, McGuigan M, Suzuki K et al (2006) Resistance training and reduction of treatment side effects in prostate cancer patients. *Med Sci Sports Exerc* 38(2):2045–2052
- Mayer DK, Terrin NC, Kreps GL, Menon U, McCance K, Parsons SK et al (2007) Cancer survivors information seeking behaviors: a comparison of survivors who do and do not seek information about cancer. *Patient Educ Couns* 65(3):342–350
- Stovall E, Greenfield S, Hewitt M (2005) From cancer patient to cancer survivor: lost in transition. National Academies Press, Washington, DC
- DiMatteo MR (2003) Future directions in research on consumer-provider communication and adherence to cancer prevention and treatment. *Patient Educ Couns* 50(1):23
- Trudel JG, Leduc N, Dumont S (2014) Perceived communication between physicians and breast cancer patients as a predicting factor of patients' health-related quality of life: a longitudinal analysis. *Psycho-Oncology* 23(5):531–538
- Elder K, Ramamonjiravelo Z, Wiltshire J, Piper C, Horn WS, Gilbert KL et al (2012) Trust, medication adherence, and hypertension control in southern African American men. *Am J Public Health* 102(12):2242–2245
- Fagerlind H, Lindblad ÅK, Bergström I, Nilsson M, Nauclér G, Glimelius B et al (2008) Patient-physician communication during oncology consultations. *Psycho-Oncology* 17(10):975–985
- Fallowfield LJ (2008) Treatment decision-making in breast cancer: the patient-doctor relationship. *Breast Cancer Res Treat* 112(1):5–13
- Culos-Reed S, Robinson J, Lau H, O'Connor K, Keats M (2007) Benefits of a physical activity intervention for men with prostate cancer. *Journal of Sport & Exercise Psychology* 29(1):118–127
- Culos-Reed SN, Robinson JW, Lau H, Stephenson L, Keats M, Norris S et al (2010) Physical activity for men receiving androgen deprivation therapy for prostate cancer: benefits from a 16-week intervention. *Support Care Cancer* 18(5):591–599
- Taylor CLC, de Moor C, Smith MA, Dunn AL, Basen-Engquist K, Nielsen I et al (2006) Active for Life After Cancer: a randomized trial examining a lifestyle physical activity program for prostate cancer patients. *Psycho-Oncology* 15(10):847–862
- Friedenreich CM, Wang Q, Neilson HK, Kopciuk KA, McGregor SE, Courneya KS (2016) Physical activity and survival after prostate cancer. *Eur Urol* 70(4):576–585
- Kenfield SA, Stampfer MJ, Giovannucci E, Chan JM (2011) Physical activity and survival after prostate cancer diagnosis in the health professionals follow-up study. *J Clin Oncol* 29(6):726–732
- Bourke L, Smith D, Steed L, Hooper R, Carter A, Catto J et al (2016) Exercise for men with prostate cancer: a systematic review and meta-analysis. *Eur Urol* 69(4):693–703
- Rock CL, Doyle C, Demark-Wahnefried W, Meyerhardt J, Courneya KS, Schwartz AL et al (2012) Nutrition and physical activity guidelines for cancer survivors. *CA Cancer J Clin* 62(4):242–274
- Anast JW, Sadetsky N, Pasta DJ, Bassett WW, Latini D, DuChane J et al (2005) The impact of obesity on health related quality of life before and after radical prostatectomy (data from CaPSURE). *J Urol* 173(4):1132–1138
- Smith WA, Nolan VG, Robison LL, Hudson MM, Ness KK (2011) Physical activity among cancer survivors and those with no history of cancer—a report from the National Health and Nutrition Examination Survey 2003–2006. *Am J Transl Res* 3(4):342
- Prochaska J, DiClemente C (1983) Stages and processes of self-change in smoking: toward an integrative model of change. *J Consult Clin Psychol* 5:390–395
- Woods C, Nutrie N, Scott M (2002) Physical activity intervention: a transtheoretical model-based intervention designed to help sedentary young adults become active. *Health Education Research Theory and Practice* 17(4):451–460
- Creswell JW (2012) Qualitative inquiry and research design: choosing among five approaches. SAGE publications, London
- Kvale S, Brinkmann S (2009) Interviews: learning the craft of qualitative research interviewing. EUA, SAGE Publications
- Seidman I (2013) Interviewing as qualitative research: a guide for researchers in education and the social sciences. Teachers college Press, New York
- Bernard HR (2011) Research methods in anthropology: qualitative and quantitative approaches. Rowman Altamira Press, New York
- Griffith DM, Allen JO, Johnson-Lawrence V, Langford A (2013) Men on the move: a pilot program to increase physical activity among African American men. *Health Educ Behav*:1090198113496788
- Griffith DM, King A, Allen JO (2013) Male peer influence on African American men's motivation for physical activity: men's and women's perspectives. *Am J Mens Health* 7(2):169–178
- Newton RL, Griffith DM, Kearney WB, Bennett GG (2014) A systematic review of weight loss, physical activity and dietary interventions involving African American men. *Obes Rev* 15:93–106
- Craike MJ, Hose K, Courneya KS, Harrison SJ, Livingston PM (2013) Perceived benefits and barriers to exercise for recently treated patients with multiple myeloma: a qualitative study. *BMC Cancer* 13(1):319
- Ottensbacher A, Day RS, Taylor W, Sharma S, Sloane R, Snyder D et al (2011) Exercise among breast and prostate cancer survivors—what are their barriers? *J Cancer Surviv* 5(4):413–419
- Ottensbacher A, Sloane R, Snyder DC, Kraus W, Sprod L, Demark-Wahnefried W (2013) Cancer-specific concerns and physical activity among recently diagnosed breast and prostate cancer survivors. *Integrative cancer therapies* 12(3):206–212
- Shavers-Homaday VL, Lynch CF, Burmeister LF, Torner JC (1997) Why are African Americans under-represented in medical research studies? Impediments to participation *Ethnicity & health* 2(1–2):31–45