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A Qualitative Exploration of the Experience of Men With Prostate Cancer Involved in Supervised Exercise Programs

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he diagnosis and treatment of prostate cancer is associated with significant physical and psychological sequelae that compromise quality of life. Men treated with mainstay therapies may experience some of the following side effects depending on the treatment that is provided: sexual dysfunction (Higano, 2012; Ng et al., 2012; Resnick et al., 2013; Sanda et al., 2008), urinary incontinence (Resnick et al., 2013; Sanda et al., 2008), fatigue (Pachman, Barton, Swetz, & Loprinzi, 2012), psychological distress (De Sousa, Sonavane, & Mehta, 2012; Krumwiede & Krumwiede, 2012; Saini et al., 2013), negative body composition changes (Galvão et al., 2008; Hamilton et al., 2011; Smith et al., 2012; Spry et al., 2013) that contribute to body image concerns (Harrington, Jones, & Badger, 2009), accelerated loss of bone mineral density (Galvão et al., 2008; Spry et al., 2009), reduced physical function (Alibhai et al., 2010; Galvão et al., 2009), and increased risk of comorbid conditions, such as cardiovascular disease, diabetes, metabolic syndrome, and osteoporosis (Braga-Basaria et al., 2006; Harrington, Schwenke, Epstein, & Bailey, 2014; Levine et al., 2010; Shahinian, Kuo, Freeman, & Goodwin, 2005). These issues significantly compromise quality of life for the patient (Alibhai et al., 2010; Spry et al., 2006) and his partner (Harden et al., 2013).

In the past decade, considerable clinical research has established the efficacy of exercise in counteracting many of the adverse treatment-related side effects of prostate cancer. Significant improvements have been noted in sexual dysfunction, fatigue, depression, anxiety, body composition, physical function, and quality of life through interventions involving appropriate exercise prescriptions (i.e., moderate- to vigorous-intensity aerobic and resistance exercise); reductions in the risk of developing comorbid conditions have been observed as well (Cormie, Galvão, Spry, Joseph, Chee, et al., 2014; Cormie, Galvão, Spry, Joseph, Taaffe, et al., 2014; Cormie, Newton, Spry, et al., 2013; Cormie, Newton,

Purpose/Objectives: To provide an in-depth description of the experience of supervised exercise programs among men with prostate cancer and to identify elements critical to optimizing engagement and ongoing exercise participation.

Design: Descriptive, qualitative.

Setting: A tertiary exercise oncology center in Perth, Australia.

Sample: 12 men with prostate cancer participating in a structured, clinic-based group exercise program supervised by accredited exercise physiologists.

Methodologic Approach: Participants completed a demographic and health history questionnaire and a semistructured interview. Thematic content analysis was performed.

Findings: Participants described physiological and psychological health benefits, which reduced treatment-related side effects and positively affected self-efficacy, and identified exercise physiologists as providing information about the importance of exercise, as well as practical, emotional, and social support. Peer support encouraged discussion of shared experiences and a sense of social connection.

Conclusions: Results from the current study expand on existing quantitative data to provide evidence of psychosocial benefits among men with prostate cancer involved with supervised exercise programs. The data provide insight into the components of exercise programs that can form a framework for the development of effective supportive care programs.

Interpretation: Involvement in a structured, clinic-based group exercise program provides men with prostate cancer with considerable benefits. Supervision by qualified exercise physiologists and incorporation of a group approach are critical components of maximizing those benefits.

Key Words: exercise; prostate cancer; supportive care; survivorship care

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Taaffe, Spry, & Galvão, 2013; Cormie, Newton, Taaffe, Spry, Joseph, et al., 2013; Galvão et al., 2013; Galvão, Taaffe, Spry, Joseph, & Newton, 2010; Segal et al., 2003, 2009). The strength of evidence regarding the efficacy of exercise in counteracting side effects that result from androgen deprivation therapy (ADT) has led to its

recognition as a management strategy within clinical guidelines (Ahmadi & Daneshmand, 2013; Heidenreich et al., 2013). Expanding on clinical data, epidemiologic research suggests that habitual exercise also has a protective effect against death from prostate cancer. Men who regularly exercise at a vigorous intensity have a 61% lower risk of prostate cancer mortality (hazard ratio = 0.39, 95% confidence interval [0.18, 0.84], p = 0.03) (Kenfield, Stampfer, Giovannucci, & Chan, 2011).

Despite these established benefits of exercise, the majority of men with prostate cancer do not reach the levels of exercise recommended by the American Cancer Society (i.e., at least 150 minutes of aerobic exercise and two or three resistance exercise sessions weekly) (Rock et al., 2012). About 60% of prostate cancer survivors do not perform sufficient aerobic exercise (Blanchard, Courneya, & Stein, 2008). The prevalence rates for participation in resistance exercise are currently unknown, but the likelihood of prostate cancer survivors' meeting resistance exercise guidelines is low; data involving people without cancer indicate that more than 90% of Australians older than 55 years and 85% of Americans older than 45 years do not participate in sufficient resistance exercise (Humphries, Duncan, & Mummery, 2010; Kruger, Carlson, & Kohl, 2006). In contrast to these high rates of inactivity, the majority of men with prostate cancer who are undergoing ADT express a willingness to participate in exercise programs (Harrington, Schwenke, & Epstein, 2013). These data highlight a gap in supportive care practice and identify a paucity of knowledge regarding effective methods to engage men in long-term exercise participation.

Given the potential of appropriate exercise to provide considerable physiologic and psychological benefit, a pressing need to facilitate enhanced exercise participation among men with prostate cancer exists. To date, no data provide insight into the experiences of men involved in exercise programs and their motivations for continued participation. Therefore, the purpose of this study is to provide an in-depth description of the experience of exercise programs among men with prostate cancer and to identify elements critical to optimizing patient engagement and ongoing exercise participation.

Methods

Through semistructured interviews, the authors were able to explore the experiences of men with prostate cancer who were involved with a supervised exercise program. An interpretative phenomenologic framework was applied with the aim of capturing the lived experience of the participants (Smith & Osborn, 2013). Twelve men with a histologic diagnosis of prostate cancer participated in this study (see Table 1). Purposive sampling was used to recruit men from the

Edith Cowan University Health and Wellness Institute in Perth, Australia. Sampling continued until data saturation occurred during the semistructured interviews. Participants had been involved for a minimum of three months with a structured, clinic-based group exercise program that featured aerobic and resistance exercise and was supervised by accredited exercise physiologists. The program involved twice-weekly, hourlong exercise sessions that were performed in groups of as many as 10 men with prostate cancer. The exercise physiologists had experience working with patients with prostate cancer; each had a four-year university degree in exercise science and rehabilitation and were accredited as allied health professionals. The exercise physiologists were familiar with the latest research concerning exercise and prostate cancer as a result of their ongoing training and experience within the health and wellness institute. Participants were referred by their attending specialist to participate in the program. This protocol was approved by the Edith Cowan University Human Research Ethics Committee, and all participants provided written informed consent.

Procedure

Before taking part in a semistructured interview with open-ended questions, each participant completed a

Table 1. Sample Characteristics (N = 12)			
Characteristic	$\overline{\mathbf{x}}$	SD	
Age (years)	75.3	4.5	
Body mass index (kg/m ²)	29	3.1	
Number of comorbidities ^a	0.5	0.7	
Number of medications	2.5	2.5	
Time since prostate cancer diagnosis (years)	6.4	4.1	
Length of androgen deprivation therapy (months)	17	6.5	
Length of exercise program involvement (months)	6	3.1	
Characteristic		n	

Characteristic	n
Married	10
Tertiary education	3
Androgen deprivation therapy history	
Current	7
Previous	5
Other treatment history	
Previous radiation therapy	12
Previous prostatectomy	3
Previous chemotherapy	_
Physical activity level prior to exercise program	
Met physical activity guidelines ^b	4
Did not meet physical activity guidelines	2
Sedentary	6

^a Cardiovascular disease, hypertension, diabetes, osteoporosis, and dyslipidemia

^b Meeting physical activity guidelines is reflective of a self-reported physical activity level of at least 150 minutes of moderate-intensity aerobic exercise weekly.

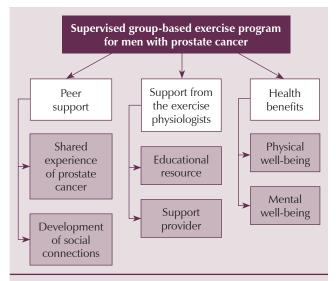


Figure 1. Superordinate Themes and Subthemes of the Experience of Men With Prostate Cancer Involved With a Supervised Exercise Program

questionnaire that provided demographic and health history information. The interview consisted of four primary questions designed to encourage participants to speak freely about their experience with minimal interruption or influence. A series of related prompts were used to elicit more detailed information from participants when needed. The primary questions were (a) Can you tell me about your experience with the exercise program?; (b) What has been your view about taking part in the exercise program?; (c) Can you tell me about the exercise physiologists (i.e., the staff and trainers)?; and (d) Can you tell me about the other participants? Interviews lasted, on average, 60 minutes (range = 37–85 minutes) and were performed by a single researcher who had no prior involvement with the participants. The face-to-face interviews were recorded and transcribed verbatim for detailed content analysis. The interviewer maintained a journal of field notes detailing observations.

Data Analysis

A qualitative content analysis of the interview transcripts was performed. The coding approach involved a continual reviewing process with overarching superordinate themes identified from component themes through an iterative process (Elo & Kyngäs, 2008). Each transcript was systematically coded by one researcher to identify responses that described participants' experience with the exercise program and representative quotes. Two additional researchers conducted an independent review (Elliott, Fischer, & Rennie, 1999). Any discrepancies were resolved through verification of transcript data. Member checking was performed on a subset of five participants to confirm the accuracy of analysis.

Results

Three superordinate themes emerged from the analysis: (a) health-related benefits, (b) support from the exercise physiologists, and (c) peer support. The overarching theme that emerged from the analysis was the contributory role of the exercise physiologist in helping participants to attain significant health-related benefits and in facilitating a supportive group environment (see Figure 1). Figure 2 lists these superordinate themes and subthemes, along with exemplar quotes supporting the latter.

Health-Related Benefits

Participants identified experiencing considerable health-related benefits as a result of participation in the program. Descriptions of these benefits emerged within two main subthemes: benefits to their physical well-being and benefits to their mental well-being.

Physical well-being: Men reported experiencing significant improvements in their physical capabilities following participation in the supervised exercise program. In addition to identifying noticeable changes, such as feeling fitter, stronger, leaner, and more muscular, men perceived the exercise program to be positively influencing their overall health. Participants discussed improvements in comorbid conditions, as well as their perceived reduction in the risk of developing other chronic diseases. Participants noted the role of exercise in minimizing treatment-related side effects associated with their prostate cancer treatment, particularly ADT. In addition, men linked participation in the exercise program with enhanced cancer control. These observations were reported as significantly motivating the men's continued participation in the exercise program. Acknowledgement of the importance of exercise by the participants' healthcare providers, as well as positive feedback from their family and friends, were viewed as other factors that contributed to continued engagement with the exercise program.

Mental well-being: Participants identified a range of elements regarding the positive psychological impact of participating in the supervised exercise program. Prior to involvement in the program, men noted a focus on their prostate cancer and on the detrimental side effects of treatment, which was associated with poor mood and a general lack of motivation. Participation in the exercise program prompted a noticeable shift to a positive outlook and the desire to engage more actively in everyday life. Not only did the exercise sessions provide men with a constructive activity to look forward to, but they also facilitated considerably improved self-efficacy. Men reported feeling empowered through participation, which improved their confidence and helped them to gain

Health-Related Benefits

Physical well-being

- "The main thing to me was the fact that, physically, you felt better, and it was good to
 know that my doctor recognized or seemed to accept that exercise was being helpful
 to recovering and keeping disease and mental things at bay. And I'm sure it is."
- "If I compare myself to my friends of a similar age and younger, I see that I am so much fitter and more capable of physical stuff than they are."
- "I mean, I realize that this exercise is doing me good and probably keeping the cancer somewhat at bay. . . . I think it has some use there at some level; that's why I'm quite happy to come along and do it."

Mental well-being

- "Well, you felt better in yourself. There was a bit less hanging over your belt but also
 within yourself. Psychologically, I suppose that is really . . . it's difficult to explain.
 [You feel] a bit more positive about things, I think."
- "Yeah, 'the big C,' but once you got over that and being very tired and that . . . I was starting to get to a stage where I didn't want to do anything, and then I got put into this program. So I started coming here, and it lifted me out of that and got me going, livened me up a bit."
- "It helped increase confidence in my ability and encouraged me to continue on. I
 felt I was doing something for myself that made me feel better within myself."

Support From the Exercise Physiologists

Educational resource

- "They knew what was going on. They knew what was required, and they were able to impart their knowledge, and, yeah, I found them excellent."
- "I am quite confident in the instructors. As I say, they are all very explanatory. If I ask them, 'What the hell am I doing this for?' they will tell me."
- "But, more importantly, you were on a program where the exercises were set for you by the people who know what they are doing."

Support provider

- "I thought, well, they have my interests at heart. They are not just here to watch to see I don't hurt myself."
- "It is just that everyone in the gym up there, all the ones in charge and that, are so
 very friendly and very nice people. And they can't do enough for you, you know,
 when you're going up there."
- Common descriptors included "encouraging," "supportive," "friendly," "approachable," "caring," "interested in me," "knowledgeable," and "tolerant of us old guys."

Peer Support

Shared experience of prostate cancer

- "You've got these people coming together with this shared background in terms of what you were going through or what has happened, and so you swap stories about that."
- "You were all there for the same reasons, really, and you got to know a couple of them
 and just chatted, you know, and that sort of business. You're not alone."
- Common descriptors included "feeling a bond with the other group members," "share similar concerns," "swap stories," "provide support," and "they were interested in and cared about me."

Development of social connections

- "It is just a nice bunch of people, and I suppose that's the motivation. Well, I want to do
 the gym but also because I want to meet up. You start caring about people who haven't
 come. Like, a couple of chaps there, I haven't seen them in a while, so I rung them up
 and said, 'How you doing?' and, 'Are you going to come back to the gym?'"
- "Well, it is just the way they talk to you. And I don't mean specifically about what you
 were doing, or what your problems were. It was just a socially positive environment."
- "I think it is nice to be able to go into the gym and say 'hello' by the person's first name because you feel as though the person, he cares about me or something like that."

Figure 2. Exemplar Quotes Supporting Identified Subthemes

a sense of purpose and control. One participant who admitted to having an extensive medical history said, "You're in control of your body, you're working your body hard, and you're in control. ... Just to feel that I can still do all this [exercise]. I can still work."

Men frequently noted feelings of achievement and satisfaction attained from exceeding previous capabilities and reaching targets they once thought were impossible.

Support From the Exercise Physiologists

Participants consistently highlighted the pivotal role that the exercise physiologists played in the success of the exercise program and in shaping participants' experience. Their contributions to that experience can be categorized into two main subthemes: serving as an educational resource and serving as a support provider.

Educational resource: Many participants identified the competencency of the exercise physiologists and their knowledge of exercise and the role of exercise in the management of prostate cancer. This expertise instilled confidence in the participants. Men recognized that the exercise physiologists would prevent them from attempting any unsafe practices and instruct them in a manner that would help them attain the most benefit from the program. The ability of the exercise physiologists to communicate to the participants the importance of their exercising and the impact it may have on them and their prostate cancer was a key positive feature of the program. Exercise physiologists shared information in a nonjudgmental and confident manner, and they were willing to discuss any aspect of exercise that participants requested. Participants then developed a clear understanding of the value of exercise in the management of prostate cancer and in enhancing their general health.

Support provider: Participants reported that the exercise physiologists provided significant practical, emotional, and social support because they were able to create strong connections with participants through several key actions. Predominately, the exercise physiologists were caring, and they made participants feel valued and worthy by showing a genuine interest in them and their well-being. Beyond providing technical instruction and encouraging participants to complete their exercises, the exercise physiologists developed a good rapport with participants by engaging in general conversations and using humor. They also were approachable and friendly, and participants felt supported by them. Participants not only identified feeling individually supported by the exercise physiologists, but also that they contributed to the overall group dynamic and facilitated a positive environment for everyone. Support provided by the exercise physiologists motivated participants' attendance and enhanced their compliance with the prescribed exercise regimen.

Peer Support

Participants reported the existence of considerable peer support in the prostate cancer–specific group environment of the supervised exercise program. From that, two subthemes emerged: the shared experience of prostate cancer and the development of social connections with fellow group members.

Shared experience of prostate cancer: Participants explained that the ability to connect with other men who have prostate cancer was valuable and that they viewed one another as important sources of support. Men were able to relate to one another by sharing their concerns and discussing factual information about prostate cancer. Commonalities shared with other group members facilitated the development of a bond among participants. Even men who refrained from discussing their own experiences reported benefitting from other group members openly discussing their concerns. Humor was identified as an element that contributed to the fostering of a supportive environment; participants indicated that disclosing difficult information or concerns was facilitated through the use of jokes and lighthearted banter. The casual, activity-based environment of the exercise clinic further facilitated discussions about participants' experiences with prostate cancer and treatment.

Development of social connections: The supportive group dynamic was further enhanced by participants' commonalities in terms of stage-of-life issues and similar interests and experiences. Humor and the casual but activity-based environment were identified as key factors in creating the positive social atmosphere

that facilitated interactions among participants. The opportunity for participants to relate to fellow group members beyond the shared experience of prostate cancer was viewed as important. Collectively, these elements led to the development of valued social connections that extended beyond the supervised exercise sessions to interactions outside of the program. Men noted the development of strong camaraderie with other participants, which motivated participants' continued engagement with the program.

Vignettes

Vignettes were developed from two exemplar interviews that yielded dichotomous accounts of the importance of various themes in driving participants' ongoing involvement with the supervised exercise program. In all cases, support provided by the exercise physiologists contributed to participants' motivation to continue exercising. For some men, the health-related benefits provided the primary reason for continued involvement with the exercise program, whereas for others, peer support was the main factor that motivated ongoing participation. These cases provide examples of the two viewpoints. To maintain confidentiality, pseudonyms are used.

Health-Related Benefits

F.C., a 69-year-old man who had participated in the program for six months, recounted his experiences with the program as "great" and identified participation in the program as "important for health reasons." F.C. said he believes that participating in the program is important and "feels it is doing [him] good." He was "surprised about what [he] could do" after he became involved with the program, particularly because of his history of illness and poor health. F.C. highlighted that improvement in his physical capabilities, such as the "amount of weight [he] could push," had led to increased "confidence in [his] ability," which, in turn, "encouraged [him] to continue." He experienced a "sense of achievement" and felt as though he "was doing something for" himself; this made him "feel better within" himself. F.C. mentioned that the humor used by group members and their being "people from [his] own vintage" contributed to a "pleasant environment." However, the positive health benefits brought about by the exercise were his primary motivation for continuing with the program.

Peer Support

S.B., a 75-year-old man who had participated in the program for three months, described his experience with the program as "brilliant." He reported that he could "feel the benefits of the exercise," and that he was

"feeling fitter" and "thinking more positively about things." S.B. highlighted the significance of his interactions with the other men involved in the program. He indicated "feeling a bond with the other group members" because not only did he "get on well with the others," but he also felt that "they were interested in and cared about" him. S.B. said that humor and participants' ability to "share similar concerns," such as their prostate cancer, generational experiences, or common stage-of-life events, were important in creating a "meaningful social connection with the others" in the group. Participants' being able to "swap stories" and "provide support" had "made it more pleasurable to attend" the program. S.B. reported that his social connection with the other men in the group was the main motivation for his continued involvement.

Discussion

The primary findings of this investigation were that men involved in a structured, clinic-based group exercise program supervised by exercise physiologists reported considerable physiologic, psychological, and social benefits. Supervision by qualified exercise physiologists and the incorporation of a prostate cancer–specific group approach were identified as critical components of maximizing participants' physical and psychosocial benefits and their ongoing participation in the program.

Consistent with previous clinical research, this study revealed that men with prostate cancer identified significant improvements in their physical and mental health following regular participation in a supervised exercise program. These improvements, which facilitated favorable attitudes toward exercise and increased self-efficacy, were central to promoting long-term adherence to the program (Courneya et al., 2012). The current study extends the existing literature to identify the considerable psychosocial benefits that result from participation in supervised exercise programs and the key role of support in motivating ongoing exercise participation. Significant practical, emotional, and social support was provided by the group of peers participating in the program and by the exercise physiologist supervising the sessions. Such support helps participants to deal with the major life stress that cancer poses, and it has also been recognized as a positive influence on long-term exercise behavior (Resnick, Orwig, Magaziner, & Wynne, 2002). Beyond the shared experiences of prostate cancer and stage-of-life issues, two additional elements facilitating the support provided by the supervised exercise program were identified. First, humor was used to break down the barriers created by stoic tendencies common among men (Oliffe, Ogrodniczuk, Bottorff, Hislop, & Halpin, 2009), and it provided a tool that facilitated a comfortable level of disclosure by group members (Thorson, Powell, Sarmany-Schuller, & Hampes, 1997). Second, the exercise physiologist played a key role in providing support and facilitating a cohesive group environment. This is consistent with findings that show effective group leadership to be an essential component of successful prostate cancer support groups (Oliffe et al., 2008).

Salient throughout all themes identified in this study was masculinity. Masculine values are directly linked to men's poor health-related beliefs, lifestyle behaviors, and, in particular, low help-seeking behavior (Courtenay, 2000). Research has shown that even men who adopt healthful lifestyle behaviors construe directly talking or thinking about health as feminine and excessive (Sloan, Gough, & Conner, 2010). Men with prostate cancer often avoid accessing supportive care services because they do not want to seemingly defy traditional masculine characteristics, including strength, power, and independence (Courtenay, 2000). The dominance of feminized healthcare and health promotion discourse and practice (Gough, 2013) further accentuates men's reluctance to engage in supportive care services, particularly regarding psychosocial care (Galdas, Cheater, & Marshall, 2005). However, exercise represents an intervention that uniquely fits with traditional masculine characteristics, and is also action oriented and requires physical prowess. The authors' previous work has established that exercise reinforces masculinity in prostate cancer survivors through engagement in a masculine activity shared with other men (Hamilton, Chambers, Legg, Oliffe, & Cormie, 2014). The current study extends these findings to establish that the unique environment of a supervised exercise program provides considerable improvements in health and well-being, as well as extensive psychosocial support, in a manner that is highly acceptable to men with prostate cancer. These observations suggest that incorporating strategies within the design and delivery of supportive care services linked to masculine ideals are accepted by men and promote long-term engagement in positive lifestyle behaviors. Specifically, the support offered through exercising in a group or team of men with prostate cancer, facilitated by an exercise physiologist in the casual and positive social environment of a gym where humor is rife, is valued by men with prostate cancer, and it represents a source of motivation to engage in the exercise program in the long term. The significant physical and mental health improvements brought about through a supervised exercise program enhance men's feelings of competence, independence, and control, which provide strong motivation for continued exercise participation. Therefore, the incorporation of these elements into a supervised exercise program appears to provide a supportive

Knowledge Translation

Prostate cancer survivors identified considerable benefits to their physical, mental, and social well-being through involvement in a supervised, group-based exercise program.

Participation in such a program may facilitate long-term engagement in positive exercise behaviors.

Oncology specialists and nurses should couple a recommendation to exercise with a referral to a program that is supervised by a qualified exercise physiologist and incorporates a prostate cancer–specific group approach.

care service specifically tailored to men with prostate cancer that promotes long-term participation.

Limitations

The limitations involved with this study are worthy of comment. A female researcher conducted the interviews, and responses may have differed if participants had been speaking with a male researcher. The supervised exercise program in which participants were involved was subsidized as part of separate research trials. The participants were not required to pay to attend the exercise sessions, and financial constraints may have precluded original involvement in the program. However, the current study is the first to qualitatively investigate the experiences of men with prostate cancer involved in a supervised exercise program and their motivations for ongoing exercise participation.

Implications for Nursing

Given the range of benefits that are possible through appropriate exercise, nurses and other healthcare professionals should be aware of the exercise guidelines for people with cancer and recommend that patients work toward the goal of achieving at least 150 minutes of moderate-intensity aerobic exercise and two to three moderate-intensity resistance exercise sessions weekly (Rock et al., 2012). Nurses should seek out appropriate referral pathways for men with prostate cancer to facilitate their adherence with recommended exercise levels.

To achieve this and to maximize potential benefits to participants' physical, mental, and social well-being, the ideal referral would be to programs that involve supervision by a qualified exercise physiologist who is well informed about prostate cancer and a prostate cancer–specific group approach.

Conclusions

Results from the current study expand on existing quantitative data to provide evidence of the considerable physical and psychosocial benefits of supervised exercise programs among men with prostate cancer. The data offer insight into the components of exercise programs that can form a framework for the development of effective supportive care services that engage men in exercise and keep them participating in exercise. Clinical recommendations to exercise should be accompanied by a referral to a program that is supervised by a qualified exercise physiologist and incorporates a prostate cancer-specific group approach. These elements have been identified by men with prostate cancer as being critical to maximizing benefits and motivating ongoing exercise participation. This approach tailors supportive care services to men with prostate cancer by capitalizing on traditional masculine values to overcome poor lifestyle behaviors and low help-seeking behavior common among men.

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References

Ahmadi, H., & Daneshmand, S. (2013). Androgen deprivation therapy: Evidence-based management of side effects. *BJU International*, 111, 543–548. doi:10.1111/j.1464-410X.2012.11774.x

Alibhai, S.M., Breunis, H., Timilshina, N., Johnston, C., Tomlinson, G., Tannock, I., . . . Naglie, G. (2010). Impact of androgen-deprivation therapy on physical function and quality of life in men with nonmetastatic prostate cancer. *Journal of Clinical Oncology*, 28, 5038–5045. doi:10.1200/JCO.2010.29.8091 Blanchard, C.M., Courneya, K.S., & Stein, K. (2008). Cancer survivors' adherence to lifestyle behavior recommendations and associations with health-related quality of life: Results from the American Cancer Society's SCS-II. *Journal of Clinical Oncology*, 26, 2198–2204. Braga-Basaria, M., Dobs, A.S., Muller, D.C., Carducci, M.A., John,

Braga-Basaria, M., Dobs, A.S., Muller, D.C., Carducci, M.A., John, M., Egan, J., & Basaria, S. (2006). Metabolic syndrome in men with prostate cancer undergoing long-term androgen-deprivation therapy. *Journal of Clinical Oncology*, 24, 3979–3983.

- Cormie, P., Galvão, D.A., Spry, N., Joseph, D., Chee, R., Taaffe, D.R., . . . Newton, R.U. (2014). Can supervised exercise prevent treatment toxicity in prostate cancer patients initiating androgen deprivation therapy: A randomised controlled trial. *BJU International*. Advance online publication. doi:10.1111/bju/12646
- Cormie, P., Galvão, D.A., Spry, N., Joseph, D., Taaffe, D.R., & Newton, R.U. (2014). Functional benefits are sustained after a program of supervised resistance exercise in cancer patients with bone metastases: Longitudinal results of a pilot study. *Supportive Care in Cancer*, 22, 1537–1548. doi:10.1007/s00520-013-2103-1
- Cormie, P., Newton, R.U., Spry, N., Joseph, D., Taaffe, D.R., & Galvão, D.A. (2013). Safety and efficacy of resistance exercise in prostate cancer patients with bone metastases. *Prostate Cancer and Prostatic Diseases*, 16, 328–335. doi:10.1038/pcan.2013.22
- Cormie, P., Newton, R.U., Taaffe, D.R., Spry, N., & Galvão, D.A. (2013). Exercise therapy for sexual dysfunction after prostate cancer. *Nature Reviews*. *Urology*, 10, 731–736. doi:10.1038/ nrurol.2013.206
- Cormie, P., Newton, R.U., Taaffe, D.R., Spry, N., Joseph, D., Akhlil Hamid, M., & Galvão, D.A. (2013). Exercise maintains sexual activity in men undergoing androgen suppression for prostate cancer: A randomized controlled trial. *Prostate Cancer and Prostatic Diseases*, 16, 170–175.
- Courneya, K.S., Stevinson, C., McNeely, M.L., Sellar, C.M., Friedenreich, C.M., Peddle-McIntyre, C.J., . . . Reiman, T. (2012). Effects of supervised exercise on motivational outcomes and longer-term behavior. *Medicine and Science in Sports and Exercise*, 44, 542–549. doi:10.1249/MSS.0b013e3182301e06
- Courtenay, W.H. (2000). Constructions of masculinity and their influence on men's well-being: A theory of gender and health. *Social Science and Medicine*, 50, 1385–1401. doi:10.1016/S0277-9536(99)00390-1
- De Sousa, A., Sonavane, S., & Mehta, J. (2012). Psychological aspects of prostate cancer: A clinical review. Prostate Cancer and Prostatic Diseases, 15, 120–127. doi:10.1038/pcan.2011.66
- Elliott, R., Fischer, C.T., & Rennie, D.L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology*, 38, 215–229. doi:10.1348/014466599162782
- Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of Advanced Nursing*, 62, 107–115. doi:10.1111/j.1365 -2648.2007.04569.x
- Galdas, P.M., Cheater, F., & Marshall, P. (2005). Men and health help-seeking behaviour: Literature review. *Journal of Advanced Nursing*, 49, 616–623. doi:10.1111/j.1365-2648.2004.03331.x
- Galvão, D.A., Spry, N., Denham, J., Taaffe, D.R., Cormie, P., Joseph, D., . . . Newton, R.U. (2013). A multicentre year-long randomised controlled trial of exercise training targeting physical functioning in men with prostate cancer previously treated with androgen suppression and radiation from TROG 03.04 RADAR. European Urology, 65, 856–864. doi:10.1016/j.eururo.2013.09.041
- Galvão, D.A., Spry, N.A., Taaffe, D.R., Newton, R.U., Stanley, J., Shannon, T., . . . Prince, R. (2008). Changes in muscle, fat and bone mass after 36 weeks of maximal androgen blockade for prostate cancer. *BJU International*, 102, 44–47. doi:10.1111/j.1464-410X.07539.x
- Galvão, D.A., Taaffe, D.R., Spry, N., Joseph, D., & Newton, R.U. (2010). Combined resistance and aerobic exercise program reverses muscle loss in men undergoing androgen suppression therapy for prostate cancer without bone metastases: a randomized controlled trial. *Journal of Clinical Oncology*, 28, 340–347. doi:10.1200/JCO.2009.23.2488
- Galvão, D.A., Taaffe, D.R., Spry, N., Joseph, D., Turner, D., & Newton, R.U. (2009). Reduced muscle strength and functional performance in men with prostate cancer undergoing androgen suppression: A comprehensive cross-sectional investigation. *Prostate Cancer and Prostatic Diseases*, 12, 198–203. doi:10.1038/pcan.2008.51
- Gough, B. (2013). The psychology of men's health: Maximizing masculine capital. Health Psychology, 32, 1–4. doi:10.1037/a0030424

- Hamilton, E.J., Gianatti, E., Strauss, B.J., Wentworth, J., Lim-Joon, D., Bolton, D., . . . Grossmann, M. (2011). Increase in visceral and subcutaneous abdominal fat in men with prostate cancer treated with androgen deprivation therapy. *Clinical Endocrinology (Oxford)*, 74, 377–383. doi:10.1111/j.1365-2265.2010.03942.x
- Hamilton, K., Chambers, S.K., Legg, M., Oliffe, J.L., & Cormie, P. (2014). Sexuality and exercise in men undergoing androgen deprivation therapy for prostate cancer. *Supportive Care in Cancer*. Advance online publication. doi:10.1007/s00520-014-2327-8
- Harden, J., Sanda, M.G., Wei, J.T., Yarandi, H.N., Hembroff, L., Hardy, J., & Northouse, L. (2013). Survivorship after prostate cancer treatment: Spouses' quality of life at 36 months. *Oncology Nursing Forum*, 40, 567–573. doi:10.1188/13.ONF.567-573
- Harrington, J.M., Jones, E.G., & Badger, T. (2009). Body image perceptions in men with prostate cancer. *Oncology Nursing Forum*, 36, 167–172. doi:10.1188/ONF.167-172
- Harrington, J.M., Schwenke, D.C., & Epstein, D.R. (2013). Exercise preferences among men with prostate cancer receiving androgen-deprivation therapy [Online exclusive]. Oncology Nursing Forum, 40, E358–E367. doi:10.1188/13.ONF.E358-E367
- Harrington, J.M., Schwenke, D.C., Epstein, D.R., & Bailey, D.E., Jr. (2014). Androgen-deprivation therapy and metabolic syndrome in men with prostate cancer. *Oncology Nursing Forum*, 41, 21–29. doi:10.1188/14.ONF.21-29
- Heidenreich, A., Bastian, P.J., Bellmunt, J., Bolla, M., Joniau, S., Mason, M.D., . . . Zattoni, F. (2013). European Association of Urology: Guidelines on prostate cancer. Retrieved from http://www.uroweb.org/gls/pdf/09_Prostate_Cancer_LR.pdf
- Higano, C.S. (2012). Sexuality and intimacy after definitive treatment and subsequent androgen deprivation therapy for prostate cancer. *Journal of Clinical Oncology*, 30, 3720–3725. doi:10.1200/JCO.2012.41.8509
- Humphries, B., Duncan, M.J., & Mummery, W.K. (2010). Prevalence and correlates of resistance training in a regional Australian population. *British Journal of Sports Medicine*, 44, 653–656. doi:10.1136/ bjsm.2008.048975
- Kenfield, S.A., Stampfer, M.J., Giovannucci, E., & Chan, J.M. (2011). Physical activity and survival after prostate cancer diagnosis in the health professionals follow-up study. *Journal of Clinical Oncology*, 29, 726–732. doi:10.1200/JCO.2010.31.5226
- Kruger, J., Carlson, S., & Kohl, H. (2006). Trends in strength training—United States, 1998–2004. Morbidity and Mortality Weekly Report, 55, 769–772.
- Krumwiede, K.A., & Krumwiede, N. (2012). The lived experience of men diagnosed with prostate cancer [Online exclusive]. Oncology Nursing Forum, 39, E443–E450. doi:10.1188/12.ONF.E443-E450
- Levine, G.N., D'Amico, A.V., Berger, P., Clark, P.E., Eckel, R.H., Keating, N.L., . . . Zakai, N. (2010). Androgen-deprivation therapy in prostate cancer and cardiovascular risk: A science advisory from the American Heart Association, American Cancer Society, and American Urological Association: Endorsed by the American Society for Radiation Oncology. Circulation, 121, 833–840. doi:10.1161 .CIRCULATIONAHA.109.192695
- Ng, E., Woo, H.H., Turner, S., Leong, E., Jackson, M., & Spry, N. (2012). The influence of testosterone suppression and recovery on sexual function in men with prostate cancer: Observations from a prospective study in men undergoing intermittent androgen suppression. *Journal of Urology*, 187, 2162–2166. doi:10.1016/j.juro.2012.01.080
- Oliffe, J.L., Halpin, M., Bottorff, J.L., Hislop, T.G., McKenzie, M., & Mroz, L. (2008). How prostate cancer support groups do and do not survive: British Columbian perspectives. *American Journal of Men's Health*, 2, 143–155. doi:10.1177/1557988307304147
- Oliffe, J.L., Ogrodniczuk, J., Bottorff, J.L., Hislop, T.G., & Halpin, M. (2009). Connecting humor, health, and masculinities at prostate cancer support groups. *Psycho-Oncology*, 18, 916–926. doi:10.1002/ pon.1415
- Pachman, D.R., Barton, D.L., Swetz, K.M., & Loprinzi, C.L. (2012). Troublesome symptoms in cancer survivors: Fatigue, insomnia,

- neuropathy, and pain. *Journal of Clinical Oncology*, 30, 3687–3696. doi:10.1200/JCO.2012.41.7238
- Resnick, B., Orwig, D., Magaziner, J., & Wynne, C. (2002). The effect of social support on exercise behavior in older adults. *Clinical Nursing Research*, 11, 52–70. doi:10.1177/105477380201100105
- Resnick, M.J., Koyama, T., Fan, K.H., Albertsen, P.C., Goodman, M., Hamilton, A.S., . . . Penson, D.F. (2013). Long-term functional outcomes after treatment for localized prostate cancer. New England Journal of Medicine, 368, 436–445. doi:10.1056/NEJMoa1209978
- Rock, C.L., Doyle, C., Demark-Wahnefried, W., Meyerhardt, J., Courneya, K.S., Schwartz, A.L., . . . Gansler, T. (2012). Nutrition and physical activity guidelines for cancer survivors. CA: A Cancer Journal for Clinicians, 62, 242–274. doi:10.3322/caac.21142
- Saini, A., Berruti, A., Cracco, C., Sguazzotti, E., Porpiglia, F., Russo, L., ... Ostacoli, L. (2013). Psychological distress in men with prostate cancer receiving adjuvant androgen-deprivation therapy. *Urologic Oncology*, 31, 352–358. doi:10.1016/j.urolonc.2011.02.005
- Sanda, M.G., Dunn, R.L., Michalski, J., Sandler, H.M., Northouse, L., Hembroff, L., . . . Wei, J.T. (2008). Quality of life and satisfaction with outcome among prostate-cancer survivors. *New England Journal of Medicine*, 358, 1250–1261. doi:10.1056/NEJMoa074311
- Segal, R.J., Reid, R.D., Courneya, K.S., Malone, S.C., Parliament, M.B., Scott, C.G., . . . Wells, G.A. (2003). Resistance exercise in men receiving androgen deprivation therapy for prostate cancer. *Journal of Clinical Oncology*, 21, 1653–1659. doi:10.1200/ JCO.2003.09.534
- Segal, R.J., Reid, R.D., Courneya, K.S., Sigal, R.J., Kenny, G.P., Prud'Homme, D.G., . . . Slovinec D'Angelo, M.E. (2009). Randomized controlled trial of resistance or aerobic exercise in men receiving radiation therapy for prostate cancer. *Journal of Clinical Oncology*, 27, 344–351. doi:10.1200/JCO.2007.15.4963
- Shahinian, V.B., Kuo, Y.F., Freeman, J.L., & Goodwin, J.S. (2005).

- Risk of fracture after androgen deprivation for prostate cancer. *New England Journal of Medicine*, 352, 154–164. doi:10.1056/NEJMoa041943
- Sloan, C., Gough, B., & Conner, M. (2010). Healthy masculinities? How ostensibly healthy men talk about lifestyle, health and gender. *Psychology and Health*, 25, 783–803. doi:10.1080/08870440902883204
- Smith, J.A., & Osborn, M. (2013) Qualitative psychology: A practical guide to research methods. In J.A. Smith, P. Flowers, & M. Larkin (Eds.), Interpretative phenomenological analysis: Theory, method and research (pp. 51–80). Thousand Oaks, CA: Sage.
- Smith, M.R., Saad, F., Egerdie, B., Sieber, P.R., Tammela, T.L., Ke, C., ... Goessl, C. (2012). Sarcopenia during androgen-deprivation therapy for prostate cancer. *Journal of Clinical Oncology*, 30, 3271–3276. doi:10.1200/JCO.2011.38.8850
- Spry, N.A., Galvão, D.A., Davies, R., La Bianca, S., Joseph, D., Davidson, A., & Prince, R. (2009). Long-term effects of intermittent androgen suppression on testosterone recovery and bone mineral density: Results of a 33-month observational study. *BJU International*, 104, 806–812. doi:10.1111/j.1464-410X.2009.08458.x
- Spry, N.A., Kristjanson, L., Hooton, B., Hayden, L., Neerhut, G., Gurney, H., . . . McCaul, K. (2006). Adverse effects to quality of life arising from treatment can recover with intermittent androgen suppression in men with prostate cancer. *European Journal of Cancer*, 42, 1083–1092. doi:10.1016/j.ejca.2006.01.029
- Spry, N.A., Taaffe, D.R., England, P.J., Judge, J.S., Stephens, D.A., Peddle-McIntyre, C., . . . Galvão, D.A. (2013). Long-term effects of intermittent androgen suppression therapy on lean and fat mass: A 33-month prospective study. *Prostate Cancer and Prostatic Diseases*, 16, 67–72. doi:10.1038/pcan.2012.33
- Thorson, J.A., Powell, F.C., Sarmany-Schuller, I., & Hampes, W.P. (1997). Psychological health and sense of humor. *Journal of Clinical Psychology*, 53, 605–619.