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Perceived barriers and facilitators to physical activity in men with prostate cancer: possible influence of androgen deprivation therapy.

Abstract

While physical activity is beneficial for men with prostate cancer, too few perform sufficient activity for such benefit. This study examined perceptions of men with prostate cancer of their barriers and facilitators to physical activity, and how androgen deprivation therapy (ADT) may influence these perceptions. Two focus groups were conducted, involving 6 ADT and 8 non-ADT patients, respectively. Data was transcribed verbatim and themes developed using a general inductive thematic approach. Facilitators to physical activity common to both groups of cancer survivors included clinician and spousal involvement, with pre-existing comorbidities and increased age cited as barriers by both groups. The ADT sub-group cited personal involvement as a facilitator to physical activity, with fatigue, reduced motivation and a relative lack of specific advice from their clinician as additional barriers. The non-ADT sub-group had no additional facilitators to physical activity but cited time constraints as a barrier. These results highlight the important role that cancer clinicians and spouses play in promoting physical activity for men with prostate cancer and how ADT may influence their other facilitators and barriers. As physical activity is beneficial for prostate cancer survivors, especially those on ADT, cancer clinicians should regularly discuss physical activity with their patients.

Keywords: complementary therapy; exercise; prostate cancer; quality of life; supportive care; symptoms.

Introduction

Prostate cancer is often the most common cancer for males in many countries (Stokes et al., 2010, Dachs et al., 2008). According to 2007 data, there are 108,368 new cases of cancer in Australia every year, with prostate cancer accounting for 19,403 (18%) of the new cases (Australian Institute of Health and Welfare & Australasian Association of Cancer Registries 2010). Like many cancers, the survival rates for prostate cancer are increasing due to improvements in detection and multi-modality treatment options such as surgery, radiation and androgen deprivation therapy (ADT) (Gomella, 2007, Etzioni et al., 2008, Oliver et al., 2001), with Australian statistics demonstrating five year survival rates for prostate cancer of 88% (Australian Institute of Health and Welfare & Australasian Association of Cancer Registries 2010). Unfortunately, all of these treatments contribute to a number of uro-genital, cardio-metabolic and musculoskeletal symptoms and side-effects that affect many aspects of the man's overall health and quality of life and contribute to substantial national health care costs. One method used to quantify the burden of a disease such as cancer is the disability-adjusted life year (DALY) which is calculated by combining the years of life lost to disease and the years of healthy living lost due to non-fatal health outcomes. Australian statistics indicated that prostate cancer accounted for 15% of the male cancer burden (42,500 DALYs) and 3% of Australia's total men health burden (Australian Institute of Health and Welfare & Australasian Association of Cancer Registries 2010).

Perhaps the treatment contributing to the greatest side-effects is androgen deprivation therapy (ADT), a treatment used by up to ~50% of these men (Meng et al., 2002). ADT reduces the progression of the cancer by virtually eliminating the effects of testosterone. As a result, men

on ADT experience significant reductions in muscle and bone mass and increased fat mass (Haseen et al., 2010, Bylow et al., 2007). These changes in body composition contribute to significant levels of fatigue (Garrett et al., in press), reductions in physical activity (Thorsen et al., 2008), physical fitness and functional performance (Bylow et al., 2008, Galvao et al., 2009, Clay et al., 2007) as well as increased risk of osteoporotic, fall-related fractures (Oefelein et al., 2002) and cardio-metabolic syndrome (Kintzel et al., 2008). These men (and those not on ADT) may also live with symptoms affecting their sleep, urinary and sexual function that impact on many aspects of their quality of life (Flynn et al., 2011, Ottenbacher et al., 2013, Garrett et al., in press).

As a consequence of these symptoms and side-effects affecting men with prostate cancer (especially those on ADT), much research has been conducted to determine safe and effective approaches to minimize these issues, with some of these studies investigating potential complementary therapies that could become part of conventional supportive care. Of the complementary therapies currently investigated, two recent systematic reviews (Keogh and MacLeod, 2012, Baumann et al., 2012) have demonstrated that resistance, pelvic floor and aerobic-based physical activities have a variety of significant physical and psychosocial benefits for all prostate cancer survivors (patients). Specifically, these forms of physical activity can maintain or improve pre-diagnosis body composition and significantly increase strength, aerobic fitness, functional performance and quality of life as well as reduce levels of incontinence and fatigue. There is also emerging evidence that physical activity can significantly reduce many of the risk factors for additional cardio-metabolic co-morbidities (Culos-Reed et al., 2010).

Consequently, the American Cancer Society has recently changed their physical activity guidelines for cancer survivors. In addition to the usual recommendations of 150 minutes moderate or 60 minutes of vigorous aerobic activity per week, these guidelines also advocate two resistance training sessions each week (Rock et al., 2012). All of the previous studies of physical activity for prostate cancer survivors defined being physically active as engaging in 150 minutes of moderate or 60 minutes of vigorous aerobic activity per week, with a review indicating prevalence rates of generally only 30-40% (Thorsen et al., 2008). The only study recording resistance training prevalence indicates that only 14% of prostate cancer patients on ADT perform even one session of resistance training per week (Keogh et al., 2010). Such low prevalence of aerobic and especially particularly resistance training by these men is of considerable concern due to the known benefits of these activities in offsetting the direct side-effects of ADT on body composition, physical function and overall health and wellbeing (Keogh and MacLeod, 2012, Baumann et al., 2012).

The determinants of physical activity in prostate (and other) cancer survivors has been most commonly assessed using the Theory of Planned Behaviour-based questionnaires (Blanchard et al., 2002, Courneya et al., 2004, Hunt-Shanks et al., 2006, Keogh et al., 2010). These studies demonstrated that theory of behaviour constructs i.e. attitude, subjective norms and perceived behavioural control explain a moderate amount of the variance in physical activity intentions, with the intentions being a good predictor of physical activity levels. It would appear conceivable that the side-effects and symptoms associated with ADT usage may affect the Theory of Planned Behaviour constructs, with the attitudes and perceived behavioural control for those on ADT possibly affected to a greater extent than their non-ADT peers. Unfortunately, none of these four studies directly compared ADT and non-ADT groups (Blanchard et al., 2002,

Courneya et al., 2004, Hunt-Shanks et al., 2006, Keogh et al., 2010), with one study not even reporting the ADT usage patterns of their sample (Hunt-Shanks et al., 2006).

Only recently have researchers used qualitative approaches to provide a richer source of data on the perceptions and determinants of physical activity for men with prostate cancer (Craike et al., 2011, Bourke et al., 2012, Wright-St Clair et al., in press, Keogh et al., in press). As the focus of these studies has often been on the perceived physical and psychological benefits of physical activity (Craike et al., 2011, Bourke et al., 2012, Wright-St Clair et al., in press, Keogh et al., in press), much less is known about their barriers and facilitators to physical activity. Further, only Keogh et al. (in press) has compared the differences and similarities in the experiences and perspectives of the men currently on ADT to those who have never used ADT.

The primary aim of the present study was to use a qualitative approach to better understand the barriers and facilitators to physical activity in men with prostate cancer. A secondary aim was to gaining some preliminary insight into how ADT might influence these perceptions. By providing cancer clinicians with a better understanding of the physical activity determinants of these men, it is hoped that more clinicians will integrate physical activity counseling with their patients conventional treatments, with the expected result of this being increased physical activity participation and quality of life for their patients (Craike et al., 2009).

Methods

Participants

Fourteen (8 non-ADT and 6 ADT) men who had a confirmed diagnosis of prostate cancer gave written informed consent to participate in this study (see Table 1). These 14 men were part of a

wider study investigating the relationship between physical activity and quality of life as well as the determinants of physical activity in men with prostate cancer, with initial findings on the perceived benefits and risks reported elsewhere (Keogh et al., in press). To be eligible to participate, those in the non-ADT sub-group had to have never used ADT, whereas those in the ADT sub-group had to be currently on continuous ADT for at least 6 months. No participants in either sub-group were currently undergoing radiation or chemotherapy.

See Table 1

Measure

A semi-structured interview schedule involving seven probe questions was developed for the wider study based on the literature on the quality of life and determinants of physical activity in cancer survivors. Responses to the three probe questions (of the original seven) addressed in the current study were designed to allow for discussion between the participants and facilitators and acted to ensure that participants in both focus groups were asked the same questions (see Table 2).

See Table 2

Procedure

Participants were recruited via urologists in private practice and a public hospital. Nineteen letters of invitation, including an information sheet, consent form and pre-paid reply envelope were mailed out to eligible participants in each of the groups, respectively. Men wishing to participate returned their signed consent forms in the reply paid envelope to the research team. Separate focus groups were arranged for the non-ADT and ADT groups, each facilitated by the

same research team members (AP and RM). Ethical approval for this study was obtained from the Northern Y Regional Ethics Committee NTY/08/89/EXP. Each focus group was between 50 and 70 minutes in duration and was conducted in the same private room at the same University. The focus groups for the non-ADT and ADT sub-groups were conducted in late 2011 and early 2012, respectively.

Data Analysis

The discussions held by each focus group were audio-taped and transcribed verbatim. The transcripts were analyzed using an inductive thematic approach advocated for health research (Thomas, 2006), with the specific approach following the four step process recommended by Auerbach and Silverstein (2003). The initial two steps involved reading the transcripts several times under each specific question so to identify specific quotes whereby similar words or experiences conveyed the same idea. The remaining steps involved coding these similar segments of text to create specific themes and sub-themes. Three research team members (AP, JK and RM) independently read the transcripts to ensure that participant quotes matched the categories of themes that were identified and to reduce individual researcher bias. This review process involving three researchers was repeated several times until all the authors were completely satisfied with the themes developed. This meant that at the conclusion of this process all authors were satisfied of the trustworthiness of the data and that data saturation had occurred for all major themes (Thomas, 2006, Auerbach and Silverstein, 2003).

Results

The findings are presented under two topic areas, the perceived facilitators and barriers to

physical activity post-diagnosis (see Tables 3 and 4). While a probe question was used in the focus groups to better understand the third topic of whom discussions about quality of life and physical activity occurred, the participants' responses to this question were better matched to the *facilitatory* themes. The main themes and sub-themes for each of the two topic areas are described, with a specific focus on how ADT usage may have altered these perceptions. Tables 3 and 4 include direct quotes to illustrate and highlight the expressed views and experiences encountered.

See Table 3

Facilitators to Physical Activity

Several themes and associated sub-themes emerged regarding the factors that assisted both groups in engaging in physical activity post-diagnosis. The first of these facilitators to physical activity was spousal involvement which involved two sub-themes, being a physical activity confidant and/or advisor as well as being their physical activity partner. The second facilitator to physical activity was general advice from their health care practitioner (e.g., urologist and/or general practitioner). This advice tended to focus on the patients' weight status and cardio-metabolic health risk.

Several participants in the non-ADT sub-group had ongoing issues with incontinence post-surgery. These participants discussed how their urologist referred them for continence physiotherapy and how this lessened their concern about engaging in physical or social activities in public.

Another facilitatory theme that emerged was that the ADT sub-group had a greater personal

involvement (ownership) of their survivorship than those in the non-ADT sub-group. This appeared to reflect the survivors' beliefs that while their clinicians were doing a good job, there was a need for more specific advice and guidance from their health care practitioner about the type of physical activity they could and should do post-diagnosis and how such activity could reduce the side-effects and symptoms of their treatment. As a result of this perceived inability of their cancer clinicians to answer all their questions, ADT participants were more independent in resourcing information relating to their treatment, the benefits of physical activity and personal well-being in general. The second sub-theme to emerge in the Personal Involvement theme for the ADT sub-group suggested that having a group support program and being around people who are experiencing similar things in their life would be most helpful. It was therefore also suggested that having a cancer survivor and not just the cancer clinicians speak to those who had just recently been diagnosed would be a great idea too.

Insert Table 4 about here

Perceived Barriers to Physical Activity

The men with prostate cancer reported several barriers to physical activity, with two themes common to both sub-groups, these being their additional comorbidities and increased age. However, participants in the ADT sub-group felt that the hormonal therapy may have exacerbated their fatigue and reduced motivation to be physically active and that their clinicians were not currently addressing all of their concerns about how these side-effects and symptoms could be reduced. Compared to participants in the ADT sub-group, the non-ADT sub-group cited time constraints associated with their employment as barriers for physical activity.

Discussion

Results of the current study indicated that cancer clinicians and the prostate cancer survivors' partners both can play important supportive roles in assisting them engage in regular physical activity. For both sub-groups of prostate cancer survivors, the cancer clinicians provided advice about the general benefits of physical activity for weight maintenance as well as its role in minimizing their risk of developing co-morbidities. This is an important finding for two reasons. The first is that while previous quantitative studies suggest that ~40% of cancer clinicians may provide any advice about the benefits of physical activity for cancer patients (Daley et al., 2008, Jones et al., 2005, Stevinson and Fox, 2005), this advice is only given at some appointments and/or to patients who they think will be likely to participate in physical activity. It is also encouraging to see the focus of the clinicians on their patients maintaining a healthy bodyweight so to reduce the risk of cardio-metabolic syndrome, as this syndrome can be very prevalent in these men, especially those on ADT (Kintzel et al., 2008, Culos-Reed et al., 2010). However, more emphasis in these discussions needs to be placed on engaging in resistance training to counteract the age- and ADT-related losses of muscular function and musculoskeletal health. Our results also indicated that some members of the non-ADT sub-group who still experienced issues with incontinence were referred by their cancer clinician to a continence physiotherapist for pelvic floor exercises to address these issues (Street Jr et al., 2009). These referrals to continence physiotherapists were especially appreciated by these men as incontinence can be one of their primary barriers to physical activity and social engagement (Ottenbacher et al., 2013).

The pivotal role played by cancer clinicians in initiating or at least responding to questions about their patients' quality of life and benefits of physical activity is consistent with the concept

of subjective norms in the Theory of Planned Behaviour, whereby the clinicians' advice and/or actions may have a profound effect on their patients' behaviours e.g. physical activity engagement. Specifically, an oncologist's recommendation to breast cancer survivors to become more physically active has been shown to significantly improve physical activity levels and a variety of physical and psychosocial outcomes compared to no such advice (Damush et al., 2006, Jones et al., 2004). However, the men on ADT in the present study felt that one barrier to their physical activity engagement was that their clinician did not provide enough specific advice on how physical activity could be used to better enable them to counteract the widespread side-effects and symptoms associated with their hormonal therapy. One of the ADT participants even went as far to say that resistance training should be promoted by cancer clinicians as a critical component of supportive care based on his understanding of the benefits of such activity in reducing the side-effects and symptoms of ADT, a belief consistent with the recent peer-reviewed literature (Keogh and MacLeod, 2012, Baumann et al., 2012). Regardless, these perceptions of the prostate cancer survivors suggest that clinician encouragement can have a strong influence on their physical activity levels. This suggests that additional support may need to be provided to cancer clinicians so that they have sufficient time with their appointments and feel empowered to provide more advice on physical activity to their patients. If either of these issues cannot be overcome, cancer clinicians need to be able to easily refer their patients to other allied health professionals who can better address these physical activity concerns.

Consistent with others studies investigating the importance of the cancer survivor partners' role in survivorship (Harden et al., 2002, Regan et al., 2012); the desire of many men in both sub-groups to be more physically active was reinforced and supported by their spouses. Such

spousal support primarily involved two roles. The first was to be a “sounding board” for the survivor, whereby they would discuss the potential benefits, risks and determinants of physical activity. The second role was to be a physical activity partner for the prostate cancer survivor. The importance of these two roles played by the spouses was consistent with the overall findings of Kazer et al. (2011) who reported one of the main challenges un-partnered men with prostate cancer had was of “going it alone”. Spousal support is also another example of how theoretical approaches such as the Theory of Planned Behaviour’s concept of subjective norms can help explain determinants of health behaviours like physical activity. Due to the important role of spouses in assisting their men to be physically active post-diagnosis/treatment, cancer clinicians may also consider providing additional information about physical activity to the survivors’ spouses and/or including them in at least some consultations (Harden et al., 2002, Regan et al., 2012). The need for this non-clinician e.g. partner support was also consistent with the ADT sub-group’s view that opportunities for interaction with other men in similar situations would also be very useful. Such interactions could be especially useful for un-partnered men (Kazer et al., 2011) who lack the social support provided by a spouse. This social interaction could occur within a support group (Oster et al., in press) or in group physical activity programs that may also offer greater physical and quality of life benefits than home-based physical activity (Keogh and MacLeod, 2012).

While both sub-groups felt that their clinicians provided encouragement and some advice about physical activity, members of the ADT sub-group felt that one barrier to their physical activity engagement was the inability of their clinicians to provide all the answers they needed about the specific benefits and risks of physical activity. This barrier resulted in members of the ADT sub-group being more personally involved (a facilitator) in exploring how integrative and

complementary therapies like physical activity could improve their wellbeing and quality of life than the non-ADT sub-group. The ADT sub-group's search for increased knowledge about how to minimize their symptoms and side-effects and improve their quality of life appeared consistent with other qualitative studies (Kazer et al., 2011, Oster et al., in press, Krumwiede and Krumwiede, 2012) and a recent review on how these men self-manage their condition (Cockle-Hearne and Faithfull, in press). This search for additional information and their beliefs about the benefits of group support further demonstrates ways that these men take responsibility for their own health and well-being (van Weert et al., in press).

Several other barriers to physical activity were also identified by both sub-groups of prostate cancer survivors, these being their older age and having other comorbidities. Such barriers to physical activity have also been reported for community-dwelling older adults (Patel et al., 2013) and prostate cancer survivors (Craike et al., 2011) in other studies. In addition, Craike et al. (2011) reported that time constraints and reduced exercise self-efficacy were major barriers to physical activity in 18 prostate cancer survivors of which four were taking ADT. Similar results were reported by Ottenbacher et al. (2011) in a survey of 452 breast and prostate cancer patients, with "being too busy" or "having no willpower" cited as significant barriers to physical activity. The lack of time reported by Craike et al. (2011) and Ottenbacher et al. (2011) was consistent with our findings for the non-ADT but not the ADT sub-group, with the work and family commitments of the non-ADT sub-group making it difficult for them to be physically active. It was however interesting to see that time constraints were not considered a barrier by the men on ADT. This may perhaps reflect the finding that the men in the ADT sub-group indicated that a lack of specific information from their clinician, fatigue and reduced motivation were major barriers to their physical activity not cited by the non-ADT sub-group. The citing of fatigue and

lack of willpower (motivation) as barriers to physical activity by the ADT but not non-ADT subgroup is most likely a result of the direct and indirect effects of ADT on their physical capacity and energy levels. Interestingly, exercise-related financial costs were not cited as a primary barrier by any of the men in the current study, with this in contrast to studies involving prostate cancer survivors (Bourke et al., 2012) on ADT and older adults in general (Patel et al., 2013). While speculative, the relative lack of financial barriers to physical activity in the current study might reflect inter-study differences in financial and private insurance status, perceived benefits of physical activity as well as the low costs of the types of physical activity they performed.

The overall findings of this study suggest that the cancer survivor and their clinician should devote time during at least some of their appointments to discussing physical activity as an important component of their supportive and integrative cancer care. It appears that the men on ADT would also appreciate it if such discussions were more focused on the ADT-related side-effects and symptoms affecting their musculoskeletal system and feelings of masculinity rather than just the cardio-metabolic emphasis of the clinicians. Based on the pre-contemplation and contemplative stages of the Stages of Change Model (DiClemente et al., 1991), the initial sessions may need to highlight how physical activity may reduce other comorbidities and minimize ADT-related side-effects and symptoms of relevance to each patient. Over time as the patients moves into the preparation, action and maintenance phases, these discussions should then concentrate more on how the patient can maximise the facilitators to physical activity e.g. through spousal involvement while developing strategies to overcoming barriers e.g. how to better manage their time commitments or fatigue. If the cancer clinicians do not feel qualified or are too busy to provide such advice, the patient and clinician may have two options. The first is that the patient is referred to other allied health professionals like psychologists, physiotherapists,

occupational therapists or clinical exercise physiologists who have more time and expertise in this area. This may be easier for cancer clinicians working in larger, multi-disciplinary teams in metropolitan centers than those who work with smaller teams in rural and regional settings. The second option would be for the cancer clinician to undergo specific additional education regarding the wider evidence basis for a complementary therapy such as physical activity as well as how to counsel their patients to engage in more regular physical activity e.g. via the Stages of Change Model (Staples et al., 2007). The American Cancer Society's new guidelines on physical activity and nutrition for cancer survivorship (Rock et al., 2012) would also be a good place to start to better understand the evidence regarding physical activity.

Although we feel that our results have many important implications for how cancer clinicians and spouses may assist prostate cancer survivors benefit from engaging in regular physical activity, the study has its limitations. While this study involved a sample comparable to that of other qualitative studies of quality of life in prostate cancer survivors (Kazer et al., 2011, Craike et al., 2011, Harden et al., 2002, Oster et al., in press), only ~40% of those invited actually participated in this study. The sample was based in one geographical area and consisted of both public and private health care patients. The men also appeared relatively physically active and were motivated enough to participate in this study. Thus, future studies in this area may wish to preferentially recruit prostate cancer survivors who are not physically active to gain additional insight into their barriers and facilitators to physical activity. Nevertheless, qualitative studies involving active (Costello et al., 2011, Fiskens et al., in press) or inactive (Costello et al., 2011) older adults may complement each other as they can provide a more complete understanding of the physical activity determinants of a group of older cancer survivors (Murnane et al., 2012). It is also possible that data saturation may not have been achieved for

some of the minor sub-themes described by only one sub-group.

Conclusion

Our findings contribute substantially to the literature examining the determinants of an evidence-based complementary therapy i.e. physical activity for prostate cancer patients and how this may be influenced by ADT. An improved understanding of these determinants is especially important as increasing physical activity engagement requires a behaviour modification that may be hard to initiate and sustain for many of these men. Our results indicated that both the non-ADT and ADT sub-groups felt that their clinicians and spouses played an important role in facilitating their physical activity engagement. However as the ADT sub-group felt that their clinicians could not answer all their questions regarding physical activity, they appeared more actively involved in owning their survivorship than the non-ADT sub-group. This achieved by the continual search for new information from clinicians, cancer survivors and written materials on the internet and in books about the potential benefits of physical activity and other complementary therapies. Unfortunately, both sub-groups also experienced many other barriers to physical activity including being older and having other comorbidities. These findings suggest that cancer clinicians should strive to more frequently discuss how complementary therapies like physical activity may be an important component of supportive care for their patients during their scheduled counseling sessions. Such discussions may need to be a little longer or more frequent with those on ADT and involve on at least some occasions, the spouse or other close family or friends who may act as a key facilitator of physical activity. In accordance with the Stages of Change Model (DiClemente et al., 1991), these discussions may initially focus on the general and specific benefits of physical activity and then identify the primary facilitators

and barriers to long-term physical activity so to develop strategies to assist them initiate and maintain their physical activity engagement.

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Table 1 Participant Characteristics.

	Non-ADT sub-group (n = 8)	ADT sub-group (n = 6)
Age (years)	65.0 ± 6.5	65.8 ± 11.3
Time since diagnosis (years)	1.4 ± 0.8	4.0 ± 3.6
ADT Duration (years)	N/A	2.6 ± 1.0
Gleason Scores *		
6	1 (13%)	0 (0%)
7	4 (50%)	3 (50%)
9	3 (38%)	3 (50%)
Previous prostate-related surgery	5 (63%)	5 (83%)
Previous chemotherapy treatment	0 (0%)	1 (17%)
Previous radiation treatment	0 (0%)	1 (17%)
Employed	5 (63%)	2 (33%)
Retired	3 (38%)	4 (67%)
Married	8 (100%)	5 (83%)

Single

0 (0%)

1 (17%)

* Data for the Gleason scores, prostate-related surgeries, chemotherapy and radiation treatment, employment and marital status includes the absolute number of participants and in parentheses, the percentage of participants. Percentages do not necessarily add to 100% due to rounding errors.

Table 2 Interview schedule.

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1. What factors may assist you in engaging in more physical activity?
 2. What factors may prevent you in engaging in more physical activity?
 3. Who do you discuss your quality of life with and do such discussions include mention of physical activity?
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Table 3 Perceived facilitators for physical activity that were present or not present in comparison to hormone treatment.

Main theme	Sub-theme	Quotes from the non-ADT sub-group	Quotes from the ADT sub-group
Spousal involvement	Physical activity advice	<p data-bbox="772 448 1283 769">“In my case it's only positive discussion because my wife enjoys doing stuff [physical activity] as well. So we naturally talk about what we are going to do.”</p> <p data-bbox="772 841 1283 1162">“I suppose really I would discuss most things [physical activity included] in my life with my wife. If I've got a problem or I'm not right I will discuss it with her. Two heads are better than one, that's how I find it.”</p> <p data-bbox="772 1305 1283 1334">“I discuss it [physical activity with the</p>	<p data-bbox="1314 448 1908 555">“We walk and talk. It’s not hard out, um walking, but we go for good walks together.”</p> <p data-bbox="1314 620 1908 799">“I talk to my wife about it [physical activity and quality of life] all the time and I talk to other people about it.”</p>

wife and if necessary the family. But it's mainly the wife, she's the one, she's there all the time.”

“I'm similar to most of the other guys, definitely my wife and also my son who is a pretty active tri-athlete. And you know it's good to have someone to bounce ideas off with training schedules and different aspects of your life generally.”

Physical activity
partner

“We do things together. Both walking and cycling and traveling. We do a lot together.”

“I don't run like I use to. But I can't seem to run like I use to be able to. My wife's had a knee replacement, so she can't

“We walk together and we swim together.”

“We go swimming every day. We don't swim full lengths. We've got a beach right in front of our place.”

“I swim. We sea swim when it's fine enough.”

gallop along, so I tend to go at her pace.” “I do one cycling trip a year. We go away for a week with friends. I don't ride as hard out as some of them.”

Clinician involvement	Physical activity advice	<p>“I found it hard to lose weight. But now I do my son's paper round [route] because I'm home and my doctor told me to get out and do some more walking.”</p> <p>“When you were over... heavier. Certainly my surgeon said um that there is no question, there is more complication with people who are overweight with that particular operation.”</p>	<p>“[Urologist's name removed] mentioned that I've got a pot belly. I should be getting more exercise.”</p> <p>“My doctor (general practitioner) always says, 'are you going for a walk?' 'Do you walk?'”</p> <p>“And yes the local GP says you should start walking.”</p>
	Referral for continence physiotherapy	<p>“I went to a physio and did some ...pelvic floor exercises sort of thing... just trying to think of the muscles here that control</p>	NA

your urine and you know, that sort of
stuff. They are very good.”

“[Urologist's name removed] referred me
to a physio who specialised in post-
operative exercise, and then the University
after that.”

“[Got a referral to] go to a girl who
specialises in the plumbing problems of
the operation.”

“I [was referred] to a physio and did some
...floor exercises sort of thing.”

Personal
involvement

Resourcing
information

NA

“Its ownership really. You've got ownership to
adapt to a different life. The shape of your life
has changed.”

“Shared ownership, like knowledge. So I question [Urologist's name removed]. I ask him a whole lot of questions. 'Why do you think this is'? 'Why shouldn't we really be mapping this'? Some of the suggestions he has taken on board.”

“I read all these books on hormonal cancer.”

“I went onto the internet, and read lots of books from really left field books, mainstream books, and then you draw your own conclusions.”

Suggestion for group
support

NA

“It becomes you and your specialist....a sort of lonely thing....I'm really impressed by what we are doing right here [focus group], right now. You suddenly realize you are in a room with everyone who's got the same problem as

you've got...you suddenly realise...you are not
the only one.”

“For me psychologically it's really a good
thing. I don't say we should do this every
month. But if you did it once every 18 months
or once every two years.”

“Well it would be good if someone talked to
you when you first get it. Not just the doctors
and specialists. One of us to talk to someone
who has just been diagnosed.”

Table 4 Perceived barriers to physical activity that were present or not present in comparison to hormone treatment.

Main theme	Quotes from the non-ADT sub-group	Quotes from the ADT sub-group
Need for additional specific physical activity advice	NA	<p data-bbox="1190 444 1906 846">“If a medical professional said its [physical activity] a requirement for you to...I'm just saying that if they said as part of this treatment you must put yourself on a specific program. That's really the motivation for people who have been told by a professional person... we'll assist you if you put yourself on a specific program.”</p> <p data-bbox="1190 911 1906 1310">“You can go and see all the oncologists and doctors and all the rest, and whatever you like, but, you take ownership. For me exercise was one of them. Because I just put two and two together and thought reduced bone density, reduced muscle mass and stuff. Hey, if I don't exercise I'm going to age way prematurely, you</p>

know.”

“That's really the motivation for people who have been told by a professional person....'we'll assist you if you put yourself on a specific program.”

“I think the medical fraternity could be more proactive and more explicit [about benefits of physical activity].”

Additional
comorbidities

“My biggest problem is arthritis, and my hips need to be done again. Hopefully I'll get a bit more mileage then.”

“I've had two knee replacements. I've got two plastic and steel knees. So I can't run anymore.”

“I can't go bike riding, because with bike riding there is a risk that I could force the lymph into my genitals, and things like that.”

“My main limiting factor is the lymphedema and the damage to the spinal tumor.”

“I've got atrial fibrillation. The heart specialist suggested walking was the thing and asked how well I can walk.”

Increased age	<p>“As you get older you can't do what you use to be able to do.”</p> <p>“[Reply to previous comment] Yeah, I'd agree with that.”</p> <p>“[Reply to previous comments] It's a fact of life.”</p>	<p>“Sometimes I wonder if it's ageing, and there is natural ageing. But if you look at the rate of degradation of my energy levels, this is really not just aging.”</p> <p>“I'm 86. I'm not sure how much is old age.”</p> <p>“Psychologically you've to say to yourself, 'is this because of the injection or it's because you're getting older'?”</p> <p>“Once again is it old age or is it the hormone injections?”</p>
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Time constraints	<p>“Still working, so a little bit tricky to find extra time.”</p> <p>“I find its lack of time. I work part time as a builder.”</p> <p>“My son decided to buy a section and I had to help him build a house, which we are still doing. Once the house</p>	<p>NA</p>
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is finished I will probably get back into tramping again.”

Fatigue

NA

“I’ll go home and as soon as I walk in the door I’m stuffed. Last night I went to bed at half past seven and I wake up at half past seven.”

“Tiredness is not a huge thing, but it is there every day.”

“Hormone therapy per se, I don’t think has made a big difference apart from getting a wee bit tired by the end of the day.”

“I still do voluntary and part time paid (work), but I get seriously tired. Fatigue is huge.”

“I do a little bit of walking. I get tired too easily.”

“I used to scream through (the lawns) within an hour and a quarter. Now I do it in 20 minutes or half hour

Reduced
motivation

NA

intervals and have a rest in between.”

“Had a half hour walk and I needed to sit down for 20
minutes after I'd had the walk.”

“I think that without your proper testosterone your
motivation is actually suppressed.”

“Motivation I find is reduced. So I can push myself if
I like for two days or something. I went and worked
with some old colleagues in Australia the other
weekend. I flew over and I did this workshop. I came
back and I am stuffed for a week. But you can force
yourself to do it like you can in a normal life.”

“Finding the self-discipline to do it [physical activity]
more often I think.”

“I find that I lack the get-up-and-go. If I force myself

to stay on something, and then I can usually carry on
alright. But it getting myself to start on it, I'm talking
about in the evenings.”

“This effects your motivation, this treatment. So it's
harder to do stuff. If it's something you really like,
well then you've got a head start.”

“I think that without your proper testosterone your
motivation is actually suppressed.”
