

Prostatepedia¹

¹expert insight + advice



Diet, Exercise + Prostate Cancer

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In this issue....

This month, *Prostatepedia* talks about things you can do to help yourself—diet and exercise. There is a clear consensus that it is a good idea to get thin and exercise.

First, it is good for your general health as it reduces the risk of hypertension and diabetes as well as the cardiovascular complications associated with both of these diseases. Exercise has also been shown to preserve cognitive function and is beneficial for common neurologic diseases like Alzheimer's and Parkinson's.

Second, exercise helps minimize the side effects of most of the treatments used for prostate cancer. Finally, as several interviewees discuss, exercise is associated with a lower risk of death from prostate cancer.

In my experience, it is not difficult to convince prostate cancer patients that they should exercise. However, it is very difficult for patients to initiate and maintain an exercise program that is comprehensive and vigorous on their own. It turns out that it is very important to join an exercise facility and get professional guidance.

Ideally, you would have a personal trainer tailor your program to your

abilities and needs. However, this can be expensive. A sound alternative is to attend group exercise sessions. Water aerobics classes are very gentle on knee and hip joints and practical for even very obese patients. Spin or indoor cycling sessions can offer a very intense cardiovascular workout with less risk of knee or hip trauma than running. Resistance exercise is important and, done properly, weight lifting has a relatively low risk of injury. However, most patients do not know how to squat or deadlift properly, so professional supervision is again important.



“Exercise is associated with a lower risk of death from prostate cancer.”



In his conversation, Dr. Stephen Freedland states that successful weight loss requires a diet that the patient can stick with long term. I would add that a diet is more likely to be successful if you believe in it yourself. In other words, there is a strong placebo effect.

This is not to say that anything goes. A diet based on cured meats, cookies, and cinnamon buns would not be healthy and would not promote weight loss. Some low carb diets do end up including cured meats like bacon.

In my clinic, we ended up recommending a Mediterranean diet as most patients found that easy to maintain over a period of years. The major pitfall was that some patients overate foods like pasta, leading to overly high carbohydrate intake. As a result, we emphasized moderate carbohydrate intake.

Charles E. Myers, Jr., MD
Editor-in-Chief



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Publisher Commentary

A cancer diagnosis can be frightening and isolating. What are we afraid of? Death. Debilitating side effects. Toxic treatments. The financial burden of cancer therapy and time away from work. Our friends, families, and co-workers often have no idea what to say. Many, fearing that they may say the wrong thing, often say nothing at all.

Most patients feel out of control: you trust your doctor to select the best treatment for you, but how do you know if that trust is well founded? And even if every single one of the doctors you consult for a second opinion agrees that this treatment is the most appropriate choice for you, how do you even know if it will work?


And then there is the subject of side effects. For most men with prostate cancer, grappling with the long-term side effect of common treatments can be overwhelming.

But there are a few things that are well within your ability to control. Getting your weight into a health range and establishing a sound exercise program will most certainly help you navigate the turbulent waters of the prostate cancer journey and may just help you prevent recurrence.

In December, a time when most of us over-indulge at holiday gatherings and abandon our fitness programs, Prostatepedia is talking about what kinds of diet and exercise programs prostate cancer patients ought to consider.

Dr. Stephen Freedland, Robert Newton, Stacy Kenfield, and Claire Pernar outline what we know—and don't know—about the impact obesity, diet, exercise, and other lifestyle factors may have on prostate cancer.

All of the experts we spoke with this month offer clear and achievable steps you can take now to ensure that you weather the side effects of surgery, radiation, ADT, and chemotherapy better while potentially curbing recurrence.

Read their advice carefully and then forward the information to your health care team. At the very least, have a frank and in-depth conversation with your doctors about the recommendations and brainstorm ways in which you can implement a wellness program that works in concert with your personal prostate cancer treatment plan. 



Stephen Freedland, MD

Obesity, Exercise + Prostate Cancer



Dr. Stephen Freedland is a urologist at Cedars-Sinai in Los Angeles, California and the Director of the Center for Integrated Research in Cancer and Lifestyle, Co-director of the Cancer Genetics and Prevention Program and Associate Director for Faculty Development at the Samuel Oschin Comprehensive Cancer Institute.

Dr. Freedland believes in treating the whole patient, and not just a man's prostate cancer.

Prostatepedia spoke with him about the link between BMI, exercise, and prostate cancer.

Have you had any patients whose cases have changed how you view your role as a doctor or how you view the art of medicine?

Dr. Stephen Freedland: I think you go into medicine because you want to - at least for me - cure disease. That implies that there's some state of perfect health. People come in to see me and they are not in a perfect state of health. You want to restore them to this perfect state of health. I now understand that there is no such thing as a perfect state of health. We perceive a perfect state of health to mean you have

no diseases. However, you're still at risk for certain diseases. Perfect implies you can't do any better. I don't think that's the case. I think we can always do something better.



"To be able to ride the rollercoaster of life with patients is a phenomenal honor."



I changed from a physician whose goal was to cure disease to a life coach in many ways. I help move people from *less healthy* states to *healthier* states, but it's not a black or white thing. I don't cure disease and then go on to the next patient. I continue to work with them, hold their hand, be a counselor, a life coach, a shoulder to cry on, someone to slap a high five when they do have a success.

I had all those experiences yesterday in my clinic. A patient gave me a hug. He called me his angel, slapping high fives with another patient, and then one patient was practically in tears because he did not have such a good prognosis. To be able to ride the

rollercoaster of life with patients is a phenomenal honor. It's a lot of responsibility, but there is nowhere else in the world that I'd rather be.

That's an interesting perspective. It's more like seeing people when they're healthy to help address diseases and issues as they come up rather than having people only come to you when they're sick...

Dr. Freedland: An ounce of prevention is worth a pound of cure.

That's a nice segue into my first question: what do we know now about the role of BMI, exercise, and prostate cancer risk?

Dr. Freedland: BMI has been much better studied. It is very clearly delineated that elevated BMI increases the risk of aggressive prostate cancer and increases the risk of dying of prostate cancer. That's pretty incontrovertible at this point. You'll see a study here and there that says the opposite, but the totality of the data is pretty convincing in that regard.

Exercise is a little harder to study because you can't simply measure it the way you can measure someone's height and weight and know what their BMI is. You need

to ask them how much they exercise. Is it vigorous exercise? Is it non-vigorous? Are you doing an hour at a time? You can get 1,000 or 10,000 steps during the day, or you can go run on the treadmill and get 10,000 steps in a half hour. It's very different.

Collectively, I would say the data seem to suggest exercise and particularly vigorous exercise may be beneficial to prostate cancer risk, but again, that is not nearly as codified nor as consistent and clear as the link we see between BMI and bad prostate cancer.

What impact does BMI or exercise have on risk of prostate cancer progression?

Dr. Freedland: Elevated BMI increases the risk of progression, recurrence, spread to metastatic disease, and death of prostate cancer whereas exercise, again, particularly vigorous exercise, seems to be preventive for progression. But, again, this is not as well studied and is based on a handful of exercise studies. The role of BMI is pretty well established.

A lot of men on androgen deprivation therapy (ADT) struggle with weight gain and muscle loss. What are the implications of this relationship between BMI and aggressive prostate cancer or exercise and aggressive prostate cancer for those men?

Dr. Freedland: As you said, ADT induces weight gain. You get muscle loss. There's one study from our group that showed obesity at the time of ADT increases the risk of progression to castrate-resistant disease. Surprisingly, it's not been well studied. Let's say you decide to go on a diet and not gain that ADT weight. We've actually

shown a low-carbohydrate diet induces 25 pounds of weight loss despite being on ADT, so the weight gain is preventable. We do know that.

What we don't know is impact of that weight gain on progression. Is gaining all that fat mass and losing muscle bad for your cancer? Intuitively, it should be. I mean, that just stands to reason from almost everything we know about prostate cancer and metabolism, but we haven't proven it. We have not proven that if you can prevent those things, you can prevent or delay prostate cancer progression.



"High BMI increases the risk of progression, recurrence, spread to metastatic disease, and death of prostate cancer"



It certainly has an impact on cardiovascular disease, doesn't it?

Dr. Freedland: Presumably but, again, it has not been studied in men on ADT. We do know exercise can preserve muscle function and quality of life. We know its impact on cardiovascular markers, but actually showing that exercise prevents cardiovascular disease in men on ADT has not been shown.

What we do know is that ADT will increase the risk of diabetes by about 40%. There's data to suggest it may increase cardiovascular disease, but it's controversial in that, if you look at really well done Phase III trials where men either

got hormones or didn't, you see no difference in cardiovascular deaths. Those are men on Phase III trials, selected to be healthy, and followed closely by their doctors. I think what we can say is, in highly selected patients, hormones are probably safe if you follow the patient closely, but in unselected patients, they probably do have cardiovascular effects.

That's interesting what you just said: followed closely: Are you saying that people who are on clinical trials are just by nature of being in a clinical trial followed more closely than people who are not?

Dr. Freedland: Absolutely, I mean, there's actually data to suggest that patients on clinical trials who are randomized to the control arm, i.e. standard of care, do better than patients not on the clinical trial who got the exact same treatment.

Being on a trial, even if you don't get that fancy experimental drug, still has benefits.

What does all this mean for patients? Should BMI be a priority for all men, including men who have prostate cancer?

Dr. Freedland: Correct. BMI is the strongest lifestyle link with prostate cancer. I see patients all the time ask me what should they eat. Should they take this supplement? Should they do that? Should they take this herb?

I say: just lose weight. That's the one thing that we know. To me, it makes the most sense to focus on getting people to lose weight.

How to lose weight is a challenge. Everybody has a difference of opinion. Part of it is picking a lifestyle and

sticking with it. The word *diet* literally means *way of life*. The word is Greek in origin. We need to pick a way of life that's sustainable, that's going to work for you, and is going to help you to lose weight. The one common thread I see among all of the diets to a certain degree is reducing simple sugars—cookies, cakes, candies. There is not a diet that I'm aware of out there that says, "Nah, don't worry about it. Eat all the cookies you want."

You mean there is no chocolate cake diet?

Dr. Freedland: Correct. The *low-fat, the whole-food plant-based* folks will say eat all the vegetables you want. The low carb people will say eat all the meat you want. But all of them agree, even though they're almost diametrically opposite, that cookies aren't good.

What would you say about exercise? Would you tell men to prioritize BMI over exercise?

Dr. Freedland: To me, they go together. Do you know what the number one cause of death in men is?

Cardiovascular disease.

Dr. Freedland: Cardiovascular disease. What's the number one cause of death in men with prostate cancer?

Cardiovascular disease.

Dr. Freedland: Cardiovascular disease. To me, if I can use a man's cancer to scare him into eating right, losing weight, and exercising, I've probably done him a lot of good. Whether I've helped the cancer or not, in my mind, isn't as important. Even if the exercise won't help his

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"I say: just lose weight."
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prostate cancer, I've definitely done good from a cardiovascular point of view. To me, eating right and exercising go hand in hand. I don't think you can focus on one over the other. Are you going to wear your pants today or are you going to wear a shirt? You need both, right? You'd look silly going around the workday without either one of those.

I guess it's hard to lose weight without exercising.

Dr. Freedland: Amazingly, it's not that hard to lose weight without exercising. Exercise is not a great way to lose weight. It's a great way to get fit. It's a great way to get healthy. Not a great way to lose weight. Not that it makes weight loss worse, but it actually doesn't help weight loss much. Weight loss ultimately is about eating less.

Right, eating less than you spend, right?

Dr. Freedland: Correct, taking in less than you burn, and that's where the whole-food plant-based diet comes in. You're eating a lot of filling food that's not calorie dense. It fills up your stomach and you feel full, even though you haven't taken in a lot of calories.

You can also go to low-carb, which is very calorically dense. Fat and protein fill you up more than carbs, so you end up losing weight.

There's a lot of different ways to go about losing weight. There are general low fat diets. There's Weight

Watchers. There's a lot of ways to lose weight. But exercise is something you do for your health, not to lose weight.

The problem is that a lot of people start exercising to lose weight and then get frustrated and give up. You don't exercise to lose weight. You exercise to get healthy. You eat less to lose weight.


Do you think discussions about BMI and exercise should be a part of every prostate cancer patient's initial meeting with a doctor, whether he has low-risk or aggressive cancer?

Dr. Freedland: I think it should be a discussion with every patient at every visit regardless of the diagnosis. It should be part of a wellness visit, a hypertension visit, a high cholesterol or a BPH visit, or a prostate cancer visit. I think it needs to be integral. We need to not think of ourselves as prostate cancer doctors, or bladder cancer doctors, or whatever the case may be. We need to think of ourselves as doctors.

Most patients have more than one disease anyway. If you treat just the prostate cancer, then you're ignoring the cardiovascular disease.

Dr. Freedland: Correct. It doesn't mean we need to manage the cardiovascular disease and manage the blood pressure, but we need to be aware of it. We all went to medical school. But there's more to a patient than his PSA and Gleason score.

Any final advice for men about obesity and prostate cancer?

Dr. Freedland: I always keep in mind the age-old adage: genes load the gun, but lifestyle pulls the trigger. 



Stacey Kenfield, ScD

Diet, Exercise + Prostate Cancer



Dr. Stacey Kenfield is an epidemiologist in the Urology Department at the University of California, SF who explores through her research how dietary and lifestyle factors impact both the risk of aggressive prostate cancer as well as the risk of prostate cancer progression.

Prostatepedia spoke with her about her findings as well as a large clinical trial she's directing with Movember that looks at the impact of exercise in men with advanced prostate cancer.

Why did you become an epidemiologist?

Dr. Stacey Kenfield: I've been an epidemiologist for over 12 years. The opportunity to help men with cancer improve their quality of life and survival with the disease continues to drive me to do the work that I do. Our group strives to translate our research findings and to implement clinical trials to learn how to help men adopt the behaviors that we study, as well as to learn more about the mechanisms driving the relationships.

We've continued to engage men with our clinical trials, but also now educate patients who visit our

urology clinics and the community who want to know what they can do once they've been diagnosed with cancer. We've continued to do our research, believing that our results on lifestyle can be used as adjuvant therapy to primary treatment of prostate cancer, and can also help formulate tailored management tools to improve prostate cancer survivorship.



“A healthy diet, not smoking, and regular exercise are critical components to reduce your risk of developing lethal prostate cancer, and may possibly prevent or delay prostate cancer progression.”

What do we know about the impact of diet on prostate cancer?

Dr. Kenfield: A number of studies indicate that specific dietary factors prior to diagnosis are associated

with the risk of developing aggressive prostate cancer. We also know from studies performed in men with prostate cancer that many of these same factors are associated with the progression of disease and the risk of dying from prostate cancer. Some of these factors include cooked tomatoes, due to the fact that there's more bioavailable lycopene in cooked tomatoes versus raw tomatoes. We also know from studies that lycopene seems to inhibit prostate cancer growth and development of aggressive prostate cancer.

Another factor is fish, which is possibly beneficial due to an anti-inflammatory effect. We've seen that fish with especially high levels of Omega-3 fatty acids, such as salmon, sardines, mackerel, and herring, are beneficial for reducing risk of the more aggressive forms of prostate cancer.

Another factor that we believe is important is to reduce one's intake of processed meat. Processed meat has pre-formed compounds called N-nitroso compounds. It also has nitrites, nitrates, and added salt, which seem to have cancer-promoting properties.

There has also been a lot of research on dairy and calcium in prostate

cancer. In general, most studies agree that higher intakes of calcium at levels of more than 1000 milligrams per day increase one's risk of developing prostate cancer. We want to emphasize that men with or without prostate cancer need to consume some calcium for general health, just that it should not exceed 1000 milligrams per day. For example, a cup of skim milk has about 300 milligrams of calcium and a cup of yogurt about 450 milligrams. Getting some calcium from your diet is still incredibly important for overall health.

What about getting some of these nutrients in supplement form? I know lycopene and Omega-3 fatty acids are available as supplements. What do you get from the diet that you don't get from supplements?

Dr. Kenfield: To be honest, a lot of our studies have been focused on whole foods.

I published a study back in 2015 on supplemental selenium intake showing that high doses of supplemental selenium are associated with about a 2.6-fold increased risk of prostate cancer mortality in men after diagnosis. Both the American Cancer Society, the American Institute for Cancer Research, and others discourage people from getting their nutrients from supplements, because the data do not suggest that it's beneficial. In all likelihood, it could cause harm if you're taking high dose supplements; so we recommend getting your nutrients from food if you can.

Are these all factors that you would recommend for both men who don't have prostate cancer as well as those who have already been diagnosed?

Dr. Kenfield: There are a few factors that potentially impact prostate cancer progression that have been studied recently. Plant-based fat-like nuts, plant-based oils, canola, olive oil, and avocados—have been studied after a diagnosis of prostate cancer and shown to have a beneficial impact on the risk of lethal prostate cancer.

Another food that we've focused on is cruciferous vegetables like broccoli, cauliflower, and kale. These foods have components that detoxify carcinogens that could be helpful for stopping cancer cells from growing and can also cause cancer cell death.

I've already mentioned tomatoes, fish, and processed meat.

We also recommend that men avoid high-fat dairy like whole milk, which has been linked to a higher risk of dying from prostate cancer.

What about red meat versus chicken?

Dr. Kenfield: We focus on recommending people eat lean protein sources, so this would be skinless poultry and fish, rather than red meat, which has been associated with other chronic diseases.

What about pork?

Dr. Kenfield: We have not been recommending pork specifically. We focus on just lean protein—chicken, fish, legumes, beans, and other sources of protein, like soy.

What about organic free-range meat? Do you have any comments about the importance of hormone-free meat?

Dr. Kenfield: This has not been studied.

It's a little bit harder to study organic or free-range meat in the types of data that we collect from our patients. That question is not regularly added to our food frequency questionnaires, so it hasn't been looked at in detail.

What impact does exercise have on prostate cancer—both on the risk of getting prostate cancer and on the risk of progression once you've been diagnosed?

Dr. Kenfield: A number of studies have suggested that physical activity, especially activities done vigorously—i.e. cause sweating; deeper, quicker breathing; and cause your heart rate to increase—are associated with a reduced risk of lethal prostate cancer. Early studies from our group conducted in two independent cohorts of men with prostate cancer showed that vigorous activity of 3 or more hours a week in one study and brisk walking for 30 minutes or more on most days in the other study had substantial benefits on reducing one's risk of dying of prostate cancer, or from progression from prostate cancer, respectively.

More recent studies suggest that slightly lower levels, about four hours of walking or two hours of jogging, had some benefit. There was a fourth study that showed that you may see a benefit after just one hour of exercise per week. Overall, the data suggest that exercise is beneficial, both for the prevention of advanced prostate cancer, as well as reducing one's risk of progression from the disease. Any aerobic exercise seems to be better than none; there is some benefit. I think for prostate cancer, one should really strive to do some of that activity at a vigorous level.

You're talking about cardiovascular exercise. What about resistance or strength training? Has anyone looked at that?

Dr. Kenfield: There have been a number of studies, mostly focused on men on hormone therapy (ADT), that show resistance exercise offers improvements in muscle strength and certain quality of life metrics. There have been trials that focused on both aerobic and resistance exercise; those studies have reported benefits, including gains in muscle strength, improved fitness, improved balance, and less fatigue. So both resistance training and cardiovascular training are helpful.

What about lifestyle factors like not smoking and stress management. How do those factors impact prostate cancer?

Dr. Kenfield: We've recently developed a lifestyle score to look at the combined risk of lifestyle factors on the development of lethal prostate cancer. In addition to the dietary factors that I just mentioned (high intake of tomatoes and fish and low intake of processed meat), we also looked at high levels of vigorous activity or brisk walking, not being obese (a body mass index or BMI < 30), and not smoking. This included people who had never smoked or people who had quit ten or more years prior. We created a score, which has six factors. We found that men who had 5 or 6 of these healthy lifestyle factors versus 0 or 1 of the factors had a 68 lower risk of lethal prostate cancer. That is statistically significant.

This was done in the Health Professionals Follow-up Study (<https://sites.sph.harvard.edu/hpfs/>). In the same paper, we looked in the Physicians' Health Study (<http://phs.bwh.harvard.edu/phs1.htm>). Many of the same variables are collected there,

so we had a six-factor score and found a very similar reduction in the risk of lethal prostate cancer there.

Most of the data used were collected before prostate cancer diagnosis, and up to the point of either having an outcome of lethal prostate cancer or to the end of the follow-up study. Currently, we're looking at what lifestyle pattern *after* diagnosis offers the most benefit.

How are all these different lifestyle factors weighted? For example, is it more important not to smoke than to have an appropriate BMI?

Dr. Kenfield: In a separate publication on smoking, we reported that current smokers had a 61 percent increased risk of progression, which is PSA progression, as well as a 61 percent increased risk of death from prostate cancer. There is also a strong benefit for vigorous activity compared to some of the other dietary factors that have a more modest benefit. When we looked at each factor separately that are part of the score, vigorous activity had the greatest impact on prevention – we estimate that 34% of lethal prostate cancer would be prevented if men exercised vigorously regularly. I think focusing on not smoking and exercise would be critical for both prostate-specific outcomes as well as overall health and the main chronic diseases that men and women tend to die of, like heart disease.

Can you talk to us about the thinking behind the clinical trial that you're running?

Dr. Kenfield: Some smaller clinical trials in men with prostate cancer, mostly at earlier stages of disease, have suggested that there are significant benefits to exercise on quality of life and functional outcomes. We also see from the

observational research that there is an association between exercise and lower risk of clinical outcomes (I mentioned those findings above.)

But we don't know if exercise is beneficial in men with advanced prostate cancer. That was one of the critical reasons why Movember decided to fund INTERVAL (INTense Exercise foR surVivAL), a large global trial focused on advanced prostate cancer with the primary endpoint of overall mortality.

We're also interested in many secondary endpoints that need to be explored further, including exercise's impact on progression-free survival, skeletal-related events, and other quality of life outcomes. We really want to understand the mechanisms behind the associations, so we're studying exercise's effect on inflammation, insulin, glucose metabolism, androgen biosynthesis metabolism, and other pathways. We are collecting blood and urine in the study to look at mechanisms of exercise.

What can men expect to happen, step-by-step?

Dr. Kenfield: The trial is specifically examining whether a supervised exercise program versus a self-directed exercise program improves overall survival in men with metastatic castrate-resistant prostate cancer.

If men are eligible, they will complete exercise tests at baseline. They'll have their blood drawn, provide a urine sample, complete surveys, and then they'll be randomized to either a one-year supervised aerobic and resistance exercise program that basically tapers over that year to another year of fully self-managed exercise, meaning exercise that you do on your own.

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The other group is randomized to self-directed exercise. They will receive guidelines on how to do exercises on their own. During the two-year study, patients will complete exercise testing at various time points. We'll ask them to complete surveys related to their lifestyle habits and quality of life. Each month, both

groups will receive psychosocial support in the form of newsletters focused on different topics relevant to men with prostate cancer.

When you were describing the self-directed program and guidelines, my very first thought was that I'll bet half those people aren't even going

to complete the exercises. The risk of a self-directed program is that you won't do it if you don't have any accountability built into the program.

Dr. Kenfield: Currently, we don't know if supervised exercise will affect the outcome or not, and there is no evidence of superiority



of one exercise strategy over another. Both groups are really important to the success of the trial. The information each participant provides will help investigators determine what levels of activities may be beneficial for men with advanced prostate cancer.

What kind of patients are you looking for?

Dr. Kenfield: We're looking for men with metastatic prostate cancer whose disease has worsened on standard hormonal therapy. This is termed metastatic castrate-resistant disease. Patients are eligible if they're receiving treatments in this disease phase, like Taxotere (docetaxel), Zytiga (abiraterone), Xtandi (enzalutamide), or they can be treatment naïve, meaning they're not on these drugs yet. If a man has metastatic prostate cancer, the study coordinators will check the other study clinical criteria.

Men must be able to travel to one of the study-designated exercise facilities at least twice a week for nine months. That's a requirement for someone who is randomized to the intervention arm. This tapers over time, but that's a critical component of the study because we are trying to have men do supervised exercise with one of the exercise physiologists associated with the study.

Where are the study locations?

Dr. Kenfield: We have study locations in the USA, Canada, Australia, Europe, and we're opening in China. Right now, we're open at 12 sites; 10 other sites are in startup phase and 10 others are in feasibility stage. The study is continuing to grow, and we plan to have it continue

at least through 2024. [See inset for a list of study locations.]

That is a massive study.

Dr. Kenfield: I'm directing the study coordination center, based at UCSF. We have collaborators at Edith Cowan University; Dr. Nicholas Hart directs the exercise coordination center and manages the exercise testing and training for participants from Perth, Australia. At the study coordination center, we're in charge of new site activations, patient recruitment, clinical data collection, the study databases, and data monitoring for every site, as well as the behavioral support and psycho-social support programs that are part of the study.

Do you have any thoughts for men with prostate cancer either about the INTERVAL study that you're running or about diet, exercise, and lifestyle choices in general?

Dr. Kenfield: Please consider joining the INTERVAL study and contacting us if you are interested and think you may be eligible. We sincerely hope that men, regardless of arm assignment, will experience some benefit from participation. And finally, to summarize, a healthy diet, not smoking, and regular exercise are critical components to reduce your risk of developing lethal prostate cancer, and may possibly prevent or delay prostate cancer progression. We've seen that adopting more of these behaviors could lead to greater benefits. As I mentioned before, many of these lifestyle factors are critical for reducing the risk of other chronic diseases like diabetes, obesity, hypertension, and heart disease. Death from cardiovascular disease is still the leading cause of death worldwide in men with prostate cancer, so it's

really important to consider making these changes, not just for your prostate cancer, but also for your overall health. It will impact a lot of other aspects of your life.

Does hormonal therapy exacerbate the cardiovascular disease that many men already have?

Dr. Kenfield: Yes, hormone therapy has been linked to increased risk of insulin resistance, an increase in body fat, and decreased muscle mass. Some of these metabolic changes could lead to increased risk in developing other health problems, like diabetes and heart disease. It's really critical that men who are on ADT or hormone therapy are exercising to counteract some of these negative effects of the drugs.


Would you say that every man with prostate cancer should be exercising?

Dr. Kenfield: Yes, I would. Our studies have focused on men with prostate cancer adjusting for the treatments that they're on.

Would you go as far as saying that every man—even if he does not have prostate cancer—and woman should be exercising?

Dr. Kenfield: Yes.

Cardiovascular disease is the leading cause of death in women, too, is it not?

Dr. Kenfield: Yes, it is. It's helpful to have support. Have somebody in your life that encourages you to adopt these healthy behaviors, even if it's just a colleague or a friend. I'd encourage everyone to find someone who can help motivate them to live healthier. 

Robert Newton, PhD

Exercise Recommendations



Professor Rob Newton is the Associate Dean of Medical and Exercise Sciences and the Co-Director of the Exercise Medicine Research Institute, School of Medical and Health Sciences at Edith Cowan University in Perth, Australia.

Dr. Newton offers exercise recommendations for men with prostate cancer.

Have you had any patients whose cases have changed the way you view your role as a clinician or how you approach talking about exercise with prostate cancer patients?

Dr. Robert Newton: Definitely. One fellow in particular had never exercised since he was a young boy, was quite overweight, and had very low fitness. When diagnosed with prostate cancer his urologist told him, “Don’t worry about having cancer, because you are going to die of a heart attack long before your prostate causes you problems.”

I worked with the dietician in our team to develop a very low caloric diet and a relatively high volume exercise program for him. He lost 21 kg of fat in eight weeks. The transformation in his health and fitness was phenomenal.

His urologist could not believe the change and commented that the prostatectomy was much easier and more successful than he expected.

This, and many other experiences supporting men with prostate cancer, has convinced me of the massive difference that an appropriate exercise prescription can have for these patients. We can definitely improve their outcomes.

What do we know about the impact of exercise on prostate cancer progression? What do we know about the impact exercise can have on how men with prostate cancer withstand specific treatments—surgery; radiation, hormonal therapy, etc?

Dr. Newton: As yet, there is not definitive clinical trial evidence of the impact of exercise on prostate cancer progression. We are currently running a world first trial in men with localised disease specifically to address this question.

However, preclinical experiments involving prostate cancer cell lines have demonstrated up to 30% suppression of growth. There are now several animal studies demonstrating similar

cancer suppression. What is more clearly supported by multiple human trials is that specific exercise reduces complications and side-effects of surgery and various treatments and may also actually enhance the effectiveness of radiation therapy and chemotherapy.

For example, work from our team has shown that exercise leading up to prostatectomy surgery results in less incontinence and much better fitness and health.

There is less evidence with regard to exercise improving tolerance of radiation therapy, however, there are strong theoretical mechanisms by which exercise performed immediately prior to a radiation therapy session may actually enhance the effectiveness of the radiation, resulting in greater cancer cell death. This occurs by increasing blood flow through the tumor, facilitating the oxygen enhancement effect of the radiation.

By far, the strongest evidence as to the benefit of exercise is for men on ADT for their prostate cancer. There are now many large randomized controlled trials clearly proving that exercise reduces the toxicities of ADT. In particular,

exercise slows or prevents muscle and bone loss and limits the onset of metabolic diseases such as diabetes and cardiovascular disease, which are common side effects of ADT.

Do you suggest men with prostate cancer see a trainer to help them set up an exercise program?

Dr. Newton: Ideally, men with prostate cancer would seek the assistance of a qualified exercise professional, such as a clinical exercise physiologist. These allied health professionals are university-trained and have specific knowledge and skills in exercise assessment and prescription for people with chronic diseases like cancer. I do recommend that patients go through this process to ensure that they have an optimal exercise prescription that addresses the morbidities and risk of mortality in a prioritized strategy. This means designing an exercise prescription tailored for the individual and the problems that they are experiencing.

What type of exercise program do you recommend for men on Active Surveillance?

Dr. Newton: Unless there are other comorbidities and provided that the men are relatively healthy, then my recommendation would be for them to try and meet the American College of Sports Medicine guidelines for healthy older adults: 75 to 150 minutes per week of moderate to vigorous aerobic exercise and two or more resistance training sessions exercising all of the major muscle groups. This does not really need the input of a qualified exercise professional, but could be pursued under self-management or in a local fitness center.

What type of exercise program do you recommend for men on ADT?

Dr. Newton: Men on ADT may experience considerable toxicities, which impact their physical structure and function as well as greatly increase the risk of chronic diseases such as diabetes and cardiovascular disease. These men really need a tailored exercise prescription that targets the health issues causing them the greatest



“We can definitely improve their outcomes.”



morbidity. For example, loss of muscle mass is a major problem for men on ADT. It requires a highly specific program of resistance training involving higher volume (or dosage) combined with a protein intake of at least 1.6 g per kilogram body weight per day. Maintaining muscle mass in these men is very important because it is a strong predictor of cancer recurrence and mortality.

Another ADT side-effect is bone loss which places the patient at considerable risk of skeletal fracture. In this instance, a highly specific exercise prescription incorporating resistance training and special impact loading consisting of skipping, jumping, and hopping is recommended as recent research has demonstrated that other forms of exercise have absolutely no benefit in terms of ameliorating the bone loss. However, such programs are highly advanced and must be closely monitored requiring supervision by a qualified exercise professional.

What type of exercise program do you recommend for men after surgery?

Dr. Newton: Post surgery, the patient will be considerably deconditioned in terms of muscle and strength loss and reduced cardiorespiratory fitness. They may also have some surgical complications, the most common of which is urinary incontinence. Exercise should be commenced as soon as possible after surgery to reduce further decline, albeit at a relatively modest dosage of aerobic and resistance training.

As the patient recovers from surgery, exercise volume and intensity should be increased as tolerated. In particular, if urinary incontinence is experienced then targeted exercise prescription including pelvic floor exercises as well as exercises for the large muscle groups around the pelvis should be included. Just because a man has urinary incontinence, he should not avoid exercise and must perform resistance training even if he experiences some leakage. Resistance training has been demonstrated to enhance recovery of continence.

What type of exercise program do you recommend for men on radiation therapy?

Dr. Newton: Patients should continue to exercise throughout the course of radiation therapy even when experiencing treatment-related fatigue. If fatigue is a major problem, then the volume of exercise should be reduced and the intensity increased with a greater emphasis placed on resistance training and a reduced volume in particular of aerobic exercise of low intensity.

In our clinic, we provide a specific exercise program of 10 to 20 minutes incorporating aerobic exercise and resistance training



“Men on ADT may experience considerable toxicities, which impact their physical structure and function.”



of the muscles of the pelvic area (e.g. squat, lunge, step-up) advising the patient to complete this program immediately before they enter the room to receive the radiation therapy. As noted above, there is emerging evidence that this strategy may greatly increase the effectiveness of radiation therapy to destroy cancer cells.

What type of exercise program do you recommend for men on chemotherapy?

Dr. Newton: Patients should exercise throughout the course of chemotherapy, however this should be auto-regulated. What this means is that the intensity and volume of exercise in a given session is adjusted up or down depending on how the patient feels on that particular day. The exercise program should be designed specifically to address key health issues facing the patient in a priority order.


Similar to radiation therapy, there is good evidence that performing a short exercise bout immediately before receiving chemotherapy may enhance its effectiveness by increasing blood flow through the tumor, thereby delivering more of the drug. It appears that there is a strong relationship between chemotherapy tolerance/side effects and the muscle mass of the patient. Patients with low muscle mass experience more

chemotherapy side effects and are more likely to require a dose reduction. Receiving less than the plan dose of chemotherapy reduces overall effectiveness.

What type of exercise program do you recommend for men on drugs like Xtandi (enzalutamide), Zytiga (abiraterone), Erleada (apalutamide) or even Xofigo (radium-223)?

Dr. Newton: We are currently leading an international trial of highly targeted exercise in men with advanced prostate cancer, many of which are receiving the latest super anti-androgens such as Zytiga (abiraterone) and Xtandi (enzalutamide). The trial is in progress, but our initial results are that these men are tolerating the exercise program and reporting excellent improvements in quality of life and physical function. Until this and other trials in this patient population are completed, it is not known the degree of benefit of exercise in men on these drugs. Regardless, exercise confers considerable benefit to all patients in terms of both mental and physical health.

Do you have any other final thoughts about exercise for men with prostate cancer?

Dr. Newton: As a final note, it is absolutely critical that men with prostate cancer do some exercise on most if not every day of the week regardless of the stage of their disease and even when undergoing difficult treatments. The outdated recommendation of rest is now completely rejected. However, the exercise prescription must be tailored to the specific health issues of the individual patient, prioritizing those morbidities causing the greatest problems and risk of mortality. 



Claire Pernar, ScD

Exercise + Lethal Prostate Cancer



Dr. Claire Pernar, a post-doctoral researcher in the Department of Epidemiology at the Harvard T.H. Chan School of Public Health, works with Dr. Lorelei Mucci's prostate cancer epidemiology group. She's particularly interested in the molecular epidemiology of prostate cancer, as well as lifestyle and environmental risk factors.

Prostatepedia spoke with her about her work on exercise and prostate cancer.

Why did you decide to become an epidemiologist?

Dr. Claire Pernar: I've always had an interest in science and biology. I also wanted to find a way to apply research to promote public health, to help prevent cancer, and improve lives of those with cancer. For me, epidemiology was a perfect way to combine my interests in science and my goals. Now that I am an epidemiologist, this discipline allows me to do cancer research that intersects with many fields, including public health, biology, genetics, and pathology. It's an exciting field, because it's constantly evolving. There are always new challenges to meet.

How did the interest in prostate cancer and exercise arise?

Dr. Pernar: I began studying prostate cancer when I came to the Harvard T.H. Chan School of Public Health and started working with my mentor, Dr. Lorelei Mucci, who inspired in me a real interest in prostate cancer epidemiology and its unique challenges. The most well established risk factors for prostate cancer are older age, having a family history of prostate cancer, and being of African-American race. While this is important knowledge and may help to evaluate a man's risk of developing prostate cancer, these factors are not modifiable. It's important that we understand how prostate cancer develops and to identify *modifiable* factors that can lower risk, particularly for more aggressive disease.

I became interested in studying the potential relationship between physical activity and prostate cancer because physical activity—exercise or movement that expends energy—is something we all do. It's integral. It's part of our lives whether we think about it or not.

Physical activity is also interesting and challenging to study because it is a complex behavior with many

dimensions. For example, we can think about physical activity in terms of its type, intensity, and duration; its place (indoors or outdoors); or whether the activity is performed individually or as part of a group. These factors may all contribute to the health benefits we receive from activity. There's a lot we know, but also many unanswered questions.

With respect to prostate cancer, physical activity appears to be an important factor with many potential benefits.

What do we know already about physical activity and prostate cancer?

Dr. Pernar: Similar to several other dietary and lifestyle factors, we see different associations between physical activity and prostate cancer risk depending on whether or not we look at aggressive or nonaggressive disease. There is moderate evidence from epidemiologic studies that men who are more physically active have a lower risk of developing *aggressive* prostate cancer. Several epidemiologic studies have looked at this relationship, but their findings have not all agreed.

Our research group sought to further explore this question and recently

published the results from a large observational study in *European Urology*. We studied 49,160 men enrolled in the Health Professionals Follow-up Study (<https://sites.sph.harvard.edu/hpfs/>). These men were between 40 and 75 years of age and free of cancer at the start of the study in 1986. We followed these men for 26 years. Over time, the participants completed questionnaires to tell us about their lifestyle, diet, and health.

During this period 6,411 men developed prostate cancer. We collected information about their prostate cancer using questionnaires, medical records, and when possible, tumor tissue collected during surgery.

What stands out about our study is that we were able to use molecular subtyping data to ask the question of whether physical activity affects risk of developing a specific subtype of prostate cancer. This type of question can help us to better understand how physical activity might be related to the underlying biology of this disease. We looked specifically at the *TMPRSS2:ERG* subtype, which is a common molecular subtype that occurs in about 50% of prostate cancers.

In this study, we compared the risk of developing prostate cancer in men with different levels of physical activity prior to diagnosis. We specifically looked at vigorous or high-intensity activity, such as running, bicycling, or racket sports. We found that men who engaged most frequently in vigorous physical activity over the long-term had a 30% lower risk of advanced prostate cancer and a 25% lower risk of lethal prostate cancer compared to men who did the least amount of vigorous activity. Vigorous activity was also associated

with a lower risk of *TMPRSS2:ERG*-positive prostate cancer. Since other studies show *TMPRSS2:ERG* prostate cancer may be affected by insulin, growth factors, and other metabolic factors, these results could help to understand the relationship between physical activity and this subtype of prostate cancer. This is the first study to examine the relationship between physical activity and this molecular subtype, so we need additional studies to confirm the finding.

How did you tease out the impact of vigorous activity from the impact of being a healthy weight? Maybe the people who exercised happened to have a healthier weight and an appropriate BMI that is associated a reduction in prostate cancer risk. Did you look at that?

Dr. Pernar: It is important in epidemiologic studies of physical activity to account for body mass index (BMI) and other factors related to lifestyle and diet. We were able to account for each man's BMI in our analysis using information we collected with questionnaires. The results of our study can be interpreted as the association of vigorous activity with prostate cancer risk that is independent of a man's BMI.

Importantly, we also accounted for prostate-specific antigen (PSA) screening in our study. The introduction of PSA screening has played an important role in prostate cancer epidemiology, with more men being diagnosed with prostate cancer, and in particular slow-growing prostate cancer. Our study and others have shown that men who are more physically active tend to be more likely to have PSA screening. Our study showed that the association between physical

activity and lower risk of lethal prostate cancer was independent of PSA screening history.

All the vigorous activity that you mentioned—running, bicycling—are cardiovascular activities. Did you look at strength training?

Dr. Pernar: We didn't evaluate strength training specifically in this study. We grouped together vigorous activities based on each activity's *metabolic equivalent of task value*, which tells us the relative amount of work needed to perform that activity. Activities that met a certain threshold of intensity were considered vigorous activity, such as running, jogging, swimming, and racket sports.

How much vigorous activity were these men doing?

Dr. Pernar: We saw the strongest benefit when we looked at men who had the highest amount of activity compared to the lowest. On average, men in that highest category engaged in vigorous activity equivalent to roughly 25 minutes per day of running. In the lowest category on average, men were doing no vigorous activity.

We're talking now about the link between physical activity and prostate cancer risk. Did you look at the link between exercise and risk of progression? Once a man already has prostate cancer, what kind of impact does exercise have?

Dr. Pernar: We didn't evaluate the link between exercise after prostate cancer diagnosis and risk of progression in this particular study. We focused on the impact of long-term physical activity before diagnosis.

There is promising evidence from other epidemiologic studies that physical activity after a prostate cancer diagnosis may lower the risk of progression and prostate cancer mortality. There seems to be a benefit for men with prostate cancer who engage in vigorous activity as well as for those who engage in lower intensity activity, such as brisk walking.



*“Vigorous activity was also associated with a lower risk of *TMPRSS2:ERG*-positive prostate cancer.”*



Exercise is also consistently associated with an improvement in quality of life in men with prostate cancer. For example, exercise seems to improve depression, fatigue, and body weight.

Given the growing number of men living with prostate cancer, the potential benefit of exercise in this population could be substantial.

It impacts cardiovascular disease as well, doesn't it?

Dr. Pernar: Definitely. It's important to know that physical activity promotes overall health. The majority of men who are diagnosed with prostate cancer will not die from prostate cancer, but from cardiovascular disease. Physical activity is an important way to prevent cardiovascular disease. Exercise lowers the risk of high blood



pressure and stroke, enhances bone health, improves mental health and cognitive function, prevents weight gain, and has many other benefits, too.

On top of these important reasons, lowering prostate cancer risk and improving survival may be additional reasons for men to be active.

Would you say, given all that we just talked about, that all men should be exercising, whether they want to reduce their risk of prostate cancer or whether they already have prostate cancer? And that spending 25 minutes a day is a good goal?

Dr. Pernar: This is an important question. I would encourage all men to exercise for its many health benefits. I would point men to established physical activity guidelines, such as those from the World Health Organization, which recommend 150 minutes per week of moderate intensity activity or 75 minutes a week of vigorous intensity activity as well as 2 or more days per week of muscle strengthening activities. The American Cancer Society also recommends these amounts of exercise for cancer survivors. Our study of prostate cancer risk found a benefit for higher levels than this, but overall the evidence shows that any amount of physical activity is beneficial for your overall health.

Even if you only have 15 minutes to exercise, that is of some benefit.

Dr. Pernar: Our study didn't specifically evaluate this. However, physical activity guidelines based on overall evidence tell us that even low levels of activity have a benefit over an inactive lifestyle.

When we first started talking today you said something about there being a possible difference between group exercise versus solo exercise. What did you mean when you said that?


Dr. Pernar: I was referring to the idea that participating in exercise with others could have an added benefit. Engaging in physical activity as part of a group could have dual benefits of improving cardiovascular health, for example, and offering social support, which could be particularly beneficial to men with prostate cancer. I think there's a lot more that we need to learn about this particular question.

Is there anything else that you'd like men with prostate cancer to know either about the study that you just published or about its implications?

Dr. Pernar: Our findings on physical activity and lethal prostate cancer and *TMPRSS2:ERG* highlight the heterogeneity in the etiology of prostate cancer. Also, our findings regarding *TMPRSS2:ERG* align with those from other studies showing that certain lifestyle, dietary, and genetic factors are associated specifically with prostate cancers that have *TMPRSS2:ERG*. This contributes to our understanding of the etiology of this particular prostate cancer subtype.

We are understanding that we have to take into account prostate cancer's heterogeneity in order to really understand the epidemiology of this complex disease.

It really is the era of personalized medicine.

Dr. Pernar: Yes. And this takes that one step further: precision prevention. 



Walter D'Ardenne

My Diet + Lifestyle After Cancer

Mr. Walter D'Ardenne founded and leads an advanced prostate cancer support group and participates in three other general prostate cancer support groups in Northern California. He spoke with *Prostatepedia* about his prostate cancer journey and the diet and lifestyle changes he made along the way.

How did you find out that you had prostate cancer?

Mr. Walter D'Ardenne: I was seeing a urologist for several years for BPH. He was tracking my PSA. My PSA was 4 and the urologist did a biopsy. It was negative. Two years later, in December 2001, he did another biopsy and this time it was positive. My Gleason Score was 4+4=8 and my PSA at the time was 6.4.

My reaction was: "Oh good, I'll get my prostate out and get rid of my BPH." My wife had had kidney cancer, endometrial cancer, and basal cell cancer. I was not upset or concerned. I was looking forward to getting rid of my BPH.

What were your first steps?

Mr. D'Ardenne: My urologist said, "I don't recommend surgery. I recommend brachytherapy with

a low-dose seeds." He explained why and it made sense to me.

I got a second opinion from another urologist, who was totally independent; he recommended surgery. As I talked with him, it was obvious to him that I was not warming up to his proposal of surgery. Then he said, "You want to do watchful waiting. That is what I would recommend to my father." He said, "Your life expectancy is ten years." That was almost 20 years ago.

I decided to go ahead with the seeds. I also talked to the radiation oncologist who would do the seeds—with my urologist assisting him. I felt pressured—self-imposed—to do something, but my urologist did not discourage me. I went on hormone therapy to shrink my prostate. My prostate had been 64 ccs and it shrank it down to about 40 ccs, with Lupron (leuprolide). Then in August 2002, I had the seeds implanted.

How was that experience like?

Mr. D'Ardenne: The procedure was fine, a walk in the park. My appointment was in the morning. They put me out and did the procedure. I woke up in the



recovery room. I went home. It was basically no problem for me.

Subsequent to that, I had problems with urination because my prostate and urethra were irritated, so I went through a couple of months of restricted urination. I never needed a catheter, but I took a long time to empty my bladder. That didn't inhibit me from traveling. During that time, we went back to Cape Cod to visit my wife's brother and up to Nova Scotia.

Did you get any other treatment after the seeds?

Mr. D'Ardenne: No. And in retrospect I probably should have. I should have continued the hormone therapy and I should have had some external beam to the pelvic area, but I did not have that. My urologist didn't suggest it and I didn't know enough to ask for it.

Why do you say you should have done that?

Mr. D'Ardenne: My Gleason was 8. I was high risk, so I should have had a combination of therapies.

My seed implants were done in August. By January, I was completely back to normal, as far

as any urination problems were concerned. I felt fine and I didn't have any problems.

My urologist was checking my PSA yearly. It was going up continuously. It started at 0.1 and went up to 0.2 a year later and kept going. By 2006, it was 8.73 with about a three-month doubling time.

At that point, he said, "You should go on hormone therapy." I decided to get some second opinions. He said, "You'll get as many second opinions as doctors you see."

I went to Stanford Cancer Clinic and saw Drs. Sandhya Srinivas and Christopher King. I went up to University of California, San Francisco and saw Dr. Mack Roach. I went to Memorial Sloan Kettering and saw Dr. Lewis Kampel. I went to Johns Hopkins and saw Dr. Charles Drake. They all said something different, although they all agreed that if I couldn't find where the cancer is, I should do hormone therapy.

When I saw Dr. Mack Roach, he ordered an MRI with spectroscopy to try to find where my tumors were. That proved negative, so I started hormone therapy. I was on Lupron (leuprolide) and Casodex.

Then I read Dr. Charles E. "Snuffy" Myers's book and I decided I should be on triple-hormone therapy—Avodart as well as Lupron and Casodex—and that my Casodex ought to be 150 milligrams. I went back to my urologist and said I want to do that. He agreed.

Then I went up to see Dr. Mack Roach again and he read the riot act to me. He said, "No way should you be doing 150 milligrams of Casodex. Go back to 50." Which I did. But later

after I became one of Dr. Myers's patients, I went back to 150 mg of Casodex.

When I saw Dr. Charles Drake, he gave me a paper by Drs. Dean Ornish and Peter Carroll on a clinical trial applying the Dean Ornish lifestyle program to prostate cancer patients. The results blew me away. They were really very dramatic.



"I felt pressured—self-imposed—to do something."



I bounced the paper off a good friend of mine at the University of Texas Dallas Medical Faculty. He was a pediatrician, but he was doing medical research. He read the articles and said, "That is a damn tight study. Stay the course." I went on the Dean Ornish diet in December 2006.

The Dean Ornish diet is a very restricted vegan diet where you have to keep your fat intake below 10%. That's tough. You eat absolutely nothing with fat in it.

I stayed on it until I saw Dr. Myers in May. He said that I need more fat and protein in my diet. I modified my diet in accordance with his recommendations and became a pesca-vegan (a vegan diet plus seafood).

Around about the same time, I picked up the other recommendations for the Dean Ornish lifestyle, which were meditation, yoga, and a support group. Up until

then, I hadn't gone to any support groups, so I got tied into a support group at that point.

Have you been able to maintain the changes in diet and lifestyle that you made?

Mr. D'Ardenne: Yes. I have no problem doing that. Number one, I don't have a sweet tooth and I don't miss eating beef at all. I never liked lamb, so I didn't have any problem with that. The one thing I would like to eat once in a while is bacon, but I don't and it doesn't really bother me.

However, when I go on a trip to a place such as Vienna, I will abandon my diet.

Of course, the Dean Ornish clinical trial found that you only needed to stay on the diet 90% of the time, so that allows you to deviate for two meals out of the 21 in a week.

I normally stick to my diet all the time, except when I go on vacations.

I've always exercised, but I kicked my exercise up and now I go to the gym three days a week. I spend two hours there doing aerobics, strength exercises, and stretching.

Did you come up with this exercise program yourself or did you see a trainer?

Mr. D'Ardenne: It is my own program. I live in a retirement community. We have physical fitness trainers in our fitness center.

I go there and use all of the machines—all the aerobics and strength machines. I also ask the fitness trainers to keep an eye on what I do. Every once in a while, I'll say look at what I'm doing





and make sure I'm doing it right. They'll correct my bad habits. Other than that, this is my own thing.

When I don't go into the gym, I try to walk. We just came back from a vacation. I walked up to six miles a day when we were on vacation. I was also off my diet.

Talk to me a little bit about some of the stress-relief meditation elements that you incorporated.

Mr. D'Ardenne: I finally started doing meditation in 2007. I've come to realize that I can get stressed subconsciously. When I was working, every once in a while my eye would start twitching. I would say what in the world is my eye twitching for? I'd think and I'd think and I'd finally say that's because I'm not doing such and such and then my eye would stop twitching. My eye never twitches anymore since I retired. I don't think I'm stressed, even subconsciously, but I do the meditation. I go to a yoga class twice a week. I dropped out of yoga for a while because of our travel but I'm back into it now.

Do you have any advice for men with prostate cancer who are considering changing their diet and lifestyle?

Mr. D'Ardenne: Exercise is very important, because the exercise will minimize side effects and it'll also help resist any recurrence that you might have. Same thing with the diet, but I think the exercise is more important than diet.

But also get to a support group. I've been to a lot of support groups and some are excellent and some are not very good. If the support group is not very good, find another one. The combined knowledge of the



"I normally stick to my diet all the time, except when I go on vacations."




guys in my support group know more about prostate cancer than 99% of the doctors.

In your mind, the draw of the support group is that it is a way to get accurate information from other men who have prostate cancer?

Mr. D'Ardenne: Absolutely. If you can't find a good support group, call the PCRI helpline.

You've got to do a lot of research, but take your time because you *have* time, especially if you start something like Lupron (leuprolide), which will keep the prostate cancer in check. You take your time *before* you make any decisions. Do a lot of research. If you have low-risk prostate cancer you need to avoid unnecessary treatments and their associated side effects. If you have high-risk prostate cancer, you really need to do the right thing. You really need to zero in on what is the right thing for you.

I've had three recurrences: one in 2006, one in 2009, and one in 2016. I just finished my treatment for my last recurrence. You've just got to keep your eye on it and keep things in check. Of course, new treatments are being developed exponentially. Sooner or later, they're going to find a way to turn prostate cancer into a chronic disease. 

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