WHOLE HEALTH: CHANGE THE CONVERSATION

Advancing Skills in the Delivery of Personalized, Proactive, Patient-Driven Care

Men’s Health
Educational Overview

This document has been written for clinicians. The content was developed by the Integrative Medicine Program, Department of Family Medicine, University of Wisconsin-Madison School of Medicine and Public Health in cooperation with Pacific Institute for Research and Evaluation, under contract to the Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration.

Information is organized according to the diagram above, the Components of Proactive Health and Well-Being. While conventional treatments may be covered to some degree, the focus is on other areas of Whole Health that are less likely to be covered elsewhere and may be less familiar to most readers. There is no intention to dismiss what conventional care has to offer. Rather, you are encouraged to learn more about other approaches and how they may be used to complement conventional care. The ultimate decision to use a given approach should be based on many factors, including patient preferences, clinician comfort level, efficacy data, safety, and accessibility. No one approach is right for everyone; personalizing care is of fundamental importance.
Vignette: Keith

Keith is an 80-year-old Veteran who is seeing you for a Whole Health assessment. He served in the U.S. Marine Corps and saw one tour of duty in Korea in 1952. His wife died unexpectedly five years ago from a stroke. He has a history of prostate cancer (Gleason score of 8, 4+4) and is status-post prostatectomy in 2008. Before that, he had benign prostatic hypertrophy (BPH) with severe lower urinary tract symptoms with an average International Prostate Symptom Score (IPSS) of 24 and had a prostate-specific antigen (PSA) level of 27 before his prostatectomy. He now suffers from urinary incontinence and erectile dysfunction (ED) with an International Index of Erectile Function (IIEF) score of 6 but is not interested in treatment for ED.

His stated reason for coming in today is to improve his chances of living until 85, so that he can see his great-granddaughter, Jessica, get married. He is very close to her because she lived with him and his late wife after his granddaughter passed away from a drug overdose. Jessica is currently attending college locally.

His other past medical history includes the following:
- He has coronary artery disease with a four-vessel bypass done in 2000.
- He suffered a gunshot wound to the left leg in Korea.
- He has recently had bilateral cataract surgery.
- His PSA was undetectable until last year when it was 0.05 ng/dL. Just last week it increased to 0.75 ng/dL, and he is aware that this means his prostate cancer is coming back.
- His current waist circumference is 41.25 inches.
- He has left knee pain with activity, especially walking. An x-ray of the left knee two years ago revealed moderately severe degenerative joint disease (DJD).

Keith was asked by one of his primary care team members to fill out a Personal Health Inventory (PHI).
Your Personal Health Inventory

1. What really matters to you in your life?
   My family is the most important thing in my life. I feel very grateful for the support I have especially after my wife Janet died a few years ago. My great-granddaughter Jessica is the apple of my eye. She comes to visit with me several times a week and calls me every day to check on me. I want to be around long enough to see her get married and make sure she is well on her way in life.

2. What brings you a sense of joy and happiness?
   - Watching the birds at the bird feeders and the changing seasons.
   - Spending time with Jessica.
   - I used to walk everyday but I cannot any longer because of knee pain.

3. On the following scales from 1-5, with 1 being miserable and 5 being great, circle where you feel you are on the scale

   Physical Well-Being:
   
   1 2 3 4 5
   Miserable Great

   Mental/Emotional Well-Being:
   
   1 2 3 4 5
   Miserable Great

   Life: How is it to live your day-to-day life?
   
   1 2 3 4 5
   Miserable Great

Where You Are and Where You’d Like to Be

For each of the following areas, consider where you are now and where you would like to be. All the areas are important. In the “Where you are” box, briefly write the reasons you chose your number. In the “Where you want to be” box, write down some changes that might make this area better for you. Some areas are strongly connected to other areas, so you may notice some of your answers seem the same. Try to fill out as many areas as you can. You do not have to write in every area or in all the areas at one time. You might want to start with the easier ones and come back to the harder ones. It is OK just to circle the numbers.
### Working the Body: “Energy and Flexibility” includes movement and physical activities like walking, dancing, gardening, sports, lifting weights, yoga, cycling, swimming, and working out in a gym.

<table>
<thead>
<tr>
<th>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</th>
<th>Where would you like to be?</th>
<th>What are the reasons you choose this number?</th>
<th>What changes could you make to help you get there?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>It really hurts to walk on my left knee. I know I need to lose some weight and do some exercise but my knee is holding me back.</td>
<td>I think if I could walk more I would feel a lot better. I'm not sure what to do about my knee pain and I really don't want to go through surgery at my age.</td>
</tr>
</tbody>
</table>

### Recharge: “Sleep and Refresh” includes getting enough rest, relaxation, and sleep.

<table>
<thead>
<tr>
<th>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</th>
<th>Where would you like to be?</th>
<th>What are the reasons you choose this number?</th>
<th>What changes could you make to help you get there?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>I've always been a good sleeper. I had some trouble sleeping after Janet passed away but I am doing better again. I also had to get up a lot to urinate before my prostate surgery. Now I have to wear depends.</td>
<td>Sometimes I have a little trouble sleeping because I worry about my great granddaughter. I also wonder how much longer I can live in my own home alone.</td>
</tr>
</tbody>
</table>

### Food and Drink: “Nourish and Fuel” includes eating healthy, balanced meals with plenty of fruits and vegetables each day, drinking enough water and limiting sodas, sweetened drinks, and alcohol.

<table>
<thead>
<tr>
<th>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</th>
<th>Where would you like to be?</th>
<th>What are the reasons you choose this number?</th>
<th>What changes could you make to help you get there?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>I am eating mostly frozen food. I also eat a lot of snack food and drink 3–4 diet Cokes every day. I have a bit of a sweet tooth. Janet was always the cook. I feel like I don't know the right things to cook for myself. It is just easier to buy frozen meals.</td>
<td>I think cooking more for myself would help. I think snacking less and maybe drinking less soda pop.</td>
</tr>
<tr>
<td>Personal Development: “Personal Life and Work Life” includes learning and growing, developing abilities and talents, and balancing responsibilities where you live, volunteer, and work.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</td>
<td>Where would you like to be?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>What are the reasons you choose this number?</td>
<td>What changes could you make to help you get there?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I read the newspaper every day. I listen to public radio as well. I enjoy reading books. I was lucky to have had a good job, and I am living comfortably in retirement. I own my home.</td>
<td>I’ve always wanted to volunteer at the local elementary school and help kids with reading.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Family, Friends, and Co-Workers: “Relationships” includes feeling listened to and connected to people you love and care about, and the quality of your communication with family, friends, and people you work with.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>What are the reasons you choose this number?</td>
</tr>
<tr>
<td>I have a good support system. I have family around, and I am especially close to my great-granddaughter. I have great neighbors and meet with my gentlemen friends every morning to drink coffee at the local coffee shop around the corner.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spirit and Soul: “Growing and Connecting” includes having a sense of purpose and meaning in your life, feeling connected to something larger than yourself, and finding strength in difficult times.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>What are the reasons you choose this number?</td>
</tr>
<tr>
<td>I go to church every Sunday at our neighborhood church. I used to spend more time outside and felt more connected to the earth.</td>
</tr>
</tbody>
</table>
### Surroundings: “Physical and Emotional”
Includes feeling safe, having comfortable, healthy spaces where you work and live, quality of the lighting, color, air, and water, and decreasing unpleasant clutter, noises, and smells.

<table>
<thead>
<tr>
<th>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</th>
<th>Where would you like to be?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

What are the reasons you choose this number?
- My neighborhood is safe. We have a neighborhood watch program.
- My house is a little cluttered.
- Sometimes my front stairs and driveway get slippery with ice.

What changes could you make to help you get there?
Clean up the clutter so I don’t fall. Wait until the neighbor comes by to put salt down on my stairs and driveway.

### Power of the Mind: “Strengthen and Listen”
Includes tapping into the power of your mind to heal and cope and using mind-body techniques like relaxation, breathing, or guided imagery.

<table>
<thead>
<tr>
<th>Where you are: Rate yourself on a scale of 1 (low) to 5 (high)</th>
<th>Where would you like to be?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

What are the reasons you choose this number?
I sometimes feel very nervous and my mind races with fears. I used to listen to music more, which made me feel very relaxed.

What changes could you make to help you get there?
I’ve heard about meditation but I don’t know if I’m too old for that. Maybe listen to music more often.

### Professional Care

**Prevention:** On a scale of 1-5, circle the number that best describes how up to date you are on your preventive care such as flu shot, cholesterol check, cancer screening, and dental care.

1. Not at all
2. A little bit
3. Somewhat
4. Quite a bit
5. Very Much

**Clinical Care:** If you are working with a healthcare professional, on a scale of 1-5, circle the number that best describes how well you understand your health problems, the treatment plan, and your role in your health.

1. Not at all
2. A little bit
3. Somewhat
4. Quite a bit
5. Very Much

☐ I am not working with a healthcare professional.
Reflections

1. Now that you have thought about all of these areas, what is your vision of your best possible health? What would your life look like? What kind of activities would you be doing?

The best outcome for me would be to not die from prostate cancer in the next five years. I would like to enjoy my last years of life a little more. I feel very limited in what I can do because it is hard to get around. I would love to get out and walk more. I would like to lose weight and not feel so tired all the time. I don’t want to worry as much either. When it is time for me to die, I would like it to come on fast so I do not have to suffer and burden my loved ones.

2. Are there any areas you would like to work on? Where might you start?

I think I could eat better. I hope you can give me ideas how to safely manage my pain in my left knee better, so I can walk and maybe lose weight. I can read about meditation and stress reduction. I heard that some people can keep prostate cancer away from how they live their lives, so I would like to learn more about that.
This educational overview focuses on Whole Health approaches that often are of special concern to men who seek medical care: prostate cancer, ED, BPH, prostatitis, testosterone deficiency, and longevity. Key study findings unique to these specific issues or conditions are highlighted. Before discussing each of these, it is important to consider the overall picture when it comes to men's health.

**Important Statistics for Men**

**Prostate cancer**
The 2010 incidence of prostate cancer in U.S. men was 196,038, with 28,560 deaths.\(^1\)
Another source put the number of prostate cancer deaths at 36,000 in 2010.\(^2\)

**Lung cancer**
In 2010, 107,164 cases of lung cancer in men were diagnosed. There were 87,698 deaths, which indicates a high level of mortality.\(^1\)

**Colon cancer**
In 2010 the incidence of colon cancer in men was 67,700 with 27,073 deaths.\(^1\)

**Heart disease**
The prevalence of cardiovascular disease (CVD) in the United States in 2010 was 83.6 million adults. Greater than half of those people were over 60-years-old. The prevalence of coronary heart disease (CHD) was 15.4 million.\(^3\) In 2010, the United States total population was 310,383,948.\(^4\)

In U.S. men, the prevalence of CVD was 40.7 million with a mortality rate of 387,318 in 2010.\(^3(p122)\) The estimated cost of CVD for both men and women in the United States in 2010 was $315.4 billion.\(^3\)

According to the U.S. Burden of Disease Collaborators, in 2010 ischemic heart disease was the number one cause of years of life lost (YLL) in the United States with 562,900 deaths.\(^2\) This was a drop from 648,200 deaths in 1990—a 14% median decrease because of our growing population. There are other remarkable trends from this same report. The number two cause of YLL was lung cancer with a combined 163,300 deaths for men and women. The diseases with the most marked increase in rank of YLL between 1990 and 2010 were diabetes (#15 to #7), drug use disorders (#44 to #15), and the most striking was Alzheimer disease (#32 to #9), which led to a whopping 524% median increase in deaths.

The proportional mortality (\% of total deaths for all ages) in the United States is 35\% from CVD and 23\% from cancers.\(^5\) A large percentage of those cancer deaths are still coming from lung cancer, which is considered primarily preventable by discouraging tobacco use.

Interestingly, the high proportional mortality from CVD in the United States in 2008 is despite drops in the mean systolic BP from 1980 to 2008 and steady decline in the mean
WHOLE HEALTH: CHANGE THE CONVERSATION
Educational Overview: Men’s Health

total cholesterol during the same time period. In contrast to those trends, between 1980 and 2008 the United States saw steadily increasing mean fasting blood glucose and mean body mass index (BMI). U.S. men had significantly higher mean fasting blood sugar in 2008 than women, whereas women had modestly higher mean total cholesterol than men in 2008. U.S. men and women gained weight at virtually the same rates between 1980 and 2008.

Summary
Although cancer remains a significant risk for U.S. men in regards to morbidity and mortality, CVD and metabolic risk factors, especially increasing mean fasting blood sugar and increased rates of overweight/obesity, are more prevalent and lethal.

This educational overview will focus on many of the health problems that are unique to men. However, it is important to emphasize that cardiovascular health remains the number one health risk that men in the U.S. face. While there are many beneficial options for preventing and treating a number of uniquely male diseases or dysfunctions such as prostate cancer, ED, BPH with or without lower urinary tract symptoms (LUTS), testosterone deficiency (TD) and male longevity, the big picture must be kept in mind. Knowing the statistics listed above will help us focus our efforts on the most important health-related issues our nation faces.

Prostate Cancer

Gleason score
The histologic grade of prostate adenocarcinomas is usually reported according to one of the variations of the Gleason scoring system, which provides a useful, albeit crude, adjunct to tumor staging in determining prognosis. The Gleason score is calculated based on the dominant histologic grades, from grade 1 (well differentiated) to grade 5 (very poorly differentiated). The classical score is derived by adding the two most prevalent pattern grades, yielding a score ranging from 2 to 10.

Because there is some evidence that the least-differentiated component of the specimen may provide independent prognostic information, the score is often provided by its separate components (e.g., Gleason score 3 + 4 = 7; or 4 + 3 = 7) with the most common histologic grade being denoted first. Generally, scores less than 7 are considered lower risk for progression. A score of 7 is intermediate and 8-10 is high risk. Keith’s score of 4+4 puts him into the high-risk category. Gleason scores are widely used in prostate cancer research, so it is important to have a working knowledge of this scale.

The Gleason score is a sum of the two most prevalent grades of prostate cancer. The higher the number, the more aggressive the tumor. Scores of 7 or greater are linked to a higher risk of progression.
Prevention
The Prostate Cancer Prevention Trial (PCPT) looked at the use of finasteride compared to a control group over a period of seven years. They found about 30% reduction of prostate cancer prevalence, but unfortunately they also found a trend towards more aggressive prostate cancers in the men treated with finasteride. This was a large study with over 18,000 men enrolled. It should be noted that five men died of prostate cancer in the finasteride study arm with an equal number in the control arm. This was equivalent to less than 1% of the total deaths. A number of men—1,123—died of CVD and other causes.

An 18-year-follow-up on the Finasteride Prostate Cancer Prevention Trial found that despite the reduction in low grade prostate cancer rates in the treatment arm, the mortality rate from prostate cancer was not reduced. This is reflected in the relative risk of prostate cancer of 0.70 in the treatment arm compared to the increase of relative risk (1.17) of high grade prostate cancer in the finasteride arm.

In all of the prostate cancer prevention studies to date (including studies of the benefits of selenium), CVD is always the number one cause of death, which is in keeping with the statistics provided at the start of this educational overview.

Heart health is tantamount to prostate health, and this should be constantly and consistently reiterated and emphasized to the individual concerned about prostate cancer.

Risk factors
Most of the studies on prostate cancer indicate that the majority of participants were overweight. This is not surprising given the rates of overweight/obesity of adult U.S. males. The Alpha-Tocopherol Beta-Carotene (ATBC) study revealed men with increased BMI had a 40% increased risk of prostate cancer compared to men with normal BMI. From this same study, a significant (p<0.001) increased risk of prostate cancer mortality was associated with increasing BMI from 25-29.9 (RR=1.08), 30-34.9 (RR=1.20), and 35-39.9 (RR=1.34) for the 4,004 documented deaths from prostate carcinoma.

“Two of the largest dietary and supplement studies to analyze risk of prostate cancer essentially arrived at the same conclusion—that obesity can negatively impact prostate risk or progression.” A recent meta-analysis of 11 large studies reveals that prostate cancer recurrence and mortality, especially early mortality, have been highly correlated with increasing BMI. For every 5 kg/m² increase in body weight, there is a 15% higher risk of prostate cancer.

Esposito and colleagues performed a meta-analysis of 10 studies with a total of 4,343 cases of prostate cancer. It was noted that men living in Westernized countries had a 10-15 fold prostate cancer rate compared to Asian men. In this meta-analysis, metabolic syndrome was weakly and not significantly associated with prostate cancer. Hypertension increased the risk of prostate cancer by 15%. Two studies looked at waist circumference over 40 inches and found a 56% increased risk of prostate cancer.
Lifestyle changes in men with prostate cancer

Dr. Dean Ornish published a study in 2005 of men with low risk prostate cancer (Gleason score less than 7). He recruited 93 men into his study with PSAs 4-10 who declined conventional care, which could include surgery, radiation, androgen deprivation or watchful waiting. The experimental group undertook a comprehensive lifestyle program that included the following components: vegan diet with soy supplements (very low fat; less than 10% calories from fat), 3 grams of fish oils, 400 IU of vitamin E, 200 micrograms of selenium, 2 grams of vitamin C, moderate exercise for 30 minutes six days a week, stress management for 60 minutes daily, and one hour per week of support group. The experimental group had a significant decrease in PSA levels and decreased growth of a prostate cancer cell line in the lab.\textsuperscript{12}

A two-year follow-up on this Prostate Cancer Lifestyle Trial found that 27\% of the controls (n=49) and only 5\% of the experimental group (n=43) went on to require conventional care for their prostate cancer (p<0.05). Conventional care included prostatectomy, radiotherapy and/or androgen deprivation.\textsuperscript{13}

Follow-up studies on this original study group looked at genetic markers such as telomere length and gene expression in the prostate. In a 2008 follow-up study by Ornish, lifestyle was found to modulate gene expression in the prostate. Telomeres are considered protective DNA and protein complexes at the end of linear chromosomes that promote chromosomal stability. Telomere shortening is counteracted by the cellular enzyme telomerase. The more telomerase, the longer the telomeres which is healthy for the cells. Shortening of telomeres is related to aging. Ten men from the original Ornish study were followed five years later and compared to 25 controls. It was determined that the comprehensive lifestyle changes promoted increase in telomere length in men with early stage prostate cancer.\textsuperscript{14}

Thirty-five percent of men diagnosed and treated for prostate cancer will have a biochemically defined recurrence. Unfortunately, one-third of those men will develop metastatic disease within the subsequent five years.\textsuperscript{15}

A six month randomized, intention to treat trial with 47 patients, done in South Carolina, looked at intensive diet, physical activity, and meditation (Mindfulness-Based Stress Reduction) in men with biochemical recurrence of prostate cancer. The patient population was remarkable for a high level of unemployment at 60-70\%. Another remarkable feature of the patients enrolled in the study was that 77\% in the intervention group (n=26) were married/partnered and 90.5\% were married/partnered in the control group. Forty-eight percent of all participants had no change in PSA and 52\% had increase in PSA. After six months, PSA in the control group went up from 0.71 to 0.78 and down from 0.87 to 0.84 in the treatment group (p=0.45). A sub-analysis revealed that the men with the highest increase in fruit intake and reduction of saturated fat intake had the best chance at not having PSA levels increase.\textsuperscript{16}
Herbs and natural treatments

There have been some studies looking at natural treatments for prostate cancer. For example, there is interest in a particular herbal blend called Zyflamend by New Chapter. This preparation contains rosemary, turmeric, ginger, holy basil, green tea, Hu Zhang, Chinese goldthread, barberry, oregano, and Baical skullcap. A study at Columbia University Medical Center revealed decreased concentration of androgen receptors in prostate cancer cells after 24 hours of exposure to 0.1 microgram/milliliters of Zyflamend.\textsuperscript{17} A small study with 23 men in 2006 looked at high risk African American males with high grade prostatic intraepithelial neoplasia and Zyflamend therapy. The study revealed that 50\% of patients had a reduction of PSA serum levels and one patient had biopsy proven reversal of PIN.\textsuperscript{18} A phase one clinical safety study of men with biopsy proven high grade prostatic intraepithelial neoplasia (HGPIN) found no toxicity related to Zyflamend use of two capsules, three times daily. Other results from that study were 45\% of study participants had 25-50\% PSA level reduction after 18 months with no side effects reported. In addition, at 18 months, 60\% of the men had benign tissue, 26.7\% had HGPIN and 13.3\% had prostate cancer.\textsuperscript{19}

Note: Please see the module on Dietary Supplements for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.

For more information on supplements to reduce the risk of prostate cancer visit: http://www.cancer.gov/cancertopics/pdq/cam/prostatesupplements/healthprofessional/page1.

Summary

In the United States, prostate cancer is the most commonly diagnosed non-skin cancer men will face. Thankfully, it has the lowest mortality rate of the top three cancers as discussed in the statistics section above. Encouraging men to maintain a healthy weight can lower their risk of prostate cancer, and especially early mortality related to prostate cancer. Use of Zyflamend, two capsules three times daily for 18 months or more in men with HGPIN may lead to reduced progression of this disease to prostate cancer and may promote reversal to benign prostatic tissue. Intensive lifestyle changes may help men with low risk prostate cancer avoid needing conventional treatments for prostate cancer. Even after conventional treatment, biochemical recurrence of prostate cancer is not uncommon. More high quality research is needed to help counsel those patients on their options.
Erectile Dysfunction

ED is a common issue for many men. The Massachusetts Male Aging Study found rates of ED as high as 52% in U.S. men 40-70-years-old. Of those, 70% had mild to moderate ED, and 30% had severe ED. Depending on what population you look at, the rates can run as high 68.7%. Many men will not ask for help with this issue unless it is brought up by their health care provider. The International Index of Erectile Function (IIEF) questionnaire, available at http://www.hiv.va.gov/provider/manual-primary-care/urology-tool2.asp, can help screen for the presence and severity of ED. The IIEF meets psychometric criteria for test reliability and validity, has a high degree of sensitivity and specificity, and correlates well with other measures of treatment outcome. It has demonstrated consistent and robust treatment responsiveness in studies in the United States, Europe and Asia, as well as in a wide range of etiological subgroups.

ED and Metabolic Syndrome (MS)

A study of 393 men between 40-70-years-old from a urology clinic looked at the rate and severity of ED depending on waist circumference of greater than or less than 102 cm (approx. 40 inches) and other measures of metabolic syndrome. This study showed 270 out of the 393 patients had some level of ED. Seventy-nine percent of the men who met the criteria for MS had ED, as compared to 62% without MS (p<0.001).

Elevated fasting glucose, increased blood pressure, and increased waist circumference above 40 inches were most closely related to increased risk of ED. Waist circumference of over 40 inches had the greatest effect with increased relative risk of 2.3. If you combine waist circumference over 40 inches and low HDL and high triglycerides, the relative risk of ED shoots up to 3.38! It was noted in this study that most of the effects of MS and increased waist circumference were seen in 40-49-year-old men, and less correlation was noted in older men. This may indicate an independent risk of ED with aging.

ED and obesity

Researchers in Southern Brazil examined ED in 256 men 40 years and older. They found 7-19 times higher risk of ED in men over 60 depending on anthropometric indices used, including BMI and waist circumference over 102 centimeters (approx. 40 inches). Waist circumference over 102 centimeters carried the highest risk of developing ED with a risk of 19.37 compared to a risk of 1.3 for BMI over 25 alone. They did not find as much correlation in the younger men 40-60 years of age.

A randomized single blinded trial looked at weight loss and effect on ED of 110 men between 35-55 years old in Italy. They used an IIEF score of less than or equal to 21 to identify ED. Twelve percent of men less than 59-years-old had moderately severe ED compared to 22% of men 60-69 years old, and 30% of the men older than 69 years of age. The men received detailed advice on weight loss and increasing physical activity. The intervention group’s BMI went down from 36.9 to 31.2 and their IIEF score improved from 13.9 to 17 (p<0.001). Out of the 55 men randomized to the intervention group, 17 achieved IIEF scores at or above 22. They also used waist to hip ratio and found a statistically
significant correlation between high ratios (>=1.0) and ED to an even greater degree than BMI. The authors brought up the possibility that exercise improves mental health, thereby influencing erectile function. Clinical experience resonates with this observation in that ED is multifactorial.

Patients and clinicians often fail to appreciate that mind, body and spiritual influences all make significant contributions to healthy erectile function. Keep all of these areas in mind as you individualize care.

**ED and supplements**
There is increasing interest in natural supplements that may improve erectile function. One such compound is arginine aspartate, with and without adenosine monophosphate. A small trial in France evaluating arginine was a randomized, double-blinded, crossover design with n=26 and mean age of 56. Men were included in this study if they had mild-moderate ED with IIEF scores of 14-22. L-arginine aspartate in a dose of 8 grams with adenosine monophosphate 200 milligrams was used orally one to two hours before intercourse. They found significant improvement in IIEF scores (p=0.01-0.04). Tolerability and safety were equal to placebo.

**Summary**
ED is a common problem seen in U.S. men. It may be multifactorial in etiology but waist circumference over 102 centimeters (approx. 40 inches) is a strong predictor of risk and severity. Weight loss and increased exercise can help improve erectile function. Arginine and adenosine monophosphate are options for men who do not want to use phosphodiesterase-5 inhibitors or in whom those medications are contraindicated.

**BPH/Prostatitis**
BPH is one of the most common conditions of the aging male. It is estimated that 40% of men over 50 years old and approximately 80% of men by 80 years old have BPH. This is possibly caused by an accumulation of dihydrotestosterone (DHT), which inhibits prostatic cell death and promotes cell proliferation that increases the size of the prostate gland. In addition, one out of two men will experience prostatitis symptoms (inflammation of the prostate gland) in their lifetime. Ninety-five percent of these are considered nonbacterial. There is an antibacterial factor secreted by cells that line the prostatic ducts. It kills bacteria on contact. Zinc is an active component of this antibacterial factor.

A screening device to help determine severity of BPH-related symptoms is the International Prostate Symptom Score (I-PSS), available at http://www.urospec.com/uro/Forms/ipss.pdf. It is a well-validated tool for assessing response to treatment for LUTS. One study found the IPSS to have a sensitivity and specificity of 78% and 59.4% for prostate cancer.
Risk factors
There was an assessment of 778 Korean police officers for risk factors for developing BPH and lower urinary tract symptoms. Known risk factors for progression of BPH include: prostate size greater than 31 cm$^3$, PSA greater than 1.6 ng/mL, max flow rate less than 10.6 milliliters a second, post-void residual urine volume of greater than or equal to 39 milliliters. They found that metabolic syndrome increased the risk of these men having one or more predictors for the progression of BPH.\textsuperscript{26}

In a prospective cohort study of 18,055 U.S. men that began in 1986, there was an incidence of 6,461 when their IPSS reached 8-14. Men with higher BMI had increased abdominal circumference. There was a statistically significant risk of progression to severe LUTS (IPSS greater than or equal to 20) with high BMI. This suggests targeting obesity may prevent the development of worsening LUTS.\textsuperscript{27}

A review of BPH and obesity revealed that there is significant evidence connecting obesity to BPH and LUTS. Obesity markedly increases the risk of BPH. Higher levels of physical activity decrease the risk of BPH. Those with BMI greater than 35 compared to less than 25 have a 3.53 odds ratio of developing BPH of greater than or equal 40 cc in volume.\textsuperscript{28}

Supplements/herbs
\textbf{Note: Please see the module on Dietary Supplements for more information about how to determine whether or not a specific supplement is appropriate for a given individual. Supplements are not regulated with the same degree of oversight as medications, and it is important that clinicians keep this in mind. Products vary greatly in terms of accuracy of labeling, presence of adulterants, and the legitimacy of claims made by the manufacturer.}

The most common herb recommended for BPH is saw palmetto (\textit{Serenoa repens}). A recent study with 298 Italian men looked at saw palmetto at a dose of 320 milligrams daily of the dried ripe fruit extract for six months. They compared saw palmetto alone to saw palmetto with an alpha-blocker. There was similar improvement in BPH symptoms using saw palmetto with or without an alpha blocker.\textsuperscript{29}

An excellent review of commonly used herbs and supplements used for BPH is found in the a 2012 review by Azimi and colleagues.\textsuperscript{30} The article includes tables describing the proposed mechanisms of actions and supporting studies on their use. Common possibly helpful herbs to be aware of are \textit{Urtica dioica} (common/stinging nettle), \textit{Cucurbita pepo} (pumpkin seed oil), \textit{Serenoa repens} (saw palmetto), \textit{Secale cereale} (rye grass pollen) and \textit{Pygeum africanum} with its associated beta-sitosterols.

A randomized double-blind, placebo-controlled clinical phase two trial in Australia looked at a product called Prostate Eze Max. The trial was comprised of 57 men, ages 40-80. The three-month long trial did not find any significant adverse effects. The product contains \textit{C. pepo}, \textit{Pygeum}, saw palmetto (660 mg/day), lycopene, and \textit{Epilobium parviflorum} (fireweed). The dose was one capsule daily, and they found the median IPSS decreased by 36\% versus 8\% in the placebo group (p<0.05).\textsuperscript{31}
A systematic review reported that beta-sitosterol is likely to be beneficial.\textsuperscript{32} Beta-sitosterol is found in many of the plants used to treat BPH, including Pygeum, saw palmetto and soy. Pygeum was found to be of uncertain benefit. Saw palmetto was noted to be likely not beneficial.\textsuperscript{33} Studies included in a systematic review found that saw palmetto was similar in terms of IPSS effects when compared head to head with tamsulosin (Flomax) and finasteride (Proscar).\textsuperscript{34}

Another systematic review of 32 RCT with 5666 study participants found no improvement of BPH symptoms with \textit{Serenoa repens} versus placebo, even at double and triple average dosages.\textsuperscript{35} This same conclusion was made by Moran and colleagues in 2012, but expanded that to all phytotherapy for BPH and prostate cancer through his systematic review.\textsuperscript{36}

Zinc has been used, and older studies showed benefit. It inhibits 5-alpha reductase and binding of androgens on receptors in the prostate. Certain prescription drugs can decrease zinc levels, including diuretics, steroids, methotrexate, tetracycline and fluoroquinolones. The dose most commonly used is 25-50 milligrams daily. For long term use consider supplementing with 1-2.5 milligrams of copper to avoid deficiency. Zinc serum levels can be checked as well.\textsuperscript{24}

Supplements and herbs used for prostatitis (inflammation of the prostate, \textit{not} BPH) include: zinc, quercetin (a flavonoid) 200-400 milligrams three times daily, clivers (aka cleavers) as a tea three times daily, marshmallow root up to 6 grams daily in divided doses, cranberry, uva ursi for up to a week at a time, and kava kava 150-240 milligrams two times a day.\textsuperscript{24}

\textbf{Summary}

BPH with LUTS and prostatitis are very common conditions. There is a strong link between BPH and obesity. Helping men understand this risk may motivate them to adopt healthy lifestyle changes. The use of herbs for BPH is common in the general public. There are many positive studies on the use of various plants including \textit{Serenoa repens} (saw palmetto); however, large systematic reviews fail to fully support its use. Beta-sitosterol has more consistent support in the literature. This phytosterol is widely found in nature and in the plants traditionally used to treat BPH. It can also be obtained by simply eating vegetables. Recommending a reduction in caffeine can help lessen urinary symptoms. Zinc supplementation in appropriate dosage can safely be recommended for both BPH/LUTS and prostatitis.

\textbf{Testosterone Deficiency}

There are no universally accepted lower limits of normal testosterone levels. Depending on the source, normal lower limits are listed from 200 ng/dL up to 337 ng/dL. Some experts suspect symptoms related to low testosterone levels can be seen at levels higher than those listed as below normal and are dependent on the individual. The prevalence estimates of testosterone deficiency (TD) range from 5-24%. It is generally accepted that testosterone levels will decline with age. One tool to screen for TD in men is Androgen
Deficiency in Aging Males (ADAM), available at http://landerurology.com/pdf/adam_questionnaire.pdf. The ADAM questionnaire is highly sensitive at greater than 90%, but not specific at approximately 40%.

**Risk factors**
A study conducted in Pomerania, Germany, sought to determine risk factors for testosterone decline. Of the 2117 men enrolled, 1490 had their total testosterone analyzed. The prevalence of TD in this group was 10.4% with an incidence of 11.7 per 1000 person-years. The threshold used in this study was 10.4 nmol/L (300 ng/dL). An age related decline of 0.05 nmol/L per year was found. Obesity, metabolic syndrome, diabetes, and dyslipidemia were found to increase the risk of TD. The most striking result of this study was that management of those risk factors may prevent declining total testosterone in the aging male.

Maintaining physical activity, ideal weight and optimal nutrition may reduce the decline of testosterone seen with normal aging.

Another study looked at U.S. men in Boston. The majority of them were white. They were divided by decade of life and assessed for testosterone levels and associated risk factors. The average testosterone level was 570 ng/dL at 40 years of age and 400 ng/dL at 85 years of age. Researchers were able to quantify the effects of various life events or health parameters on total testosterone levels. For instance, loss of a spouse or a BMI increase of four to five points were equivalent to 10 years of age-related decline in testosterone levels. Developing diabetes increased the risk of having a total testosterone level of less than 300 ng/dL by 2.5 fold. Twenty-six percent of diabetics that previously were not diabetic had testosterone levels less than 300 ng/dL as compared to 9.9% that did not have diabetes. Some observers found a noticeable decline in testosterone levels in 2002 compared to 1987, but data verifying these conclusions was not elicited through a National Library of Medicine search.

It has previously been noted that MS increases the risk of hypogonadism, type 2 diabetes, CVD, and ED. In a 2009 review, insulin resistance was found to be a very important component of MS. MS leads to endothelial dysfunction. There is new evidence linking TD to the development of MS and diabetes, but it is uncertain if this is the cause versus the effect of these conditions. Research on testosterone deprivation therapy for prostate cancer and on androgen replacement therapy is leading to a new understanding of the development of metabolic syndrome, type 2 diabetes, vascular disease, and ED.

**Lifestyle changes to improve testosterone**
A study focusing on Asian men in Singapore examined the relationship of exercise levels to testosterone levels. They also measured erectile function and prostate symptoms using the IIEF-5 and IPSS. A total of 75 men were enrolled and randomized into two groups: low volume exercise (less than 150 minutes/week) versus high volume exercise (greater than 200 minutes/week) with approximately 400 kcal decrease per day diet. The study lasted six months. Inclusion criteria included BMI greater than 27.5 and waist circumference
WHOLE HEALTH: CHANGE THE CONVERSATION  
Educational Overview: Men's Health

greater than 90 centimeters. A 3-6% weight loss from the decreased daily calories and increased exercise resulted in benefits for erectile function, testosterone levels, lower urinary tract symptoms, endothelial function, and quality of life in these obese men. Moderate aerobic exercise of 200-300 minutes weekly resulted in significant improvement in erectile function and testosterone levels. There was a high dropout rate of 20% in the high volume exercise cohort. It was concluded that 200 minutes weekly exercise is an effective treatment for moderate to severe ED. Plasma testosterone only increased in the high volume exercise group regardless of weight loss.41

A study that did not support physical activity’s effect on testosterone levels was done on Polish men between 24-72-years-old. There were 387 men enrolled. The authors found that all the hormones measured declined with age. The activity level was based on self-reporting and high activity level was equal to more than 12,500 steps daily. Men younger than 48 showed increased estrogen levels with increased activity levels. Men older than 48 showed decreased estrogen levels with increased physical activity. It was assumed that aging caused increased estrogen levels in men. There was not a significant difference in BMI in the high activity group compared to the baseline group. There was a lack of evidence to show increased testosterone levels with high physical activity.42

**Effects of opioids on testosterone levels**

Opioid-induced androgen deficiency (OPIAD) is often under-recognized in clinical practice. OPIAD results in inappropriately low levels of gonadotropins (FSH, LH) in the face of low plasma testosterone levels. Symptoms include decreased libido, ED, fatigue, hot flashes, and depression. Signs can include decreased facial hair, anemia, decreased muscle mass, weight gain, and decreased bone mineral density. This can affect men or women and lead to infertility as well. When recognized, questions will arise regarding hormone replacement such as testosterone replacement in men. OPIAD can be seen for months to years while being treated with morphine.

Testosterone levels can drop as quickly as a few hours after starting opioids. Once morphine therapy is interrupted, levels can recover within a few hours to days. Less is known about long term opioid use and hypothalamus/pituitary suppression. A recent retrospective cohort study looked at risk factors for androgen deficiency in 1,585 men using daily opioids.43 Researchers determined that the use of long-acting opioids is a key risk factor in the development of androgen deficiency. Men on long-acting opioids were more likely to be androgen deficient than men on short-acting opioids (57% vs. 35%, P < 0.001; odds ratio [OR] 3.39, 95% CI 2.39-4.77). As the dose increased, the likelihood of androgen deficiency increased. They found, though, that the dose was more strongly associated with androgen deficiency in men on short-acting opioids (OR 1.16, 95% CI 1.09-1.23, for each 10 milligram increase in dose) than in men on long-acting opioids (OR 1.01, 95% CI 1.01-1.02).

It appears that the higher the dose of opioids, the higher the risk of hypogonadism. One can anticipate OPIAD when the range of oral morphine equivalence exceeds 100-200 milligrams daily. This is based on limited retrospective human data. An additional risk is
taking opioids for more than one month. Even with that level of exposure, OPIAD should be reversible after opioid cessation.

Given this information, health care providers are responsible for providing full consent regarding the risk of developing an endocrinopathy prior to starting opioids. When deciding to replace androgen for males, a target total testosterone level of 400-700 ng/dL can be used as a guideline. There are a number of different preparations of testosterone for men, including injection and topical.\textsuperscript{44}

| When treating patients with opioids, keep opioid-induced androgen deficiency in mind as a possible cause of low testosterone and its related symptoms. |

**Summary**

The risk factors for TD include aging, increasing weight, and metabolic syndrome/type 2 diabetes, which indicate insulin resistance. Not included in this module is a discussion of environmental toxins causing endocrine disruption, which could lead to testosterone decline or dysfunction. Another significant risk is opioid exposure, especially on a chronic basis. Early recognition of OPIAD is very important to provide patients with options for treatment. Although conclusive evidence is lacking, early evidence indicates that increased physical activity, especially exercise, can improve testosterone levels. Hormone replacement therapy is an option for men suffering from symptomatic TD and is becoming more accepted but not without risk, particularly cardiac events in older men\textsuperscript{45-47}

See the clinical tool, **Improving Low Testosterone Naturally**, for more information.

**Longevity**

It is a curiosity that female mammals tend to live longer than males. It is not clear what the exact physiologic mechanism is that causes this discrepancy. Most animals show disparity between sexes in longevity, except for many birds and some invertebrates. In the United Kingdom, the longevity sex difference is closing from 6 years down to 4.1 years. Reports of striking longevity of eunuchs (men who were castrated at a young age) at the Korean Imperial court suggest testosterone may limit the life span in male humans.\textsuperscript{48} It may be that testosterone adds to risky and aggressive behavior in men. Testosterone can also act as an immunosuppressant. On the other hand, low testosterone in aging males has been linked to negative health status. Obesity leads to lower testosterone, which leads to fragility, low muscle mass, anemia and depression. Males have also been found to have shorter telomeres, which is increasingly being linked to mortality. Research is under way in nutrient sensing signaling pathways to help explain longevity related to reduced calorie intake. Insulin or insulin-like growth factor 1 (IGF-1) may turn out to be one of the factors. No comprehensive explanation yet exists for the gender gap in aging and longevity.\textsuperscript{49}

**Physical activity**

A cohort study published in 2013 looked at longevity in men and women and non-exercise physical activity (NEPA).\textsuperscript{50} There were 4,232 people from Sweden enrolled for 12.5 years.
The NEPAs included home repairs, cutting lawn, car maintenance, bike-riding, skiing, ice skating, hunting/fishing, and gathering mushrooms or berries. One could argue that bike riding, skiing, and skating are exercise, but they may be considered transportation in Sweden as opposed to formal exercise. Researchers also looked at formal exercise levels separately. They studied three outcomes, including rates of metabolic syndrome, CVD, and longevity. They found similar results in men and women. Moderate and high levels of NEPA lowered the odds ratio of MS despite no significant exercise. Low, moderate, and high levels of exercise reduced the risk for MS. The most significant reduction of risk for MS was for the group with high levels of NEPA and exercise with a 0.39 risk. High NEPA reduced relative risk of CVD by 30%. High NEPA improved longevity as well. It was noted that no level of NEPA reduced blood pressure.

Lifestyle
Another prospective study with 821 men aged 51-59 in Oslo, Norway, looked at longevity.\textsuperscript{51} The end point was analyzing the factors that contributed to living to 85 years of age. Of the men in the study, 30.7% lived to 85. They found that lifestyle factors in midlife are strongly related to mortality. The three most important factors were avoiding tobacco smoking, avoiding being overweight (BMI less than 25), and having higher levels of fitness. If people were able to achieve these three factors, the odds ratio of reaching 85 years old was 2.47 ($p<0.001$). Level of fitness was measured by maximal exercise tolerance bicycle test. It was interesting to note that cholesterol level had the least effect on longevity of all the factors measured.

Longevity is closely linked to physical activity, optimal weight and avoiding tobacco in mid-life. Cholesterol levels had no significant association in one large Norwegian Study. We know that strong relationships, spirituality and religiosity, stress, educational level, financial status, and many other factors also play key roles, as highlighted here and in many of the modules of the Whole Health curriculum.

Response to stress
The VA Normative Aging Study is a U.S.-based study looking at mortality and emotional reactivity.\textsuperscript{52} The study included 181 men between 58-88-years-old; it was conducted over a 10-year period from 2002-2012. The results were based on an eight-day daily diary of stressors, physical symptoms, positive and negative affect, memory failures, pain, and social support. The goal of the study was to show that negative affect was worse for health than positive affect. Researchers also looked at decreases of positive affect in response to stressors, which is a measure of emotional reactivity. What they found was surprising in that larger decreases in daily positive affect in response to daily stressors were associated with more than a doubling in mortality risk over the decade of follow-up. The hazard ratio was 2.32 ($p<0.01$) for people with greater emotional reactivity with the greatest decreases in positive affect. The authors hypothesize that this may reflect greater hypothalamus pituitary adrenal axis (HPA) activation. One of the fascinating aspects of these results are that they draw in the importance of the dynamic nature of the human experience as opposed to focusing on a static measure, such as baseline positive affect or negative affect, which were not found to influence the mortality rate over this 10 year study.
A reduction in positive affect in response to daily stressors was associated with more than a doubling in mortality risk over a decade of follow-up.

**Nutrition**

The Adventist Health Study 2 (AHS-2) revealed a 12% lower risk of all-cause mortality for men and women following a vegetarian diet.\(^5\) Men showed a greater benefit than women mainly because of the CVD risk reduction. There was not a risk reduction in cancer mortality among the vegetarians. The AHS-2 began in 2002 and had 96,000 Seventh Day Adventists enrolled. Thirty-six percent were vegan/vegetarian (4.2%/31.6% respectively).

It is interesting to note that vegans experienced the highest rate of hip fractures in a sub-analysis of the data provided from AHS-2. The greatest risk reduction of hip fractures came from eating legumes (not including soybeans or soy-based products) greater than or equal to 1 time/day compared to less than 1 time/week. Increased intake of other protein sources provided risk reduction as well, but not equal to the 64% reduction \((p=0.0003)\) with legumes. This is important because in this sub-analysis of 33,208 white men and women, 305 suffered hip fractures and 127 of those were men. It has been shown that a hip fracture carries a high mortality risk within 1-2 years of occurrence. One explanation for the reduction in hip fractures enjoyed by daily legume eaters may be from increased lysine and hydroxylysine, as they are important in the cross-linking process of bone collagen. Lysine also promotes increased calcium absorption in the gut and reduced excretion from the kidneys.

Consuming legumes (beans) was associated with a reduced risk of hip fracture, which is a significant cause of disability and mortality in older men and women.

**Marriage and social support**

What about “marriage protection?” The theory that marriage has protective effects for male survival has persisted for over 100 years. One recent study looked at data collected from six pooled panels of the U.S. Survey of Income and Program Participation (SIPP).\(^5\) Researchers were able to gather data from 60,000 households from 1980 to 1999. They confirmed that unmarried American men and women have higher mortality compared to married men and women. Half of studies undertaken previously, including a 2007 meta-analysis by Menzoli, did not show this protective effect. This larger pooled data also challenges previous estimates of the importance of comparing never-married, widowed, divorced and/or separated populations. It was noted that men seemed to benefit more than women in regards to longevity and marriage, but that gender advantage became less noteworthy in older age groups. Sullivan and colleagues, found that among 16,000 Americans, widowhood increased mortality risk by 48% with a more negative effect seen in men versus women once again. There was also greater risk for men if the death of the spouse was unexpected.\(^5\)

**Growth hormone**

A review of growth hormone (GH) and longevity looked at eight controlled studies of GH versus no GH supplementation.\(^5\) A number of small studies show GH supplementation increased lean body mass but does not seem to improve functional strength. The beneficial
effect was noted in men but not women. Side effects included edema, arthralgias, carpal tunnel syndrome, early insulin resistance, hormone sensitive tumors, and increased blood pressure. Evidence was lacking to show conclusive improvements in longevity with GH supplementation.

**Summary**
Male longevity is multi-factorial. It is clear that fitness and non-exercise activity level influence longevity. There is growing data that diet may influence longevity, including both limiting excess calories and eating a more plant-based diet. Finally, social support, which is most obviously reflected by marriage in our culture, is very important. One might wonder if the negative effect on longevity from a sudden death of a spouse for a man reflects his need for time to tap into other social support structures in his life when his life partner passes away.
**Personal Health Plan**

**Mission:** To live long enough to see Jessica get married and make sure she is well on her way in life. To reduce the burden of recurrent prostate cancer on my life.

**Brief Summary of the Plan:**
You are hoping to live until you are 85 years old in order to enjoy seeing your great-granddaughter get married. You have already outlived the average U.S. male. This is a reflection of many of the choices you made over your lifetime. One of these includes never smoking tobacco, so you should give yourself a lot of credit for that. In addition, you have been actively involved with your healthcare and worked hard to keep up with preventive health recommendations, which is also something to feel very proud about. There are two challenges to meeting your main goal, and those are recurrent prostate cancer, primarily noted by the increasing PSA levels, and the left knee pain that is keeping you from being more active and making it difficult to maintain a healthy weight. We will be making recommendations based on the available medical evidence to help you achieve your goals, while at the same time enhancing your quality of life.

**Overall Health Goals:**
- Control your left knee pain to allow you to start being more physically active again
- Eat better food
- Understand what the factors are that could reduce your longevity and what you can do about them.

**Mindful Awareness:**
Begin with experiencing a mindfulness practice at home using the mindfulness CD given at the clinic visit. Consider joining Mindfulness Based Stress Reduction group. You can find a local instructor by going to this website: [http://www.umassmed.edu/cfm/stress/index.aspx](http://www.umassmed.edu/cfm/stress/index.aspx).

Dear Keith,

It was a pleasure meeting with you last week at the VA Medical Center. You sought consultation for developing a plan for overall health and well-being and specifically to develop a comprehensive treatment plan for trying to extend your life to 85 years old.

We are committed to partnering with you to provide comprehensive treatment to meet your goals, while optimizing your well-being throughout the process. Included in this letter is your personalized health plan, which represents your personal values, priorities and vision for your health and well-being based on your responses during your initial personal health planning visit.

Partnering with you, your health care team has developed team recommendations to support you on the road to optimal health and well-being. All members of your health care team can now refer to this plan as your overall strategy for your health and be sure our treatment plans align with your priorities.

Sincerely,

Your Whole Health Team
### Personal Health Plan

#### Proactive Self Care

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Working Your Body</strong></td>
<td>Set a goal for exercise and physical activity. It is important to start with an obtainable goal and slowly increase both the time spent and the intensity. A good example for you would be starting with 10 minutes of walking 3 times/week then increase to 30 minutes of brisk walking 4 times/week. In addition, non-exercise physical activity is also important and can include things like yard work, gardening, household chores, etc. Tai Chi or Qi gong classes would also be a good idea to improve your balance and functional strength.</td>
</tr>
<tr>
<td><strong>Surroundings</strong></td>
<td>I would like you to get a fall risk assessment with our physical therapy department. They may recommend a home safety evaluation as well. Avoiding falls and a hip fracture will go a long way to help you achieve your goals.</td>
</tr>
<tr>
<td><strong>Personal Development</strong></td>
<td>I would encourage you to ask about volunteering at a local school. Your love of teaching and giving back can be put to good use. There are always children that can use extra attention such as a one-on-one reading buddy.</td>
</tr>
<tr>
<td><strong>Food and Drink</strong></td>
<td>I am going to refer you to a nutritionist/dietician. I would like you to slowly break away from frozen foods and soda. I am recommending you consider a more plant-based diet with a daily serving of beans (legumes) and a reduction in animal fat. In addition, I would like you to eat organic fruits and vegetables every day with the goal of 5-6 servings/day. Replacing your coffee with green tea 2-3x times/day is also a good idea.</td>
</tr>
<tr>
<td><strong>Recharge</strong></td>
<td>Your sleep habits are already excellent. Keep up the good work and seek help from your health team if your sleep quality starts to deteriorate.</td>
</tr>
<tr>
<td><strong>Family, Friends and Co-Workers</strong></td>
<td>I am so happy to know you have a solid support system around you. It is clear to me that this is one of the reasons you have lived such a long, full life. Being grateful every day for those people in your life and letting them know is a great way to give back.</td>
</tr>
<tr>
<td><strong>Spirit and Soul</strong></td>
<td>Our hope is that with less pain in your knee you will be able to enjoy outdoor activities more and nurture your connection to the earth. In addition, there is nothing stopping you from listening to the music that resonates with you every day. It is a gift that you can give to yourself. Your continued involvement at your local church is a lovely example of your rich spirit and soul.</td>
</tr>
<tr>
<td><strong>Power of the Mind</strong></td>
<td>I am strongly recommending you participate in an 8-week long class on Mindfulness-based stress reduction. I encourage you to practice what you learn every day for up to 60 minutes. In addition, I am providing you with information on a prostate cancer support group. Man to Man Support Groups is a supportive gathering of men who have experienced prostate cancer. Meetings include both sharing and education. No charge. Meets twice monthly. Call 1-(800) ACS-2345 and ask for your regional navigator.</td>
</tr>
</tbody>
</table>
Support Team

<table>
<thead>
<tr>
<th>Principal Professionals</th>
<th>Personal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Primary care clinician</td>
<td>• Jessica</td>
</tr>
<tr>
<td>• Urologist</td>
<td></td>
</tr>
<tr>
<td>• Dietician</td>
<td></td>
</tr>
</tbody>
</table>

Professional Care

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Medications/Supplements</th>
<th>Testing/Treatments</th>
<th>Referrals</th>
<th>Skill building and education</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Continue with routine physicals</td>
<td>• Zyflamend</td>
<td>• Acupuncture</td>
<td>• Dietician</td>
<td>• Mindfulness meditation course</td>
</tr>
<tr>
<td>• Arrange fall assessment by PT</td>
<td>• Omega-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Vitamin D3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Glucosamine/chondroitin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Topical capsaicin</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Supplements/Herbs in Detail

- **Zyflamend by New Chapter.** 2 capsules 3 times/day. This may slow or reverse your rising PSA levels. It may also help with pain in your knee from arthritis.

- **Omega-3 fatty acids.** Research has found that taking omega-3 fatty acid supplements (for example, fish oil) improves joint tenderness and morning stiffness in patients with rheumatoid arthritis. Doses should be standardized based on the amount of EPA and DHA present in the product. Do not take more than 2 grams per day of EPA + DHA. Omega-3 supplements are quite safe and may help in other ways, such as making your cholesterol numbers better.

- **Vitamin D3.** Vitamin D deficiency is associated with muscle weakness and increased falls. A small study on Veterans showed improved pain, sleep, and quality of life with vitamin D supplementation. I would like you to start taking 1000 IU of vitamin D3 daily.
Supplements/Herbs in Detail

- **Glucosamine and chondroitin.** These are proteins found in joints. They seem to prevent the destruction of cartilage, though research findings have been controversial. It seems that it is best to take glucosamine as glucosamine sulfate, not glucosamine hydrochloride. It has not shown benefit in back pain, but I do recommend it for patients with osteoarthritis of the knee. The dose of glucosamine sulfate is 1500 mg divided 2-3 times/day, and it may take a few months to work.

- **Topical capsaicin.** Capsaicin is a widely available cream made from cayenne peppers. It is useful for short-term pain relief and may help your knee pain. You should start with the lower concentration available over the counter and work your way up to the stronger one if needed. Your pharmacist can help you find the right product. You will need to apply it every day up to 3 times a day. Be sure to wash your hands well after you apply it.

Acupuncture

Acupuncture has been showing promise for many different problems, including back pain, neck pain, headaches, and arthritis. I also think this may be helpful in maintaining a robust, active immune system which can help in your efforts to keep the prostate cancer from coming back. Consider a session with a provider from the local VA hospital.

Follow-Up

- Schedule an appointment with PT for a fall risk assessment
- Schedule an appointment with nutrition/dietician
- Schedule an appointment with an acupuncturist
- Follow up with me in 2-3 months to check on your progress
Back to Keith

Keith has been working at most of the suggestions described in his Personal Health Plan. Six months have now passed, and he is feeling well. He had a short setback with an upper and lower respiratory infection that required antibiotics and nebulizer treatments two months ago. Beyond that, he has met with a nutritionist and an acupuncturist. His great-granddaughter Jessica and he have discovered they love cooking together. She comes over every Sunday, and they spend the afternoon cooking. He makes meals for the week and then freezes a few and keeps the others ready to eat in the refrigerator. He now has been able to avoid all store-bought frozen foods. He feels like his mood has improved and his energy is better.

He was surprised how much he likes acupuncture. He has had 12 treatments now and his knee pain has lessened to the point that he is walking every day for 20-30 minutes without pain. He has noted weight loss and indeed today his waist circumference measures 39 inches. He is also using glucosamine sulfate and thinks that may be helping as well; he denies any side effects.

He has discovered a love of meditation. He finds himself looking forward to his 30 minutes of meditation twice a day. He notes that his sleep is even more refreshing and his nurse practitioner at the VA clinic has noted his blood pressure is consistently 10 points lower than before he started meditating, even though he was not diagnosed with hypertension previously.

Finally, he is taking Zyflamend as recommended and his PSA level has not gone up in the past six months. This brings a big smile to his face as he looks you in the eye and says Jessica’s wedding date is set and will be 14 months from now. “It’s thanks to you, Doc, that I’ll be there to see my Jessica marry the love of her life. It makes me the happiest man in the world!”

<table>
<thead>
<tr>
<th>Men’s Health Clinical Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Prostate Health</td>
</tr>
<tr>
<td>• Improving Low Testosterone Naturally</td>
</tr>
<tr>
<td>• Erectile Dysfunction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Whole Health: Change the Conversation Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interested in learning more about Whole Health? Browse our website for information on personal and professional care.</td>
</tr>
<tr>
<td><a href="http://projects.hsl.wisc.edu/SERVICE/index.php">http://projects.hsl.wisc.edu/SERVICE/index.php</a></td>
</tr>
</tbody>
</table>
This educational overview was written by Robert Z. Edwards, MD, integrative medicine family physician at Wildwood Family Clinic, Cottage Grove, WI.

References


44. Smith HS, Elliot JA. Opioid-Induced Androgen Deficiency (OPIAD). *Pain Physician.* 2012;15.


