Praise for Androgen Deprivation Therapy:

"Every man who is a candidate for ADT needs to read this outstanding book."
—Patrick C. Walsh, MD, University Distinguished Service Professor of Urology,
The Johns Hopkins Medical Institutions

"This new and updated second edition will again be an important and valuable resource for the vast majority of men who are faced with the need to start ADT for treatment of progressive and advanced forms of prostate cancer—whether for a few months or for the rest of their lives. It is a book we will again recommend to patients when they ask us about issues related to life on ADT."
—E. Michael D. (“Mike”) Scott, Cofounder and President, Prostate Cancer International

This expanded new edition of Androgen Deprivation Therapy remains the only guide written exclusively about the side effects of hormone therapy. This is a comprehensive workbook for prostate cancer patients and their loved ones, filled with practical advice from experts in the field. The book covers a wealth of strategies to help men cope with ADT and maintain a good quality of life while on this treatment. It is not only an informational manual, but a guide for both patients and partners about ways to make changes in their own lives that can keep them healthy and positive when the patient is on ADT.

New to this edition:

• Updates to every chapter, including an extensive update on the various drugs used for androgen deprivation
• Suggestions for managing the physical side effects of ADT, such as hot flashes, weight gain, muscle loss, and fatigue
• Strategies to handle the emotional side effects, including coping with mood swings and depression
• Advice on how to maintain intimacy despite reduced libido and difficulties with erections
• A new chapter on the psychological and relational impact of ADT on gay men
• Exercises, activities, worksheets, and other tools to promote discussion and inspire sustainable behavioral changes that can reduce the burden of ADT
Praise for *Androgen Deprivation Therapy*

“Androgen deprivation therapy (ADT) is a life-changing event, leaving many men feeling as if they have washed up on a deserted island with no one to talk to. And that is largely true, because unless a person has been through it, and most doctors have not, it is impossible to understand how the patient feels and how to help. Until now, there has been no convenient source for patients and their physicians to get the answers that they need. At last there is a comprehensive book that covers everything: side effects, diet, exercise, psychological issues, and sexual relations. And beyond helping patients understand what is going on with their body, there is encouragement and concrete, practical exercises and solutions. Every man who is a candidate for ADT needs to read this outstanding book.”

—Patrick C. Walsh, MD, University Distinguished Service Professor of Urology, Johns Hopkins Medical Institutions


—Derek R. Wilke, MD, Department of Radiation Oncology, Nova Scotia Cancer Centre

“This book is an incredibly valuable resource for men with prostate cancer considering androgen deprivation therapy (ADT) and for their families and friends. It will help men to understand the pros and cons of ADT treatment and give them an idea of what to expect after they start therapy. I will certainly use it in my practice and encourage other physicians to do so as well.”

—David F. Penson, MD, MPH, Hamilton and Howd Chair in Urologic Oncology, Professor of Urologic Surgery and Medicine, and Director, Center for Surgical Quality and Outcomes Research, Vanderbilt University Medical Center

“Excellent, very informative, and comprehensive. *Androgen Deprivation Therapy* addresses issues sensitively and is not afraid to tackle important but often ignored topics. I would be glad to recommend it to my patients, and their partners too.”

—Paul D. Abel, ChM, FRCS (Eng), FRCS (Ed), Professor and Honorary Consultant in Urology, Imperial College London

“This book is excellent and provides important information for men on androgen deprivation therapy. It is very well written in easy-to-understand language. I will be recommending it to all my patients.”

—Padraig Warde, MB, ChB, BAO, FRCP, Professor, Department of Radiation Oncology, University of Toronto

“This book, written by internationally respected prostate cancer researchers and healthcare providers, is an invaluable resource for anyone whose life is touched by androgen deprivation therapy (ADT) for prostate cancer. Patients and their loved ones will find much reassurance that their experience is normal. Beyond reassurance, this book provides them with a road map for how to frame the ADT-related physiologic and psychological changes, how to cope with the side-effects of this treatment, and how to support...
each other. Healthcare providers will find tips for how to talk to patients and their loved ones about the myriad of impacts of ADT on men’s quality of life. An excellent ‘go-to’ handbook for every patient, family member, and clinician.”

—Daniela Wittmann, PhD, MSW, Assistant Professor of Urology, University of Michigan

“As a prostate cancer patient since 1992, activist, and mentor to prostate cancer patients and their caregivers, I am well aware of the knowledge, writings, and expertise of Richard Wassersug. Richard and his coauthors, Drs. Walker and Robinson, have dedicated much of their lives to a deep study of this insidious men’s disease. In this book, Wassersug and colleagues present a wealth of information on hormone therapy. It is covered in a manner that is easily understood to ease the worry and concern for men that often follows being told, ‘You have prostate cancer!’”

—Charles (Chuck) Maack—Founder of the Prostate Advocate (http://www.theprostateadvocate.com)

“This comprehensive guide to living and loving while on ADT should be required reading for all men prescribed this class of drugs. From the physical to the emotional and sexual side effects, this self-help book covers all the information men and their partners need.”

—Anne Katz, PhD, RN, FAAN, Clinical Nurse Specialist and Certified Sexuality Counselor

“All treatments for prostate cancer affect quality of life. This book introduces us to the potential side effects of ADT. We are then given compassionate guidance in how to adjust to those changes. As a scientist and prostate cancer survivor, I am acutely aware of the limited availability of clinical and scientific knowledge to describe the consequences of prostate cancer treatments. This book fills part of that gap by effectively lifting the ‘veil’ off ADT and providing a readable resource for patients considering ADT.”

—Stephen Porges, PhD, Health Science Researcher and Prostate Cancer Survivor, Distinguished University Scientist, Kinsey Institute, Indiana University, Bloomington Indiana, and Professor, Department of Psychiatry, University of North Carolina

“This book should be standard reading for men and their partners prior to starting ADT. By reading and discussing the book together, couples can avoid many of the physical and psychological pitfalls that may affect couples.”

—David and Dana Kababik, Prostate Cancer Survivor and Wife/Founder of HisProstateCancer.com

“When I first read this amazing book, I have to admit that I was quite surprised. I expected to read just another book about hormone therapy (ADT) for men with prostate cancer, but this was much more.

The book offers the most open, no holds barred, honest, and thorough presentation that I have read about ADT and its side effects. It goes beyond just offering information and provides solutions as well as exercises for those who want to take advantage of them to improve their life while on ADT. This is especially true of the sections discussing intimate relationships between partners.
It is written in an easy to understand, logical progression that will enlighten both the less experienced as well as those of us who have used ADT. It is a must read for both the man undergoing or thinking of using ADT as well as his partner.”

—Joel Nowak, MA, MSW, Prostate Cancer Survivor, Advocate, and CEO of CancerABCs™ (www.cancerabcs.org)

“The first edition of Androgen Deprivation Therapy: An Essential Guide for Prostate Cancer Patients and Their Loved Ones gave the prostate cancer patient community their first detailed resource on ADT: written from a patient’s perspective for other patients and their family members. And it dealt with one of the biggest problems in living on ADT, which is how you think about what is happening to you as a man when medical treatments radically suppress normal levels of the male hormone testosterone—and the effects that can have on you as an individual and on your interactions with others!

The general factors that affect life on ADT remain largely the same, but since the book was first published in 2014 there have been major changes: new drugs, new drug combinations, and changes in how older drugs are used. This new and updated second edition will again be an important and valuable resource for the vast majority of men who are faced with the need to start ADT for treatment of progressive and advanced forms of prostate cancer—whether for a few months or for the rest of their lives.

It is a book we will again recommend to patients when they ask us about issues related to life on ADT.”

—E. Michael D. (“Mike”) Scott, Co-Founder and President, Prostate Cancer International

“I was delighted to read the second edition of the book. It’s a great resource full of practical and useful information for men on androgen deprivation therapy (new or long-time users alike) and their caregivers. It clears up a number of myths and provides balanced and current information on coping with all aspects of hormone therapy.

The book has been updated to reflect the latest science and covers the gamut of issues from exercise to dealing with grief. There is great basic information for all patients and more detailed information for those who want to delve deeper. Many of my patients loved and learned a lot from the first book; I will be sure to recommend this edition to my patients, both young and old. It’s also a lovely resource for health professionals who help men with prostate cancer, including doctors, nurses, psychologists, and others.”

—Shabbir Alibhai, MSc, MD, FRCP, Associate Professor, University of Toronto, Senior Scientist, Toronto General Hospital Research Institute

“It was a pleasure reading this book. From a clinical perspective, this ADT manual is a holistic educational resource to help patients and their loved ones understand ADT and its associated consequences. The book provides a toolkit to optimize strategies for coping together.”

—Catherine Paterson, PhD, Hon. Urology Nurse Consultant and Researcher in Cancer Care, NHS Grampian and Robert Gordon University, Aberdeen, Scotland

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“This book is a rich resource for any man receiving androgen deprivation therapy. In clear language, it addresses the most common and distressing effects of ADT on men and their partners. It is a workbook that guides men from knowledge to action, by helping them develop practical plans to maintain their physical and emotional health as well as their intimate relationships. I will be recommending this book to my patients.”

—Kishore Visvanathan, MD, FRCSC, Clinical Professor (Urology), University of Saskatchewan
ANDROGEN DEPRIVATION THERAPY
This book is dedicated to all of the men, and their partners, who have taught us what life is like on androgen deprivation therapy.
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I was honored when asked to write the Foreword to the second edition of Androgen Deprivation Therapy: An Essential Guide for Prostate Cancer Patients and Their Loved Ones. But full personal disclosure is appropriate and necessary.

I am a urologic oncologist who has focused on prostate cancer therapy for the past three decades. At age 50, I got my first prostate-specific antigen (PSA) test. It was 2.5 ng/mL—at that time (1990), that was considered normal; now, in 2018, it would be a red light warning for future prostate cancer worries. That concern materialized 10 years later when, at age 60, I had a radical prostatectomy for high-grade (Gleason score 4 + 4) disease. Since, I have slowly progressed with a rising PSA indicative of biochemical failure to castration-resistant metastatic disease, and I have received virtually every hormone manipulation available—luteinizing hormone-releasing hormone (LHRH) agonist, Avodart® (dutasteride), ketoconazole, Casodex® (bicalutamide), Xtandi® (enzalutamide), Zytiga® (abiraterone) with prednisone, and transdermal estrogen.

As is the case with many and perhaps most prostate cancer patients, I was forced to grapple with the new life that accompanied androgen deprivation therapy (ADT). Recognize, that as a urologic oncologist I had the advantage of a flying head start. Still, I would have benefited immensely from the information (the text, charts, video resources, discussion questions, and references) provided in this book.

Virtually every prostate cancer patient’s story starts with a suspicious PSA and/or digital rectal exam followed by a biopsy, which is often followed by bone scan and CT scan imaging. Then the hard work begins. The diagnosis of prostate cancer presents a number of challenges unique to the world of malignancy. No other cancers have such a wide spectrum of primary therapies. First, should there even be immediate therapy? If active surveillance is not a consideration, should treatment be surgical and, if so, by what approach (open prostatectomy, robotic prostatectomy, perineal prostatectomy with limited or extended lymph node dissection)? Should treatment be delivered by radiation and, if so, by what method—external beam via 3-D conformal, intensity modulated radiation therapy (IMRT), proton therapy, or seed implantation?
(i.e., brachytherapy), alone, or in combination with external beam? Should treatment be thermal and, if so, by heating with high-intensity focused ultrasound (HIFU) or freezing with cryoablation? There is regrettably no single best treatment; each patient’s situation and disease state is different. If it were clear what is the best primary treatment, this broad menu of possibilities would long ago have fallen by the wayside, making way for “the best.” Clearly, when it comes to selected treatment(s) for prostate cancer, education and counseling are critically important. Fortunately, for the vast majority of prostate cancer cases, the disease progresses slowly enough to allow time for education, counseling, and discussion with other specialists.

Enter another very important therapeutic factor not mentioned in the preceding paragraph, namely ADT or hormone therapy. ADT can be a very important companion, immediate or delayed, to the treatments already listed. I use the word companion because ADT will travel with other therapies and also will travel with the patient for periods of time that exceed the duration of the other therapies. Indeed, it may be lifelong.

Furthermore, even after ADT has achieved its desired therapeutic effect and been discontinued, the changes it brings on can linger. In focusing on decisions regarding primary therapies such as surgery or radiation, to use a common phrase, the oxygen is sucked out of the room, and ADT runs the risk of receiving marginal attention. This must be avoided. The most certain way of avoiding this error is by having a thorough resource that supplements and expands upon patient–physician discussions and decisions. This book is that resource. It is a comprehensive manual that details what to expect and, equally as important, how to address, modify, and adjust to the side effects of ADT. The immediate perceived side effects of ADT may be dramatic while other changes in body systems (i.e., in muscle, bone, sexual, metabolic, and cognitive function) may be more subtle. Both require attention and countermeasures to relieve and minimize.

For the first edition of this book published in 2014, I wrote “It was only when I began my personal journey with androgen deprivation therapy that I was able to appreciate the profound impact this treatment has on daily life. Even with my real life experience with ADT, accumulated over decades, I know I cannot, within the limits of one or even several office visits, begin to prepare and educate patients for the new reality. I could not even do that for myself! If only a complete user-friendly manual existed. Now it does.” For patients beginning ADT, who thankfully have the promise of improved survival, this statement holds true more than ever.

Paul F. Schellhammer, MD, FACS
Past President of the American Urological Association
Professor, Department of Urology
Eastern Virginia Medical School
Norfolk, Virginia
PREFACE

Androgen deprivation therapy (ADT, often called hormone therapy) is a common treatment for prostate cancer, but it has a wide range of side effects. This book presents techniques to minimize the burden from those side effects. Most physicians who prescribe ADT typically warn patients about the most serious effects, but many have admitted to us that they do not have the time to discuss all of the side effects that a patient might experience. Nor do they typically have the time to cover all options for dealing with those side effects. As one oncologist told us, speaking for all physicians who treat patients with ADT, “In spite of our best efforts to educate patients and their partners about ADT, we often still feel we are not doing enough.”

Our goal with this book is to fill in what may not get covered in the clinic when a physician tells a patient, “I recommend that you start on hormone therapy.”

How did we come to be so interested in this topic?

Some 20 years ago Richard Wassersug was diagnosed with prostate cancer, when he was in his early 50s. His specific interest in ADT began 2 years later, when he was offered ADT as a treatment for his cancer that had failed to be controlled by surgery and subsequent radiation therapy. At the time, Richard was a professor of Anatomy and Neurobiology in Dalhousie University’s Medical School in Halifax, Canada. As a researcher, he was so surprised by how ADT affected how he felt and thought—and the limited information he could find on how to deal with that—that he began investigating the psycho-social impact of ADT.

To sort out physiological reality from placebo effects, he started by looking at how rodents in the laboratory responded to androgen deprivation. Erik Wibowo joined him in this research, first as a PhD student and later as his postdoctoral fellow. Richard also began communicating with other prostate cancer patients and their partners from around the world via online chat groups. This advanced his knowledge about what others were going through with ADT. It also helped him acquire skills in communicating with others about how to maintain a good quality of life when the patient is on ADT.
John Robinson is a clinical psychologist who started working with prostate cancer patients in the 1980s at the Tom Baker Cancer Centre in Calgary, Canada. Back then it was common for men on ADT to suffer in silence, hesitant to admit that they were suffering. They did not want to be thought of as weak and did not want others to know how their cancer treatment made them feel emasculated. Even when their physicians inquired about how they were doing, many men minimized their distress, often dismissing it as “no big deal.”

This conspiracy of silence meant that most men suffered alone. Initially, John saw few referrals for men on ADT in his clinical practice. However, as an increasing number of men, like Richard, spoke publicly about their life on ADT, more men followed. Knowing that they were not alone made it easier to acknowledge what they were going through and to request support. Today, John’s practice is full of men and their partners, who want information on how to live well while on ADT.

Lauren Walker began working with men on ADT in 2007 as a student under John’s supervision. For her master’s thesis she studied the impact of ADT on couples. She continued on as a PhD student evaluating a draft edition of this book. Like John, Lauren is now a clinical psychologist and researcher working with cancer patients and their partners at the Tom Baker Cancer Centre and the University of Calgary.

Lauren has a passion for helping underserved populations, which aligns well with her investigation of the unique needs of men on ADT. As a clinician, researcher, and educator, Lauren now facilitates classes as part of our ADT educational initiatives for men and their partners, and champions access to such services for patients not just in Calgary, but across all of Canada.

One focus of our collaborative research is to increase the understanding about the challenges posed by ADT. A key starting point occurred a decade ago, when we established the ADT Working Group. This brought together about 20 researchers and clinicians from the United States and Canada to develop guidelines for supporting men on ADT and their partners. The first edition of this book, published in 2014, arose from our initiative to improve the knowledge of patients, partners, physicians, and other healthcare providers about how to manage ADT side effects.

As background to the book, we investigated what clinicians felt patients starting on ADT needed to know and also what patients knew about the side effects of ADT. In many cases, our research demonstrated that patients did not know enough about the treatment to be prepared to manage ADT side effects. That was a stimulus for us to develop educational initiatives for patients, partners, and healthcare professionals to help them recognize and manage those changes brought on by ADT.
This book goes well beyond the standard conversations prostate cancer patients might have with their doctors and other healthcare providers. It is structured as a workbook, which means that it includes not just information but also exercises, which you can go through at your own pace. The book need not be read straight through; instead, each chapter is more or less freestanding.

The book covers not only the physical side effects of ADT but the psychological side effects that can alter how one feels and how one interacts with loved ones. Importantly, the book recognizes that ADT impacts not just patients, but also their partners and others close to them. For the book to be most effective for couples, we encourage both patients and partners to read the book and to explore together the questions and exercises at the end of each chapter.

We are delighted by the success of the first edition of this book. In this new edition, we have expanded the text in response to feedback from patients, who asked for more information on the drugs used for ADT and the context for administering them. We have also expanded the discussion of side effects and their management, which is the primary focus of the book. The Resource and Bibliography sections at the end of the book are greatly expanded too, with an added new chapter on the psychological impact of ADT on gay men.

Whether you are about to start ADT, live with someone about to start on ADT, or have been on ADT for several years, you should be able to find here evidence-based strategies for maintaining a good quality of life while on this treatment.

Richard J. Wassersug, PhD
Vancouver, British Columbia

Lauren M. Walker, PhD, R Psych
Calgary, Alberta

John W. Robinson, PhD, R Psych
Calgary, Alberta
INTRODUCTION

This book is designed to help prostate cancer patients and their loved ones learn about and deal with the side effects of androgen deprivation therapy (ADT), commonly referred to as hormone therapy. You may have already received some information from your physician, nurse, or pharmacist about why ADT is being prescribed and the common side effects of this treatment. This book will provide you with more information about ADT and prepare you for what you might experience from ADT. Not all patients experience every side effect, and side effect severity varies from patient to patient. We hope that by using this book you will be better able to adjust to ADT, cope with its impact on your life, and manage the side effects that you experience.

You may find that some strategies provided here seem like a good fit for you, while others do not. Use what works for you. It may be helpful to read the book at the start of treatment, or shortly before, and then again some months later. Material that may not have seemed relevant initially may become more so over time when you start experiencing certain side effects.

There is also some information here for the loved ones of men on ADT. Some sections are appropriate for all loved ones; others are specifically for sexual partners.

Openly discussing the side effects can make it easier to adapt overall and may help you learn ways of managing the side effects so you have a better quality of life. It is important to discuss your concerns with your healthcare providers before you start ADT and during treatment.
It is important to maintain open communication with your partner, family, and friends, as well as with your doctor and nurse. Keep your doctor updated about how you feel about the treatment and how you are dealing with the side effects. There is help available if you are struggling. Please do not wait until you are overwhelmed to ask for help.

Before You Begin

We believe the value of this book is enhanced when patients and loved ones discuss ADT-related issues together. Questions at the end of each section are designed to help you think about how this information applies to you and to facilitate communication with your loved ones. Some questions specifically address couples; others are appropriate for individuals, or for patients who are dating or hope to date in the future. Even if you do not have a person you feel you can talk to about your concerns, we hope you will still think over these questions and answer them for your own benefit.

If you are currently in an intimate relationship, we recommend that you and your partner work to maintain a strong, supportive bond with each other. This requires open and honest communication. If you are not in a relationship, you may consider asking a close friend or family member to discuss with you some of the topics that are raised in this book.

Here are some questions to consider before you begin. Try to answer all of them. There are no right or wrong answers. Taking time to reflect upon the questions, and writing down your answers, may be helpful. Use the space provided.

Questions:

- Who can I talk to about my concerns and about this book?
- What does it mean to me to be on ADT?
- What do I already know about ADT?
- What questions do I have about ADT?
- Which potential side effects are of most concern to me?
- How comfortable am I in talking about sex with my partner, a close friend, or with my physician?
If you are in a relationship, some specific questions for couples include:

- How will our relationship change as a result of ADT?
- How might any changes affect my partner?
- Which side effects have the potential to change our relationship?
- What do we value most about our relationship?
- How comfortable are we talking to each other about sensitive issues, such as sex?
- How well do we communicate on a day-to-day basis?
- What areas of our communication could be improved?

NOTES:
Will Reading This Book Make Me More or Less Anxious?

Some individuals are very laid back about gathering information on their illness and its management. Psychologists refer to such people as *blunters*. They generally take a relaxed approach to healthcare. They may seem less distressed, but they may miss out on critical information. Blunters may want only the essential information about ADT and find this book to be too detailed.

*Monitors*, on the other hand, are individuals who like to learn the details of a condition and all of the options available to them, including treatments and side effects—but they do tend to worry more. Monitors may want even more detail than what they will find here.

One style is not any better than the other. If you find that you and your partner have different styles, you can enlist each other’s help. Knowing your tendencies and your partner’s tendencies may help both of you deal with the challenges to come.

*If you are a blunter*, and the idea of reading the whole book is unappealing to you, here are some suggestions:

- Select certain parts to read by looking at the Table of Contents or Index. Skim through the chapters, reading the topics that interest you the most.
- Read the questions at the end of each chapter.
- Ask someone to read the book and point out to you the sections that are most relevant.

*If you are a monitor*, you may appreciate how detailed this book is, but you may also find yourself getting anxious reading some parts. If you do, look for the reassuring messages throughout, and remember:

- Not all patients experience all side effects.
- There are many things that you can do to keep your body, mind, and relationship strong and healthy.
- There are steps you can take to manage the impact of ADT on you and your life.
I Have Never Read a Manual Before—Why Start Now?

When we hand patients a copy of this book, they often say to us, “I have never read a manual before—why start now?” To help answer that question, here is a story drawn from our interactions with one particular patient. We hope his perspective encourages you to make the most of this book, instead of just skimming it.

When my doctor said I should start hormone therapy, he told me I might have a few side effects, like hot flashes, gaining a few pounds, and I might lose interest in sex. He suggested I take vitamin D and calcium to keep my bones strong. That didn’t sound too bad.

He also gave me this book and said it might help me deal with the side effects. I wasn’t sure I needed to read it. I’d seen my wife deal with hot flashes, and we mostly just joked about it. I always ate healthy and walked the dog so I didn’t think I had to worry about my weight. I’d been using Viagra since my surgery so we had already gotten used to not having sex like we used to. And I knew my marriage was solid. We’ve been together for 30 years—what is there that we couldn’t handle? I’d dealt with lots of adversity in the past and overcome it, so I had every confidence that I would adapt this time too. Besides, I’d never read a manual before—I’ve always been able to figure things out on my own. Why start now?

I figured I would take things a day at a time, but I was surprised when the changes slowly crept up on me. I tried to joke about the hot flashes, but I was really embarrassed when I was in a business meeting and got all red in the face and broke out in a sweat. One day, when I got out of the shower, I really looked at myself in the mirror. Somehow, I had developed a beer belly. I’d always taken pride in being in good shape and here I’d put on 15 pounds, without even noticing.

That day, I looked at my body and saw that my penis had shrunk and my testicles too! I was angry that no one told me that my genitals would shrink after beginning on ADT. I started to feel really down about myself and my ability to satisfy my partner. Even though my mood started to tank, I told myself I needed to suck it up and not make a big deal of it.

I did my best to ignore these changes, but I started to notice that my wife seemed unhappy. I asked her what was wrong. She was very reluctant to say anything at first. I had to encourage her to say what was on her mind. She then started to point out how I had changed and how our relationship had changed. She said I had withdrawn from her both physically and emotionally. She told me she understood that I might not have the desire to have sex; what
I didn’t notice was that I had stopped regularly touching her. My kisses had become mechanical.

She feared we had become more like brother and sister than husband and wife. I had become grumpy and sometimes was short with her. I seemed tired and unenthusiastic about life. She went on to say that she was saddened by the changes and felt lonely, but was reluctant to bring this all up because she knew it wasn’t my fault. She was patiently waiting, hoping that we would just adapt to these changes with time.

After my wife told me how she felt, I realized that I needed to do something. I didn’t know what to do, so I started by calling my doctor’s office. We got a referral to a counselor willing to talk with us. When my wife and I went to see the counselor, he asked if I’d read this book. I had to admit that I’d only glanced at it and hadn’t really read it. In fact, I had forgotten all about it. I promised I would dig it out and read it before our next meeting.

I was surprised to learn in the book that there are things I could try to control the hot flashes. I learned about the importance of physical activity in keeping my weight under control and stopping the loss of muscle mass. I realized that there were things I could have been doing to help prevent myself from being in this situation.

Also, reading the material and doing the exercises with my wife was actually really helpful. It helped us to understand what was happening between us and what other couples on hormone therapy did to keep their relationship strong. I was surprised to learn how some couples even continue to enjoy sexual activity. Reading this book turned my life around. In hindsight, I think it could have helped to prevent a lot of suffering for both my wife and me.

I don’t know why I was so reluctant to read it. I guess I had assumed that these things were not going to happen to me. I told one of my engineering friends that I wished I’d read the book back when I started on hormone therapy like my doctor had suggested. He asked, “Have you ever heard the expression RTFM?” I hadn’t, so I went online and searched the term. Do you know what it stands for? If you don’t know what it means, and won’t be offended by strong language, you might want to do an online search too.

Perhaps this book should come with that recommendation, “RTFM,” in bold letters. It may be crass, but it’s advice best taken. My wife now makes a point of teasing me about it, and I have a good laugh when I make this recommendation to other men starting on this treatment.
How to Read This Book

This book is structured as a workbook, with the chapters having many specific questions to be explored and exercises intended for both patients and loved ones. Many of the questions are meant to stimulate discussion. Just reading the book may benefit both patients and their loved ones, but the greatest benefit can come from both patients and those close to them discussing together their answers to the questions we ask in the book. There is some redundancy between chapters, which reflects the fact that the chapters were written to be largely freestanding. For example, some terms may be redefined, and specific activities designed to help you make changes in your life are repeated at the end of each chapter. This was done because we recognize that the needs of individuals vary greatly and not everyone will need to read every chapter of this book in detail.

You will notice that Chapter 7 is titled “Impact on Committed Relationships” and that Chapter 8 is titled “Unique Considerations for Gay Relationships,” yet some of the content in Chapter 7 is still relevant for gay men. However, Chapter 7 does not adequately capture the complexity of nonheterosexual relationships. There is also a section in the middle of Chapter 7 called “Effects on Intimate Relationships and Sexuality” that is devoted to dating; this is likely irrelevant for those who are already in committed relationships. Please do not feel that the only way to read this book is from front to back. You can be selective on the chapters you elect to read, as they are largely independent from each other. We encourage you to pick and choose the chapters that are most relevant to you and also to your loved ones.

What Are Your Values?

One activity that might help you decide which chapters of the book you would like to focus on is a values clarification exercise. In the past few years, our team has developed an educational program to help patients on ADT and their partners manage the side effects of ADT, and in that program we often ask patients (and their partners) to reflect on the areas of their lives that they consider priorities. Priority areas may include and are not limited to physical ability, energy, education and learning, physical appearance, relationships, sexuality, healthy living, and so on.
For example, one patient might say, “My family life is particularly important to me and I want to maintain good relationships, and have the energy to invest in those relationships.” For him, protecting his mood and working to counteract fatigue might be key areas to focus on as he reads through the book. Another patient might say, “My physical fitness and stamina are most important to me, as I like to hike and engage in a variety of recreational and leisure activities.” For him, learning more about how to manage muscle mass loss, weight gain, and metabolic syndrome might be the most important areas of the book. Still another patient might say, “My career is important to me and maintaining my mental capacity, organization, and skills is essential to me being good at my job”; therefore, focusing in on the cognitive and psychological chapter of the book might be essential for him.

Where to Go for Further Information

Associated with this book is our website, www.LIFEonADT.com. This site provides additional information on ADT. For instance, there are tables that give the names of the common drugs used for ADT in most English speaking countries outside of North America. On the LIFEonADT homepage there are three short introductory videos about how our ADT Educational Program and this book might help you in adapting to ADT. On subsequent pages, there are series of videos (the “Videos” link can be found in the left-hand navigation pane) that introduce brief discussions with real patients and partners about specific topics covered in the book (e.g., hot flashes, physical fitness, adapting to sexual changes such as reduced sexual desire or erectile dysfunction). There are also videos on making healthy lifestyle changes that teach you how to complete the various activities that can be found at the end of each chapter of the book, including one of a patient completing the aforementioned values clarification exercise. You will also find a section at the back of this book containing information on additional resources as well as a glossary of medical terms.

Moving Forward: Questions for Discussion

Following are questions that should help you to reflect on the material in this section and how it may affect you. Try to answer each question.

- How do you react to illness in general—are you more of a monitor or a blunter?
- What have you already heard from either healthcare professionals or others about the side effects of ADT?
- Do you have specific questions that you would like to have answered about the form of ADT that you have been offered and the side effects of the treatment?
- Have you discussed with your physician how long you might need to be on ADT and whether you are a candidate for intermittent ADT?
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Androgen Deprivation Therapy: An Essential Guide for Prostate Cancer Patients and Their Loved Ones, Second Edition
As a patient, you are about to begin treatment with drugs that reduce the amount of male hormones, called androgens, in your body. The main androgens are testosterone\(^1\) and dihydrotestosterone (DHT). This treatment, while commonly called hormone therapy, is more properly called androgen deprivation therapy (ADT).

**What Is ADT?**

ADT is effective in controlling prostate cancer and treating most of the symptoms associated with prostate cancer. ADT works by reducing testosterone (produced in the testicles), the main hormone that stimulates the growth of prostate cancer cells. An additional small amount of testosterone is normally produced in the body by the adrenal glands. Suppressing the amount of testosterone in the body can slow the spread of your prostate cancer and significantly reduce the symptoms associated with the disease. Many men benefit, often for years, from ADT.

Testosterone affects many other tissues in the body in addition to the prostate gland, and men on ADT typically experience changes and side effects related to the lack of testosterone. Many patients and their loved ones readily accept the side effects of ADT in return for a life-prolonging treatment and recognize the trade-off between some quality of life for quantity of life. Other patients and their loved ones struggle to adjust to the side effects. We focus here on how you can maintain a good quality of life while on ADT.

\(^{1}\)Technical terms are in bold in the text the first time they are used and are defined in the Glossary.
ADT causes prostate cancer tumors to shrink, but may not kill them. It is thus understood as a treatment that is therapeutic, but usually not curative. Since it can significantly extend one’s life while minimizing cancer symptoms, patients on ADT can view their cancer as a chronic disease similar to high blood pressure or diabetes. For these conditions, medications are taken to manage, rather than to cure, the illness. With good management of a chronic illness, even when primary treatment has failed, a patient can still expect to live a good, long life. Many patients on ADT can realistically expect to live long enough to see further improvements in treatment. A cure may still be found. Starting on ADT does not mean that one will die of prostate cancer. In fact, most prostate cancer patients do not die from prostate cancer itself, but from other disease.

How Does ADT Work?

Androgen deprivation is commonly achieved by administering drugs (see the tables on page 4) in the form of a simple injection. These injections contain a pellet that slowly releases a synthetic hormone which blocks a chemical signal from the brain—specifically from the pituitary gland located at the base of the brain—that normally tells the testicles to produce testosterone. The most common drugs used for ADT are called LHRH agonists or GnRH agonists. LHRH stands for luteinizing hormone-releasing hormone and GnRH stands for gonadotropin-releasing hormone, but the different names refer to the same hormone. A different class of drugs called GnRH antagonists (or LHRH antagonists) can also shut down that signal to the testicles, with similar side effects. In addition, the different drugs may be sold under different names in countries outside of North America. For the alternative names in major English-speaking countries, see the tables at www.LIFEonADT.com.

With the injections, you may also be prescribed oral medications called antiandrogens (see the table in the following discussion). These drugs work quite differently than the injectable LHRH agonists and antagonists. They block the ability of testosterone (and other androgens) to attach to the cancer cells, the process which normally stimulates the cancer cells to grow. Some cells may then die, but others unfortunately may survive and mutate such that they are then able to grow even without testosterone. Thus, like the LHRH drugs, antiandrogens alone are not considered curative in the long run, but they can help control the cancer.

Commonly, patients who are prescribed an LHRH agonist are advised to start taking an oral antiandrogen 2 to 3 weeks before getting their first LHRH agonist injection. For some patients, it may be beneficial to stay on the antiandrogen long-term, but for others it may not be necessary. This is a decision that should be made in consult with your physician. When an LHRH drug
and an antiandrogen are taken together, they are often referred to as **combined androgen blockade (CAB)**, **total androgen blockade (TAB)**, or **maximum androgen blockade (MAB)**. Some patients also refer to this combination as **ADT2**.

The table at the top of page 4 lists commonly prescribed LHRH drugs and their relevant information.

The second table on page 4, “Antiandrogen Drugs Commonly Used to Treat Prostate Cancer,” lists commonly used antiandrogens that may be prescribed to work in conjunction with injectable medications to achieve CAB, or given to patients short-term for a few weeks before starting on an LHRH agonist. In some geographic regions, antiandrogen drugs are used alone at a high dose as a form of ADT, but this is not common in North America.

There are other drugs recently introduced into clinical practice that also impact the hormonal environment in the body, including enzalutamide (Xtandi®), apalutamide (Erleada®), and abiraterone (Zytiga®). These drugs are playing an increasing role in managing advanced prostate cancer.

Enzalutamide and the new drug apalutamide are new and particularly potent oral antiandrogens. Abiraterone is another oral drug that blocks testosterone production. Abiraterone blocks testosterone production or synthesis, not only from the testicles but also from the adrenal glands, by blocking the enzyme that normally converts a precursor molecule into testosterone. Drugs like abiraterone are so effective in reducing testosterone that they have been referred to in the recent medical literature as causing “androgen annihilation” rather than androgen deprivation. There are many promising studies looking at early use of these two compounds as alternatives to the more established LHRH agonist drugs, or in combination with them.

Enzalutamide, apalutamide, and abiraterone have their own side effects, and these can intensify some of the side effects of the LHRH drugs. Also, because abiraterone not only blocks testosterone production in the adrenal glands, but other compounds synthesized there, abiraterone has to be taken with a synthetic steroid drug, called prednisone. The prednisone compensates for the loss of those other essential compounds necessary for other bodily functions.

Although not commonly used in North America as a first-line hormone therapy, female hormones called **estrogens** can also be used to suppress testosterone. These can be either natural (e.g., estradiol) or synthetic (e.g., diethylstilbestrol [DES]) compounds. At high concentrations, like the LHRH drugs, they can reduce the hormonal signals from the brain to the testicles to produce testosterone. The oral forms of these drugs have been associated with an elevated risk of blood clot formation and are now rarely used in North America and Europe. However, if taken nonorally, such as through the skin (e.g., via a patch or gels), the risk for clots is much lower. Research is underway to see if nonoral estrogens are as effective in cancer control, with fewer bothersome side effects, than the LHRH drugs. As discussed in Chapter 2, estrogenic compounds can help reduce some of the side effects of the LHRH drugs.
LHRH Agonists Versus Antagonists

In common English, an agonist and antagonist have opposing effects. However, because of the complicated nature of the hormonal control of the testicles, LHRH agonist and antagonist drugs end up having the same effect on androgen production. They both shut off the hormonal signal from the pituitary gland that tells the testicles to make testosterone. The testicles

| LHRH Drugs Commonly Used to Treat Prostate Cancer |  |
|---|---|---|---|
| **Generic Name** | **Trade Name** | **How Is the Drug Given?** | **How Often Is the Drug Given?** |
| Leuprolide | Lupron<sup>®</sup> | Intramuscular injection | Every 1, 3, 4, or 6 months<sup>b</sup> |
| | Eligard<sup>®</sup> | Subcutaneous injection | Every 1, 3, 4, or 6 months<sup>b</sup> |
| Goserelin | Zoladex<sup>®</sup> | Subcutaneous injection | Every month or every 3 months<sup>a</sup> |
| Triptorelin | Trelstar<sup>®</sup> | Intramuscular injection | Every 1, 3, or 6 months<sup>b</sup> |
| Buserelin | Suprefact<sup>®</sup> | Subcutaneous injection | Every 3 months |
| | | Nasal spray | Daily |
| Degarelix<sup>c</sup> | Firmagon<sup>®</sup> | Subcutaneous injection | Two initial injections and then monthly injections |

LHRH, luteinizing hormone-releasing hormone.

<sup>a</sup> Subcutaneous injections are given under the skin, usually in the abdomen. Intramuscular injections are usually injected into the muscle of the buttock.

<sup>b</sup> Frequency of injections depends on the dose.

<sup>c</sup> Unlike the other drugs listed here, degarelix is an LHRH antagonist rather than an LHRH agonist.

Note: The dosage and location of injection may vary between drugs, but the long-term side effects are largely similar whether the drugs are agonists or antagonists. After the injection is administered, you may feel tenderness and/or itchiness and a small lump under the skin at the injection site.

Antiandrogen Drugs Commonly Used to Treat Prostate Cancer

| Antiandrogen Drugs Commonly Used to Treat Prostate Cancer |  |
|---|---|---|---|
| **Generic Name** | **Trade Name** | **How Is the Drug Given?** | **How Often Is the Drug Given?** |
| Bicalutamide | Casodex<sup>®</sup> | Pill | Daily |
| Flutamide | Eulexin<sup>®</sup> | Pill | Three times daily |
| Nilutamide | Nilandron<sup>®</sup> (United States) | Pill | Daily |
| | Anandron<sup>®</sup> (Canada) | Pill | Daily |
| Enzalutamide | Xtandi<sup>®</sup> (United States) | Pill | Daily |
| Apalutamide | Erleada<sup>®</sup> (United States) | Pill | Daily |

Androgen Synthesis Blocker Drugs Used to Treat Prostate Cancer

| Androgen Synthesis Blocker Drugs Used to Treat Prostate Cancer |  |
|---|---|---|---|
| **Generic Name** | **Trade Name** | **How Is the Drug Given?** | **How Often Is the Drug Given?** |
| Abiraterone | Zytiga<sup>®</sup> (United States) | Pill | Daily |

LHRH Agonists Versus Antagonists

In common English, an agonist and antagonist have opposing effects. However, because of the complicated nature of the hormonal control of the testicles, LHRH agonist and antagonist drugs end up having the same effect on androgen production. They both shut off the hormonal signal from the pituitary gland that tells the testicles to make testosterone. The testicles
depend on that signal; without it, they stop making testosterone. The following paragraphs go into greater detail on the differences between an LHRH agonist and antagonist. They are presented here for those interested in such details and are not specifically related to side effect management.

The difference in the two classes of drugs relates to a hormone signal from a region in the brain called the hypothalamus. The hormonal control of the testicles is a two-step process. The hypothalamus sends a signal to the pituitary to make the hormone that triggers the testicles to produce testosterone. The antagonists simply shut down the signal from the hypothalamus to the pituitary.

The agonists work in a more complicated and indirect fashion, but the ultimate result is the same; that is, testosterone production from the testicles is shut down. The agonist mimics the normal signal from the hypothalamus to the pituitary. It is a strong signal that puts the pituitary into overdrive. The pituitary at first increases the signal to the testicles to make testosterone. However, after a couple weeks of this excessive exposure, the cells in the pituitary do not respond to the LHRH anymore. As a result, the pituitary stops sending a signal to the testicles to produce testosterone. And that shuts down testosterone production in the testicles.

Although in the long term, the result is the same—that is, the testicles do not get the signal from the pituitary to make testosterone, so they shut down—the patient’s initial experience on these two treatments is not the same. The most commonly used agents for ADT are the agonists. Within a few days of starting therapy, a patient on these drugs experiences an initial rise in his testosterone. If you start on the drugs because of symptomatic metastatic disease, that initial surge of testosterone can cause those metastases to swell, which may cause pain. This is called “flare” and it is something to be avoided. The reason that patients initiating ADT with LHRH agonists commonly start by taking antiandrogen at the time of (or a few weeks before) their first injection is to block the testosterone produced in that initial surge from promoting the growth of tumor cells and the associated flare.

Antagonists have the advantage, over agonists, of driving down the testosterone faster and without the risk of flare. Thus, the antagonist is the drug of choice when a patient first presents for treatment with symptomatic and painful metastases. You may wonder, “Why not always just use a LHRH antagonist rather than an agonist?” Despite the fact that, with the antagonist, there is no initial rise in testosterone, no flare, and no need to precede the ADT injection with antiandrogen pills, administration of the antagonists can be a bit more difficult. As you can see from the first table on page 4, when a patient starts on a drug like degarelix, it requires two depot injections instead of one. Also degarelix is administered monthly whereas the agonists come as longer acting depots and require fewer injections. Injecting degarelix can be a bit challenging and some men report discomfort at the injection site with some
swelling or redness. With either class of drugs some patients may feel a lump from the material injected, but this typically subsides in the coming days to weeks. For these reasons, the most common drugs used for testosterone suppression remain the LHRH agonists. In fact, it is not uncommon for patients who start on an antagonist for 2 or 3 months to then switch over to a more convenient agonist.

**The Original ADT**

In the early 1940s, a physician and research scientist, Dr. Charles Huggins, suspected that prostate cancer growth may be influenced by male hormones. He is credited with pioneering the idea that certain cancers could be hormone dependent. He then went on to prove this and for that he won the Nobel Prize in medicine in 1966. Back in the 1940s there were none of the sophisticated pharmaceuticals now used to shut down testosterone production or block androgens from attaching to cancer cells and stimulating their growth. Thus, the only way of lowering the patients’ testosterone was to remove the testicles—which is called surgical castration or orchiectomy.

The language used in the prostate cancer literature still reflects the surgical origins of ADT. Advanced prostate cancer, which can no longer be controlled by androgen deprivation, is referred to as “castration resistant.” In this situation, the **prostate-specific antigen (PSA)** may continue to rise despite the patient being on one or more androgen-suppressing agents. (A more detailed explanation of PSA is included toward the end of this chapter.) This is in contrast to the situation when the PSA level can be controlled by ADT, which is called “hormone sensitive.” Occasionally there may be a distinction in the literature between “medical” and “surgical” castration. The former refers to suppressing testosterone with drugs and the latter to an orchiectomy.

Huggins soon began to offer his patients the synthetic estrogen DES, the first drug option for ADT, as an alternative to surgical castration. Since DES was relatively inexpensive and came in a pill form, it was perceived as less traumatic and more manageable for the patient than an orchiectomy. However, oral DES was found to have a high risk of blood clot formation. There was, thus, an effort to find safer drugs for ADT. Leuprolide was the first synthetic LHRH drug and began to replace DES for ADT in the late 1980s. Leuprolide was and remains much more expensive than DES, but has a lower risk of causing dangerous blood clots.

The pharmacological approach to ADT has been preferred over the surgical approach for the simple reason that it can be discontinued. For patients who only need short-term ADT—for example, to enhance the effectiveness of radiotherapy that is being used to treat prostate cancer that is localized or confined to the prostate gland—this pharmacological treatment makes the most sense. But for patients who have advanced disease and need continuous ADT, some arguments can be made to consider an orchiectomy. A more detailed
discussion of the context for continuous versus intermittent and long-term versus short-term ADT can be found toward the end of the chapter. The majority of drugs used for ADT are expensive; thus if one is likely to be taking them for the rest of his life, an orchiectomy will be a cheaper option in the long run. Although the psychological impact of a surgical castration may be assumed to be greater than the impact of medical castration, there has been hardly any research on that topic. One study actually found that patients getting ADT drug injections were overall more anxious than those who got an orchiectomy. The difference the researchers suggested was that those patients on the LHRH drugs had the stress of repeated doctors’ visits to receive their injections and more frequent PSA tests. Heightened anxiety may have been associated with waiting for test results. In contrast, the surgical patients had a single operation—a 1-day procedure—and did not require as frequent clinic visits.

Currently surgical castration for ADT remains common in parts of the world where financial resources are more limited. An orchiectomy is a credible alternative to the LHRH drugs if one has advanced prostate cancer and needs continuous testosterone suppression. Chemical and surgical ADT offer comparable cancer control. Furthermore, surgical ADT has not been shown to differ significantly in side effects or to cause greater psychological stress in the long term. Therefore, although surgical castration is the oldest form of ADT, it is still a viable option for some patients. DES is also still used in many parts of the world, primarily because it is inexpensive. Some relatively recent research in the United States has reexplored using it for ADT, but at a lower dose than what was used back in the 1960 to 1980s. This reduced dose seems to have a lower blood clot risk and may otherwise help patients, where cost is a concern, to avoid some of the more bothersome side effects of the LHRH drugs.

Physicians vary in their views of these early therapies. Some older physicians may remember prostate cancer patients who died of blood clots from oral DES. They may avoid DES altogether, and consider any estrogen compound, no matter the method of delivery, as too risky for prostate cancer patients. This assumption ignores new data suggesting that it is not the compounds but how they are administered that is the problem.

As for surgical castration, many men, whether patients or physicians, consider an orchiectomy as crude and archaic. For both patients and physicians, the language can be a problem. The word castration can be scary and as such people often avoid this precise terminology in favor of vague language that is potentially confusing. The best example of this is itself the term hormone therapy. For most other medical situations hormone therapy implies replacement of a hormone, not its removal (which is the case for ADT). Our own studies show that many people do not understand what “hormone therapy” means as a treatment for prostate cancer. As such, many patients offered “hormone therapy” may not have enough information to make an informed
decision about whether or not to accept that treatment and may also be less prepared to manage ADT side effects when they emerge.

**The Future of ADT**

There are many remarkable and promising new changes to ADT administration. These are in part a result of newer drugs, which have been shown to extend life, but they are also a result of advances in personalized medicine. Let us look at these two factors separately.

With an increasing number of drugs available to treat prostate cancer, a couple of questions arise. First, what is the best order to use the drugs? So far, no ADT-related drug has been identified as curative, but they do show some benefit to many patients. We can now legitimately talk about not just first- and second-line ADT options, but first, second, third, and fourth ADT protocols, and so on. An enormous number of clinical trials are underway to figure out the best order to administer the growing number of treatment options available to patients on ADT. Some will prove to be better for early stage disease while others are already proving to be more effective when used later, as the disease progresses.

Second, there is lots of research exploring using approved treatments in new combinations. For example, because chemotherapy for prostate cancer has not been found to be curative and has substantial side effects, it is often reserved for treating very advanced metastatic disease. However, recently it has been shown that combining ADT with chemotherapy and using such combined treatments earlier can substantially extend life for some patients. In a similar vein, there is new evidence suggesting that combining and simultaneously administering both old and new ADT agents (such as LHRH agonists with abiraterone and prednisone) may be more beneficial than using LHRH agonists followed by abiraterone, at least for some patients. Patients can expect to see a lot of research in the coming years that explores the timing of ADT, the order of ADT treatments, and using the various treatment combinations. All of this research will take time, and the more effective the drugs are in initially controlling the cancer, the longer duration is needed for the studies to prove that they truly improve survival overall.

Overlaying all this is the issue of matching treatments to individual patients’ health status and genetics, as well as the genetics of their tumors. This is within the promising area of personalized medicine and is a fast evolving field—one changing so fast that any attempt we might make to present a status report would soon be obsolete. So what does this all mean for patients starting on ADT? There are several points that patients need to consider. First, they should appreciate that ADT is not a single form of treatment, but now a raft of various treatments. All treatments have benefits and risks. As such, patients need to explore with their physicians what might be the best protocol for them to start on, and continue to ask their physicians
what second- and third-line ADT protocols are available, if the first one proves less than ideal. Patients should also expect, as part of personalized medicine, that the physicians treating them will take into consideration their overall health in deciding what ADT protocol is best for them. If the patients have comorbidities—for example, diabetes, previous cardiovascular events, or osteoporosis—they may be directed toward one treatment over another and have not just their PSA, but also other measures of their health, monitored along the way.

Patients who live near research hospitals may be invited to participate in clinical trials that are testing the best order, timing, and combination of ADT treatments. Increasingly, patients in ADT clinical trials can expect to have their overall health and possibly their genetics (and that of their tumors) monitored. This monitoring is done through genetic data collected from the tumor or blood samples. Patients can be optimistic though, since progress has been made for several decades now, with the death rate from prostate cancer continually going down. Much of this reflects better diagnosis and treatments. Even without a cure yet found, increasingly powerful treatments that substantially extend life are now available. Advanced prostate cancer can often be controlled for long periods of time as a chronic disease. Your focus as a patient thus needs to be on managing treatment side effects in order that you and those close to you maintain a good quality of life for as long as possible.

**Testosterone and DHT**

Some of the testosterone in a man’s body is converted to another androgen called dihydrotestosterone (DHT). DHT binds to receptors on prostate cells like testosterone does, and it is a more potent stimulus for the growth of prostate cancer cells.

Medications that block the conversion of testosterone to DHT, such as finasteride (Proscar®) and dutasteride (Avodart®), are often prescribed to manage symptoms related to benign enlargement of the prostate (called benign prostatic hypertrophy [BPH]). Both are oral medications. The benefits of these medications in managing prostate cancer are uncertain. Some patients may be prescribed these drugs to help with urinary complaints. Some clinicians and patients refer to using this drug together with LHRH agonists and antiandrogens as “triple blockade,” or ADT3. There is no clinical evidence that ADT3 is significantly more effective at controlling prostate cancer than the LHRH drugs used alone or when combined with an antiandrogen.

**What Medications Are You Taking for ADT?**

The following chart can help you to track the ADT drugs that have been prescribed for you. An additional copy is available in the Appendix on page 158.
How Long Will I Be on ADT?

The duration of ADT recommended to you will depend upon your situation.

*Life-long ADT* is prescribed in either of these two circumstances:

1. The PSA continues to rise after completion of primary treatments, such as *prostatectomy*, *brachytherapy*, or *external beam radiotherapy* and, given the patient’s age and general health status, is at high risk of fatal disease if not further treated.
2. The cancer is known to have spread beyond the prostate.

Some patients are on ADT for a while, and then stop and take a “drug holiday.” Cycling on and off the drug is known as *intermittent hormonal therapy*. Whether intermittent therapy is the best program for you will depend upon how well your cancer is controlled and how your PSA level behaves over time. The case for “going intermittent” is that for many patients it can limit the side effects of treatment while still maintaining good overall, long-term cancer control.

*Short-term ADT* is often recommended, from 6 months to 3 years, for patients with cancer confined to the prostate gland who go for some form of radiotherapy as a primary treatment. In this situation, ADT is often given for a few months prior to the start of the radiation therapy and continued throughout the radiotherapy treatment period, as well as for several months afterward. These patients may be recommended to stay on the drugs longer if their cancer appears to be more aggressive. However, newer studies suggest that ADT, when given to enhance radiotherapy, can be effective for many patients when administered for a shorter period of time, ranging from 6 to 18 months. There is an increasing amount of research showing that the benefits of using ADT to support radiotherapy varies based on the overall health of patients and how advanced their cancer is when they start radiotherapy.
What Is the PSA Test?

PSA is a protein produced by cells of the prostate gland. The PSA test measures the level of PSA in a man’s blood. For this test, a blood sample is sent to a laboratory for analysis. PSA is present in small quantities in the blood of men with healthy prostates, but is often elevated in the presence of prostate cancer or other prostate disorders.

How Is the PSA Test Used for Men Who Have Been Treated for Prostate Cancer?

An increase in PSA in a patient who has had treatment for prostate cancer may be a sign of a recurrence of the disease. A single elevated PSA in a patient who has a history of prostate cancer is not a guarantee of recurrent cancer, and it is often necessary to repeat PSA testing over time to identify trends before confirming recurrence of the disease. Such recurrence is called a biochemical relapse or biochemical failure if (a) the PSA rises over time, and if (b) examination and diagnostic imaging (e.g., CT or bone scans) do not identify tumor deposits related to prostate cancer. If the examination or diagnostic imaging shows that there has been a spread of the cancer, it is called metastatic disease.

How Is the PSA Test Used When You Are on ADT?

A PSA that remains low indicates that your cancer is being controlled. If you are on intermittent therapy, ADT is stopped when the PSA drops to a very low level and remains in that range for at least a few months. If the PSA level rises above a specific threshold, ADT is started again. How high the PSA is allowed to rise before stopping or starting back on ADT is a matter to discuss with your physician. There have not been enough large-scale, long-term studies to provide solid rules for when to stop or restart ADT. In general, the decision needs to take into consideration how to ensure that you have the best cancer control and, concurrently, the best overall quality of life.

How Good Is the PSA Test?

With rare exception, the PSA level is a good indicator of the effectiveness of treatment. Generally speaking, your PSA should be very low while on ADT, but this can vary. The PSA level itself does not predict whether or not a man will have symptoms or how long the man will live. Many men have very high PSA values (e.g., in the hundreds or even higher) yet feel just fine. Other men have low values yet have symptoms of the disease. PSA levels are not a definitive measure of how serious one’s prostate cancer is and are only part of the information that your doctor uses to determine how you are doing in relation to your prostate cancer.

PSA levels normally fluctuate in all men. Many men dealing with prostate cancer are understandably concerned about even very small changes in
their PSA. For men whose cancer has recurred or spread outside the prostate gland, the actual PSA level is typically not as important as how quickly it rises. However, not every rise in PSA means that the cancer is growing and requires treatment right away. To help avoid unnecessary anxiety, be sure you understand what level of change in your PSA is considered a cause for concern. You can determine this by speaking with your doctor.

**How Long Will ADT Control My Cancer?**

Patients may be treated with ADT for many years, for as long as it is beneficial in managing their cancer. Many men have been on ADT for more than a decade and some have been on and off it for over two decades. ADT works for varying periods of time in different patients. Be sure to discuss with your doctor your questions about the duration of ADT and the potential for intermittent treatment strategies. Intermittent therapy requires regular monitoring of your PSA and overall health to ensure that drug treatment is reinitiated in a timely fashion if necessary. For many patients, intermittent therapy appears to match the benefits of continuous hormonal treatment for prostate cancer control, and is associated with a better quality of life during the “off” treatment periods.

However, over time ADT will likely become less effective at reducing PSA levels. When that happens, other treatments (e.g., second- and third-line therapies) can be considered. Long-term administration of ADT is increasingly offered to patients in the intermittent manner. For some patients the cyclic use of the LHRH drugs may prolong the length of time that the ADT remains effective in controlling the cancer, but data are few to show that intermittent therapy extends life overall.

Hearing that your primary treatment did not get rid of all the cancer or that your cancer has spread can be distressing for both you and your loved ones. At this point, we know that the previous, potentially curative treatment has failed. Some distress is understandable in this situation. These feelings should be balanced against the reality that ADT can help control your cancer for a long time, and patients now on intermittent ADT may go through a half dozen or more “off” cycles, which can sometimes span a decade or longer.

For patients on intermittent ADT, getting PSA tests and waiting for the results are often stressful times. Feeling nervous or anxious is realistic in response to this difficult situation. However, if you find that you are significantly distressed at any time while being treated with ADT—whether on an “on” or “off” cycle—you should consider asking your medical team for help in dealing with the stress. Please share your concerns with your physician or seek professional counseling.

A chart for tracking your PSA scores throughout your treatment is provided in the following text and an additional copy is located in the Appendix on page 159.
PSA Chart: Write down the results from your PSA tests to keep track of any changes.

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PSA, prostate-specific antigen.

Moving Forward: Questions for Discussion

- Are there questions that I have about ADT for my healthcare team?
- Am I on continuous or intermittent ADT?
- Do I know my PSA?
- How does getting my PSA checked and waiting for results impact my mood or stress level?

NOTES:

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