

80% of all men over the age of 60 have problems with their prostate.

50 to 60% of all men over the age of 50 show signs of benign prostate enlargement.

Prostate cancer is the second most common cause of cancer-related death in men.

Every day an average of 15 men in Switzerland are diagnosed with prostate cancer, and three or four die from the disease (1,300 each year in total).

Now is the time to talk about prostate cancer screening and prevention.

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In younger men the prostate is the size and shape of a chestnut. But in later years, and during illness, it can grow to the size of a peach and cause corresponding symptoms.



MFN Prostate cancer 29.1%\* Lung cancer 13.7% Bowel cancer 12.2% Bladder cancer 4.6%

WOMEN Breast cancer 33.9% Bowel cancer 12.2% Lung cancer 6.9% Melanoma (skin cancer) 4.6% Melanoma (skin cancer) 5.6% Uterine cancer 5.6%

## DO WE WANT TO SCARE YOU?

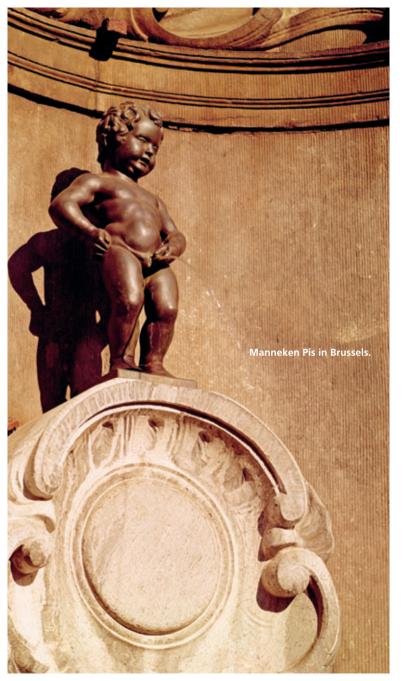
No, of course not. The aim of this guide is merely to present the facts in their true light. Every year in Switzerland, almost as many men die from prostate cancer (1,300) as women do from breast cancer (1,350). But prostate cancer can be insidious because it causes no symptoms during the early curable stage. Early detection is therefore important.

But while it is a matter of course for women to talk about the risk of breast cancer, have precautionary examinations and actively address the problem, prostate cancer is still a taboo subject for many men. Why should this be so? Because it affects an intimate part of their anatomy? Because it might cause impotence and incontinence? Or because of simple ignorance?

Not every case of prostate cancer needs to be treated, since some tumors progress at an extremely slow rate. But if a case does require treatment it must be detected at an early stage if it is to be curable. Before deciding to undergo regular screening, men should also be aware of the possible consequences of treatment.

Men need to become more aware.

Prof. Dr. med. Franz Recker Prostate Cancer Research Foundation

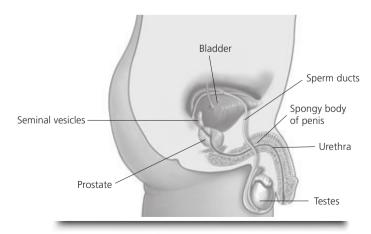


# ALL ROADS LEAD TO ROME OR, MORE ACCURATELY, THROUGH THE PROSTATE

Neither the urinary nor the genital tracts can bypass the prostate. Attached to the bladder is the urethra, the upper part of which passes through the prostate and the lower part through the penis.

The prostate also plays a part in every ejaculation by acting as a kind of mixer valve. During ejaculation, the sperm are propelled into the sperm ducts, which enter the back of the prostate. Semen and seminal vesicle fluid pass through the prostate in a channel and are squirted into the urethra. The prostate also secretes most of the sperm during ejaculation.

In short: Urine and sperm both pass through the prostate. Since men's urinary and genital tracts are so closely linked, they are referred to as the urogenital system.

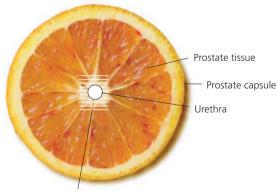


### **DISEASES OF THE PROSTATE**

**Benign prostatic enlargement,** also known as benign prostatic hyperplasia. This condition usually occurs between 50 and 60 years of age and is a benign proliferation of the connective and supporting tissues of the prostate, which gradually presses on the urethra over time

The first signs of prostatic enlargement are problems with urination. The release of urine is often delayed. Another indication is repeated urination during the night. Since neither of these symptoms causes any pain, many men think that they don't need to see a doctor. But the more the enlargement progresses, the more unpleasant the consequences (urinary congestion, inflammation of the bladder or kidneys, etc.) become. The early stages of benign prostatic enlargement are easier to treat with drugs than the advanced stage.

#### The structure of the prostate resembles that of an orange



Benign prostatic enlargement starts in he tissue surrounding the urethra.

### **Prostate Cancer: the Four Stages**

Small tumor, not palpable via the rectum



Larger tumor in the prostate capsule, palpable via the rectum



Tumor grows beyond the prostate capsule, palpable beyond the organ limits of the prostate



Tumor grows outside the prostate, metastases start to form in adjacent organs



Prostate cancer is curable only in the early stages (T1, T2).

Since prostate cancer rarely causes symptoms in the early stages, regular screening is important.

The prostate cancer may need to be treated, depending on the patient's age and what is found during screening.

Not every case of prostate cancer needs to be treated, but a tumor that does require treatment has to be detected at an early stage.

## **CELEBRITIES AGAINST PROSTATE CANCER**



**Ellen Ringier** "Since prostate cancer affects couples, we women also need to help remove the stigma from this subject."



**Bernhard Russi** "Men can be obsessed with almost everything – except our own health."

### THE RISK FACTORS

**Age** is one of the most important risk factors: Over 80% of all men diagnosed with prostate cancer are over 60 years old. The probability of contracting prostate cancer rises 40-fold between the ages of 50 and 85.

## Frequency of prostate cancer by country

USA	73 (pro 100'000)
Switzerland, Zurich	53.1
Switzerland, Basel	50.9
Norway	43.8
Finland	36.1
Netherlands	29.6
France	28.2
Spain	26.8
Italy	22.0

Sources: Boyle P., Urology 46:47, 1995 Debruyne F.M.J., Basic Res Urol Oncol, Basel, Karger p. 5, 1996 Waterhouse J., Int Agen Res Cancer 6:21, 1991

**Genetic predisposition:** Prostate cancer is at least partially attributable to genetic predisposition. Thus, a man whose father or brother has had prostate cancer is twice as likely to contract the disease as the rest of the male population (which has a risk factor of around 8%). If any other relatives such as a grandfather or uncle are affected, the risk can rise to as much as 50%.

**Diet** is a key factor in the development of latent prostate cancer into a dangerous illness. Mediterranean and Asian diets are helpful in preventing the problem (see page 29).

The best example is provided by those Chinese living in China, where only 0.8 in 100,000 men suffer from prostate cancer. If they relocate to the USA, the incidence rises 25-fold. And the frequency of prostate cancer in the next generation is just as high as among the rest of the American population.

Smoking, lack of exercise, vitamin D deficiency: A large-scale Finnish study involving smokers has shown that smokers run an increased risk of developing prostate cancer. Obesity is another risk factor. By contrast, regular exercise lowers the risk of prostate cancer. Observation also reveals a clear North-South divide in various regions of the world, with the incidence of prostate cancer declining the further south one goes. It is assumed that sunshine – the vitamin D formed by exposure to the sun – has a positive effect and reduces the risk of contracting the disease.



According to statistics, life under the sunshine of the southern hemisphere is healthier – for the prostate, too.



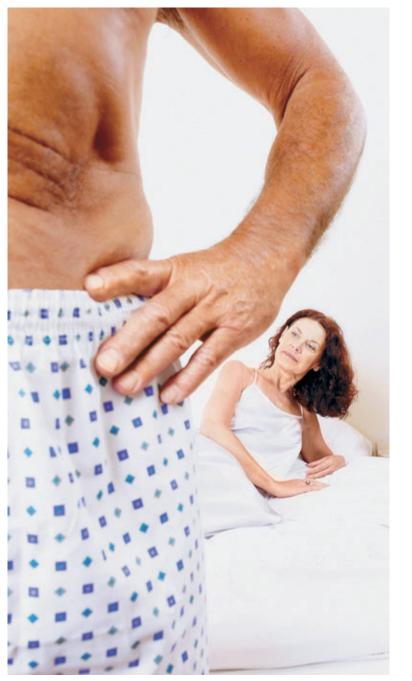
In modern specialized urology centers, keyhole operations using the da Vinci technique are used alongside open surgery to remove the prostate. This minimally invasive method involves a surgical robot that transfers the surgeon's hand movements to the instruments with millimeter precision. The surgeon sits at a control console and views the surgical field in up to 10 times its actual size on a three-dimensional video image. The method minimizes the impact on nerves and vessels and shortens the patient's hospital stay. But technology is still subordinate to the surgeon's skill in ensuring a good outcome.

## TREATMENT OPTIONS

If prostate cancer is diagnosed in the early stages (T1 or T2), three options are available:

- Wait and see: Thanks to PSA tests, prostate cancer can now be detected at a much earlier stage. Since prostate cancer grows slowly and is irrelevant in some cases, active monitoring with regular check-ups is one possible option for men wishing to avoid or postpone the possible consequences of treatment.
- Radiotherapy: As well as external radiation of a tumor, radiotherapy can also be administered from inside the body using radioactive seeds that are inserted into the prostate. The outlook for recovery is good in the early stages. However, impotence often occurs after a certain delay.
- **3 Prostatectomy:** A radical prostatectomy is the surest method of completely eradicating a tumor in stages T1 and T2. Impotence affects around half of patients after the operation, but these problems can be treated with drugs.

In more advanced cases (stages T3 and T4, see page 11), hormone treatments or chemotherapy can be used to slow tumor growth. The cancer can no longer be cured at this stage.



## **IMPOTENCE**

Impotence and incontinence are the two most feared side effects of radiotherapy and prostatectomy. The nerve fibers and vessels that help to produce an erection run along the prostate capsule and can be damaged slightly by surgery or irradiation.

One of the aims of modern surgical techniques is to preserve as much of the vascular-nerve bundle as possible. Spontaneous erection is preserved in 53–86% of cases using these techniques. If the patient's erectile function was good before the operation, there is a good chance that everything will still work correctly afterwards as well. Otherwise, assistance can be offered in the form of potency drugs such as Viagra, Cialis, Levitra or Caverject. Potency can thus be restored in 85 – 95% of cases.

Potency rates after radiotherapy are initially 80 - 90%, but frequently fall to 10 - 40% after around 2 years, at which time drugs can also be used. A number of modern therapeutic methods such as penile implants are also available.





Viagra® – the little blue potency pill – was discovered by accident in 1998.

The active ingredient had originally been tested as a drug for lowering blood pressure.

### INCONTINENCE

Incontinence means wearing incontinence pads – for many men the worst possible outcome of prostate cancer surgery. But fortunately incontinence is rarer than is often assumed. Only 2% of patients require further surgery to deal with involuntary urination.

Leakage of small amounts of urine during the days or weeks immediately following a prostatectomy is normal. Over 90% of patients achieve their former level of urinary control after approx. three months thanks to simple sphincter muscle training during urination – interrupting and then resuming the flow – and pelvic floor training.

future will be fine

Experience is a crucial factor in restoring full control of the urine stream after a prostate operation.

# "THE WORST PART WAS THE WORD 'CANCER'"

A personal case report. "I was 51 when I was diagnosed as having prostate cancer. My brother had had a brain tumor and my father had contracted prostate cancer in old age, but did not die of it. I was probably more aware of the subject of cancer than the average man in the street. So there was no question in my mind about arranging regular PSA tests with my doctor from the age of 50. The initial results were normal. But a test in June 2007 suddenly came up with an elevated figure, which roused my doctor's suspicions. He referred me to the urologist at the cantonal hospital, where I was subsequently biopsied in August. Six tissue samples were taken from various sites in my prostate via my bowel – not a particularly agreeable procedure. I was told that I would soon be informed of the result. But when I still hadn't heard anything after a week, I became anxious. I went to the hospital to find out the diagnosis and was told that malignant cells had been found in one sample. On September 17, I was told I had prostate cancer.

The diagnosis wasn't the end of my world, though. The first thing I did was to go on a three-week vacation with my wife. The worst part for me was the word "cancer," because it immediately makes you think of death, and no one wants to die at 51. All I wanted was to get well again.



I found out everything I could on the subject, the treatments and after-effects. I decided fairly quickly to have my prostate removed completely. Waiting, undergoing radiotherapy and living with uncertainty was out of the question as far as I was concerned. I was quite clear on the matter: There was something bad in me and it had to be removed. I was fully aware of the possible side effects of a prostatectomy such as impotence or incontinence, and discussed them with my wife. 51 is too young to start running around in diapers or being impotent for the rest of your life. On the other hand, I knew that the operation with the da Vinci robot would be a minimally invasive procedure. In the hands of an experienced urologist this technique minimizes the risk of injury to the vessels and nerves around the prostate and the potential adverse consequences. I wanted to get rid of the prostate cancer, had confidence in the technique and accepted the residual risk; that about sums up my situation. My wife gave me her full support and that helped me in my decision.

On November 13, two months after the diagnosis, I underwent the operation. The prostatectomy went off without a hitch. The only immediate after-effect of the procedure was a few days of shoulder pain, which was evidently triggered by the gas that is pumped into the abdominal cavity during the operation and subsequently spreads to other parts of the body. I had no problems at all with impotence – quite the opposite in fact. I felt an erection after just a few days while I was still in the hospital. I presume that my relatively young age was in my favor, since some patients require potency drugs for a few months after the operation. I was also able to control my urine stream straight away

after my catheter had been removed. All in all the operation was a complete success.

But that's not quite the full story. My PSA level will continue to be measured every year to check whether there are still cancer cells in my body and if they are starting to multiply. But all in all, I have been lucky. My former quality of life has been restored and my illness made me more aware of what is really important in life.

Throughout this whole process I have always spoken

openly about the subject of prostate cancer. I only found it difficult to tell my family. But once this hurdle was overcome, I was able to talk about it freely to my friends and at my workplace at the police station. This sparked a lot of interest and I was amazed to discover how little people know about the subject. For example, some of my acquaintances believed that your PSA level is automatically tested when you give blood, while others didn't actually know what the prostate was for or were unaware that you need a regular PSA test. I've discovered that people are aware of the need for prostate cancer prevention, many people just don't have the

F. Roth, June 2008

courage to talk about it."

# FIVE QUESTIONS ABOUT PROSTATE CANCER SCREENING

## 1 Why is prostate cancer screening important?

Prostate cancer is the second most common cause of cancer-related death in men, but if discovered in good time it can be cured. Prostate cancer tends to progress fairly slowly, and not every tumor discovered at an early stage needs to be treated. However, aggressive cancer requiring treatment needs to be diagnosed early on.

# 2 From what age is regular screening recommended?

Men between the ages of 50 and 70 should talk to their doctor about prostate cancer and arrange to have a blood test known as a PSA test. Depending on the outcome of this test, the doctor will recommend that it be repeated every one, two or three years up to the age of around 70. If there is a history of prostate cancer in the family, it is advisable to take the first test at the age of 45.

## What is a PSA test?

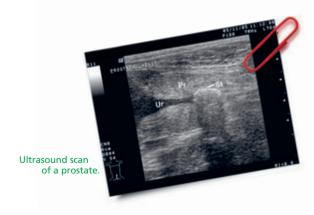
A PSA test is a blood test. PSA stands for prostate-specific antigen, a protein produced only by the cells of the prostate that can be measured in the blood. It is also referred to as the PSA tumor marker. A PSA value higher than 4ng/ml indicates that something is not right with the prostate. It may or may not be cancer, since a benign enlargement, inflammation and circulatory problems can also lead to an elevated PSA value.

## 4 How reliable is the PSA level?

Although the PSA level is the best tumor marker or indicator of cancer cells in medicine, it is not 100% reliable. Only one in four or five men with an elevated PSA level (over 4ng/ml) has prostate cancer. In such cases, or if something suspicious is found during rectal palpation of the prostate through the bowel wall, the diagnosis is confirmed by taking a tissue sample.

## 6 How unpleasant is the screening procedure?

The first step only involves a blood test, i.e. a needle jab in the arm. Palpation via the colon provides a little more additional information, but depends on the doctor's experience. If prostate cancer is suspected, the only unpleasant procedure is the collection of a tissue sample via the rectum under local anesthesia.



### PROS AND CONS OF SCREENING

Some critics are opposed to regular PSA screening as they claim it leads to overdiagnosis. In other words, screening leads to the discovery of too many tumors that cause no symptoms in the individuals concerned, grow slowly and – depending on the patient's age – would not cause death.

On the other hand, one recent study¹ has shown that regular PSA testing has reduced the mortality rate in the US.

It is important to make a personal decision for or against screening.
But before making your decision you should know about prostate cancer, the types of treatment and the possible consequences.

Every man should be aware that surgical removal and radiotherapy are valid treatment options for cancer. While these options offer the best possible chances of a cure, they also involve a 20 to 60% chance of subsequent erectile problems, depending on the age of the man and the course of the operation. Fortunately, such problems can now be overcome with preparations such as Viagra, Levitra, Cialis or Caverject. But men intending to undergo screening tests should be aware of the possible consequences.

### WHAT DO I DO?

- **Consult your doctor.** He knows you, can explain the screening procedures and discuss your individual situation.
- > Talk to your partner about early detection and the possible consequences of prostate cancer treatment.
- Discuss the subject with other men and benefit from their experience.
- Weigh up the pros and cons for your situation. Would you be prepared to accept a possibly reduced quality of life (incontinence or impotence, or taking drugs such as Viagra) in return for a longer life?

There is no one universally right answer. You have to find the solution that works best for you and your partner.

From the age of 50, see your doctor for regular prostate cancer screening if you

- are fully aware of the consequences of early detection
- would be willing to undergo treatment for prostate cancer
- are prepared to accept possible after-effects of any treatment

<sup>&</sup>lt;sup>1</sup> Cancer Causes Control. 2008 Mar;19(2):175–81. Quantifying the role of PSA screening in the US prostate cancer mortality decline. Etzioni R. et al.



# PREVENTION: POINTERS FROM ASIA AND THE MEDITERRANEAN

Japan and China have the world's lowest rates of prostate cancer, and the industrialized western nations the highest. Why? Because diet plays a crucial rule in prevention. The more Mediterranean and Asian a person's eating habits, the healthier they are. This means:

.....low-fat meals
.....olive oil instead of animal fats
.....plenty of fruit and vegetables
.....one or two glasses of red wine a day



# WHAT SUBSTANCES HAVE A PREVENTIVE EFFECT?

Isoflavones.....soy beans, red clover Lignans.....linseed, cereals, muesli, fruit, vegetables Flavone.....onions, apples, tea, red wine, parsley, thyme Lycopene.....tomatoes, water melons, grapefruit Selenium.....malted drinks or malt from a pharmacy\* Vitamins D, and E...malted drinks or malt from a pharmacy\*\*

<sup>\*</sup>max. 200 micrograms a day

<sup>\*\*</sup>max. 800 micrograms a day



# FREQUENTLY ASKED QUESTIONS – UNEXPECTED ANSWERS

## Does the prostate have anything to do with potency?

The prostate gland itself has nothing to do with a man's sex life, potency or erections. These functions are the exclusive responsibility of the fine nerve bundles located behind the prostate. The prostate is needed for the fluid that it secretes, which is essential for sperm survival and motility. So it is needed for producing offspring.

Why does prostate disease occur so often in the second half of life? The "menopause" is a less dramatic experience in men than in women, even though men's bodies undergo hormonal changes. These hormonal changes are one of the reasons for prostate growth starting from the age of 50 in around 50% of men.

What has orgasm got to do with PSA screening? The PSA level of a man who has experienced an orgasm one or two days before screening can be misleadingly high. Men should therefore refrain from sex for the two days preceding the test.

### Which is more reliable, a PSA test or rectal examination?

A PSA test. Rectal palpation of the prostate through the bowel wall is a less reliable method and depends to a large extent on the examining doctor's experience. Furthermore, not every case of prostate cancer can be detected by palpation.

## Does impotence have anything to do with the prostate?

No, there is no link between impotence and the prostate. Most men's sexual drive declines naturally with

age and for various reasons. From around the age of 50, production of the male hormone testosterone starts to fall. Impotence can also be connected with the pituitary gland or an impairment of thyroid function. Or a disease of the blood vessels may be present. Blood vessels constricted by deposits prevent sufficient blood from reaching the penis. To this extent, erectile dysfunction may also be an indication of latent problems due to constricted coronary arteries.

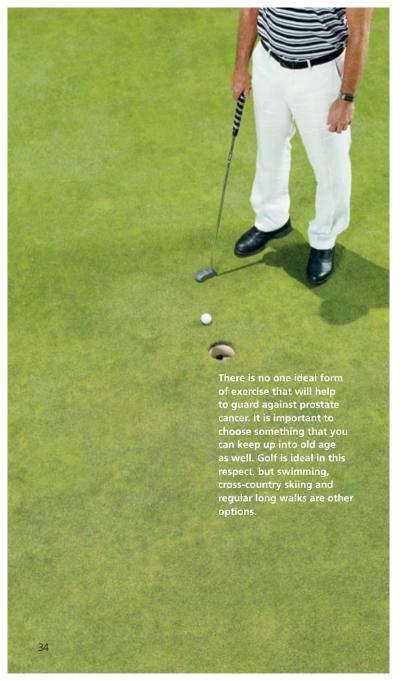
**How many men undergo screening?** Answers to the question: "When did you last undergo prostate screening?"

	In the last 12 months	More than 12 months ago	Never
45-54 years	16.8%	17.7%	65.4%
55-64 years	32.3%	26.6%	41.1%
65-74 years	36.8%	36.0%	27.1%
75 and over	30.1%	44.1%	25.9%
Total	23.4%	24.2%	52.4%

Source: Swiss Federal Statistical Office, Swiss Health Survey 2002

Over half of all men aged over 45 in Switzerland have never undergone a prostate screening examination. The survey did not ask about the type of examination (PSA test and/or rectal palpation) or how often the examinations were performed.





# THE BEST WAY TO ENSURE GOOD PROSTATE HEALTH

	YES
I visit my doctor regularly for a PSA test	
There is no history of prostate cancer in my family	
I rarely eat fatty and heavy foods	
I eat a lot of fruit and vegetables	
I often eat Asian or Mediterranean food	
I use vegetable oils instead of animal fats	
I am a non-smoker	
I exercise regularly	
I enjoy one or two glasses of red wine every day	

The more statements you can answer yes to, the better for your health.

A HISTORICAL LOOK AT THE PROSTATE



The first anatomical description of the prostate dates back to 300 BC and was written by Herophilos of Chalcedon. He gave it the Greek name "prostates," which translates as "something that stands in front." During the Middle Ages, medicine was the preserve of the monasteries and made little progress. It is not until 1538, almost two thousand years after the Greek description, that we find an illustration of the prostate as part of the male urogenital system. The French surgeon Ambroise Paré first described the function and anatomy of the prostate at the end of the 16th century. A further 300 years were to elapse before Vincenz Czerny, an Austrian surgeon and pioneer of cancer research, performed the first complete prostatectomy on a patient with prostate cancer in Heidelberg in 1889. However, it was only after World War II that prostate cancer treatment became widely available to the general public with the introduction of ultrasound, chemotherapy and CT scans. The introduction of the da Vinci laparoscopic technique in the 1990s was another important developmental leap forward.

Illustration from "Gray's Anatomy of the Human Body," 1918

### **GLOSSARY OF TECHNICAL TERMS**

Biopsy of the prostate: ultrasound-quided collection of tissue samples through the rectum under local anesthesia BPH: benign prostatic hyperplasia = benign enlargement of the prostate gland. **Brachytherapy:** radiotherapy technique in which small radioactive sources are placed directly in the tumor. Digital-rectal examination: palpation of the prostate by a finger inserted into the rectum. Erectile dysfunction (ED): impotence; ability to achieve an erection is impaired. Gleason score: international classification of tumor tissue in which a score of 2 to 10 points is assigned as a function of the microscopic appearance. Urinary incontinence: involuntary leakage of urine. Hormone therapy: blocking of male hormones to suppress hormone-sensitive tumors. Carcinoma (Ca): cancerous tumor; malignant tumor. Laparoscopy: keyhole technology used in surgery. Metastasis: secondary growth of a malignant tumor. Prostate: chestnut-shaped gland located below the bladder and surrounding the upper part of the urethra. Prostatis: inflammatory disorder of the prostate. PSA: Prostate-Specific Antigen; protein produced by the prostate whose concentration can be measured in the blood, an important tumor marker for the early detection of prostate cancer. Radical prostatectomy: operation in which the prostate is completely removed. Staging: process for establishing the spread of a tumor according to certain criteria. Radiotherapy (RT): use of high-energy beams to treat tumors. Transrectal: through the rectum. Transurethral: through the urethra. Transrectal ultrasound (TRUS): ultrasound examination of the prostate through the rectum. TUR-P: transurethral resection of the prostate, surgical removal of prostate tissue through the urethra. Urethra: canal leading from the bladder through which urine is passed. Watchful Waiting: a wait-and-see approach to the management of prostate disorders involving close monitoring but no therapeutic intervention.

## INFORMATION ON THE INTERNET

www.cancer.gov (Cancer topics/Types of Cancer/Prostate Cancer) www.cancerbackup.org.uk (Cancer type/Prostate) www.prostate-cancer.org.uk www.prostatecancerfoundation.org www.cpcn.org

### **LITERATURE**

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Strum, Stephen and Donna L. Pogliano. A Primer on Prostate Cancer: The Empowered Patient's Guide. 2005.

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The preventive examination for prostate cancer is no longer carried out where you might expect. A simple blood sample taken from the crook of your arm now does the trick. The earlier, the better. Ask your doctor and visit www.prostatakrebs.ch to learn more.

The Prostate Cancer Research Foundation was formed in 2002 in Aarau, Switzerland. The Foundation raises public awareness about the subject of prostate cancer prevention. It is engaged in research designed to develop new ways of improving the accuracy of diagnosis and risk prognosis, and supports various urological projects. The Foundation also organizes professional development events for specialists. Further information can be found at www.prostatakrebs.ch.

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