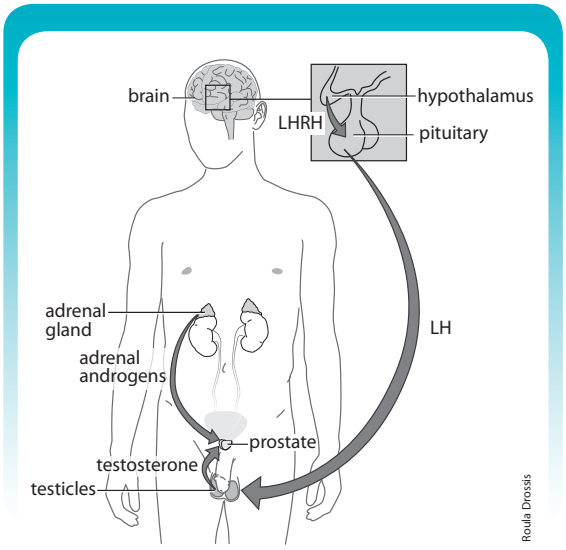
Hormone therapy for prostate cancer

Hormone therapy for prostate cancer involves removing or blocking the male hormone to help control the disease.

Investigations directed by your urologist indicate that you have prostate cancer, an abnormal growth of cells originating in the prostate gland. These abnormal cells may spill out of the prostate into surrounding tissues or spread to other parts of the body, most often into lymph nodes or bones. After consideration of various factors, your urologist is recommending hormone therapy to control your prostate cancer in an effort to relieve or prevent symptoms and maximize life expectancy.

Hormones are natural chemical messengers produced by various glands to control body functions. The testicles produce testosterone which is the major male sex hormone **(androgen)**. The release of testosterone is controlled by another hormone produced in the brain called *luteinizing hormone releasing hormone* **(LHRH)**. Small amounts of additional androgens are produced in the adrenal glands located above each kidney.



These androgens affect many body processes including hair growth, muscle and bone health and sexual function. The prostate gland requires male hormones for normal growth and function. Similarly, prostate cancer cell growth is stimulated or fuelled by androgens. When androgens are removed or blocked, many of the cancer cells die off while others become dormant. Hormone therapy affects prostate cancer cells wherever they are, even those spread outside of the prostate.

Hormone therapy is used most often for men with advanced prostate cancer. This may include recurrent prostate cancer after radiation or surgery. Hormone therapy is not a cure for prostate cancer, but a form of control which, in many cases, may last for years. In time, the cancer cells may evolve and become capable of growing without androgens *(castrate resistant prostate cancer)*. Your hormone therapy may then be adjusted by changing medications or other forms of treatment may be recommended.

In some cases of early prostate cancer, hormone therapy may be used in combination with other forms of potentially curative treatment **(adjuvant hormone therapy)**. Hormone therapy can be given in combination with radiation treatment in some patients in order to increase its effectiveness. A similar approach is used by some urologists prior to surgical removal of the prostate.

Types of hormone therapy

Hormonal control of prostate cancer can be accomplished in several ways. Removal of the testicles **(orchiectomy)**, eliminates the source of most of the male hormones. This minor surgical procedure, usually performed in the hospital on an outpatient basis, involves removal of the testicles through a small incision in the scrotal sac. There is usually little pain post-operatively and the risk of infection, swelling or bruising is small. Most men are able to resume their usual activities within a few weeks.

Some men prefer to have hormone production of the testicles suppressed rather than having them removed. This can be accomplished with a drug which specifically blocks the brain's hormonal control of testosterone production by the testicles. This medication, an **LHRH agonist**, is administered by injection at regular intervals (usually every three to six months). It is important to receive these injections according to the schedule recommended by your

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doctor. **LHRH agonist treatment and orchiectomy are equally effective for prostate cancer control**.

Several medications taken by mouth can block the effect of androgens without suppressing their production. These drugs called **anti-androgens** are usually used in combination with an LHRH agonist or orchietomy. They are often used prior to starting the LHRH agonist injections to block a short-lived increase in testosterone production caused by the first injection. Once the injections have completely suppressed the androgens from the testicles, the anti-androgen medications can often be stopped. Some physicians continue the anti-androgen with the LHRH agonist injections for the possibility of improved cancer control **(total androgen blockade)**.

The effect of hormone therapy is monitored with regular review of health status and testing the PSA level.

Side effects of hormone therapy

Male hormones serve several important functions in the body. Their elimination, by surgery or medication, may result in a number of effects. Most men will have hot flashes, much like those experienced by women at menopause. The frequency and severity of **hot flashes** are variable, usually decrease over time and, when bothersome, are treatable.

Androgens are important to maintain sexual drive and performance. Men on hormone therapy often lose interest in sex and have difficulty with erections. Fortunately, effective treatment is available to restore erections for those in whom this is important.

Mild anemia (low red blood cell count) is common with hormone therapy and may contribute to a slight loss of energy or fatigue. Muscle strength may decrease. Over time, thinning of the bones (osteoporosis) may lead to an increased risk of fractures. In some cases, this risk can be reduced with calcium and vitamin D supplements or with the use of additional medications (bisphosphonates). Side effects of the anti-androgen drugs may include nausea, diarrhea, breast tenderness and liver dysfunction.

Having both cancer and hormone therapy may cause a slight increase in the risk of blood clot formation which could lead to a stroke or heart attack. Your urologist may recommend a small daily dose of aspirin to reduce this risk.

Timing of hormone therapy

While treatment should be started promptly for any man with symptoms due to prostate cancer (such as disease that has spread into the bones), the timing of hormone therapy in men without symptoms remains controversial. Some believe that hormone therapy should be started at the first sign of disease activity (usually a rising PSA) before symptoms develop **(early treatment)**. Others feel that treatment can be delayed for months or even years **(deferred treatment)** without great risk, avoiding side effects of treatment. Studies are underway to determine the optimal timing of hormone therapy.

Although hormone therapy is usually used continuously, some physicians may offer **intermittent hormone therapy**. This strategy aims to balance cancer control while minimizing treatment side effects. An LHRH agonist is given for a specified period (often up to one year) until the PSA level and cancer are maximally suppressed. Treatment is then stopped to allow testosterone production to resume and the side effects of the medication to disappear (which may often take months). The cancer can be expected to become active slowly over time as indicated by a rising PSA. The timing to restart the LHRH agonist is often determined by the level of your PSA. The long term cancer control of this approach compared to continuous treatment is not yet established.

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