

The prostate gland is a small, walnut-sized organ located just below the bladder in men. It wraps around the urethra, which is the tube that carries urine and semen out of the body through the penis. Its position is strategic—it sits between the bladder and the base of the penis, controlling and protecting key reproductive functions.

The prostate is part of the male reproductive system, not the urinary system, though it affects both. Its primary job is to produce a fluid that nourishes and protects sperm. This fluid mixes with sperm cells from the testes and secretions from the seminal vesicles to form semen.

Prostatic fluid makes up roughly 25–30% of total semen volume. It's slightly alkaline—meaning it has a pH higher than 7—which helps neutralize acidity in the vaginal canal. That chemical balance keeps sperm alive longer after ejaculation, increasing the chance of fertilization.

Inside the prostate are hundreds of tiny glands that secrete this protective fluid. These glands are surrounded by smooth muscle, which contracts during ejaculation to push the fluid into the urethra. This coordinated movement ensures sperm and semen exit together efficiently.

The prostate also acts like a valve system. During ejaculation, it closes the opening to the bladder, preventing urine from mixing with semen. This separation is controlled by the autonomic nervous system, which manages involuntary body functions.

As men age, the prostate naturally enlarges in a condition called benign prostatic hyperplasia (BPH). The term “benign” means noncancerous, “hyperplasia” means overgrowth. This enlargement is common and usually linked to hormonal changes, especially in testosterone and dihydrotestosterone (DHT)—a powerful hormone derived from testosterone.

When the prostate enlarges, it can press against the urethra, leading to urinary symptoms: frequent urination, difficulty starting or stopping, weak urine flow, or a feeling of incomplete emptying. This is not cancer but a mechanical issue caused by pressure.

Now, prostate cancer is a separate condition. It occurs when cells in the prostate begin to grow uncontrollably. Cancer, by definition, means the uncontrolled division of abnormal cells that can invade nearby tissues or spread to other parts of the body (called metastasis).

Prostate cancer begins in the glandular cells that produce fluid. These are called adenocarcinoma cells, which is why most prostate cancers are specifically adenocarcinomas.

One major reason so many men get prostate cancer is age. The prostate is sensitive to lifelong hormonal influence, particularly testosterone. Over decades, repeated cycles of

cell growth and repair increase the chance of DNA errors—mutations—that can trigger cancer.

Statistics show that prostate cancer is the most common cancer in men after skin cancer. It typically affects men over age 50, though genetics and lifestyle can shift risk higher or lower. About one in eight men will be diagnosed in their lifetime, but most cases grow slowly and are treatable if found early.

Genetics play a large role. Men with a family history of prostate cancer—especially a father or brother who had it—are at higher risk. Specific gene mutations, such as BRCA1 and BRCA2 (the same genes linked to breast cancer in women), can also raise the risk.

Race also influences statistics. African American men are more likely to develop prostate cancer and to have more aggressive forms. Researchers believe this results from a combination of genetics, environment, and healthcare access differences.

Diet and lifestyle matter greatly. Diets high in saturated fats, processed meat, and low in fruits and vegetables may increase inflammation and oxidative stress, both of which can damage cells and promote cancer growth.

Oxidative stress means damage caused by unstable molecules called free radicals that attack cell DNA. Antioxidants—found in foods like tomatoes (rich in lycopene), berries, and green vegetables—help neutralize these molecules and protect cells.

Exercise lowers risk by improving hormone balance and circulation, reducing obesity (a known cancer risk factor). Even moderate activity, like brisk walking for 30 minutes a day, supports prostate health.

Men can also lower risk by limiting alcohol, avoiding smoking, and maintaining a healthy weight. Obesity increases levels of insulin and certain hormones that can fuel prostate cell growth.

Medical screening is critical. The two main tests are the PSA test and the digital rectal exam (DRE).

The PSA (prostate-specific antigen) test measures a protein made by the prostate that can rise when cancer or inflammation is present. High levels don't always mean cancer—it can also be BPH or infection—but it signals the need for further evaluation.

The digital rectal exam allows a doctor to feel the prostate through the rectal wall to check for lumps or irregularities. Though uncomfortable, it's quick and effective as a first-line check.

If these tests suggest cancer, doctors may order imaging—like MRI—or perform a biopsy, where small tissue samples are examined under a microscope to confirm diagnosis and measure aggressiveness using the Gleason score.

Prostate cancer treatment depends on the stage. Early cancers may need only active surveillance, meaning regular monitoring without immediate surgery. If intervention is needed, treatments include surgery (prostatectomy), radiation therapy, hormone therapy, or a combination.

Hormone therapy works by reducing testosterone levels, since testosterone can stimulate prostate cancer growth. It's often used in advanced cases or alongside radiation.

Radiation therapy uses targeted energy to destroy cancer cells while sparing surrounding tissue. Advances like proton therapy now deliver even more precision.

In advanced stages, prostate cancer can spread to bones or lymph nodes, but modern treatments—including immunotherapy (using the body's immune system to fight cancer)—continue to improve survival rates. Many men live long, healthy lives after diagnosis.

Now, to your final question: the female equivalent of the prostate gland. Anatomically, women do have a similar structure called the Skene's glands, sometimes referred to as the female prostate.

The Skene's glands are located near the urethra, just inside the vaginal wall. They produce a fluid that's chemically similar to male prostatic fluid, containing prostate-specific antigen (PSA) and prostatic acid phosphatase (PAP)—two markers also made by the male prostate.

Though much smaller, the Skene's glands are part of the female sexual and urinary system. They play a role in lubrication and possibly in the fluid expelled during orgasm in some women, though their exact function is still being researched.

Like the male prostate, the Skene's glands can also develop cysts, inflammation (Skene's gland infection), or rarely, adenocarcinoma (a gland-based cancer), though such cases are exceedingly rare.

In biological terms, both the prostate and Skene's glands develop from the same embryonic tissue—called the urogenital sinus—which explains why they share structure and function.

To summarize this lesson:

- The prostate is a reproductive gland that makes protective fluid for sperm.
- Its main diseases are benign enlargement (BPH), prostatitis (inflammation), and cancer.
- Prostate cancer risk increases with age, genetics, diet, and hormone cycles.
- Prevention involves healthy diet, regular exercise, and medical screening.
- The female equivalent is the Skene's glands, or “female prostate.”

In essence, the prostate is a vital organ of fertility and male health, but one that requires vigilance with age. Early detection saves lives, and proactive lifestyle choices are the strongest defense.