Objectives:

Our first segment focused in the anatomy and functions of the prostate gland, to get a clear understanding of the male Genito-Urinary System.

Now, we will explore two of the main problems associated with owning this wonderful, but sometimes troublesome prostate gland:

1. Benign Prostate Hyperplexia (BPH)
2. Prostate Cancer (PCa)
Benign Prostate Hyperplexia (BPH):

When we are young, our prostates do not give us any trouble, other than a very rare infection that is easily treated with antibiotics.

As a male ages -and for reasons still unknown- the prostate gland tends to grow in size, narrowing the urethra and causing it to give trouble urinating. This happens to the majority of men as they age.

Now, let’s take a look at a young and older prostate, so we can see the difference:
Prostate of a Young Male:

In this picture, the urethra is wide, allowing for the easy passage of urine from the bladder. (Lucky young guys!)
Prostate of an Older Male:

In this picture, the prostate has enlarged, narrowing the urethra and can cause mild to severe urination problems to older men.

Notice how the urethra is narrower.
Urination problems in older men can also be a symptom of prostate cancer. **Prostate cancer is a tumor.**

A tumor is an abnormal growth of body cells: they can be benign (Ex: a mole), or malignant (cancer). Body cells have specific functions according to what part of the body they belong to. Cancer cells grow out of control, unable to perform the functions they were supposed to do. Eventually, they spread beyond their original location (metastasis), invading the rest of the body and causing death if untreated.

The prostate cancer onset and progression can be determined with two regular screenings: the **PSA** and **DRE** tests.

**PSA**, or Prostate Specific Antigen, is a blood test that measures an enzyme that can only be produced by prostate cells.

**DRE**, or Digital Rectal Examination, detects the presence of a tumor.
Two Life Savers!: Digital Rectal Examination (DRE) and Prostate Specific Antigen (PSA) Blood Test.
If either or both tests look suspicious, the next step is to have a biopsy.

A biopsy extracts a small sample of body tissue that is analyzed by a pathologist, the medical specialist trained to determine if body cells are normal or changing appearance.

Cancer cells have degrees of aggressivity according to their shape, ranging from “low” to “high” grade.

Abnormal cancer cells are graded according to the Gleason Score, ranging from 1 (low grade), through 5 (high grade).
Needle Biopsy of the Prostate
Needle Biopsy of the Prostate
Stage 1 anterior view:

In this stage it is possible that a doctor can’t feel an existing, but very small tumor, with the Rectal Exam. This is why it is also necessary to monitor the PSA with a blood test, to check for possible problems.

Very small tumor that can’t yet be felt with a Digital Rectal Exam (DRE).
Stage 1 posterior view:

This is the back of the prostate. In this stage, the doctor probably will not feel any tumor at all. However, we saw a very small tumor in the previous slide. Regular DRE and PSA tests can track the progression, if any.
Stage 2 anterior view:

In this front view of the prostate, you can see a small bulge as the tumor grows.

This tumor has now grown, so it can be felt with a DRE.
Stage 2 posterior view:

Notice how the tumor’s bulge can now be felt during a Digital Rectal Exam (DRE). It is very possible that in this stage the PSA reading has also risen.
Stage 3 anterior view

Notice what happened when we look at the back side of the prostate, on the next slide:

This tumor has grown much larger than on the previous slide.
Stage 3 posterior view:

Notice how the tumor has already escaped the prostate gland into a seminal vesicle. The tumor probably will now invade the lymph nodes and spread to other parts of the body, beginning in the pelvis bone.

This tumor has escaped the prostate gland and is invading the seminal vesicle.
In this stage the person is considered incurable, as the tumor has already spread beyond the confines of the prostate gland.

The tumor has invaded the bladder and it is on its way to invade the rest of the body.
Stage 4 posterior view:

Once the tumor spreads, it is no longer possible to arrest the disease with surgery or radiation in its various forms. Now, the only proven alternative to slow the disease down for sometime, is Hormone Therapy.
An Ounce of Prevention is Better than a Pound of Cure:

If cancer is found early in the prostate there is a range of treatments available: from Active Surveillance, Surgery and Radiation in various forms, Cryosurgery, etc.

Before PSA the annual rate of prostate cancer deaths in the USA was very high: 40,000/year. Early detection (PSA and DRE) has reduced it significantly to approximately 27,000 per year.

Approximately 200,000 men are diagnosed every year in the USA. 1 in 6 men are diagnosed with it every single year.

Prostate cancer is the 2nd. highest cause of early deaths in males in the USA.

When prostate cancer escapes the prostate gland YOU ARE CONSIDERED INCURABLE!