

Prostate Cancer: Grading



Your healthcare team must learn more about your cancer in order to make the best treatment plan. What do the cancer cells look like? Has the cancer spread beyond your prostate? How fast do the cells appear to be growing? Are they likely going to spread quickly?

Cells taken out during your prostate biopsy are sent to a lab. There, the cells are tested and a pathologist looks at them with a microscope. A pathologist is a healthcare provider who identifies diseases by studying cells and tissues. They then figure out the cancer's grade. The pathologist will send a report to your urologist.

Your treatment options will depend on how the cells look (called the **grade**) and where they are in your body (the **stage**).

Grading the cancer

The prostate biopsy samples are studied under a microscope by the pathologist to identify cancer cell patterns. These cell patterns are called Gleason patterns. Often there is more than 1 Gleason pattern within a tumor. The pathologist gives 1 number to the cancer cell pattern that takes up the largest area of the tumor. Another number is given to the cell pattern that takes up the second largest area. A scale of 1 to 5 is used. Low-grade cancers (grade 1) look a lot like normal tissue. High-grade cancers (grade 5) differ from normal tissue in the way cells are grouped, and in cell size and shape. The higher the grade, the faster the cancer is likely to be growing. Almost all cell patterns are given a grade number from 3 to 5. These 2 grade numbers are used to calculate your Gleason score.

Grade 1 or 2

The cancer cells are abnormal, but are still organized in rings like healthy prostate cells.

This may mean a slow-growing cancer.

Grades 1 and 2 are very rarely used.

Grade 3

Grade 3 cancer cells vary more in size and shape. Fewer rings can be seen.

These cancer cells may grow faster or still be slow growing.

Grade 4 or 5

These cancer cells form irregular, closely packed rings or don't form rings at all. They vary even more in size and shape than lower-grade cells. They may be called poorly differentiated.

These grades mean a fast-growing cancer.

The Gleason score

The 2 most common grades found in the tumor are added together to get the Gleason score (or Gleason sum). This score helps your urologist figure out your risk and the best treatment for your prostate cancer.

The first number used tells you which grade is most common in the biopsy tissue. So if your score is $4 + 3 = 7$, most of the tumor was grade 4. And the second largest area of the tumor is grade 3.

Gleason scores can be between 2 and 10. But nearly all prostate cancers have a score of 6 or higher. Gleason scores are used to put prostate cancers into 3 categories:

Gleason score 6 or less

These cancers are well-differentiated. This means the cells look a lot like normal cells. They're also called low-grade. They tend to be slow growing and unlikely to spread.

Gleason score 7

These cancers are called moderately-differentiated or intermediate-grade.

Gleason score 8, 9 or 10

These cancer cells look very different from healthy cells and are growing quickly. They may be called poorly-differentiated or high-grade.

Grade groups

To help make Gleason scores easier to understand, they can be used to divide people into groups to help predict how well they're going to do. These are called Grade groups. They range from 1 to 5. Group 1 cancers are slow to grow and spread. Group 5 cancers grow and spread faster. People in the lower grade groups tend to do better than those in higher grade groups.

Grade groups are based on Gleason scores:

- Grade group 1 is a Gleason score 6 or less.
- Grade group 2 is a Gleason score of $3 + 4 = 7$.
- Grade group 3 is a Gleason score of $4 + 3 = 7$.
- Grade group 4 is a Gleason score of 8.
- Grade group 5 is a Gleason score of 9 or 10.

Grade and stage

Your grade group and your PSA level are key pieces of information used to determine your cancer stage. This process is complex. Ask your provider to explain how it works, what it means, how it impacts your treatment options, and what it might tell you about your long-term outcomes.

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