

## **PROSTATE CANCER (ADENOCARCINOMA) - Gleason Score & Decipher Score**

An important component of staging prostate cancer is the **Grade** of the cancer. The grade describes what the actual cancer cells look like under a microscope and how they are behaving on a microscopic level.

Traditionally, prostate cancer grades were described according to the **Gleason Score**, a system named for the pathologist who developed it in the 1960s. Dr. Donald Gleason described that cancerous cells fall into 5 distinct visual patterns (Grades) as they change from normal cells to tumor cells. The cells are graded on a scale of 1 to 5. Grade 1 cells resemble normal prostate tissue. Grade 5 are considered “high-grade” and have mutated so much that they barely resemble normal cells.

### **How is the Gleason Score Derived?**

The pathologist looking at the biopsy will assign one Gleason grade to the most predominant pattern in your biopsy and a second Gleason grade to the second most predominant pattern. For example: “3 + 3 or “3 + 4”.

The two grades are added together to determine the **Combined Gleason Score** (“3 + 3 = 6” or “3 + 4 = 7”).

Theoretically, Gleason Scores totals range from 2-10. However, since Dr. Gleason’s classification, pathologists almost never assign grades of 1 or 2, thus the combined Gleason Scores are either a **6, 7, 8, 9, or 10**. A Combined Gleason Score of 6 is low grade, 7 is intermediate, and a score of 8, 9, 10 is high grade cancer.

In 2014, the International Society of Urological Pathology revised the prostate cancer grading system, called the “Grade Groups”, in an attempt to update and replace the Gleason Score

We then use the Grade Group / Gleason Score (and PSA) to classify patients into a “**RISK GROUP**”

| <b>GLEASON SCORE</b> | <b>Combined GLEASON SCORE</b> | <b>GRADE GROUP</b> | <b>RISK GROUP</b>         |
|----------------------|-------------------------------|--------------------|---------------------------|
| 3 + 3                | 6                             | Grade Group 1      | Low Risk                  |
| 3 + 4                | 7                             | Grade Group 2      | Intermediate, Favorable   |
| 4 + 3                | 7                             | Grade Group 3      | Intermediate, Unfavorable |
| 4 + 4                | 8                             | Grade Group 4      | High Risk                 |
| 4 + 5, 5 + 4, 5 + 5  | 9, 10                         | Grade Group 5      | Very High Risk            |

## **DECIPHER SCORE**

The **Decipher score** is a genomic test used for prostate cancer to help predict the aggressiveness of the disease and guide treatment decisions. The test is performed on the tissue taken from the prostate biopsy; no additional procedure is required.

- It analyzes the characteristics of 22 genes within the prostate cancer tissue.
- Provides a score from 0 to 1.0, indicating the aggressiveness and risk of metastasis (spread) or recurrence after treatment (such as radiation or radical prostatectomy).

The Decipher test is typically used to better personalize treatment by combining it with other factors like PSA levels, Gleason score, and tumor stage. Specific use scenarios:

- To help decide between active surveillance vs. treatment (e.g., surgery or radiation).
- To help determine if hormonal therapy is needed for someone having radiation.
- After radical prostatectomy to guide decisions on additional radiation therapy.