

WHO Tumor Grading System

The World Health Organization (WHO) tumor grading system classifies tumors based on their histological appearance and, increasingly, their molecular characteristics. The grading helps predict tumor behavior, guide treatment, and estimate prognosis.

General Tumor Grades (WHO)

WHO Grade	Description	Biological Behavior
WHO Grade 1	Well-differentiated tumor cells that closely resemble normal cells.	Slow-growing, typically benign, low recurrence risk.
WHO Grade 2	Moderately differentiated with mild to moderate atypia.	Intermediate growth, higher risk of recurrence.
WHO Grade 3	Poorly differentiated with marked atypia and increased mitotic activity.	Malignant, faster growing, higher recurrence and progression risk.
WHO Grade 4	Undifferentiated or anaplastic cells with aggressive histology.	Highly malignant, rapidly growing, often poor prognosis.

Application in CNS Tumors

In central nervous system (CNS) tumors, WHO grading is **tumor-type specific** and now incorporates **molecular markers** (e.g., IDH mutation, 1p/19q codeletion, CDKN2A/B deletion). The **2021 WHO CNS 5th edition** uses Arabic numerals (1–4) and integrates histological and molecular features to assign grades.

WHO CNS Grade	Typical Examples	Notes
Grade 1	Pilocytic astrocytoma, meningioma (benign)	Often curable with surgery alone.
Grade 2	Diffuse astrocytoma (IDH-mutant), atypical meningioma	Requires monitoring or adjuvant therapy.
Grade 3	Anaplastic astrocytoma (IDH-mutant), anaplastic meningioma	Malignant, usually treated with surgery + radiochemotherapy.
Grade 4	Glioblastoma (IDH-wildtype), medulloblastoma, diffuse midline glioma	Highly aggressive, poor prognosis despite multimodal treatment.

Clinical Relevance

- **Guides treatment strategy** (e.g., surgery alone vs. combined therapy).
- **Predicts recurrence and progression.**
- **Standardizes communication** between clinicians and across studies.

From:

<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:

https://neurosurgerywiki.com/wiki/doku.php?id=who_tumor_grading_system

Last update: **2025/07/14 13:22**

