

**TABLE 2.1** Ranges for a Semen Analysis: The Goal Is to Be in the “Functional” Range

Parameter	WHO Reference Range (2010)	Functional (Optimal) Range
Volume	≥1.5 mL	≥2.0–5.0 mL
Concentration	≥15 million sperm/mL	≥35–50 million/mL
Total count	≥39 million per ejaculate	≥80–120 million per ejaculate
Motility (progressive)	≥32% progressive motility	≥50%–60% progressive motility
Total motility	≥40% (progressive and nonprogressive)	≥60%–70% total motility
Morphology (strict)	≥4% normal forms (Kruger strict criteria)	≥8%–15% normal forms
Vitality	≥58% live sperm	≥75%–80% live sperm
pH	≥7.2	7.2–8.0
Leukocytes (WBCs)	<1 million/mL	<1 million/mL
DNA fragmentation	No WHO standard; <30% generally acceptable	<15%–20% DFI

DFI, DNA fragmentation index; WBC, white blood cell; WHO, World Health Organization.