TRM
TENNESSEE REPRODUCTIVE MEDICINE

**Announcing New World Health Organization Semen Parameters - November 2010**

Following a large multi-national investigation of sperm parameters in fertile men, the World Health Organization (WHO) has changed the reference ranges used in semen analyses.[1] The new normal values are based on men who took 12 months or less to help conceive a child. Parameters above the 5$^{th}$ percentile are considered normal. In other words, 95% of fertile men have parameters which exceed the new WHO values. We will reflect these changes on our future semen analysis reports.

In all cases, the new normal reference values are lower than the previous WHO reference values. However, the new WHO criteria are actually more in line with how we at Tennessee Reproductive Medicine (TRM) and Tennessee Reproductive Laboratories (TRL) have already been interpreting semen parameters.[2]

Below are the old reference ranges, our interpreted range and the new reference range:

| | Former WHO Values | TRM/TRL Interpreted Normal Ranges | New WHO Values |
|---|---|---|---|
| Volume | 2 ml | 2 ml | 1.5 ml |
| Concentration | 20 million/ml | 13.5 million/ml | 15 million/ml |
| Motility | 50% | 32% | 32% |
| Strict Morphology | 14% | 9% | 4% |

As you may have noticed, the biggest difference between the new WHO value and the TRM/TRL interpreted normal range is in strict morphology. Morphology is the most subjective variable within a semen analysis, and centers may calculate it slightly differently.

At TRM/TRL, we have not used morphology to determine what therapy to offer patients. This study and the new reference ranges specifically support this practice. For example, we do not tell patients that a morphology of 4% means that they need IVF. Rather, they should consider a special technique for fertilization if they require IVF.

In conclusion, these new WHO criteria will not dramatically alter how we interpret semen analyses. However, we believe these new reference ranges will help more labs generate a uniform recommendation. If you have any questions about the new parameters, or if you have questions about existing analyses on file, please do not hesitate to call us.

Ringland S. Murray, Jr., MD
Jessica G. Scotchie, MD


1. Cooper, T.G., et al., *World Health Organization reference values for human semen characteristics.* Hum Reprod Update, 2010. **16**(3): p. 231-45.
2. Guzick, D.S., et al., *Sperm morphology, motility, and concentration in fertile and infertile men.* N Engl J Med, 2001. **345**(19): p. 1388-93.



6031 Shallowford Road, Suite 101
Chattanooga, TN 37421
423-876-2229