

## **THE FERTILITY CENTER OF OREGON**

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### **GRADIENT SPERM PROCESSING**

**What is gradient sperm processing?** Gradient sperm processing (or “washing”) is a technique which has been developed to prepare a sperm sample for intrauterine insemination (IUI) or for use with IVF. The procedure has been specifically developed for improving sperm samples from men who have very low sperm counts or mobility. As compared to our standard sperm washing procedures, gradient processing has been shown to significantly improve both sperm count and motility as well as pregnancy rates in men with severe male factor infertility.

**How is gradient sperm processing done?** Gradient processing uses three separate density layers of a colloid solution mixed into our standard HTC (Human Tubal Fluid) sperm media. The colloid solution consists of coated silica particles which can be mixed in different concentrations. A sperm sample is initially “washed” in standard HTF media and then placed on top of the layered gradient in a test tube. When the test tube is centrifuged, the sperm will migrate through the gradient. Because of the different densities of the layers in the test tube, dead and damaged sperm are trapped between the layers and the healthy, motile sperm move through the layers to the bottom of the tube. This bottom layer is then rewashed and suspended in a small amount of HTF media for IUI (intrauterine insemination) or for use in IVF. The total processing time for the gradient procedure is about one hour.

**When is gradient sperm processing the best procedure?** Gradient processing is most valuable for the treatment of sperm samples with counts of less than 20 million per cc and/or motility of less than 40%. In most cases, total number of healthy sperm obtained after sperm processing will be significantly greater with this technique. Most highly successful IVF programs are currently using this procedure for male infertility problems and for preparation of sperm samples for IUI.

**Is gradient sperm processing considered a safe procedure?** This procedure has been used for several years in many infertility treatment centers and is considered very safe. Coated silica is an inert (non-reactive) material which does not appear to harm sperm. In addition, the last washing step of the procedure removes the gradient from the final concentrated sperm specimen. Although there are rare risks of any sperm washing and IUI procedure, these risks do not appear to be increased in the gradient processing program.

**Why is gradient sperm processing more expensive?** The gradient processing technique is more complicated than standard sperm washing and utilizes additional steps in preparing the layered gradient of solutions. The gradient solution itself is expensive and new solutions must be made up fresh every few days. In addition to the cost of the materials, gradient sperm processing is a more labor intensive procedure.