

Surface Guided Positioning versus Traditional Triangular Positioning for Radiation Therapy

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**Abstract**

Surface-guided Radiation Therapy (SGRT) is a positioning monitoring system utilizing 3D nonionizing optical surface imaging. This system assists in patient set-up and allows for real-time monitoring of the patient's skin surface during radiation therapy treatment. Surface-guided imaging can be used for many treatment sites such as breast, abdomen, head and neck, and extremities. SGRT is believed to have more advantages than the traditional triangular positioning including shorter set-up times, improved accuracy and reproducibility of treatment area, decreased dose, and improved patient comfort. Studies have also shown the planned dose delivery can also be monitored with SGRT and decrease dose to surrounding tissues.

*Keywords:* surface-guided, optical surface, radiation therapy, cancer, positioning, image-guided, deep inspiration breath hold, intrafraction motion