A pediatric positioning device, in conjunction with a modified 4th-generation CT scanner, allows native body CT image acquisition in non-axial planes. For longitudinal anatomy, this capability has attractive benefits both from an image quality as well as dosimetric point of view. This method offers a high quality alternative to coronal and sagittal images currently obtained only by parallel reprojection of a very large number of thin (≈0.5mm) axial slices.

Based on anthropometric pediatric data, the CT scanner may image seated children approximately age 4 years and younger for native coronal and sagittal scanning. The physical size allows children up to ~12 years of age, in which case just the upper body may be imaged. Undesired dose to the head can be minimized via tilt onto an adjustable headrest. This method also allows the physician to observe longitudinal anatomy (lung, spine, esophagus, etc...) in a natural upright seated position.

High quality CT scans of coronal anatomy were obtained on phantoms with the ease of normal CT procedure. The images maintain the high spatial and contrast resolution normally observed only on axial anatomy. This pioneering technique shows the potential for CT as a true multi-planar acquisition device.