Essential Tremor (ET) is one of the most common movement disorders and is actively investigated as a neurodegenerative disorder. In this study we are investigating gray matter (GM) volume loss, metabolism and brain iron accumulation in Essential Tremor, with this talk focusing on GM volume loss. It has previously been shown that there is GM volume loss in the cerebellum in ET, where the disease manifests. Here, we investigated further loss of GM in the cerebrum in ET cases compared to healthy, age matched controls as well as ET subgroups of ET with head tremor and ET with severe tremor score. GM volume was calculated from high resolution T1 Magnetic Resonance Imaging (MRI) images using high resolution tissue probability maps. ET cases and subgroups had decreased GM volume in multiple regions throughout the cerebrum. This study shows evidence that neurodegeneration in the form of GM volume loss is not contained to the cerebellum, and is indeed wide spread throughout the cerebrum.