

Poster Session A

**B-15**

**Differences in SPECT Perfusion in Children and Adolescents with ADHD**

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**Objective:** This study looked at differences in brain function at rest between children and adolescents diagnosed with and without ADHD by using results obtained from single-photon emission computerized tomography (SPECT) scans. **Method:** Participants were 2168 children/adolescents with ADHD (mean age = 12) and 906 children/adolescents without ADHD (mean age = 12). In the ADHD group, 604 were females and 1557 were males, and 1105 were identified as Caucasian (36%). In the non-ADHD group, 309 were females and 593 were males, and 353 (11%) were Caucasians. Differences across all brain regions at baseline were analyzed using SPECT. **Results:** A MANOVA found significant differences for the angular gyrus, calcarine fissure, caudate nucleus, cerebellum, cuneus gyrus, frontal lobe, fusiform gyrus, Heschl's gyrus, lingual gyrus, occipital lobe, paracentral lobule, parahippocampal area, parietal lobe, post central gyrus, precuneus, rolandic operculum, supplementary motor area, supramarginal gyrus, and temporal lobe ( $p < .001$ ). Frontal and temporal lobes were found to have the highest number of areas that were significantly different between the two groups, with the temporal lobe having the most number of areas with significant differences. **Conclusion(s):** The results of this study suggest multiple brain regions are associated in ADHD, particularly the areas of the frontal and temporal lobes. This indicates the functional abilities of the frontal and temporal lobes are implicated in children and adolescents with ADHD which may account for their difficulties in motor control, problem solving, and self-regulation difficulties. However, other brain areas were involved as well indicating while there is heavy frontal/temporal involvement, it is not restricted to these areas.