3. The Role of Functional Imaging in Disorders of the Basal Ganglia: a pictorial review

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Purpose
The basal ganglia are highly metabolically active. Nuclear imaging can provide a functional assessment of targeted metabolic pathways. Although often no single test is diagnostic, in the correct clinical context and when combined with structural imaging, functional assessment can be a powerful diagnostic tool. This review will discuss functional imaging of conditions associated with disorders of the basal ganglia.

Methods/Materials

Results

Conclusions
We will focus mainly on the utility of 18-Fluoro-deoxyglucose Positron Emission Tomography (18-FDG PET) and iodine 123-ioflupane Single Photon Emission Computed Tomography (DaT SPECT). This pictorial review will describe the physics and technology involved in image acquisition, the role of nuclear imaging and the functional appearances of a number of disorders alongside their structural correlate. We will discuss a number of disorders in which functional imaging has a well established role, such as Parkinsonian disorders; Idiopathic Parkinsonâ€™s Disease, Multiple Systems Atrophy, Progressive Supranuclear Palsy, Dementia with Lewy Bodies and Corticobasal Degeneration. We will also discuss disorders in which functional imaging is becoming increasingly relied upon to aid accurate diagnoses, such as Autoimmune Encephalitis, Primary CNS Lymphoma and Creutzfeld-Jakob Disease.