Effects of acute detoxification of the herbal blend 'Spice Gold' on dopamine D2/3 receptor availability: a [(18)F]fallypride PET study.

We carried out dynamic [(18)F]fallypride PET scans to measure cerebral dopamine D2/3 receptor availability in a 23-year old patient experiencing a severe withdrawal syndrome upon voluntary abstinence from "Spice", a pre-packaged herbal smoking thought to contain synthetic cannabinoids. Upon admission to the clinic, the patient experienced craving, affective symptoms and a range of somatic complaints, which resolved after several days' monitored abstinence. PET scans were performed on the day of admission, and one week later. Estimates of [(18)F]fallypride binding potential (BPND) were obtained in striatal and extrastriatal brain regions, and compared to results of age-matched healthy control subjects. Upon admission, [(18)F]fallypride BPND was reduced by 20% in the patient's striatum and also in extra-striatal regions. During short-term follow-up upon detoxification, the BPND increased to normal values. This study shows substantial short-term alterations of dopamine D2/3 receptor availability in a patient before and after acute detoxification from "Spice Gold", thus providing first evidence of reversible effects on dopamine receptors of heavy use of a herbal smoking blend.