# Frontal-subcortical circuitry

There is evidence that frontal-subcortical circuits play an important role in the initial presentation of dementia in Down syndrome (DS), including changes in behavior, a decline in working memory and executive dysfunction. Fonseca et al., evaluated 92 individuals with DS (≥30 years of age), divided into 3 groups by diagnosis-stable cognition, prodromal dementia, and Alzheimer's disease. Each individual was evaluated with an executive protocol developed for people with intellectual disabilities and was rated for behaviors related to frontal lobe dysfunction (disinhibition, executive dysfunction, and apathy) by an informant using the Frontal Systems Behavior Scale. Informant-reported behaviors related to frontal lobe dysfunction were found to correlate negatively with executive function performance. Disinhibition and executive dysfunction were associated with the clinical stage of dementia. The odds of having Alzheimer's disease increased in parallel with increases in the domain and total Frontal Systems Behavior Scale scores ($p \leq 0.5$). Disinhibition, executive dysfunction and apathy should be taken into consideration during the clinical evaluation of adults with DS, and future studies should consider the intersection of neuropathology, brain connectivity, and behavior [1].

1)
Fonseca LM, Mattar GP, Haddad GG, Gonçalves AS, Miguel AQC, Guilhoto LM, Zaman S, Holland AJ, Bottino CMC, Hoexter MQ. Frontal-subcortical behaviors during Alzheimer's disease in individuals with Down syndrome. Neurobiol Aging. 2019 Mar 11;78:186-194. doi: 10.1016/j.neurobiolaging.2019.02.028. [Epub ahead of print] PubMed PMID: 30947114.