

Resource Summary Report

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Network Based Statistic Toolbox

RRID:SCR_002454

Type: Tool

Proper Citation

Network Based Statistic Toolbox (RRID:SCR_002454)

Resource Information

URL: <https://sites.google.com/site/bctnet/comparison/nbs>

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Description: Matlab toolbox for testing hypotheses about the human connectome. NBS has been widely used to identify connections and networks comprising the connectome that are associated with an experimental effect or a between-group difference. User provides a series of connectivity matrices from different cohorts, or from the same subject during different experimental conditions. Connectivity matrices are inferred from neuroimaging data using other packages that, for example, count the number of tractography streamlines that interconnect each pair of regions (diffusion-MRI), or measure the extent of inter-regional correlation in BOLD response (fMRI). User specifies hypothesis to be tested at every connection with the general linear model. Features include: graphical user interface; NBSview, a basic network viewer modeled on SPMresults; exchange blocks for repeated measures; options to measure network size with intensity or extent; false discovery rate (FDR) option. Developed by Zalesky, Fornito, Cocchi and Bullmore.

Abbreviations: NBS

Synonyms: Network Based Statistic Toolbox, Network-Based Statistic (NBS)

Resource Type: software resource, software toolkit

Defining Citation: [PMID:20600983](#)

Keywords: connectivity analysis, domain independent, statistical operation, matlab

Availability: Free, Available for download, Freely available

Resource Name: Network Based Statistic Toolbox

Resource ID: SCR_002454

Alternate IDs: nlx_155826

Alternate URLs: <http://www.nitrc.org/projects/nbs>

License: GNU General Public License

Record Creation Time: 20220129T080213+0000

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Ratings and Alerts

No rating or validation information has been found for Network Based Statistic Toolbox.

No alerts have been found for Network Based Statistic Toolbox.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 56 mentions in open access literature.

Listed below are recent publications. The full list is available at [nidm-terms](#).

Estevez-Fraga C, et al. (2025) Cell-specific mechanisms drive connectivity across the time course of Huntington's disease. *Nature communications*, 16(1), 5519.

Ma X, et al. (2025) Sex Similarities and Differences in Brain Dynamic Functional Connectivity Among Individuals With and Without Autism Spectrum Disorders. *Human brain mapping*, 46(17), e70423.

Lu J, et al. (2025) The relationship between neuromagnetic networks and cognitive impairment in self-limited epilepsy with centrotemporal spikes. *Epilepsia open*, 10(3), 842.

Tremblay C, et al. (2025) Altered network efficiency in isolated REM sleep behavior disorder: A multicentric study. *Alzheimer's & dementia : the journal of the Alzheimer's Association*, 21(8), e70574.

Mu R, et al. (2024) Aberrant baseline brain activity and disrupted functional connectivity in patients with vascular cognitive impairment due to cerebral small vessel disease. *Frontiers in neurology*, 15, 1421283.

Li Y, et al. (2024) Disrupted individual-level morphological brain network in spinal muscular atrophy types 2 and 3. *CNS neuroscience & therapeutics*, 30(6), e14804.

Tolonen T, et al. (2024) Working memory related functional connectivity in adult ADHD and its amenability to training: A randomized controlled trial. *NeuroImage. Clinical*, 44, 103696.

- Wang Y, et al. (2024) Hypo-connectivity of the primary somatosensory cortex in Parkinson's disease: a resting-state functional MRI study. *Frontiers in neurology*, 15, 1361063.
- Wei B, et al. (2024) Analyzing the topological properties of resting-state brain function network connectivity based on graph theoretical methods in patients with high myopia. *BMC ophthalmology*, 24(1), 315.
- Li J, et al. (2024) Disrupted topological organization of functional brain networks in traumatic axonal injury. *Brain imaging and behavior*, 18(2), 279.
- Ma H, et al. (2024) In patients with mild disability NMOSD: is the alteration in the cortical morphological or functional network topological properties more significant. *Frontiers in immunology*, 15, 1345843.
- Lin J, et al. (2024) Structural covariance alterations reveal motor damage in periventricular leukomalacia. *Brain communications*, 6(6), fcae405.
- Tian T, et al. (2024) Long-term effects of childhood single-parent family structure on brain connectivity and psychological well-being. *Brain imaging and behavior*.
- Lloyd EC, et al. (2023) Large-Scale Exploration of Whole-Brain Structural Connectivity in Anorexia Nervosa: Alterations in the Connectivity of Frontal and Subcortical Networks. *Biological psychiatry. Cognitive neuroscience and neuroimaging*, 8(8), 864.
- Kaufmann LK, et al. (2023) Disrupted longitudinal restoration of brain connectivity during weight normalization in severe anorexia nervosa. *Translational psychiatry*, 13(1), 136.
- Choi S, et al. (2023) Fronto-striato-thalamic circuit connectivity and neuromelanin in schizophrenia: an fMRI and neuromelanin-MRI study. *Schizophrenia (Heidelberg, Germany)*, 9(1), 81.
- Li Z, et al. (2023) Locating causal hubs of memory consolidation in spontaneous brain network in male mice. *Nature communications*, 14(1), 5399.
- Mason SL, et al. (2023) Classification of human chronotype based on fMRI network-based statistics. *Frontiers in neuroscience*, 17, 1147219.
- Pang J, et al. (2022) Uncovering the global task-modulated brain network in chunk decomposition with Chinese characters. *NeuroImage*, 247, 118826.
- Coelho A, et al. (2022) A novel method for estimating connectivity-based parcellation of the human brain from diffusion MRI: Application to an aging cohort. *Human brain mapping*, 43(8), 2419.