

# SNEHA MAJUMDER, M.Sc., Ph.D.

Nutritional Neuroscience | Neuroimaging (MRI) | Obesity & Metabolic Health

snehamajumder2012@gmail.com | +1 585-780-9059 / +91 8981220919 | Kolkata, India / Rochester, NY, USA

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## RESEARCH INTERESTS

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I am a clinical researcher and dietitian specializing in nutritional neuroscience, with expertise in multi-modal MRI (structural, diffusion, resting-state functional, and spectroscopy) applied to obesity and metabolic disease. My work integrates neuroimaging with cognitive, mental health, and behavioral outcomes to understand the brain-metabolism relationship, complemented by clinical training in bariatric and exercise nutrition, and by research in exercise physiology, epidemiology, and public health nutrition.

## EDUCATION

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### Ph.D., Medical and Health Sciences (Nutritional Neuroscience)

2018 – 2026

*Symbiosis Centre for Medical Image Analysis (SCMLA), Symbiosis International (Deemed University), Pune, Maharashtra, India*

*Dissertation: Brain imaging and its association with obesity among Indian middle-aged men*

### M.Sc., Applied Nutrition

2013 – 2015

*Indian Council of Medical Research – National Institute of Nutrition, Hyderabad / Dr. NTR University of Health Sciences, Hyderabad, Telangana, India*

*Dissertation: Comparative study on prevalence of metabolic syndrome among walkers and non-walkers of urban geriatric population of Hyderabad*

### B.Sc. (Honours), Food and Nutrition

(Minors: Chemistry and Education)

2010 – 2013

*Seth Anandram Jaipuria College, University of Calcutta, Kolkata, West Bengal, India*

## RESEARCH & PROFESSIONAL EXPERIENCE

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### Research Fellow and Nutrition Expert

Jun 2016 – Sep 2018

*Sports Authority of India, Gandhinagar, Gujarat, India*

- Designed and executed independent research projects in exercise science; managed diet planning and food-safety audits (FSSAI) for resident athletes and national/state camps
- Delivered individual and group sports-nutrition counseling to athletes and para-athletes; taught sports nutrition to Diploma in Sports Coaching students

### Bariatric Nutritionist

Sep 2015 – Jan 2016; Apr – Jun 2016

*Digestive Surgery Clinic, Belle Vue Clinic, Kolkata, India*

- Specialized clinical training in nutritional care and diet planning for peri-operative bariatric, morbid obese/overweight, and metabolic disease patients (inpatient and outpatient), followed by independent practice

### Intern Dietitian

Nov 2014 – Apr 2016

*All India Institute of Medical Sciences, New Delhi; Sunshine Hospital, Secunderabad, India*

- Rotational clinical training across gastroenterology, surgical gastroenterology, bariatrics, organ transplantation, trauma/critical care, ESRD/kidney transplant, chronic pancreatitis, cirrhosis, and stroke/CAD case management

### Founder & Consultant Nutritionist, Health Help

2018 – present

*Independent nutrition e-clinic, India*

### Founder Member, Nutriknowtion

May 2020 – present

*Nutrition e-clinic and education platform*

## PUBLICATIONS

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### Peer-Reviewed Journal Articles

1. Majumder, S., Menon, K., & Borotikar, B. (2025). Impact of obesity on human brain metabolites: a systematic review on magnetic resonance spectroscopy studies. *Nutritional Neuroscience*, 1–19.

2. **Majumder, S.,** Menon, K., & Borotikar, B. (2025). Impact of obesity on brain structure: a critical review of the evidence from magnetic resonance imaging studies. *Brain Research*, 1865, 149823.
3. **Majumder, S.,** Das, D., & Menon, K. (2022). Knowledge, attitude, and practice of sports nutrition among adolescent Indian kabaddi players. *Journal of Sports Research*, 9(2), 76–85.
4. Rao, A., **Majumder, S.,** & Menon, K. (2019). Effects of dance (Bharatanatyam) on the body composition, nutritional status, fitness and mental abilities of children and adults – a narrative review. *Indian Journal of Public Health Research & Development*, 10(7).
5. **Majumder, S.,** Arlappa, N., Palla, S., & Vadakattu, S. S. (2019). A preliminary study on prevalence of non-communicable diseases and their association with physical activity among the urban geriatric population. *Indian Journal of Community Health*, 31(1), 10–15.
6. **Sneha, M.,** Arlappa, N., Suryanarayana, P., Balakrishna, N., & Santosh, V. S. (2017). Prevalence of metabolic syndrome among urban older adults of Hyderabad metropolitan city in South India. *Journal of Nutrition & Obesity*, 1, 101.

#### ***Manuscripts in Preparation / Communication***

1. Kavitha M., Disha M., Apoorva R., Nisha K., Sneha M., Bhushan B., Mohd U., “Bharatanatyam practice is associated with distinct body composition and domain-specific fitness profiles in young Indian women”, iScience – (Under review)
2. Majumder, S., Menon, K., Gautam, A., & Borotikar, B. The default mode network in mid-life obesity: a seed-based functional connectivity analysis on Indian men. – under preparation
3. Majumder, S., Menon, K., Gautam, A., & Borotikar, B. Mid-life obesity and brain health: evidence of white matter alterations among Indian men. - under preparation
4. Majumder, S., Menon, K., Gautam, A., & Borotikar, B. Impact of obesity on brain structures and association of obesity indices with brain volumetry and voxel-based morphometry- under preparation

#### ***Book Chapters***

1. “Oxidative Stress–Mediated Disorders: Advances in Diagnosis and Therapy with AI and Machine Learning” – Springer Nature (Under Review)
2. “Diagnosis of obesity in adults: beyond the BMI,” in *Nutrigram – Creative Communication of Nutrition* (ISBN: 978-81-954644-0-1), Udaynarayana Madhabilata Mahavidyalaya, University of Calcutta, 2022.
3. “Diarrhea” and “Irritable Bowel Syndrome,” in *The Purple Book – A Handbook on Diets for Diseases* (Eat Right India), FSSAI, Ministry of Health and Family Welfare, Government of India, 2019.

#### ***Other Publications***

1. “Good Health – A Boon to Beauty,” Indian Dietetic Association – Gujarat Chapter, 2018.

### **GRANTS, FELLOWSHIPS & AWARDS**

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- E. K. Zavoisky stipend award (full conference funding), ISMRM & ISMRT Annual Meeting, Cape Town, South Africa (2026)
- Best Oral Presentation, Biomedical Imaging Track, SymResearch 2.0, Pune, India (2025)
- SIU Junior Research Fellowship, Symbiosis International University (2018–2022)
- Major Research Project (MjRP) grant, Symbiosis International University, for doctoral research (2021–2024)
- Research Fellowship, Sports Authority of India (2016–2018)
- Finalist (top 300), DST-AWSAR – Augmenting Writing Skills for Articulating Research (2022)
- Finalist (top 20), Pan-India e-quiz competition, Nutrition Society of India (2022)
- Ranked 3rd, M.Sc., ICMR–National Institute of Nutrition (2015)
- UGC-NET Lectureship (National Eligibility Test) cleared, December 2014 and June 2015

### **CONFERENCE PRESENTATIONS**

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- "Alterations of white matter in mid-life obesity among Indian men: a multi-method obesity diagnosis and multi-parametric MRI study." Digital poster, ISMRM & ISMRT Annual Meeting, Cape Town, South Africa (2026).
- "Obesity impacts the default mode network among Indian men: a cross-sectional resting-state fMRI study." Digital poster, ISMRM & ISMRT Annual Meeting, Cape Town, South Africa (2026).
- "Do brain volumes of obese and non-obese Indian middle-aged men differ? – A first look." Traditional poster, ISMRM – Indian Chapter, IIT Hyderabad, India (2025).

- "Mid-life obesity and brain health: evidence of white matter alterations among Indian men." Oral presentation (Best Oral Presentation Award), SymResearch 2.0, Pune, India (2025).
- "Impact of obesity on structural changes of the brain: a review of evidence from MRI studies." Poster, Nutrition Society of India 54th Annual National Conference, Hyderabad, India (2022).
- "Determinants of knowledge, attitude, and practice of sports nutrition among adolescent Indian kabaddi players." Oral presentation, Nutrition Society of India 51st Annual National Conference, RGCB, Trivandrum, India (2019).
- "Assessment of nutritional adequacy and evaluation of body composition of sub-elite players of different sports disciplines." Poster, Nutrition Society of India 50th Annual International Conference, Hyderabad, India (2018).
- "Knowledge, attitude and practices related to sports nutrition among sub-junior and junior kabaddi players in India." Oral presentation, 1st SAICON, New Delhi, India (2017).
- "Comparative study on prevalence of metabolic syndrome among walkers and non-walkers of urban geriatric population of Hyderabad." Oral presentation, Nutrition Society of India 47th Annual National Conference, Hyderabad, India (2015).

## INVITED LECTURES

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- "Basics of quantitative MRI: techniques and applications of MRI in clinical research (neuroimaging)," pre-conference workshop, SymResearch 2.0, Pune, India (2025)
- "Obesity and its journey in the brain: the blend of research and clinical perspectives," National Nutrition Week, Seth Anandram Jaipuria College, University of Calcutta, India (2024)
- "Food for thought and fuel for the brain: role of nutrition in brain health and cognition," Diabetes Awareness and You (DAY) (2024)
- "Methods to improve nutritional quality of common foods," HALFBREED PRENEURS webinar series (2021)
- "Obesity: the brain game!," Department of Physiology, Mahadevananda Mahavidyalaya, Barrackpore, West Bengal, India (2020)

## TEACHING & MENTORSHIP

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- Teaching assistant: M.Sc. Nutrition and Dietetics, MPH, and B.Sc. Medical Technology programs, Symbiosis International University (2018–2023)
- Co-mentored three M.Sc. dissertation students on projects in exercise/nutrition science (2018–2020)
- Trainer: Sports Nutrition, Diploma in Sports Coaching, Sports Authority of India, Gandhinagar (2016–2018)

## RESEARCH SKILLS & TECHNICAL EXPERTISE

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### *Neuroimaging (MRI)*

Structural MRI (volumetry, morphometry); diffusion tensor imaging; resting-state functional MRI (functional connectivity analysis); magnetic resonance spectroscopy (single-voxel).

### *Software & Computing*

FSL (FMRIB), MRICron, SPSS, G\*Power, Epi Info, Linux (Ubuntu, CentOS), Bash scripting; Beginner in ITK-SNAP, 3D slicer, R (SPANT)

### *Clinical & Community Nutrition*

Body composition analysis (bioelectrical impedance, skinfold), nutritional anthropometry, dietary assessment, clinical/physiological assessment, cognitive screening (MoCA); biochemistry (spectrophotometry, autoanalyzer, ELISA).

### *Research Communication*

Grant and research-proposal writing, IRB/ethics documentation for human-subjects research, systematic literature review, scientific writing (articles and book chapters).

## CERTIFICATIONS & PROFESSIONAL DEVELOPMENT

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- FSL Course, Centre for Integrative Neuroimaging, University of Oxford (2025)
- Montreal Cognitive Assessment (MoCA) Certification, MoCA Clinic, Montreal, Canada (2023)
- Fundamental Neuroscience for Neuroimaging, Johns Hopkins University, via Coursera (2021)
- Principles of fMRI, Johns Hopkins University & University of Colorado Boulder, via Coursera (2021)
- Doping Control Officer Course, National Dope Testing Laboratory, New Delhi (2017)

## PROFESSIONAL MEMBERSHIPS

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- International Society for Magnetic Resonance in Medicine (ISMRM)
- Life Member, Indian Dietetic Association (IDA), LM No. 12565
- Life Member, Nutrition Society of India (NSI), LM No. 2018-0235
- Indian Science Congress Association (ISCA)

## LANGUAGES

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Bengali (native), English (fluent), Hindi (fluent)

## CO-CURRICULAR ACTIVITIES

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- Trained in Indian (Hindustani) classical music (Vocal)
- ‘Visharad’ diploma with distinction in Indian classical dance (Odissi), Pracheen Kala Kendra, Chandigarh, India
- Diploma in Manipuri and Rabindranritya dance
- Creative writing – awards in various competitions