INFORMED CONSENT FORM

Effects of an Exercise Snacking Intervention on Cognitive Function in Patients With Mild Cognitive Impairment: A Nationwide Multicenter Randomized Controlled Trial

Version 2.0 | July 6, 2026

Dear Sir or Madam,

You are being invited to take part in a research study entitled “Effects of an Exercise Snacking Intervention on Cognitive Function in Patients With Mild Cognitive Impairment: A Nationwide Multicenter Randomized Controlled Trial.” The purpose of this study is to explore a new approach to maintaining and improving brain health through everyday behavioral intervention. Based on the preliminary assessment, you meet the eligibility requirements for this study, and we sincerely invite you to consider participating.

This informed consent form explains the purpose of the study, study procedures, possible benefits, potential risks, costs and compensation, confidentiality protections, and your rights as a research participant. Please read it carefully. A member of the research team will discuss the study with you and answer any questions. You are encouraged to discuss participation with your family or friends before making a decision. Participation is entirely voluntary.

This study is led by the Peking University School of Public Health in collaboration with four participating centers: Peking University Third Hospital, Peking University Sixth Hospital, The First Affiliated Hospital of Zhengzhou University, and The First Hospital of Jilin University. The principal investigator is Dr. Xiaoli Wang, Postdoctoral Researcher at Peking University.

1. Why is this study being conducted?

Mild cognitive impairment (MCI) is a condition between normal aging and dementia and is associated with an increased risk of Alzheimer’s disease. There is currently no curative treatment for MCI; therefore, non-pharmacological strategies that may delay cognitive decline are important. Research suggests that dividing physical activity into multiple short bouts throughout the day, sometimes referred to as “exercise snacks,” may provide a practical and sustainable approach to promoting health. However, the effects of a fragmented, Baduanjin-based exercise-snacking intervention in people with MCI remain uncertain.

This study will evaluate whether a comprehensive exercise-snacking program is more effective than usual health education in improving or maintaining cognitive functions such as memory. Your participation may contribute to the development of practical brain-health strategies for middle-aged and older adults.

2. How many people will participate?

Approximately 240 eligible middle-aged and older adults will be enrolled across four participating study centers.

3. What will happen if I take part?

3.1 Randomization

This is a multicenter, individually randomized controlled trial. An independent statistician will use a central randomization system to assign approximately 240 participants equally to one of two groups. You will have a 50% chance of being assigned to either the usual health education group (control group) or the

comprehensive exercise-snacking intervention group (intervention group). All participants will be followed for approximately 24 months.

3.2 Study Groups and Interventions

Usual Health Education Group (Control Group): You will receive educational materials on brain health and will be invited to attend one online health education session each month.

Comprehensive Intervention Group: In addition to the health education described above, you will receive five exercise reminders at scheduled times each day through the study WeChat group. The exercise prescription consists of Baduanjin-based exercise snacks. You will be able to follow the exercises using study-provided video or QR-code materials. Exercise intensity and duration are designed for older adults. You will be asked to complete five exercise sessions each day and record completion through the app or WeChat. App check-in records will be used as an indicator of adherence.

3.3 Assessments and Follow-up

At baseline, you will complete the informed consent process and eligibility screening, provide demographic and basic medical history information, undergo cognitive, emotional/sleep, and physical-function assessments, and provide approximately 10 mL of blood.

During the intervention period (Weeks 12 and 24) and subsequent follow-up (including Weeks 36, 48, 60, and 96 as specified in the study schedule), you will be asked to complete relevant cognitive, emotional/sleep, and physical-function assessments. During the intervention period, adherence will also be recorded. Adverse events will be monitored throughout the study.

The principal in-person visits are at baseline and approximately Month 6. Blood collection takes about 5 minutes and the cognitive questionnaire/scale assessment takes approximately 15 minutes, for a total of about 20 minutes. Other follow-up assessments may be completed online using the Xiangdong Health app and generally take about 15 minutes.

3.4 Daily Exercise Schedule for the Intervention Group

Time	Duration	Baduanjin Exercise Content
After waking	6.00 min	Group A: (1) Two Hands Hold up the Heavens to Regulate the Triple Burner; (2) Drawing the Bow to Shoot the Hawk.
10:00 AM	5.20 min	Group B: (3) Separate Heaven and Earth; (4) Wise Owl Gazes Backward.
2 hours after lunch / 1:30 PM	8.33 min	Group C: (5) Sway the Head and Shake the Tail; (6) Two Hands Hold the Feet to Strengthen the Kidneys and Waist.
Before dinner / 5:30 PM	5.40 min	Group D: (7) Clench the Fists and Glare Fiercely; (8) Bouncing on the Toes.
2 hours before bedtime / 7:30 PM	12.29 min / 12.08 min	Group E: Movements 4 + 5 + 6 + 8 during Stage 1 / the complete Baduanjin routine during Stage 2.

3.5 Questionnaires

If any questionnaire item makes you uncomfortable or concerns information that you consider private, you may choose not to answer that item.

3.6 Biological Samples

Some tests performed on the blood samples collected for this study will be paid for by the study and will not result in personal charges to you. These include: (1) a fasting lipid panel (TC, TG, LDL-C, and HDL-C) and fasting blood glucose to assess metabolic status and cerebrovascular risk factors; (2) serum interleukin-6 (IL-6) measured by ELISA; and (3) serum brain-derived neurotrophic factor (BDNF) measured by ELISA.

Biological samples collected in this study will be stored in the biobank at Peking University Third Hospital. The source consent form states that the collected biological samples and genetic information are for this study only and will not be used for secondary purposes. Samples will be destroyed after the study in accordance with applicable national requirements.

4. How long will I be in the study?

The core intervention period lasts approximately 6 months. The total study participation period, including follow-up, is approximately 24 months. During Months 1–6, you will receive the assigned intervention and complete scheduled assessments. During Months 7–24, you will undergo additional follow-up assessments. Follow-up may be conducted by telephone, home visit, online assessment, or an outpatient neurology visit, depending on the study schedule and practical arrangements.

5. What are the possible risks?

5.1 Study-related Risks

- Common risks: At the beginning of the exercise-snacking program, you may experience temporary muscle soreness. Cognitive testing and questionnaires may cause mild fatigue or psychological discomfort.
- Less common risks: Exercise carries a small risk of falls, muscle strain, or joint discomfort. People who do not tolerate moderate-intensity activity well may experience temporary rapid heartbeat, shortness of breath, or dizziness. Blood collection may cause pain or bruising at the needle site; fainting or infection is rare.
- Serious but extremely rare risks: In theory, exercise may trigger a serious cardiovascular event in a very small number of people. The study uses screening procedures and safety-oriented exercise design to minimize this risk.
- Privacy risk: Although strict confidentiality measures will be used, there remains a small risk of unauthorized disclosure of health information.

5.2 Safety Measures

The research team has established safety procedures for the study. The study will purchase accident/injury insurance coverage for research-related risks as described in the approved protocol; this insurance is purchased for the research project rather than as an individual personal insurance policy for each participant. Please report any discomfort or adverse event to the research team promptly so that appropriate action can be taken.

6. What are the possible benefits?

Direct benefits: You will receive professional cognitive-function assessments and structured education on brain health.

Potential additional benefit: If you are assigned to the comprehensive intervention group, you will receive the exercise intervention at no cost and may develop a regular exercise-snacking habit. Individual benefit cannot be guaranteed.

Social value: Information obtained from this study may contribute to scientific research on cognitive health in older adults and may help inform future interventions for other individuals and families.

7. Will my information be kept confidential?

Your privacy and confidentiality will be protected. Personal identifiers will be replaced with a unique study code, and research data will be analyzed and stored in coded or de-identified form whenever possible. Authorized study personnel, ethics committees, or regulatory authorities may review identifiable records when required for oversight or by law. Publications or presentations resulting from this study will not include information that can directly identify you.

The source consent form refers to genetic information. Any such information collected under the approved study will be used only for the purposes described in the protocol and will not be disclosed to third parties except as required by law or authorized oversight procedures.

8. Will I have to pay? Will I receive compensation?

You will not be charged for study-related examinations, assessments, or study consumables. These costs will be covered by the research project.

Compensation Item	Standard	When Provided
Transportation and meal support	Free breakfast and transportation allowance of CNY 30 per completed in-person visit	On the day the corresponding in-person visit is completed

If you withdraw from the study early, compensation associated with visits you have already completed will still be provided according to the study standard. Any completion-based follow-up incentive described in the study plan may no longer apply after early withdrawal.

9. What happens if I am injured because of the study?

If you experience physical injury that is directly related to study procedures or interventions, such as exercise, study-device use, or blood collection, the study sponsor/investigator will handle medical expenses and compensation in accordance with applicable national laws, regulations, the approved study protocol, and the applicable insurance arrangements.

10. Do I have to participate? Can I withdraw?

No. Participation is entirely voluntary. You may decide not to participate, or you may withdraw from the study at any time after signing this consent form, without giving a reason. Your decision will not affect the medical care, services, or benefits to which you are otherwise entitled.

11. Who should I contact?

Reason for Contact	Contact Information
Questions about the study	Dr. Xiaoli Wang, Postdoctoral Researcher Telephone: 19526438101

	Email: wang-xiaoli@bjmu.edu.cn
Questions about your rights as a research participant, or complaints about study participation	Peking University Biomedical Ethics Committee Telephone: 010-82805751

Investigator Statement

I have explained the purpose, procedures, risks, potential benefits, costs and compensation, confidentiality protections, and voluntary nature of participation to the research participant. I have provided sufficient time for the participant to read this form and ask questions, and I have answered the participant's questions to the best of my ability. I have provided appropriate contact information.

Name of Person Obtaining Consent: _____

Signature: _____ Telephone: _____

Date (YYYY/MM/DD): _____

Participant Consent Statement

I have read this informed consent form, or it has been read to me. The study has been explained to me in detail, and my questions have been answered. I understand that participation is voluntary and that I may withdraw at any time.

I voluntarily agree to participate in the study entitled "Effects of an Exercise Snacking Intervention on Cognitive Function in Patients With Mild Cognitive Impairment: A Nationwide Multicenter Randomized Controlled Trial."

Participant Name: _____

Participant Signature: _____ Telephone: _____

Date (YYYY/MM/DD): _____

Family Member/Caregiver Acknowledgment (if applicable)

I have been informed about the study described above. I support my family member's participation and will assist with communication with the research team when needed.

Family Member/Caregiver Name: _____

Signature: _____

Relationship to Participant: _____ Telephone: _____

Date (YYYY/MM/DD): _____

Please keep a signed copy of this informed consent form for your records.