Ⅰ.Protocol title: Effects of an Exercise Snack Intervention on Employee Health and Work Performance: A Study at Kaohsiung Medical University

Ⅱ.Objectives:

(1) To develop brief exercise videos targeting different areas of physical discomfort (e.g., neck and shoulders, lower back, lower limbs), specific fitness goals (e.g., localized muscle stretching, targeted muscle strengthening, cardiorespiratory endurance, balance training), high-intensity interval training (HIIT), or the acquisition of specific movement skills (e.g., core stability, pelvic floor muscle contraction, and multi-directional pelvic mobility).

(2) To design personalized exercise "menus" based on individual needs identified through a preliminary assessment, with the goal of improving adherence to voluntary exercise routines among staff.

(3) To apply the concept of "exercise snacking" by implementing a daily routine of 3 to 8 brief exercise sessions, and to evaluate changes in staff members' physiological health, work performance, and exercise behavior after a 12-week intervention.

Ⅲ.Test drug

1. Name: Not applicable
2. Dosage form: Not applicable
3. Dose(s): Not applicable
4. Dosing schedule: Not applicable
5. Mechanism of action: Not applicable
6. Pharmacological category: Not applicable

Ⅳ.Study design

1. ☐ Control: ☐ placebo
   ☐ active (please specify name and dosage)
   ☐ others
   ■ Uncontrolled
2. Blinding: ■ open-label ☐ single blind ☐ double blind ☐ others
3. Randomized: ☐ yes ■ no
4. ■ Parallel ☐ cross-over ☐ others
5. Sample/Data
   ☐Biospecimens(IF sourced from the biological database ☐No ☐Yes，Name：)
   ☐Excluding DNA extraction
   ☐Including DNA extraction

☐Medical record data

■Questionnaires

■Record (including measurements, interviews, voice recordings, video recordings

☐Big data

☐Others:_____

6. Duration of study：from IRB approval ~to 12, 31, 2028, total 43 months

Duration of Enrollment : from IRB approval ~to 12, 31, 2028, total 43 months

Duration of treatment：from IRB approval ~to 12, 31, 2028, total 43 months

Duration of follow-up: from IRB approval ~to 12, 31, 2028, total 43 months s

7. ☐ Multi-national ☐multi-center(Taiwan) ■single center(Taiwan)
8. Number of subjects:
9. Is there any of the followings included DSMB, Data Safety Monitoring Board:

☐ yes ■ no

V. Assessment criteria

1. Efficacy: Physical fitness assessments, Performance on functional movement tasks
2. Safety: Not applicable
3. Pharmacokinetics: Not applicable
4. Quality of life: Perceived stress scale, Work performance, Burnout inventory

VI. Selection criteria

1. Main inclusion criteria:
   (1) Currently employed at Kaohsiung Medical University or Kaohsiung Medical University Hospital.
   (2) Willing to participate in a 12-week exercise intervention, complete related questionnaires, and undergo physical performance assessments.
2. Main exclusion criteria:
   (1) Pregnant individuals, due to safety concerns related to exercise intensity and physical assessments.
   (2) Individuals with a diagnosed neurological disorder (e.g., stroke, Parkinson’s disease).
   (3) Individuals experiencing severe pain in the upper or lower limb joints that interferes with their ability to complete the assessments.
   (4) Individuals assigned to high-intensity exercise who have unstable cardiac conditions (e.g., angina, myocardial infarction, heart failure).

Ⅶ. Study procedures(summary)

1. Written informed consent must be obtained before any study specific procedures are undertaken.
   (1) Recruitment announcements will be distributed through internal communication channels at Kaohsiung Medical University and its affiliated hospital.
   (2) An introductory session and practical workshop on the "exercise snacking" program will be held.
   (3) Participants will complete the informed consent form and attend a brief interview to complete questionnaires, including basic information (e.g., exercise habits) and a "personal issues and exercise needs assessment" to assist in designing a personalized exercise menu.
2. The process of the experiment (brief describe)
   (1) Pre-intervention assessment: Participants will undergo baseline testing within one week prior to the start of the exercise intervention.
   (2) Intervention period: Participants will engage in a 12-week exercise intervention program.
   (3) Post-intervention assessment: Within one week following the intervention, participants will complete follow-up assessments.
   (4) Follow-up check: One month after the completion of the program, participants will be contacted to assess whether they have continued engaging in the exercises independently without supervision from the research team.

Ⅷ. Concomitant treatment:

1. Permitted: Not applicable
2. Prohibited: Not applicable

Ⅸ. Statistical analysis

1. Statistical Method for Efficacy / Safety measurements:

This study adopts a cross-sectional data collection approach, and all data analyses will be conducted using SPSS version 20. The normality of continuous variables will be assessed using the One-Sample Kolmogorov–Smirnov test. Based on the results of the normality test, appropriate statistical methods will be selected.

If the data are normally distributed, parametric tests such as the paired-sample t-test will be used to compare pre- and post-intervention differences. If the data are not normally distributed, non-parametric tests such as the Wilcoxon signed-rank test will be employed.

Additionally, correlations between variables will be analyzed using either Pearson’s correlation

coefficient (for normally distributed data) or Spearman’s rank correlation coefficient (for non-normally distributed data).