Homework Task – Abstract Writing and Oral Presentation

Scenario

You are participating in a fictional academic event: **"Undergraduate Research Training Scientific Meeting in Neuroscience of Ageing (URTSM-NA 2025)"**, hosted by the University of Brasília.

Your Task

1. Write a **short, structured abstract in English** (maximum 250 words) on a **hypothetical research project** related to the Neuroscience of Ageing.

➔ The study may be invented, but it must be **plausible!**

➔ The abstract must follow the conventional format:

- Background (2–3 sentences)
- Aim / Objective (1 sentence)
- Methods (3–4 sentences)
- Results (3–4 sentences, including at least one numerical outcome)
- Conclusion (2–3 sentences)
- 3–5 Keywords

2. On the day of the **Scientific Meeting**, **one student will be randomly selected** to present their abstract orally to the group.

➔ The chosen student will have **7 minutes** for the presentation.

➔ Visual aids (e.g. slides) are optional but encouraged.

➔ All students should therefore be fully prepared to present, even if they are not ultimately chosen.

Purpose of the Task

This activity simulates the experience of preparing for a **scientific conference**. It will help you develop essential skills in **scientific writing and presentation**, central to your undergraduate research training.

Example Abstract (Hypothetical)

Title: *Aerobic Exercise Enhances Glymphatic Function in Older Adults: A Hypothetical MRI Study*

Background: Ageing is associated with reduced glymphatic clearance, contributing to the accumulation of neurotoxic proteins. Physical exercise has been proposed as a strategy to maintain cerebrovascular and neuroglial function, but its potential impact on glymphatic activity is unclear.

Objective: To examine whether a 12-week aerobic training programme improves glymphatic function in older adults, assessed by the DTI-ALPS index.

Methods: Forty community-dwelling participants aged 65–75 years were randomly allocated to an aerobic exercise group (n = 20) or a stretching control group (n = 20). All participants underwent baseline and follow-up MRI with DTI-ALPS. Cognitive assessments of memory and executive function were also conducted.

Results: The exercise group demonstrated a mean increase of 8.5% in ALPS index compared to baseline ($p = 0.01$), whereas the control group showed no significant change ($p = 0.42$). Improvements in ALPS index correlated with executive function scores ($r = 0.41$, $p = 0.02$).

Conclusion: This hypothetical study suggests that aerobic exercise may enhance glymphatic clearance in ageing, offering a potential non-pharmacological strategy for maintaining brain health in older adults.

Keywords: brain ageing; glymphatic system; DTI-ALPS; aerobic exercise; executive function.