



Exclusion Criteria – Exercise and MRI protocols

Description: Exclusion criteria for exercise and MRI protocols in the Brain Dynamics Lab. Note that these exclusion criteria may vary depending on the specific research study and its goals, and can be refined accordingly.

Exercise-related criteria:

1. Pre-existing medical conditions: Participants with certain medical conditions, such as cardiovascular diseases, uncontrolled hypertension, severe orthopedic problems, or other conditions that may pose a risk during exercise, may be excluded.
2. Cognitive impairments: Participants with significant cognitive impairments that may affect their ability to understand and follow instructions during the exercise intervention or to provide reliable data may be excluded.
3. Medications: Participants taking certain medications that may interact with exercise or cognitive processes under investigation may be excluded. For example, participants on medications that affect heart rate or blood pressure may be excluded if those variables are relevant to the study.

4. Mental health disorders: Participants with severe mental health disorders, such as schizophrenia or severe depression, which may affect cognitive functioning or exercise adherence, may be excluded.
5. Substance abuse: Participants with current or recent substance abuse issues, such as alcohol or drug dependence, may be excluded due to potential confounding effects on cognitive performance and exercise adherence.
6. Pregnancy: Pregnant women may be excluded due to potential risks associated with exercise during pregnancy.
7. Physical limitations: Participants with physical limitations that would prevent them from safely engaging in the exercise intervention may be excluded. For example, individuals with mobility impairments or severe balance problems may be excluded from studies involving high-impact or complex exercises.
8. Age: Studies may have specific age ranges for inclusion or exclusion, depending on the research question. For example, studies targeting older adults may have an age criterion for inclusion.
9. Regular exercise habits: Participants who already engage in regular exercise or have a high fitness level may be excluded to avoid potential ceiling effects or confounding factors.

MRI-related criteria:

1. Metallic implants or devices: Participants with certain metallic implants, such as pacemakers, cochlear implants, aneurysm clips, neurostimulators, or metal fragments in the eyes, may be excluded due to potential safety risks associated with the strong magnetic field of the MRI scanner. These metallic objects can be affected by the magnetic field and may cause harm to the participant or interfere with the quality of the MRI images.
2. Claustrophobia: Participants with severe claustrophobia or anxiety disorders that make them unable to tolerate the confined space inside the MRI scanner may be excluded. MRI scanning involves lying still in a narrow tube-like structure, which can trigger anxiety or panic in individuals with claustrophobia.
3. Pregnancy: Pregnant women are typically excluded from MRI scanning due to safety concerns. The effects of the strong magnetic field and radiofrequency pulses used in MRI on the developing fetus are not yet well understood, and it is generally considered a precautionary measure to avoid exposing pregnant women to MRI scans.

4. Tattoos or permanent makeup: Participants with certain types of tattoos or permanent makeup that contain metallic pigments or inks may be excluded due to the potential for skin heating or burning during the MRI scan. Metallic compounds in tattoos can interact with the magnetic field and cause discomfort or skin reactions.
5. Foreign objects: Participants with potential foreign objects on or within their bodies, such as metallic fragments from occupational hazards or accidents, may be excluded due to safety concerns or interference with the MRI images.
6. Inability to lie still: Participants who are unable to lie still for an extended period of time (typically around 30 minutes to an hour) may be excluded. Motion during the MRI scan can lead to artifacts in the images, compromising data quality.
7. Severe medical conditions: Participants with severe medical conditions that may make MRI scanning unsafe, such as uncontrolled epilepsy, severe renal dysfunction, or acute medical emergencies, may be excluded.
8. Use of certain medications: Participants taking certain medications, such as tranquilizers or sedatives, which may interfere with cognitive processes or affect MRI data acquisition, may be excluded.