

## Grant Proposal:

Title: Mentored Patient-Oriented Research Career Development Award for Investigating the Role of Physical Activity in the Prevention of Musculoskeletal Disorders

### Overview:

Musculoskeletal disorders (MSDs) are a major cause of morbidity worldwide and lead to significant healthcare expenditures. Despite their significant impact on individuals and society as a whole, there is a lack of consensus on the most effective strategies for preventing these disorders. Recent evidence suggests that physical activity (PA) may be an effective strategy for the prevention of MSDs. However, there is a need for more research to better understand the mechanisms underlying this relationship and to develop effective interventions. The purpose of this proposal is to apply for a mentored patient-oriented research career development award to investigate the role of PA in the prevention of MSDs.

### Research Plan:

The proposed research will be conducted in a two-phase approach. In phase one, a systematic review will be conducted to examine the existing evidence on the relationship between PA and MSDs. This review will provide a comprehensive overview of the current literature, identify gaps in knowledge, and help to guide the development of an intervention for the prevention of MSDs.

In phase two, a randomized controlled trial will be conducted to evaluate the effectiveness of a tailored PA intervention for the prevention of MSDs in adults. The intervention will be designed to increase PA levels and incorporate elements that are specific to the prevention of MSDs, such as

exercises to improve flexibility and strength in the affected areas. The trial will include a control group that receives standard care and a treatment group that receives the tailored PA intervention. Outcome measures will include self-reported MSD symptoms, physical function, and quality of life.

#### Career Development Plan:

To support this research plan, the applicant will receive mentorship from an experienced investigator in the field of musculoskeletal health. This mentor will provide guidance on study design, data analysis, and manuscript preparation. The applicant will also receive training in advanced statistical methods and research ethics. In addition, the applicant will participate in relevant conferences, workshops, and seminars to stay up-to-date with the latest developments in the field.

#### Budget:

The proposed budget for this project includes funds for participant recruitment, data collection and analysis, and dissemination of results. The applicant will request salary support for 75% effort to dedicate adequate time for the proposed research activities. The budget also includes funds for travel to conferences and workshops.

#### Conclusion:

The proposed research has the potential to contribute to the prevention of MSDs, a significant public health concern. With the support of this mentored patient-oriented research career development award, the applicant will develop the skills and expertise needed to conduct high-quality research on the prevention of musculoskeletal disorders.