RESEARCH HUB

TELOMERE FAQS
FOR FITNESS PROFESSIONALS

1. **What are telomeres and why do they matter for health?**
   - Telomeres protect the ends of DNA and shorten as cells divide.
   - Short telomeres can lead to DNA damage, raising risk of many chronic diseases.[1]

2. **How does exercise influence telomeres?**
   - Higher intensity cardiovascular exercise increases the enzyme that maintains and grows telomeres (telomerase).[2]
   - On average, the most physically active individuals have the longest telomeres.[3]
   - Fitness is a major predictor of telomere length, as some studies find that older, fitter individuals often have longer telomeres than younger, less-fit people.[4]
   - Endurance and interval training workouts increase telomerase activity and telomere length, while resistance training does not consistently offer this benefit.[5] Both cardio & strength training are important to prioritize, as they have many complementary benefits.

3. **How quickly do telomeres respond to exercise?**
   - Telomerase activity increases within minutes after a single endurance or HIIT workout.[5]
   - These rapid enzyme changes help explain why consistent cardio supports telomere maintenance over time.[5]

TELOMERE FAQS
FOR FITNESS PROFESSIONALS

4. Can exercise counter stress-related telomere shortening?

- Stress accelerates telomere shortening, raising the risk of many diseases.[1]
- Even though cardio exercise is challenging, regular workouts help us better manage stress and preserve telomere length, even in highly stressed adults.[6]
- Regular workouts also improve how the brain processes stress, helping us find healthy coping methods so we feel better despite life's challenges.

References

1. Houben et al. Telomere length assessment: biomarker of chronic oxidative stress? Free Radic Biol Med 2008; 44(3): 235-46.
2. Werner et al. Physical exercise prevents cellular senescence in circulating leukocytes and in the vessel wall. Circulation 2009; 120(24): 2438-47.
3. Tucker. Physical activity and telomere length in US men and women: An NHANES investigation. Prev Med 2017; 100: 145-51.
4. LaRocca et al. Leukocyte telomere length is preserved with aging in endurance exercise-trained adults and related to maximal aerobic capacity. Mech Ageing Dev 2010; 131(2): 165-7.
5. Werner et al. Differential effects of endurance, interval, and resistance training on telomerase activity and telomere length in a randomized, controlled study. Eur Heart J 2019; 40(1): 34-46.
6. Puterman et al. The power of exercise: Buffering the effect of chronic stress on telomere length. PLOS One 2010; 5(5): 10837.