FROM INJURY TO RECORD BREAKING PERFORMANCE: A CASE STUDY ON INTERDISCIPLINARY SPORTS SCIENCE SUPPORT TO AN ELITE ULTRA DISTANCE RUNNER

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The Libyan Challenge is a 190 km desert run and is one of the most extreme ultra distance races in the world. Athletes must be self-sufficient, carrying food and nutrients in a backpack. In preparation for the event an interdisciplinary sports science team provided support to a 41-year-old elite athlete to assist in her goal of winning the race. During consultation, the athlete expressed concerns about the effect of the environment and backpack on performance. The athlete had also suffered an acute achilles tendinopathy 15 weeks before the race, preventing her from running and affecting confidence.

The support team included a sports therapist, sports psychologist, physiologist, nutritionist, and strength and conditioning coach. Initial support focused on rehabilitation, consisting of a progressive eccentric plantar flexion strength programme and previous success of an eccentric programme (3x10 repetitions) in the contralateral limb.

Return to running was assessed via isokinetic evaluation at speeds determined by prior biomechanical analyses. Simultaneously, a cross-training intervention maintaining aerobic conditioning was pre-scribed with a progressive strength programme to increase leg strength and neuromuscular stability. After successful rehabilitation, running was gradually introduced (11 weeks before race) until the athlete had returned to normal training (7 weeks before race).

Appropriate nutrition that was non-perishable, easily ingested, energy dense and portable was identified and examined for feasibility in an environmental chamber (38⁰C, 25% humidity) during maximal running performance. Gradually specific backpack and sand running were introduced at 5 weeks and combined at 4 weeks. Two weeks prior to the event the athlete underwent a taper period and acclimatisation sessions (3x per week, 38⁰C).

The athlete finished as the first female and broke the course record, with no reoccurrence of injury. This case study supports an interdisciplinary approach to applied sports science as a model of good practice.