The Case for Physical Literacy

FIT TO THRIVE / F2T

Background

The motivation, confidence, physical competence, knowledge and understanding to move across a wide range of physical activities and settings characterized by varying physical demands – Physical Literacy

There are many personal, task and environmental factors that influence *how* each of us moves while working, playing or navigating life's daily activities. In other words, our movement patterns reflect our motivation, confidence, physical fitness, knowledge, social influences, etc. and when performed repeatedly, these patterns can become *learned behaviours* that influence all areas of our lives – the way we lift our child out of bed, our decision to use the stairs instead of the escalator, or our ability to sustain a long career in a physically demanding occupation such as firefighting.

Described as the collective influence of these factors on how we move, our *Physical Literacy* reflects the extent to which our movement behaviors shape our health, wellness and quality of life. It also underscores the importance of being physically fit, while highlighting the fact that possessing the fitness (e.g. aerobic capacity) to perform a particular activity may mean very little without also having the awareness, confidence or requisite mobility to move safely and effectively. For example, adopting an undesirable movement pattern to lift your child (perhaps because the behaviour was engrained by repeatedly lifting heavy boxes while at work) can be detrimental to your health, wellness and quality of life in the short and long term.

For these reasons, when assessing a client's physical needs their movement patterns must be assessed within the context of any relevant task demands. Knowing whether the client is able to control motion of their knees, back and shoulders, for example, across a range of activities requiring varying degrees of physical fitness will shed light on their physical literacy and help to personalize any exercise, education or coaching recommendations.

'Fitness' Versus 'Literacy'

Being physically FIT is not synonymous with being physically LITERATE

The Role of Fitness

Being physically fit as described by measures of aerobic capacity, strength, speed, endurance, etc. *affords an opportunity to perform* the physical activities that we view as relevant. Whether an activity of daily living (e.g. climbing stairs), recreational pursuit (e.g. 5k run) or job task (e.g. lifting a heavy object from the floor), each can be characterized by a physical demand (e.g. intensity and duration) that dictates whether we possess the necessary fitness to perform. Without sufficient strength, for example, it would be physically impossible to lift a 300lb load off the floor despite being motivated to do so.

However, being physically fit is not synonymous with being physically literate and therefore will not ensure peak performance or long-term durability. It simply reflects our potential. For example, poor torso endurance is a risk factor for future low-back problems although it is not one of the commonly described mechanisms of low-back injury. This is likely because superior endurance provides the opportunity to maintain spine-sparing postures for extended periods of time by delaying the onset of fatigue. But, if an individual cannot, or chooses not to adopt these postures, muscular endurance becomes secondary and will have little bearing on the risk of injury.

The Role of Physical Literacy

Someone who excels with traditional fitness testing but lacks the awareness or coordination to control their body in space would not be described as physically literate. Similarly, someone who exhibits the awareness and motivation to control motion of their knees, low back and shoulders while performing a low-demand squatting task squat could not be described as physically literate without further context. If the demands of the task were elevated or the movement pattern was changed (to reflect the demands of their life) and the individual was unable to maintain control of their body in space, they too could not be described as physically literate.

To be physically literate implies that both the execution (movement) and outcome (fitness) are sound and *reflects the extent to which a movement behaviour has been learned,* meaning that it emerges while performing relevant activities characterized by a range of patterns and physical demands in work, life and play.

Evidence-Informed Practice

How we move matters to make our exercise matter in work, life and play!

Assessing Movement Behavior

If asked to pick up a pencil off the floor would you adopt the same movement strategy as when tasked with lifting a 200lb box? If encouraged to run as fast as possible would you exhibit the same level of knee control as when walking? Maybe…The majority of us will adapt the way we move in response to changes in the physical demands of an activity (e.g. load, speed, duration), but the direction of these changes appear to differ between people. For example, an elevated load prompts some people to adopt a “safer” movement strategy because they perceive the activity to be riskier, while others are forced to use (or attempt to use) a “risky” strategy because they lack the requisite fitness. However, there is also evidence to show that regardless of the direction of these changes (or whether we change at all), key features of our movement behaviour can be observed across a range of different activities when the general demands are similar. More specifically, it was shown that the movement behaviours adopted by fire fighters while performing a battery of job-specific tasks were similar to those exhibited while performing a series of general squatting, lunging, lifting, pushing and pulling tasks with comparable demands. This implies that the extent to which the fire fighters were physically literate could be generalized across all tasks.

Changing Movement Behavior

Learned behaviours emerge by repeatedly performing the same (or similar) activities, or by reinforcing the same key movement features across a range of different activities. This highlights a unique opportunity to facilitate behavioural changes via the exercise environment. But unfortunately, it also implies that when a particular pattern is performed repeatedly in an undesirable manner, an undesirable behaviour is likely to emerge outside of the context in which it was learned. This is precisely what was found by Frost et al (2015) when the researchers contrasted 2 different exercise approaches with a group of firefighters. Emphasizing select key movement features during a 12-week exercise program prompted positive movement-related changes in a battery of tasks not practiced or performed while training. In contrast, a second group who emphasized fitness alone, showed undesirable changes in their movement behaviours while performing the same activities, despite significant fitness improvements.

CONCLUSION

Physical literacy extends beyond how fit a fire fighter is. Physical literacy describes how a fire fighter moves to meet the demands of work, life, and play. Cardiorespiratory and muscular fitness provide the opportunity to perform meaningful activities, but without the awareness, coordination and movement competence to use these attributes appropriately, that opportunity may never transfer to performance. As such, developing physical literacy requires more than improving fitness metrics alone; it requires broadening your pool of movement solutions that can be accessed to help you meet a wide range of physical demands. The way we move matters, and practice doesn’t make perfect; practice makes permanent. Repeated movement behaviors (whether desirable or undesirable) shape our long-term musculoskeletal health, performance and durability.

This perspective reinforces the importance of fire fighters assessing and training within meaningful contexts. Evaluating how individuals squat, lunge, hinge, push, and pull under varying loads, movement speeds, and durations provides insight into the movement behaviors they are likely to express unconsciously. Encouragingly, evidence suggests that movement behaviors can be positively influenced through purposeful exercise approaches that emphasize quality of movement alongside physical conditioning. In professions such as firefighting, where performance and injury prevention are critical, this distinction becomes especially important. Ultimately, fostering physical literacy helps bridge the gap between possessing physical capacity and being able to apply it effectively, supporting healthier movement behaviors, improved performance and greater long-term quality of life.