Exercise as medicine

Directors Report

Associate Professor Glenn Reeves

Whenever we hear the word "exercise", some of us run a mile away; others think only of the physical components. In reality, exercise can take a number of forms, ranging from physical to cognitive.

Let's start with the cognitive (mental) approaches. These include mindfulness, meditation, and cognitive exercises. Mindfulness was lucidly discussed by Dr Kabat-Zinn, an American professor of medicine who focused upon ways of "thinking" and "being" designed to improve overall well-being. Mindfulness is defined as a "moment-to-moment awareness of one's experience without judgement". It can be helped by practices such as meditation (e.g. focusing upon a particular image, word or phrase), but it is broader than this, representing a state of mind that can be brought on through practice. Kabat-Zinn spoke about mindfulness-based stress reduction (MBSR) as "the awareness that arises from paying attention, on purpose, in the present moment and non-judgmentally. "

An example of such an approach might include the "journalist's" approach, where you imagine you are reporting upon your current state in a factual, non-emotive way, such as "I am feeling less happiness as this conversation continues." MBSR has been shown to improve anxiety, depression, body-image, cognitive function, mental focus, and even tolerance, generating less bias about age or ethnicity. A range of other improvements are also seen, including impacts upon fatigue, weakness, and acceptance of chronic illness features. Yoga may improve sleep quality and fatigue. Tai-Chi (Qigong exercises) reduces anxiety and lifts mood; fibromyalgic symptoms and fatigue & well-being can also improve. Various forms of cognitive training have been used with benefit in patients to improve impaired cognitive clarity and focus, involving a range of stimulation activities such as "BrainHQ"[i] and "Cognifit"[ii], but not all such activities are created equal, and the evidence supporting usefulness of some other prominent tools is less convincing. The best of the tools may enhance memory, attention, and mental processing speed.

[i] Internet address: http://www.brainhq.com

[ii] Internet address: http://www.cognifit.comxt

Now turning to the physical side of exercise, the benefits of physical activity on a range of outcomes are well-established, and the field of exercise physiology is booming. Referral for exercise physiological input can be arranged through your primary carer as part of a GP management plan (GPMP), whereby individuals with chronic medical conditions such as autoimmune illnesses are entitled to Medicare-funded assessment by allied health professionals, including exercise. Of course, physical exercise can take many forms, including the following:

- **Aerobic – around 150 minutes per week of moderate-intensity activity (brisk walking, dancing, etc) is recommended to assist with metabolic improvements (BP, glucose, cholesterol) as well as reduction of all-cause mortality and mood improvement**
- **Strength – squatting and personally-appropriate light weight-lifting improves physical function and quality of life**
- **Stretching – exercises to maintain or improve flexibility allow increased range of motion and can reduce the risk of pain and injury;**
- **Balance – improving balance reduces fall risk and improves mobility**

A few interesting facts may provide additional motivation to incorporate exercise into the daily schedule:

- **Exercise reduces mortality (23% less in one study, where moderately vigorous activity for 150 minutes per week is achieved)**
- **Aerobic training reduces "bad" lipids as well as inflammatory markers**
- **Blood pressure and stroke risk are reduced**
- **Diabetes risk is reduced**
- **Risk for certain types of cancer drops by 27%**
- **The prevalence of osteoporosis, osteoarthritis, gallstones, cognitive decline, insomnia, anxiety, depression, heart disease and falls is uniformly reduced by a regular exercise programme**

Of course, if you are habitually inactive, it is not wise to immediately train like a triathlete. Medical factors such as deconditioning, cardiac rhythm problems, musculoskeletal injuries, heart disease, and asthma (among many others) must all be taken into account, making a personalised approach to exercise critical.

How does this all work? The mechanisms are multiple, encompassing effects upon blood vessels, hormones, neurological function and immune activity, to name a few. Exercise activates the sympathetic nervous system and endocrine pathways aligning hypothalamic, pituitary, and adrenal function; regular fluxes in sympathetic and other hormones help to train the body to maintain a state of homeostasis while at the same time teaching the body to overcome the peaks, troughs and challenges of everyday life. In the end, it is important to work with your medical team, practice moderation, consider mind as well as body, and remember – any exercise is better than none!