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The ABC's of Back Health

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ABSTRACT

Low back pain is one of the leading causes of disability, absenteeism and a major contributor to medical expenses in industrialized countries. Physical activity ranging in intensity, frequency, duration and type, has become a commonly used intervention for ameliorating/eliminating low back disorders. To date, no specific exercise intervention has been shown to be substantially more effective than another. A higher level of physical activity participation may help to lower the incidence of low back pain. However, this is not necessarily the case and an alternative theory is that the relationship between back pain and the level of physical activity follows a U-shaped curve, i.e. that too little or too much activity is equally detrimental to back health. Several researchers have demonstrated that muscular endurance and not muscular strength is more protective when it comes to the low back. Emphasis should be placed on the co-contraction of the back extensors and abdominals through isometric stabilization exercises. There is also considerable evidence that general aerobic exercise such as walking plays a key role in both preventing and treating low back injuries. **Health & Fitness Journal of Canada 2009;2(1): 20-22.**

Keywords: physical activity, fitness, low back pain, low back disorders, isometric, stabilization

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LOW BACK PAIN

Low back pain is one of the leading causes of disability, absenteeism and a major contributor to medical expenses in industrialized countries (van Tulder et al. 2000). Rarely are low back disorders caused by a single event, but rather from cumulative trauma or disease, eventually leading to injury, leaving the identification of a cause difficult to pinpoint (ACSM 2000, McGill 2007). Physical activity ranging in intensity, frequency, duration and type, has become a commonly used intervention for ameliorating/eliminating low back disorders (Hayden et al. 2005a). Previously, bed rest was prescribed for back disorders, but now clients are encouraged to return to normal activity as soon as possible (Abenhaim et al. 2000). A recent meta-analysis and a number of reviews have concluded that although general exercise can be effective in protecting against back pain, to date, no specific exercise intervention has been shown to be substantially more effective than another (van Tulder et al. 2000, Campello 1996, Hayden et al. 2005b) (Linton and van Tulder 2001). This leaves physicians, allied health care and fitness professionals apprehensive in prescribing physical activity to clients who present with low back pain. Further, the reported effectiveness of various training programs for the treatment of low back disorders is quite variable, with some researchers claiming great success and others reporting no success or even negative results (Faas 1996).

A higher level of physical activity participation may help to lower the incidence of low back pain. However, this is not necessarily the case and an alternative theory is that the relationship between back pain and the level of physical activity follows a U-shaped curve, i.e. that too little or too much activity is equally detrimental to back health (McGill 2007). According to Dr. Stuart McGill, a leading expert in the field, who has done extensive research on low back disorders and rehabilitation, a stable spine maintained by higher muscular endurance provides the best protection against low back pain (2007). Recent studies that have used biomechanical evidence to develop exercises, particularly stabilization exercises, have shown them to be effective in preventing low back problems and maintaining a healthy back (McGill 2007). Stability comes from stiffness, and the term stabilization exercise refers to the goal of a balance in stiffness and force in all contributing muscles rather than focusing on a single muscle group (McGill 2007). For most activities, the amount of muscle activation needed to ensure sufficient stability of the spine, is generally very modest; only about 10% or less of maximal voluntary contraction (McGill 2007). It is also important to note that having greater lumbar mobility can be more troublesome than protective (McGill 2007). Hence, rather than trying to increase trunk flexibility one should emphasize trunk stabilization through co-contraction of the abdominal and extensor muscles while stressing range of motion at the hips and knees (McGill 2007)(Faas 1996).

Several researchers have demonstrated that muscular endurance and not muscular strength is more protective when it comes to the low back (Luoto et al. 1995)(Mannion et al. 2001)(McGill 2007). Thus, high repetitions (10-15) of lower load (50-70% 1-RM) exercises should be emphasized over low repetition (1-12), of higher load (70-80% 1-RM) exercises to help increase muscular endurance primarily, as well as strength (McGill 2007). Further, it has been shown that low back exercises appear to be more beneficial when performed daily rather than

the typically recommended three times per week and that the “no pain-no gain” training mentality does not apply when exercising the low back (McGill 2007). Lastly, while it is important to specifically train the muscles of the low back, there is considerable evidence that general aerobic exercise such as walking plays a key role in both preventing and treating low back injuries (McGill 2007).

When developing an exercise prescription it is always important to remember that proper execution and appropriate intensity progressions are essential and that no set of exercises is ideal for all individuals. On the other hand, all physical activity is good. You should eliminate potentially risky exercises such as sit-ups (both straight leg and bent knee), leg raises and back extensor exercises, as these all place a very high load on the spine (McGill 2007). Also, it is important to maintain the normal curve of the low back. Previously, many clinicians were prescribing a pelvic tilt while exercising however; it is now thought that this position increases spine tissue loading (McGill 2007). Emphasize co-contraction of the back extensors and abdominals through such isometric exercises as the side bridge (Figure 1), the bird dog (Figure 2) and the cat/camel (Figure 3) holding for no longer than 7-8 seconds (McGill 2007).



Figure 1. Side Bridge Exercise



Figure 2.
Bird Dog Exercise



Figure 3. Cat-Camel Isometric Exercise

Dr. McGill also believes a healthy back requires proper function of the gluteal muscles. This can be accomplished by holding such exercises as the back bridge (Figure 4) and potty squats for 7-8 seconds (Figure 5) (McGill 2007).



Figure 4. Back Bridge Exercise

Figure 5.
Potty Squats



CONCLUSION

In summary, the secret to maintaining a healthy lower back is not clear. However, the inclusion of general aerobic exercise in addition to back stabilization and muscular endurance exercise appears to be the most promising for improving back health and serving as an effective means of treatment.

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