



PERSONAL TRAINING FOR THE SEDENTARY OFFICE WORKER

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Most people in the United States reported in 2014 that they were not meeting all of the current federal physical activity guidelines (19). It is well documented that a sedentary lifestyle, like that of a typical office worker, can contribute to a number of negative health consequences such as cardiovascular disease and low back pain (5,15). There is not substantial proof that a sedentary lifestyle by itself causes low back pain; however, there is research that shows that a high percentage of sedentary office workers suffer from low back pain. The personal trainer can play an important role in preventing some of these negative effects by being aware of health concerns and taking systematic action to prevent them from occurring.

LOWERING THE RISK OF CARDIOVASCULAR DISEASE

The Centers for Disease Control and Prevention (CDC) reported that cardiovascular disease was the number one killer of Americans in 2010, and preliminary data points to this still being the case currently (13). Despite the evidence linking regular physical activity to various degrees of cardiovascular health, a majority of adults in the United States remain sedentary and less than one-third meet the minimal recommendations for activity outlined by the CDC, American College of Sports Medicine (ACSM), and American Heart Association (AHA) (14,17,22,23). In addition, excessive sitting has been associated with the risk for chronic disease and premature death even after controlling for time spent in leisure exercise or moderate to vigorous physical activity (12). Personal trainers are likely to work with individuals that are not only sedentary in their recreational time, but also sit

for a majority of their working day. Due to this, personal trainers should work to develop comprehensive programs for clients that not only focus on areas that can be addressed during training sessions but also help with strategies that clients can incorporate into their daily routines.

Prevention of cardiovascular disease should be a primary concern of personal trainers when working with sedentary clients like those who hold office jobs. There are numerous factors that may contribute to cardiovascular disease, such as smoking, genetics, obesity, or a combination of other factors. Even though a personal trainer cannot control for all factors associated with cardiovascular disease, they can potentially limit some of the risk factors by encouraging better lifestyle choices like smoking cessation, weight management, and increased activity levels in daily life and during exercise sessions. Many people are educated about the research linking inactivity to cardiovascular disease, but they may not be motivated to make changes or become properly educated on strategies to increase activity—this is where the personal trainer can make a positive impact.

Personal trainers should take the opportunity during discussions with their clients to offer suggestions on ways to move more during their work day and during their free time away from work. Table 1 offers some ideas that clients can use at work to increase their activity levels. It is critical to understand that what happens during the approximate 16 hours of daytime is equally if not more important than what happens in an hour long training session a

few times per week. Personal trainers should take advantage of every opportunity to educate their clients on lifestyle choices that can benefit their cardiovascular health.

Two mainstream options for improving cardiovascular fitness are continuous endurance exercise and high-intensity interval training (HIIT). Continuous endurance exercise may be defined as 20 min or longer of cardiovascular activity at a steady-state level of intensity. HIIT may be defined as the combination of high-intensity intervals ranging from less than 10 s to several minutes interspersed with low-intensity recovery periods of equal time or longer. Both options are an effective means of improving cardiorespiratory fitness, although in some studies HIIT training has been shown to be more effective (8,24).

When deciding whether or not to incorporate HIIT into personal training sessions, several factors must be analyzed. When working with a population like sedentary office workers, personal trainers should understand that these people might have a limited amount of time that they can devote to exercise. Because of this time limitation and the potential physiological benefits, HIIT training may be more effective for busy populations. Table 2 provides a sample of a weekly workout program that can be completed in 30 min per session. However, HIIT protocols could be dangerous for people who are not fit and able to handle the program intensities. Overtraining and injuries are possible when a program is not individualized and when a client is not progressed properly. Personal trainers should understand their individual clients and ensure that their programs fit their current needs and level of fitness, while progressing safely to new levels of fitness. It should also be noted that “high intensity” is a relative term to every individual’s fitness level. When performing HIIT, the personal trainer should have their client perform high-intensity intervals that are at an appropriate high intensity for that specific client.

Because benefits have been shown for both steady-state endurance training and HIIT, it may be appropriate to incorporate both of the methods into a client’s overall training regimen. However, clients typically do not want to perform steady-state cardiovascular activity with a personal trainer when they are paying the trainer to aid and monitor other more complicated aspects of their routine. Steady-state cardiovascular training has a place in the exercise program of office workers, although in some cases it may be best utilized outside of the personal training session. Personal trainers can use their influence and training knowledge to motivate and educate their clients to perform consistent, steady-state cardiovascular exercise on their own time. It is important to note that a good training program alters intensity, volume, and frequency of training in a periodization plan to meet the goals of specific clients properly. This is another good reason for a personal trainer to encourage both HIIT and steady-state aerobic exercise.

If a client has already developed cardiovascular disease, then a personal trainer should take extra caution in the evaluation process and in program design. A client with cardiovascular disease or symptoms of cardiovascular disease should always be cleared by a medical professional before exercising. In these cases, HIIT may be inappropriate and unsafe. The above guidelines are only general guidelines, and a personal trainer should never

assume that all of these recommendations and training systems are effective and safe for all of their clients.

LOWERING THE INCIDENCE OF LOW BACK PAIN

Much like cardiovascular disease, low back pain (LBP) is an extensive health concern in the United States with 70 – 85% of adults suffering from LBP at some point in their lives and an approximate 15% – 45% of people suffering from LBP every year (2). One large group with high odds of developing LBP is sedentary office workers; in fact, LBP was reported by 34% of office workers in a 2008 study by Janwantankul et al. (9). Additionally, office workers who use computers extensively and sit the majority of the time at work with awkward postures, such as a forward-bent trunk position, have an increased potential of developing LBP (11,16,21). LBP can result in missed days at work, reduced ability to perform routine daily activities, and high medical expenses (1,10,18).

To help prevent the onset of LBP, personal trainers can be proactive with their training of office workers by using preventative exercises during training sessions and encouraging lifestyle changes like weight loss, increased physical activity, smoking cessation, and posture improvement while sitting (11,20,21). The goal is to prevent individuals from ever reaching the level of moderate to severe LBP by properly training and educating them. If an individual already suffers from LBP, a personal trainer may be able to reduce the effects. However, it is very important to remember that all cases of LBP should first be analyzed and treated by medical professionals followed by a referral to a personal trainer.

The focus of the next section will be the prevention of LBP through lifestyle change and proactive core training. The educational and training program suggestions below are general points that may be used as a guideline for trainers but do not apply in every situation because of the complexity of lower back issues and the various differences in strength, flexibility, body type, previous injuries, age, ability levels, and numerous other factors of individual clients.

PREVENTION THROUGH LIFESTYLE CHANGE AND TRAINING

One of the priorities of a trainer working with a sedentary office worker should be to educate the client on the importance of their posture while at work and during times of prolonged sitting, as well as the benefit to adjusting posture frequently. LBP in office workers can stem from sustained spinal flexion, among other causes, where the worker rolls the shoulders forward and rounds the back (7,11). A recent study showed a negative effect on lumbar disks, specifically disk height which may correlate with LBP, after prolonged sitting without intermittent breaks (4). A trainer can help with this by showing their clients pictures of different sitting postures and by having their clients practice them while resting during training sessions. Trainers can also express the benefit of changing position or posture every 15 min or so (4). See Figures 1 and 2 for an example of different desk sitting postures. The client must understand that it is not only the training sessions that are important in preventing or reducing LBP but also consistent ideal postures in daily life and potentially many other controllable and uncontrollable factors. However, ideal postures in sitting, standing, and other activities may depend on the individual’s anatomy and

injury history.

Another area that trainers can potentially make a difference outside of the training session is by encouraging their clients to move more during the work day. This is important considering that cardiovascular disease and LBP may be linked to disuse syndrome, or too much sitting (3). There does not appear to be clear proof in scientific research that moving more can reduce or prevent LBP, but many medical professionals recommend that their patients engage in more movement throughout the day to reduce LBP. Regardless of whether or not moving more at work decreases or helps prevent LBP, more movement is beneficial because of the positive impact it has on weight loss or maintenance and cardiovascular health (6).

Personal trainers can assist their clients in training the core muscles to withstand everyday activities such as sitting for prolonged periods. Because the office worker typically sits for most of the day using different postures, the core should be trained to withstand that rigor. Therefore, it may be more important to train the core for endurance rather than strength or power in this population. This necessitates higher repetitions with short rest periods or isometric holds for long periods of time with short rest periods. However, it is important to discontinue a core exercise when an individual begins using improper technique because of fatigue. This may help prevent injury and allow the client to continue to use good posture throughout the exercise session.

When working the core muscles for posture improvement in the office, it may be ideal to focus on “open” core exercises with isometric components because these exercises promote a neutral back rather than a flexed, rounded back that is common in “closed” core exercises. Examples of open core exercises include variations of planks, some stability ball exercises (Figures 3 and 4), and numerous isometric holds or movements that involve multiple muscle groups (Figures 5 and 6). Examples of closed core exercises that do not promote a neutral back and good posture include sit-ups and crunches. It should be mentioned that there is no longitudinal research comparing the effects of open versus closed core exercises on sitting posture or low back pain.

The posterior chain (i.e., the back side of the body) is another area that should be adequately trained to improve posture and may potentially prevent the onset of LBP. Upper body pull exercises and farmer’s walks are good exercises to use for replicating the shoulders being pulled back while a worker sits at their desk (Figures 7 – 9). A good rule of thumb for training office workers is to incorporate more upper body pull exercises than upper body push exercises during training sessions. Proper resistance training exercises also promote good posture when done correctly, so it is important for personal trainers to encourage proper technique by instructing their clients to keep a neutral back in most instances (e.g., barbell squat, shoulder press). The back should never be rounded during most exercises and the shoulders should not round forward during most resistance training exercises.

Low back issues can stem from various sources that may be out of the personal trainer’s area of expertise and scope of practice. When personal trainers have clients who have already developed LBP, personal trainers should personalize training programs to meet the specific needs of their individual clients based on the guidelines provided by medical professionals. The above recommendations are general steps that may be taken to help prevent or reduce LBP and are certainly not all-inclusive, nor should they be incorporated in every situation. Many other factors have been studied as possible causes of LBP, but are outside the scope of this article. There is ample research available on the topic of LBP that can be studied in a personal trainer’s attempt to provide safe, effective, and specific programming for their individual client’s unique situations.

CONCLUSION

No training program can completely eliminate the risk of cardiovascular disease or LBP, but some steps can be taken to decrease the likelihood of being afflicted by either. Personal trainers can use their influence to encourage their clients to make better lifestyle choices like moving more at work and during free time away from work. Steady-state aerobic exercise and HIIT are effective in improving cardiorespiratory fitness and can be dually incorporated into a client’s overall training program. Personal trainers should work with their clients to figure out ideal postures and encourage them to use these postures throughout the day at work, keeping in mind that changing postures may be important for preventing LBP during prolonged sitting. The core musculature can be trained in an “open core” fashion using endurance principles to mimic the sitting positions that require active muscular contractions. Strengthening the posterior chain is also important in maintaining good posture and potentially preventing LBP. As with all training programs, trainers should consider clients on an individualized basis while using proper progression to keep clients safe. Anyone with a current disease or signs and symptoms of a disease should first be cleared by an appropriate medical professional before starting with a personal trainer.

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PERSONAL TRAINING FOR THE SEDENTARY OFFICE WORKER



FIGURE 1. LESS OPTIMAL SITTING POSTURE



FIGURE 2. MORE OPTIMAL SITTING POSTURE



FIGURE 3. STABILITY BALL PLANK



FIGURE 4. STABILITY BALL PLANK ROLL-OUT



FIGURE 5. WALL SIT



FIGURE 6. OVERHEAD LUNGE



FIGURE 7. BAND ROW



FIGURE 8. FARMER'S WALK



FIGURE 9. FARMER'S WALK (UP THE STAIRS)

TABLE 1. WAYS TO INCREASE MOVEMENT AT WORK

Walk to co-worker's office/desk rather than discussing business through email
Take several bathroom breaks or walks to the water fountain
Spend more than half of lunch break standing or walking
Ask co-workers to have meetings "on the move"
Take the stairs rather than the elevator
Stand while working whenever possible
Take the long way back to the office/desk
Park farther away from the entrance to the building
Stand up frequently throughout the day
Make a challenging but realistic goal to reach a certain number of steps every day at work

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TABLE 2. SAMPLE 30-MIN WEEKLY WORKOUT PROGRAM

DAY	EXERCISE	SETS X REPS
Monday	Band horizontal rows	3 x 10
	Dumbbell bench presses	3 x 10
	Medicine ball overhead lunges	3 x 10 each leg
	Forearm planks	3 x 30 s
	Dumbbell single-arm rows	3 x 10 each arm
	Kettlebell Romanian deadlifts	3 x 10 each leg
	Stability ball knee drives	3 x 10 each leg
	Stationary bicycle sprints	10 x 15 s (hard) or 10 x 30 s (easy)
	Wednesday	Dumbbell reverse flies
	Push-ups	4 x 15
	Wall sits	4 x 1 min
	Stability ball roll-outs	4 x 10
	Seated machine rows	4 x 10
	Dumbbell farmer's walks (up the stairs)	4 x 50 steps
	Renegade rows	4 x 10 each arm
	50-yard sprints	10 x 50 yards with slow walk back to recover
Friday	Singe-arm cable rows	3 x 10 each arm
	Dumbbell squat presses	3 x 10
	Hamstring curls machine	3 x 10
	Forearm planks	3 x 45 s
	Suspension trainer or bar inverted row	3 x 10
	Dumbbell lunges	3 x 10 each leg
	Push-up plank sideways crawls	3 x 20 yards down and back
	Rowing ergometer sprints	5 x 30 s (hard) or 5 x 1 min (easy)

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