

# Work stress and leadership development: The role of self-leadership, shared leadership, physical fitness and flow in managing demands and increasing job control

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## Abstract

Leaders work in highly stressful environments, yet few leadership development efforts have focused on managing work stress. We posit that self- and shared leadership practices can help leaders manage high job demands and increase long-term job control. We examine the effects of high-strain jobs; identify the outcomes of active jobs, and highlight physical fitness as a key strategy of, and flow as a natural outcome of self- and shared leadership. We argue that self- and shared leadership, and the consequent and entailed fitness and flow benefits, support healthful regeneration and increased engagement and are thus vital to the leader's ability to manage work stress and create an active work environment. Our multi-disciplinary model offers a proactive way for leaders to manage the stressful demands of today's work environments.

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## 1. Introduction

Work Stress is a timely and important topic for organizational leaders (Ganster, 2005). It is estimated that work stress costs the nation billions of dollars a year in lost productivity, health care expenses, and stress-related lawsuits (National Institute for Occupational Safety and Health, 2005; Sulsky & Smith, 2005). Indeed, current work trends include longer working hours and increases in managerial demands and pressures. Job insecurity and the loss of job control are also significant concerns of the workforce (Sparks, Faragher, & Cooper, 2001). While all employees experience work stress, leaders tend to have particularly stressful jobs due to the high levels of demands and responsibilities associated with the leadership position (Hambrick, Finkelstein, & Mooney, 2005; Sparks et al., 2001). Therefore an important, yet often overlooked, component of leadership development is to prepare leaders to manage

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work stress. We examine this critical issue by integrating work stress and self- and shared leadership theories. Specifically, we argue that self- and shared leadership could play a crucial role in the leader's ability to successfully manage the stressful demands of contemporary organizations. Moreover, we posit that self- and shared leadership help the leader create a healthful and engaging work environment.

Today's leaders exist in complex work environments that are characterized by globalization, rapid technological advances, diminishing resources and increasing costs (Chase, 2000; Jaffe, 1995; Kinicki, McKee, & Wade, 1996; Murphy, 2002). To adapt to these conditions organizations are downsizing, restructuring, utilizing more contingent workers, and demanding greater flexibility in the work schedules of their permanent staff (Sparks et al., 2001). Leaders are at the forefront of these changes and can experience stress from the excessive demands and lack of control they possess over the implementation of certain organizational policies (e.g., layoffs, transfers, and work schedule changes). For example, managers involved in delivering layoff notices and those involved in both direct and indirect downsizing experienced significant increases in physical health problems (e.g., headaches, high blood pressure), depression and job insecurity (Moore, Grunberg, & Greenberg, 2004; Murphy & Pepper, 2003). There is also ample evidence to indicate that chronic, unmanaged high job demands result in exhaustion and ultimately, job burnout (e.g., Lovelace, 2002; Schaufeli & Bakker, 2004). Therefore an important part of leadership development should be to address these frequent "high-strain" situations of high demands and low job control by offering a means for creating a positive "active" work environment.

To create an active work environment that is healthful and engaging, leadership development can utilize the principles of self- and shared leadership. The practice of self-leadership provides the leader with the self-direction and self-motivation needed to achieve personal and organizational performance goals (Manz & Neck, 2004). Self-leadership is also related to greater job satisfaction and lower levels of perceived stress (Dolbier, Soderstrom, & Steinhardt, 2001). Moreover, given the increasing demands faced by contemporary leaders it is no longer practical or possible for leaders to have all the answers and make all the decisions. Through sharing leadership (Pearce & Conger, 2003) much of the burden that can lead to stress from being overwhelmed on the job can be eliminated. Furthermore, by fostering the capacity of followers to at least to some extent be their own leaders (Manz & Sims, 2001), the potential stress of leadership responsibility can be reduced over time. Thus, the theories of self- and shared leadership offer valuable contributions to the leadership development literature especially when applied to managing high job demands and increasing long-term job control.

Leadership and high-strain work environments have received recent research attention (e.g., Ganster, 2005; Hambrick et al., 2005). In a recently published article in the *Academy of Management Review*, Hambrick and colleagues extend the literature on executive job demands and propose the effects that executive job demands have on strategic decision making and leader behaviors (see Hambrick et al., 2005). The authors' recommendations for future research in this literature stream include a call for multi-disciplined research that focuses on the ways in which leaders can manage high job demands as well as research that considers the relationship between executive job demands and leader stress and health (Hambrick et al., 2005). We address these research opportunities by integrating the literatures of organization studies, psychology and exercise science/physiology and by proposing that self- and shared leadership theories are instrumental in helping leaders manage high job demands and increase long-term job control.

To that end, we first review the work stress literature pertaining to job demands and job control in order to demonstrate how current work trends are affecting leader health. Next, we introduce self- and shared leadership theories and articulate the key role these perspectives can have in increasing the leader's level of physical fitness and experience of flow at work. We posit that physical fitness and flow support healthful regeneration and increased engagement and are thus vital to the leader's ability to manage high job demands and increase long-term job control. We then present our conceptual model and offer testable propositions. The main premise of our model is that practicing and encouraging self-leadership and utilizing shared leadership are instrumental in creating positive, active work environments that support healthful regeneration and increased engagement. We believe this multi-disciplinary model contributes to the leadership development literature by offering a proactive way for leaders to manage the stressful demands of today's work environments.

## 2. Work stress and leader health

One theoretical perspective of work stress that addresses the current work trends affecting leaders and has also received considerable research attention is Karasek's (1979) job demands-control model (e.g., de Lange, Taris, Kompier, Houtman,

& Bongers, 2003; Dwyer & Ganster, 1991; Fox, Dwyer, & Ganster, 1993; van der Doef & Maes, 1999; van Yperen & Hagedoorn, 2003; Xie, 1996). This model posits that work stress is influenced by the amount of control relative to the amount of demands placed on the individual (Karasek, 1979; Karasek & Theorell, 1990). Fig. 1 presents the four types of work environments that are generated by the interactions of high and low levels of job demands and job control: high-strain jobs, active jobs, low-strain jobs and passive jobs. A brief description of the four job types follows:

#### *High-strain jobs*

High-strain jobs are representative of jobs where demands are high and control is low. These jobs have been found to lead to a high risk of physical illness and psychological strain (Karasek, 1979; Kinicki et al., 1996; van der Doef & Maes, 1999). These findings are based on the reasoning that high demands produce a state of increased energy arousal in the individual (e.g., increased heart rate, adrenaline excretion) that cannot be appropriately channeled into an adaptive coping response because of constraints in the work environment (i.e., low job control). High-strain jobs are found in many industries including financial, insurance, health-care, and manufacturing (e.g., Moore et al., 2004; Schaufeli & Bakker, 2004).

#### *Active jobs*

Active jobs are characterized as jobs with both high demands and high control and are predicted to result in positive outcomes such as healthful regeneration and increased engagement. This is because the increased energy arousal is appropriately channeled through active, empowered problem solving (i.e., high job control). Active jobs are associated with flow, engagement and the motivation to develop new skills (e.g., Csikszentmihalyi, 1990; Karasek & Theorell, 1990; Leiter & Maslach, 2005). Many managerial and leadership positions are representative of high demands and high control jobs (Karasek & Theorell, 1990; Schaufeli & Bakker, 2004).

#### *Low-strain jobs*

Low-strain jobs are low in demands and high in control. Karasek describes these jobs as “the sort of low-stress utopia of healthful jobs that have escaped the critical eyes of journalists and academic researchers concerned with documenting society’s problems” (Karasek & Theorell, 1990:36). These types of jobs predict a lower than average level of both physical illness and psychological strain. Interestingly, these jobs also may be associated with lower levels of pay due to the low demand for the service or product.

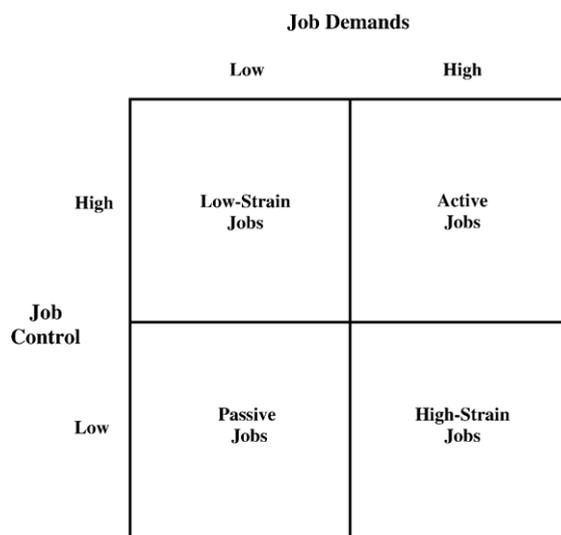


Fig. 1. The job demands-control model.

## Passive jobs

Passive jobs are low in demands and low in control. A gradual decrease of learned skills and abilities may occur in those individuals who are required to work in these types of environments. While passive jobs often stunt human potential, individuals in these types of jobs are only expected to experience “an average level of psychological strain and illness risk” (Karasek & Theorell, 1990:38). This effect is explained by noting that even though the exposure to stressors still results in psychological strain, the low demands of the job means less stressors are confronted.

Through the job demands-control model, Karasek proposed that the amount of job control determined whether positive learning as found in active jobs, or negative strain consequences as found in high-strain jobs, would accompany high job demands. Karasek's (1979) postulation for the moderating effects of control stemmed from two sets of research findings. One finding was Dement's (1969) observations that the combination of high levels of environmental stressors and low levels of environmental control (i.e., high-strain environment) prevented the relaxation response of REM sleep, and eventually led to mental collapse. The second finding was that demanding work situations involving high levels of control (i.e., active jobs) seemed to encourage competency building outside of work (Kohn & Schooler, 1973, 1978; Meisner, 1971 as cited in Karasek & Theorell, 1990).

Karasek thus purported that it would be possible to reduce work stress without lowering productivity by increasing the amount of control an individual has over their work environment. This attention to the productivity benefits of increasing job control represented an important new focal point in the work stress literature. Prior to the formulation of the job demands-control model, research analyzing the effects of work stress on individual effectiveness neglected control in the workplace, focusing instead on life events and role conflict (e.g., Dohrenwend & Dohrenwend, 1974; Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964). Research on control in the broader organization studies context centered on objective job-related factors such as task autonomy and skill variety (e.g., Hackman & Oldham, 1976), and gave little attention to the individual's psychosocial relationship to the work environment. Therefore, the job demands-control model filled a gap in the literature by analyzing the individual in the work environment and by examining the psychological demands of the job and the individual's perception of job control. The model distinguishes between high physical demands, which may lead to fatigue, from high psychological demands, which result in anxiety and strain associated with the need to keep pace and the consequences of not completing the work on time (Fox et al., 1993). Job demands include workload, work pacing, and time constraints. Job control (termed decision latitude) includes the opportunity to learn and develop new skills, use one's abilities, show creativity, and experience variety (Wall, Jackson, Mullarkey, & Parker, 1996).

Many of today's leaders work in high demand jobs that offer little job control. These high-strain work environments can negatively impact the leader's health, and ultimately, the leader's effectiveness. We examine this claim by briefly reviewing the literature on the effects of high-strain jobs on physical and psychological health. Specifically, we identify two principal outcomes of high-strain work environments: 1) an increased risk of disease, and 2) psychological strain (e.g., anxiety, depression, exhaustion). This review provides the foundation for our conceptual model and postulations of how high-strain work environments can be transformed into active work environments.

### 2.1. High-strain jobs and increased risk of disease

A generally agreed upon finding is the positive relationship between work stress and an increased susceptibility to disease (de Lange et al., 2003; Ganster & Schaubroeck, 1991; Kinicki et al., 1996). We review the studies examining cardiovascular disease because it is the leading cause of death in the United States and stress has been identified as a key risk factor for the disease (American Heart Association, 2005, 1997; Cartwright & Cooper, 1997). Cardiovascular disease includes all the pathologies that affect the heart and blood vessels. Coronary heart disease, atherosclerosis (high cholesterol), and hypertension (high blood pressure) are all forms of cardiovascular disease. Several risk factors have been found to contribute to cardiovascular disease, including sedentary lifestyles, smoking, excessive weight, and stress. Stressors in the work place that have been linked to cardiovascular disease include lack of control over work and the workplace, the presence of employment or workplace uncertainty, dysfunctional conflict, and task and work demands (Landy, 1992, as cited in Quick, Murphy, & Hurrell, 1992).

One of the first studies to systematically research the physiological effects of high-strain work environments was Friedman, Rosenman, and Carrol's (1958) classic research on accountants. Their study revealed that accountants' serum cholesterol levels rose significantly as the tax deadline approached (a high demand, low control situation) and

returned to normal after the high-strain period subsided. Additionally, in the widely cited Framingham studies, women in jobs that were characterized as high in demands and low in supervisory clarity were at greater risk for developing symptoms of coronary heart disease (Haynes & Feinlieb, 1980). Both of these early studies suggest that high job demands paired with low job control (i.e., high-strain jobs) negatively affect physical health.

In a more recent study, Fox et al. (1993) found that high-strain jobs predicted higher levels of blood pressure in a sample of hospital workers. In the 5-year longitudinal extension of this study, these researchers found that the hospital workers in the high-strain jobs also had higher health care costs over time (Ganster, Dwyer, & Fox, 2001). Additionally, researchers at the Cornell University Medical College applied a case-controlled, longitudinal design to test the relationship between job strain and health outcomes across multiple occupations (Landsbergis, Schnall, Schwartz, Warren, & Pickering, 1995). Their findings also indicated that high-strain jobs were significantly related to higher levels of blood pressure.

High job demands and low job control have also been found to be predictive of heart attacks. For example, in a case-controlled study conducted by Netterstrom, Nielsen, Kristensen, Bach, and Moller (1999), employed men who were admitted to the hospital with a myocardial infarction (MI) (i.e., heart attack) were compared to same-region employed men without a heart attack incident to study the effects of job demands and job control on physical health. The results indicated that men with heart attack incidents were more likely to hold jobs with high demands (both objectively and subjectively measured) and low control than those men without heart attack incidents. Moreover, in another study of nearly 7400 men and women employed in British civil service jobs, researchers found that those employees in positions with little control over their responsibilities were at a 50% higher risk of developing symptoms of coronary heart disease than those in greater control jobs (Marmot, Bosma, Hemingway, Brunner, & Stansfield, 1997). In this sample, low control was related to disease, whereas high demands were not related to disease.

The findings from these studies support the claim that high-strain work environments decrease physical health by putting the individual at a greater risk for hypertension, heart attacks, and heart disease. A number of high quality reviews of occupational health and stress, and the job demands-control(-support) model (e.g., de Lange et al., 2003; Sparks et al., 2001; van der Doef & Maes, 1999) also substantiate the premise that individuals in high-strain work environments are at greater risk for disease. Therefore, constructively addressing ways to manage the effects of contemporary work environments, and thus, reduce the leader's risk of disease should be of primary concern to both leaders and leadership development efforts.

## 2.2. High-strain jobs and psychological strain

Work stress is also related to decreases in psychological health. Karasek's (1979) original research on the job demands-control model isolated two factors of psychological strain: depression and exhaustion. Much of the extant research has focused on the psychological variables of anxiety, depression, and exhaustion (e.g., Carayon, 1993, 1995; de Jonge, van Breukelen, Landeweerd, & Nijhuis, 1999; de Rijk, LeBlanc, Schaufeli, & de Jonge, 1998; Landsbergis, 1988; Landsbergis, Schnall, Deitz, Friedman, & Pickering, 1992; Wall et al., 1996; Xie, 1996). For example, Wall et al. (1996) tested over 1400 production workers and found that high-strain jobs were predictive of higher levels of both anxiety and depression. Additionally, in a study of 1200 employees from five Chinese cities, anxiety and depression were also significantly higher for those employees in high-strain jobs (Xie, 1996).

In contrast, high-strain jobs were not predictive of anxiety in a sample of nearly 1500 health care workers, although high job demands independently were significantly positively related to anxiety (de Jonge et al., 1999). Carayon (1993, 1995) studied office workers over a period of three years and found that workers in chronically low control jobs reported higher levels of anxiety than those workers in moderate or high control jobs. High work pressures (i.e., job demands), low supervisory support, or the high-strain relationship did not significantly affect anxiety levels in this population. While the findings are mixed, there is considerable evidence that high-strain work environments, and high job demands and low job control independently negatively affect psychological health through increases in anxiety and depression.

High-strain jobs are also hypothesized to result in exhaustion, and ultimately, job burnout. Job burnout is conceptualized as a set of three negative psychological experiences: emotional exhaustion, depersonalization, and reduced personal accomplishment (Courdes & Dougherty, 1993; Maslach, 1982; Maslach & Jackson, 1981) and more recently as exhaustion, cynicism and reduced professional efficacy (Schaufeli, Leiter, Maslach, & Jackson, 1996). Research has isolated emotional exhaustion as the core construct of burnout, arguing that depersonalization (or

cynicism) is a method of coping with emotional exhaustion, and that diminished personal accomplishment (or professional efficacy) is a consequence of continued depersonalization (Courdes & Dougherty, 1993).

Several studies have analyzed the effects of high-strain jobs on exhaustion and job burnout. For example, to examine the effects of job demands and job control on emotional exhaustion, Landsbergis (1988) studied 289 hospital and nursing home employees and found that only high job demands were predictive of emotional exhaustion. Other studies also found a positive relationship between job demands and emotional exhaustion (e.g., Health care workers: de Jonge et al., 1999; ICU nurses: de Rijk et al., 1998). Interestingly, Landsbergis found that employees in high demands and high control jobs (i.e., active jobs) reported greater emotional exhaustion than those employees not in active jobs. Furthermore, de Rijk and colleagues found that job control served as a stress buffer only in those employees who engaged in active coping techniques (e.g., empowered problem solving).

One explanation for these discrepant results may lie in perceptions of self-efficacy. For example, Schaubroeck and Merritt (1997) analyzed the mediating effects self-efficacy on the job demands-control model. The results of their study found that high control combined with high demands (i.e., active jobs) resulted in negative consequences (higher blood pressure) among those reporting lower self-efficacy. These findings suggest that a person's belief in their control over a work situation is important, and that increasing job control in order to reduce negative health outcomes may only be effective if the employee is empowered to utilize the control and also directly experiences the enhanced control.

In summary, this review provides evidence of the negative impact of high-strain work environments on the leader's physical and psychological health. Specifically, we identified the increased risk of disease and psychological strain as outcomes that leaders face. Next we introduce self- and shared leadership theories with the purpose of identifying these concepts as important to leadership development in increasing the leader's skills in managing high demands and increasing long-term job control. As such, the practice of self- and shared leadership can help leaders transform high-strain work environments into active work environments.

### **3. Active work environments: strategies for healthful regeneration and increased engagement**

#### *3.1. Self-leadership and shared leadership*

One potentially powerful way for leaders to cultivate an active work environment is to foster self-leadership in themselves and in their employees. First, through effective leadership of self, leaders can gain greater control over their own motivation, coping and overall effectiveness. A key aspect of this process is facilitating this capacity in others in order to reduce unnecessary demands on the leader. That means that leaders' development of skills that promote followers' capacity to take more responsibility for their own direction and motivation can potentially dramatically increase the effectiveness of their leadership influence. In this case leaders' influence efforts are not only focused on leading themselves, but also leading others to lead themselves (Manz & Sims, 1987, 2001).

At the heart of this empowering leadership approach is the concept of self-leadership itself. Manz and Sims (1980) introduced the idea that employee self-management can serve as a substitute for leadership and thereby provides an alternative to more typical top-down views of leadership. Drawing heavily from the concept of self-control as it had been addressed in clinical psychology (Cautela, 1969; Mahoney & Arnkoff, 1978, 1979; Mahoney & Thoresen, 1974; Thorenson & Mahoney, 1974) self-management was originally viewed from a relatively narrow perspective in the organization studies literature (Andrasik & Heimberg, 1982; Luthans & Davis, 1979; Manz & Sims, 1980). Later the concept of self-leadership was introduced as an expanded view of self-influence within organizations (Manz, 1983, 1986, 1992; Manz & Neck, 1999, 2004; Manz & Sims, 1990, 2001).

Self-leadership implies that leadership can be self-imposed and thus does not require the traditional roles of leader and follower. That is, so called followers, at least to some degree, can be their own leaders. This self-influence based view is fundamental to the potential distribution and sharing of leadership throughout an organization and the reduction of job demands on the designated leader. Self-leadership provides a basis for reducing dependence on traditional leader authority figures by empowering employees to take on responsibility for more of the influence process normally carried by external leaders.

Practical self-leadership strategies include self-goal-setting, self-observation, self-reward, rehearsal, self-job redesign, and self-management of self-talk and mental imagery, among others (Manz & Neck, 2004; Manz & Sims, 2001). Practicing these strategies can help leaders gain more positive control in their work roles. Further, facilitating employee development and practice of these kinds of strategies can contribute to a variety of favorable outcomes such as enhanced performance,

self-efficacy, and decreased absenteeism (Frayne & Latham, 1987; Latham & Frayne, 1989; Neck & Manz, 1996; Prussia, Anderson & Manz, 1998). Self-leadership skill development in employees offers considerable potential for addressing challenges posed by the dynamic, complex work systems of contemporary organizations. More importantly for this discussion, self-leadership offers a way of reducing the demands on designated leaders and increasing effective control. This is accomplished through leaders' immediate practice of self-leadership strategies and, perhaps most notably, in the long run, by facilitating employees' capacity to provide their own direction as needed in the course of performing their jobs.

The idea that leadership can be shared by various people within a work unit or group is a natural extension of an empowering view of leadership and the related concept of self-leadership. Shared leadership refers to a dynamic and interactive influence process among members who lead one another to help reach the goals of the group or organization (Pearce & Conger, 2003). Leadership based on a shared influence process is particularly relevant to influence within work contexts involving teamwork. Various team members are empowered to exercise leadership in different ways at different times as unfolding circumstances require and thereby removes some of the leadership burden from a formally designated leader.

Research has suggested that performance of work teams can be significantly enhanced by sharing leadership (Avolio, Jung, Murry & Sivasubramian, 1996; Ensley & Pearce, 2000; Hooker & Csikszentmihalyi, 2003; Pearce, 1997; Pearce & Sims, 2002; Pearce, Yoo & Alavi, 2004; Shamir & Lapidot, 2003). By fostering an ongoing shared approach to leadership the leader is not only freed from the demands of being an all-knowing central source of influence but also various employees, with different backgrounds, training and experience, are freed to step up and lead as the work process requires. By developing leaders' capacity for helping to create and facilitate ongoing practice of this kind of shared process, the stresses of the formal leader's role can potentially be greatly diminished while dramatically increasing long-term control within the system to meet the demands of a changing environment. The leader is freed from the burden of centralized leadership while the work unit increases the various sources of effective and timely control as leadership is shared.

Self-leadership and shared leadership are highly interrelated. In fact, self-leadership has been identified as the core of shared leadership because individuals must first be able to lead themselves before they can share leadership roles with others (Houghton, Neck, & Manz, 2003). Moreover, both self-leadership and shared leadership are associated with the enhancement of self-efficacy perceptions. Self-efficacy, which involves self-control, is defined as "one's capabilities to mobilize the motivation, cognitive resources, and courses of action needed to meet given situational demands" (Bandura, 1986: p. 408). Enhanced self-efficacy can greatly contribute to the development of the leader's skills in managing high job demands and increasing long-term job control, or in other words, fostering an active work environment.

We define active work environments as those that foster healthful regeneration and increased engagement (e.g., Csikszentmihalyi, 1990; Karasek & Thoerell 1990; Leiter & Maslach, 2005). In the following sections, we emphasize self-leadership as the starting point in the leader's development of healthful regeneration and increased engagement (i.e., an active work environment). More specifically, we argue that the practice of self- and shared leadership are the mechanism through which leaders can achieve healthful regeneration through high levels of physical fitness, and increased engagement through flow. Furthermore, we maintain that physical fitness and flow assist the leader in successfully managing high job demands and achieving increases in long-term job control.

### *3.2. Physical fitness as a key self-leadership strategy for healthful regeneration*

Healthful regeneration includes having good physical, psychological, and social resiliency (e.g., Whetton & Cameron, 2004). We contend that physical fitness is a fundamental way to build good physical, psychological and social resiliency and therefore is an important way for the leader to sustain healthful regeneration. Building resiliency through physical fitness is especially important for leaders in high demand jobs because physically fit leaders have been found to have increased stamina and mental focus (Leiter & Maslach, 2005; Neck, Mitchell, Manz & Thompson, 2004; Neck & Cooper, 2000; For other studies that have examined fitness and job performance see for example, Frew & Bruning, 1988; Shephard, 1999). Moreover, intense physical activity as a means of regaining performance effectiveness has been strongly recommended for the emotionally exhausted, burned-out executive (Levinson, 1996). We contend that through behavioral and cognitive self-leadership strategies (e.g., self-regulation, self-control, self-management, natural rewards, constructive thought patterns) leaders can maintain high levels of physical fitness and achieve the type of healthful regeneration that is characteristic of the active work environment. Furthermore, achieving and maintaining physical fitness, a self-leadership strategy in itself, directly helps the leader avoid the negative health outcomes (increased risk of disease and psychological strain) of high-strain work environments. We next briefly review

the ways in which physical fitness is important to leadership development because of how it builds the leader's resiliency and thus assists the leader in managing high job demands and increasing job control.

Physical fitness builds physical resiliency in the leader through an improved ability to perform tasks and the prevention of disease. Tasks are easier to perform due to several specific physiological outcomes of physical fitness: increased oxygen uptake, lower resting heart rate and increased heart strength, lower heart rate during physical activity, decreased onset of fatigue, faster recovery time after physical exertion, and an increase in fat-burning enzymes (Hafen & Hoeger, 1998). Oxygen uptake relates to the amount of oxygen the body is able to use during physical activity. The higher the maximal oxygen uptake the longer the person can be active before becoming fatigued. Physically fit leaders also have lower resting heart rates and have lower heart rates during exertion (Cotton & Goldstein, 1993). Because the heart is stronger, less work is needed to mobilize the body. The strong heart is also able to return to an internal equilibrium faster than the unfit heart, allowing for a faster recovery time. Thus, physically fit leaders are more resilient and less likely to become physically worn out from the high job demands of contemporary work environments.

Physical fitness also builds healthful regeneration through the reduced risk of cardiovascular disease, adult onset diabetes, osteoporosis, obesity, and certain cancers (U.S. Department of Health and Human Services, 1996, 2005). Physical fitness helps reduce the risk of cardiovascular disease by increasing the body's cardiovascular endurance. Physical fitness decreases and controls blood pressure, lowers LDL or "bad" cholesterol, and improves HDL or "good" cholesterol. Also, because regular exercise helps maintain a proper body composition, cardiovascular health risks associated with excess body fat and obesity are reduced and there is solid evidence that non-obese people live longer (Cotton & Goldstein, 1993; Hafen & Hoeger, 1998). For example, a study published in the *New England Journal of Medicine* of over one million adults during a 14-year period confirmed that being overweight shortened a person's life (Calle, Eugenia, Thun, Petrelli et al, 1999). A related study looked at the relationship between fitness levels and the risk of dying in more than 10,000 men and 3000 women. The study revealed that men and women with low levels of physical fitness had more than twice the mortality rate of persons with even a moderate level of physical fitness. Fitness in this case helped overcome all causes of mortality, including diabetes, cancer, and heart disease (Blair, Kohl, Paffenbarger, Clark, Cooper, & Gibbons, 1989). Thus, physical fitness can not only improve the leader's task performance and prevent disease, but also increase the leader's longevity.

Physical fitness also builds healthful regeneration through psychological and social resiliency (e.g., improved mood, self-esteem, social identity). Research suggests that both short periods of exercise and exercise over a long period of time enhances mood by reducing anxiety and depression, and increasing feelings of vigor (Brandon & Loftin, 1991; Fillingim & Blumenthal, 1993). The mood enhancing properties of exercise can be explained both physiologically and psychologically (Fillingim & Blumenthal, 1993). Physiologically, research suggests that exercise improves mood by increasing the circulating levels of neurotransmitters such as norepinephrine and serotonin. Additionally, exercise releases brain chemicals, such as endorphins, that can produce a euphoric feeling and improve mood. Psychologically, exercise may improve mood through enhanced self-esteem and self-efficacy.

Several studies support the claim that physical fitness enhances mood states (e.g., DiLorenzo, Bargman, Stucky-Ropp, Brassington, Frensch, & LaFontaine, 1999; Ensel & Lin, 2004; Stathi, Fox, & McKenna, 2002). For example, in a study that employed objective measures of fitness (maximum oxygen uptake and resting heart rate) significant positive relationships were found between fitness and positive mood states (DiLorenzo et al., 1999). In a study of over 1200 adults, exercise moderated the stress–distress relationship such that individuals with high levels of fitness self-reported lower levels of physical health complaints and depression, and also had higher levels of self-esteem than those individuals with low levels of fitness (Ensel & Lin, 2004). Significant improvements in self-esteem and self-worth were also found in sedentary adults who participated in a 20-week exercise program (McAuley, Mihalko, & Bane, 1997). Moreover, exercise was found to help preserve the social identity of aging adults and was thus positively related to self-esteem and self-efficacy (Fontane, 1996). In summary, physical fitness, which can be part of and supported by self-leadership strategies, is an important way for leaders to build resiliency towards work stress and foster healthful regeneration in the active work environment (See also Brown, 1991; Crews & Landers, 1987; Falkenberg, 1987 for reviews on the buffering effects of physical fitness on stress).

### 3.3. Natural self-leadership: increasing engagement through flow

Equally important to healthful regeneration in the active work environment is the experience of increased engagement. Increased engagement includes positive learning and several intrinsically motivating attributes of an

active work environment. For example, engagement has been characterized as one's vigor, dedication to, and absorption in work (Schaufeli & Bakker, 2004). Engagement has also been described as the high levels of energy, involvement and efficacy that one experiences from their work (Maslach & Leiter, 1997). We contend that leaders can achieve engagement through the concept of "flow" (Csikszentmihalyi, 1990, 1997), and that flow is a natural outcome of practicing self-leadership strategies. Furthermore, the experience of flow has the potential to buffer the negative consequences of high-strain work environments. We briefly examine the concept of flow and its prospective influence in helping leaders manage job demands and increase job control.

Flow refers to a state of harmonious consciousness that is goal oriented and in which people want to pursue an activity for its own value. Attention is devoted to the task at hand with a sense of timelessness, and other concerns, and even pain, are forgotten (Csikszentmihalyi, 1997). Flow creates a state of joyous self-forgetful involvement and often includes stretching personal skills in the pursuit of overcoming meaningful challenges (Csikszentmihalyi, 1990). When people are fully and completely engaged in work they believe in and feel passionate about they are in a state of flow.

A key element of flow is a balance between difficulty and ease of task performance. That is, it is the middle ground between highly demanding and very easy tasks that tend to produce flow. Leaders can be vulnerable to experiencing excessive demands from the responsibility of leading others, particularly given the often complex, dynamic and highly competitive conditions found in contemporary organizations. That means that promoting self-leadership in others and sharing leadership may be the key to creating a more balanced engaging work situation for themselves and those they lead (Hooker & Csikszentmihalyi, 2003). Support for this crossover effect of the experience of flow has been found between music teachers and their students (Bakker, 2005). By empowering followers to be more involved in leading themselves and one another the designated leader's work situation can become more conducive to flow and an active, as opposed to a high-strain, work environment.

Flow offers the potential to help alleviate the negative consequences of very demanding jobs. Part of this positive benefit can result from finding something in the immediate work that can genuinely be performed for its own value rather than becoming immersed in work related frustrations and stress. The experience of flow, even in what might otherwise be experienced as a high-strain job situation, offers the potential to create the related experience of timelessness (Mainemelis, 2001). By transcending a sense of time and immediate stressful reactions, and becoming fully immersed in the present moment activity, both a sense of joy and deeper creativity can potentially be released. Leadership development can foster the experience of flow and the subsequent outcome of increased engagement through the practice of self- and shared leadership.

#### 4. Conceptual model and research propositions

Leaders operate in complex organizational environments that often require decisions to be made under a variety of pressures and with incomplete information. In this article we have established that high job demands and low job control, both additively and in combination, are common in contemporary work environments and negatively affect leader effectiveness through decreases in leader health. Specifically, leaders working in these types of high-strain work environments can expect an increased risk of disease and psychological strain. In addition, we claim that active work environments, the positive antipode of high-strain jobs, are those environments that foster healthful regeneration and increased engagement. We propose that leaders can transform high-strain work environments into active work environments through the practice of self-leadership and the utilization of shared leadership. Self- and shared leadership theories have a significant positive influence on leaders through the important role they play in fostering healthful regeneration and increased engagement.

Fig. 2 presents our conceptual model that integrates the high-strain and active jobs portion of the job demands-control model with self- and shared leadership theories. Also important to the model is the integration of physical fitness as a key self-leadership practice and flow as a natural outcome of self-leadership. It is through these facets of self- and shared leadership that leaders can achieve the healthful regeneration and increased engagement that is representative of active work environments.

##### 4.1. High-strain jobs to active jobs: from increased risk of disease to healthful regeneration

To be effective, leaders must be resilient to high-strain work environments. We assert that healthful regeneration, or physical, psychological, and social resiliency, can be substantially increased through physical fitness. Physical fitness

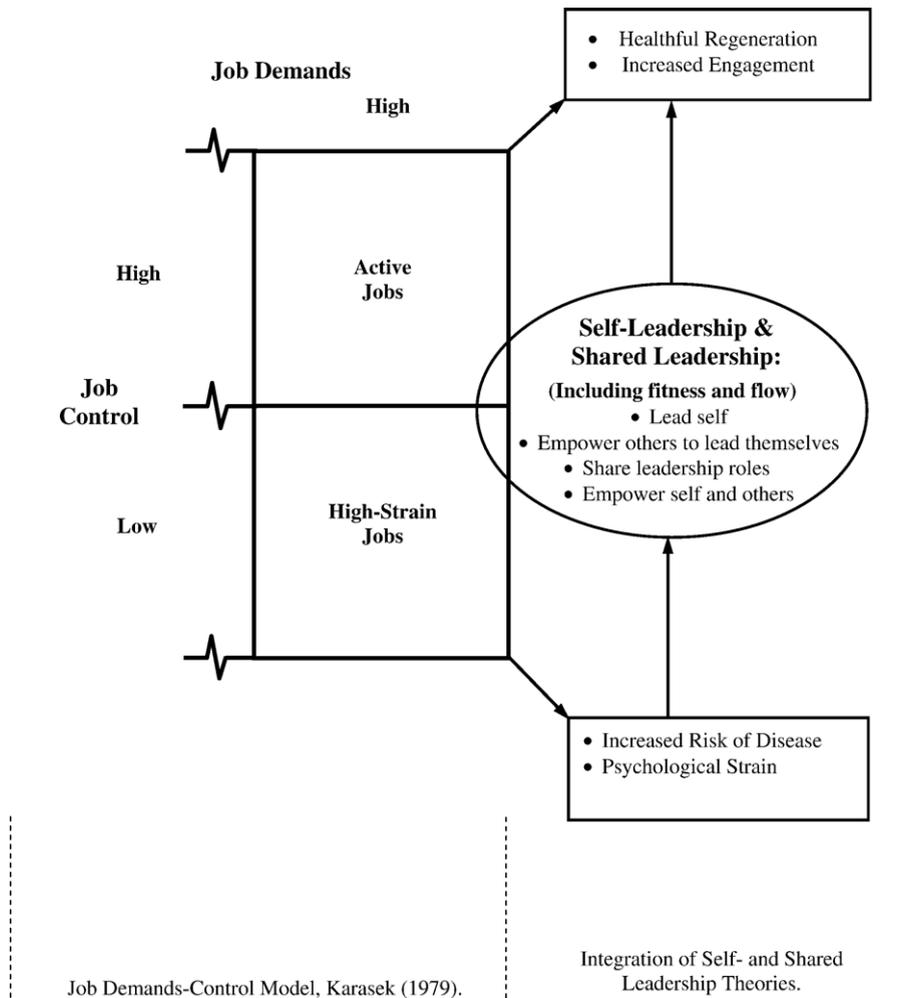


Fig. 2. The role of self- and shared leadership in creating active jobs.

is positively associated with disease prevention, improvements in mood, and increases in self-efficacy. It follows that physically fit leaders are better able to manage high job demands due to increased resiliency, and that this increase in resiliency also contributes positively to the leader’s perceptions of self and job control. Importantly, leaders that practice self-leadership and utilize shared leadership are able to empower themselves and others to high levels of physical fitness that in turn fosters healthful regeneration. Specifically we propose the following proposition:

**Proposition 1.** *Leaders in highly demanding work environments are more likely to experience healthful regeneration through physical fitness when they foster self- and shared leadership.*

#### 4.2. High-strain jobs to active jobs: from psychological strain to increased engagement

Leaders in high-strain work environments can also experience anxiety, depression, exhaustion, and even burnout from the relentless pacing of the job and the lack of job control. We contend that leaders can eliminate much of this psychological strain through an increased engagement in work. Engagement in one’s work results in increased energy, involvement, and professional efficacy. We suggest that leaders can achieve increased engagement through the experience of flow. Flow involves the positive absorption in one’s work and occurs when there is a sense of balance between task difficulty and ease. We propose that flow is a natural outcome of practicing self- and shared leadership

and that the experience of flow can help leaders successfully manage high job demands and increase their perceptions of control. Specifically we propose the following proposition:

**Proposition 2.** *Leaders in highly demanding work environments are more likely to achieve increased engagement through the experience of flow when they foster self- and shared leadership.*

## 5. Conclusions

The purpose of our research is to contribute to the leadership development literature by offering a proactive way for leaders to manage the stressful demands of today's work environments. To achieve this objective we integrated the literatures of work stress, psychology, physiology, and exercise science and proposed a conceptual model that identifies self- and shared leadership as the mechanisms through which leaders can successfully manage work stress. Specifically, we examined the effects of high-strain work environments on leader health, determined what health outcomes distinguished high-strain work environments from its positive antipode, active work environments, and then identified ways in which self- and shared leadership practices can foster the positive outcomes of active work environments.

To provide a multi-disciplinary view of work stress and leader health we examined the literature on both the physical and psychological (psycho-social) outcomes of high job demands and low job control. We determined that outcomes of high-strain work environments on leader health were an increased risk of disease and psychological strain. On the other hand, the outcomes of active work environments on leader health were healthful regeneration and increased engagement. We proposed that leaders could achieve healthful regeneration through physical fitness and that by practicing self-leadership strategies leaders could achieve higher levels of physical fitness. In addition, increased engagement can be achieved through the experience of flow, which is a natural outcome of self- and shared leadership practices. As such, we claim that practicing and encouraging self-leadership and utilizing shared leadership are instrumental in creating positive, active work environments that support healthful regeneration and increased engagement.

From our propositions, there are several avenues for future research at both the individual and organizational level. For example, research could focus on the relationship between leader physical fitness and self-leadership practices. Additionally, research on work-site health promotion programs and how work factors such as job demands and job control affect leader physical fitness levels could provide valuable information. For example, Payne and colleagues found that employees in high-strain work environments reported lower exercise self-efficacy, and exercised less than those employees in low-strain jobs (Payne, Jones, & Harris, 2002). Research on shared leadership and reduced demands and physical fitness could also provide insights into healthful regeneration.

Likewise, research on self- and shared leadership and the experience of flow in increasing engagement offers the potential to provide additional information for leadership development and stress management. Research on the interrelationship of empowerment and flow, and the effects of collaboration on the experience of flow could provide empirical evidence of the experience of flow as a natural outcome of self- and shared leadership. Indeed, self- and shared leadership constitute a broad set of opportunities for designing and developing specific work practices and leadership training that can significantly contribute to leadership development efforts for more effectively managing work stress.

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