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OF BUSINESS PERFORMANCE

By Jack L. Groppe, PhD and Ben Wiegand, PhD

Consider the following dismal statistics: according to recent research conducted by the Gallup organization, only 28% of American workers are engaged in their work, meaning that they are passionately involved in it. Fifty-four percent are not engaged (essentially, sleepwalking through their work) and 18% are actively disengaged, meaning that they act out their unhappiness on the job.¹ 2010 research by Price Waterhouse Coopers showed that 1 in 4 high-potential employees intended to leave their employer in the next 12 months.² The human resources consulting firm AON Hewitt has additionally found that, overall, global engagement scores dropped to 56% in 2010 from 60% the previous year — the largest decline reportedly seen in the last 15 years, due in large part to current negative economic cycle. “Organizations are exhausted and struggling to find ways to improve or stabilize the future,” the Hewitt report notes.³

Organizations depend on increasing their innovation capabilities — specifically, deepening their talent benches with people who can think critically and originally to solve problems and develop new solutions. But when the majority of a workforce is not engaged or disengaged, business performance and profits shrink. The cost of underutilized human assets can run from the tens into the hundreds of millions of dollars. Without a fully engaged and high-performing workforce, firms simply cannot grow and thrive. What can companies do to turn things around?

In this paper, we consider how an understanding of physiology can help increase employee, and then, business performance, and we offer inspiring lessons from the world of elite sports — lessons that leaders should seriously consider in developing new techniques for improving employee and organizational performance.

Sources of Employee Disengagement

Human capital (HC) is often the largest expenditure and, for knowledge-based organizations, the most important contributor to both bottom and top line revenues. Traditionally, firms manage human capital by attempting to improve performance (through training and talent management), trying to ramp up productivity (asking employees to work longer and harder); or shrinking costs (lowering healthcare benefits, managing turnover, “right-sizing,” and so on). Despite taking such measures, an enormous number of forces are undermining the ability of employees to perform at their best.

On a macro level, the current state of the economy and rapid technological and social changes contribute to employee stress. As the business demands more productivity from knowledge workers, employees suffer in their personal lives. They spend less time doing things that restore their energy — engaging in family, friends, hobbies, physical exercise, or even sleeping. Yet, over the last decade, energy has been defined as the fundamental currency of high performance.⁴ Individual, team and organizational performance are grounded in the skillful management of energy. However, organizations have often isolated their training curriculum by focusing on improving an individual's productivity versus addressing and integrating the management of energy so that their teams and organization can excel.

As an example, let's examine how psychological issues are manifested. Nearly 1 in 3 American women categorized their stress levels as extreme in 2008. In addition, 69% of respondents felt that a mental health professional could help them in managing their stress, although only 7% of the respondents actually availed themselves of these services.⁵ When employees are unable to manage their stress at work, they often exhibit negative behaviors such as impatience, uncooperativeness, defensiveness, hyper criticality and pessimism. All these emotions negatively affect teams and decrease individual and collective ability to perform. In attempting to cope with stress, employees may resort to efficient albeit unhealthy “decompression” strategies that provide immediate, but unhealthy, gratification (resorting to too much television, alcohol, comfort foods, recreational drugs, mindless activities — web surfing, video games, and so on).⁶

These combined stressors contribute to what is known in the field of health and productivity management as “productivity impairment.”⁷ To date, productivity impairment has been measured by two key metrics “absenteeism” and “presenteeism” or the absence of the worker's active thought and engagement while he or she is physically on the job. Both metrics reflect a deficit of an employee's physical and emotional health.

While we believe that identifying these relative productivity deficits is important in order to deliver meaningful solutions to address them, productivity impairment tells only part of the story. To truly address employee productivity, employers need to move beyond the existing productivity impairment framework and expand it to a new “performance enhancement” model, based on a more holistic view of employee productivity and performance. This means viewing productive employees not

only as entities with optimal training, professional experience, or formal education, but also as biological and emotional beings, for whom when these dimensions are also optimized, can reach productive levels that are possibly unknown in the workplace. What would happen if employees not only met the thresholds found in the deficit model, but pushed through the ceiling of common expectations, even as they avoided disengagement or burn out? What if there was untapped or thwarted potential to be unleashed? Just like in the world of sports, we must ask: Are there business performance records still to be broken?

In team sports, such as football and basketball, individual players must work to improve their position skills, but at the same time, work to improve overall team skills. If individual *and* team skills are maximized, the organization is always improving its aptitude for performance. And, there is a process to doing this, developed over years through the science and art of coaching, and leading sport organizations, that also applies to business. But, first, change must be initiated.

Redefining the Story

Fortunately, many organizations are seeing employee health and productivity management as an integral part of business strategy — one that aims to reduce health care expenditures, retain valuable employees, and optimize employee productivity. Increasingly, businesses understand that the people who work for them are not merely Industrial-era labor or production machines, but complex, multifaceted and dynamic assets with unique skills, motives, challenges and aspirations. Accordingly, they are beginning to recognize that they must address productivity problems by taking a broader view of their human capital.

Indeed, many companies comprehend that employee performance results from the inter-relationship of critical factors — not just cognitive skills achieved through training and education, but also from their experience of their families and, social networks, their recreational activities, and their personal senses of mission, trust, purpose and mastery.

Recent research shows that one of the linchpins of employee wellbeing and performance is physical health.^{8,9} To this end, many firms support their employees' health through wellness programs, including on-site gyms and gym memberships, health coaches, and so on. But such measures are often ineffective because they only apply a short-term fix to a gaping wound; they don't go far enough to address the core productivity problem.

Ironically, given current stressors, companies often work against their own bottom lines by drowning employees in all kinds of health and productivity *disincentives*. For example, when companies expect team members to sit at their desks all day, work too many hours and days at a stretch without taking adequate breaks or days off, or to sit in long meetings with easy finger foods such as pizza and chips, they can be physically undermining their employees' ability to perform at their best.

The good news is that, by understanding the direct relationship between psychology, physiology and performance, firms can take steps that not only support employees' health, but that can increase their productivity. For example, let's consider the role of physiology.

The Body is Business Relevant™

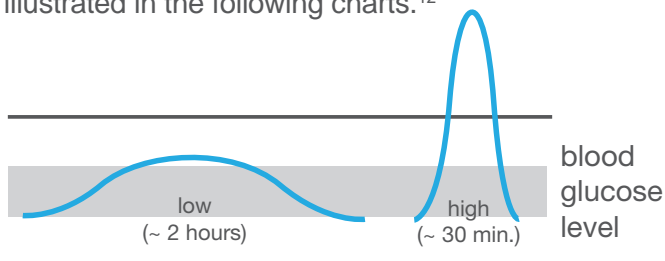
What does an engaged employee look like? She is emotionally resilient and under control in the face of a storm. She is attentive, focused, creative and

able to solve problems. She processes information efficiently and effectively. Her eyes shine. She likes her work and, yes, she is very productive.

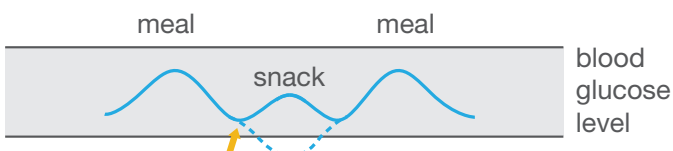
Beneath the surface, she taps into sustained levels of glucose and oxygen, supplied through food and breathing, and sufficient sleep. Let's take a closer look at the physiological effects of these prime performance drivers:

The role of nutrition. Eating the wrong kinds of food and not drinking enough water lowers workers' ability to sustain energy and to think creatively.¹⁰ Unfortunately, too many employees skip breakfast, or reach for donuts and bagels. These kinds of high-glycemic foods cause a spike in blood glucose, and then retreat in 30 minutes or less, causing a feeling of hunger requiring something quick to stem the pangs.¹¹ (To make matters worse, workers try to satisfy these pangs by consuming more sugary, fatty, processed foods.)

On the other hand, when an engaged employee eats a well-balanced meal rich in complex carbohydrates (vegetables and fruits) and (lean) protein, her blood glucose is sustained for about four hours, as illustrated in the following charts.¹²



High-glycemic, high-calorie foods (processed products containing white flour, white sugar, fat and salt) spike energy but then lead to energy/productivity "crashes."



Low-glycemic, 100-150-calorie snacks such as yogurt, whole fruit, nuts or cheese, eaten in frequent intervals, sustain energy over time.

The role of oxygen. The brain soaks up at least 20% of the body's oxygen supply.¹³ Remaining sedentary for extended periods (e.g. sitting at a workstation or in meetings for long periods of time) impairs the flow of blood and oxygen — particularly to muscles — which can often lead to fatigue. In fact, research has shown that remaining sedentary for long periods of time can have an independent, deleterious impact on health.^{14, 15} What this means is that regular movement can mean the difference between being in an optimal vs. sub-optimal state of health. In contrast to a sedentary body, active bodies need more energy and more oxygen, which is why the breathing rate increases during exercise.¹⁶ Engaging in physical activity can create brief periods of hyperoxygenation in the brain.¹⁷ and increasing oxygen intake has been shown to enhance energy, mental performance and memory recall.¹⁸

Scientists at the University of Illinois found that as little as three hours of brisk walking per week is enough to boost blood flow to the brain and trigger biochemical changes that increase the production of new brain cells.¹⁹ Exercise improves learning on three levels: it optimizes the mind-set to improve alertness, attention, and motivation; prepares and encourages nerve cells to bind to one another (the cellular basis for logging information); and spurs the development of new nerve cells from the stem cells in the hippocampus.²⁰ A 2007 study determined that people learn vocabulary words 20% faster following exercise than they did before exercise. "When we get moving," says researcher and author John Ratey, "exercise naturally stimulates the brain stem and gives us more energy, passion, interest, and motivation. We feel more vigorous."²¹

The role of sleep. Sleep is essential for human recovery. Research has shown significant negative effects associated with insufficient (six hours or less)

of sleep per night.²² These include poor problem-solving and productivity, loss of energy and lower cognition.²³ Without sufficient sleep, employees tend to make more mistakes and suffer more industrial accidents. They are also more likely to develop physical and psychological conditions that may require treatment.²⁴

In sum, employees can often make cognitive mistakes when they are deprived of the right kind and amounts of food, water, physical activity, and sleep; they perform at their best when provided sufficient levels of each of these critical elements.

Findings from Sport Science

In the old days, athletes and coaches believed that the only way to enhance athlete performance was to work harder and longer, improve their technique, and compete more often to get mentally tougher. As a result of these pressures, athletes — very much like workers today — over-trained and burned out, sustaining injuries that shortened their careers.

Responding to the issues of athletic overtraining, burnout, injury and so on, a field of study called sport science emerged in the former Soviet Union and Eastern block countries during the 1950s. Sport science combined the disciplines of exercise physiology, nutrition, psychology, biomechanics, motor learning, and sports medicine. The principles of sport science have resulted in an incredible progression in athletic performance during the last 40 years. Athletes, as a whole, are typically bigger, faster, stronger, more powerful, and more emotionally resilient. They eat better and understand how to recapture energy quickly in order to perform well the next day.

The progress in sport science has been founded on three important discoveries that we believe are relevant to businesses and workers today:

Multidimensionality. Sport science takes a multidimensional approach to performance. That is, it assumes that for performance to improve, humans have had to make improvements in four dimensions — not just the physical dimension, but also in the emotional, mental and the spiritual dimension which is focused on your mission and/or purpose in life. By increasing their capacity in all four realms, athletes learn how to train, prepare and perform more effectively. On an emotional level, they learn techniques to increase resiliency and how to access opportunistic emotions (a sense of challenge, optimism, and so on), to fend off negative, performance-clouding emotions (impatience, frustration, fear, defensiveness, and so on). Mentally, athletes and teams have learned to increase focus and to manage their time as a tool to effectively manage their energy. And, spiritually, they have learned how to develop a sense of personal, team and organizational mission.

Recovery. Sport science also helps athletes and teams build recovery mechanisms into their lives in each of the four dimensions. By recovery, we are referring to the recapture of energy. For most of the last century, fitness levels were determined by how quickly one's heart rate could recover from a bout of exercise. The research literature brims with evidence explaining the importance of recovery to the performance equation.^{25, 26, & 27} If you are an athlete and you exercise a muscle today, you should not stress it again for at least 48 hours. The muscle needs the recovery time for growth to occur. This is because everything about life has rhythms or “oscillations”, as we call them. Everything about a human being oscillates rhythmically up and down: sleep cycles, blood glucose levels, EKGs from the heart, EEGs from the brain, and EMGs from the muscles all oscillate and are measured accordingly. A lack of oscillation, or linearity, as it is known, is completely dysfunctional for individuals, teams and organizations.

To illustrate the role of oscillation, consider the work of renowned performance psychologist Jim Loehr, who studied the in-between point time of the world's best tennis players.²⁸ The heart rates of world-class tennis players rise to anywhere from 170 to over 200 beats per minute and they have 20 seconds to recover in between the points. Additionally, other studies have determined that, during an entire tennis match, a player actually “plays” tennis just 35 percent of the time. That means that 65 percent of the time the player is not hitting tennis balls, but is resting in between points and games.

How do great tennis players use their small “recovery” times in a “productive” way? Loehr found that after every point ended, they went through four stages: 1) A positive physical response (to imagine the correction of an error); 2) A relaxation/recovery phase (for the physical, emotional, and mental recapture of energy); 3) A preparation phase (to mentally prepare for what is about to happen); and 4) A stage of pre-performance rituals (where they put themselves in a state of multidimensional readiness for the next point).

Periodization. One of the more unique findings in sport performance has to do with “periodization,” or the long-term and short-term work/rest ratio. Periodization allows an athlete to endure grueling training and competitive schedules. Seasonal sports such as track and field have utilized periodization of training for years. By altering the activity as well as the volume, intensity, and frequency of training according to the sport's season, athletes can peak physiologically and psychologically for their respective sport.²⁹

At an individual level, a ranked tennis player or golfer, who must play throughout the year, uses a periodization schedule created around his or her specific needs and tournament dates. Tennis players,

for example, want to peak at the four Grand Slam tournaments and the year-ending Masters event. They continually train based on work/rest ratios to peak at these events. By contrast, the coaches and leaders of a World Cup Soccer team want their team to perform at the highest level possible during the World Cup. They must monitor the team's work/rest ratios so the team can peak during the qualification round, have rest periods, prepare for each big event as it comes and then peak again during the World Cup rounds.

Macro-and-Microcycles. Additionally, periodization involves multi-dimensional training at two levels: macrocycles and microcycles. A macrocycle is a long-range plan assisting individuals and teams in preparing for the big events, while a microcycle can be very short term (a day's plan, for example). In either area, the goal revolves around work-rest ratios to maximize performance in the most effective way. Can you imagine the results if business professionals and teams learned to work this way?

Lessons for Business

What can business leaders derive from the world of sport science? And how can they apply this knowledge to raise their employees' creativity, focus, engagement, and overall performance leading to enhanced business performance.

Clearly, the challenges facing world-class athletes and corporate athletes are very similar. Both live in a world of brutal competition and accountability. Numbers drive everything; last year's records become this year's baselines, and individuals must top themselves annually. Every moment requires sustained attention. Like athletes, workers — especially knowledge workers — need to fuel their bodies and brains adequately, train for emotional resilience, and improve their mental toughness.

Indeed, the best thinking and, hence, innovation and performance requires an application of the principles of sport science. 1998 Indianapolis 500 Champion Eddie Cheever noted:

“When you are competing at anything, even in the boardroom, I think that if your body is in excellent condition, your mind will follow. If you are in physically poor condition, you are suffering, you have bad concentration, you can’t get the job done that you want to do.....the better shape I am in, I take myself out of being the weakest link. My job is to sit in the race car and concentrate. I have to concentrate, so the better shape I am in, the easier I can do that. I have to be able to sit in a race car and drive it as hard as I can for three-and-a-half hours, and not feel once in those 3-1/2 hours that I am tired or that I should slow down or that I want to give up. Training....made my job a lot easier in the car.”³⁰

Obviously, for the racer to succeed on the race track, the crew chief and pit crew must be on their ‘A games’ as well. There’s little time for error, and efficiency is critical to success for the entire team.

In this age of information and “enabling” information technology, mental acuity is more important than ever. Employees must be able to attend, concentrate, and process information efficiently and effectively from many sources. To help them, managers can do the following:

Understand that the body is business relevant. Human beings are biological organisms requiring sleep, nutrition and activity to survive, let alone thrive. Every person needs to replenish energy in the form of sleep, nutrition and activity, as well as emotional, mental, and spiritual recovery. Chronic stress, when unabated by recovery, causes a human being to go into survival mode, and encounter possible (and sometimes serious) health complications, all of which make high performance impossible. Recovery and

periodization are as critical for team workers as they are for athletes. And full engagement is an acquired skill, and is critical skill to bring one’s full and best energy to the moment at hand.

As a first step, managers should observe their people. What is the level (or focus) of mental energy that staff people maintain? Are they focused in meetings, one-on-one dialogues and interactions? Or are they exhibiting all the signs of stress and disengagement? If the latter, understand that this is not biologically sustainable.

Help employees and teams gain resilience. First, take their emotional pulse. What is the quality of energy exhibited by each employee? Is there a passion or pride in the work? How resilient is the person to the demands of the job and the environment? Do the employees and teams display opportunistic emotions such as optimism, positive attitude, sense of challenge and mastery, as opposed to survival-based emotions such as impatience, uncooperativeness, defensiveness, frustration, hyper-criticality, pessimism, and so on? Is there a difference in the performance of a person when he or she learns to respond emotionally with opportunity? Which of these persons do you want on your team?

Every team member wants every other member to feel engaged at the highest level. How can managers encourage trust, commitment, hope, altruism and forgiveness? How can managers encourage workers to value the company’s mission as well as the mission of their own lives, and achieve work/life balance?

Encourage periodization. Too often, people shortchange themselves when it comes to taking time off, (from vacations, and weekends, all the way to the point of not taking small breaks during the day), which sabotages the benefit of periodization and work/rest

ratios. Intentional downtime, even as short as 1-2 minutes, enables us to come back stronger when we get to work. By encouraging employees to plan for periods of rest and recovery — however short — during their days, weeks and months, managers build in both higher performance potential and trust. Let's not forget what Loehr found in extremely short time intervals, that athletes can achieve tremendous performance by experiencing peaks and troughs of recovery.

Start by encouraging employees give themselves a few minutes to disengage (re-boot) and re-engage (power-up) so they are ready for the next meeting or project. This can be holding the meeting upstairs and discouraging use of elevators; serving low-glycemic snacks; supporting those who suffer from sleep problems through health coaching, meditation or yoga classes; or encouraging people to take a morning or afternoon off prior to undertaking important new assignments.

Measure. As forward-thinking businesses consider the biological aspects of performance and build in practices to support it, they will require metrics that measure progress. These metrics may have to begin with self-reporting; once self-reporting mechanisms are solidified, managers can apply them as well.

Organizations can begin to use the following as a basis to assess performance through formally valuing, observing, and reinforcing the following behaviors and attitudes.

- The quantity and quality of one's physical energy
- The timing, quantity and quality of nutrition
- The emotional resiliency of the individual
- The quality of physical activity one maintains throughout a workday

- The ability to disengage from the linear workload, to one of oscillation (getting up and walking around, talking with others, taking breaks, short bursts of exercise)
- The ability to access opportunistic emotions under pressure (as opposed to survival emotions such as pessimism, negativism, impatience, frustration, and so on)
- The ability to be laser-focused and avoid multitasking
- The ability to work with passion, a sense of mission or purpose
- The extent to which one is hopeful and optimistic, as opposed to hopeless and pessimistic
- The extent to which one is connected to the business mission.

If businesses want to increase revenues, lower costs and improve employee performance, they must first consider the biology of business performance™. Today there is ample evidence to demonstrate the importance of the biology of an individual employee and how to improve his/her effectiveness and efficiency within the organization. However, as we look to the future, little has been done to seamlessly draw the lines between individual biology and the biology of teams and organizations. When you examine the evidence from sport science and its effect upon individual, team and organization performance over the last 40 years, it makes sense to align our business thinking in the same way.

Parallels Between Sports and Business Performance

Lower Performance Approach	Elite Athletes Prior to Introduction of Sport Science (1960s)	Employees Today
Coping Strategies	Push harder, train longer, don't allow for recovery	Push harder, work longer hours, don't allow for recovery
Symptoms of Stress	Anxiety, depression, injury; psychological problems resulting in negative behaviors	Disengagement from work; anxiety; depression; sleeplessness; indulging in unhealthy behaviors; psychological problems resulting in negative behaviors
Results of Stress	Resulting in shortened careers; lifelong health issues	Absenteeism and presenteeism; burnout; lack of productivity; low performance; lack of innovation; poor physical and emotional health
High Performance Approach	Elite Athletes Today	Employees of the Future
Approach to Athletes and Employees	Work to balance multiple dimensions of the whole person (physical, mental, emotional and spiritual); improve performance by allowing recovery, periodization, macro and micro cycles	Allow for balance multiple dimensions of the whole person (physical, mental, emotional and spiritual); allow for recovery, periodization, macro and micro cycles; support employee needs for nutrition, hydration, exercise and sleep
Effects of New Approach	Improved speed, strength, physical and emotional health; high engagement and endurance; better teamwork; longer careers	Highly engaged, higher-performing, healthier and more energetic employees; improved teamwork and innovation ³¹

Prior to the application of sport science in the 1960s, elite athletes suffered in much the same way employees do today. After the introduction of sport science, athletes took a multidimensional approach to training, with excellent results. Businesses that take a page from the world of sport science and deploy a multidimensional approach to employee performance can drastically improve productivity, innovation and engagement.

Authors

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Dr. Jack Groppe is an internationally recognized authority and pioneer in the science of human performance, and an expert in fitness and nutrition. Dr. Groppe served as an Adjunct Professor of Management at the J.L. Kellogg School of Management at Northwestern University for several years and continues to instruct courses at the University in a supplementary role.

Dr. Groppe authored *The Corporate Athlete* book on achieving the pinnacle of corporate performance and co-authored *The Corporate Athlete Advantage*. He developed the Corporate Athlete® concept for his training program while serving as an associate professor of kinesiology and bioengineering at the University of Illinois helping both business executives and athletes increase performance levels. In 1992, he combined his program with Dr. Jim Loehr to form the Human Performance Institute, Inc.

A Fellow in both the American College of Sports Medicine and in the American College of Nutrition, Dr. Groppe is a former Research Associate to the U.S. Olympic Training Center. Dr. Groppe also served as the Chairman of the National Sport Science Committee of the United States Tennis Association for 16 years.

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Acknowledgements

Contributions provided by Joseph Alexander, Rich Bedrosian, PhD, Amy Bucher, PhD, Eli Carter, Bronwyn Fryer, Steve Schwartz, PhD, and Wendy Sebranek.

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