WHITE PAPER

Becoming an Organization in MOTION™

Investigating the Organizational Impact of Strategic Movement throughout the Workday

Jack L. Groppel, Ph.D.
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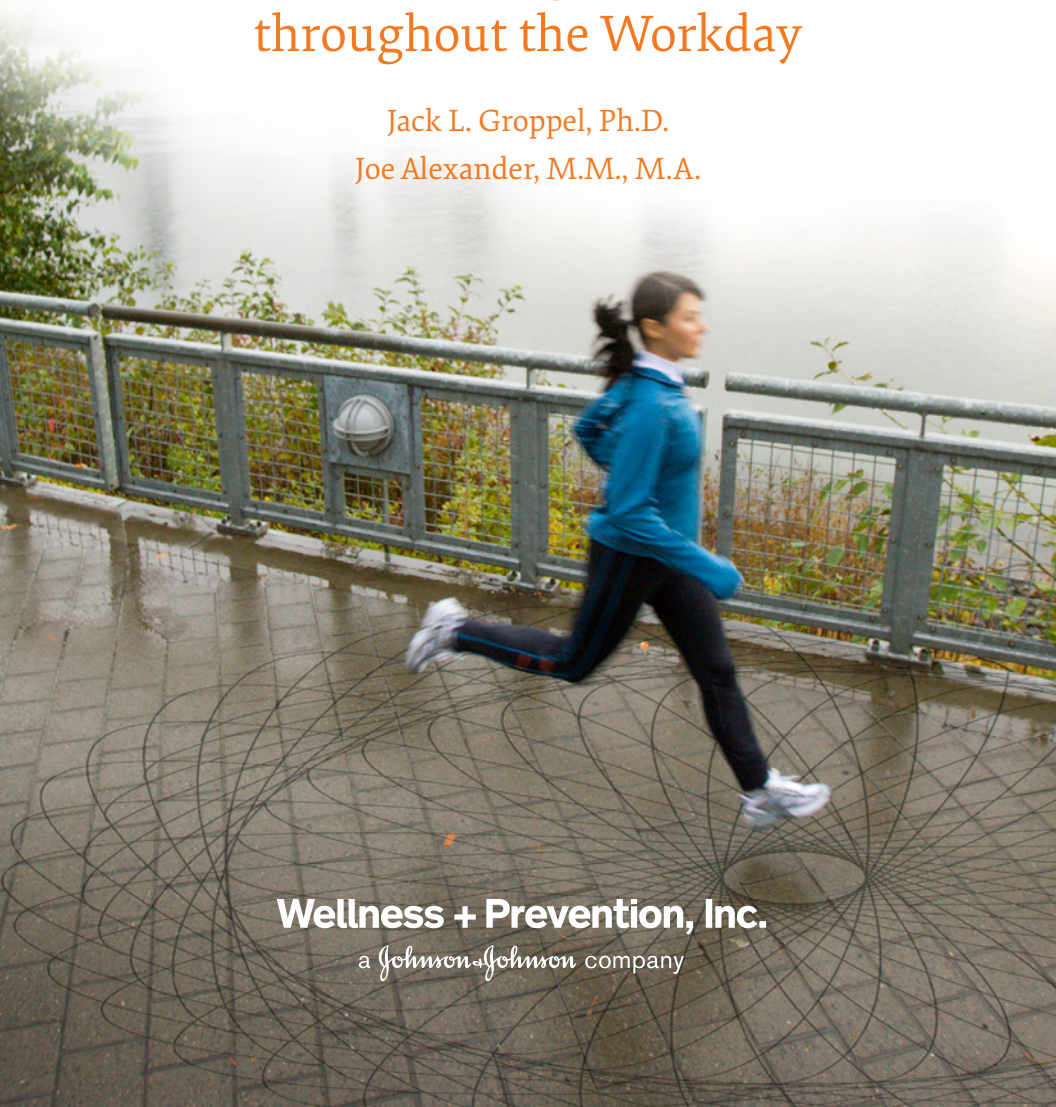

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Dr. Groppel authored *The Corporate Athlete* book on achieving the pinnacle of corporate performance and co-authored *The Corporate Athlete Advantage*. He developed the Corporate Athlete® concept for his training program while serving as an associate 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, which is now part of Wellness & Prevention, Inc., a Johnson & Johnson company.

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It has become commonplace to discuss the decline in engagement and focus among the American workforce (APA, 2011; Gallup, 2011). Numerous theories have been examined by Groppel & Wiegand (2011) as to why engagement is on an alarming decline, and an abundance of ideas (Robison, 2010) have been suggested as to how to solve this crisis. Unfortunately, most of these proposed solutions require major changes in the ways in which companies work.

Recent advances in neuroscience, however, suggest there may be an easier and simpler answer. For the past several years, researchers have been studying the effects of physical activity on the brain (e.g., Hillman, et al, 2003; Hillman, et al, 2004). Their findings have ranged from long-term effects (Ratey, 2008, Ratey & Loehr, 2011) to short-term effects (Bollo, et al; Groppel & Wiegand, 2012). Ratey's work demonstrated that there is actually brain growth and development following long-term exercise programs, while Bollo's work demonstrated that there is a brief (one to two minutes in length), regional hyperoxygenation to the brain when one begins moving in a bout of exercise.

In an effort to apply these neuroscientific implications to the corporate framework, Wellness & Prevention, Inc., a health and performance solutions provider that offers an integrated portfolio of solutions covering the broad spectrum of population health, developed the Organization in MOTION™ Program to study the impact that small and frequent amounts of movement can have on individual energy levels, cognition, creativity, and problem-solving throughout the day. The objective of the initiative was to test the theory that increasing movement would increase self-reported energy, engagement, and focus levels in employees. To do this, Wellness & Prevention simultaneously administered the program to two distinct populations.

THE SCIENCE

Without movement, which is a form of recovery for the body, Ratey, in his book, *Spark: The Revolutionary New Science of Exercise and the Brain* (2008), notes that streaming torrents of demands … keep the amygdala (responsible for the brain's primary fight or flight mechanism) flying (p. 69) … and if mild stress becomes chronic, the unrelenting cascade of cortisol triggers genetic action that begins to sever synaptic connections and cause dendrites to atrophy and cells to die. He goes on to say that "eventually, the hippocampus, a critically important part of the brain where information is transferred into memory, can end up physically shriveled like a raisin"(p. 74). In the past decade, there has been a body of research supporting this notion, depicting how chronic stress reduces hippocampus volume (Czeh & Lucassen, P., 2007; Heine, et al, 2004; Lee, et al, 2009).

As described by Dr. James Levine – a world-renowned obesity specialist at the Mayo Clinic in Rochester, Minnesota – this means that the brain activity of the person who sits too long will start dimming, even to the point that "brain waves fall into a slumbering state" (Levine, 2009, p. 18). Ratey furthers this explanation with the statement that "when a nerve cell is called into action, its metabolic machinery switches on like a pilot light in a furnace" (p. 71). Research indicates that a loss of nerve signals due to inactivity causes a loss of acetylcholine receptors in the brain (Akaabourne, et al, 1999). In other words: If an employee stops moving, he or she loses acetylcholine receptors and the synaptic connection (Akaabourne, et al, 1999). These researchers also found that acetylcholine receptors have a half-life of about 14 days without some form of stimulation. If that happens, the employee loses brain processing speed, faces a diminished ability to learn, and experiences short-term memory loss (Akaaboune, et al 1999). All of this may affect his or her business performance.

Researchers (Akaaboune, et al 1999) found that physical activity created stimulation for acetylcholine production. According to Levine (2009), the mere act of getting up out of one's chair is all it takes to break out of "hibernation mode." Here, Levine is referring to the seriousness of our sedentary state, discussing how, even at the cellular state (p. 25), our cognitive and biological processes begin slowing down when we are not moving. Just standing up can improve one's ability to think (p. 33). People who choose to stand instead of sit note that their minds feel clearer and that they are better able to problem solve (p. 31). Standing often leads to other movement, such as pacing while on the phone or walking to the copier, which may ultimately lead to improved performance. In fact, Levine states that we are hard-wired to do our best exploring, inventing, and developing through the motion and energy expenditure of our human machine (p. 31).

One to two minutes of moderate to vigorous activity are important because that is how long it takes for the brain to "autoregulate," or re-calibrate itself. In one research article called "When the Air Hits Your Brain," researchers Bollo, et al (2010) found, in a case study with one subject, that within 20 seconds of initiating a bicycle pedaling exercise, transient oxygen increased in the brain, went back down, and then rose again until it stabilized at one minute and six seconds. Researchers saw similar results with that subject at the onset of a running exercise. Oxygen increased within 10 seconds, then decreased over the next 20 seconds, and peaked again until it stabilized at two minutes. The authors of this study offer that these findings – this one- to two-minute period of hyperoxygenation – could be one "mechanism by which exercise achieves myriad cognitive benefits." This research gives credence to Ratey's comment (2008) that when the body starts moving, the brain "lights up" in almost all areas, and the result may be improved cognition, creativity, and problem-solving. Accordingly, we believe exercise intervals of one to two minutes every 30 minutes can make a difference in performance.

STUDY DESIGN

The Organization in MOTION™ Project involved two companies: New Balance Athletic Shoe, Inc., a Boston-based company that manufactures and markets athletic shoes and apparel, and Wellness & Prevention, Inc., a Johnson & Johnson Company. Both authors are current employees of Wellness & Prevention, Inc., and results for each firm will be reported individually.

The Organization in MOTION™ Program was simultaneously launched at New Balance and Wellness & Prevention, encouraging employees to move strategically for one to two minutes at frequent intervals throughout the day. Employees were also encouraged to stand up while talking on the phone, move around during meetings, take stretch breaks while on conference calls, and incorporate more movement and activity into every aspect of their work days.

The essential elements of the Organization in MOTION™ program were the same across both companies. These included:

- **A formal in-person or live video kick-off event with Dr. Jack Groppel.** His one-hour kick-off presentation highlighted the science behind the Organization in MOTION™ program, outlined the details of the program, and specified exactly what employees could do to increase their activity levels throughout the work day. An important part of the presentation was visible company management support for the program. In both cases, senior executives from these

companies stressed their commitment to the program, along with their strong desire for employee participation. Kick-off attendance was encouraged, but voluntary.

- **Self-administered online surveys.** Study design included two self-administered online surveys. The pre-survey was administered at the very beginning of the program, while the post-survey was administered after 90 days. Participation in the surveys was completely voluntary, and there were no incentives for completion.
- **Three to five Movement Champions at each site.** Movement Champions were company volunteers, who, after receiving a brief training, were asked to continuously assess participation at their sites and provide regular, local encouragement and support. While volunteers were provided with examples of how to do this, the exact choice of what to do was left up to them, and they were encouraged to incorporate their own ideas. Volunteers showed a great deal of creativity and enthusiasm. Activities ranged from ringing a bell to signify time to move, to creating a stairway scavenger hunt, to arranging walking groups. Volunteers were asked to participate in a bi-weekly telephone call. They did not receive any financial incentives or other perks to participate.
- **Daily e-mail tips on moving in the workplace.** Each day, Wellness & Prevention, Inc. e-mailed participants different ideas for incorporating movement into their days. These daily reminders, which were delivered in both written and video formats, shared useful movement tips, which ranged from stretching at your desk, to hosting walking meetings, to making the most of downtime when traveling for business.

It is important to note that participation in the program was voluntary, and there was no monitoring or tracking of individual participation. Furthermore, it was left up to the individual as to exactly what and how often he or she would actually move or be active. While guidelines and examples were provided, choices were left up to the employees.

Implementation of the program went very smoothly in both companies. The resources required for the company to implement the program were minimal, merely consisting of a kick-off and survey launch e-mail. All movement exercises could be done immediately, most at no cost.

METHOD AND ANALYSIS

The Organization in MOTION™ study included two self-administered online surveys. The pre-survey was administered at the beginning of the program, while the post-survey was administered after 90 days. Participation in the surveys was completely voluntary, and there were no incentives for completion.

Senior leaders at both companies sent employees an e-mail invitation to participate. In the e-mail, those employees wishing to take the survey clicked on a link in the email, which immediately took them to an external website where the surveys resided. Individual responses were kept confidential and private. The surveys took, on average, about eight minutes to complete.

It is important to note that we were not able to match individual respondents on their pre- and post-survey responses. Thus, we were not able to use a paired respondent analysis. As such, any differences or trends we find must be treated with caution. For the analysis, we treated the pre- and post-samples as independent. We used the T-test for tests of independent means and the Z-test for tests of independent proportions. Significance was set at the 90% confidence level. Also, please note that when we refer to significance in the paper, we are referring to statistical testing only. We are not making any assertions about the clinical significance of a specific difference.

SURVEY INSTRUMENT

Both the pre- and the post-survey questionnaires included a mix of validated scales and questions developed for this study. The pre-survey questionnaire included the following:

- The Utrecht Work & Well-Being Survey (17 questions)
- The Work Extrinsic and Intrinsic Motivation Scale (WEIMS) (six questions)
- A 10-question battery on overall health and wellness
- A six-question daily energy assessment

In addition to all of the questions above, the post-survey included the following:

- A 14-question battery on program participation and impact
- Questions on impact of program on level of individual movement, impact of program on personal energy levels, personal level of engagement and focus, and level of physical activity and movement

THE SAMPLE

The New Balance investigation involved nearly 750 employees from their Product Management, Marketing, Design, and Human Resources teams on two campuses in Boston and Lawrence, Massachusetts. A total of 345 employees completed the pre-survey, for a response rate of 46%, while 239 employees completed the post-survey for a response rate of 32%. New Balance had conducted a similar but smaller scale study the previous year. About one quarter of the employees in this study said that they were in the previous pilot study. Results of the pilot study were extremely encouraging and led to the decision to conduct this larger scale investigation.

The Wellness & Prevention investigation involved the entire company of approximately 200 employees across three campuses in Ft. Washington, Pennsylvania; Orlando, Florida; and Ann Arbor, Michigan. A total of 162 employees completed the pre-survey for a response rate of 82%, while 164 completed the post-survey for a response rate of 82%.

The program was administered to the two different companies during the same time frame (January to April, 2012). This allowed us to control for time of year, as well as general economic trends. Obviously, we could not control for individual company factors, such as corporate policies or employee demographics.

For both companies, employee jobs are primarily sedentary. While many employees said that they were physically active and either run, walk, or go to the gym outside of work, they, like most corporate professionals, spend the majority of their days sitting in meetings, working at their desks, or participating in long conference calls.

RESULTS

Overall, the results of the study showed an impact of the program on employees at both companies. Employees who responded to the survey said that they increased their activity levels at work, and they also reported increased engagement and focus.

Employees reported increased engagement and focus at work, at both companies. At New Balance, 42% of respondents reported an increase in their engagement and focus at work at the end of the study duration of 90 days, while at Wellness & Prevention, 61% of respondents reported increased engagement and focus at work (See charts 1a and 1b).

CHART 1A: NB | Thinking about how engaged and focused you feel at work, since the start of the Organization in Motion Program, would you say how engaged and focused you feel has...

Base: Total New Balance Respondents Post-wave (n=233)

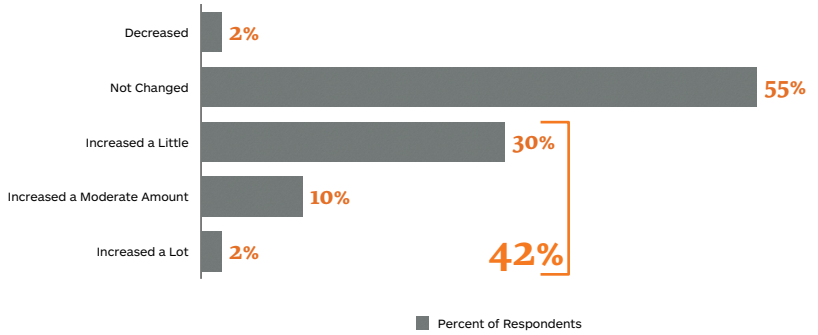
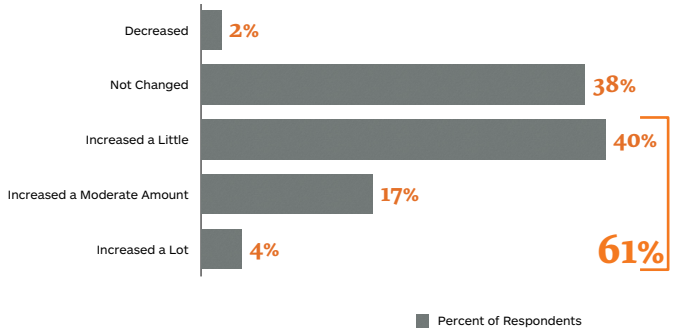


CHART 1B: WP | Thinking about how engaged and focused you feel at work, since the start of the Organization in Motion Program, would you say how engaged and focused you feel has...

Base: Total Wellness & Prevention Respondents Post-wave (n=162)



There were significantly more employees at both companies reporting that their energy levels, especially during the work day, were high. At New Balance, significantly more employees reported high energy levels at the beginning and the middle of their work day. As shown in the charts, the percent of employees who said that they had high energy at mid-day increased from 26% to 37%. At Wellness & Prevention, higher levels were reported both at the beginning and the end of the work day. Plus, at Wellness & Prevention, higher levels were also reported at home, before the work day began, and after it ended. The program, as expected, had no impact on reported energy levels during the weekend (See charts 2a and 2b). Increases in late-day and post-work energy levels are promising indicators of the ability of strategic movement to provide sustained energy, particularly during times of natural fatigue (See charts 2a and 2b).

CHART2A: NB | How would you rate the level of energy you typically experience in each of the different situations listed below? Percentage of respondents answering 8,9, or 10 on a 10 point scale.

Base: Total New Balance Respondents: Pre Wave (344), Post Wave (239)

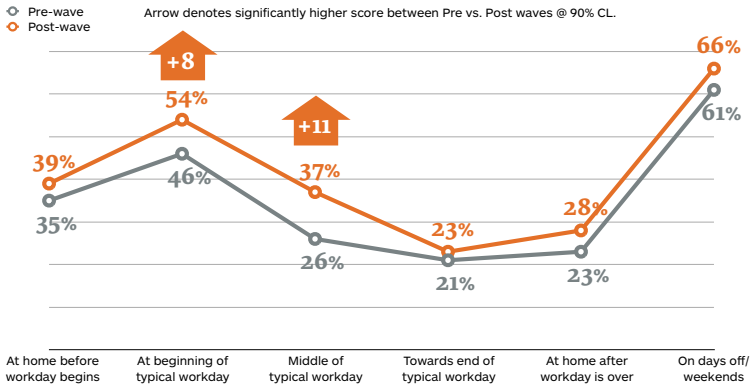
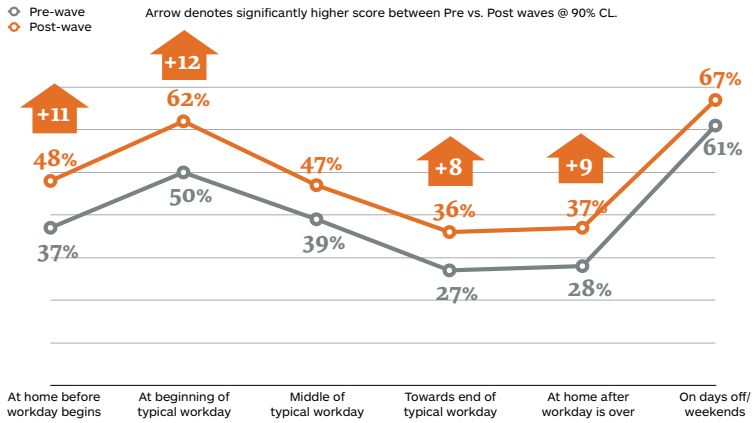


CHART2B: WP | How would you rate the level of energy you typically experience in each of the different situations listed below? Percentage of respondents answering 8,9, or 10 on a 10 point scale.

Base: Total Wellness & Prevention Respondents: Pre Wave (163), Post Wave (165)



Employees at both companies reported higher levels of physical activity and movement than before the study began. At New Balance, about half (53%) of employees reported an increase in their levels of physical activity and movement since the program started. At Wellness & Prevention, about three quarters (73%) of employees reported that they increased their level of physical activity and movement at work while participating in the study. (See charts 3a and 3b)

CHART3A: NB | Thinking about your level of physical activity and movement at work since the start of the Organization in Motion Program, would you say your physical activity and movement has....

Base: Total New Balance Respondents Post-wave (n=236)

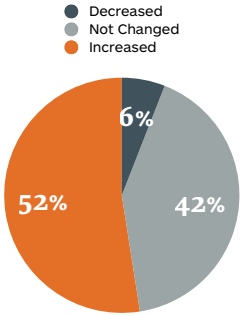
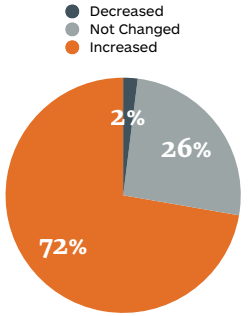


CHART3B: WP | Thinking about your level of physical activity and movement at work since the start of the Organization in Motion Program, would you say your physical activity and movement has....

Base: Total Wellness & Prevention Respondents Post-wave (n=165)



While the majority of respondents reported increased movement, most reported only minor increases in movement. Of those New Balance respondents who reported increased movement, 58% reported their movement increased "only a little." An additional 8% reported they increased their movement "a moderate amount," while the remaining 13% reported they increased movement "a lot." A similar pattern was seen at Wellness & Prevention. There, the numbers were 53%, 37%, and 10% respectively. While most respondents at both organizations reported that they only increased their movement a little, many reported that they found new ways to move (47% at New Balance and 64% at Wellness & Prevention). (See charts 4a, 4b, 5a, and 5b)

CHART 4A: NB | (Among those who report increases) Thinking about your level of physical activity and movement at work since the start of the Organization in Motion Program, would you say your physical activity and movement has....

Base: Total New Balance Respondents Post-wave (n=236) who answered "increased little/moderately/lot" in Q5 (n=125)

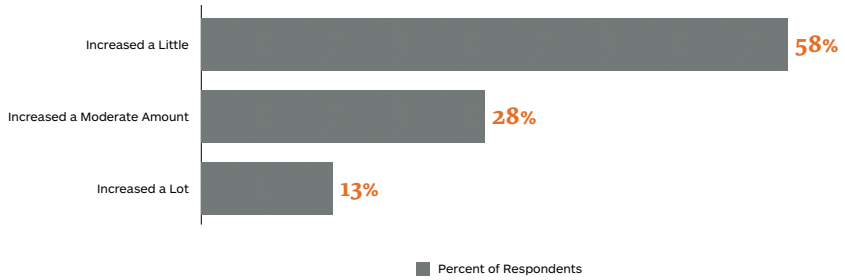


CHART 4B: WP | (Among those who report increases) Thinking about your level of physical activity and movement at work since the start of the Organization in Motion Program, would you say your physical activity and movement has....

Base: Total Wellness & Prevention Respondents Post-wave (n=165) who answered "increased little/moderately/lot" in Q5 (n=120)

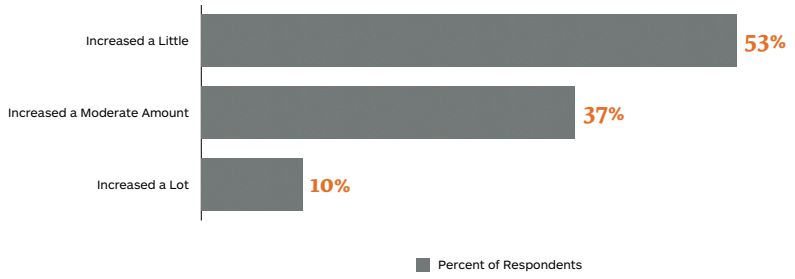


CHART 5A: NB | Think about the Organization in Motion Program and the impact it has had on you to date. Using the scale below, please indicate how much you agree or disagree with each statement..

Base: Total New Balance Respondents (n=232) Note: Data is sorted in descending order based on Top 2 Box. Top 2 Box is percent of respondents who answered "4" or "5".

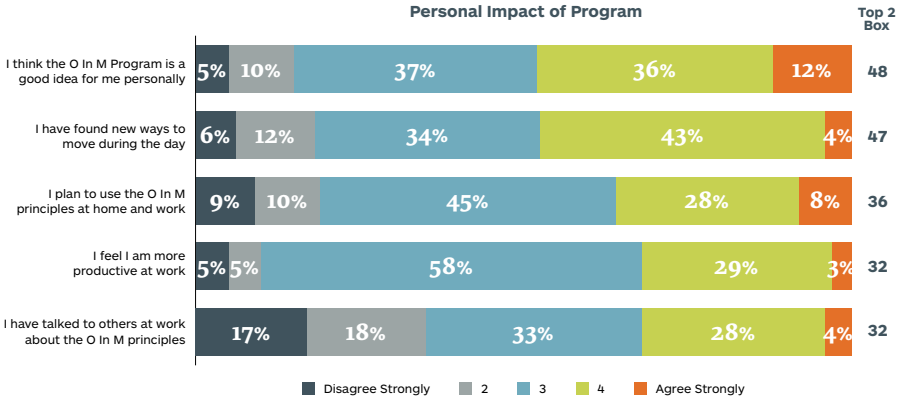
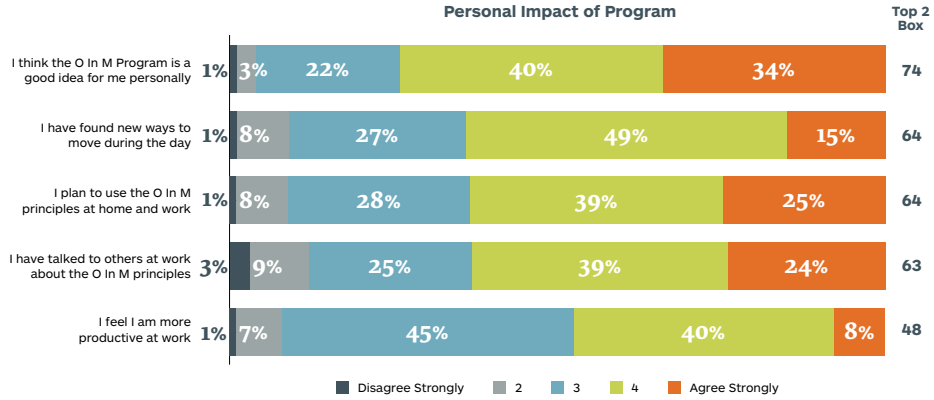


CHART 5B: WP | Think about the Organization in Motion Program and the impact it has had on you to date. Using the scale below, please indicate how much you agree or disagree with each statement..

Base: Total Wellness & Prevention Respondents (n=159) Note: Data is sorted in descending order based on Top 2 Box. Top 2 Box is percent of respondents who answered "4" or "5".



Although their activity level increased, people would like to be even more active. At both companies, less than one quarter of people (19% at New Balance and 24% at Wellness & Prevention) said that they were as active as they would like to be. Indeed, at both companies, about a third (39% at New Balance and 31% at Wellness & Prevention) said that they were still either a lot less active than they would like to be or moderately less active than they would like to be. (See charts 6a and 6b)

CHART 6A: NB | Thinking about how active you would like to be, how active are you?

Base: Total New Balance Respondents Post-wave (n=233)

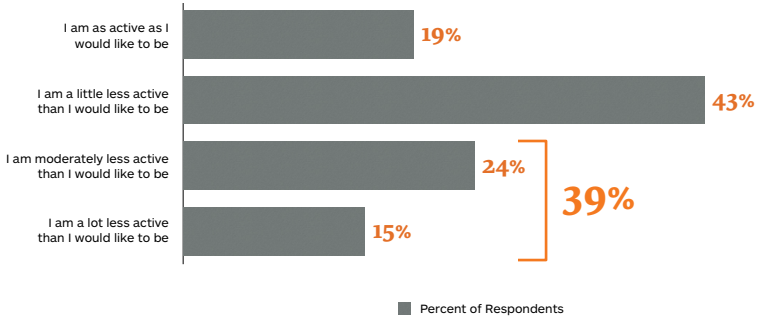
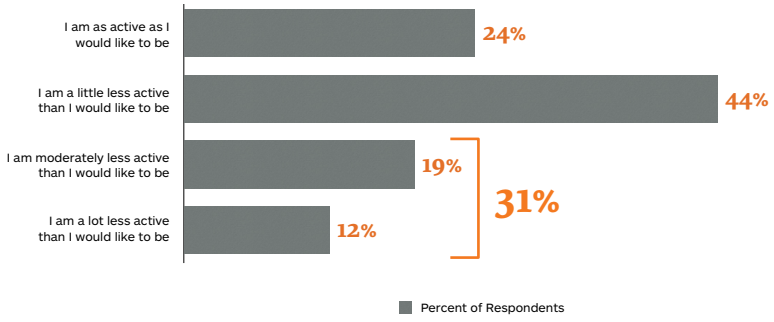


CHART 6B: WP | Thinking about how active you would like to be, how active are you?

Base: Total Wellness & Prevention Respondents Post-wave (n=165)



There was a "dosage" effect of activity level on engagement and focus. The more movement reported, the greater the increase in engagement and focus reported. The higher the activity level increase reported (from "increased a little," to "increased a moderate amount," to "increased a lot"), the higher the level of increased engagement and focus reported. This, combined with the earlier finding that people would like to be more active, suggests a demand for even more activity and movement, which may fuel even more increased engagement and focus. (See chart 7a and 7b)

CHART 7A: NB | Impact of Self-Reported Increases in Level of Activity on Self-Reported Increases in Level of Engagement and Focus.

Base: Total New Balance Respondents Post-wave (n=236) Total Wellness & Prevention Respondents Post-wave (n=165)

Note that the percentages for each category do not add up to 100% because we did NOT show on the chart those respondents who answered that their level of engagement and focus at work did NOT change or decreased. If we had included those respondents the percentages would add up to 100%. We could have shown those respondents on the chart and if we had the percentages for each category would be 100%.

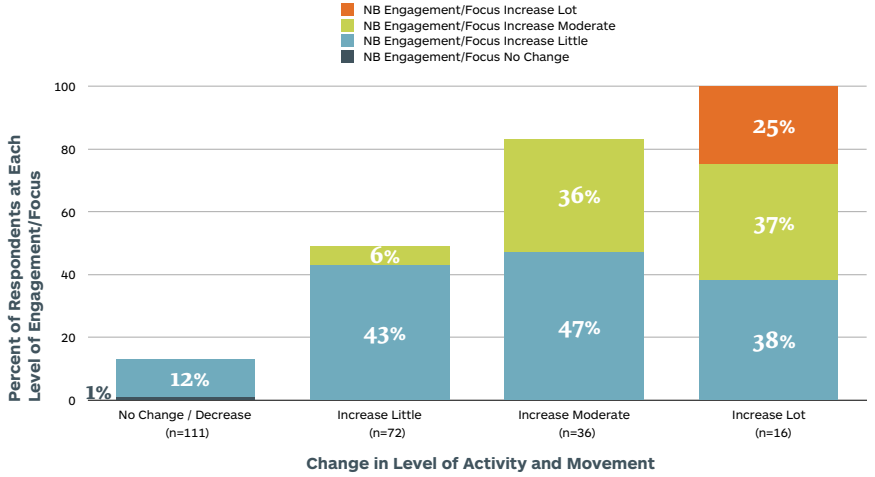
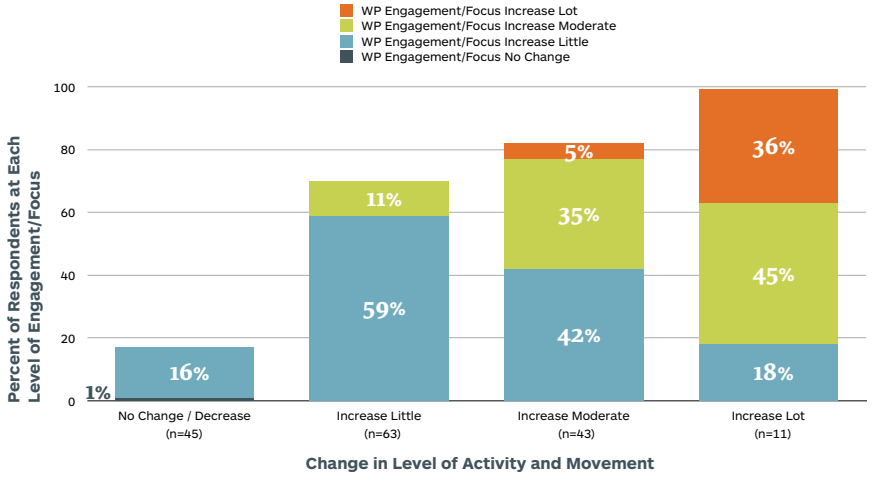


CHART 7B: WP | Impact of Self-Reported Increases in Level of Activity on Self-Reported Increases in Level of Engagement and Focus.

Base: Total New Balance Respondents Post-wave (n=236) Total Wellness & Prevention Respondents Post-wave (n=165)

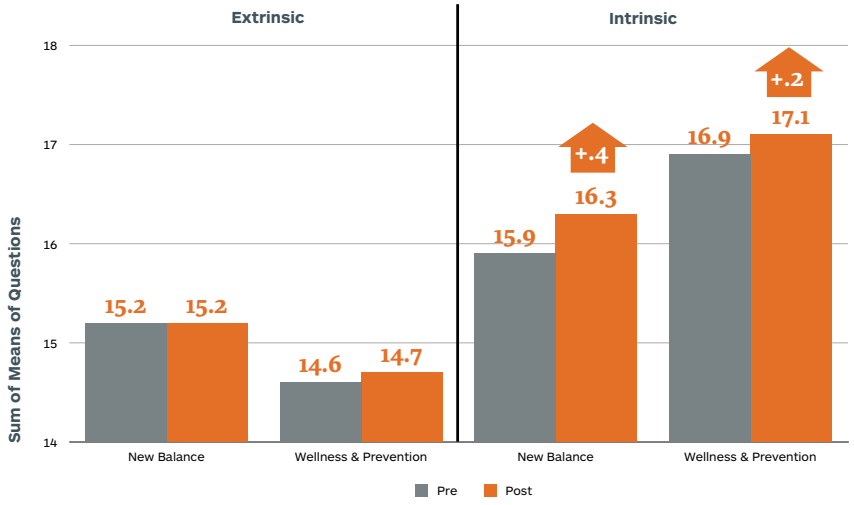
Note that the percentages for each category do not add up to 100% because we did NOT show on the chart those respondents who answered that their level of engagement and focus at work did NOT change or decreased. If we had included those respondents the percentages would add up to 100%. We could have shown those respondents on the chart and if we had the percentages for each category would be 100%.



Employees reported higher levels of intrinsic motivation at work, while levels of extrinsic motivation remained the same. Intrinsic motivation increased statistically significantly for both companies (New Balance saw an increase from 15.9 to 16.3, and at Wellness & Prevention, it increased from 16.9 to 17.1). Simultaneously, extrinsic motivation remained constant for both companies (New Balance 15.2 to 15.2 and Wellness & Prevention 14.6 to 14.7). This was very encouraging given the current thinking that intrinsic motivation is a better predictor of long-term behavior change (Gagne & Deci, 2005; Boyatzis, 2006). (See chart 8)

CHART 8 | Scores represent sum of means for three questions for extrinsic and three questions for intrinsic. **For intrinsic** 1) Satisfaction from taking on interesting challenges 2) satisfaction experience when successful at difficult tasks and 3) pleasure from learning new things | **For extrinsic** 1) allows me to earn money 2) income it provides and 3) provides security

Base: Total New Balance Respondents: Pre Wave (342), Post Wave (237) Total Wellness & Prevention: Pre Wave (162), Post Wave (164)
Q2. Please indicate to what extent each of the following items corresponds to reasons you are presently involved in your work. "1" = does not correspond at all . . . "7" = corresponds exactly



Many employees felt that the program was a good idea for them personally, have talked about the principles of the program with others, and plan to use the principles at home and at work. When asked if they thought that the program was a good idea for them personally, about 48% of New Balance employees and 74% of Wellness & Prevention employees agreed. In addition, 32% of New Balance employees and 63% of Wellness & Prevention employees said that they have talked to others about the principles of the program. Finally, 36% of New Balance employees and 64% of Wellness & Prevention employees said that they plan to apply the principles at home and at work. (See charts 5a and 5b)

Employees who made changes said that they are likely to continue with those changes. At New Balance, 89% of employees who made changes due to the program reported that they are likely to continue those changes. At Wellness & Prevention, the comparable number was 98%. (See charts 9a and 9b)

CHART 9A: NB | How likely do you think you are to continue with the changes you have made based on the Organization in Motion Program?

Base: Total New Balance Respondents Post-wave (n=235) excluding those who answered "NA/No changes". "Likely" includes "somewhat likely", very likely", and "extremely likely" answers.

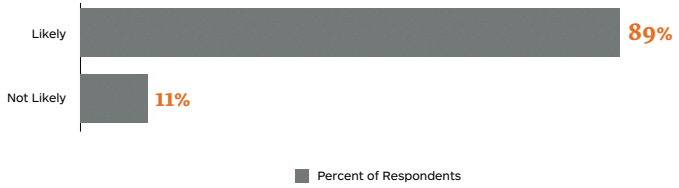
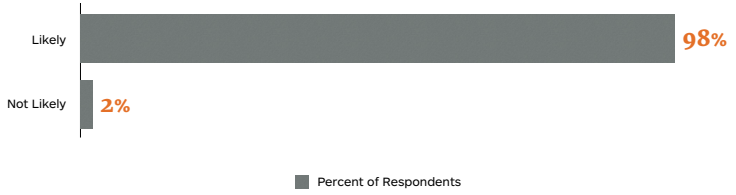


CHART 9B: WP | How likely do you think you are to continue with the changes you have made based on the Organization in Motion Program?

Base: Total Wellness & Prevention Respondents Post-wave (n=162) excluding those who answered "NA/No changes". "Likely" includes "somewhat likely", very likely", and "extremely likely" answers.



DISCUSSION OF RESULTS

Implementation of the Organization in MOTION™ Program resulted in increased employee engagement, energy, and focus at work. This paralleled an increase in intrinsic motivation at work as reported above. While the outcomes are not proven in this study to be due to the program, the data suggest the possibility that increased activity, even at a low level, leads to increased cognitive activity, which, in turn, leads to increased employee engagement. And this engagement is driven by intrinsic, as opposed to extrinsic factors.

The program was well-received by employees. The majority of participants found it worthwhile and plan to continue to apply the principles – both at work and at home – even after the end of the 90 days. The percentage of employees who plan to continue applying the principles and are talking to others about the principles highlights an acceptance of and enthusiasm for the program.

There is evidence that employees would welcome even more push to increase activity levels at work. Most employees only increased their activity levels a little, yet at the same time, they reported that they are not as active as they would like to be. Indeed, at both companies, only about a quarter of employees are currently as active as they would like to be. With the desire for change, programs like Organization in MOTION™ have the potential to make a significant impact on the energy, health, and performance of employees.

IMPLICATIONS

Today, the average American business person spends about 9.3 hours a day sitting (Owen, 2009). At the same time, engagement and focus at work are serious issues (Gallup, 2011). While the current economic crisis plays a key role in our declining employee morale and productivity numbers, it also appears that the current structure and culture of the American workplace are contributing to this problem.

At a minimum, the findings of this study indicate that changes in workplace structure and culture can play a role in improving employee engagement and focus. The Organization in MOTION™ study suggests that some of the changes needed are not difficult or onerous. For the employee, the program does not require major commitments of time, effort, or money. And for the employer, it doesn't require big changes in the workplace or large capital expenditures to build gyms. Rather, simple things – like walking and standing at various and repeated points throughout the day – can make a difference. A clear program that educates the workforce on the benefits of increased movement, provides strong and visible management support for these changes, and distributes consistent and regular reminders encouraging employees to move can be very effective.

END WORD

One of the most promising findings from the Organization in MOTION™ study was the clear desire for change and the aspiration of employees to do more around movement. The sedentary nature of our culture and society is deeply rooted. As a result, we believe that the full potential of increased movement and activity in the workplace has not been fully realized and that more work must be done to enable sustainable movement programs and secure a place for movement in employee wellness discussions and program design. As the data demonstrate, there's more at stake than just health. Performance can improve when people are in motion, and employees that move can help move companies to higher performance and success.

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