Fitness Training and Work Productivity in Lebanon

A research topic presented in partial fulfillment of the requirements for the degree of Masters in Business Administration

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ABSTRACT
The purpose of the study is to examine the relationship between participation in a fitness training program and worker productivity in Lebanon. One hundred thirty-one individual employees of the Beirut area were surveyed to measure the relationship between fitness participation and perceived productivity and job satisfaction. Results found that non-participants in fitness training programs were more likely to report health-related work productivity limitations then participants. A positive relation was found with participants’ perception that exercise helps them enjoy their work better and relate better to their co-workers and finding ones job interesting enough to avoid boredom. Results also indicate that as the age group increases the loss of ability to repeat the same hand motion, and finding ones’ job interesting increase. When one doesn’t exercise, the loss of ability to use equipment and their enthusiasm about their job decreases. The happier one feels about their job, the more they concentrate on their work, the more they do the required amount of work on job, and the more one is able to work to his capacity. Finally the more one feel he is forcing himself to go to work the less is his capacity to use his equipment at work. This study has indicated that fitness training exercise may positively influence employee self-reported, work-related productivity and job satisfaction. Despite the low variance provided by the used variables, findings still add valuable insight into the benefits of becoming physically active on a regular basis.
To my daughter, wife and parents who supported me all the way.
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INTRODUCTION

The purpose of this study is to investigate the relationship between fitness training participation and worker productivity in Lebanon. The U.S. Department of Health and Human Services stated that 25 percent of the U.S. population is sedentary and 60 percent is not regularly active. Thus only 15 percent of the adult population is active enough to insure the physical and mental benefits of regular physical activity (Sharky, 2002).

Reference to the health values of exercise can be found throughout recorded history. The Chinese have long practiced a mild form of medical gymnastics to prevent diseases associated with lack of activity. In Rome the physician Galen prescribed exercise for health maintenance (Sharky, 2002). Although a comprehensive listing of benefits derived from regular physical activity would fill many pages, the following are among the most important: reduced risk for injuries, back and neck pain; better self-control, self efficacy, and improved self-esteem; more positive outlook on life, and interpersonal relationships; improved cardiovascular endurance, muscle strength and flexibility; decreased rate of death and illness from infectious and chronic diseases (Donatelle et all, 1999). Because our concern is productivity, we will turn our attention to psychological health, to see how the active life contributes to mental health and the Joy of living.

Evidence from epidemiological studies indicates that the level of training is positively associated with good mental health. This means that exercise has a positive effect on mood, well-being in general, and infrequent symptoms of stress and depression. Thus we should not ignore the potential of this safe, low-cost therapy, especially that at any given time there are as many as 25 percent of the U.S. population that suffer from mild to moderate anxiety, depression, and other emotional disorders (Sharky, 2002).
Activity such as walking has been shown to reduce state anxiety. Regular activity or training has also been shown to reduce trait anxiety. In addition, a comprehensive statistical review of studies related to activity and depression concluded that activity significantly decreased depression for all age groups and fitness levels. Another benefit of regular physical activity is that it minimizes the effects of stress. It is relaxing and tranquilizing (Sharky, 2002). The next question that we now ask, does physical activity influence productivity at work?
LITERATURE REVIEW

The relationship between regular exercise and worker productivity in Lebanon has not been studied. Therefore a U.S. literature review was necessary. In 1992, $840 billion were spent alone on Americans’ Health Care. Now it is over a trillion dollars, consuming more than 50 percent of corporate profits. It comes as no surprise that health care has taken the number one domestic issue today (Cohen, 1992). The saying goes “healthy employees are happy employees who are then productive employees.” The economic benefits that should come from following a good fitness training program are “reduced health care and disability costs, reduced absenteeism and turnover, and increased productivity” (Cohen, 1992). Several investigators tried to investigate such sayings. Burton and al (2005) examined the associations between participating in a fitness center at work and worker productivity. Their results support the association between these two variables, with the participants having lower frequency of lost workdays.

An investigation on the role of the different risk factors related to health and disease and their relations with employees’ productivity, concluded that there is an inverse relationship between health risks and worker productivity (Burton et al, 1999). In another study done in a hospital it was found that training resulted in a significant fitness improvement for the exercise group. These findings also show that workers who participate in fitness training programs will experience an improvement in productivity and job satisfaction (Frew et al, 1988).

In a large survey done by the National Business Group on Health, findings reported “a higher worker morale and productivity by 56 percent of the companies surveyed, while 27 percent attributed reduced health care cost to their fitness program” (Meg, 2004).
Gelb (1985) found that health oriented programs focusing on fitness, preventive medicine, and stress management have been shown to increase productivity and decrease absenteeism.

Wayne Burton, MD, recently conducted one of the largest studies on productivity. He concluded that migraine headaches causes a large loss of productivity both in terms of absenteeism and impaired work capacity (Burton et all, 2002).

In a study done by Mathew and Harris, the relationship between the different components of fitness and employees productivity, job satisfaction and absenteeism were investigated. It was found that absenteeism is influenced by employees' level of flexibility. Productivity showed a trend when assessed against level of muscular strength. Job satisfaction was influenced by the level of cardiovascular fitness (Wattles et all, 2003).

These findings indicate that employees should be encouraged to exercise. Job satisfaction is related to employee productivity. “If employees feel better about their job, it may be assumed that they will want to be more productive in their position” (Wattles et all, 2003). Shepard and all stated (1981) "...possible explanations include a reduction in physical fatigue due to an increase of work capacity, a reduction of minor illness, and relief from boredom, anxiety or pent-up aggression."

An absent employee is definitely a non productive employee, particularly in tasks requiring human physical skills. In Canada the time lost from absenteeism on average is between 5 (non-union companies) to 10 (union operations) days/worker/year. This number can rise up to 20-25 days/worker/year in some European nations. Fitness programs bring those numbers down by 0.5 to 2.0 days improvement in attendance/year, saving the companies .35 % to 1.4 % of payroll costs (Shepard, 1992). Gebhart et al
(1990), also concluded that companies can save money when their employees participate in fitness programs through their reduction of absenteeism, job related injuries, and turnover.

Pender et al (1987), in a research “linking involvement in corporate health and fitness programs to measures of absenteeism” generally found that membership in fitness program decreases absenteeism.

In their study, Cox et al (1981) were able to demonstrate a 22 % decrease in absenteeism with the participation in a fitness program. The approximate savings for the company under study were $83,265/year.

Baun et al (1986) investigated absenteeism and exercise activity. His findings were that “female exercisers had 32 % fewer sick hours than the non-exercisers, but the male exercisers and non-exercisers showed no significant differences.”

Martinson (2003) suggest that by getting employees to be more active, many chronic health conditions could be prevented, and billions of dollars in health care costs could be saved. Pronk (2004) found that physical activity can help increase worker productivity through reduced absence and increased on the job performance. Therefore companies can benefit by encouraging employees to be active through lower health care costs and higher productivity (Dishman, 1998).

Berndt et al (1998), used a self-report in an effort to approximate the decrease in productivity for employees with health problems who remain at work. Employees were asked to estimate their decrease in performance that is connected with a health problem. Their study has supported the idea that productivity on the job is related to the wellness of the employee. Therefore, it seems logical to assume that an employee’s health is
related to his/her ability to be maximally productive.

LEBANON

"Lebanon is a middle income country with a population estimated at 4 million over 80% of whom live in urban areas" (www.arab.net/lebanon). As in other Arab countries the traditional lifestyle of the Lebanese revolves strongly around socialization and nuclear family orientation. Western influences, mainly French and American, have given the country a cosmopolitan face, mostly in the main cities. Lebanon has a very well educated population, one of the most technically prepared in the middle east. According to statistics of 2001, 95 percent of Lebanese aged 15 and over were literate. School attendance is compulsory for children in the primary school age (www.arab.net/lebanon). Lebanon has a highly fragmented health care system. "The civil war, which began in 1975, considerably weakened the institutional and financial capacity of the government and public sector and its role in the provision of health care services steadily declined (www.lcweb2.loc.gov). Non-governmental agencies and the private sector saw a rapid increase in both their numbers and capacity filled the vacuum. In 1998, the total expenditure on health care in Lebanon amount to 2,994,119 million LL (USD 1,916,079 million) and the per capita expenditures to 748,529 LL (USD 499). The total expenditure on health is 12.32 percent of the GDP and is higher than other countries in the regional National Health Accounts initiative (www.who.int/nha/docs/en/Lebanon).

With a good education and high level of literacy, one would expect that Lebanese workers are able to recognize the overwhelming evidence, accumulated by exercise scientists over the past 5 decades, that points to the importance of regular physical
activity to quality of life, health, and prevention and rehabilitation of many health
problems. Indeed by the 1990, thanks to many factors including a large interest in proper
nutrition, lowering the amount of dietary fat, and the increasing number of health clubs,
many people were ready to get serious about regular exercise. The importance of physical
activity has achieved widespread acceptance by the public, professional organizations,
and the medical community (www.lebanon.missouri.city-guides.com).

Even though the number of active individuals is rising, many remains completely
sedentary. The public is confused about what physical activity is recommended for health
and fitness. Unfortunately fitness training in Lebanon is seasonal. Most of those who
train in health clubs are doing so to improve their appearance and not health. Many
believe in “No Pain, No Gain”, and trains for long hours on a daily basis beyond their
natural capacity to get fast results that are unsustainable. Such type of training causes
fatigue and make long term adherence to the training program almost impossible. That is
why when we look at the number of exercise participants in Lebanon we see that health
clubs are over packed during the few months preceding the beach season and almost
empty in other months (Rizk, 2006).

Weight control has become a major issue in Lebanon. This should not be surprising, for
the few decades the media has promoted role models as being so thin that similar bodies
are all but unattainable by the majority of the population. This obsession with thinness is
so prevalent. In the united state alone, more then $30 billion is spent each year on weight
loss efforts (Donatelle et al, 1999). The promotion of extremely thin role models has
helped create a social atmosphere where overweight people are subject to social condemnation and prejudice (Sharky, 2002).
RESEARCH METHODOLOGY

One Hundred thirty-one individual workers of Beirut (Lebanon) area completed a questionnaire that measures the relationship between fitness training and productivity and job satisfaction. Random Sample procedure was employed to insure that all individuals had the same chance of being chosen for the sample. Workers were sampled from different places within the city: Banks, public restaurants, universities and customer support and services employees. The participants were given the questionnaire to fill it according to their proper time. The questionnaire were then collected after a day or two to make sure that enough time were spent on completing the survey questionnaire. On the cover page of the questionnaire the purpose of the study was explained, to encourage a quick return, and to guarantee complete confidentiality. The questionnaire was divided into three parts. The first part was used to determine employees current status, age, gender, fitness awareness and their exercise training program if there are any; the second part measured employees’ perceived productivity; and the third part measured employees’ job satisfaction:

EXERCISE PARTICIPATION

This section of the questionnaire assessed employees’ current exercise habits. The first item determined if employees’ are currently training, used to train or never did exercise in their life. Item 2 assessed the number of training sessions that are or used to be performed. Item 3 assessed the duration of each workout. The last item determined the type of workout, whether it is cardiovascular, weight-training, and/or stretching.
ASSESSING WORKER PERCEIVED PRODUCTIVITY (The Dependent Variable)

This section of the questionnaire was based on the eight-item version of the Work Limitations Questionnaire (WLQ) (Lerner et al, 2001). These 8 items were combined to evaluate the number of work time that an emotional or physical problem interfered with one or more of four work domains: time management, physical work activities, mental/interpersonal activities, and overall output. Two items were given for each work domain subscale. This questionnaire was used in studies by Burton et al (2004), Lerner et al (2001) and (2002).

EXERCISE AND WORK PRODUCTIVITY

This section of the questionnaire was comprised of seven questions measuring employees’ perception concerning exercise and its relation to work productivity. This helps us to determine productivity indirectly by giving an overall productivity score to each participant. This same questionnaire was used by many researchers such as Rudman (1987), Rudman and Steinhardt (1988) and Leutzinger and Blanke (1991).

WORKER JOB SATISFACTION

This final section was used to determine employee job satisfaction. The eight questions used help examine an overall job satisfaction score for each employee. Rudman (1987) and Rudman and Steinhart (1988) used this questionnaire in their studies
STATISTICAL ANALYSIS

SPSS program was used to code and analyze the collected data. Two statistical
techniques were used: first descriptive statistics that included frequency distributions,
mode, crosstabs, and second inferential statistics that included regression, ANOVA, and
correlation. The probability level was set at $P < 0.05$ to reach statistical significance.
HYPOTHESIS

Effect of training

H1: Participants in a fitness training program are more productive than non-participants.

Physical activity is essential to attain optimal physical and mental health. Just adding regular physical activity to the lifestyle of individuals who do not already engage in activity provides substantial increases in overall health which will improve productivity.

Effect of job satisfaction

H2: Being satisfied about one's job makes the person more productive at work.

If employees feel better about their work, it may be assumed that they will want to be more productive in their position.

Influence of aging

H3: Aging has a negative effect on productivity.

As the person ages the ability to receive, process, and transmit messages slows. Muscular strength and endurance diminish gradually, resulting in a decrease level of productivity.
RESULTS

There was a 69% response rate on the questionnaire (131/190). Female represented 66% and 71% of the respondent were full time employees. In terms of age, 45% were between 18 and 24 years and 37% between 25 and 34 years. Concerning respondents’ fitness awareness, 90% were aware about the health benefits of fitness. Less than half (38%) of participants are currently training and 43% used to train. Most of those who are training or used to train worked out on average 2-3 times/week for 1 to 1.5 hours/workout. 60% of them did cardiovascular type of training, and 50% did stretching and/or weight training.

Table 1 shows the frequency distributions concerning participants’ loss of productivity. Around 40% of respondents had problems concentrating on their work and starting job as they arrive. About 25% had problems in completing the number of working hours and finishing what they are capable of. Other problems were less frequent (<20% of participants). Figure 1 illustrates the differences in each of the four work limitation questionnaires work domain scales by depicting the differences in percentages of exercise group and non-exercise group with self-reported job limitations.

**H1:** These results provide support for the value of fitness participation on worker productivity. In each of the four work limitation domain scales, incidence and frequency of disability were lower in the exercise group.
Table 1. The Eight-Item Version of the Work Limitations Questionnaire and the number of participants who reported impairment

<table>
<thead>
<tr>
<th>Subscale</th>
<th>Item</th>
<th># of participants reporting impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Management</td>
<td>Work the required number of hours</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Start on job as soon as you arrive at work</td>
<td>50</td>
</tr>
<tr>
<td>Physical Work</td>
<td>Repeat the same hand motion over and over again while working</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Use your equipment (phone, pen, keyboard, computer mouse)</td>
<td>16</td>
</tr>
<tr>
<td>Mental/Interpersonal</td>
<td>Concentrate on your work</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Help other people to get work done</td>
<td>25</td>
</tr>
<tr>
<td>Work Output</td>
<td>Do the required amount of work on your job</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Feel you have done what you are capable of doing</td>
<td>30</td>
</tr>
</tbody>
</table>

Figure 1: Percentage of participants who exercise (n = 50) and who are not exercising (n = 81) reporting any work limitation in past month.
EXERCISE AND WORK PRODUCTIVITY

Table 2 shows the “frequency distributions concerning the direct relationship between exercise and personal work productivity.” Around 80 % of the participants agreed or strongly agreed that exercise help them be more productive at work and relax better at home. Around 70 % think that exercise help them concentrate on work tasks, enjoy their work better and think more clearly about work-related problems. Around 55 % think that exercise help them relate better to their co-workers and did not agree that exercise has no effect on how you perform at work. For most questions an average of 20 % answered by “Undecided”. There was no significant relationship between exercise participation and employees believing that exercise help work productivity.

Table 2. Frequency distributions of employee perceptions concerning the relationship between exercise and work productivity

<table>
<thead>
<tr>
<th>Exercise and work productivity</th>
<th>SD</th>
<th>D</th>
<th>UD</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be more productive at work</td>
<td>8</td>
<td>5</td>
<td>13</td>
<td>64</td>
<td>41</td>
</tr>
<tr>
<td>Relax better at home</td>
<td>5</td>
<td>9</td>
<td>14</td>
<td>66</td>
<td>37</td>
</tr>
<tr>
<td>Think more clearly about work-related problems</td>
<td>6</td>
<td>13</td>
<td>25</td>
<td>57</td>
<td>30</td>
</tr>
<tr>
<td>Concentrate on work tasks</td>
<td>5</td>
<td>12</td>
<td>31</td>
<td>57</td>
<td>26</td>
</tr>
<tr>
<td>Enjoy work better</td>
<td>8</td>
<td>10</td>
<td>20</td>
<td>69</td>
<td>24</td>
</tr>
<tr>
<td>Relate better to co-workers</td>
<td>9</td>
<td>13</td>
<td>40</td>
<td>51</td>
<td>18</td>
</tr>
<tr>
<td>Has no effect on work performance</td>
<td>34</td>
<td>39</td>
<td>29</td>
<td>22</td>
<td>7</td>
</tr>
</tbody>
</table>

Values represent number of participants
SD = Strongly Disagree; D = Disagree; UD = Undecided; A = Agree; SA = Strongly Agree
JOB SATISFACTION

Table 3 shows “the frequency distributions concerning employees’ job satisfaction with their jobs.” More than half of the participants were interested (52 %), happy (65 %), enthusiastic (53 %) and fairly satisfied (61 %) with their jobs and employers. Around 20% were undecided or felt that they are bored with their work, have to force themselves to get there, and feel that working days never end.

<table>
<thead>
<tr>
<th>Exercise and Job Satisfaction</th>
<th>SD</th>
<th>D</th>
<th>UD</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job is interesting enough to avoid boredom</td>
<td>13</td>
<td>29</td>
<td>21</td>
<td>57</td>
<td>11</td>
</tr>
<tr>
<td>Often bored with job</td>
<td>28</td>
<td>49</td>
<td>34</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Fairly well satisfied with present job</td>
<td>7</td>
<td>23</td>
<td>21</td>
<td>56</td>
<td>24</td>
</tr>
<tr>
<td>Most of the time force oneself to go to work</td>
<td>25</td>
<td>53</td>
<td>23</td>
<td>26</td>
<td>4</td>
</tr>
<tr>
<td>Feel happier in job than most people</td>
<td>4</td>
<td>19</td>
<td>23</td>
<td>69</td>
<td>16</td>
</tr>
<tr>
<td>Enthusiastic about work</td>
<td>4</td>
<td>19</td>
<td>39</td>
<td>63</td>
<td>6</td>
</tr>
<tr>
<td>Each day at work seems it will never end</td>
<td>20</td>
<td>59</td>
<td>30</td>
<td>16</td>
<td>6</td>
</tr>
</tbody>
</table>

Values represent number of participants
SD = Strongly Disagree; D = Disagree; UD = Undecided; A = Agree; SA = Strongly Agree

CROSSTABS ANALYSIS

To examine the relationship between the different variables, crosstabs analysis was used.

**H1:** There was no significant relation between exercise participation and loss of productivity at work, but there was a significant (Pearson chi-square = 0.002) negative relation (interval by interval Pearson’s R = - .053) with the number of times per month where a loss of productivity was felt.
**H1:** When looking at the number of times ones' train per week, a significant (0.000 - 0.016) negative small relation was found with participants perception that exercise help them relax better (R = -0.053) and think more clearly about work-related problems (R = -0.118). A positive relation was found with participants perception that exercise help them enjoy their work better (R = 0.098) relate better to their co-workers and finding ones job interesting enough to avoid boredom.

**H1:** When a crosstabs was done between the duration of the workout and other variables a significant (0.006 - 0.048) positive relation with the perception that exercise help the person to enjoy his work better (R = 0.066), relate better to his co-workers (R = 0.020), and finding ones' job interesting (R = 0.166). A negative relation was found with the perception that the workout help one to be more productive at work (R = -0.030), relax better at home (R = -0.064), think clearly about work-related problems (R = -0.162) and finding ones' job boring (R = -0.236).

**H1:** A crosstabs relation was also found between the type of exercise performed and other variables. There is a positive relation (R = 0.104) between performing cardiovascular training and enjoying work better. Also a positive relation was found between performing weight training exercise and the perception that exercise help one be more productive at work (R = 0.160), relax better at home (R = 0.207), concentrate on work tasks (R = 0.142) and finding the job interesting enough to avoid boredom (R = 0.245). A negative relation was found between doing stretching exercise and enjoying work better (R = -0.270), and relating better to co-workers (R = -0.268).

**H2:** Another variable that seems to influence productivity is job satisfaction. Finding the job interesting seem to have a significant (0.000 - 0.045) negative relation with starting
work upon arrival (R = -.073), loss of ability to use equipment (R = -.142), concentrating on ones’ work (R = -.188) and finishing all work that need to be done (R = -.180).

H3: Being satisfied with the present job have a negative relation with ability to use equipment (R = -.222) and finishing all work that need to be done (R = -.221). A reduction in the ability to use equipment seems to have a negative relation with feeling happy at work (R = -.213) and a positive one with forcing oneself to go to work (R = .288). Finally there seems to be a positive relation (R = .140) between feeling that working days are never ending and loosing the ability to help other people to get work done.

CORRELATIONS

There are no correlation (sign > .09) found between exercise training and loss of productivity at work.

REGRESSION

A regression analysis was performed using job category, whether one exercise or not and age group as the independent variables and loss of productivity or perceived exercise relation with productivity as the dependent variable. Results indicate that there are ANOVA Regression significance (.000 - .040) for several variables.

H3: As the age group increase (sig = .047) by a decade, the loss of ability to repeat the same hand motion increase by (Unstandardized coefficients) .0692 ± .034 (R² = 1.33 and F = 3.315), and finding ones’ job interesting increase by .237 ± .107 (R² = .70 and F = 3.183).
**H1:** When one don’t exercise (sig = .038), the loss of ability to use equipment decrease by $0.0782 \pm 0.037 (R^2 = 1.87$ and $F = 6.494)$, and their enthusiasm about their job decreases by $0.287 \pm 0.106 (R^2 = 0.063$ and $F = 2.861$).

Another regression analysis was performed using job satisfaction or dissatisfaction as the independent variables and loss of productivity as the dependent variable. Several results were found to have a significant ANOVA Regression ($0.002 - 0.013$).

**H2:** The happier one feels about their job, the more they concentrate on their work by a coefficient $-0.131 \pm 0.050 (R^2 = 3.58$ and $F = 4.009)$, the more they do the required amount of work on job by a coefficient $-0.798 \pm 0.039 (R^2 = 0.126$ and $F = 4.530)$, and the more one is able to work to his capacity by a coefficient of $-0.0919 \pm 0.043 (R^2 = 0.116$ and $F = 4.125)$. Finally the more one feel he is forcing himself to go to work the less is his capacity to use his equipment at work by a coefficient of $0.101 \pm 0.028 (R^2 = 0.104$ and $F = 4.903)$. 
DISCUSSION

The connection between fitness training and work performance in Lebanon has not been previously studied. There was a 69% return rate on the questionnaire (131/190). The participants were given questionnaires to find their current exercise status and the influence this might have on their productivity and job satisfaction. Nearly all of the participants (90%) stated that they are aware about the health benefits of fitness. This was expected considering that Lebanese are well educated people (www.arab.net/lebanon). In this study, it appears that fitness awareness is not a good enough reason to engage in regular physical activity. Only 38% of participants were currently training. It may be interesting to see what is needed to contribute toward the motivation and adherence of employee fitness programs. Burton et al (2005) demonstrated significant differences in reported work impairment between fitness center participants and non-participants. In addition, the study findings indicate that participants had fewer average number workdays lost per year than non-participants. Lechner et al (1997) reported that inactive individuals have higher health care costs and absence than active individuals. This study provides support for the value of fitness participation on worker productivity. In each of the four work limitation questionnaires, work domain scales, incidence and frequency of disability were lower in the exercise group.

In addition to the studies which have used productivity measures, a few studies have found consistently higher ratings of perceived work efficiency in physically active employee groups than non active groups (Lynch et al, 1990). The current study builds on previous positive findings indicating an increased enthusiasm towards job (H2) and improvement in the ability to use equipment with the exercise group (H1). An increase in
the number of training sessions per week as well the duration of each session seems to
decrease the ability of participants to relax better and think more clearly about work-
related problems. This can be explained by the fact that too much exercise can lead to
overtraining especially if one is on a diet trying to seek a lean, toned body (Sharkey,
2002). An increase in the amount of exercise did show however a positive influence on
work enjoyment, relating better to co-workers, and finding ones job more interesting.
This dose-response analysis may indeed demonstrate that the mental interpersonal
domain requires a higher or more moderate threshold of physical fitness in order to
demonstrate statistical significance. Future studies should consider searching for specific
duration or intensity that must be reached before resulting in improved productivity
related to mental interpersonal health.

The type of exercise seems to have some influence on productivity. Findings in this study
indicate that cardiovascular training seems to help in enjoying work better. Weight
training seems to influence the perception that exercise help one be more productive,
relax better, concentrate on work tasks and increase interest in job enough to avoid
boredom. Wattles and Harris (2003) found that employees’ cardiovascular endurance
predicted their job satisfaction, where muscular strength predicted their perception of
their work productivity. Worker with more muscular strength can afford to be more
physically taxed then those with less strength. “This may make employees physical work
feel less demanding and may have contributed to their feelings of increased productivity”
(Bernacki and Baun, 1984). “Employees with higher levels of cardiovascular endurance
have greater cardiovascular efficiency, tend to feel less tired, may enjoy work better, and
therefore feel more satisfied at work” (Pauly et al, 1982). The findings of this research
indicate that muscular strength and cardiovascular endurance should be included when developing employee fitness programs. Other findings is that job satisfaction by itself seems to have a positive influence on productivity (H2), where aging seems to have a negative one (H3). Future research can be done comparing exercise participants to non participants in the same age group and the same category of job satisfaction.

CONCLUSION

This study has shown that exercising may positively influence employee self-reported, work-related productivity and job satisfaction. There are many factors that may contribute to workers productivity and job satisfaction, but according to this study exercise is one factor that should not be ignored. This research should add insight for managers to implement programs that encourage employees to engage in regular physical activity. Such programs could increase employees’ health, lower health care costs and enhance employee productivity. Access to convenient fitness facilities may be important to encourage a large number of employees in engaging in regular physical activity as long as these facilities are well supervised by individuals within the exercise science field. This way programs can be implemented to ultimately benefit the health and productivity of employees.

RECOMMENDATION

Overall, these findings indicate an association between fitness participation and reduced lost productivity from work impairment on the job compared to no-participation. If successful, both employees and employers will benefit from increased workforce activity. Employees who exercise regularly benefit from improved health and from lower out of
pocket medical expenses. Employers with more physically fit workers are likely to reduce their employee health costs and lost productivity. Additional research in this area should provide practical insight required to determine the relationship between exercise and decreased health care costs. With a good return on investment, organizations would invest a lot of money to help their workers participate in training programs.

Engaging employees in regular physical activity is challenging. If employers want to increase fitness participation, they should consider providing additional incentives to encourage the use of training programs.

It is very difficult to quantify productivity levels. Much of the research done on the relationship between fitness training and job performance has used indirect rather than direct measures to determine productivity. Future studies should use company job performance ratings or supervisor ratings rather than employees’ perception of their productivity. A direct measure may be more convincing to management and may increase their funding of fitness training participation programs.

An additional limitation is that this study did not measure participant fitness level. Future studies should determine whether higher levels of physical fitness result in higher levels of work-related productivity. Tracking physical activity of participants outside the training session should be implemented in future studies as well, so that total activity can be accounted for. This way the proper exercise prescription can be found so that both employees and employers can truly benefit.
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APPENDIX

Sample of Questionnaire
Research Project Questionnaire
Fitness Training and Work Productivity in Lebanon

My name is Wael Jaber. I am doing this research study as part of my MBA at LAU. All information in this questionnaire will remain confidential. Thank you very much for your participation. Please read each question thoroughly and answer the best of your knowledge.

1) Currently you are working:
   □ Full-time       □ Part-time       □ Other:

2) Your age is between:
   □ 18-25       □ 25-34       □ 35-44       □ 45-55       □ 55+

3) □ Male       □ Female

4) Are you aware about the benefits of fitness training exercise:
   □ Yes       □ No

5) Do you (or used to) do any type of fitness training:
   □ Yes, I am currently training □ Yes, I used to train □ No, never

6) If yes:

   I. How many times/week:
      □ 1       □ 2       □ 3       □ 4       □ 5
      □ 6       □ everyday

   II. How long does it take you to finish your workout
       □ ½-1 hour □ 1-1 ½ hour □ 1 ½ -2 hours
       □ more then 2 hours

   III. Your workout includes which of the following (you can check more then one answer):
       □ Cardiovascular    □ Weight-training    □ Stretching

Cardiovascular = Treadmill, Bike, EFX... or group fitness classes (Tae Bo, Aerobics...)
Stretching = Flexibility exercises, or Yoga type of classes
7) In the past month which of the following tasks did your physical health or emotional problems make it difficult for you to complete as required (you may check more than one item):

- Work the required number of hours □
- Start on your job as soon as you arrived at work □
- Repeat the same hand motions over and over again while working □
- Use your equipment (i.e. phone, pen, keyboard, computer mouse) □
- Concentrate on your work □
- Help other people to get work done □
- Do the required amount of work on your job □
- Feel you have done what you are capable of doing □

8) How many times in the last month at least one of the above items occurred:
□ once □ twice □ three times □ four times
□ five times □ six times □ Seven times or more

9) In your opinion, do you feel that exercise help you:

- Be more productive at work SD D UD A SA
- Relax better at home SD D UD A SA
- Think more clearly about work-related problems SD D UD A SA
- Concentrate on work tasks SD D UD A SA
- Enjoy your work better SD D UD A SA
- Relate better to your co-workers SD D UD A SA
- Has no effect on how you perform at work SD D UD A SA

SD = Strongly Disagree; D = Disagree; UD = Undecided;
A = Agree; SA = Strongly Agree
- My job is usually interesting enough to keep me from getting bored
  SD D UD A SA

- I am often bored with my job
  SD D UD A SA

- I feel fairly well satisfied with my present Job
  SD D UD A SA

- Most of the time I have to force myself to go to work
  SD D UD A SA

- I feel Happier in my job than most other People
  SD D UD A SA

- Most days I am enthusiastic about my work
  SD D UD A SA

- Each day seems like it will never end in my work
  SD D UD A SA

SD = Strongly Disagree;     D = Disagree;     UD = Undecided;
A = Agree;               SA = Strongly Agree

Thank you for taking the time to complete this questionnaire