

# Effectiveness of Brain Gym Exercise Versus Stretching in Relieving Mental Fatigue among Information Technology Workers: A Randomized Controlled Trial

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**Abstract- Background:** Mental fatigue is highly prevalent among information technology (IT) workers due to prolonged screen exposure, high cognitive demands, and sedentary work patterns. Exercise-based interventions such as Brain Gym and stretching are simple, cost-effective strategies to reduce fatigue. **Objective:** To compare the effectiveness of Brain Gym exercises versus stretching in relieving mental fatigue among IT workers. **Methods:** A randomized controlled trial was conducted on 72 IT workers aged 20–30 years. Participants were randomly allocated into Group A (Stretching) and Group B (Brain Gym exercises). Interventions were administered for four weeks, three sessions per week. Mental fatigue was assessed using the Mental Fatigue Scale (MFS). Pre- and post-intervention data were analyzed using paired t-tests. **Results:** Both groups demonstrated a statistically significant reduction in mental fatigue scores. The stretching group showed significant improvement ( $p=0.0423$ ), while the Brain Gym group demonstrated a greater reduction ( $p=0.0047$ ). **Conclusion:** Both stretching and Brain Gym exercises are effective in reducing mental fatigue among IT workers; however, Brain Gym exercises were found to be more effective.

**Keywords:** Mental Fatigue, Brain Gym, Stretching, IT Workers, Physiotherapy

## I. INTRODUCTION

Mental fatigue is a psychophysiological condition characterized by reduced cognitive efficiency, diminished motivation, and feelings of exhaustion following prolonged mental activity. With globalization and rapid technological advancements,

work-related stress has emerged as a major occupational health concern, particularly among IT professionals<sup>1</sup>. Studies report that the prevalence of occupational stress among IT workers ranges from 44% to 85%<sup>2</sup>.

Sustained computer use, prolonged sitting, and high job demands contribute to both mental fatigue and musculoskeletal complaints<sup>3–5</sup>. These factors negatively influence work performance, productivity, and overall quality of life.

Brain Gym exercises are structured movements designed to enhance brain integration, improve cognitive function, and reduce stress by stimulating bilateral brain activity<sup>6–8</sup>. In contrast, stretching exercises aim to reduce muscle tension, enhance flexibility, and promote relaxation, thereby indirectly alleviating mental fatigue<sup>9–10</sup>.

Although Brain Gym has been studied for attention, cognition, and balance, limited research exists on its role in mental fatigue. Therefore, this study aimed to compare the effectiveness of Brain Gym exercises and stretching in reducing mental fatigue among IT workers.

## II. MATERIALS AND METHODS

**Study Design:** Experimental randomized controlled trial.

**Sample Size:** 72 IT workers (36 in each group).

**Sampling Method:** Purposive sampling.

**Study Duration:** Six months, with intervention lasting four weeks (three sessions per week).

**Study Area:** Pimpri-Chinchwad and Pune region.

Inclusion Criteria included IT workers aged 20–30 years with more than one year of work experience and a Mental Fatigue Scale score greater than 10.5. Individuals with musculoskeletal disorders or those on mental health medications were excluded.

Outcome Measure: Mental Fatigue Scale (MFS), which demonstrates good reliability ( $\alpha=0.84$ )<sup>11</sup>.

Participants were randomly divided into two groups using the chit method. Group A received stretching exercises, while Group B received Brain Gym exercises. Pre- and post-intervention assessments were conducted after four weeks.

### III. RESULTS

A total of 72 IT workers participated in the study. Both intervention groups demonstrated statistically significant improvements in mental fatigue scores. The stretching group showed a significant reduction in mental fatigue ( $p=0.0423$ ;  $t=-9.312$ ). The Brain Gym group exhibited a highly significant reduction ( $p=0.0047$ ;  $t=-11.485$ ), indicating a greater effect size. Comparative analysis revealed that Brain Gym exercises were more effective than stretching in alleviating mental fatigue among IT workers.

### IV. DISCUSSION

The findings of the present study demonstrate that both stretching and Brain Gym exercises significantly reduce mental fatigue among IT workers. Stretching exercises likely reduced fatigue by relieving muscle tension, improving blood circulation, and promoting relaxation, which aligns with previous studies on work-related musculoskeletal disorders<sup>9–10</sup>.

However, Brain Gym exercises resulted in a greater reduction in mental fatigue. These exercises enhance interhemispheric communication, improve attention, concentration, and cognitive processing, and facilitate stress reduction<sup>6–8</sup>. Similar findings were reported by Ismayenti et al.<sup>12</sup>, who observed reduced fatigue with Brain Gym-based interventions.

Given the high cognitive demands of IT work, interventions targeting both neurological and physical components appear to be more effective. Brain Gym exercises, therefore, may offer a superior approach for managing mental fatigue in this population.

### V. CONCLUSION

Both Brain Gym and stretching exercises are effective in reducing mental fatigue among IT workers. However, Brain Gym exercises demonstrated significantly greater effectiveness. Incorporating Brain Gym exercises into workplace wellness programs may enhance mental well-being and work performance.

### LIMITATIONS

Small sample size and short study duration.

### FUTURE SCOPE

Larger studies and longer duration research are recommended.

### VI. ACKNOWLEDGEMENT

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