Promoting Physical and Mental Health in Blue-Collar Industries: A Longitudinal Study Using Novel Behavioral and Organizational Interventions and Composite Metrics

Ashley Matejka , Marcos A. Sanchez-Gonzalez * , Syed A. A. Rizvi , Troy Grogan , David Harris

Posted Date: 9 March 2026

doi: 10.20944/preprints202603.0623.v1

Keywords: workplace wellness program; physical fitness; psychological distress; occupational health; longitudinal evaluation; blue-collar workers

 doi:10.20944/preprints202603.0623.v1

Article

Promoting Physical and Mental Health in Blue-Collar Industries: A Longitudinal Study Using Novel Behavioral and Organizational Interventions and Composite Metrics

Ashley Matejka [1], Marcos A. Sanchez-Gonzalez [1,2,*], Syed A. A. Rizvi [3], Troy Grogan [1] and David Harris [4]

[1] Research & Development, QHSLab, Inc, West Palm Beach, FL, USA
[2] School of Health Services Administration, Lake Erie College of Osteopathic Medicine (LECOM), Bradenton, FL, USA
[3] College of Biomedical Sciences, Larkin University, Miami Gardens, FL, USA
[4] Research & Development, Greatest Resource Pty Ltd., Seattle, WA USA
* Correspondence: msanchez-gonzalez@lecom.edu; Tel.: +1 (850) 559-47676

Abstract

This longitudinal evaluation examined the effectiveness of a tailored workplace wellness program in improving physical fitness and psychological well-being among employees in labor-intensive industries. Data were drawn from 2,964 workers (80.7% men; mean age 40.4 years) participating in the AlphaOne Health and Fitness Program across industrial sites in Australia between 2003 and 2010, representing mining, utilities, emergency services, and transportation sectors. Outcomes included the Total Fitness Index (TFI), a composite measure of biomedical, fitness, behavioral, and psychosocial indicators, and the Q-Negative (Q-NEG) subscale of the Quality-of-Life Scale, which assesses psychological distress. Pre- and post-program comparisons were conducted using descriptive statistics and chi-square tests. Participants exhibited significant improvements in physical fitness (TFI 15.1 to 15.6; $\Delta = +0.47$; $p < 0.001$) and psychological well-being (Q-NEG 10.9 to 10.3; $\Delta = -0.56$; $p < 0.001$) over 12–18 months, with notable upward movement in TFI category classifications. Enhanced physical fitness was strongly associated with reduced psychological distress ($\chi^2 = 98.73$; $p < 0.001$). These findings indicate that tailored wellness initiatives for blue-collar workers can produce meaningful gains in both physical and mental health, and that multidimensional assessment tools such as TFI and Q-NEG are valuable for capturing the impact of integrated workplace health strategies across high-risk labor sectors.

Keywords: workplace wellness program; physical fitness; psychological distress; occupational health; longitudinal evaluation; blue-collar workers

1. Introduction

Workplace health promotion programs (WHPPs) are now widely recognized as effective organizational strategies to enhance employee well-being and reduce escalating healthcare costs, with the workplace acknowledged as a critical setting for achieving public health goals [1]. Pelletier's systematic reviews consistently demonstrate that comprehensive health promotion and disease management initiatives improve health behaviors and risk profiles while reducing organizational costs, establishing a strong empirical foundation for workplace wellness investment [2,3]. Goetzel and colleagues further validated this by showing that multi-component wellness programs deliver both health and economic benefits across industries, positioning them as vital population health strategies [4,5]. Over several decades, innovations in WHPPs have produced diverse interventions

 doi:10.20944/preprints202603.0623.v1

with varying levels of evidence, targeting issues such as disease and injury prevention, lifestyle modification, mental health, and organizational and environmental change.

Despite this progress, most WHPP research has focused on white-collar or higher socioeconomic status (SES) industries, leaving blue-collar (BC) workers comparatively underrepresented [6]. This represents a critical oversight, as BC workers constitute nearly one-third of the global workforce and face disproportionate exposure to overlapping occupational and lifestyle risks. Predominantly male, this population experiences hazardous working conditions—heavy physical labor, ergonomic strain, noise, and environmental exposures—alongside higher prevalence of modifiable risk factors such as smoking, poor nutrition, obesity, and hazardous alcohol consumption. Sorenson aptly described this intersection as "Double Jeopardy" [7]. These challenges are magnified by an ageing workforce, with the average age in many labor-intensive sectors now approaching 50 years (ref). Additionally, shift work, prevalent in industries such as mining, utilities, transport, and emergency services, is itself an independent risk factor for cardiovascular disease, diabetes, and mood disorders [8]. Psychosocial dimensions low job control, limited autonomy, and reduced job satisfaction further contribute to stress, anxiety, and depression [9,10]. Importantly, because BC industries are deeply embedded in local communities, effective interventions can generate multiplier effects, benefiting workers' families and neighborhoods in ways not typically observed in white-collar contexts.

Given these intersecting vulnerabilities, there is a strong rationale for wellness programs explicitly tailored to BC populations that integrate both physical and psychosocial health. Foundational occupational stress frameworks such as Karasek and Theorell's demand-control-support model and Marmot and Wilkinson's work on social determinants of health-highlighted decades ago that health outcomes are shaped as much by psychosocial context as by biomedical risks [9–12]. Contemporary evidence reinforces this, showing that integrated, multi-level approaches are most effective when they simultaneously reduce workplace hazards, strengthen organizational supports, and build individual resilience [13,14].

The AlphaOne Health and Fitness Program was designed within this paradigm, combining functional fitness assessments, ergonomic risk reduction, and structured team-based learning modules ("Health Journeys") with measures of psychological well-being, including the Q-Scale. This design provides a unique opportunity to evaluate how mind–body interventions can enhance both physical and psychological outcomes in an understudied, high-risk workforce.

2. Materials and Methods

2.1. Study Design

This study addresses a critical gap in workplace wellness research by evaluating the impact of the AlphaOne Health and Fitness Program, a longitudinal, multi-level health promotion initiative designed specifically for blue-collar workers. The program was implemented across a range of Australian industrial worksites between 2003 and 2010, engaging employees in physically demanding sectors such as mining, utilities, emergency services, and transportation. Although delivered more than a decade ago, the program's core principles remain highly relevant to contemporary occupational health practice, particularly in industries where physical hazards and psychosocial stressors intersect.

2.2. Program Design

The AlphaOne Program developed an implementation model derived from the Australian National Workplace Health Project [15,16]. Program delivery followed a staged approach: wherein company executives were engaged as "organizational gatekeepers". Program delivery then engaged with site managers to then proceed to reach teams of workers. Individual-level and team-based interventions of the program (detailed below) drew heavily on theoretical principles derived from the Transtheoretical Model of Behavior Change and principles of Motivational Interviewing, emphasizing readiness for change, personalized goal setting, and autonomy-supportive

 doi:10.20944/preprints202603.0623.v1

communication [17,18]. This layered design enabled AlphaOne to address organizational culture and policy alongside individual and team behaviors.

2.3. Measures

Participants completed a standardized HFA, which incorporated biomedical, functional fitness, lifestyle, and psychosocial domains. These measures were used to generate risk codes at the individual level and to aggregate workforce risk profiles at the group level. Psychosocial outcomes were assessed with the Q-Scale, a multidimensional measure of well-being, stress, sleep, pain, and job satisfaction [19]. The Q-Scale measure captures emotional burden, stress, and subjective well-being. A Q-NEG score ≥11 indicates elevated psychological distress and has been linked to overutilization of healthcare services in primary care settings. Table 1 summarizes the standardized framework of biomedical, functional fitness, lifestyle, psychosocial, and composite measures applied in the AlphaOne Program, along with their risk coding structure and interpretation. Collectively, these measures encompassed biomedical (e.g., blood pressure, BMI, waist–hip ratio), physical fitness (heart rate response to the 3-min step test), strength (flexed-arm hang, push-up, squat), flexibility (sit-and-reach), behavioral (exercise, diet, smoking, alcohol), and psychosocial domains (Q-Scale). Such breadth of direct, hands-on measurement, combined with one-to-one counseling, is uncommon in workplace health programs today due to time and cost constraints. As a result, the AlphaOne dataset represents a rare and valuable contemporary resource, offering insights that remain highly relevant to present-day workplace health promotion.

Table 1. Framework of measures used in the AlphaOne Program.

Domain	Measures (examples)	Risk Coding (low/moderate/high)	Notes
Biomedical	Blood pressure, BMI, waist–hip ratio, lung function	A/B/C categories	Clinical referral for "C" risk
Functional fitness	Step test, push-ups, static squat, sit-and-reach	Fitness code (1–3)	Based on occupational norms
Lifestyle behaviors	Smoking, alcohol, diet, physical activity	Health habits code (red/amber/green)	Self-report + coded risk
Psychosocial	Q-Scale (sleep, stress, job satisfaction, mood, pain)	Subscale scores; Q-NEG ≥11 = high risk	Linked to TFI
Composite index	TFI	0–9 point scale	Integrates all domains (same weight)

2.4. Intervention

The intervention was delivered as a multilevel program combining individual assessments, group learning, and organizational strategies. Central to the model were Health Journeys, structured modules that combined education, cognitive-behavioral skills training, ergonomic strategies, and peer support on topics such as physical fitness, pain management, stress, and sleep. These team-based activities were reinforced by environmental supports at the worksite (e.g., ergonomic adjustments, healthier food options) and individualized counseling based on assessment results. Table 2 outlines

 doi:10.20944/preprints202603.0623.v1

the multilevel structure of the AlphaOne Program, detailing strategies and examples at the organizational, environmental, team-based, and individual levels.

Table 2. AlphaOne Program Levels.

Level	Strategy	Examples
Organizational	Executive and manager engagement	Secure leadership support; align with Occupational Health and Safety policy
Environmental	Worksite supports	Ergonomic adjustments; healthy food access
Team-based	Health Journeys	Modules on stress, sleep, pain, and injury prevention
Individual	Personalized counseling & goal setting	Feedback from HFA; motivational interviewing; tailored exercise plan

2.5. Outcome Measures

To assess the program's effectiveness, the TFI was developed as a composite score integrating both physical and mental fitness domains. The TFI incorporated seven established physical fitness indicators, cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition, along with a measure of psychological well-being, assessed through the Q-NEG score. Table 3 details the assessment domains incorporated into the TFI and the standardized protocols used to evaluate each component.

Table 3. TFI Components and Assessment Protocols.

TFI Component	Assessment Protocol
Cardiovascular Endurance	Assessed using the YMCA 3-Minute Step Test, a validated submaximal measure of aerobic capacity [20]. Participants performed a continuous stepping sequence on a 12-inch platform for three minutes at a cadence of 96 beats per minute, guided by a metronome. Immediately following the test, recovery heart rate was recorded; lower values indicated higher levels of aerobic fitness.
Muscular Strength	Assessed using a standardized push-up test. Participants were instructed to perform as many properly executed push-ups as possible, up to a maximum of 20 repetitions. Men performed push-ups from the toes, while women used a modified position from the knees. Proper form required the chest to lower within 1–2 cm of the floor, followed by full arm extension.
Muscular Endurance	Assessed through two exercises: Flexed-Arm Hang: Participants maintained a chin-above-bar position for as long as possible, with time recorded in seconds to a maximum of 20 seconds. Static Wall Squat: Participants held a 90-degree knee-angle squat against a wall until fatigue or a maximum of three minutes.
Flexibility	Assessed using two measures:

 doi:10.20944/preprints202603.0623.v1

	Sit-and-Reach Test: Evaluating hamstring and lower back flexibility through forward reach with extended legs. Hip Flexor Mobility Test: Assessing hip extension range while maintaining a neutral pelvis.
Body Composition	Calculated using Body Mass Index (BMI) and Waist-to-Hip Ratio (WHR). BMI was derived from height and weight (kg/m²), and WHR provided an estimate of central adiposity and related metabolic risk.
Psychological Well-Being	Psychological distress was assessed using the Q-NEG score, derived from the validated Q-Scale.[19] This measure captures emotional burden, stress, and subjective well-being. A Q-NEG score ≥11 indicates elevated psychological distress and has been linked to overutilization of healthcare services in primary care settings.

2.6. Scoring System

Each of the seven physical fitness indicators was rated initially in the dataset on a scale from 0 to 4, where 0 represented the lowest risk and 4 the highest. For TFI scoring, this scale was inverted to reflect respective fitness status: scores of 0 or 1 were recoded as 3 (highest fitness), a score of 2 as 2 (moderate fitness), and scores of 3 or 4 as 1 (lowest fitness). The total TFI score was then calculated by summing these recoded values across all seven components. Lastly, a point was subtracted from the summed TFI for participants with elevated psychological distress (Q-NEG ≥ 11), slightly reducing their overall fitness score. This produced a total TFI score ranging from 7 (lowest fitness) to 22 (highest fitness). Participants were subsequently categorized into Low Fitness (TFI score ≤ 10), Moderate Fitness (11–15), or High Fitness (≥ 16).

2.7. Ethical Considerations and Institutional Review

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. It was reviewed and deemed exempt from Institutional Review Board (IRB) oversight under institutional policies pertaining to secondary research involving de-identified data. The IRB at Lake Erie College of Osteopathic Medicine granted this exemption under Protocol #32-130, titled Health Journeys and Occupational Wellness: A Retrospective Analysis of Physical and Mental Health Outcomes in Blue-Collar Workers.

2.8. Statistical Analysis

Descriptive statistics were used to summarize participant characteristics, including age, gender, and baseline distributions of TFI scores, Q-NEG scores, and TFI fitness categories. Additionally, frequency counts were used to describe categorical shifts in TFI classifications (High, Moderate, Low) from baseline to follow-up and changes in Q-NEG status, which were categorized as Improved, No Change, or Worsened. Paired t-tests were conducted to evaluate within-subject changes in TFI and Q-NEG scores from baseline to follow-up. To assess categorical transitions in physical fitness, a TFI category shift matrix was created, and participants' movement between fitness categories was examined across time points. This matrix was further segmented by Q-NEG change status to explore associations between psychological improvements and physical fitness outcomes. To statistically evaluate the relationship between changes in psychological and physical health, a chi-square test of independence was performed to assess the association between Q-NEG change status and TFI category shifts. All analyses were conducted using RStudio and statistical significance was defined as $p < 0.05$.

 doi:10.20944/preprints202603.0623.v1

2.9. Role of the Funding Source

QHSlab supported this study. The authors had full access to the corresponding data used in the analysis. QHSlab did not influence the data interpretation. The authors accept full responsibility for the content and the decision to publish, and no author received payment from a pharmaceutical company or other external agency for writing this article.

3. Results

A total of 2,964 participants with matched baseline and follow-up assessments were included in the final analysis. The population was predominantly male, with 80.65% identified as male and 19.35% as female. The mean participant age was 40.4 years, reflecting a mid-career workforce typical of trade, transport, and labor-intensive industries. At baseline, the average TFI score was 15.1 (SD = 3.42), and the average Q-NEG score was 10.9, indicating elevated levels of psychological distress and moderate overall fitness across the cohort. By follow-up, the average TFI score had increased to 15.6 (SD = 3.48), and the average Q-NEG score had decreased to 10.3. Paired t-tests revealed statistically significant improvements in both physical and mental health. TFI scores increased by an average of 0.47 points ($t = 9.50$, $p < 0.001$), indicating enhanced overall fitness when using the revised scoring system in which higher scores reflect better fitness. Q-NEG scores declined by an average of 0.56 points ($t = -10.60$, $p < 0.001$), reflecting a reduction in psychological distress across the sample. These patterns are further illustrated in Figure 1, which shows the percent change in TFI and Q-NEG scores from baseline to follow-up. The average TFI score increased by 3.1%, while Q-NEG scores decreased by 5.1% (n = 2,964), both changes representing meaningful improvements in occupational wellness over time (Figure 1).

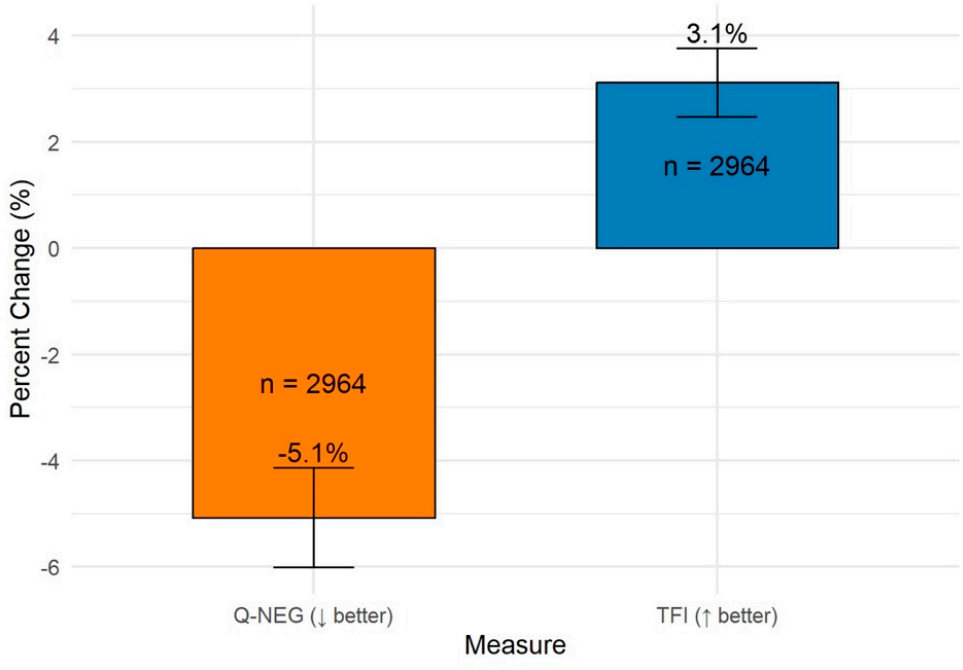

Figure 1. Percent Change in TFI and Q-NEG Scores Over Time. Note: Bar chart depicting percent change in TFI and Q-NEG scores over the 12–18 month follow-up period (n = 2,964). Error bars represent standard error of the mean. TFI scores reflect physical fitness, where higher scores are better; Q-NEG scores reflect psychological distress, where lower scores are better.

To further explore changes in fitness classification, a TFI category shift matrix was generated. Participants were categorized as Low Fitness (TFI score ≤10), Moderate Fitness (11–15), or High Fitness (≥16) based on their composite scores. At baseline, 21.4% of participants were classified as Low Fitness, 46.2% as Moderate Fitness, and 32.4% as High Fitness. By follow-up, a portion of

 doi:10.20944/preprints202603.0623.v1

participants demonstrated improvement in fitness classification, while others remained stable or declined. A heatmap of category shifts is shown in Figure 2, highlighting the dynamic nature of physical fitness across the cohort during the follow-up period.

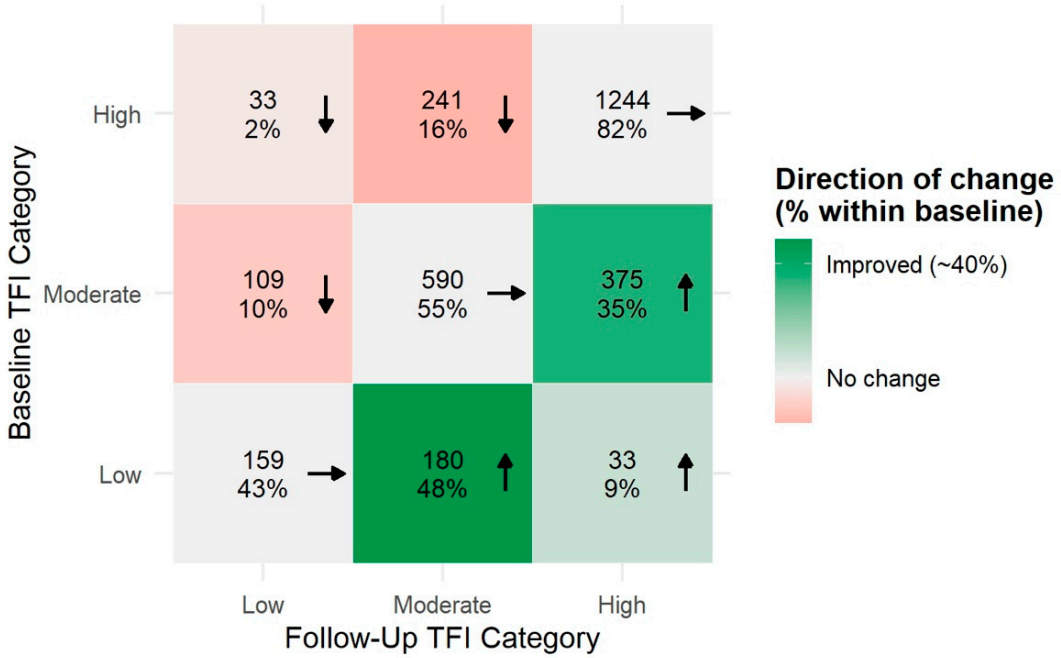

Figure 2. Total Fitness Index Category Shift Matrix from Baseline to Follow-Up Over Time. Note: Heatmap showing participant transitions between TFI fitness categories (Low, Moderate, High) from baseline to follow-up (n = 2,964). Arrows within each cell indicate the direction of change from baseline to follow-up TFI categories: upward (↑) shows improvement to a higher category, downward (↓) shows decline to a lower category, and rightward (→) shows no change. Numbers represent participant counts with within-baseline percentages, while color intensity reflects the proportion of each baseline group transitioning to the follow-up category.

To assess the relationship between changes in psychological distress and physical fitness, participants were grouped by Q-NEG change status (Improved, No Change, or Worsened). A clear pattern emerged: 598 participants who experienced improvements in psychological well-being also improved in TFI classification, compared to only 232 participants among those with worsened Q-NEG scores. Conversely, declines in psychological health were associated with declines in fitness. Among participants whose Q-NEG scores worsened, 253 showed a decline in fitness, compared to only 191 among those whose psychological well-being had improved.

A chi-square test of independence confirmed a statistically significant association between Q-NEG change and TFI classification shift ($\chi^2 = 98.73$, df = 4, $p < 0.001$). These findings suggest a meaningful connection between improved psychological well-being and enhanced physical fitness, underscoring the value of integrated wellness programs that target both mental and physical domains. Table 4 illustrates the relationship between changes in TFI categories and Q-NEG status, reinforcing the importance of integrated wellness strategies that address both physical and psychological health.

Table 4. AlphaOne Program Levels. Note: Cross-tabulation of participants' physical fitness change (TFI Improved, No Change, or Worsened) against changes in psychological distress (Q-NEG Improved, No Change, or Worsened) from baseline to follow-up (n = 2,964).

n = 2,964	Q-NEG Improved	Q-NEG No Change	Q-NEG Worsened

 doi:10.20944/preprints202603.0623.v1

TFI Improved	263	405	253
TFI No Change	160	333	92
TFI Worsened	598	628	232

Two components of the Q-NEG measure, satisfaction (Q-Satisfied) and interest (Q-Interest), were also examined. Satisfaction improved in 26.2% of participants, remained stable in 55.8%, and declined in 17.9%. Among those whose satisfaction improved, just over half (51.2%) also improved in TFI classification, whereas declines in satisfaction were associated with higher rates of fitness decline. Interest improved in 19.9%, was unchanged in 64.5%, and declined in 15.6%; patterns of association with TFI mirrored those observed for satisfaction but were slightly less pronounced. These findings suggest that while improvements in satisfaction and interest were positively linked to physical fitness gains, many participants achieved fitness improvement without subjective changes, indicating partially independent pathways of benefit.

4. Discussion

The primary aim of this study was to evaluate the effectiveness of a comprehensive workplace wellness initiative in improving both physical and psychological health outcomes among blue-collar workers. The main findings demonstrate significant improvements in TFI and Q-NEG scores over a 12–18 month follow-up, with a strong association between enhanced psychological well-being and upward shifts in physical fitness categories. These results reinforce the value of workplace programs grounded in the Health Journeys model and highlight the utility of multidimensional tools such as TFI and Q-NEG in capturing integrated health improvements in occupational settings [10].

These findings are consistent with large-scale evaluations showing that comprehensive workplace wellness programs can produce modest but meaningful gains in employee health metrics, including physical activity, nutrition, weight, blood pressure, and cholesterol [5,21]. Programs that combine individual, organizational, and environmental strategies-similar to AlphaOne are particularly effective when implemented over sustained periods [14].

A key innovation of the AlphaOne program was the use of health education workshops, which laid the foundation for the evolution of Health Journeys into behaviorally adaptive, digitally delivered tools. Today, these are integrated into platforms such as QHSLab (West Palm Beach, FL, USA) and Cerner/Oracle Health (North Kansas City, MO, USA), delivering scalable, personalized interventions addressing domains such as pain, emotional well-being, sleep, allergies, and behavioral change. This transition from in-person delivery to digital infrastructure illustrates the model's long-term impact and relevance for contemporary workforce health promotion.

Importantly, this study expands the workplace wellness evidence base by focusing on an underrepresented population-blue-collar workers-who are often excluded from wellness evaluations that traditionally emphasize biometric outcomes, weight loss, or cost savings in white-collar settings. The improvements across both physical and psychological domains align with LaMontagne et al.'s integrated intervention framework, which emphasizes reducing psychological demands while enhancing organizational supports [12]. Secondary analyses further reinforced this integrated perspective, showing that psychosocial improvements were associated with fitness gains, while physical improvements also occurred independently, likely due to ergonomic, behavioral, and team-based components. These findings strengthen the emerging consensus around the mind–body connection in occupational health and support calls for routine integration of mental health screening into all workplace wellness programs [22].

Unlike studies that examine health metrics in isolation, this analysis employed a composite measure of physical fitness (TFI) and linked it quantitatively with psychological well-being (Q-NEG). The significant chi-square association between improvements in Q-NEG and fitness category progression (TFI) provides empirical support for integrated care models and validates the importance of monitoring health trajectories longitudinally rather than relying solely on static

 doi:10.20944/preprints202603.0623.v1

indicators [23]. This approach is particularly valuable for labor-intensive populations that face cultural and logistical barriers to conventional healthcare engagement.

The findings also operationalize LaMontagne's tripartite model for workplace mental health promotion, which advocates for (1) protection from work-related harm, (2) promotion of positive mental health, and (3) support for workers experiencing mental health issues [12]. The AlphaOne program exemplified this approach by integrating ergonomic hazard reduction, evidence-based mental health training, and referral pathways into a unified workforce-wide intervention. Such holistic designs may be especially effective in high-risk environments, where fragmented approaches have proven insufficient.

By analyzing longitudinal data from a large industrial workforce, this study contributes a rare and valuable dataset to occupational health research. The results not only validate the historical effectiveness of the AlphaOne program but also inform the design of modern, digitally scalable interventions that integrate ergonomic, behavioral, and psychological strategies. As employers increasingly adopt such platforms, these findings provide both a benchmark and a roadmap for advancing integrated wellness frameworks.

Despite its strengths-including a large sample size, validated measures, and a longitudinal design several limitations should be noted. The absence of a randomized control group limits causal inference, as unmeasured confounders (e.g., organizational culture, participant motivation) may have influenced outcomes. Individual-level engagement data were also not collected, preventing dose–response analyses. Additionally, while TFI and Q-NEG are robust multidimensional tools, other relevant domains such as sleep quality were not directly assessed. Finally, generalizability may be limited to similar industrial contexts; replication across diverse occupational settings is needed to enhance external validity.

These findings yield several practical recommendations for labor-intensive sectors. First, integrated tools such as TFI and Q-NEG should be embedded into routine health assessments to monitor physical and psychological well-being simultaneously, allowing for personalized, data-driven care. Second, mental health promotion should be prioritized as a core wellness strategy rather than a reactive service, with routine psychological screening to identify at-risk individuals and foster mental health literacy. Finally, future programs should capitalize on scalable digital platforms that provide adaptive, whole-person support across domains such as pain, sleep, emotional health, and behavior [24]. Collectively, these results demonstrate that behaviorally intelligent, multidimensional wellness strategies can serve as essential infrastructure for sustaining worker health, engagement, and productivity.

This study provides compelling evidence that a comprehensive, multidimensional workplace wellness program can substantially improve both physical fitness and psychological well-being in blue-collar workers. By integrating the TFI and Q-NEG measures, the evaluation captured the holistic interplay between physical performance and emotional resilience, offering a more complete picture of employee health than traditional single-domain metrics. The strong association between reductions in psychological distress and improvements in fitness classification underscores the importance of addressing mental and physical health concurrently. Central to these outcomes were the Health Journeys modules structured, behaviorally adaptive interventions grounded in cognitive-behavioral strategies and ergonomic principles. Delivered through team-based, practical learning, these modules actively engaged participants in taking ownership of their health trajectories. Collectively, these findings validate the effectiveness of integrated mind–body health strategies in labor-intensive occupational settings. The AlphaOne model not only demonstrates measurable benefits for worker well-being but also presents a scalable, evidence-informed framework that organizations can adopt to strengthen workforce health, resilience, and productivity.

5. Conclusions

This study shows that a comprehensive workplace wellness program can improve physical fitness and psychological well-being in blue-collar workers. Using combined metrics, the assessment

 doi:10.20944/preprints202603.0623.v1

highlighted the link between mental health and physical performance. The Health Journeys modules, based on cognitive-behavioral and ergonomic approaches, encouraged active participation and ownership of health. Overall, the AlphaOne model offers an effective, scalable solution to boost worker wellness and productivity.

Supplementary Materials: The following supporting information can be downloaded at the website of this paper posted on Preprints.org, Figure S1: title; Table S1: title; Video S1: title.

Funding: This research received no external funding and The APC was funded by QHSLab, Inc.

Institutional Review Board Statement: This study (protocol # 32-130) was deemed exempt from IRB review under 45 CFR 46.104(d)(4) by the IRB at the Lake Erie College of Osteopathic Medicine (LECOM).

Informed Consent Statement: Not applicable.

Conflicts of Interest: Grogan is the Chief Executive Officer of QHSLab, Inc. and holds stock in the company. Matejka, Rizvi, and Sanchez-Gonzalez serve as scientific advisers to QHSLab and may hold stock or stock options. No other financial or personal relationships with individuals or organizations have influenced the submitted work.

References

1. Berry, L.L.; Mirabito, A.M. Partnering for prevention with workplace health promotion programs. *Mayo Clin. Proc.* 2011, *86*, 335–337. https://doi.org/10.4065/mcp.2010.0803
2. Pelletier, K.R. A review and analysis of the health and cost-effective outcome studies of comprehensive health promotion and disease prevention programs at the worksite: 1991–1993 update. *Am. J. Health Promot.* 1993, *8*, 50–62. https://doi.org/10.4278/0890-1171-8.1.50
3. Pelletier, K.R. A review and analysis of the clinical and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite: 1995–1998 update (IV). *Am. J. Health Promot.* 1999, *13*, 333–345. https://doi.org/10.4278/0890-1171-13.6.333
4. Goetzel, R.Z.; Ozminkowski, R.J. The health and cost benefits of work site health-promotion programs. *Annu. Rev. Public Health* 2008, *29*, 303–323. https://doi.org/10.1146/annurev.publhealth.29.020907.090930
5. Goetzel, R.Z.; Henke, R.M.; Tabrizi, M.; et al. Do workplace health promotion (wellness) programs work? *J. Occup. Environ. Med.* 2014, *56*, 927–934. https://doi.org/10.1097/JOM.0000000000000276
6. Schulte, P.A.; Pana-Cryan, R.; Schnorr, T.; et al. An approach to assess the burden of work-related injury, disease, and distress. *Am. J. Public Health* 2017, *107*, 1051–1057. https://doi.org/10.2105/AJPH.2017.303765
7. Sorensen, G.; Barbeau, E.; Stoddard, A.M.; Hunt, M.K.; Kaphingst, K.; Wallace, L. Promoting behavior change among working-class, multiethnic workers: Results of the Healthy Directions—Small Business Study. *Am. J. Public Health* 2005, *95*, 1389–1395. https://doi.org/10.2105/AJPH.2004.038745
8. Vyas, M.V.; Garg, A.X.; Iansavichus, A.V.; et al. Shift work and vascular events: Systematic review and meta-analysis. *BMJ* 2012, *345*, e4800. https://doi.org/10.1136/bmj.e4800
9. Karasek, R. *Healthy Work: Stress, Productivity, and the Reconstruction of Working Life*; Basic Books: New York, NY, USA, 1990.
10. Wilkinson, R.G.; Marmot, M. *Social Determinants of Health: The Solid Facts*; World Health Organization, Regional Office for Europe: Copenhagen, Denmark, 2003.
11. Stansfeld, S.; Candy, B. Psychosocial work environment and mental health—A meta-analytic review. *Scand. J. Work Environ. Health* 2006, *32*, 443–462. https://doi.org/10.5271/sjweh.1050
12. LaMontagne, A.D.; Martin, A.; Page, K.M.; et al. Workplace mental health: Developing an integrated intervention approach. *BMC Psychiatry* 2014, *14*, 131. https://doi.org/10.1186/1471-244X-14-131
13. Virtanen, M.; Lallukka, T.; Elovainio, M.; Steptoe, A.; Kivimäki, M. Effectiveness of workplace interventions for health promotion. *Lancet Public Health* 2025, *10*, e512–e530. https://doi.org/10.1016/S2468-2667(25)00095-7

 doi:10.20944/preprints202603.0623.v1

14. Rouyard, T.; Yoda, E.; Akksilp, K.; et al. Effects of workplace interventions on sedentary behaviour and physical activity: An umbrella review with meta-analyses and narrative synthesis. *Lancet Public Health* 2025, *10*, e295–e308. https://doi.org/10.1016/S2468-2667(25)00038-6
15. Oldenburg, B.; Owen, N.; Harris, D. Australian National Workplace Health Project: Strategies for gaining access, support and commitment. *Health Promot. J. Austr.* 1999, *9*, 49–54.
16. Glanz, K.; Lewis, F.M.; Rimer, B.K. *Health Behavior and Health Education: Theory, Research, and Practice*; Jossey-Bass/Wiley: San Francisco, CA, USA, 1990.
17. Prochaska, J.O.; DiClemente, C.C. Stages and processes of self-change of smoking: Toward an integrative model of change. *J. Consult. Clin. Psychol.* 1983, *51*, 390–395. https://doi.org/10.1037//0022-006x.51.3.390
18. Bischof, G.; Bischof, A.; Rumpf, H.J. Motivational interviewing: An evidence-based approach for use in medical practice. *Dtsch. Arztebl. Int.* 2021, *118*, 109–115. https://doi.org/10.3238/arztebl.m2021.0014
19. Matejka, A.; Rizvi, S.A.A.; Goubran, B.; et al. Scale-based scores linked to health care overutilization in primary care: Development and validation of the Q-Scale. *Consultant360* 2025, *65*, 1–8. https://doi.org/10.25270/con.2025.05.000006
20. Golding, L.A. *YMCA Fitness Testing and Assessment Manual*, 4th ed.; Human Kinetics: Champaign, IL, USA, 2000.
21. Peñalvo, J.L.; Sagastume, D.; Mertens, E.; et al. Effectiveness of workplace wellness programmes for dietary habits, overweight, and cardiometabolic health: A systematic review and meta-analysis. *Lancet Public Health* 2021, *6*, e648–e660. https://doi.org/10.1016/S2468-2667(21)00140-7
22. Lerner, D.; Amick, B.C.; Rogers, W.H.; Malspeis, S.; Bungay, K.; Cynn, D. The work limitations questionnaire. *Med. Care* 2001, *39*, 72–85. https://doi.org/10.1097/00005650-200101000-00009
23. Short, M.E.; Goetzel, R.Z.; Pei, X.; et al. How accurate are self-reports? Analysis of self-reported health care utilization and absence when compared with administrative data. *J. Occup. Environ. Med.* 2009, *51*, 786–796. https://doi.org/10.1097/JOM.0b013e3181a86671
24. Hamine, S.; Gerth-Guyette, E.; Faulx, D.; Green, B.B.; Ginsburg, A.S. Impact of mHealth chronic disease management on treatment adherence and patient outcomes: A systematic review. *J. Med. Internet Res.* 2015, *17*, e52. https://doi.org/10.2196/jmir.3951