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Original Research

How Do Physical Therapists and Athletic Trainers Maintain Their Physical Fitness? A Descriptive Survey Study

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Background

Physical therapists and athletic trainers play an important role in promoting physical activity to patients and may utilize the 2018 United States Physical Activity Guidelines (PAG). Currently, there is little data regarding how physical therapists and athletic trainers maintain their personal fitness based upon these guidelines.

Purpose

To analyze how physical therapists and athletic trainers maintain their physical fitness based upon the 2018 United States Physical Activity Guidelines.

Study Design

Cross-sectional descriptive survey

Methods

A 20-question electronic survey was emailed to members of the Academy of Orthopedic Physical Therapy and National Athletic Trainers Association. Professionals were also informed through a recruitment post in different private healthcare Facebook® groups. Survey inclusion criteria included respondents being a physical therapist or athletic trainer and being in clinical practice. Respondents were excluded if they did not meet the inclusions. The 2018 PAG were used as a minimum standard comparison for respondents to report their physical activity. The survey was developed using Qualtrics and underwent two rounds of pilot testing to establish face validity. The survey covered respondent demographics, exercise behaviors, reasons for exercise, exercise programming and assessment, exercise barriers, monitoring health & wellness, and respondent satisfaction with how they have maintained their own physical fitness. Descriptive statistics were used to calculate total responses, frequency count, and percentages.

Results

One thousand one hundred and forty seven professionals (Women =58%, N= 665; Men = 41%, N=472; other = 1%, N=10) (mean age = 48 ± 15.75 years-old) completed the survey. Most respondents (~ 82%) reported meeting or exceeding the PAG for aerobic and muscle-strengthening while using an integrated exercise approach with self-guided workouts (73%) in different settings such as home (65%) or fitness facility (30%). Respondents dedicated an average of 14 hours per week to exercise. A smaller portion of respondents did not meet the PAG and reported displeasure with their current fitness

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program which may be related to different exercise barriers such as work schedule, lack of time, family commitments, low intrinsic motivation, and lack of energy.

Conclusion

These survey results provide insight into how physical therapists and athletic trainers maintain their physical fitness. The majority of respondents demonstrated good exercise behaviors by exceeding or meeting the 2018 PAG while a smaller portion did not meet the guidelines due to various exercise barriers and displeasure. Future research should investigate strategies to help professionals find optimal work-life balance and time for weekly physical activity.

Level of Evidence

3

INTRODUCTION

Physical therapists and athletic trainers are important advocates for promoting physical activity among their patients. In fact, the American Physical Therapy Association and the National Athletic Trainers Association encourage all their members to promote physical activity among patients.[1,2] Despite the encouragement from these healthcare organizations, there is little research regarding if professionals follow recommended physical activity guidelines for their personal physical fitness. Surprisingly, many healthcare professionals may not be well-informed about contemporary guidelines which may be a barrier to their own physical fitness programming.[3]

In 2018, the United States Government published the Physical Activity Guidelines (PAG) for Americans, 2nd edition (Table 1).[4] These guidelines provide a minimum physical activity standard for individuals to help them achieve and maintain their physical fitness.[4] Researchers also use these guidelines as an important marker to track the association between physical activity and the risk for chronic disease and mortality among large populations. Two large population studies,[5,6] between 1997 to 2014 (mean N=481,306), found that adults (≥ 18 years) that met or exceeded the PAG for aerobic and muscle strengthening had a 40% reduced risk of all-cause mortality, specific mortality (e.g. cardiovascular disease, cancer, etc.), and a lower 5-year mortality risk. Other large population studies have reported similar positive findings when individuals meet or exceed the weekly PAG.[7-9]

Besides the personal health benefits of meeting or exceeding the PAG, physical therapist and athletic trainers can model such positive behaviors by sharing their physical activity habits with their patients. Different physical therapy and athletic training researchers have suggested that promoting and modeling healthy behaviors may be an effective strategy for inducing positive change within patients.[10-14]

Of interest is how physical therapists and athletic trainers maintain their personal physical fitness.[4] Several past survey studies (prior to 2018) documented that physical therapists,[15,16] physical therapy assistants,[15] and physical therapy students[15] met the first edition PAG guidelines. However, some studies have documented that athletic trainers[17,18] and athletic training students[19] did not meet physical activity recommendations.

To date, there are no survey studies that have documented how physical therapists and athletic trainers maintain their personal physical fitness based on the current 2018 PAG. Understanding such practices may help researchers further investigate this topic in order to provide industry specific recommendations. For example, physical therapist and athletic trainers may work in different healthcare and fitness settings (e.g. outpatient clinic, hospital, university, fitness facility)[20-22] with unique workplace demands (e.g., hours per week, travel)[23,24] which could influence their availability and motivation to participate in weekly physical activity. There is a need for initial documentation of how such factors influence a professional's weekly physical activity based upon the 2018 PAG. This information will also provide valuable data for future physical activity studies among physical therapists and athletic trainers.

The purpose of this study was to analyze how physical therapists and athletic trainers maintain their physical fitness based upon the 2018 United States Physical Activity Guidelines. This survey study was considered exploratory and the first step in a line of research examining physical activity among physical therapists and athletic trainers.

METHODS

STUDY PARTICIPANTS

This cross-sectional survey focused on how physical therapists and athletic trainers maintain their physical fitness. This study was approved by the California State University Dominguez Hills Institutional Review Board (FY2024-119). Healthcare professionals from the United States were recruited via convenience sampling between February 2024 and April 2024. Emails were sent to members from the Academy of Orthopedic Physical Therapy (N=17,811) as well as members of the National Athletic Trainers Association (N=5,378). Healthcare professionals (N=16,200) were also informed through a recruitment post in different private healthcare Facebook® groups. Prior research has documented that Facebook® is an effective recruitment tool for healthcare research purposes.[25] These sampling techniques

Table 1. 2018 United States Physical Activity Guidelines (PAG) Individuals

	Aerobic Exercise	Muscle Strengthening	Other
Adults (18 to 64 years)	At least 150 minutes to 300 minutes a week of moderate-intensity, or 75 minutes to 150 minutes a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Additional health benefits with greater than 300 minutes per week of moderate-intensity physical activity.	2 or more days a week of moderate or greater intensity (all major muscle groups).	
Older Adults (65 years and older)	At least 150 minutes a week of moderate-intensity or 75 minutes a week of vigorous-intensity aerobic physical activity or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Additional health benefits with greater than 150 minutes per week of moderate-intensity physical activity.	2 or more days a week (intensity determined fitness level) (all major muscle groups).	Weekly balance training (preferred 3 or more days week).

have been used in similar healthcare surveys conducted by the researchers of this study.[20,26-28]

SURVEY DESIGN

The online survey (Qualtrics, 333 W. River Park Drive Provo, UT 84604 USA) was developed by the primary researcher (SWC) using similar methods from past healthcare survey studies conducted by the researchers of this study.[20-22, 27] Initial survey questions were also developed from the knowledge gained from previously published (prior to 2018) healthcare survey studies on this topic.[15,17-19]

The online survey consisted of 20 total questions that included one informed consent question, and 19 items comprised of nominal and multiple-choice questions. Questions represented six distinct categories: 1) respondent demographics, 2) exercise behaviors, 3) self-exercise programming and fitness assessment, 4) monitoring health and wellness, 5) exercise barriers, and 6) satisfaction of respondents maintaining their own physical fitness. The 2018 PAG were used as a minimum standard comparison for respondents to report their physical activity. Table 2 provides a summary of the survey categories and focus of the related survey questions.

SURVEY VALIDATION

After initial survey development was completed, the first survey draft underwent two rounds of pilot testing with four independent healthcare professionals to establish face validity. For each round, the professionals reviewed the survey, provided feedback, and revisions were made. After the two rounds, a final set of survey items was identified. The survey responses obtained through survey development and pilot testing were considered independent and were not included in the main study analysis and results. The final survey was further tested for readability using the Flesch-Kincaid grade level test. The 20 questions in the final survey scored 9 on the Flesch-Kincaid Grade level test, which indicated the English used in the survey was average reading at the 9th grade level.[29] The survey development process was adapted from prior published healthcare survey studies.[20,26,27]

STATISTICAL ANALYSIS

Data were downloaded from the Qualtrics survey platform for analysis. Statistical analysis was performed using Microsoft Excel® (Bellevue, Washington, USA). Descriptive statistics were used to calculate total responses, frequency count, and percentages. Data were treated conservatively, any respondents who failed to answer all survey questions were removed from the data set.

RESULTS

A total of 39,389 healthcare professionals were recruited. A total of 1,334 professionals began the survey (3.39% initial response rate). Incomplete surveys were eliminated from the data synthesis. A total of 1,147 (2.91%, final response rate) respondents completed the survey, their results were included in the final analysis (Table 2). It should be considered that these response rates may be an overestimate due to professionals receiving direct emails and other professionals possibly seeing and responding to the recruitment post within different Facebook® groups. The following sections present results from the six survey categories using rounded values for ease of interpretation. Tables 3-6 provide more detailed respondent answers.

RESPONDENT DEMOGRAPHICS

Fifty-eight percent (n=665) of total respondents were women, while 41% (n=472) were men, and 1% (n=10) documented other categories. The average age of respondents was 48 ± 15.75 years-old, ranging from 22 to 85 years. Fifty-eight percent (n=662) of respondents reported being an athletic trainer and 41% (n=472) a physical therapist and 25% reported having other healthcare credentials (Table 3). Respondents reported working in variety of settings such as a private outpatient healthcare facility (26%, n=293); hospital based healthcare facility (20%, n=227); university or college outpatient, sports medicine, athletic training facility (17%, n=198); and academic/research institution (14%, n=158). Twenty-seven percent of respondents also reported working in other settings. Respondents averaged being healthcare professionals for 24 ± 15.25 years (Table 3).

Table 2. Survey categories and related questions

Survey Categories	Focus of Questions
Respondent demographics	Document respondent age, credentials, work setting(s), and professional experience
Exercise behaviors	Document weekly time dedicated to aerobic and muscle-strengthening exercise based on the 2018 PAG, total weekly exercise time, preferred exercise setting and respondents choices for other types of weekly exercise. Document the number of years respondents met or exceeded the weekly PAG since becoming an adult (e.g. 18 years-old). Note: This question allowed respondents to report the number of adult years they have been consistent with their physical activity program based upon the PAG.
Self-exercise programming and fitness assessment	Document respondent reasons for their choice to exercise and maintain physical fitness, how respondents programmed their own physical activity to maintain fitness, and what performance assessments (e.g., aerobic, muscle performance) they used to track their progress.
Monitoring health & wellness, exercise barriers, and satisfaction with personal physical fitness	Document respondent methods for monitoring their health & wellness, reported exercise barriers, and respondent satisfaction with how they have maintained their own physical fitness.

EXERCISE BEHAVIORS

Based upon the 2018 aerobic PAG for *adults (18 to 65 years)*, a large portion of respondents reported participating in moderate-intensity aerobic activity (150 to 300 minutes) (35%, n=404) or vigorous-intensity aerobic activity (75 to 150 minutes) (15%, n=170) weekly. Respondents also reported participating in greater amounts of weekly moderate-intensity aerobic activity (> 300 min) (14%, n=156) or vigorous-intensity aerobic activity (>150 min) (10%, n=120) (Table 4). For *older adults (65 years or older)*, respondents reported participating in moderate-intensity aerobic activity (150 minutes) (3%, n=38) or vigorous-intensity aerobic activity (150 minutes) (1%, n=10) weekly. Respondents also reported participating in greater amounts of weekly moderate-intensity aerobic activity (> 150 min) (4%, n=48) or vigorous-intensity aerobic activity (>150 min) (1%, n=14). Sixteen percent (n=187) of total respondents reported not meeting the aerobic guidelines.

For the 2018 PAG for muscle-strengthening exercise, 32% (n=368) of adult respondents reported exercising at least two days per week, and 36% (n=413) reported exercising two or more days per week. Seven percent (n=77) of older-adults reported exercising at least two days per week, and 6% (n=70) reported doing balance training/fall prevention at least three days per week. Nineteen percent (n=219) of total respondents reported not meeting the muscle-strengthening guidelines (Table 4).

Respondents reported dedicating an average of 14 hours per week to exercise and maintaining their physical fitness. A large portion of respondents reported other types of exercise that they participated in, such as core training (47%, n=531), balance training (29%, n=333), Yoga (24%, n=275), plyometrics (10%, n=109), Pilates (9%, n=104), and CrossFit or Spartan training or Olympic/Power Lifting (7%, n=75). Four percent (n=50) of total respondents reported not participating in other types of exercise. Respondents reported consistently meeting or exceeding the weekly PAG an average of 23 years since becoming an adult (e.g., 18 years old)(Table 4).

A large portion of respondents reported their primary exercise setting(s) to be their home (65%, n=745), or a commercial fitness facility, country club, or tennis club (30%, n=342). Other reported exercise setting(s) included a college/university/secondary school fitness facility or weight room (11%, n=124), boutique fitness studio or specialized studio (7%, n=82), CrossFit/functional fitness facility (6%, n=67), and sport performance facility (6%, n=64). One percent (n=6) reported not having a primary exercise setting (Table 4).

REASONS FOR EXERCISE, PROGRAMMING, AND ASSESSMENTS

The primary reasons respondents choose to exercise included general fitness & wellness (89%, n=1023), quality of life (85%, n=975), the improvement or maintenance of muscle strength and endurance (73%, n=837), the reduction of risk factors for chronic disease (65%, n=745), weight/fat loss (60%, n=689), the improvement or maintenance of aerobic fitness (55%, n=631), the maintenance of flexibility and mobility (54%, n=619), and injury prevention or rehabilitation (44%, n=505) (Table 5).

Most respondents reported using different programming strategies to maintain their fitness. Strategies reported included self-guided workouts (73%, n=838), on-demand/streaming workouts/videos (21%, n=239), group fitness classes (20%, n=230), and fitness apps (19%, n=214). Fourteen percent (n=162) reported not using any type of programming strategies. Other notable programming strategies used by respondents included the CrossFit Workout of the Day (WOD), personal trainer or sports coach (live), and personal trainer (virtual) (Table 5).

Table 3. Respondent demographics

Frequency % (N)	Respondents (N=1,147)
Please describe your "self-identified "gender.	
Women	57.98% (665)
Men	41.15% (472)
Prefer not to say	00.61% (007)
Non-binary/ third gender	00.26% (003)
Other	00.00% (0)
Please state your chronological age.	
Age range (average)	48.13 ± 15.75 years
Please state how long have you been a healthcare professional.	
Years (average)	23.99 ± 15.25 years
Please choose your primary occupation(s) (e.g., credentials) within the healthcare and fitness industry. (choose all that apply)	
Licensed/Certified Athletic Trainer	57.71% (662)
Physical Therapist	41.15% (472)
Strength & Conditioning Coach	06.01% (69)
Educator (K-12)	04.62% (53)
Sports Performance Coach	03.49% (40)
Physical Therapist Assistant	02.61% (30)
Exercise Physiologist	01.48% (17)
Massage Therapist	01.30% (15)
Nutrition Coach	01.05% (12)
Other	01.00% or less (39)
***Please choose your primary work setting(s). Choose all that apply.**	
Private outpatient healthcare facility	25.54% (293)
Hospital based healthcare facility	19.79% (227)
University or college outpatient, sports medicine, or athletic training facility	17.26% (198)
Academic/research institution	13.77% (158)
In-home or mobile services	05.49% (63)
Industrial/occupational health services	03.92% (45)
Virtual/telehealth	02.79% (32)
Professional or club sports	02.38% (27)
Military service facility or public safety (e.g. police, fire, EMT)	01.23% (23)
Sports performance facility	01.39% (16)
CrossFit/functional fitness facility	01.05% (12)
Other	01.00% or less (91)

* Respondents chose all options that applied to them

A large portion of respondents reported not using any muscle performance assessments (68%, n=778) to track their progress. Other respondents reported using rate of perceived exertion (RPE) (27%, n=308), repetition continuum (9%, n=106), and handgrip strength with a dynamometer (3%, n=35) to track their progress. For aerobic performance, a large portion of respondents reported (53%, n=610) not using any assessments. Other respondents reported using heart rate zones (39%, n=440), and rate of perceived exertion (RPE) (23%, n=265) to track aerobic performance. Regarding other assessments to track fitness progress, 35% (n=400) reported not using any of the listed assessments in the survey question, 2% (n=25) reported other assessments, and most respondents did not choose any applicable assessments (Table 5).

MONITORING HEALTH & WELLNESS, EXERCISE BARRIERS, AND SATISFACTION

A large portion of respondents reported using wearable technology (57%, n=653) to monitor their overall health and wellness while trying to maintain physical fitness. Fifteen percent (n=164) of respondents reported not monitoring their overall health and wellness.

Table 4. Respondent exercise behaviors

Frequency % (N)	Respondents (N=1,147)
Based on the U.S. Physical Activity Guidelines, please choose the average amount of aerobic activity you participate in each week. Choose one answer. Note: Adults (18 to 64 yrs.), Older Adults (65 yrs. and older)	
Aerobic (Adults): Moderate-intensity aerobic activity (150 to 300 minutes a week)	35.22% (404)
I don't meet any of these guidelines	16.30% (187)
Aerobic (Adults): Vigorous-intensity aerobic activity (75 to 150 minutes a week)	14.82% (170)
Aerobic (Adults): Moderate-intensity aerobic activity (> 300 minutes a week)	13.60% (156)
Aerobic (Adults): Vigorous-intensity aerobic activity (> 150 minutes a week)	10.46% (120)
Aerobic (Older Adults): Moderate-intensity aerobic activity (> 150 minutes a week)	04.18% (48)
Aerobic (Older Adults): Moderate-intensity aerobic activity (150 minutes a week)	03.31% (38)
Aerobic (Older Adults): Vigorous-intensity aerobic activity (> 150 minutes a week)	01.22% (14)
Aerobic (Older Adults): Vigorous-intensity aerobic activity (150 minutes a week)	00.87% (10)
Based on the U.S Physical Activity Guidelines, please choose the average amount of muscle strengthening exercise (and/or balance exercise for older adults) you participate in each week. Choose all that apply. Note: Adults (18-64 yrs.), Older Adults (65 yrs. and older)	
Muscle-strengthening (Adults): > 2 days/week	36.00% (413)
Muscle-strengthening (Adults): at least 2 days/week	32.08% (368)
I don't meet any of these guidelines	19.09% (219)
Muscle-strengthening (Older Adults): at least 2 days/week	06.71% (77)
Balance training/fall prevention exercise (Older Adults): at least 3 times per week	06.10% (70)
Since age 18, how many years have you consistently met or exceeded the U.S. Physical Activity Guidelines in the previous two questions? (note: consider the total years of weekly exercise per the guidelines)	
Years (average)	23.42 years
What other types of exercise do you like to participate in each week. Choose all that apply.	
Core training	46.92% (531)
Balance training	29.03% (333)
Yoga	23.96% (275)
Plyometric training	09.50% (109)
Pilates	09.07% (104)
CrossFit or Spartan training or Olympic/Power Lifting	06.54% (75)
Dance	06.01% (69)
I don't participate in any of these other types of exercise	04.34% (50)
Other	02.00% or less (42)
What is the total time (per week) you dedicate towards exercising and maintaining your physical fitness?	
Hours per week (average)	13.52 hours
Please choose your primary exercise setting(s). Choose all that apply.	
Home	64.95% (745)
Commercial fitness facility, country club, or tennis club	29.81% (342)
College/university/secondary school fitness facility or weight room	10.81% (124)
Boutique fitness studio or specialized studio (e.g. dance, rock climbing, MMA)	07.15% (82)
CrossFit/functional fitness facility	05.84% (67)
Sports performance facility	05.58% (64)
Mind/body studio (Pilates and/or Yoga)	04.89% (56)
Corporate fitness facility or community fitness center (e.g. gym, pool)	04.80% (55)
Other	02.00% or less (36)

The most common exercise barriers (past three years) reported by respondents were work schedule (76%, n=873), lack of time (47%, n=541), family commitments (45%, n=516), low intrinsic motivation (35%, n=394), and lack of energy (32%, n=371). Other notable exercise barriers included pre-existing injury or medical condition (19%,

Table 5. Reasons for exercise, exercise programming, and assessments

Frequency % (N)	Respondents (N=1,147)
What are common reasons behind your choice to exercise and maintain physical fitness? Choose all that apply.	
General fitness & wellness	89.19% (1023)
Quality of life	85.00% (975)
Improve or maintain muscle strength and muscle endurance	72.97% (837)
Reduce risk factors related to chronic disease	64.95% (745)
Weight/fat loss	60.00% (689)
Improve or maintain aerobic fitness	55.01% (631)
Maintain flexibility and mobility	53.96% (619)
injury prevention or rehabilitation	44.03% (505)
Improve or maintain posture alignment	34.00% (390)
Improve or maintain athletic/sports performance	27.03% (310)
Fall prevention	16.04% (184)
I don't have a specific reason	02.61% (30)
Other	03.05 or less % (37)
What type of exercise programming do you use to help maintain your physical fitness? Choose all that apply.	
Self-guided workouts	73.06% (838)
On-demand/streaming workouts/videos	20.84% (239)
Group fitness classes	20.05% (230)
Fitness apps	18.66% (214)
I don't use any types of programming	14.12% (162)
CrossFit Workout of the Day (WOD)	05.23% (60)
Personal trainer or sports coach (live)	04.36% (50)
Personal trainer (virtual)	03.22% (37)
Bootcamp classes	02.27% (26)
Fitness influencers and celebrities	02.00% (23)
Fitness magazines and/or websites	01.57% (18)
Other	02.44% (28)
Which common muscle performance assessment/s do you use to track your progress? Choose all that apply.	
I don't use any muscle performance assessments	67.81% (778)
Rate of Perceived Exertion (RPE)	26.85% (308)
Repetition continuum	09.24% (106)
Handgrip strength with dynamometer	03.05% (35)
Other	03.75% (43)
Which common aerobic performance assessment/s do you use to track your progress? Choose all that apply.	
I don't use any aerobic performance assessments	53.18% (610)
Heart rate zones	38.36% (440)
Rate of Perceived Exertion (RPE)	23.10% (265)
Other	04.62% (53)
What other assessments do you use to track your fitness progress? Choose all that apply.	
I don't use any of these listed assessments	34.87% (400)
Other	02.18% (25)

n=219), limited access to equipment and facilities (13%, n=149), limited financial resources (10%, n=112), unrealistic goals (6%, n=67), and extrinsic motivation (5%, n=59). Nine percent (n=104) of respondents reported not having any barriers to exercise (Table 6).

Sixty-six percent (n=759) of respondents reported being pleased with how they have maintained their physical fitness, and 34% (n=388) reported displeasure. Among respondents reporting displeasure, several notable reasons were documented, such as low intrinsic motivation or low

Table 6. Monitoring health & wellness, exercise barriers, and satisfaction

Frequency % (N)	Respondents (N=1,147)
*** How do you monitor your overall health & wellness while trying to maintain physical fitness? Choose all that apply.**	
Use of wearable technology for self-monitoring	56.93% (653)
I don't monitor my overall health & wellness	14.30% (164)
Routine reassessments by professional colleagues	03.57% (41)
Routine self-physiological assessments (e.g., BP, pulse rate, etc.)	00.00% (0)
Routine visits to my licensed healthcare provider (e.g., MD, etc.)	00.00% (0)
Other	03.49% (40)
*** What common barriers have you experienced over the last 3 years when trying to maintain your physical fitness? Choose all that apply. (Note: consider barriers that began after the COVID-19 pandemic resolved.)**	
Work schedule	76.11% (873)
Lack of time	47.16% (541)
Family commitments	44.99% (516)
Low intrinsic motivation (e.g. self-regulation)	35.35% (394)
Lack of energy	32.34% (371)
Pre-existing injury or medical condition (e.g. chronic illness, musculoskeletal injury)	19.10% (219)
Limited access to equipment & facilities (e.g. convenience, weather)	12.99% (149)
Limited financial resources	09.76% (112)
School schedule	09.76% (112)
There are no barriers for me	09.06% (104)
Unrealistic goals (e.g. personal)	05.84% (67)
Low extrinsic motivation (e.g. social support)	05.14% (59)
Exercise is not enjoyable	05.14% (59)
Fear of injury	04.44% (51)
Social anxiety	03.66% (42)
Other	02.00% (23)
Are you currently pleased with how you have maintained your physical fitness?	
Yes	66.17% (759)
No	33.83% (388)
If you answered "no" above, please provide a brief explanation of why you are not pleased.	

* Respondents chose all options that applied to them

energy (14%, n=156), lack of time due to work and life commitments (9%, n=105), weight gain or being “out of shape” (4%, n=43), pre-existing injury or medical condition (n=34), and mental health challenges (1%, n=14) (Table 6).

DISCUSSION

This cross-sectional descriptive survey documented how physical therapists and athletic trainers maintain their physical fitness based on the 2018 U.S. PAG. The results of this study should be considered exploratory with the goal of providing data for future investigations on this topic. The subsequent sections will provide a discussion of these survey findings including 1) a summary of findings for each survey section, 2) relevant clinical application, and 3) a comparison to the research evidence.

RESPONDENT DEMOGRAPHICS

Survey respondents reported having a primary occupation as a physical therapist or athletic trainer (Table 3). Respondents also reported employment in one or more work settings such as a private outpatient facility, hospital-based facility, university or college outpatient/sports medicine/athletic training facility, and academic/research institution. It’s not uncommon for physical therapist and athletic trainers to have multiple credentials[30,31] and work in different healthcare and fitness settings.[20-22] The demand of professionals working in one or more settings may explain some of the exercise barriers identified in this survey. It is well documented that different healthcare professions and work settings can be mentally and physically demanding and may lead to burnout, poor quality of life, and a poor healthy lifestyle (e.g. lack of physical activity).[24,32-34] These topics will be discussed in an upcoming sections. It is important to consider that the average respondent’s age was 48 years,

with an average of 24 years of being a healthcare provider. This suggests that survey respondents had a wealth of empirical experience in different settings which may be unique to this survey.

RESPONDENT EXERCISE BEHAVIORS

The 2018 PAG were used as a minimum standard comparison for respondents to report their aerobic and muscle-strengthening physical activity (Table 4).[4] Researchers have used these guidelines as an important marker to track the association between physical activity and the risk for chronic disease and mortality among large populations.[5,6,9] Overall, the majority of respondents (~ 82%) did meet or exceed the minimum amount of weekly aerobic and muscle-strengthening activity. Respondents reported dedicating an average of 14 hours per week to their physical activity program and consistently meeting or exceeding the weekly PAG an average of 23 years since becoming an adult (e.g., 18 years old). These positive physical activity habits suggest that respondents understand the importance of weekly physical activity for long-term health. Researchers have documented a strong correlation between meeting the PAG and lowering the risk for health conditions such as cardiovascular disease,[9,35-37] type 2 diabetes,[35-37] obesity,[35] cancer,[35-37] sarcopenia,[38] and mortality.[5,36,37,39,40]

Besides aerobic and muscle-strengthening activity, most respondents reported participating in other forms of exercise such as core training (47%), balance training (29%), and Yoga (24%). Integrated training using different types of exercise has been documented by researchers to improve fitness in healthy adults and older adults[41-43] and older adults with medical conditions.[44-46] The respondents choices of participating in different types of exercise may be based upon personal preference, availability of resources (e.g., equipment, classes), and suggests an understanding of integrated training. Most respondents reported exercising in various setting such as their homes (65%) as well as a commercial fitness facility, country club, or tennis club (30%). Researchers have documented that home and center-based (e.g. commercial fitness club, country club) exercise settings are both effective for healthy adults/older adults[47,48] and older adults with medical conditions[49-52] to maintain their physical activity. Furthermore, home-based integrated training programs have also been shown to improve physical function, lean muscle mass, muscle strength, and balance among adults and older adults.[53,54] The majority of respondents choosing to exercise at home may be based upon factors such as personal preference, time availability, convenience, fitness facility costs, etc.

REASONS FOR EXERCISE, EXERCISE PROGRAMMING, AND ASSESSMENTS

The primary reasons respondents chose to exercise were for positive outcomes such as general fitness & wellness, quality of life, weight/fat loss, and to reduce risk factors for chronic disease. These reasons align with the current research on the benefits of physical activity and meeting the weekly U.S. PAG as noted in the prior section (Table 5).[4,33,35]

For exercise programming, most respondents used a self-guided workout (73%) or other methods such as on-demand or streaming workouts/videos (21%) and fitness apps (19%). These methods can provide convenience for the professional who choose to exercise at home or in other settings. As noted in the prior section, the majority of respondents reported home as their primary workout setting which seems to be an ideal environment for professionals who use these exercise programming methods. Interestingly, the majority of respondents who participated in the minimum weekly physical activity using self-guided programming demonstrated good self-efficacy and intrinsic motivation.[55,56] These attributes may have positive effects on their long-term health. Fourteen percent reported not using any programming strategies.

For both *muscle and aerobic performance*, a substantial portion of respondents reported not using any performance assessments (61%) to track their progress. A smaller portion of respondents reported using rate of perceived exertion (RPE) (25%) for both muscle and aerobic performance, and heart rate zone training (39%) for monitoring aerobic performance. Regarding other assessments to track fitness progress, most respondents did not choose any applicable assessments or reported not using any assessment. The lack of self-monitoring of fitness progress by respondents was an interesting finding since monitoring and documenting patient progress is a foundational procedure performed by healthcare professionals.[57] Self-monitoring plays an important role in a successful physical activity and weight loss program.[57-59] Using self-monitoring digital interventions (e.g. apps, social media, or online platforms) have also been shown to effectively help individuals self-monitor their progress.[58,60,61] Thus, healthcare professionals may want to utilize available digital technology designed for self-monitoring in order to track and document their physical activity progress.

MONITORING HEALTH & WELLNESS, EXERCISE BARRIERS, AND SATISFACTION

A substantial portion of respondents reported using wearable technology (57%) to monitor their overall health & wellness. A smaller portion of respondents (15%) reported they did not monitor their health and wellness which could be related to factors such as disinterest or common exercise barriers. Common barriers reported included the work schedule (76%), lack of time (47%), family commitments (45%), low intrinsic motivation (35%), and lack of energy (32%). Common barriers such as these warrant further investigation to determine their influence on work-life balance and to develop strategies to overcome such barriers to improve weekly exercise time for professionals.

Sixty-six percent of respondents reported being pleased with how they maintain their physical fitness and 34% reported displeasure. Among respondents reporting displeasure, notable reasons included low intrinsic motivation, “low energy”, and lack of time due to work and life commitments. The healthcare professional should consider that

exercise barriers such work schedule, lack of time, intrinsic motivation, and lack of energy may be related to respondent displeasure. It has been well documented that working in healthcare, especially physical therapy and athletic training, can be demanding and challenging to the work-life balance which can lead to poor physical activity and burnout.[19,34,62-64] This issue became more pronounced during the COVID-19 pandemic, where several researchers reported burnout among different healthcare professions.[23,65-67]

LIMITATIONS

Several limitations need to be discussed for this survey study. First, this survey was sent electronically to a cross-sectional sample of physical therapists and athletic trainers. A more diverse sample may have produced different results. However, to the researchers' knowledge this is the first survey study exploring how physical therapist and athletic trainers maintain their personal physical fitness based upon the 2018 PAG. Second, the survey was also based upon personal responses in which professionals may have overestimated their physical activity level. Also, respondents who were motivated to exercise may have been more likely to complete the survey. Third, the current results can only be generalized to the healthcare professionals surveyed. Other healthcare professionals may have provided different responses. Fourth, the survey contained a limited number of items. Different questions may have revealed different ideas of how healthcare professionals maintain their physical fitness.

PRACTICAL IMPLICATIONS

This survey study documented how physical therapists and athletic trainers maintain their personal physical fitness based on the 2018 PAG. The majority of respondents met or exceeded the minimum PAG while using an integrated exercise approach with self-guided programming in different settings such as a home or fitness club. Respondents also reported several reasons for exercising that align with a healthy lifestyle, such as maintaining general fitness & wellness, improving muscle strength and aerobic fitness, reducing risk factors for chronic disease, and weight/fat loss. These physical activity behaviors and rationale align with the research evidence and reflect a strong level of self-efficacy,[56] intrinsic motivation,[68] and understanding of the health benefits of physical activity among respondents.[69]

Consequently, a smaller portion of respondents did not meet the PAG and reported having displeasure with their current program, which may be related to the documented exercise barriers such as work schedule, lack of time, family commitments, low intrinsic motivation, and lack of energy. These findings warrant further research with a focus on discovering interventions to enhance work-life balance and to help healthcare professionals find opportunities to participate in physical activity for their long-term health.[62] Other notable survey findings included the lack of formal self-assessment for aerobic and muscle performance but the use of wearable devices to track overall health & wellness was reported by most respondents. These topics should also be investigated. Overall, healthcare professionals should consider this survey as exploratory and the first step in future research on this topic.

CONCLUSION

The results of this survey provide insight into how physical therapist and athletic trainers maintain their physical fitness based upon the 2018 PAG. The majority of survey respondents demonstrated good physical fitness behaviors by meeting or exceeding the PAG, using integrated exercise strategies, using self-guided programming, and having good rationale for exercising and maintaining physical fitness. However, a small portion of respondents did not meet the PAG, reported exercise barriers, and were displeased with their current program. These findings warrant further investigation into potential interventions with the goal of improving healthcare professional work-life balance and time dedicated to weekly physical activity in order to maintain a healthy lifestyle.

CONFLICT OF INTEREST

The authors have no conflicts of interest related to this manuscript.

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