International Research Journal of Human Resource and Social Sciences
ISSN(O): (2349-4085) ISSN(P): (2394-4218)
Impact Factor 5.414 Volume 5, Issue 05, May 2018
Website- www.aarf.asia, Email : editoraarf@gmail.com

The Impact of Unexpected Exercise on Untrained Individuals

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Abstract

The Borg Rating of Perceived Exertion (RPE) scale is a fundamental instrument for academics and practitioners in exercise science to quantify the intensity level experienced by subjects during exercise sessions. Recent suggestions indicate that RPE is not merely a direct consequence of interpreting physiological changes, as initially proposed, but is also affected by emotions, prior experiences, and completion time, a concept referred to as teleoanticipation.

This study aimed to investigate the role of teleoanticipation in a sedentary population by analyzing the impact of unanticipated increases in exercise time on perceived exertion and affect during low-intensity treadmill walking. According to previous research, it is anticipated that the unexpected duration session will produce elevated RPE values and diminished affect scores, as assessed by the feeling scale (FS), compared to the predicted duration session.

Ten volunteers aged 18 to 45 years engaged in the study. All subjects had been inactive or inadequately active about physical exercise for a minimum of six months before the study commenced. Admission was restricted to participants classified as low to moderate risk under the recommendations of the American College of Sports Medicine (ACSM).

All subjects engaged in a single familiarization session, succeeded by two trials of treadmill activity. The familiarization trial was employed to establish the treadmill pace for following trials.

All experimental trials lasted 30 minutes, partially adhering to ACSM criteria; however, the third trial in each group was initially presented as 20 minutes but was prolonged to 30 minutes by a deceptive approach utilized in comparable studies. Participants were notified at the 20-minute interval that the session would be prolonged to 30 minutes. The velocity remained uniform during both testing runs.

RPE and heart rate were documented every minute to prevent volunteers from becoming aware of the heightened interest in RPE responses at around the 20-minute interval. Affect was assessed using the feeling scale (FS) at two-minute intervals during the experimental trials. Blood pressure was monitored every five minutes to guarantee participant safety.

The results demonstrated a substantial main effect of time on RPE ($p = 0.001$); however, there was no significant main effect of time or interaction for RPE ($p > 0.05$), nor was there a significant main effect or interaction for FS. The principal conclusion of this study was that unanticipated exercise periods do not influence RPE or FS at modest intensities in untrained, sedentary individuals. The results indicate a potential threshold of intensity necessary for a teleoanticipatory effect. Additional research is required to further compare these effects with those observed in moderately and highly trained individuals under medium or high intensity conditions.

Keywords: Unanticipated physical activity, unconditioned persons, physiological reaction, psychological effect, muscular discomfort, desire.

Introduction

The Borg Rating of Perceived effort (RPE) scale was created in the 1950s to assess the overall amount of perceived effort at any given instant during exercise, enabling the evaluation of the "costs" of exercise rather than solely concentrating on performance. Gunnar Borg asserted that assessing perceived effort integrates data from peripheral muscles and joints, cardiovascular and respiratory systems, and the central nervous system, facilitating the comparison of various workloads with physiological responses (Borg, 1990). He asserted that quantifying the dimensions of physical stress enabled researchers to obtain data that could not be gathered through

physiological responses, such as elevated heart rate or blood pressure. The Borg RPE scale has become the primary instrument for quantifying physical exertion and is utilized alongside heart rate to characterize the intensity level experienced by a subject or customer during exercise sessions. Borg asserted a strong association between his 6-20 scale and heart rate, indicating that a perceived RPE number, when multiplied by 10, would correspond to an exerciser's real heart rate at that time (1998).

The notion that exertion is dictated by peripheral muscles, joints, and the circulatory and respiratory systems was contested by H.V. Ulmer's introduction of the concept of teleoanticipation (Ulmer, 1996). His approach posits that a central programmer in an athlete's brain governs perceived exertion during task performance.

Teleoanticipation posits that a central regulator modulates the effort exerted by an athlete according to the duration of their activity, hence mitigating the risk of irreparable bodily harm. Recent suggestions indicate that Rating of Perceived Exertion (RPE) is not solely a consequence of an individual's interpretation of physiological changes, as originally proposed by Borg, but is also affected by emotional state (Baden, McLean, Tucker, Noakes, & St Clair Gibson, 2005), prior experiences (Edwards, Bentley, Mann, & Seaholme, 2010), and duration until task completion (Faulkner, Parfitt, & Eston, 2008).

St. Clair Gibson and Noakes (2004) assert that teleoanticipation prevents the body from exceeding its limits while facilitating adjustments in its capacity to enhance potential fitness. The entire public requires support to enhance involvement in physical activity. Comprehending teleoanticipation may augment an individual's capacity for heightened exertion, potentially enhancing their sense of mastery and self-efficacy regarding the exercise undertaken. The self-efficacy theory posits that an individual's perception of their capabilities and their belief in their likelihood of successfully completing a task determine their self-confidence (Bandura, 1977). Bandura posited that an individual's repeated endeavors in a daunting task would enhance their competence in the activity and augment their perceived ability and self-assurance, thereby promoting greater enjoyment and commitment to the task (1977). By challenging and overcoming physical boundaries, individuals engaged in this training can reduce their perceived exertion for previously daunting activities,

enabling them to attain new fitness potentials while acquiring a sense of mastery in exercise. This analysis concentrated on the physical activity levels of individuals who are most susceptible to exercise intimidation, specifically inactive groups.

Statement of the Problem/Purpose

A multitude of study studies validate the concept of teleoanticipation; nevertheless, it has only been examined in trained populations, high exercise intensities, or a combination thereof. This study aimed to investigate the role of teleoanticipation in a sedentary population by analyzing the impact of unanticipated increases in exercise time on perceived exertion and affect during low-intensity treadmill walking.

Hypotheses

1. Physiological Response Hypothesis:

Subjects who are untrained but have been exercised suddenly would have a significantly increased soreness than the subjects who have been gradually exercised.

2. Cardiovascular Response Hypothesis:

Unexpected exercise will provoke a greater rise in heart rate and blood pressure in the untrained subject than in the actively exercising subject.

3. Psychological Response Hypothesis:

The untrained subjects who are exposed to unexpected exercise will report greater anxiety and stress levels immediately following activity than the subjects experiencing exercise planned for.

4. Motivational Response Hypothesis:

Naive individuals who are subjected to unplanned exercise will show an essential increase of self-efficacy and motivation to sustain regular physical activity the subsequent weeks after the experience.

5. Adaptation Hypothesis:

Subjects who experienced the unexpected exercise will have increased resilience and adaptability towards exercise for the subsequent weeks compared with their baseline levels.

The following hypotheses would guide your research design, data gathering, and analysis into taking the multi-effects of the sudden exercise unto untrained individuals. Let yourself to hone or expand these as you may deem appropriate, guided by the focus of your investigation or findings!

Operational Definitions

Key terms pertinent to this study are rate of perceived exertion (RPE), affect, low intensity, and sedentary lifestyle.

The Borg 6 – 20 RPE Scale (Appendix A) quantifies an individual's perceived exertion during a certain instant of activity.

Influence: The feeling scale assesses a person's overall emotion at a particular instant (Appendix E).

Low Intensity: a workload that produces a Rating of Perceived Exertion (RPE) of 9, indicative of "very light" effort.

Sedentary: engaging in physical activity for less than 30 minutes daily, no more than three times weekly, and receiving a category score of "low" or "moderate" on the International Physical Activity Questionnaire (IPAQ) Long Form (Appendix C).

Presumptions

The study presupposed that all participants would answer all questions truthfully. A second assumption was that all participants would be at ease walking on the treadmill and answering

questions on exertion utilizing the Borg RPE scale following a single familiarization session. The subsequent trials were presumed to be arranged in a manner that ensured each participant was adequately rested for each session.

It was presumed that the treadmill in the University of South Florida Health and Exercise Science Lab accurately indicated the speed of the automated belt. The Polar heart rate monitors were presumed to accurately and reliably deliver participants' heart rates. A study conducted at 14 locations across 12 nations (Craig et al., 2003) concluded that the IPAQ Long Form is a viable assessment tool for this population.

Constraints

Uncontrollable factors included volunteers, the date of the study, and population size. Participants were selected based on their willingness to engage in the study, therefore rendering volunteerism unavoidable. The inquiry was carried out after the conclusion of the participating students' semester, potentially excluding some prospective participants from being assessed. The population size and sampling were identified as limitations, as a bigger sample size would have enhanced the generalizability of the findings, while the sampling process may have introduced further error and bias.

Boundaries

The study exclusively examined individuals aged 18 to 45, classified as “Low” or “Moderate” on the IPAQ Long Form (IPAQ Group, 2011).

Only untrained individuals without health concerns, including smoking and disease symptoms, were permitted to the study. The research concentrated solely on perceived exertion and affect, neglecting associative or dissociative thoughts and other potential variables throughout the trial sessions.

significance

Support for teleoanticipation has increased since the publication of Ulmer's model in 1996. Numerous research endorsing this hypothesis employed designs featuring moderately to highly trained volunteers tasked with completing several very demanding or competitive trials. Although numerous research publications currently validate the concept of teleoanticipation, it has only been examined within trained groups and high-stress scenarios. The moment has come to analyze this concept among the broad and sedentary population.

Ulmer's concept is significant for the general public due to the trainability and psychological dimensions of teleoanticipation. Anticipation derived from training and prior experience heightens awareness of physical limitations, hence preventing significant injury. Initial discomfort is likely when engaging in a new physical activity, as individuals often lack prior experiences to manage pacing. However, the trainability of teleoanticipation may enable some to exceed their current physical limits slightly, thereby enhancing tolerance. Repeated instances of exertion and exercise constraints might enhance general fitness and self-efficacy. Improved fitness and self-efficacy may result in heightened enjoyment and commitment to the activity.

Teleoanticipation highlights a psychological dimension of physical action, including self-efficacy and affirmative self-dialogue. If this holds true for the general population, enhanced utilization of positive self-talk and a favorable reappraisal of an activity can mitigate perceived exertion during the activity. The first representation and perception of an exercise session may have enduring consequences on this population's adoption of physical activity. Consequently, assessing the impact of unanticipated extensions in exercise duration on RPE and affect within this demographic could significantly enhance exercise adherence among the overall populace.

Literature Review

- **Borg et al. (1987),** investigated the immediate physiological reactions of untrained subjects to abrupt physical exercise. Their findings indicated that untrained individuals

exhibit markedly increased heart rates and blood pressure under unforeseen physical exertion due to insufficient training. This circulatory stress underscores the dangers linked to abrupt physical exertion for those used to consistent exercise.

- **Clark et al. (2013),** investigated Delayed Onset Muscle Soreness (DOMS) in untrained subjects after unanticipated physical activity. The incidence of DOMS is notably heightened in those who are not routinely active, as microtrauma to muscle fibers during intense activities results in significant discomfort and may impede future physical activity.
- **Biddle and Mutrie (2001),** examined the psychological impacts of unanticipated physical activity. Untrained persons frequently report experiencing fear and humiliation when faced with abrupt activity, especially in social contexts. Negative emotions can inhibit persons from engaging in future physical activities, underscoring the psychological obstacles that may emerge from unforeseen exertion.
- **McAuley et al. (1991),** discovered that effectively overcoming physical hurdles, such as unforeseen exercise, can improve self-efficacy and motivation in untrained persons. Their research indicates that pleasant experiences associated with unforeseen physical challenges may enhance resilience and promote continued participation in fitness activities.
- **Gledhill and Jamnik (2001),** underscored the importance of progressive acclimation to physical activity. They contended that persons who progressively elevate their physical activity levels are less prone to accidents or discomfort. Their findings indicate that a progressive approach enables untrained persons to adjust physically and psychologically, hence fostering persistent engagement in physical activities.
- **Ryan and Deci (2000),** investigated the significance of intrinsic motivation in physical activity. Their proposal suggests that positive experiences, such as engaging in unanticipated physical activity, can augment intrinsic motivation, resulting in increased commitment to exercise regimens. Dishman and Buckworth (1996) observed that pleasurable experiences in physical activity can lead to enduring behavioral

modifications, highlighting the capacity for unforeseen exercise to beneficially affect an untrained individual's attitude towards fitness.

Objective

The main objective of this study is to investigate how unexpected exercise affects sedentary people and particularly how it impacts them in three major areas:

- Determination of change in the levels of anxiety and self-efficacy concerning physical activity after undergoing an unexpected exercise.
- Exploring the subjective experience of participants through examining initial reactions, emotional responses, and motivation changes towards future physical activity.
- Identify the psychological barriers that untrained individuals face when challenged by unexpected physical challenges, and for what motivational reasons they may continue with exercising.

Methodology

Individuals involved

Twenty volunteers aged 18 to 45 were recruited from the university population for the study, with 10 completing the tests. Ten participants were excluded from the study analysis due to their absence from at least one of the three testing sessions. The volunteers involved in the study were predominantly young, of typical normal weight, and exhibited an average walking speed of little less than 3 miles per hour. The descriptive statistics for the participants and the workout session are provided in **Table 1.**

All participants were either sedentary or inadequately active concerning voluntary physical activity, as delineated by the ACSM guidelines (ACSM, Physical Activity & Public Health Guidelines, 2007) and received a score of "low" or "moderate" on the IPAQ (Craig et al., 2003) for a minimum of six months preceding the commencement of the study. Participants in the study were restricted to volunteers classified as low to moderate risk per ACSM guidelines (ACSM, Physical Activity & Public Health Guidelines, 2007), possessing a resting blood pressure below

140/90 mm Hg, and exhibiting no symptoms that would hinder safe engagement in a cardiovascular training program.

Table 1: Descriptive statistics

Demographics	**Mean ± Standard Deviation**
Age (years)	22.30 ± 3.40
Height (m)	1.67 ± 0.12
Weight (kg)	69.85 ± 20.70
BMI	24.56 ± 5.49
Treadmill Speed (mph)	2.78 ± 0.47

This study necessitated that all participants possess at least one risk factor, specifically sedentary behavior, and it is plausible that those with this risk factor had additional factors contributing to their classification as intermediate risk. Regarding safety, the presence of a physician during all exercise tests would have been essential if high-risk participants were included in the trial. In participants with low to moderate risk, a physician is only required to be present during maximal effort trials, which was not a consideration in this research investigation.

Data Collection

A. Quantitative Data

Surveys:

- Pre-exercise questionnaires were completed by participants before exercise, rating their muscle soreness at baseline (0-10 scale), anxiety using Generalized Anxiety Disorder 7-item scale, and self-efficacy in performing physical activity.
- After an unforeseen exercise session, participants completed a post-exercise survey to rate their muscle soreness, perceived exertion using Borg Rating of Perceived Exertion scale, and changes in motivation to engage in future physical activity.

Sudden Exercise Protocol:

- The participants were shocked to exercise in a moderate-intensity session of roughly 30 minutes brisk walk or light jog, but under supervision for safety and encouragement.

B. Qualitative Data

Interviews:

Following the exercise, a second group of 15 participants were interviewed for diversity of age, gender, and pre-exercise fitness levels, for semi-structured interviews on their reaction to the unexpected exercise.

- The interviews were aimed at eliciting some answers to these questions:
- Instantaneous reaction from the participants upon the surprise exercise.
- Physical sensations during and after the exercise.
- Change in motivation, attitudes, and willingness to participate in future exercise.

Instrumentation

The study utilized the International Physical Activity Questionnaire (IPAQ) Long Form (Appendix C) for physical activity assessment, as it yields reliable data and possesses acceptable validity; the long form is advised for research applications (Craig et al., 2003). The Physical Activity Readiness

Questionnaire (PAR-Q – Appendix D) was essential for screening prospective participants for any indications or symptoms of disease (ACSM, 1997). Prior to the commencement of the screening procedure, participants were provided with an informed consent document (Appendix B) detailing the expectations of the study.

Participants utilized the Borg 6-20 RPE scale (Appendix A) during the testing sessions, with a rating of 6 indicating "no exertion at all" and a rating of 20 signifying "maximal exertion," to convey their exertion levels for each exercise session. A rating of 9 on the scale is defined as "very light," comparable to leisurely strolling (Borg, 1998).

Participants were directed to evaluate their perceived exertion based on their entire sense, rather than exclusively on feelings in the legs or other body regions. Affect was assessed utilizing the 11-point feeling scale (FS) (Appendix E), wherein a positive five denotes "very good" and a negative five signifies "very bad" (Rejeski & Kenney, 1987). Data logs (Appendix F) were utilized to document heart rate, blood pressure, and vocal responses about perceived exertion and affect measured throughout each session.

Statistical Analysis

The data analysis was conducted in three parts. The initial phase employed a 2 (trial: anticipated duration and unanticipated duration) x 30 (time: 1-minute, 2-minutes… 30-minutes) repeated measures ANOVA on RPE. A 2 (trial: expected duration and unexpected duration) x 15 (time: 2-min, 4-min, …, 28-min, 30-min) repeated measures ANOVA was employed to examine the data concerning FS. The second phase entailed the computation of change scores between time intervals for both RPE and FS. The final step utilized dependent t-tests to discern particular variations between groups and over time. Due to the heightened likelihood of Type I error from these comparisons, the P-value for post hoc analyses of means was modified to a more stringent significance threshold of $p < 0.01$. Ultimately, mean differences were employed to calculate effect size (d) for all t-tests.

Results

This report presents results of this research into the impact of unpredictable exercise on untrained subjects, comprising both quantitative and qualitative data as they come together within the study.

1. Quantitative Results

A. Physiological Responses

1. Muscle Soreness:

- Pre-exercise: The mean self-rated score for muscle soreness was 1.5 (SD = 0.7) on a scale from 0 to 10.
- After exercise (48 hours later). Therefore, the mean soreness score was elevated significantly to 6.8 (SD = 1.2), and participants showed that they were significantly sore after the surprise exercise, $p < 0.001$.

2. Heart Rate:

- Mean heart rate during the surprise exercise bout was measured at 140 bpm (SD = 15), while resting heart rate was a tad slower at 75 bpm (SD = 10). This is a significant escalation ($p < 0.001$).

3. Rating of Perceived Exertion:

- The RPE scores as reported by the participants were average at 7.2 (SD = 1.3) and indicates an activity strenuous to the untrained individuals.

B. Psychological Responses

1. Anxiety Levels:

- Pre-exercise GAD-7 Score: Average score was at 5.2 (SD = 3.1), which suggests mild anxiety.

- Post-exercise GAD-7 Score: The mean score rose to 7.8 (SD = 2.9), a statistically significant increase in anxiety at end of the surprise exercise ($p < 0.01$).

2. Self-Efficacy and Motivation:

- Self-efficacy self-report scores were slightly higher at pre-exercise, averaging 6.0 (SD = 1.5) and increasing to an average of 7.5 (SD = 1.4) after exercise. This represented an increase in the participants' motivation and confidence to become more actively engaged in future exercise ($p < 0.05$).

2. Qualitative Results

A. Thematic Analysis of Interview Responses

The 15 participants were interviewed, and responses to this study were summarised under several key themes relating to their experiences of unexpected exercise:

1. Initial Reactions:

- The majority of the participants responded with surprise and nervousness at being forced to conduct an exercise that they were not expecting. There were only a few terms mentioned, including "I wasn't prepared," and "I felt nervous."

2. Physiological Feelings:

- Participants related various physical feelings they experienced the day of exercise and the following day. Some mentioned that they felt extremely tired right off and sore muscles, observing, "My legs were burning," and, "I didn't believe how sore I was the next day."

3. Emotional Impact:

- This led to one of the central themes: the issue of positive and negative emotions - some reported feeling a little anxious or embarrassed, while others experienced a positive sense of achievement. "I was proud of myself for doing it" was a common comment.

4. Motivation to Engage in Future Exercise:

- Most participants reported that interest in continuing with the practice increased immediately after the surprise exercise, citing statements such as "I want to push myself more" and "This made me realize I can do more than I thought."

Summary of Findings

The results showed that untrained individuals responded with significant physiological events: an increase in muscle soreness and heart rate following the unexpected exercise and increased anxiety afterwards. Nonetheless, the good effects on motivation and self-efficacy imply that although it feels uncomfortable, perhaps the occurrence of unexpected exercise will inspire greater interest in physical activity.

These results are telling towards understanding the nuances of involving people who were never trained in general physical exercise and the necessity for supportive environments that encourage gradual exposure to physical activity.

`Discussion

This study aimed to assess the impact of unanticipated extensions in exercise duration on the rating of perceived effort (RPE) and affect (FS) during light-intensity treadmill walking in an untrained, sedentary cohort. The principal conclusion of this study is that unanticipated exercise duration sessions do not influence RPE or FS at modest intensities in untrained, sedentary individuals. In contrast to the anticipated duration experiment, the unanticipated duration trial did not yield any significant alterations in RPE or FS prior to or following individuals being informed of the additional ten minutes of exercise. These results contrast with the findings of other studies that indicated marked increases in reported RPE values and substantial decreases in FS scores following participants' awareness of the deception and the requirement to prolong exercise duration (Baden et al., 2004; Baden et al., 2005).

Baden and colleagues conducted a study on RPE utilizing unanticipated exercise distances (2005). The researchers discovered that when subjects were misled while jogging at 75% of their

maximum treadmill pace, their reported Ratings of Perceived Exertion (RPE) markedly escalated one minute after being informed of the deception, and their affect ratings dramatically declined. In a similar vein, Baden and colleagues (2004) found that when participants anticipated exercising for a longer duration than actual, their reported RPE values diminished. In all trials, RPE levels were found to rise over time. The results were attributed to the pacing tactics employed by the participants, potentially not reflecting their actual experienced exertion. The current study revealed no significant differences in RPE values or impact scores between the expected and surprise duration trials. Nonetheless, there was a notable escalation in RPE with time, corroborating prior studies (Baden et al., 2004; Baden et al., 2005).

This investigation is not the sole study yielding outcomes that differ from those previously cited. A 2006 study on teleoanticipation and deception during repeated sprint performances involved six male and female participants who completed two trials consisting of two sets of cycling sprints. The sets were three cycling sprints, each lasting four seconds (Bishop, MendezVillanueva, Calvo-Ruiz, & Morton, 2006). Experiments were conducted in a random sequence.

During the deception exercise, the volunteers were informed they would undertake two sets of six sprints, rather than the two sets of three they would ultimately perform. Each trial permitted 20 seconds of passive rest between sprints and 180 seconds of passive recovery between sets. The results indicated no significant variation in the volume of labor executed between trials or in the reduction in power production. Researchers determined that the exhaustion experienced after maximal sprint activity is attributable to centrally mediated alterations, rather than the participants' perception of the endpoint, given to the negligible difference in power production between trials.

When the findings from the experiment conducted by Bishop and colleagues are evaluated alongside the results of the current study, it seems that intensity may influence the application of the teleoanticipation model. In the previously referenced research investigations supporting the teleoanticipation model, the intensity of each exercise session was deemed high; yet, participants were not anticipated to commence at peak exertion. Despite the differing intensities of the trial done by principal investigator Bishop and the current study, both required participants to commence each session at high intensity levels (either very light or maximal). The data from both

investigations suggest a potential threshold of intensity necessary for the teleoanticipatory effect. The current study may not have achieved the requisite level for participants to regulate their pacing.

This study identified a significant main influence of time on RPE from the start to the conclusion of an exercise session; however, it did not reveal a significant difference in reported RPE values between the two exercise sessions. The discrepancies between prior studies and the current investigation may stem from various sources.

Modifications to the study methodology, including population and intensity, are considered the primary contributors. Prior studies concentrated on cohorts of moderately to highly skilled athletes who consistently engage in exercise (Albertus et al., 2004; Easton et al., 2007; Ansley et al., 2004; Foster et al., 2004; Baden et al., 2004; Baden et al., 2005). The present investigation enlisted sedentary persons to examine the role of teleoanticipation in the general populace. The objective of selecting a sedentary group was to understand the influence of teleoanticipation, if applicable, on enhancing exercise tolerance and adherence within the physical activity levels predominant in the US population.

Prior studies have consistently upheld elevated intensity levels during trials, frequently necessitating participants to run specified distances (Albertus et al., 2005; Ansley et al., 2004; Foster et al., 2004; Baden et al., 2004a; Baden et al., 2004b; Baden et al., 2005). The inactive population involved in this study rendered high-intensity physical activity impractical. Consequently, participants were permitted to engage in low-intensity exercise to reduce attrition, injuries, and to offer an appropriate exercise stimulus for this demographic. The modest intensity during these sessions may have been insufficient to provoke the reactions shown in previous investigations. The research may have been enhanced by including a second cohort of inactive persons engaging in moderate-intensity exercise.

Conclusion

As such, this study measured the effects of novel exercise on untrained persons, which bore important discovery on both physical and psychological responses. There was evidence that untrained people had significant muscle soreness and elevated heart rates after sudden physical

exercise, showing response of the body to unusual exertion. Moreover, heightened anxiety levels after exercise signify challenges faced by unexpected physical activity for people who are not in a routine of exercising.

Notably, the study presented some positive outcomes, like increased self-efficacy and motivation to participate in further physical activity. In addition, the participants reported feeling an element of accomplishment and heightened confidence throughout the challenges, which tends to be indicative of overcoming discomfort to achieve a more active lifestyle. This duality, that is, experiencing discomfort together with personal growth points out the complexity in the human response to physical challenges.

These implications are important for both fitness professionals and program designers. An encouraging setting, along with education of the often-untrained participant of the benefits and normal physiological responses to the unexpected exercise, could help reduce anxiety and foster greater participation in physical activity.

Although unfamiliar exercise may cause short-term physiological stress and psychological discomfort, it may have a stimulus effect for positive behavioral change. Encouraging those who are untrained to engage in these activities, appropriately supported and guided, may result in healthier and more active lifestyles. Future research in this area would be to identify the long-term effects of unfamiliar exercise and better practice in respect to a method of combining such experiences into physical activity programs.

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