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Tiny is Mighty? Investigating the Effect of Micro Goals on Physical Activity

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ABSTRACT

While “micro” goals (small, frequent actions aimed at building lasting habits) have gained widespread popularity, their effectiveness in increasing physical activity remains underexplored. This study tested whether a daily, short-duration exercise goal increased physical activity more effectively than a standard goal of less frequent, longer workouts. Participants ($n=142$) were randomly assigned to a micro goal group (3 min daily plus two 20-minute sessions weekly) or a standard goal group (two 30-minute sessions weekly). Participants tracked their daily exercise duration, enjoyment, and ease of adherence over 3 wk. The micro goal group exercised significantly more time overall than the standard goal group, with ease of adherence mediating this effect. The evidence supports using micro goals to increase physical activity and highlights their potential for habit formation and public health interventions.

STATEMENT OF PUBLIC HEALTH SIGNIFICANCE

Short, daily “micro” exercise goals increased physical activity more effectively than traditional less-frequent workout goals by making exercise easier to maintain. These findings suggest that micro goals may be a practical, scalable strategy for promoting physical activity, supporting habit formation, and improving population health.

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Introduction

Setting and achieving lifestyle goals is central to many behavior change programs,¹ yet how these goals are framed can significantly affect adherence and long-term outcomes.² Regular physical activity (PA) supports weight loss,³ weight maintenance^{4,5} and overall health.⁶ The World Health Organization (WHO) recommends that adults ages 18–64 engage in 150–300 min of moderate-intensity PA per week, yet one in three people globally fall short.^{7,8}

PA interventions often involve goal setting,^{9,10} but goal pursuit is difficult, and long-term success rates are low.¹¹ Standard approaches typically prescribe longer, less frequent exercise sessions (e.g., 30 min twice weekly).¹² These can feel effortful and increase the risk of procrastination and disengagement.¹³ A key reason is that starting a task is often harder than continuing it, particularly when the perceived effort is high. This initiation barrier is a central obstacle to sustained exercise behavior.¹⁴

An increasingly popular alternative is the use of “micro goals,” small, daily actions designed to initiate more substantial behavior. Popularized by books such as *Atomic Habits*,¹⁵ and *Tiny Habits*,¹⁶ this approach promotes setting goals that are so easy they feel almost impossible not to complete. Crucially, the goal is not that three minutes of exercise will transform fitness; it is that completing a small action repeatedly builds the behavioral foundation for more.^{15,16} This approach is also consistent with the “success breeds success” phenomenon, which describes a self-reinforcing process in which early goal attainment enhances psychological and behavioral readiness for continued action.¹⁷

These repeated small successes generate psychological momentum—a state in which motivational forces such as confidence, energy, and perceived progress combine to sustain behavior.¹⁸ When people

feel momentum, they sense tangible progress, which encourages continued effort.^{19,20} Repeating small actions builds this perception of forward movement, often called “perceptual velocity.”^{19,20} Micro goals also provide an opportunity to experience immediate rewards, which are particularly effective for supporting sustained engagement.²¹ These small wins can spark a feedback loop of motivation, emotion, and identity, reinforcing one’s sense of being an active person.²² Early successes have been linked to greater confidence, perceived control, and even neurochemical responses such as dopamine release.^{23–25}

The converse is equally important. Disrupting momentum can make restarting more difficult and may lead to goal avoidance and abandonment.²⁶ This has been termed ‘inaction inertia,’ where missing an initial opportunity for action reduces motivation to engage in future ones, especially if subsequent opportunities are less attractive than the first one missed.²⁶ Micro goals reduce this risk precisely because their low bar makes re-engagement psychologically easier—a missed day costs less when the next day’s goal is only three minutes.^{27–29} Drawing on Prospect Theory,³⁰ goals serve as reference points:³¹ motivation increases as goals feel closer and decreases when they feel out of reach.^{32,33} Subgoaling (breaking goals into smaller increments) makes progress feel achievable and boosts persistence, particularly for those starting from a low baseline.^{34–36}

Emerging evidence suggests micro goals can help increase and sustain PA. The Snacktivity framework, which encourages short 2–5 min bouts of exercise accumulated throughout the day, is viewed positively by the public.³⁷ It is seen as acceptable and desirable^{38,39} and feasibility trials show moderate PA increases in inactive participants.⁴⁰ Another study delivered a culturally tailored weight loss intervention in New Zealand that encouraged daily behavior challenges around diet and activity.⁴¹ Among the various goals, low-effort tasks such as standing breaks or drinking water were the most consistently completed and sustained. These findings suggest that small, repeatable actions are more likely to be integrated into daily life.

One relevant line of evidence comes from Peetz et al.,¹³ who showed that presenting the same weekly exercise program in equivalent daily units—for example, two hours a week framed as 17 min a day—made the time commitment feel more manageable and increased both intentions to exercise and actual exercise behavior. The effect worked through time perception rather than in-session difficulty or enjoyment, which did not differ between conditions. This is consistent with broader evidence that it is not how exercise feels in the moment, but how it is remembered afterwards, that most strongly predicts future participation, with more positive affective memories of a session predicting greater likelihood of exercising again.⁴² Micro goals may support this process by making sessions feel manageable enough to complete, generating repeated positive experiences that sustain engagement over time. Whilst Peetz et al.¹³ manipulated only how exercise was described, the present study tests whether actually structuring goals differently produces the same effect—and whether ease of adherence, rather than time perception, is the mechanism.

However, despite strong theoretical support, there is a lack of empirical studies directly comparing the effectiveness of micro goals to standard goal-setting approaches. Such comparisons are important for evidence-based health advice.

The present study directly compared a micro goal format to a standard goal approach in a three-week randomized controlled trial. There is also reason to expect that micro goals may influence workout enjoyment. Sessions that feel achievable and free from the pressure of a demanding target may be experienced more positively, and more positive affective memories of exercise have been shown to predict future participation.⁴² Two main hypotheses were tested:

H1: Participants assigned to micro goals will accumulate significantly more exercise minutes over the three-week study period than participants assigned to standard goals.

H2a: The effect of goal type on exercise minutes will be mediated by ease of goal adherence, with micro goal participants reporting higher ease ratings.

H2b: The effect of goal type on exercise minutes will be mediated by workout enjoyment, with micro goal participants reporting higher enjoyment ratings.

Methods

Ethics approval was granted by the City St George's, University of London Psychology Department Research Ethics Committee on February 15, 2024 (reference: ETH2324-1232). The study was conducted between February and May 2024. Participants provided informed consent *via* an online screening questionnaire hosted on Qualtrics.

Participants

Participants were recruited through Oviva (Oviva UK Ltd, London), a remote digital weight management service that delivers educational material and dietitian-led coaching, and to which patients are referred *via* the UK's National Health Service. All participants were based in the United Kingdom and enrolled in one of the following programs: Tier 2 Weight Management, the National Diabetes Prevention Program, or Diabetes Structured Education. The study was advertised to participants who were in the final two weeks of their program or who had completed it within the past 30 days.

Inclusion criteria: 18–64 years old, owning a smartphone, having access to and using WhatsApp, exercising less than 30 min per week at a moderate-to-vigorous intensity (excluding walking), an interest in exercising more, and a willingness to commit to the study for three weeks. Exclusion criteria: Exercised for > 30 min per week, not interested in exercising more, did not have or use WhatsApp, unable to commit to the study for 3 wk.

Study design

This was an experiment with two groups: micro goal (experimental) and standard goal (control). The intervention period lasted 3 wk. In the micro goal group, participants were instructed to exercise every day for 3 min and to extend their exercise sessions by 20 min twice weekly (total target: 61 min per week). In the standard goal group, participants were instructed to exercise for 30 min twice weekly (total target: 60 min per week).

The specific durations were selected pragmatically: a 3-min daily session was chosen as a goal brief enough to feel trivially achievable, with two 20-minute sessions added to ensure a meaningful weekly exercise dose of approximately 60 min, divided in a way that is easy to recall. This structure is consistent with the Snackitivity framework,⁴⁰ which defines activity snacks as typically lasting 2–5 min on the basis that brevity removes time as a perceived barrier to engagement,⁴⁰ and with broader theoretical arguments that daily micro goals must feel effortless rather than demanding to support habit formation.^{15,16}

Participants were randomly assigned to groups using the Excel RANDBETWEEN function. A list of participants (1–220) was entered in one column, and in the adjacent column the function generated a random value of 0 or 1. Participants assigned a value of 1 entered the experimental group, and those assigned a value of 0 entered the control group. Examples of PA provided in the instructions included dancing or home workouts. Walking was excluded because it is often integrated into daily routines (e.g., commuting, errands) and may not reflect a deliberate effort to exercise. To better capture intentional PA and ensure consistency across participants, the study focused on activities requiring a clear decision to be active and typically involving higher intensity or effort than casual walking.

The participants were unaware of group assignment, but researchers conducting the study and analyzing the data were not blinded. All materials and communications were conveyed *via* WhatsApp (Meta Platforms, Will Cathcart).

The sample size was determined by using G*Power.⁴³ A total sample size of 128 participants (64 per group) was required to achieve a power of .80 with an effect size of $d=0.50$, and an alpha of .05. The effect size was informed by prior research in which framing exercise as brief daily sessions rather than longer weekly sessions produced meaningful effects ($d=0.53$ – 0.83 ¹³). Given high expected attrition, 203 participants were recruited. By the end of the study, approximately 30.0% ($n=61$) of participants had either dropped out or were excluded for insufficient engagement (submitting reports

for fewer than 10 days), leaving a final sample of 142 participants (micro goal group, $n=74$; standard goal group, $n=68$), meeting the required sample size (Figure 1). No significant differences were found for age, BMI, gender, ethnicity, deprivation, or condition assignment between those who dropped out and those who were retained.

Materials

Video instructions

Participants were sent two instructional videos: one explained their exercise goal (different for the two groups), and the other explained how to complete the check-in report. In the videos, participants were asked to formulate a plan for when and where they would exercise and to send this plan to the researcher. This step ensured that participants watched the full video and that they set a concrete exercise goal.

The goal instruction videos (micro goal: 2.46 min; standard goal: 2.17 min) were mostly identical across groups, differing only in the exercise timing instructions.

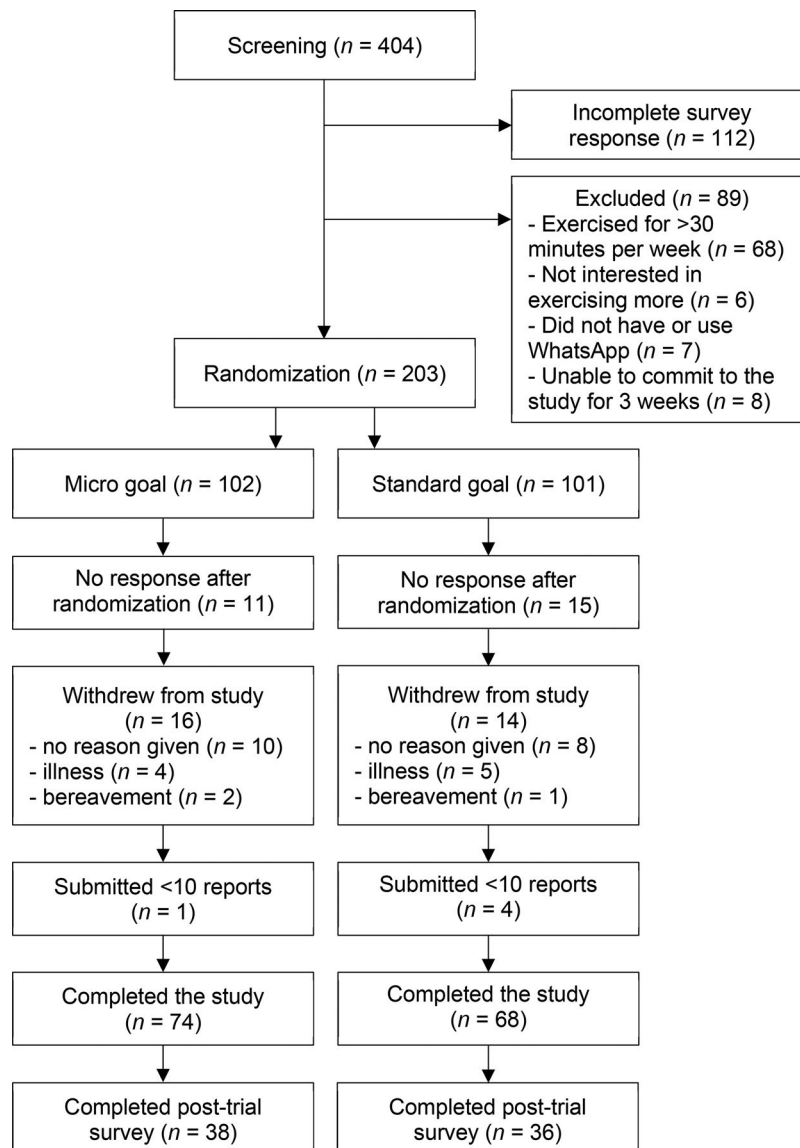


Figure 1. Participant flow chart throughout the study.

Participants were asked to report three times per week (Mondays, Wednesdays, and Fridays) on their exercise over the previous 2–3 days. Questions include (a) how many minutes they exercised, (b) how enjoyable each workout was, using a 1–5 smiley-face scale (1 = very unenjoyable, 5 = very enjoyable; omitted on non-exercise days), and (c) how easy or difficult it was to adhere to their exercise goal across the reporting period, again on a 1–5 scale (see [Appendix 1](#)). Up to nine check-in reports could be submitted during the three-week study. The instructional video explaining how to complete the check-in report was the same for both groups (1 min 58 s long).

End-of-study survey

At the conclusion of the experiment, all participants were sent a WhatsApp message inviting them to provide feedback on their experience *via* an online survey. Participants rated their perceived success in meeting their exercise goal on a 1–9 scale (1 = very unsuccessful, 9 = very successful) and were invited to explain their rating. They also described the challenges they encountered, how they addressed them, and rated both their motivation and the difficulty of following their plan on 1–5 scales. Additionally, participants reported what helped them stay on track and indicated whether they intended to continue pursuing their exercise goal after the study. The open-ended questions allowed participants to reflect on their reasons for participating and share their thoughts on the exercise goal they were assigned.

Data analysis

The primary outcome was participants' self-reported minutes of exercise completed during the 21-day study period. Secondary outcomes included self-reported enjoyment and ease-of-adherence ratings, along with feedback on participants' experiences in the experiment.

Participants were classified as “dropouts” if they did not respond to the initial WhatsApp messages, withdrew from the study, or failed to report exercise activity for at least 10 of the 21 study days. Both per-protocol (PP) and intention-to-treat (ITT) analyses were conducted to provide a comprehensive assessment of intervention effects and ensure the robustness of experimental results.⁴⁴ Outliers were addressed using bootstrapping with 5,000 resamples.

Categorical variables (e.g., gender, ethnicity) were presented as frequencies (*n*) and percentages, and continuous variables (e.g., age, exercise minutes) were presented as means with standard deviation (SD). Group comparisons for continuous variables were conducted using independent-samples *t* tests, and categorical variables were compared using chi-square tests.

Mediation analyses were performed to test the relationship between goal group (*X*) and exercise minutes (*Y*), with enjoyment and ease of adherence as mediators (*M*). The analyses assessed: path *a* (effect of *X* on *M*), path *b* (effect of *M* on *Y*), path *c* (total effect of *X* on *Y*), and path *c'* (direct effect of *X* on *Y* controlling for *M*).

Dropout rates were calculated as percentages, including participants who did not respond to the initial check-in message, those who withdrew, and those who submitted fewer than 10 daily reports.

Qualitative data from open-ended survey questions were analyzed using descriptive thematic analysis. An inductive review approach was applied to identify common themes and divergent perspectives. Representative participant quotes were included to illustrate the range of experiences, with the goal of highlighting key advantages, challenges, and the personal significance of the intervention.

All statistical analyses were conducted using IBM SPSS Statistics version 29. Statistical significance was set at $p \leq .05$ (two-tailed).

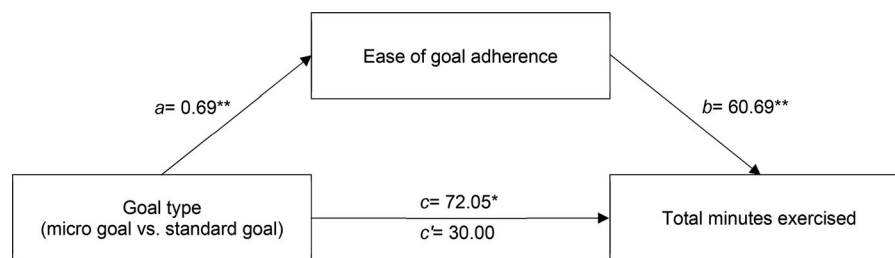
Results

Participant characteristics

The two groups were relatively well matched in terms of age, gender, and ethnicity ([Table 1](#)). On average, participants were in their 50s, the majority were women, and most identified as White. The

Table 1. Demographic characteristics of the two groups.

Demographic characteristic		Micro goal (<i>n</i> = 74)	Standard goal (<i>n</i> = 68)	<i>p</i> value*
Age ¹		53.82 (10.31) (<i>n</i> = 72)	51.83 (11.53) (<i>n</i> = 68)	.30
Gender ²	Men	37.84% (<i>n</i> = 28)	30.88% (<i>n</i> = 21)	.32
	Women	59.46% (<i>n</i> = 44)	69.12% (<i>n</i> = 47)	
Ethnicity ³	Asian	17.57% (<i>n</i> = 13)	19.12% (<i>n</i> = 13)	.27
	Black	12.16% (<i>n</i> = 9)	17.65% (<i>n</i> = 12)	
	White	56.76% (<i>n</i> = 42)	60.29% (<i>n</i> = 41)	
	Mixed	4.05% (<i>n</i> = 3)	1.47% (<i>n</i> = 1)	
	Other	5.41% (<i>n</i> = 4)	0.0% (<i>n</i> = 0)	
	Refused	0.0% (<i>n</i> = 0)	1.47% (<i>n</i> = 1)	
BMI ⁴ (kg/m ²)		37.00 (2.92) (<i>n</i> = 69)	35.64 (2.40) (<i>n</i> = 63)	.77

¹Missed age 1.4% (*n* = 2).²Missed gender 1.4% (*n* = 2).³Missed ethnicity 2.1% (*n* = 3), all in micro goal group.⁴Missed BMI 7.04% (*n* = 5 in micro goal group, *n* = 5 in standard goal group). Categorical data were presented as % (number), continuous data were presented as mean (*SD*).*Chi-square test for categorical variables, and independent *t* test for continuous variables.**Figure 2.** Mediation model showing ease of goal adherence ratings fully mediated the effect of goal type on total minutes exercised. Standardized coefficients shown; $p < .05^*$, $p < .001^{**}$.

mean body mass index (BMI) for both groups was in the obese range.⁴⁵ No significant demographic differences were observed between groups (Table 1).

Main analyses (per-protocol)

Minutes of exercise

Participants in the micro goal group exercised significantly more minutes over the three-week period compared with those in the standard goal group (316.16 ± 223.60 min vs. 243.76 ± 133.43 min), $p = .02$.

Workout enjoyability and ease of goal adherence

Reported workout enjoyability ratings did not significantly differ between groups (micro goal: 3.92 ± 0.70 ; standard goal: 3.85 ± 0.54), $F(1,136) = 0.41$, $p = .52$. However, participants in the micro goal group rated goal adherence as significantly easier than those in the standard goal group (3.77 ± 0.91 vs. 3.08 ± 0.98), $F(1,138) = 18.96$, $p < .001$.

Mediation analyses—ease of goal adherence as a mediator

Figure 2 displays the mediation model. Participants in the micro goal group exercised significantly more minutes than those in the standard goal group (*c* path), $b = 72.05$, $t(138) = 2.30$, $p = .02$, 95% CI [10.16, 133.94]. Ease ratings were significantly higher for the micro goal group compared with the standard goal group (*a* path), $b = 0.69$, $t(138) = 4.35$, $p < .001$, 95% CI [0.38, 1.01]. Higher ease ratings also predicted greater exercise minutes (*b* path), $b = 60.69$, $t(137) = 3.80$, $p < .001$, 95% CI [29.08, 92.30]. After accounting for ease of adherence, the direct effect of goal group on exercise minutes (*c'* path) was non-significant, $b = 30.00$, $SE = 31.87$, $p = .35$, 95% CI [−33.03, 93.02]. The bootstrapped indirect effect was significant, $b = 42.05$, $SE = 13.57$, 95% CI [17.51, 70.84], with the confidence interval excluding zero, supporting full mediation of the effect of goal group on exercise minutes through ease of goal adherence.⁴⁶

Table 2. Post-study ratings of success (1–9 scale), motivation (1–5 scale), and ease of goal adherence (1–5 scale), along with future intentions by condition.

	Micro goal (<i>n</i> = 38)	Standard goal (<i>n</i> = 36)	
Success in completing goal	6.26 (2.47)	6.14 (2.58)	$F(1,72) = 0.05, p = .83$
Motivation to achieve goal	4.08 (0.94)	4.14 (0.80)	$F(1,72) = 0.09, p = .77$
Overall ease of goal adherence	3.08 (1.24)	3.03 (1.21)	$F(1,72) = 0.03, p = .86$
Plans to continue pursuing the goal?			$\chi^2(2) = 1.14, p = .57$
Yes	81.58% (<i>n</i> = 31)	69.44% (<i>n</i> = 25)	
Maybe	15.79% (<i>n</i> = 6)	22.22% (<i>n</i> = 8)	
No	2.63% (<i>n</i> = 1)	8.33% (<i>n</i> = 3)	

Ratings are reported as means (*SD*), with higher scores indicating greater endorsement. Future intentions are presented as percentages with number in parentheses.

The ITT analysis showed a similar pattern of results to the per-protocol (PP) analysis for the primary outcome (minutes of exercise), although the effect was no longer statistically significant ($p = .07$). Ease of goal adherence remained significantly higher in the micro goal group ($p < .001$), while workout enjoyment did not differ between groups ($p = .44$).

Mediation Analyses—Workout enjoyment as a mediator

Goal group did not significantly predict workout enjoyment (a path), $b = 0.07$, $SE = 0.11$, $p = .52$, 95% CI $[-0.14, 0.28]$. Accordingly, the bootstrapped indirect effect through enjoyment was non-significant, $b = 5.93$, $SE = 9.04$, 95% CI $[-12.70, 23.54]$, indicating no mediation through enjoyment.

Post-Study feedback

Ratings

At the end of the three-week study, 52.11% ($n = 74$) completed the post-study survey [micro goal group: 51.35% ($n = 38$); standard goal group: 52.94% ($n = 36$)]. Responses indicated comparable ratings of perceived success, motivation to complete the goal, and ease of meeting the goal. Participants in the micro goal group reported being somewhat more willing to continue pursuing their exercise goal in the future; however, this difference was not statistically significant (Table 2).

Qualitative feedback

Participants shared a wide range of experiences with their exercise goals, highlighting both benefits and challenges across the two approaches. In both groups, participants often described their goals as “realistic” and “achievable”. Within the micro goal group, daily sessions were particularly valued as “a sensible starting point,” “a way of easing my way back to fitness,” and “just right to get me back into exercising.” Many participants appreciated the simplicity and accessibility of the micro goal approach, which made it easier to establish a consistent routine.

Despite the perceived achievability of the goals, many participants encountered barriers that disrupted their progress. Common challenges included illness, low mood, vacations, and other life events. For example, one micro goal participant shared, “Had some personal stuff going on during the last month which meant I couldn’t always stick to it,” while a standard goal participant said, “I think I could have done better if I would not be on holiday and sick.” Physical limitations also posed obstacles: “pain in feet and knees” prevented regular exercise. Even the minimal time commitment of the micro goal approach was difficult for some, with one participant admitting, “I struggled to do the 3 min every day, life got in the way.”

In the micro goal group, the additional 20-minute sessions were frequently described as particularly challenging. One participant noted, “I struggled to do 20 min twice a week. Three minutes were more achievable for me.” By contrast, participants in the standard goal group expressed a preference for shorter, more frequent sessions, with one saying, “I think I would rather do 3×20 min; I think it would be more realistic and manageable,” and another suggesting that “shorter, more regular bursts of exercise” would better fit their lifestyle.

Despite these challenges, many participants in the micro goal group emphasized the advantages of the approach. One reflected, “Realizing that exercise doesn’t have to be all or nothing. A little exercise consistently is better than setting an unachievable goal.” Others appreciated how the plan encouraged routine, with one noting, “It has given me the impetus to carry on.” Several highlighted the mental health benefits of smaller commitments, as one explained, “I do the bare minimum each day and mentally that makes me feel good.”

The practicality of micro goals was also praised. As one participant reflected: “For years, the GP nurse had been telling me to exercise for 60 min at least 3 times a week. I was never able to (...) Shorter times to build up and get started is definitely the way to go.” Others noted the long-term potential of micro goals. One participant concluded, “Creating a positive routine that is manageable and forms a base level that can be built on gives each day a boost of optimism with a sense of achievement.”

Discussion

As hypothesized, the micro-goal group exercised significantly more than the standard-goal group, with an average of 72.40 extra minutes across the 3-week study. This effect appeared to be mediated by ease of goal adherence, suggesting that the simplicity and consistency of micro goals helped participants maintain higher levels of activity. Contrary to our hypotheses, however, there were no significant differences between groups in workout enjoyment. One possible explanation is that enjoyment largely reflects the nature of the activity itself, such as whether participants chose dancing, yoga, or strength training, rather than the way the goal is framed. Micro goals may facilitate initiation and sustained engagement by reducing barriers and making behavior feel more manageable, but they do not necessarily increase the intrinsic pleasure of the exercise. In some cases, brief or lower-intensity sessions may even feel less engaging than longer, more intensive workouts. Overall, micro goals appear to enhance adherence by lowering the threshold for action but do not inherently amplify the emotional reward of the activity.⁴⁷

Our results provide evidence supporting the micro goal approach, consistent with findings from the “Snacktivity” project, which also used short, frequent bouts of activity to encourage PA.³⁷ The qualitative survey suggests participants in the micro goal group emphasized that small, consistent commitments made exercise feel more manageable and motivating, helping them integrate it into their daily routines. This aligns with theoretical frameworks posited by BJ Fogg,¹⁶ and James Clear,¹⁵ which suggest that regular, achievable actions are key to building sustainable habits.

It is not possible from the present design to determine whether goal size, goal frequency, or their combination accounts for the observed differences. The micro goal construct, as theorized by Clear,¹⁵ and Fogg,¹⁶ requires both elements: a daily action small enough to feel effortless even under constrained circumstances, and sufficient repetition to consolidate a behavioral habit. A goal pursued rarely is unlikely to become habitual regardless of its size; a goal pursued daily but perceived as demanding may not survive the inevitable disruptions of daily life. The present study tested whether this combined structure produces more exercise than a standard approach—a question that has received limited empirical attention—and found support for the approach. Future research employing dismantling designs, in which size and frequency are varied independently, would help isolate the active ingredients of the micro goal format and identify which combinations best support long-term habit maintenance. It should be noted that participants in the standard goal condition were not restricted from exercising on additional days; however, the higher initiation barrier associated with 30-minute sessions may have made unplanned exercise less psychologically accessible, a difference that is central to the theoretical rationale of the micro goal approach rather than incidental to the design.

During the study, participants rated workout enjoyment and ease of goal adherence multiple times per week, while their memories of the workout were still recent. During these real-time assessments, ease ratings were higher in the micro goal group. However, retrospective ratings collected in the post-study survey showed no significant differences between the groups, with average ease ratings in the micro goals group decreasing from 3.77/5 during the study to 3.08/5 in post-study.

This discrepancy may be due to memory bias, with micro goal participants remembering their sessions as more challenging.⁴⁸ Alternatively, the limited sample size of the post-study survey [51.35% ($n=38$) in micro goal group and 52.94% ($n=36$) in the control group completed the post-study survey] could have influenced the results. Future research should investigate strategies to influence retrospective perceptions of goal adherence. Drawing on principles such as the peak-end effect, known to shape how experiences like medical procedures are remembered, similar techniques could be employed to help individuals recall their exercise goals as more positive and less effortful.⁴⁹

Interestingly, some participants reported feeling motivated to adhere to their goals to avoid disappointing the researcher, indicating that regular WhatsApp messages from the researcher were often perceived as a source of support and accountability. Previous research has also found check-in messages to be beneficial when promoting PA.⁵⁰ This may link to the concept of social facilitation, in which individuals perform superiorly when in the presence of others or socially supported.⁵¹ It may be suggested that although the check-ins were not physical interactions, they may have created a similar effect by making participants feel more accountable and supported in achieving their goal. Therefore, this social component may be equally important as the goal itself in facilitating goal adherence,⁵² thus, should be considered when developing the most optimal PA intervention for inactive individuals.

One of the key strengths of our study is that we targeted completers or near-completers of a structured weight loss program. It is especially important to maintain regular PA after losing weight, as it has been shown to protect against weight regain.^{4,5} Thus, our study had high ecological validity and targeted a relevant target audience for the intervention. Our study design also reduced recall bias, as we regularly collected reports on how long patients exercised for and how they perceived them and their overall goal. We used WhatsApp to reduce participant burden and enable quick, familiar communication of exercise status. This approach made responses more likely, improving both data accuracy and validity.

This study has several limitations. First, it relied on self-reported PA, which may have been subject to inaccuracies, and did not capture activity patterns throughout the day, limiting our ability to assess whether micro-goal participants compensated by being less active at other times. Furthermore, the type and intensity of physical activity were not recorded, meaning we were unable to control for differences in exercise intensity across participants or conditions. Participants in both groups self-selected their activities, and it is possible that systematic differences in the type or vigor of exercise—rather than goal format alone—contributed to the observed differences in accumulated minutes. Objective measures such as wearable activity trackers would address this in future research, though inconsistent wear remains a known limitation of such devices.⁴⁰ Second, the intervention duration was relatively short (three weeks), potentially insufficient to capture the long-term impact of the two approaches; future research should examine whether micro goals support sustained PA over longer periods. Third, the study did not screen participants for health status prior to enrollment. Because the intervention required physical activity at an intensity beyond casual walking, unassessed differences in physical capacity and health-related motivation may have influenced engagement and outcomes. Future studies could measure health status (in relation to physical activity capacity) at baseline to explore whether this moderates the effect of goal type on exercise outcomes. For example, micro goals may be particularly beneficial for those with more limited capacity, because they feel more achievable. It would also be useful to record the types of activities people engaged in—this would help rule out the possibility that those exercising for longer periods were selecting easier exercises. Fourth, ease of goal adherence was rated as a single summary score across each 2-3 day reporting window rather than per session. In the micro-goal condition, this window could encompass both 3-min and 20-minute sessions, meaning it is unclear whether ease ratings reflect the shorter sessions, the longer sessions, or a blended evaluation of both. Future research should collect session-level ease ratings to allow more precise attribution of responses to specific goal formats. Fifth, the total prescribed weekly exercise time differed marginally between conditions (micro goals: 61 min; standard goals: 60 min), and it cannot be entirely ruled out that some of the observed difference in accumulated minutes reflects this additional prescribed volume. Sixth, the significantly greater exercise minutes observed

under the PP analysis were no longer significant under ITT, highlighting the impact of nonadherence and the need for cautious interpretation. Finally, dropout rates were high in both groups, partly attributed to Easter holidays coinciding with the study period; however, comparable rates have been observed in similar research.^{41,51}

Future research should also explore the optimal intensity and duration of micro goals. For instance, some participants suggested that extending sessions to 10 min instead of 20 might be more achievable. Additionally, comparing the effectiveness of micro goals to other formats, such as open-ended goals could provide further insights into the most effective strategies for promoting PA in inactive populations.⁵³

Conclusions

This study provides evidence supporting the use of small, daily goals to increase PA levels in inactive populations. There was evidence to suggest the effect was mediated by ease of goal adherence. By breaking down goals into smaller, manageable tasks, micro goals offer an accessible entry point for developing consistent exercise routines. While further research is needed to refine and validate this approach, the findings suggest that micro goals have the potential to help individuals build lasting habits and achieve sustainable behavioral change.

Author contributions

CRedit: **Joanna Szypula**: Conceptualization, Formal analysis, Funding acquisition, Methodology, Project administration, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing; **Rebecca Dawson**: Data curation, Investigation, Methodology, Project administration, Resources, Writing – original draft; **Honglin Dong**: Supervision, Validation, Writing – review & editing; **Katy Tapper**: Conceptualization, Formal analysis, Funding acquisition, Methodology, Resources, Supervision, Validation, Writing – review & editing.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Declaration of generative AI use

The authors used Claude (Anthropic; v1.15962.1) to assist with editing and proofreading during manuscript preparation. All content was written and reviewed by the authors, who take full responsibility for the integrity of the work.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, [JS], upon reasonable request.

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Appendix 1. Check-in text message

Study participants were contacted *via* WhatsApp at regular intervals to report their exercise progress. To standardize responses and minimize participant burden, a structured message format was used for all check-ins.

Each check-in message from the researcher asked participants to report on their exercise behavior over the previous two or three days. For each day, participants were instructed to indicate:

- Whether they had exercised (Y=yes, N=no)
- If yes, the number of minutes exercised
- A rating from 1 to 5 indicating how enjoyable the workout was

In addition, participants provided a final rating (1–5) indicating how easy or difficult they found it to adhere to their exercise goal over the period in question.

Example

If a researcher requested information for Monday and Tuesday, and a participant exercised for 15 min on Monday (high enjoyment, rating 5), did not exercise on Tuesday, and reported moderate difficulty adhering to their goal (rating 3), the message would be formatted as follows:

Y, 15, 5
N
3