

## **SUPPLEMENTAL STUDIES, METHODS, AND RESULTS REPORTING**

### **STUDY 1a**

#### **Study Introduction Instructions**

Thank you for taking part in this study. All of your answers are completely confidential and none of the information will be used in a way that would permit you to be identified. Your participation in this survey is, of course, voluntary. It is very important that you answer as honestly and as accurately as you can. If there is any question you would prefer not to answer, then you can go on to the next question.

We'll be asking questions mostly about your neighborhood. It is important that your answers are as accurate as you can make them, so take time if you need it to think about your answers.

Please stop and ask our staff if you have any questions about the kind of information we want or if you don't understand a question.

Remember...

- We want to know what you think.
- There are no right or wrong answers.
- Everything you will tell us will be kept strictly confidential (secret).

#### **Demographic Information**

What is your age?

What is your gender?

Male  
Female

What is your race?

Black  
White  
Hispanic  
Asian  
Other

What is your total household income, combined across all income earners that live in your home?

<US\$ 25,000  
US\$ 25,000 to US\$ 49,999  
US\$ 50,000 to US\$ 74,999  
<US\$ 75,000

#### **Questions Selected from Survey for Analysis in Study 1a**

There are many interesting things to look at while walking in your neighborhood. Would you that you...

- Strongly disagree
- Somewhat disagree
- Somewhat agree
- Strongly agree
- Don't know/Not sure

Which of the following are you trying to do about your weight?

- Lose weight
- Gain weight
- Stay the same weight
- I am not trying to do anything about my weight

In general, how physically active are you? Would you say very active, somewhat active, not very active or not active at all?

- Very active
- Somewhat active
- Not very active
- Not active at all
- Don't know

## STUDY 1b

### **Demographic Information**

What is your zip code?

What is your gender?

Male

Female

Other

What is your age?

What is your race?

White

Black or African American

American Indian or Alaska Native

Asian

Native Hawaiian or Pacific Islander

Other

What is your total household income, combined across all income earners that live in your home?

Less than \$10,000

\$10,000 - \$19,999

\$20,000 - \$29,999

\$30,000 - \$39,999

\$40,000 - \$49,999

\$50,000 - \$59,999

\$60,000 - \$69,999

\$70,000 - \$79,999

\$80,000 - \$89,999

\$90,000 - \$99,999

\$100,000 - \$149,999

More than \$150,000

What city do you live in?

New York City

Washington, DC

Boston

San Francisco

## **Primary Methods**

Consider times when you walk or run for the purpose of exercising in your neighborhood. Indicate the degree to which this describes your experience.

There are many interesting things to look at while walking in your neighborhood. Would you that you...

- Strongly disagree
- Somewhat disagree
- Somewhat agree
- Strongly agree
- Don't know/Not sure

In general, how physically active are you? Would you say very active, somewhat active, not very active or not active at all?

- Very active
- Somewhat active
- Not very active
- Not active at all
- Don't know

## **Secondary Methods**

Which of the following are you trying to do about your weight?

- Lose weight
- Gain weight
- Stay the same weight
- I am not trying to do anything about my weight

Your eyes and your attention are captured by interesting things around you. Your eyes stay fixed on this interesting thing for a while. You keep walking or running, and you pass by other things but they don't seem to catch your eye. You move past them without noticing them. You instead stay focused on that eye-catching thing. At some point, you've walked or run past it, and that interesting thing is behind you. Then you find something else curious and visually-interesting that grabs your attention and you do this all again.

- Strongly disagree
- Disagree
- Somewhat disagree
- Neither agree nor disagree
- Somewhat agree
- Agree
- Strongly agree

*The following used the same response scale:*

Strongly disagree  
Disagree  
Somewhat disagree  
Neither agree nor disagree  
Somewhat agree  
Agree  
Strongly agree

I look at a one or two interesting things up ahead of me until I reach them.

My attention is captured by what's in front and on the sides of me at the same time.

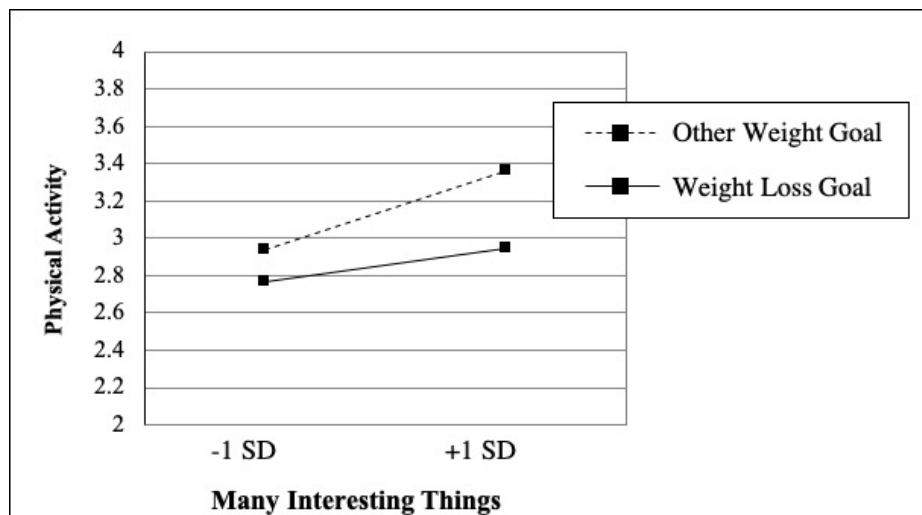
My visual attention is spread broadly.

My visual attention is narrowly focused.

### **Supplemental Analyses for Study 1b**

#### **Predicting Physical Activity**

The primary confirmatory analysis predicted self-reported physical activity in general from weight goals, "many interesting things to look at" statement, and their interaction. In the main text, we noted the non-significant interaction between weight loss goals and narrowed attention,  $b = .08$ ,  $t(398) = 1.70$ ,  $p = .09$ ,  $CI_{95} = -0.13, 0.18$ . In Figure 1S below is a depiction of that interaction.



**Figure 1S.** Self-reported physical activity as a function of whether participants reported having a goal to lose weight (coded -1) or any other weight goal (coded +1) and reports of the many interesting things in their neighborhood plotted at 1 SD above and below the mean.

### **Predicting Physical Activity from the Continuous Measure of Weight Loss Goals**

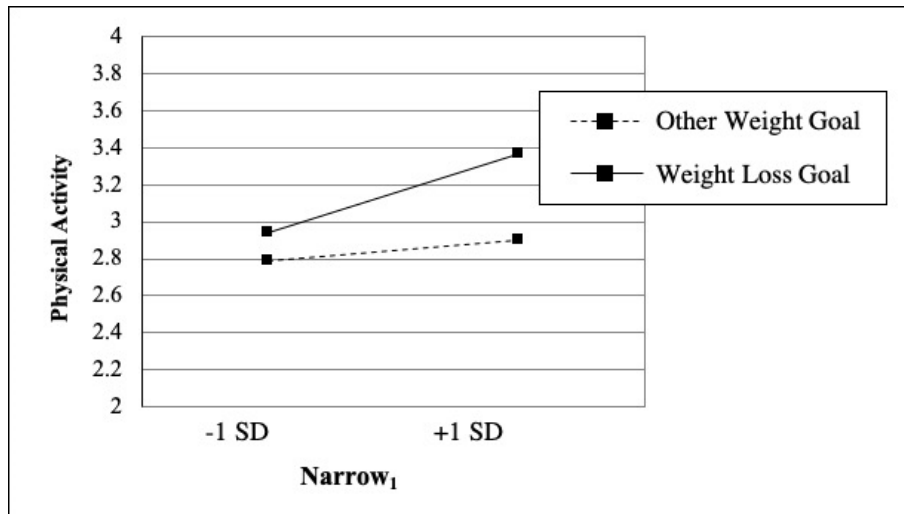
As a secondary hypothesis, we ran a regression replacing the categorical weight loss variable with the continuous measuring indexing the difference between the current and ideal weight. We included as additional predictors the narrowed attention measure from reports of many interesting things and their interaction. The overall model was significant,  $R^2 = .12$ ,  $F(3, 390) = 17.10$ ,  $p < .001$ . And we again found a main effect of narrowed attention,  $b = .10$ ,  $t(390) = 3.85$ ,  $p < .001$ ,  $CI_{95} = 0.046, 0.143$ , such that those with more interesting things to focus their attention on in their neighborhood reported more frequent physically activity than those with fewer interesting things on which to focus their attention. We found a main effect of weight loss goal,  $b = -.008$ ,  $t(390) = 5.92$ ,  $p < .001$ ,  $CI_{95} = -.011, -.005$ ; those who want to lose more weight reported less frequent physical activity than people wanting to lose less or even gain weight. The interaction between weight loss goals and narrowed attention was not significant,  $b = .001$ ,  $t(390) = 0.78$ ,  $p = .44$ ,  $CI_{95} = -0.001, 0.003$ .

Individuals who weigh less could be just as motivated to lose fewer pounds as individuals who weight more are to lose many pounds. To address this possibility, we reran this analysis adjusting for initial weight. The overall model was significant,  $R^2 = .12$ ,  $F(4, 389) = 13.23$ ,  $p < .001$ . There was a main effect of narrowed attention,  $b = .10$ ,  $t(389) = 3.89$ ,  $p < .001$ ,  $CI_{95} = 0.047, 0.144$ , and a main effect of weight loss goal,  $b = -.006$ ,  $t(389) = 3.58$ ,  $p < .001$ ,  $CI_{95} = -.010, -.003$ . The interaction between weight loss goals and narrowed attention was not significant,  $b = .001$ ,  $t(389) = 0.85$ ,  $p = .44$ ,  $CI_{95} = -0.001, 0.003$ .

### **Unpacking "Many Interesting Things"**

We ran a regression predicting physical activity from weight loss goals (-1 = lose weight, +1 = all other weight goals), the single-item vivid description of narrowed attentional scope, and their interaction. The overall model was significant,  $R^2 = .05$ ,  $F(3, 401) = 7.69$ ,  $p < .001$ . The vivid description of narrowed attentional scope predicted physical activity,  $b = .09$ ,  $t(401) = 3.14$ ,  $p = .002$ ,  $CI_{95} = 0.03, 0.22$ . In this model, again, there was a main effect of weight loss goals,  $b = .14$ ,  $t(401) = 3.66$ ,  $p < .001$ ,  $CI_{95} = 0.06, 0.21$ . The interaction between narrowed attentional scope and weight loss goals was not significant,  $b = .01$ ,  $t(401) = 0.50$ ,  $p = .62$ ,  $CI_{95} = -0.04, 0.07$ .

We ran a regression predicting physical activity from weight loss goals (-1 = lose weight, +1 = all other weight goals),  $Narrow_1$ , and their interaction. The overall model was significant,  $R^2 = .08$ ,  $F(3, 401) = 11.17$ ,  $p < .001$ .  $Narrow_1$  predicted physical activity,  $b = .12$ ,  $t(401) = 3.92$ ,  $p < .001$ ,  $CI_{95} = 0.059, 0.178$ . In this model, again, there was a main effect of weight loss goals,  $b = .15$ ,  $t(401) = 4.16$ ,  $p < .001$ ,  $CI_{95} = 0.081, 0.226$ . The interaction between  $Narrow_1$  and weight loss goals was significant,  $b = .06$ ,  $t(401) = 2.09$ ,  $p = .038$ ,  $CI_{95} = 0.004, 0.122$  (see Figure 2S).



**Figure 2S.** Self-reported physical activity as a function of whether participants reported having a goal to lose weight (coded -1) or any other weight goal (coded +1) and  $Narrow_1$  plotted at 1 SD above and below the mean.

### Predicting Physical Activity Outside rather than In General

To test whether the model better predicted activity outside than activity in general, we ran a regression predicting physical activity outside from the categorical weight loss goal, many interesting things, and their interaction. The overall model was significant,  $R^2 = .04$ ,  $F(3, 398) = 5.80$ ,  $p = .001$ . There was a main effect of narrowed attention,  $b = .19$ ,  $t(398) = 4.10$ ,  $p < .001$ ,  $CI_{95} = 0.101, 0.286$ . There was no main effect of weight loss goal,  $b = -.02$ ,  $t(398) = 0.25$ ,  $p = .81$ ,  $CI_{95} = -.153, .119$ . The interaction between weight loss goals and narrowed attention was not significant,  $b = -.020$ ,  $t(398) = -0.43$ ,  $p = .67$ ,  $CI_{95} = -0.113, 0.286$ . By comparison, the primary confirmatory investigation accounted for 7% of the variance. By specifying outside physical activity, this model accounted for less variance (4%).

### Predicting Physical Activity: Accounting for City, Race, and Income

As an exploratory investigation, we probed whether the effect of weight loss goal (categorically coded) and narrowed attention as indexed by responses to "many interesting things" was moderated by participants' city or race. The main effect of narrowed attention on physical activity was not moderated by race, when coded as White (+1) vs non-White (-1),  $b = -.014$ ,  $t(391) = 0.60$ ,  $p = .55$ ,  $CI_{95} = -0.060, 0.113$ , nor by income,  $b = .001$ ,  $t(390) = 0.09$ ,  $p = .93$ ,  $CI_{95} = -0.014, 0.015$ . We also reran the model and included city as an additional moderator, dummy coded. The main effect of narrowed attention was not moderated by city, all  $t(386)$ 's  $< .50$ ,  $p$ 's  $> .70$ .

It is possible that there is a main effect of income on activity and that income may covary with narrowed-attention. Indeed, individuals with higher income report having more interesting things to look at in their neighborhood,  $r(397) = .114$ ,  $p = .023$ .

We sought to isolate the effect of narrowed attentional scope and to account for any covariation. We replicated the regression analyses of Study 1b including household income as a covariate. The first regression predicted general physical activity from weight goals, narrowed attentional scope (using responses to the statement regarding the interesting things to look at the neighborhood), and household income. The overall model was significant,  $R^2 = .09$ ,  $F(4, 397) = 9.97$ ,  $p < .001$ . We again found a main effect of narrowed attention,  $b = .10$ ,  $t(397) = 4.01$ ,  $p < .001$ .

.001,  $CI_{95} = 0.12, 0.31$ , such that those with more interesting things to focus their attention on in their neighborhood reported more frequent physical activity than those without interesting things on which to focus their attention. We also again observed a main effect of having a weight loss goal,  $b = .14$ ,  $t(397) = 3.79$ ,  $p < .001$ ; those who were trying to lose weight reported more frequent physical activity than people with other weight goals. The interaction between weight loss goals and narrowed attention was not significant,  $b = .04$ ,  $t(397) = 1.57$ ,  $p = .12$ . There was a main effect of income,  $b = .03$ ,  $t(397) = 2.53$ ,  $p = .01$ .

We re-ran this regression and replaced attentional scope with the vivid description of narrowed attention. The overall model was again significant,  $R^2 = .08$ ,  $F(4, 400) = 8.85$ ,  $p < .001$ . The vivid description of narrowed attentional scope again predicted physical activity,  $b = .10$ ,  $t(400) = 3.45$ ,  $p = .001$ . There was a main effect of weight loss goals,  $b = .13$ ,  $t(400) = 3.47$ ,  $p = .001$ . The interaction between narrowed attentional scope and weight loss goals was not significant,  $b = .02$ ,  $t(400) = 0.65$ ,  $p = .52$ . There was a main effect of income,  $b = .04$ ,  $t(400) = 3.26$ ,  $p = .001$ .



## Study 2

### Survey Questions

Your height in inches (5 ft = 60 inches and 6 ft = 72 inches)

Current weight in pounds

Age

Gender:

Female

Male

Other:

Do any of these apply to you? (check all that apply)

Spanish

Hispanic

Latino

Choose one or more races that you consider yourself to be:

White

Black or African American

American Indian or Alaska Native

Asian

Native Hawaiian or Pacific Islander

Other:

When they are exercising, some people create imaginary finish lines or destinations. They choose something like stop signs, buildings, or corners as goals. They focus their visual attention on them, like a spotlight shining just on that spot, until they reach them. How often do you do this and at what points do you do this when you're walking or running outside?

When I'm struggling to walk or run

Never

Rarely

Sometimes

Frequently

Always

I don't know

When they are exercising, some people look around. They take notice of the people on the street and the environment around them until they reach their destination. They allow their visual attention to wander all around them. How often do you do this and at what points do you do this when you're walking or running outside?

When I'm struggling to walk or run

Never

Rarely

Sometimes

Frequently

Always

I don't know

Please estimate how long it would take you to WALK 1 mile / 1.6 kms if you were walking quickly? (feel free to report that you do not know). Report in minutes.

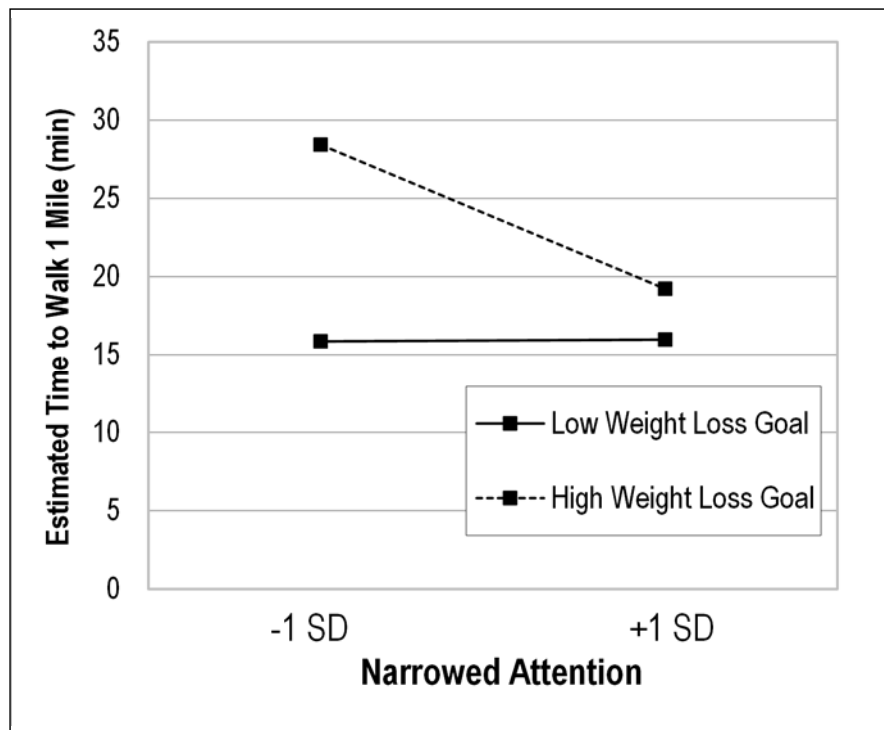
## **Supplemental Analyses for Study 2**

### **Bias in Reporting Time Estimate**

It is possible that there is systematic bias in the types of people who are capable of offering a time estimate. To explore this possibility, we ran a binary logistic regression predicting the likelihood of reporting that they do not know how many minutes it would take to quickly walk one mile. We included weight loss goal and the narrowed attention use index, both centered, and their interaction as predictors and coded any time estimate offered as 0 and “don't know” as 1. We found slight evidence for an effect of weight loss goal,  $b = .008$ , ( $SE = .005$ ), Wald  $Z = 2.68$ ,  $p = .101$ , such that the greater the weight loss goal, the greater the likelihood that people would report not knowing how quickly they walk a mile, though this relationship was not significant. We found no effect of the narrowed attention index,  $b = -.12$ , ( $SE = .13$ ), Wald  $Z = 0.87$ ,  $p = .35$ , and no interaction,  $b = -.001$ , ( $SE = .004$ ), Wald  $Z = 0.13$ ,  $p = .71$ . There is little evidence to suggest that the likelihood of offering a time estimate is, and subsequent data exclusions are, biased by our variables of interest.

### **Interaction Between Narrowed Attentional Scope and Weight Loss Goals**

Among people with strong weight loss goals, those that used the narrow attention strategy more often walked a mile faster than those that used the narrowed attention strategy less often,  $b = -2.85$ ,  $t(166) = 3.88$ ,  $p < .001$ . Among people with weak weight loss goals, the effect of the attention strategy was not significant,  $b = 0.04$ ,  $t(166) = 0.10$ ,  $p = .92$  (see Fig. 3S).



**Figure 3S.** The effect of narrowed attention (plotted at 1 SD above and below the mean) on the estimated time to walk one mile in minutes among people with strong and weak weight loss goals (plotted at 1 SD above and below the mean).

### Predicting Time Estimates for Walking One Mile Adjusting for Current Weight

To adjust for current weight, we replicated the regression analysis of Study 2 including individuals' current weight as a covariate. We again asked whether the use of narrowed attention particularly among people with a strong weight loss goal improved the efficiency of their physical activity, in this case also adjusting for their current weight. To test this question, we reran a regression predicting time estimates for walking one mile from the narrowed attention index, weight loss goals, their interaction, and individuals' current weight. The overall model was again significant,  $R^2 = .10$ ,  $F(4, 165) = 6.85$ ,  $p < .001$ . There was again a significant main effect of narrowed attention,  $b = -1.49$ ,  $t(165) = -2.63$ ,  $p = .009$ , such that individuals who reported assuming a narrowed attentional scope more often reported walking or running 1-mile faster. The main effect of weight loss goal remained,  $b = .23$ ,  $t(165) = 4.79$ ,  $p < .001$ , again such that those with strong weight loss goals reported taking longer to walk a mile than those with weak weight loss goals. The interaction was significant,  $b = -0.041$ ,  $t(165) = -1.92$ ,  $p = .057$ . The effect of current weight was significant,  $b = -0.10$ ,  $t(165) = -2.93$ ,  $p = .004$ .

## Study 3

### Experimenter Script

Thank you again for coming here today to participate. In this study we are trying to learn about exercise behaviors. Do you have any questions before we get started? (Answer Questions)

First, we'll measure your height. Please stand against the wall here against the tape measure.  
(Record measurement in online survey)

Now, we'll measure your weight. Please stand on the scale here. (Record measurement in online survey)

I am now going to ask you to take your waist and hip measurements, a fairly new measure of fitness that tells the distribution of body proportion around the torso. Please stand up straight and relax your stomach. Now, find the narrowest part of your waist, which should be just above your bellybutton, and measure the circumference in inches. Make sure the tape is snug, but not too tight. (Hand participant tape measure) (Record Measurement)

Now, to find your hip measurements, you will have to locate the bony prominences of your hips and measure the circumference in inches. Once again, please make sure the tape is snug, but not too tight. (Record Measurement)

(Note to Experimenter: Make sure that participants are correctly aligning the measuring tape. The hip circumference measure should be taken at the widest portion of the buttocks/hips. The waist circumference should be measured at the smallest circumference. Look at the numbers to ensure accurate reporting, but avoid physically touching participants.)

Feel free to continue on to the other portions of the survey and let me know when you are done with it.

### **Survey Questions**

Please indicate your sex:

- Male
- Female
- Transgender

Please enter your age:

### **Experimental Manipulation Experimenter Instructions**

#### *Narrowed Attention Condition Instructions*

We are almost ready to begin the task. When walking we ask that you utilize what's known as the Zoom in Strategy. To utilize this strategy please pretend that there is a spotlight shining only on the orange cone at the corner. Do not look around and focus your attention on the cone. Now, I'd like you to describe out loud what you see while you are using the Zoom in Strategy. For example, you might say, I see a white stripe on the cone; the cone is small, and so on. Please be as descriptive as you can."

#### *Natural Attention Condition Instructions*

We are now ready to begin the task. When walking we ask that you utilize what's known as the Act Naturally Strategy. To utilize this strategy please simply act naturally. As you look around you, go ahead and use whatever strategy you find to be most helpful. You can look around or take a few glances at the cone at the corner, just be sure to not force anything and let your mind and body guide you while you estimate the distance. Now, I'd like you to describe out loud what you see while you are using the Act Naturally Strategy. For example, you might say, I see a traffic cone; I see a tree, and so on. Please be as descriptive as you can.

**For all participants: Exercise instructions for following week**

Great, you have finished this portion of the task. Now, as you know there is a component of this study that you must complete on your own. We ask that over the course of the next seven days you spend 15 minutes on AT LEAST five out of the seven days taking a walk. We ask that these 15 minutes of walking be in addition to any walking or exercise that you do during a regular day; which includes walking to places such as school or work. We do not ask that you stop or reduce your current exercise routine. We ask that you take these walks alone. And please do not talk on the phone. We also ask that you employ the same (Zoom In/Act Naturally) Strategy you used during today's task. We ask that you utilize this strategy for the duration of all study-related walks over the next seven days. Lastly, we ask that you record all the results from your walks using a free app and send all results to [spamlab.nyu@gmail.com](mailto:spamlab.nyu@gmail.com)."

**For all participants: Map My Walk Mobile Application Instructions**

Now, please visit the App Store. Download the free 'MapMyWalk' smartphone application by Under Armour, if you have a smartphone. Please install this application. If you need any help with this, please let me know. Once downloaded, please open the application. For the purpose of the app, you will need to 'Allow' it to access your location so please press 'Allow' when prompted. Please DO NOT, however, allow the app to send you notifications or alerts.

To track your exercise sessions, open the app and press 'Start Workout.' When ready, hit "Start"; there will be a 3-2-1 countdown, and then your session will begin. When you have completed your exercise session, press 'Pause Workout.' Then hold the 'Hold to Finish' tab until it leads you to another screen. You will be asked if you would like to "Save Activity"; select "Save." Once saved, you will be taken to a summary screen where you can take a screen shot. (NOTE: Make sure that all participants know how to take a screen shot on their smartphone.) For future workouts, you can return to the start screen by pressing the middle icon that looks like a stopwatch on the bottom of the screen. Try that now on your own. (NOTE: Make sure everyone knows how to start a workout on their own.)

Please note that this application may drain your phone's battery life faster than usual. Please charge your phone regularly to avoid any issues. Also, the app has many additional features, including things like, "Add a Goal" and "Connect with Facebook." While you are participating in this study, please do not use any additional features of the app such as posting your workouts on Facebook. We just want you to use the app to record your exercise/workout. If you want, you can continue to use this app in any way after your participation in the study has been completed.

Again, at the end of each of your walks, please be sure to take a screenshot of the summary page and email that photo to [spamlab.nyu@gmail.com](mailto:spamlab.nyu@gmail.com) in an email titled “(Your Name) – (Date) – Today’s Steps”

## Study 4

### Methods

#### **Experimenter Script**

Thank you again for coming here today to participate. In this study we are trying to learn about exercise behaviors. Do you have any questions before we get started? (Answer Questions)

First, we'll measure your height. Please stand against the wall here against the tape measure. (Record measurement in online survey)

Now, we'll measure your weight. Please stand on the scale here. (Record measurement in online survey)

I am now going to ask you to take your waist and hip measurements, a fairly new measure of fitness that tells the distribution of body proportion around the torso. Please stand up straight and relax your stomach. Now, find the narrowest part of your waist, which should be just above your bellybutton, and measure the circumference in inches. Make sure the tape is snug, but not too tight. (Hand participant tape measure) (Record Measurement)

Now, to find your hip measurements, you will have to locate the bony prominences of your hips and measure the circumference in inches. Once again, please make sure the tape is snug, but not too tight. (Record Measurement)

(Note to Experimenter: Make sure that participants are correctly aligning the measuring tape. The hip circumference measure should be taken at the widest portion of the buttocks/hips. The waist circumference should be measured at the smallest circumference. Look at the numbers to ensure accurate reporting, but avoid physically touching participants.)

Feel free to continue on to the other portions of the survey and let me know when you are done with it.

#### **Survey questions**

Please indicate your sex:

Male

Female

Transgender

Please enter your age:

#### **Experimental Manipulation Experimenter Instructions**

##### *Narrowed Attention Condition Instructions*

We are almost ready to begin the task. When walking we ask that you utilize what's known as the Zoom in Strategy. To utilize this strategy please pretend that there is a spotlight shining only on the orange cone at the corner. Do not look around and focus your attention on the cone. Now, I'd like you to describe out loud what you see while you are using the Zoom in Strategy. For

example, you might say, I see a white stripe on the cone; the cone is small, and so on. Please be as descriptive as you can.

#### *Natural Attention Condition Instructions*

We are now ready to begin the task. When walking we ask that you utilize what's known as the Act Naturally Strategy. To utilize this strategy please simply act naturally. As you look around you, go ahead and use whatever strategy you find to be most helpful. You can look around or take a few glances at the cone at the corner, just be sure to not force anything and let your mind and body guide you while you estimate the distance. Now, I'd like you to describe out loud what you see while you are using the Act Naturally Strategy. For example, you might say, I see a traffic cone; I see a tree, and so on. Please be as descriptive as you can.

#### **For all participants: Exercise instructions for following week**

Great, you have finished this portion of the task. Now, as you know there is a component of this study that you must complete on your own. We ask that over the course of the next seven days you spend 15 minutes on five out of the seven days taking a walk. We ask that these five 15 minute walks be in addition to any walking or exercise that you do during a regular day; which includes walking to places such as school or work. We do not ask that you stop or reduce your current exercise routine. We ask that you take these walks alone. And please do not talk on the phone. We also ask that you employ the same (Zoom In/Act Naturally) Strategy you used during today's task. We ask that you utilize this strategy during each of the five study walks. Lastly, we ask that you record all the results from your walks using a free app and send all results to [spamlab.nyu@gmail.com](mailto:spamlab.nyu@gmail.com).

#### **For all participants: Pacer Mobile Application Instructions**

In the app store, please search "Pacer"; among the first or second choices should be an app titled "Pacer – Pedometer plus Weight and..." Please install this application. Once downloaded, please open the application. You will be asked "Allow 'Pacer' to access your location even when you are not using the app? Please DO ALLOW the app to access your location. You will also receive the prompt, "Pacer would like to send you notifications." DO NOT ALLOW the app to send you notifications or alerts.

To track your exercise sessions, open the app and click on the "+" symbol in the upper right corner of the homepage. From there, select "GPS Exercise," followed by "Running/Walking." When ready, hit "Start"; there will be a 3-2-1 countdown, and then your session will begin. When you have completed your exercise session, hit "Finish." You will be asked if you would like to "Save Activity"; select "Save." Once saved, you will be taken to a summary screen. In the upper right hand corner of this screen, you will see a box with an arrow on it. Select that box, and click "Save Image." When doing this for the first time, you will be asked, "Pacer would like to access your photos"; select "OK". Email that photo to [spamlab.nyu@gmail.com](mailto:spamlab.nyu@gmail.com) in an email titled "(Your Name) – (Date) – Exercise Session

Please note that this application may drain your phone's battery life faster than usual. Please charge your phone regularly to avoid any issues. Also, the app has many additional features,



including things like, “Add a Goal” and “Connect with Facebook.” For the duration of the study, please DO NOT use any of these features.

### **Daily Questionnaire Instructions**

In addition to the steps above, we ask that you complete a 3-5 minute questionnaire each night prior to going to sleep. You will receive an email/text each evening at 6:30PM with a link to this questionnaire. Please try to complete the survey as close as possible to when you are preparing to go to sleep, so as to capture as much of your full day as possible. If you fall asleep before completing the questionnaire, you can complete the survey as soon as you wake up the next day.

Again, throughout the week, we’ll be asking you to complete surveys that will be sent to you electronically that will remind you about the strategy we would like you to employ on your own when you are exercising. And again, we have asked you to complete five 15-minute walks over the next seven days.

You will receive the link to your first survey tomorrow evening at 6:30PM. This questionnaire will only take 3-5 minutes and is meant to capture study-relevant experiences. All survey links will be sent from spamlab.nyu@gmail.com; I’ve already sent you a test email, so if you wouldn’t mind, please check now make sure.

### **Daily Questionnaire Items**

Please enter your four-digit UNIQUE ID below

Did you walk or run today to meet your "5 times in 7 days goal"?

Yes

No

IF YES (ABOVE) WAS SELECTED:

For approximately how many minutes did you walk or run? (Report the number on the app. If you had problems with your phone or the app was not turned on, please provide an estimate.)

Approximately how many steps did you take during your walk to meet your "5 times in 7 days goal"? (Report the number on the app. If you had problems with your phone or the app was not turned on, please provide an estimate.)

Approximately how many miles did you walk during this walk to meet your "5 times in 7 days goal"? (Report the number on the app. If you had problems with your phone or the app was not turned on, please provide an estimate.)

How often did you use the attention strategy that you were provided with when walking around today?

Not At All

One or Two Times

Occasionally

Fairly Often  
A Lot  
All Of The Time

Did you email in your screen shots today?

Yes  
No

If you have not already done so today, please remember to email screenshots of THE PACER HOMEPAGE (showing your total daily step-count/miles walked) and YOUR EXERCISE ROUTE (the map from your 15-minute walking route/distance).

Send screenshots to [spamlab.nyu.@gmail.com](mailto:spamlab.nyu.@gmail.com).  
Include your UNIQUE ID in the title of your email

### Additional Analyses

#### Study Day Effects

We probed whether there was an effect of study day on exercise outcomes, asking whether exercise declined over time. The dataset we used to conduct these analyses consisted of 100 individuals who each offered reports across 7 days for a total of 700 observations. To adjust for associated intraclass correlations, all models specified participant-level intercepts and slopes in each model as random factors<sup>5</sup>. To further account for anticipated amplified correlations among adjacent measurements, all models also specified an autoregressive lag model of order one, AR(1), where  $V(Y_{ijk}) = \sigma_{AR(1)}^2$  (Fitzmaurice & Laird, 2011). Effective degrees of freedom were calculated using the Satterthwaite approximation (Kenny, Kashy, & Cook, 2006; Satterthwaite, 1946). Covariance estimates for subject-level slopes did not significantly differ from 0; as such, the parameter was dropped from the current analyses for better parsimony and model fit.

Our models included as predictor variables study day, attention condition, attention strategy use reported on a daily level, and the interaction between attention condition and strategy use. We predicted no significant main effect of attention condition on the number of goal-relevant walks taken or minutes active, given that these were prescribed as the goal to all participants.

We observed no significant effect of attention condition on goal-relevant walks taken,  $b = -0.18$ ,  $t(204.29) = -0.68$ ,  $p = .50$ ,  $CI_{95} = -0.71, 0.35$ , or goal-relevant minutes active,  $b = -8.87$ ,  $t(206.61) = -1.06$ ,  $p = .29$ ,  $CI_{95} = -25.45, 7.71$ . In other words, attention condition did not significantly impact participants' adherence to the exercise goal we assigned. We also observed no significant effect of attention strategy use on goal-relevant walks taken,  $b = 0.00$ ,  $t(196.13) = -0.01$ ,  $p = .99$ ,  $CI_{95} = -0.10, 0.10$ , or goal-relevant minutes active,  $b = 2.72$ ,  $t(313.44) = 1.84$ ,  $p = .07$ ,  $CI_{95} = -0.19, 5.63$ . We did not observe a significant interaction of attention condition by strategy use on goal-relevant walks taken,  $b = 0.05$ ,  $t(199.88) = 0.76$ ,  $p = .45$ ,  $CI_{95} = -0.08, 0.19$ , or goal-relevant minutes active,  $b = -3.57$ ,  $t(253.67) = -1.65$ ,  $p = .10$ ,  $CI_{95} = -7.82, 0.68$ . The frequency of participants' use of either attention strategy did not significantly impact their adherence to the goal we prescribed.

We did, however, observe a significant effect of the study day parameter on goal-relevant walks taken,  $b = -0.32$ ,  $t(222.34) = -13.16$ ,  $p < .01$ ,  $CI_{95} = -0.37, -0.27$ , though not goal-relevant minutes active,  $b = -0.66$ ,  $t(195.97) = -0.94$ ,  $p = .35$ ,  $CI_{95} = -2.03, -0.72$ , suggesting that participants took fewer goal-relevant walks as the week progressed.

We observed no significant effect of our study day parameter on daily goal-relevant miles traversed, though participants tended to walk a shorter distance per goal-relevant walk as the study progressed,  $b = -0.04$ ,  $t(262.97) = -1.52$ ,  $p = .13$ ,  $CI_{95} = -0.08, 0.01$ .

We observed a non-significant effect of time on number of steps taken; however patterns suggest such that steps per goal-relevant walk decreased over the duration of the study across conditions,  $b = -83.42$ ,  $t(172.78) = -1.92$ ,  $p = .06$ ,  $CI_{95} = -169.08, 2.24$ .

### **Study 5: Assessing Experimenter Demand**

People who focused their visual attention on targets exercised both more frequently and more efficiently. However, because we induced narrowed attention in two studies, it is possible that our instructions created demand characteristics. Our instructions may foster inferences about our expectations or skepticism and demand that lead participants to adjust their behavior in accordance with their assumptions about the experiment's purpose or the experimenters' desires (see Durgin et al., 2009; Durgin, Klein, Spiegel, Strawser, & Williams, 2012; Rosenthal & Rubin, 1978). As such, following suggestions by Firestone and Scholl (2016) who put forth a call to researchers to explore the impact of demand effects, in Study 5 we directly tested participants' intuitions about our hypothesized effects; if our results are the product of demand effects, participants should show awareness of our hypotheses.

### **Methods**

#### **Participants**

One hundred and thirty four undergraduate students (100 female; Range<sub>age</sub> = 17-28,  $M_{age} = 19.27$ ,  $SD = 1.52$ ) participated in an online survey for research credit. As recruitment stopping criteria, we opened up the online survey for one week, required a minimum of 100 participants to meet the suggestion for a minimum of 50 participants per cell in an experimental design, and did not close before the end of the pre-specified week of data collection.

#### **Procedure**

All participants imagined the research paradigm we created. They read a description of Study 3's design that matched the experience of participants. Participants imagined they were tasked with completing 5, 6, or 7 walks over the course of the next 7 days. Each walk should be 15-minutes in length. As a result, we left open the possibility for changes in frequency and efficiency of physical activity while complying with task instructions.

Were randomly assigned to one of two attention instructions that matched the exact script used in the previous studies. In the *Narrowed Attention* condition ( $n = 67$ ), participants imagined that they focused their visual attention on a target that we described exactly as it appeared. In the *Natural Attention* condition ( $n = 67$ ), participants imagined looking around the environment as they naturally would, in whatever way they found to be most helpful.

All participants then completed measures intended to assess the potential for task demand. These items assessed participants' intuitions about the hypothesized impact of visual attention strategies on exercise behavior over the course of the next week. We asked participants to predict what they thought would happen for people who use the strategy about which they just read. They indicated their certainty that the strategy would lead people to take more walks during the week, walk a farther distance each time they went out, and walk faster each time they went

out. Participants responded to these three questions by indicating *certainly will not* (coded as -2), *maybe will not* (-1), *has no effect* (0), *maybe will* (1), or *certainly will* (2). To assess participants' beliefs about the researchers' hypotheses, we again asked these three questions but asked them to predict what the researcher believed would happen using the same prompts, response options, and coding scheme.

### Results

Participants did not intuit divergent impacts of attention instructions on any outcome (see Table 1). There were no significant differences in the certainty of people's beliefs that the attention strategy they learned about would increase the frequency of walks,  $t(132) = 0.57, p = .57, d_z = .05, CI_{95} = -0.22, 0.40$ , distance walked,  $t(132) = -1.03, p = .30, d_z = -.09, CI_{95} = -0.48, 0.15$ , or pace of walking,  $t(132) = -0.35, p = .72, d_z = -.03, CI_{95} = -0.39, 0.27$ .

Likewise, participants did not intuit our hypothesized effects. There were no significant effects of the attention condition on what participants believed that the experimenter hypothesized would increase the frequency of walks,  $t(132) = 0.55, p = .58, d_z = .05, CI_{95} = -0.23, 0.41$ , walked distance,  $t(132) = -0.59, p = .56, d_z = -.05, CI_{95} = -0.39, 0.21$ , or pace of walking,  $t(132) = -0.32, p = .75, d_z = -.03, CI_{95} = -0.43, 0.31$ .

*Table 1.* Mean (SD) certainty of participants' personal beliefs and inferences regarding the experimenter's hypothesized effects of narrowed and natural attention on the number of walks taken, distance walked, and speed while walking.

	Personal Beliefs			Inferred Hypotheses		
	Number	Distance	Speed	Number	Distance	Speed
Narrowed	0.6 (0.9)	0.7 (1.0)	0.1 (1.0)	0.8 (0.9)	0.8 (0.9)	0.4 (1.1)
Natural	0.5 (0.9)	0.8 (0.8)	0.2 (1.0)	0.7 (1.0)	0.9 (0.9)	0.5 (1.1)

In sum, we conducted six analyses and observed no evidence that participants were aware of our hypotheses. This investigation provides little evidence to suggest that participants held beliefs about the impact of these attentional strategies that aligned with our hypothesized effects. Likewise, there is little evidence to suggest participants were certain of the hypothesized effects. It is unlikely that the impact of narrowed attention is the result of participants' awareness of study hypotheses and inclinations to act in ways that align with study hypotheses.

### Survey Questions: Study 5

You will be asked to imagine an experience you might have as a participant in a research study about exercise. Please try to immerse yourself in the description and offer your reactions to the study.

Imagine you decide to participate in a study about your exercise. You leave home, come to the university where the study is being conducted, and meet the researcher in the lobby.

The researcher begins by taking some measurements, like in a medical doctor's office. You step on a scale and the researcher records your weight. The researcher uses a measuring tape to gauge the circumference of your waist and hips.

You know that you are going to be asked to exercise and that your exercise will be tracked over the course of one week. You learn that over the course of one week, you should go for five, six, or seven walks that are each 15-minutes long. You are asked to take these walks in addition to any walking or exercise done on a regular day, including walking to or from school or work. You should not stop or reduce your current exercise routine during the week. You know you should take these walks alone, without talking on the phone. You record your exercise using an app on your smartphone.

Importantly though, when you exercise, the researcher explains, you should try to use one particular strategy for looking around your environment. The researcher goes on to explain what that is.

### **Narrow Attention Condition**

You are asked to ZOOM IN. The researcher explains what that means by pointing out that at the other end of this room, there is a traffic cone, decorated with letters, numbers, and shapes. The researcher explains how to zoom in and asks you to practice right now. The researcher says...

Please zoom in on the cone. Pretend that there is a spotlight shining only on the cone. Do not look around. Focus your attention. Stay focused on the cone. Please describe out loud what you see while you narrowly focus your attention on the cone.

### **Natural Attention Condition**

You are asked to LOOK NATURALLY. The researcher explains what that means by pointing out that at the other end of this room, there is a traffic cone, decorated with letters, numbers, and shapes. The researcher explains how to look naturally and asks you to practice right now. The researcher says...

Please look around the environment as you naturally would, in whatever way you find to be most helpful. You can look around or take a few glances at the cone, but you should not force anything. Please describe out loud what you see while you look around as you naturally do.

### **Questions assessing demand effects posed after each attention condition description**

Then, after you practice the strategy, reporting on what you see right now, the researcher asks you to use this attention strategy at home when you exercise. The researcher reminds you that your goal is to take five to seven walks over the next seven days. The researcher sends you home to see how well you do with your goal over the next week.

*The following questions used the same response scale of:*

Certainly Will Not  
Maybe Will Not  
Has No Effect  
Maybe Will  
Certainly Will

Act like a scientist and make a prediction. What do YOU THINK will happen for people who use this attention strategy when exercising? Describe what will happen for people who are exercising for the next seven days using this attention strategy.

Will people who use this attention strategy take more walks during the week?

Will people who use this attention strategy walk a farther distance each time they go out?

Will people who use this attention strategy walk faster each time they go out?

Act like a scientist and make a prediction. What do you think THE RESEARCHER BELIEVES will happen for people who use this attention strategy when exercising? Will people who use this attention strategy:

Will people who use this attention strategy take more walks during the week?

Will people who use this attention strategy walk a farther distance each time they go out?

Will people who use this attention strategy walk faster each time they go out?

### **References, Study 5**

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