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Original Research Article

Effectiveness of the ACE RRAMP™ Approach at Creating a Welcoming Group Exercise Environment

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ABSTRACT

Purpose: The purpose of this study was to quantify the effectiveness of the American Council on Exercise (ACE) RRAMP™ Approach in terms of exercise adherence, commitment to exercise, and perceived motivational climate. **Methods:** 20 participants (18 to 63 years of age) were recruited to participate in this study. The CON group (n=9) and the RRAMP group (n=11) both completed a 6-week group fitness class. The RRAMP group had elements of the RRAMP Approach (respect, recognition, alignment, mistakes, participant) implemented in every class while the CON group acted as controls. These group fitness classes were 3 days/wk for 6 weeks consisting of moderate to vigorous intensity exercises. Throughout the study participants completed questionnaires measuring commitment to exercise and perceived motivational climate (PMCEQ). **Results:** There was a statistically significant ($p<0.05$) difference in adherence between the RRAMP (79.7%) and CON (56.2%) groups. A Chi-square test for independence indicated a significant association between intervention group (RRAMP: 90.2% vs. CON: 56.5% maintenance/improvement) and perceived motivational climate, $\chi 2$ (1, n = 240) = 38.76, $p < 0.05$, phi = 0.402. A Chi-square test for independence indicated a significant association between intervention group (RRAMP: 81.8% vs. CON: 47.2% maintenance/improvement) and commitment to exercise, $\chi 2$ (1, n = 80) = 12.26, $p < 0.05$, phi = 0.392. **Conclusions:** The present study provides promising evidence supporting the effectiveness of the ACE RRAMP Approach at creating a welcoming group exercise environment.

Key Words: Behavioral Change, Evidence-based Practice, Group Fitness Class, Physical Activity.

Introduction

Over the past several years, our research group has demonstrated that personalized exercise programming based on the American Council of Exercise (ACE) Integrated Fitness Training® (ACE IFT®) Model elicits greater training adaptations and more favorable training responders relative to standardized exercise training[4,9,15]. A key element of the ACE IFT Model is the ACE Mover Method™. The ACE Mover Method is designed to empower clients to make behavioral changes to improve their health, fitness, and overall quality of life. Preliminary research[5] on the ACE Mover Method has been encouraging when participants were randomized to one of the following groups: 1) the treatment group (n=14) received a 12wk ACE Mover Method intervention consisting of weekly, client-centered educational sessions in addition to performing their 12wk personalized IFT-guided exercise program, and 2) the second group (n=14) performed their 12wk personalized IFT-guided exercise program and served as the controls. With the exception of waist circumference ($p < 0.05$), the changes from baseline to 12wk across various cardiometabolic health variables and cardiorespiratory fitness were similar for both groups ($p > 0.05$). However, while these values were similar at baseline, the ACE Mover Method group had significant improvements within all healthy behavior and lifestyle change categories, as measured by the International Physical Activity Questionnaire, Sedentary Behavior Questionnaire, and Simple Lifestyle Indicator Questionnaire, were similar at baseline between groups. Whereas the control group did not have these changes in behavior and lifestyle changes. These are important findings since changing human behavior can be difficult and complex since a new behavior does not erase the original one and behavior change is specific to the context in which it occurs.

While the ACE Mover Method Approach can be used when talking to participants individually, it was not designed for use in group settings. Accordingly, the ACE RRAMP™ Approach (RRAMP represents respect, recognition, alignment, mistakes, and participant) was developed with an underpinning contextual framework known as achievement goal theory[7]. This newly developed approach aims to provide group fitness instructors with a practical approach to enhance motivation before, during and after a group session to optimize the experience of the individual and group[8].The ACE RRAMP Approach is designed to empower participants to improve their health, fitness, and overall quality of life by creating a climate that fosters success. The five elements of the ACE RRAMP Approach include:

- **R**espect: How can you create a kind and respectful environment?
- **R**ecognition: How can you create opportunities for recognition?
- **A**lignment: How can you create the feeling that the entire group is in this together?
- **M**istakes: How can you ensure that mistakes are an acceptable, and even necessary, part of the learning process?
- **P**articipant: How can you ensure

that each individual understands their unique and important role in this class?

Given the prevalence of chronic disease throughout the United States, there is a critical need to identify successful strategies focused on positive healthy lifestyle changes, such as regular physical activity[10]. The introduction of the ACE RRAMP Approach may be one successful strategy that health and exercise professionals could employ within the client-centered approach to inspiring active lifestyles. However, research is lacking on the potential effectiveness of ACE RRAMP Approach. Therefore, the purpose of this study was to quantify the effectiveness of the ACE RRAMP Approach in terms of exercise adherence, commitment to exercise, perceived motivational climate, and cardiometabolic factors.

Methods

Participants

Participants were recruited by word-of-mouth, electronic flyers, and promotional emails. Twenty-two community members and university students (age: 18-63 years) initially expressed interest in participation in the present study, while 20 of these participants followed through volunteering to participate. Male and female participants were eligible for inclusion if they were between the ages of 18 and 65 years old and willing to participate in a 50-minute group fitness class 3 times per week for six weeks. Participants were excluded if they were at high risk or had known cardiovascular disease as outlined by the American College of Sports Medicine[11]. All participants provided informed consent prior to their involvement in the study. This study was approved through the Human Research Committee at Western Colorado University [HRC-2023-01-01-R05]. This research was carried out fully in accordance to the ethical standards published elsewhere[13].

Experimental Design

All interested participants met with the principal investigator and scheduled a time to come into the exercise laboratory to ask questions and complete the informed consent, questionnaires, anthropometric measurements and a maximal oxygen uptake (VO_2max) test. Once all participants consented to participation, they were randomized into two groups: the intervention group, RRAMP (n=11) and the control group, CON (n=9). After this, all participants completed a six-week group exercise class consisting of aerobics, Zumba and spin classes. The intervention group had the ACE RRAMP Approach implemented from the fitness instructor during the fitness classes, however, the participants, research assistants, and fitness instructor associated with the control group were blinded to the purpose of the study. Both groups followed the same exercise type and intensity during the fitness classes. During week 3 of the classes, all participants completed questionnaires. Following every exercise class, the fitness instructor of the ACE

RRAMP Approach group completed reflection questions regarding their own performance. Following the 6-week fitness class schedule, all participants completed post-program testing consisting of the same measurements as baseline testing (see Figure 1).

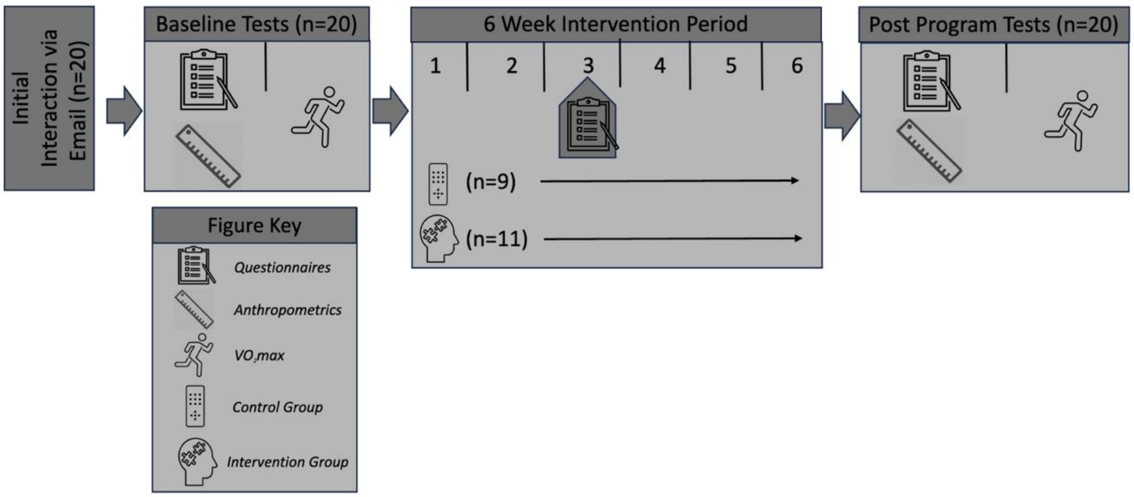

Figure 1. Experimental Design Flow Chart.

Procedures

<u>Baseline testing</u>

Prior to the initial testing appointment, participants were encouraged to wear workout clothing with closed-toed shoes, be well-hydrated, and maintain normal dietary behaviors. During the initial visit, participants were prescreened for eligibility, had study procedures clearly explained and outlined, and any questions were answered prior to obtaining written informed consent. The informed consent document was collected prior to commencement of baseline testing. Afterward, baseline physical and physiological data were collected as well as completion of baseline questionnaires which included primary motivational climate in exercise (PMCEQ), caring climate in the exercise class, and commitment to exercise levels. All testing protocols were completed using standardized procedures published elsewhere[1].

Participants were weighed to the nearest 0.1 kilograms (kg) on a medical grade scale (WB-3000, Tanita, Japan) and measured for height to the nearest 0.5 centimeters (cm) using an attached stadiometer. Participants then sat quietly for 5 minutes in a chair with back support, legs uncrossed with feet on the floor, and arms supported at near heart level prior to seated blood pressure measurements. Duplicate measures of the left arm brachial artery systolic and diastolic blood pressure were measured using a manual aneroid sphygmomanometer (Labtron, Graham-Field, Atlanta, GA), separated by at least 1-min, and averaged. Body fat percentage was measured using bioelectric impedance analysis (HBF-300, Omron, Illinois) following manufacturer recommendation and guidelines.

A graded exercise test using a ramp protocol was used to assess maximal oxygen consumption (VO_2max) and gas exchange data. Participants warmed up at a self-selected pace for 5-10 minutes. Participants then jogged at a self-selected speed and 0% grade with incline increasing by 2% every two minutes until volitional exhaustion was reached. Heart rate was recorded continuously using a chest strap and radio-telemetric receiver (Polar Electro, Woodbury, NY, USA). Expired air and gas exchange data were recorded continuously throughout the VO_2max protocol using a metabolic analyzer (Parvo Medics TrueOne 2.0, Salt Lake City, UT, USA). Rating of perceived exertion (RPE) was recorded every two minutes using the Borg 6-20 scale. Breath-by-breath data were averaged for every 15 seconds and the final two consecutive 15 second data were averaged to represent the data at VO_2max.

Mid-Program

The group fitness classes began the week following the completion of all baseline data collection. Fitness classes were 50 minutes on three days a week for six consecutive weeks. Each fitness class, for both the RRAMP and CON groups, consisted of a thorough warm-up, the structured exercise protocol, and concluded with a warm-down period. The overall structure of the fitness classes was as follows: Mondays consisted of traditional aerobics, Wednesdays focused on Zumba, and Fridays were structured spin classes.

At week three of the six-week intervention, mid-program data were collected consisting of the same three questionnaires completed at baseline (i.e., PMCEQ, caring climate in the exercise class, and commitment to exercise levels as assessed by questionnaires). For the CON group, typical/common fitness instructor actions and verbiage were used. For the RRAMP group fitness classes, the ACE RRAMP approach was incorporated. This approach included aspects of respect, recognition, alignment, mistakes, and participation before, during, and after the fitness class (see RRAMP Approach section below).

Post-program testing

At the end of the sixth week, post-program data were collected. This included the same structure and procedures as the baseline testing. In summary, participants completed the three questionnaires, basic anthropometric data, body fat percentage, seated blood pressure, and a VO_2max test.

RRAMP Approach

The RRAMP Approach was used to create a caring, task-involving climate where behavior change can flourish in a group environment. The RRAMP approach helps to shift participant mindset and create compelling class beginnings, successful programming, powerful cueing, and meaningful closings in an effort to produce long-lasting behavior change in the areas of health and wellbeing for all ages and stages of exercisers.

R	**Respect**	Each class participant should feel *valued*.	How can you create a kind and respectful environment that ensures each participant feels like they matter?
R	**Recognition**	Effort and self-improvement are valued and recognized.	How can you create opportunities for recognition that rely on effort, rather than performance?
A	**Alignment**	Cooperation is fostered and valued.	How can you create the feeling that you're in this *together,* all working toward the same class goal?
M	**Mistakes**	As mistakes are a part of learning, they are purposefully recognized as an important part of the class experience.	How can you ensure mistakes are perceived as acceptable and never punished?
P	**Participant**	Each person's uniqueness contributes to the overall experience that cannot be replicated.	How can you ensure each participant understands their important role and contribution in the class?

		Beginning	**Middle**	**End**
		Pre-Class & Introduction	**Cueing & Programming**	**Closing & Post-Class**
R	Respect	(pre) Be ready to genuinely greet with open body language (intro) Built in acknowledgement of another member of class	Intentionally focus cueing toward all rows and all corners Make eye contact Use names	(closing) Sincere appreciation for class (post) Position near door or similar area to express gratitude individually or seek out 2-3 participants to thank

R	Recognition	(pre) Individual acknowledgement of a milestone (intro) Built-in congratulations for attending	Build in ways to gauge your *own* improvement in class and encourage congratulating yourself Point out an improvement (not just someone doing something well or taking the hard option)	(closing) Specific celebration of (minimum) 2 things that were accomplished in class (post) 1-2 personal congratulations for showing up/effort/or achievement during class
A	Alignment	(pre) Introduce a new participant to a veteran, asking veteran to help them get acclimated/set-up (intro) Provide a moment at the end of the warm-up to scan the room and make eye contact with their teammates; Remind the group you are the facilitator and that we're all in this together	Take opportunity to have participants face one another and perform the drills/exercises (taking you out of the lead role) Use inclusive cueing (we vs. I/You) Create cooperative games or interaction (vs. competitions)	(closing) Remind class of specific moments during class when the group came together and supported each other (post) Suggest participants help one another with clean up and/or let someone else know how they helped them in class today
M	Mistakes	(pre) Become curious about individuals with limitations or preferences; strategize prior to class getting started (intro) Built in acknowledgement of how mistakes will lead	Program with everyone's success in mind Build in practice opportunities and insist that mistakes are an acceptable part of learning Celebrate mistakes as part of the learning process	(closing) Ask what one thing they could strive to improve next time to get the most out of class (post) 1-2 personal congrats for mistakes made that showed courage and growth

		to improvement with continued practice		
P	Participant	(pre) Individual acknowledgement of presence and uniqueness (intro) Remind participant to set intention to receive what they need for the day and encourage him/her to bring their unique self to the experience	(programming) Reframe progressions / regressions / modification into tools, resources, and choices. Explain the goal, provide the ways to get there Use personalized cueing (your vs this, that, those)	(closing) Ask the class to reflect on what they brought to the room today and remind them it would not have been the same without them (post) Give specific recognition to a participant who made an exercise their own

Statistical Analysis

All statistical analyses were performed using SPSS Version 28.0 (IBM Corporation, New York, NY, USA) and the level of statistical significance was set at $p<0.05$. The means and standard deviation of one of our previous studies were examined and the effect size of this study was calculated[17]. Assuming that a power of 0.90 was needed and the calculated effect size for change in VO_2max was 0.8, it was determined that approximately 10-12 participants would be needed for each of the two groups[2]. Primary outcome measures included change in VO_2max, adherence, PMCEQ, caring climate in the exercise class, and commitment to exercise levels as assessed by questionnaires at baseline, week three and week six. An independent samples t-test was used to compare baseline values between the RRAMP and CON groups. Paired samples t-tests were used to compare the means of baseline and post-program anthropometric and physiological measurements in the RRAMP and the CON groups.

To analyze the individual data from the questionnaires, the answers to every question on all the questionnaires were put into one of two categories. Their answer to a question was either given a 0 which means their answer regressed from week three to week six or they were given a 1, which means their answer either improved or maintained the same from week three to week six. An example of an individual that regressed was if during week three they said they agreed to “the instructor emphasizes to always try your best” to answering they disagreed to that during week six. On the other hand, an example of an individual who improved from that same question is if they initially said they disagreed to that statement and then changed that to agree during the week six questionnaire. Maintained resembles an individual that answered the same response during week three and week six. Subsequently, a chi-square test for independence was used to determine if the proportion of participants who increased/maintained or decreased their questionnaire scores over the 6-week intervention period was associated with group (RRAMP vs. CON).

Results

Twenty-one participants were recruited for this study and twenty participants were included in the results. The exercise intervention and treatments were well-tolerated for 20 participants and one participant was unable to complete two weeks of the study for personal reasons. Physical and physiological measures at baseline and post-program for RRAMP and CON groups are presented in Table 1. There was a significant decrease in body mass (kg) from baseline (M=75.3, SD=10.4) to post-program measurements (M=74.1, SD=9.9), t(10)= 2.46, p<0.05 (two-sided) in the RRAMP group (mean decrease=1.2 kg, 95% CI: 0.18 to 2.19). The eta squared statistic (.37) indicated a very large effect size.

Independent-samples t-test were conducted to compare measurements between the CON and RRAMP groups. There was a significant difference in age between CON (*M*=29.1, SD=9.1) and RRAMP, *M*=41.7, SD=13.3; t(18)= -2.4, p=.02 (two-sided). The magnitude of the difference in means (mean difference=12.6, 95% CI: -23.6 to -1.59) was very large (eta squared=.47). There was a significant difference in adherence to group exercise class attendance between CON class absences (*M*=7.44, SD=2.87) and RRAMP class absences, *M*=3.45, SD=2.34; t(18)=3.42, p=.003 (two-sided). The magnitude of the differences in the means (mean difference= -3.99, 95% CI: 1.54-6.43) was very large (eta squared=.39), as shown in Figure 2.

Table 1. Physical and physiological measures at baseline and post-program for RRAMP and CON groups.

	Baseline		Post-Program	
Variable	RRAMP (n=11)	Control (n=9)	RRAMP (n=11)	Control (n=9)
Age	41.7±13.4*	29.1±9.1	----------	----------
Body Mass (kg)	75.3±10.4	69.8±20	74.1±9.9†	70.9±18.2
Height (cm)	170.5±8.6	166.5±4.9	----------	----------
Systolic BP (mmHg)	113.1±8.7	114.7±7.2	113.9±9	118.1±6.5
Diastolic BP (mmHg)	72.5±7.8	72.5±7.8	75.1±6.8	73.7±6.3
Body fat (%)	30.9±7.6	25.4±8.1	31±6.6	26.7±7.6
VO_2max (mL/kg/min)	32.6±8.9	36.2±7.5	32.2±6.1	35.8±7.2
Adherence			79.7%*	56.2%

*, p<0.05 -between group difference †, p<0.05 -within group difference.

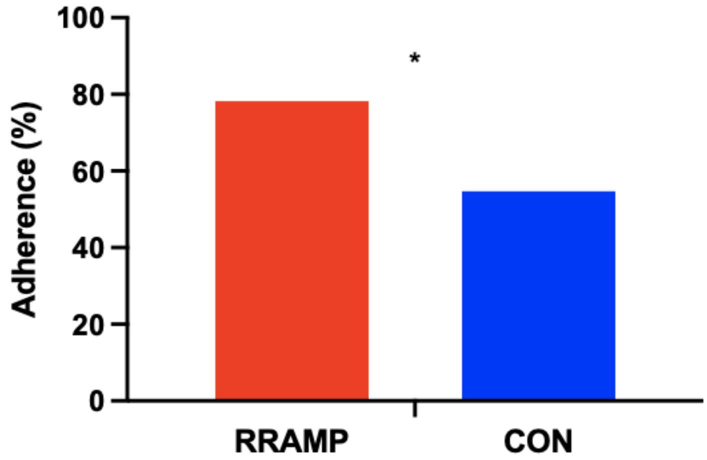

Figure 2. The adherence rates of the ACE RRAMP Approach compared to the CON following a 6wk intervention; * denotes p<0.05.

Perceived Motivational Climate in Exercise Questionnaire (PMCEQ)

A Chi-square test for independence indicated a significant association between intervention group (RRAMP vs. CON) and perceived motivational climate, χ^2 (1, n = 240) = 38.76, $p < 0.05$, phi = 0.402. The proportion of RRAMP participants who exhibited a positive change in the perceived motivational climate was significantly greater from the proportion of CON participants ($p < 0.05$). Across the 6wk intervention, in the RRAMP group there were 90.2% of participants who self-reported in their responses to the PMCEQ either a maintenance or improvement in perceived motivational climate (Table 2). In comparison, in the CON group, 56.5% of participants self-reported in their responses to the PMCEQ either a maintenance or improvement in perceived motivational climate. The phi coefficient value (phi = 0.402) indicates a medium-to-large effect size (Figure 3).

Table 2. PMCEQ responses in CON and RRAMP groups.

CON group

	Week 3				**Week 6**			
Scale	Mean	SD	Min	Max	Mean	SD	Min	Max
Motivational Climate								
Ego-Involving	1.3	.32	1.0	1.8	1.4	.38	1.0	2.0
Task-Involving	4.6	.37	4.0	5.0	4.2	.50	3.6	5.0
Caring	3.2	1.8	1.0	5.0	3.0	1.5	1.0	5.0

ACE RRAMP Approach group

	Week 3				**Week 6**			
Scale	Mean	SD	Min	Max	Mean	SD	Min	Max
Motivational Climate								
Ego-Involving	1.5	.51	1	2.4	1.3	.37	1	2.2
Task-Involving	4.6	.34	4	5	4.6	.39	4	5
Caring	3.4	1.6	1	5	3.21	1.7	1	5

Note. All variables were measured on a 1 (strongly disagree) to 5 (strongly agree) scale

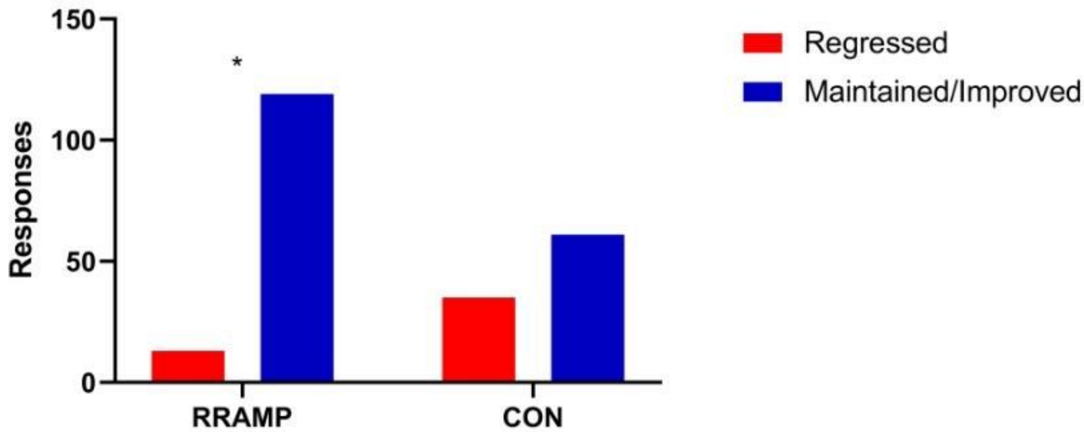

Figure 3. The proportion of ACE RRAMP Approach vs. CON participants who exhibited a positive change in the perceived motivational climate in exercise questionnaire following a 6wk group fitness class intervention; * denotes p < 0.05.

Commitment to Exercise

A Chi-square test for independence indicated a significant association between intervention group (RRAMP vs. CON) and commitment to exercise, $\chi 2$ (1, n = 80) = 12.26, $p < 0.05$, phi = 0.392. The proportion of RRAMP participants who exhibited a positive change in the commitment to exercise level was significantly greater than the proportion of CON participants ($p < 0.05$). Across the 6wk intervention, in the RRAMP group there were 81.8% of participants who self-reported in their responses to the PMCEQ either a maintenance or improvement in commitment to exercise level. In comparison, in the CON group there were 47.2% of participants who self-reported in their responses to the commitment to exercise questionnaire either a maintenance or improvement in perceived commitment to exercise level. The phi coefficient value (phi = 0.392) indicates a medium-to-large effect size (Figure 4).

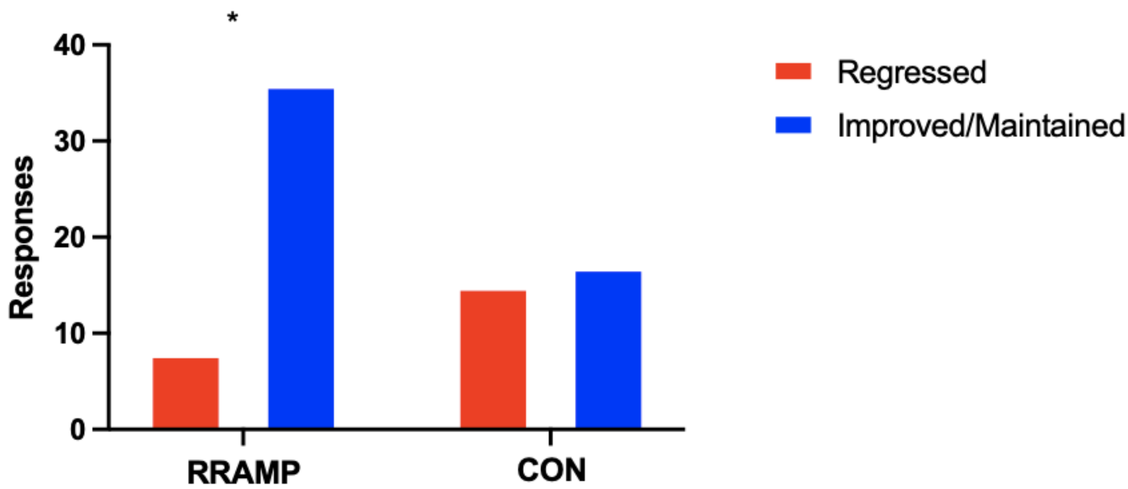

Figure 4. The proportion of RRAMP vs. CON participants who exhibited a positive change in the commitment to exercise level following a 6wk group fitness class intervention; * denotes p < 0.05.

Caring Climate

A Chi-square test for independence indicated a non-significant association between intervention group (RRAMP vs. CON) and caring climate χ^2 (1, n = 247) = .218, $p > 0.05$, phi = 0.030. There was no statistically significant proportion between the caring climate in the RRAMP compared to the CON participants ($p<0.05$). Across the 6wk intervention, in the RRAMP group there were 86.7% of participants who self-reported in their responses to the Caring Climate Questionnaire either a maintenance or improvement in commitment to exercise levels. In comparison, in the CON group there were 84.6% of participants who self-reported in their responses to the commitment to exercise questionnaire either a maintenance or improvement in perceived commitment to exercise level. The phi coefficient value (phi = 0.030) indicates a small effect size (Figure 5).

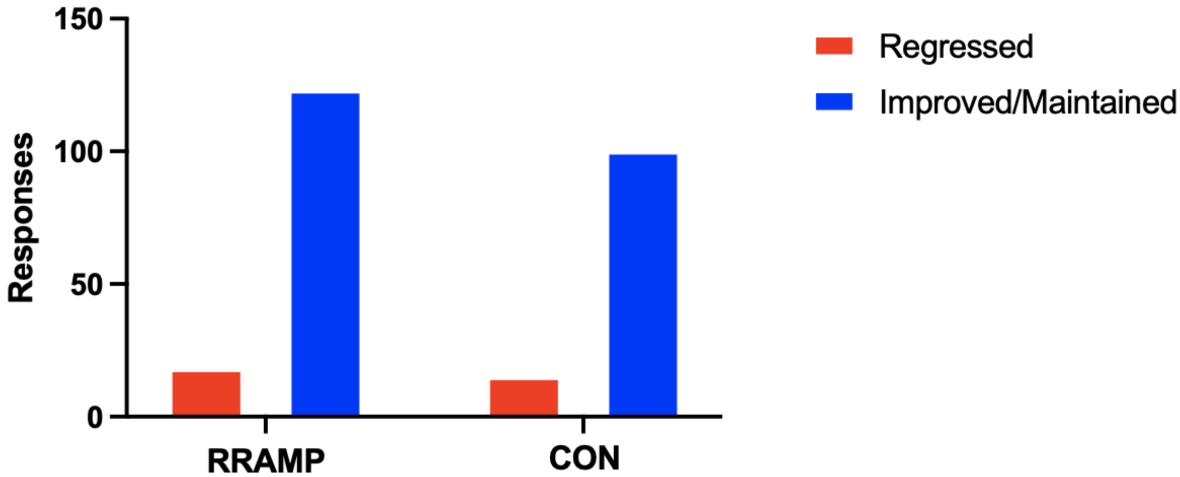

Figure 5. The proportion of RRAMP vs. CON participants who exhibited a positive change in caring climate following a 6wk group fitness class intervention.

RRAMP Implementation

All aspects of RRAMP were implemented during every fitness class on Mondays, Wednesdays, and Fridays for only the RRAMP group during the 6-week intervention period. Each aspect of RRAMP was adjusted daily after reflections from the instructor's post class reflection questions. Implementation of all five aspects of RRAMP before, during, and after the fitness class were a likely reason for the difference in results stated above. Listed below are examples of how each of the five categories were implemented throughout the fitness classes across the 6-wk intervention:

R(Respect)

- Beginning of class: Instructor greeted participants at the door, expressed sincere appreciation for every participant choosing to attend class as well as showing up to help better themselves, their classmates, and the relationship with the instructor.
- Middle of class: Question of the day, using individual names when talking to a participant as well as using direct eye contact.
- End of class: the instructor stood at the door to say goodbye and give thanks to the participants for attending class

R(Recognition)

- Beginning of class: Set time before warmups to set an individual intentional goal for the day (they had the option to share with the class or to keep to themselves).
- Middle of class: Instructor would recognize individual improvements of participants; the instructor encouraged the participants to reflect on their own improvements throughout the fitness classes.

- End of class: Set time during cool-down stretches for individual self-reflection of what they were proud to accomplish that day and one thing they wanted to work on in the next class, the instructor would individually recognize and congratulate a participant if they noticed the participant working hard on a specific task or even for showing up and putting forth their best effort.

A(Alignment)

- Beginning of class: The instructor emphasized the idea that every individual is on their own fitness journey, but all participants took time out of their day to attend the class together. The instructor highlighted that everyone in the class comes from different backgrounds. The participants were encouraged to learn from each other. It was encouraged to not compare themselves to each other, but instead, learn from each other and grow from what another participant offers.
- Middle of class: The exercises in the fitness classes were specifically chosen so every participant had the freedom to choose their own weights during aerobics or change their own resistance at any time during the spin class, exercises consisted of cooperative games/interactions between everyone in the class such as partner squatting or group high fives, verbiage such as "we" instead of "I/You" was used by the instructor.
- End of class: The instructor provided a recommendation for simple actions to take outside of class time to help encourage a healthy lifestyle (i.e., drink double the amount of water they drank before class or to stand up every hour until the end of their workday).

M(Mistakes)

- Beginning of class: The instructor prefaced classes by acknowledging mistakes as a steppingstone to growth instead of a degrading response and that mistakes are a necessary step in learning new skills.
- Middle of class: The instructor encouraged the participants to accept mistakes as a part of the fitness journey. Exercise sessions were planned with every participant's success in mind to attempt to set every participant up for success. Specific movements/exercises were repeated to allow more practice opportunities on specific skills.
- End of class: Participants were given time to reflect and set a goal for one thing they wanted to focus on in the next exercise class to encourage learning from what they experienced that day.

P(Participant)

- Beginning of class: Fitness classes started with a reminder of *why* they came to class each day and highlight the purpose of attending the exercise class, individual acknowledgement, appreciation for their attendance in class and highlighting the uniqueness that every participant brings to the class.
- Middle of class: Individual acknowledgement of effort and individual progress. Progressions/modifications were offered as options, resources, or choices the participants could use on their own when they found it necessary, and the purpose of each exercise was given.
- End of class: Genuine appreciation for the participants was given and a reminder that every class would not be the same without the attendance of every individual was expressed. When a participant modified an exercise to fit their specific needs recognition was given at the end of class.

Qualitative Reflections

Direct quotes were recorded from participants throughout the group fitness classes and during post-program tests. These were recorded on the daily reflection questionnaire from the PI/group fitness instructor. Direct quotes from the RRAMP group included:

- "You [the instructor] were so positive and encouraging, I wish we could continue these classes every week."
- "It was fun to have the accountability of the other classmates to encourage me to go every day."
- "I have noticed I have been in a better mood and sleeping better since we started these classes!"
- "Tensions were high in the locker room before class so I went to do my own thing, but I wish I would have gone to Zumba class because I always feel better after these classes. It feels like a fun time to let loose and be silly."
- "We were wondering how you were so happy and positive every single day."

Discussion

The introduction of the ACE RRAMP Approach appears to be a successful strategy that health and exercise professionals could implement in their group fitness classes to enhance rapport and deepen the client–instructor relationship, therefore helping to elicit positive lifestyle behaviors. While there were minimal to no differences in cardiometabolic outcomes, the ACE RRAMP Approach had significantly greater perceived motivational climate and commitment to exercise. Furthermore, there was a significantly greater adherence for the ACE RRAMP Approach compared to the control group. Therefore, the present study provides promising evidence supporting the RRAMP

Approach's effectiveness at positively modifying lifestyle behaviors. These findings can be leveraged by group fitness instructors as they introduce the ACE RRAMP Approach into group fitness classes to increase adherence, and intrinsic and extrinsic motivation by creating a caring and task-involving class environment.

A valuable finding in the present study was the significant difference in adherence between the CON and RRAMP groups. In the present study, the CON group had an attendance rate of 56.2%. This figure is comparable to the group exercise attendance rate of 57% reported at top clubs in a survey of 1200 fitness facilities[6]. On the other hand, in the present study the attendance rate in the RRAMP group was 79.7%, which is significantly higher than the CON group attendance rates. In the RRAMP fitness classes, there was time designated at the end of class that allowed the participants to set an intentional goal they wanted to continue working on in the next class period, which in theory encouraged them to return for the next group fitness class to work towards their goal. By creating an atmosphere that participants are eager to return to, it fosters commitment to regular exercise and initiates a critical step toward positive lifestyle behavior change. Overall, the findings provide compelling evidence to suggest that using all five aspects of RRAMP increases group fitness class adherence rates.

The PMCEQ results from the present study show that 90.2% of the RRAMP group exhibited improved or maintained scores from week 3 to week 6 of the 6-week group fitness class. On the other hand, only 56.5% of the CON group showed improved or maintained scores over the 6-week intervention. These results suggest that the use of the RRAMP Approach is effective at increasing levels of task-involving and ego-involving climate as measured by the PMCEQ. It has been purported elsewhere[7] that by creating a caring and task-involving environment, the group fitness instructor has greater potential for incorporating positive psychological and social encounters as well as fully realizing the physiological benefits that go along with participation in regular physical activity.

Participant responses to the PMCEQ revealed very high levels of task-involving environments, low levels of ego-involving environments, and average levels of a caring climate in both groups (Table 2). Researchers have found the relationship between an ego-involving environment and a task-involving environment are negatively related[7]. The results of the present study support those previous findings when the perceived task-involving environment increases, the perceived ego-involving environment decreases. Indeed, it has been suggested that an ego-involving environment has direct relations to negative outcomes, including reduced exercise enjoyment, lower commitment to returning to exercise, and decreased overall life satisfaction[14]. Because there was a task-involving environment in the RRAMP group, benefits such as increased adherence to the class and increased commitment levels to exercise were shown.

A task-involving environment was created through all aspects of the RRAMP approach in the group fitness class. Examples include cooperative games/interactions between everyone in the class such as partner squatting. Modifications for all exercise movements were provided to give the participants the chance to individualize the workout while participating in the group fitness class.

Another notable finding from the present study was the significant difference in the commitment to exercise between the RRAMP and CON groups. In the RRAMP group, of the 44 individual questions relating to commitment to exercise and the exercise class, 36 of those questions reflected high levels of commitment while only eight did not. On the other hand, in the CON group, of the 36 individual questions relating to commitment to exercise, 17 answered high levels of commitment and 15 answered low levels of commitment. In total, the RRAMP group had an 81.8% commitment level to the exercise class while the CON group had a 47.2% commitment level.

It has been previously reported that approximately 50% of adults drop out of an exercise program within 3 to 6 months of starting[3,16]. The findings related to exercise commitment in the current study are particularly compelling as they suggest the implementation of the RRAMP approach fosters a cohesive, enjoyable, and inclusive exercise environment in which participants are more likely to sustain a long-term commitment to exercise. In particular, elements of respect and recognition may have considerably influenced the participant's commitment to exercise. Indeed, the instructor emphasized each individual in the RRAMP group making them feel like a valued part of a supportive team, emphasizing their unique qualities contributed meaningfully to the group dynamic. Furthermore, to build this sense of community, a question of the day was implemented into every fitness class. These questions ranged from "what is your favorite vacation spot?" to "if you were a movie character who would you be?" This encouraged all participants to get to connect on a more personal level and helped deepen their sense of belonging.

As previously discussed, there was not a significant difference in perceived caring climate between RRAMP and CON groups. This is a valuable finding because it indicates that a caring climate was established in both group fitness classes throughout the six-week intervention. These results align with expectations and support the idea that participating in any type of group exercise class can help foster a caring environment. A caring climate in a group exercise setting can include elements of support, concern, and acceptance[7]. It is encouraging to see that both the RRAMP and CON groups created a caring environment that allowed all twenty participants in the present study to feel they were genuinely cared for in a group setting.

Past research has shown that numerous behavior change approaches in the exercise environment have been successful. For example, Dalleck and colleagues[5] found that the ACE Mover Method was effective at eliciting healthy lifestyle changes within adults participating in a community exercise program. This study featured 10-minute ACE Mover Method interventions that utilized the ACE ABC Approach™, which were integrated within the exercise sessions and were unique to each participant's specific goals and needs. Every participant–researcher interaction was a collaboration aimed at positive lifestyle change (e.g., reduced sedentary time, healthy eating, or stress reduction). In the present study, comparable results were found, but with different implementations and protocols. The ABC Approach was found to be beneficial when talking to clients individually, but it was not designed for a group fitness setting. Instead of numerous one-on-one interactions, the RRAMP Approach was created to produce similar effects as the ACE Mover Method, but with more than one client at a time. This is beneficial for health and exercise professionals, as well as participants of group fitness classes, because accomplishing positive behavior change and receiving the physiological benefits of regular physical activity can be achieved simultaneously.

In a study by Mailey and colleagues[12], it was found that a leading cause of parents not regularly participating in physical activity is a perceived lack of time and support/encouragement. The RRAMP Approach was created to target those two factors: time management and creating a team-like support system. By intertwining the group fitness classes with the behavioral approach, an individual can experience the benefits of both within just a one-hour session, three times a week. Based on the quantitative and qualitative data from the present study, the participants shared that they felt they were able to keep each other accountable for attending and trying their best in the group fitness classes. The RRAMP Approach can help individuals feel as if they are a part of something bigger than just their own individual exercise journey.

Strengths and limitations

A strength of the present study is that the group fitness classes resembled real-world class settings and typical class timing. These fitness classes were made up of realistic class material (aerobics, Zumba, and spin) and class timing (12:00 pm and 6:00 pm). Another strength of this study was that all participants, research assistants, and the fitness instructors of the control group were blinded to the purpose of the study. This was meant to minimize bias in the answers to the questionnaires. By having the control group fitness instructors blinded, it allowed them to teach as they normally would, avoiding any unintentional implementation of the RRAMP behavior approach in the CON group fitness class. There are a few limitations to the current investigation that are worth noting. There was a 19:1 ratio of female to male participants which limits the external validity of the present student. Similarly, the ACE RRAMP Protocol had a significantly higher age than the control group.

Conclusion

Our preliminary findings support the ACE RRAMP approach as a promising strategy to achieve an active lifestyle. The present study highlighted the ability of the ACE RRAMP Approach to assist individuals in participating in regular physical activity while also creating an environment where every participant was set up to succeed. Future research should continue to explore this technique to further identify and understand the underlying mechanisms of behavior change in a group setting and expand each element of “RRAMP” in order to continued developing new and unique ideas for how to implement this approach. Furthermore, there should be more research exploring whether the approach is feasible in a more diverse population to enhance external validity. Ultimately, the current findings can be leveraged by group fitness instructors as they introduce the ACE RRAMP approach into group fitness classes to increase adherence and both intrinsic and extrinsic motivation by creating a caring and task-involving class environment.

Competing interests

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