

College Intervention Programs and their Effects on the Physical Health of College Students

A Synthesis Project Presented to the

Department of Kinesiology, Sport Studies, and Physical Education

The College at Brockport

State University of New York

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Education

(Physical Education)

By

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Fall 2018

THE COLLEGE AT BROCKPORT
STATE UNIVERSITY OF NEW YORK
BROCKPORT, NEW YORK

Department of Kinesiology, Sport Studies, and Physical Education

Title of Synthesis Project: College Intervention Programs and their Effects on the Physical
Health of College Students.

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12/12/18

Instructor Approval

Date

Accepted by the Department of Kinesiology, Sport Studies, and Physical Education, The
College at Brockport, State University of New York, in partial fulfillment of the
requirements for the degree Master of Science in Education (Physical Education).

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12/12/18

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Date

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Abstract

Obesity and poor health rates in this country have been a problem for years and there has been much research to show how physical activity can be a solution for this problem. Much research has been done on physical activity programs and their benefits to different populations, but specifically not much has been done in the question of college students. During these years' adolescents are vulnerable to weight gain and negative health outcomes. Therefore, the purpose of this synthesis was to review the literature on college physical activity programs and the – physical health benefits for college students. Research has shown that college intervention programs have helped to change student's nutrition behaviors but has failed to have an effect on physical activity behaviors or weight loss. With that being said, there needs to be further work done in regards to finding factors that create the most efficient program that can successfully increase student's physical activity and decrease their weight giving the student a healthy life at school and for their future.

Chapter 1- Introduction

The college years are highly influential in shaping adult behaviors, particularly with regard to diet, physical activity, and other lifestyle habits. An increase in the prevalence of obesity has been observed throughout the world (WHO 2010), which is thought to be due to many factors including psychological, physiological and environmental influences which are demonstrated in the obesity system map (Butland et al., 2007). University students may be susceptible to weight gain, with evidence suggesting a decline in physical activity (PA) and adherence to poor dietary habits during university life (Hoffman et al., 2006). Vigorous physical activity helps protect against chronic diseases such as Type 2 diabetes, heart disease, and cancer. Recognizing the apparent mental and physical health benefits of VPA, The CDC (2009) recommends that adults complete a minimum of 75 minutes of VPA each week. Unfortunately, In American samples, studies have found that only 35-42% of college students reported engaging in the minimum recommended amount of VPA(Adams et al., 2007; American College Health Association, 2006).

The prevalence of obesity among 18- to 24-year-olds has steadily increased with overweight status exceeding 25% of the population and almost 20% of this age group meeting the criteria for obesity (Bjerke, 2013). Despite the well documented benefits of an active lifestyle, lack of physical activity is a significant health problem in college students. Most young adults do not regularly exercise despite a large number of studies that point to direct health and quality of life benefits.

For many individuals the college years are a time of high-risk when they experience the onset of mental or physical health problems (Downs & Ashton, 2011). Maintaining adequate levels of vigorous physical activity (VPA) may help to protect against such problems in college and beyond. However, post high school decreases in both organized sports participation and the extent to which individuals identify themselves as an athlete may contribute to many college students engaging in inadequate VPA (Downs & Ashton, 2011).

Given that the majority of young American adults are enrolled in colleges and universities, the higher education setting could be an appropriate environment for health promotion programs. According to Bjerke (2013) more than one third of college students are either overweight or obese making college campuses an ideal setting to target at risk behaviors. He notes that although most colleges provide Physical Education (PE) courses, the effects of PE on the health of college students is underrepresented in the literature compared to children and adolescents. Researchers have pointed to health benefits associated with participation in PE among college students and have argued that more evaluation of PE in college settings is needed. In his study Bjerke (2013) examined the effects of an activity-based PE program (tennis, basketball); conceptual-based PE program (fitness for life) and a combination approach. Each approached yielded improvements in physical activity and wellness and will be further explored within this paper.

Statement of the Problem

College students may benefit from a college designed intervention program to help learn healthy lifestyles, dietary intake, and to increase physical activity. These students are living in a high stress environment with a lot of barriers between them and a healthy physical lifestyle. Time, motivation, convenience, and access to the proper help and facilities are all struggles for a

college student. College physical activity programs can have positive outcomes for new college students trying to stay healthy and active while simultaneously trying to be a student and learn. Determining the benefits of a intervention program and isolating what factors really make it a successful program can help create more programs to help improve the student populations overall health, lower college obesity rates, and increase standards of health for the school.

Purpose of the Synthesis

The purpose of this synthesis is to review the literature on the effects of college intervention programs on the physical health of college students.

Research Questions

Can physical activity intervention programs positively affect the physical health of college students?

What factors lead to the success of these different programs?

Operational Definitions

1. Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity includes exercise as well as other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities (World Health Organization, 2018)
2. College intervention program are multi-component efforts that provide education about nutrition, physical activity, and healthy weight management; such interventions are often paired with campus environment improvements. Interventions also frequently include

self-monitoring, goal setting, and social support components, as well as opportunities for physical activity. (Lua 2012; Plotnikoff 2015).

3. Positive Health Outcomes include being alive; functioning well mentally, physically, and socially; and having a sense of well-being. Negative outcomes include death, loss of function, and lack of well-being. In contrast to these health outcomes, diseases and injuries are intermediate factors that influence the likelihood of achieving a state of health (Parrish 2010).

Delimitations

1. Research involving types of physical activity programs geared for college students ranging in age from 18-22.
2. Peer-reviewed journal articles from 2000 to 2018.

Chapter 2- Methods

The purpose of this chapter was to review the methods used to find the literature on college physical activity intervention programs and benefits on health outcomes and obesity in the college student population. The studies collected for the critical mass of this synthesis were identified using the EBSCO host database from the College at Brockport's Drake Memorial Library as well as Google Scholar. Searches were conducted using the SPORTDiscus database and the search engine from the Drake Memorial Library. From these searches, a total number of 10 articles met the criteria for the inclusion as part of the critical mass in this literature review. For an article to be selected in this literature review they needed to meet a certain criterion. The articles needed to be peer-reviewed articles. If an article was peer-reviewed they are of better quality and more valid. Secondly, the articles needed to be published no earlier than the year 2000 in order to ensure current evidence regarding the topic. Many different searches were done to compile the list of 10 articles to be used in this literature review. Within the database EBSCO the key words for the first search was "physical activity programs and college students" which resulted in 133 results. This was reduced by searching physical activity programs and college students and physical health which resulted in 91 results. From those 91 results 6 articles were chosen to be used in the literature review. The second search conducted was of university based program impacts and physical activity which had 338 results. This was reduced by searching university based program impacts and physical activity and colleges students which resulted in 26 results 1 of which had already been chosen. From those 26 results 1 article was chosen for the literature review. The third search was of online college programs and college students which resulted in 184 results. This was reduced by searching online college programs and college students and physical activity which resulted in 21 results. Of the 21 results 1 article was

chosen to be included in the literature review. The fourth search included internet interventions and college students which resulted in 64 results. Of the 64 results one was already chosen and 1 was chosen to be included in the literature review. The fifth search included vigorous physical activity and sport participation which had 237 results. This was reduced by searching vigorous physical activity and sport participation and college students which had 15 results. Of the 15 results 1 article was chosen for operation definitions in the introduction. The sixth search was peer reviewed and included exercise/sport classes and college students which had 208 results. This was reduced by searching exercise/sport classes and college students and motivation which had 39 results. Of the 39 results only one article was chosen for definitional purposes in the introduction.

In total 10 number of articles met the criteria for inclusion in this synthesis. The articles came from the following journals: Journal of American College Health; American Journal of Health Education; Journal of Health, Physical Education, Recreation and Dance; and the Journal of Exercise Physiology. Each article selected to be in this literature review was carefully read over to find key information to be put into an article grid format. This helps to organize the data and find similarities between articles easier.

The critical mass of subjects in all of the studies are limited to college students. Some of the articles provided did provide intel on collegiate aged individuals who did not attend college, and adults due to these subjects being included within the literature. There were a total number of 5,502 subjects' participants involved in the literature. Of the 5,502 subjects, 124 were not specified. The participant subjects in the age range of 18-25 amounted to 3,833. Of the 3,841, 2,325 of the subjects were female and 1,483 were male. All these subjects were undergraduate students ranging in ethnicities and race. There were a total of 475 students who were enrolled in

private institutions. Of the 5,502 subjects in the literature, 2,547 were involved in activity- based programs and 2,085 were involved in conceptual- based programs. Although, the subjects varied in age, this provided different outcomes on these types of intervention programs.

Chapter 3- Literature Review

The purpose of this synthesis was to review the literature on college intervention programs and their effects on student obesity and health outcomes. Two forms of intervention programs associated with the literature review are Conceptual Based Interventions (CBI) and Activity- Based Interventions (ABI). Associated with the literature review are Physical Activity Intervention (PAI) programs and Specifically Designed Obesity Intervention (SDOI) programs. Factors that will be examined in each intervention program include Body Mass Index (BMI), body composition, physical activity levels, and physical activity behavior.

Conceptually-based interventions outcomes

Conceptually Based Interventions focus on theoretical concepts applied to health and fitness and consists of lectures about the health benefits of regular physical activity and healthy eating habits. These types of intervention programs have influenced the college students in many ways, whether it relates to weight loss, body composition, BMI, increased physical activity levels, increased self-efficacy towards exercise, nutrition behavior, etc. These effects can have a huge effect on a college students overall bill of health. It is important to take a look at the research provided to see how much of an impact conceptually based intervention programs can have on the physical health outcomes of a college student.

Weight and BMI

LaChausse et al., (2012) tested the effectiveness of the MSB, My Student Body, program (a online intervention program) program on weight loss, self-efficacy towards exercise/eating fruits and vegetables compared with an on-campus weight management course and a comparison group in which the participants received no intervention. There were 320 ethnically diverse

undergraduate students (236 female and 76 male). One Hundred and six of these students were enrolled in the online MSB intervention. Participants were required to do the following: visit the MSB-Nutrition web page for at least 2 hours/week for a 12-week period, complete all four assessments by the end of the course, complete each of the learning modules (Nutrition 101, eating on the run, weighing In, Fitness). Testing occurred 1 week before beginning the course and approximately 2 weeks after the end of the course and analysis of variance was used to analyze data. The results from the study demonstrated that all three groups resulted in no change in exercise self-efficacy, attitude toward exercise, frequency of aerobic exercise, BMI, or weight loss. The only significant change was that there was a significant increase in fruit/vegetable consumption and self-efficacy for fruit/vegetable consumption in the experimental MSB group.

Physical activity behavior

Physical activity participation and behavior is a huge factor in keeping college students healthy. conceptual based interventions not only aim to improve weight and BMI but also have a second component putting a lot of focus on physical activity levels and behavior.

Miragall et al., (2018) tested the effect of an internet-based motivation intervention supported by pedometers on increasing daily steps and changing constructs related to physical activity in sedentary students. seventy six low active or sedentary college students participated in the three-week intervention designed to increase motivation and set individualized physical activity goals for each subject. The 76 participants were measured for daily steps using a Fitbit and also by keeping track of calories burned, distance travelled and active minutes. Data was automatically synced online to track progress. After wearing the pedometer for 1 week, participants who did not meet the criteria or walk the average of 7500 steps/day were excluded

from the study. Those who did meet criteria were randomly assigned to one of the three conditions: Internet-based motivation interventions + Pedometers (IMI+PED), IMI without pedometers, or controlled condition in which participants received no intervention. In the first part of the intervention, “motivation to change” participants received information about PA, and visualized the “23 and half hours” video from the Reframe Health Lab website which is intended to show participants the benefits of practicing regular PA. The second part of the intervention called: “Move it: find your motivation and set your goal”, required participants to balance the pros and cons of practicing regular physical activity and to set their own objectives. The results demonstrated that there were no main effects of time or condition on self –efficacy towards PA, although average daily steps in the IMI+PED condition were higher than the control condition. The findings coincide with the results of a meta-analysis showing that internet-delivered interventions produce significant increases in PA. The findings demonstrated that the IMI is effective and self-monitoring of PA is recommended.

As previously mentioned, LaChausse et al., (2012) looked at an internet based obesity prevention program for college students that also focused on self-efficacy of exercise on 320 undergraduate students. Self-efficacy of exercise was assessed using the Self-Efficacy to Regulate Exercise Scale. This scale asked participants to respond to 18 items by rating their degree of confidence from 0 (cannot do at all) to 100 (highly certain I can do), factors measured at baseline and post-intervention. Although the results demonstrated that there were increases in self-efficacy values in both the mean and standard deviation groups of the MSB course they noted there was no significant change in data.

Activity-Based intervention Outcomes

Another approach used to help college students improve their health habits was the Activity Based Intervention programs. Specifically, these interventions revolve around physical activity in some way as they are all about increasing actual physical activity performed by the individual. These types of interventions have influenced the college student physical health factors as well. It is important to look closely at the research provided to see how effective activity-based intervention programs really are at helping the college student population's health outcomes

Weight and BMI

Weight and BMI are important factors when evaluating an individual's physical health. These factors are measured in pre and post intervention to evaluate the effectiveness of the activity based interventions on a student's physical health outcome.

Bjerke et al., (2013) tested the effects of a combination of activity-based education courses and conceptually-based education courses. Meaning a combination of courses that physically teach you sport movements and skills and courses that lecture you and require no physical movement. Compared to groups that only take activity-based courses or Conceptually based course (CPE). These groups were tested on their health and health behavior outcomes and compared to each other. There were 32 college participants aged 18-24 (39 female and 22 male) that were placed in the experimental group consisting of a combination of APE and CPE curriculum including education, supervised physical activity, and provision of recreation activities such as sports and guided trail walks. Two comparison groups were used. The first comparison group were students enrolled in only APE courses. The second comparison group

consisted of students only enrolled in CPE course. The program lasted 14 weeks for all groups. The dependent variables assessed in these courses included BMI, body composition, and health behaviors. The results demonstrated that post values for BMI did not change significantly among any courses as a result of a relatively short intervention. However, there was a significant reduction of body fat percentage in the Activity based course group totaling to 11.8%.

In a similar study Sailors et al., (2010) tested training interventions that introduced sedentary college students to regular physical activity. There were 1,567 participants between the age of 18 to 35 (39% male) that were placed in an exercise program lasting 30 weeks of exercise training, 3 days/week, for 40 minutes at 65-85% of age-and gender- predicated maximum heart rate reserve. Subjects could choose what type of aerobic exercise models they used, which included stationary cycling, treadmill or track running/walking, elliptical stepping rowing, stair stepping, and arm ergometry. Along with in-class exercise sessions the Training interventions and genetics of exercise response study, TIGER, study partnered with csisoftwareusa.com, CSI software, to provide an online-activity logging program so students could log exercise performed outside of class. The protocol included 3 physical examinations (baseline, 15 weeks, and 30 weeks) at each examination, subjects completed questionnaires designed to assess weight history, eating behavior, habitual physical activity, etc. The results from the study indicated that individuals who adhered to the study protocol for the first 15 weeks were significantly younger, weighed less, were shorter, smaller waist/hip circumferences, and had a much lower BMI and body fat %. Participants that adhered to the TIGER exercise protocol had a mean BMI of 26.1 and weight of 72.9. Those who did not had adhere had an average BMI of 27.1 and weight of 76.7.

Lastly, Ickes (2016) conducted a study to determine the impact of a 15-week campus-based lifestyle modification program on obese college students with regard to physical activity behaviors, attitudes, and self-efficacy. Eighteen college students (30 female and 2 male) completed pre and post-intervention surveys that measured participants behaviors, attitudes, self-efficacy, social support, BMI, and environmental factors such as access to exercise facilities like a park or gym. The mean age of the study participants was 25.8. Participants needed have self-reported BMI of 30 or greater and the ability to adhere to all program scheduling in order to participate in the study. The intervention included 5 components: 2 60-minute small-group training sessions per week led by a trainer, optional weekly 60-minute group fitness classes, 2 individual meetings with the university dietician, communication with a health coach, optional cooking classes and grocery store tour. Group training sessions took place in groups no larger than 2-3 individuals instructing to promote physical activity and modeling of foundation movements such as squats, deadlifts, push-ups, planks, and lunges. The intervention was successful at increasing physical activity and self-efficacy and decreasing body mass index when comparing pre and post measures. Specifically, BMI value was reduced from a baseline of 35.7 to a postintervention value of 34.8 with 66.7% of the participants decreasing their BMI value. Only 11.1% of the participants maintained the same BMI.

Physical activity Behaviors

Previously mentioned Bjerke et al., (2013) completed a pre-post study to assess not only overall health but behavioral outcomes like self-efficacy associated with a combination of APE-CPE course, an APE course, and a CPE course. The International Physical Activity Questionnaire, IPAQ, was used to assess physical activity behaviors. Paired t- tests were performed to find which dependent variable significantly changed following the enrollment in

either of the three groups. The results noted that days spent in vigorous activity increased 34.4% and moderate duration in minutes increased 87.2% for subjects in the APE-CPE course. The activity-based course subjects had a 5% increase in walking duration and 21.1% increase in days spent in moderate activity.

Ickes et al., (2016) also looked at how a 15-week campus-based lifestyle modification program would influence obese college student's physical activity behaviors and self-efficacy. The Patient-Centered Assessment & Counseling for exercise survey, PACE Adult Measure, was used to assess physical activity-related outcomes. Physical activity behaviors were measured with a 9-items, including questions such as, "on how many of the past 7 days did you participate in resistance training or strengthening activities" with answers ranging from none to 7. Students responded to 6 items to assess self-efficacy for physical activity. The results showed the intervention was successful at increasing physical activity levels. Post-intervention values showed an increase in days spent resistance training, flexibility training, and neuromotor training. Total number of minutes per week spent performing any type of physical activity significantly improved from a mean average of 136 to 254. Self-efficacy for physical activity was significant when comparing the subscale from pre-intervention to postintervention increasing from a baseline of 14.6 to 17.3.

Activity based and conceptual based intervention comparison

There have been some debate regarding whether activity based, or conceptual based intervention programs are most beneficial to a college students physical health and behavior. The research shows that there are benefits from both intervention designs.

Williams et al., (2018), compared the improvements in physical fitness levels in participants enrolled in conceptually based education (CPE) and traditional activity and skills-based physical education (APE). Fifty-six students were split into two groups; group 1 (27 students) and group 2 (29 students). Group 1 participated in CPE course consisting of a lecture class and laboratory exercise activities while group 2 participated in ASPE activity course. Cardiorespiratory endurance, muscular endurance, body composition, and flexibility were selected as measurements of each student's fitness level. Body composition was assessed via bioelectrical impedance by the OMRON Body Fat Monitor. This device and its protocol involved using a properly calibrated monitor and solicited personal data including height, weight, age, and gender. Cardiorespiratory endurance was measured through the YMCA 3-Minute Step Test, formerly known as the Rasch Step Test. The results from the study showed that comparison of the health-related fitness component means showed improvements in all categories for both intervention groups. Muscular endurance and Flexibility increased, whereas Cardiorespiratory endurance and body composition decreased, all of which are favorable outcomes. A closer examination of the difference in the health-related fitness component means showed that Intervention Group 1 experienced greater improvements in Muscular endurance and body composition, whereas Intervention Group 2 saw a greater improvement in cardiorespiratory endurance and modestly greater improvement in Flexibility.

Conclusion

The purpose of this chapter was to review the literature on two different types of college designed intervention programs and their effects on college student's physical health outcomes. The first was to review the literature on activity -based intervention programs and their effects on BMI, body composition, and physical activity behaviors on male and female college students.

the second was to review the literature on conceptually based intervention programs and their effects on BMI, body composition, and physical activity behaviors on male and female college students. After completing research on both intervention types, it is concluded that both intervention types did in fact have positive effects on the physical health outcomes on the research subjects. BMI, body composition, and physical activity behavior were shown to have little to significant improvements on college students. Even though there were improvements, there still needs to be more research provided on the effects of college intervention program models on college students.

Chapter 4- Discussion, Recommendations

The effects of college-based intervention programs on the physical health outcomes on college students were reviewed in this synthesis project. In particular activity-based and conceptual based interventions and their effects were reviewed. An activity-based intervention consists of physical activity through the teaching of sport skills such as aerobics, tennis, swimming, martial arts ,etc. Whereas conceptual-based interventions are more focused on teaching physical activity behavior and nutrition behavior through lectures which are usually online based.

Based on the review, the following conclusions were discovered. Both activity-based and conceptual-based interventions had improvements with college male and female subjects in BMI, fat percentage, and or physical activity behaviors. There was no clear evidence showing that either training model was more efficient at improving one variable or another.

Discussion

As the research demonstrated, both activity and conceptual based interventions have shown their effectiveness at improving physical activity behavior, BMI, weight, and body composition. Researchers provided valid information in order to establish the importance of activity and conceptual based intervention programs within the population of college students. The results showed that both activity and conceptual based interventions are efficient. It is advised that college health professionals use different combinations of both intervention types to assist with weight loss, decrease BMI, and increase physical activity levels in college students. A variety of combinations of reduction in caloric intake and an increase in physical activity are critically important to produce long term weight loss (Unik, 2009). It is also important that low

levels of physical activity seems to be a main contributor to weight gain in college students (Huang, 2003). Improving improvement in physical activity levels should be of up most importance in intervention programs. Of note, present evidence indicates that obesity intervention programs may increase physical activity and physical fitness on a short-term basis although, this decreases over time (Hivert, 2007). Activity based interventions were more effective

Recommendations

Recommendations for future research related to intervention programs and their effects of the physical health outcomes on college students are advised. Although, obesity interventions are studied and reviewed by college health professionals quite a lot there are still areas regarding specific types of interventions and their variables that lack enough information. Even though the research provided detail on the progress with the subjects, more research needs to be done in order to receive a deeper analysis. College health professionals emphasize the importance of improving physical health and behavior in college students, but future health as an adult is emphasized by these professional's as well. Ensuring that college graduates go on to live healthy and fulfilling lives and retain the health and education they learned while in these college intervention programs is just as emphasized. As these health professionals continue to work with college students, research would advise the usage of activity and conceptual based interventions on college students to improve physical health outcomes.

The first recommendation would be to create a more longitudinal timeline of the program measuring physical variables after the intervention is over. The research conducted only evaluated changes in these physical variables post-intervention immediately but did not look at

the months or years following these interventions to ensure the sustainability of changes in participants. Further research needs to be implemented in order to gain a better understand of the effects of activity/conceptual based interventions have on the physical health outcomes of college students. Both types of programs showed some physical health improvements in college students, but differences in each type of program could have an effect on how long these improvements last. For instance, the activity-based interventions may have had a greater success in decreasing weight and BMI in participants but lacked the specific aspect of nutritional behavior education. This would show that participants are more susceptible to putting the weight back on because participants are not educated enough to keep the improvement's they once gained during the intervention.

The second recommendation would be to decrease the sizes of these intervention programs. Large intervention groups lack connectivity and smaller groups have greater levels of social cohesion to work together and increase health-promoting behaviors. If smaller groups were to be integrated into the aspects of these interventions it could be possible that the participants have greater improvements in physical health changes. If there are too many participants in an intervention with only so many instructors to help them certain individuals could fall behind due to lack of support and get in the way of physical health improvements. Smaller groups could make it easier for everyone to gain more from the intervention and have a greater impact on their health.

Another recommendation would be to create interventions for gender specific groups. The research conducted evaluated both female and males together in the same intervention programs. Further research needs to be implemented in order to gain a better understanding of

the effects of activity/conceptual based interventions on females specifically and males specifically.

It is important to entail which type of program is more suitable for each gender. Both types of programs may have showed physical health improvements in both female and males, but differences between different genders could alter the results overall as a group.

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Appendix A

Article Grid

Author	Title	Source	Purpose	Methods & Procedures	Analysis	Findings	Discussion/ Recommendations Research Notes – Commonalities/Differences
Jennifer Ashton	Vigorous Physical activity, Sport Participation: Implications for mental and physical health in college students	SPORTDiscus Database	To examine why VPA declines when individuals transition to college and how such declines are related to mental/physical health.	Vigorous physical activity and sports participation questionnaire (VPASPQ)		2 out of 3 individuals surveyed did not consistently engage in the minimum level of 25 min/day of VPA	Participants may have overestimated their VPA in high school the same participants would likely overestimate their VPA in college as well. Ideally, future prospective longitudinal studies would assess participants physical health regularly across the years to examine how those variables change in response to varying levels of Physical activity.
Jeffery S. Pauline	Physical activity behaviors, motivation, and self-efficacy among college students	SPORTDiscus Database	Was to attain baseline physical activity behaviors, motivation factors, and self-efficacy levels to	871 undergraduate students, 18yrs +, and nont a member of a varsity sport team completed	SPSS for windows was used for all statistical analysis.	Only 15.4% of overall students surveyed participated in 30 minutes or more of moderate PA; nearly 20% did	Results of this study indicate a need for physical activity promotion at the college level. Approximately half of the total sample did not meet the American College of

			assist with developing intervention targeted for young adults on a college campus.	the multi-section questionnaire.		not engage in any mod/vig PA	Sports Medicine (ACSM) and American Heart Association (AMA) recommendations for vigorous physical activity. Suggests health promotion professional should consider gender differences when designing physical activity programs for college adults.
Melinda J. Ickes	Impact of university based program on obese college students physical activity behaviors attitudes, self-efficacy	SPORTDiscus Database	Determine the impact of a 15-week campus based lifestyle modification program on obese college students with regard to PA behaviors, attitudes, and self-efficacy	32 participants answered baseline and postsurveys administered through Qualtrics. Measured PA, behavior, attitudes, stages of change,	Statistical analyses were focuses on changes from pre to postintervention and only utilized completers.	Intervention was successful at increasing PA Levels, reduced BMI in 66.7% of the participants	Future studies should include multiple follow-up measures to determine the sustainability of such changes once the program ends. Future on-campus programs may want to incorporate booster sessions, addition social support, follow-up communication to reinforce successful behavior.
Wendy Bjerke	Health and fitness courses in Higher education: A historical perspective and contemporary Approach	SPORTDiscus Database	To examine the health and health behavior outcomes of a combination APE-CPE course compared with a APE and CPE course	Data from 61 participants such as BMI, body composition and responses to the Internation Physical activity Questionnaire was collected as	Data was analyzed in a descriptive and inferential manner using pared t tests to compare the mean data from all three courses.	Mean BMI scores did not change significantly among any courses. Mean percent body fact decreased most in the APE course group by 11.8%.	89% of 4-year institution and 82% of 2-year institutions offer APE or CPE courses. But, only 1/3 of these types of courses are evaluated by the college or outside evaluators for their full effectiveness.

			separately at UCONN	dependent variables. Comparing results from all three groups	Specifically, mean changes in body composition, bmi, and IPAQ responses were retrospectively compared using data collected.	The APE-CPE participants days spent in vigorous activity increases 34.4% and 87.2% increase in moderate duration in minutes.	Future studies could access specific benefits associated with social/behavioral variables. For example, (Gruber 2008) argued that smaller groups are associated with decreased maladaptive health behaviors and increased health promoting behaviors including physical activity.
Jamie A. Weinfeldt and Amanda J. Visek	Why college students enroll in exercise and sport activity classes: An exploratory investigation	SPORTDiscus Database	Identify reasons why students participate in a non-required exercise/sport activity. What benefits they think they would receive from participating.	475 college students were enrolled in EXSA courses. The EXSA survey was used to collect data	Descriptive statistics were used to analyze the data and data are reported by frequency and percent.	The top 3 reasons for enrolling were to improve fitness, have fun, and exercise more regularly. Where “staying active” was the main perceived benefit.	Specific personal motivators for PA must be realized if we are going to attempt to try and get people to become more active. Students in this college population are MOST motivated by inherent pleasure of participating as well and outside factors such as reaching a goal. The data indicates that students of this age understand the true importance of being active. Students who participated in EXSA courses practiced

							healthier behaviors during and post college.
Robert G. LaChausse	Effects of an internet-based prevention program to decrease obesity among college students	SPORTDiscus Database	To determine the impact of My student body(MSB) nutrition, an internet based obesity prevention program for college students.	Participants were assigned to 1 of 3 conditions. Online, on campus course, and a comparison group.	Prior to conducting any analyses, variables were tested to ensure that the assumptions of statistical techniques to be met.	Data indicated that there were no changes in exercise self-efficacy, or in attitudes toward exercise, or change in BMI	Findings suggest it may be easier to affect factors related to nutritional behaviors than exercise behaviors. This program placed a greater emphasis on aspects of health eating rather than physical activity. Including physical activity modules in the program to increase PA levels.
Mary H. Sailors	Exposing college students to exercise: the training interventions and genetics of exercise response(TIGER) study	Journal of American College Health, Vol.59	TIGER study is an exercise program designed to introduce sedentary college students to regular PA and identify genetic factors that influence a response to exercise.	Protocol included 3 physical examinations. subjects complete questionnaires. Each participant engaged in a 30-week exercise program partnering with a software program to track activity outside of class.	Chi square, logistic regression, and analysis of variance were performed to determine if retention rates were different by gender, race, and all phenotypes. STATA software was used for all	There was a 20% retention rate across semesters . Those who adhered to the study protocol exercised significantly higher average intensity.	The TIGER study represents an efficacious strategy for introducing regular physical activity that can potentially impact future obesity risk. Study included social contexts of “group membership” and “positive reinforcement”. These factors can afford students the opportunity to incorporate PA and health behaviors at a critical phase in adulthood.

					statistical analyses		The structure of a formal class for credit appeared to be a motivating factor in maintaining adherence to the study protocol.
Robert Topp	Fit into college: A program to improve physical activity and dietary lifestyles among college students	SPORTDiscus Database	The purpose of this study was to determine whether a 10-week program could improve physical activity, physical fitness, body weight, dietary intake, and perceptions of exercise and diet among college 30 healthy college freshmen	40 incoming freshman were measured in VO2 max, body weight, strength, body composition before and after the 10 week program, and answered a IPAQ		50% of the participants were obese/overweight. Perceptions of the benefits of regular exercise significantly increased while the barriers to regular exercise and consuming fruits and vegetables significantly decreased.	The sample nearly doubled their perceived benefits of exercise while reducing their perceived barriers to engaging in exercise by greater than half. Both before and following the FIC program the participants averaged approximately 70% of their activity as inactive or sitting with less than 50 min per day .spent in vigorous physical activity.
Janelle schilter	Fitness and Fatness: Indicators of Metabolic Syndrome and Cardiovascular Disease Risk Factors in College Students?	SPORTDiscus Database	The purpose of this study was to identify which health related behaviors including fatness, amount of physical activity, and cardiorespiratory fitness, correlate	There were 203 men and women (20.3 ± 2.2 yr) who participated in a two day collection period. Height, weight, waist circumference, blood pressure, blood lipid	Multiple linear regression was used to determine the independent relation of fatness (body mass index and waist circumference), amount of	Thirty-four percent of the sample population had no cardiovascular risk factors, 28.6%, 22.7% and 14.8% had one, two, and three or more risk	These findings suggest that multiple cardiovascular risk factors are present in a college aged population. The relationship between physical activity and fatness suggest that future prevention programs should focus on modifying these behaviors

			with increased cardiovascular disease and metabolic syndrome risk factors in college students	profile, and cardiorespiratory fitness were measured. Each participant also filled out a questionnaire in regards to their physical activity habits and other demographic information.	physical activity, intensity of physical activity, and cardiorespiratory fitness to metabolic syndrome and cardiovascular disease risk factors	factors respectively.	
Suzanne Williams	A Study of Conceptually Based Physical Education in Higher Education.	SPORTDiscus Database	The purpose of this research was to determine whether university students who participated in conceptually based physical education (CPE) would achieve greater positive improvements in their physical fitness level, compared to students in traditional activity- and skills-based physical	2 intervention groups of CPE (n = 27) and ASPE (n = 29) students who were required to participate in fitness preassessments and postassessments scheduled accordingly during the semester at a medium-sized Midwestern university in the United States	Descriptive and paired samples t test analyses were used to analyze data.	Most of the students showed gains in physical fitness; as a result, students benefited from participating in both types of physical education courses	There is a need for physical education in colleges and universities, and whether in the form of CPE or ASPE, these courses will benefit all students. CPE courses will merely extend further opportunity for the cultivation of physical and health education, as well as potentially improve motivation, attitudes, and behaviors toward exercise during the semester of course enrollment and beyond

			education (ASPE)				
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