



WORK HABITS OF DEGREE COLLEGE STUDENTS – RELATED TO PHYSICAL ACTIVITY AND FITNESS

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Abstract

The present research shows a significant decline in physical activity participation and an increase in sedentary behavior during young adulthood during the college undergraduate years. Studies examining the relationship between academic outcomes and fitness/physical activity have not extensively examined this among college students. Therefore, the purpose of this study was to examine the relationship between fitness measures (cardiovascular endurance, muscular endurance, flexibility and body composition), physical activity, and academic outcomes in college students. This cross-sectional study had college students complete a one-time fitness assessment and survey examining their physical activity and academic factors (GPA, study habits, course load). Correlations examined relationships between fitness, physical activity and academic outcomes, t-tests compared differences for fitness and behavioral outcomes between groups by academic factors. This research paper is to be discussed Work Habits of SRR Government College Students, Karimnagar to be analysed.

Keywords: College Student, Fitness, Academic Outcomes, Work Habits, Physical Fitness.

Statement of the Problem

Physical fitness is not only one of the most important keys to a healthy body. It is the basis of dynamic and creative intellectual activity.

John. F. Kennedy

Physical activity is associated with decreased risk of heart disease, stroke, type-2 diabetes, metabolic syndrome and lower all-cause mortality rate . The prevalence of chronic disease is a significant issue in public health. Despite the known benefits, research shows a significant decline in physical activity participation and an increase in sedentary behavior during young adulthood during the college years . There is significant evidence documenting the decline in activity levels through adolescence, and this trend continues with increasing age throughout adulthood. A study of 233 undergraduate students reported physical activity levels decreased during the transition from high school to college years; 65% of students reported engagement in regular vigorous and 26% in regular moderate physical activity during high school. Upon follow-up however, during their college years 38% of students participated in regular vigorous and 20% moderate PA.

This decline in activity can be related to a variety of factors. As students transition from high school to college they gain greater autonomy relative to their daily lives. Epidemiological findings have reported a decrease in physical activity as autonomy increases throughout middle and high school. One longitudinal study of college students demonstrated that psychosocial and residency (location, i.e. on or off campus housing) influences student physical activity levels as well as related mediators (e.g. self-efficacy, perceived benefits). Other factors could include greater time demands (e.g. work, class time) as well as different access to places to be active.

There is a significant amount of literature examining the relationship between physical activity, cardiorespiratory fitness and cognitive/academic outcomes among adolescent, adult and senior citizen populations. Studies conducted with adolescents are extensive, though may not extrapolate to a college population. One study compared academic outcomes



and physical fitness levels (cardiorespiratory fitness, body composition) for 6th and 7th graders. Analyses revealed that normal weight students had, on average, 11% higher GPA when compared with overweight students. Overweight students had lower reading comprehension scores and aerobic endurance levels were positively correlated with academic outcomes. In addition to these findings, a meta-analysis looking at data across 59 studies resulted that PA had a positive effect on children's achievement and cognitive outcomes, and the greatest correlation was with aerobic exercise. Despite this abundance of evidence during other life stages, there is limited research examining how physical activity, fitness, and academic outcomes are related during the college years.

systems and functions, as well as on the mind, are well known. The literature describes several types of stress, such as: physical, psychological, biological, cybernetic and sociometric. There are many definitions and meanings of the term stress. Paul Popescu Neveanu (1978), for instance, identifies the following meanings:

Stress is a situation or stimulus that puts the body in a state of tension;

Stress is the very special tension due to which the body mobilizes all its defensive resources in order to be able to face physical or psychological aggression. It is a well known fact that, whatever the type of stress we are dealing with (physical, mental, chemical), it will affect all the systems and organs in the body, generating disorders, with mental activity as the "super integrator". There are also several definitions of psychological stress, among which we mention here that of Golu (1981), according to whom it is a state of tension, tension and discomfort caused by agents with the negative significance of frustration or by the repression of motivational states (needs, desires, aspirations), due to the difficulty or impossibility of solving problems.

It is generally accepted among experts that a certain amount of stress is essential for life and can be our ally if we know how to manage it. If, however, the level of stress in our lives exceeds normal rates, it can become a (mental and physical) health issue. Regarding physical health, the effects of stress factors can include: poor physical condition, low general motility indicators, inappropriate operation of the main body systems, low parameters of physiological indices indicating a state of exhaustion, incorrect posture. Regarding mental health, there is frustration, low mobilization of energy, poor self-esteem, negative thoughts, anxiety, depression, lack of strong motivation etc.

From a biological perspective, it was demonstrated that the body's reaction to the action of stress factors is the release of hormones such as adrenaline, noradrenalin, cortisol, that are designed to prepare the body to handle unusual situations by increasing heart rate, blood pressure, muscle tone, stimulating the body to cope with these challenges. However, this ability decreases the body's reaction over time, thus creating the premises for installation of diseases.

It is recognized that from a medical perspective, physical activity is not the best way to combat stress, but it is also known and accepted that it can improve its symptoms.

Appropriately developed exercise programs can help people under stress use up excess energy, release frustration, they can contribute to reducing anxiety, depression, distrust, loneliness, and the lack of interest in everything around (Grigore, 2007).



Clinical and experimental studies have shown that physical training of a moderate intensity, whether of a long or short duration, can produce a significant decrease of anxiety, the effect persisting possibly for a period of 4-6 hours. Another positive influence of moderate exercise is the reduction of phobic syndromes. It is believed that physical effort is involved in reducing anxiety as it competes with the perception of the symptoms of anxiety and helps subjects modify their outlook on the professional or social difficulties they have to face (inducing a euphoric effect).

Another gain generated by physical activity in relation with the reduction of depression is that it removes inactivity and the state of apathy, boosting self-confidence.

Exercise acts on the central nervous system by inducing a state of wellness. It was noted that this phenomenon occurs in about 70% of the long-distance runners. This feeling of relaxation was documented not only by the athletes' reports, but also by electrophysiological measurements that have demonstrated a decrease in spinal activity and synchronization between the two brain hemispheres. It was shown that an increase in body temperature also plays an important role in acquiring this state of wellness and relaxation.

The other element of interest for us, sedentary lifestyle, is manifested first by a reduction in the amount of movement at work, as well as in various everyday activities, which translates into a significant reduction in the volume and intensity of exercise. Experiments have shown (Scribgrup, 2013) that the absence or significant reduction of physical effort, even in exceptional conditions of environment and food, lead to a significant loss of chemical elements such as nitrogen, sulfur, phosphorus, calcium, potassium and sodium.

The human body is not a "battery" that, in the absence of physical effort, will "store" the energy resulting from the metabolism of food and convert it into mechanical work at a later time. The lack of exercise, of functional effort, will push the body into a state of involution, atrophy, characterized by progressive "melting" of the protein tissue (muscle) and a gradual accumulation of fat.

The evidence presented reinforces the importance of policies and programs including physical activity in Degree Colleges settings for both health and academic outcomes. The relationship between physical activity and academic outcomes among college students is less clear, and therein there is a lack of evidence informing college health and wellness programs and policies for physical activity. Therefore, the purpose of this study was to examine the relationship between objectively measured physical fitness (cardiovascular endurance, muscular endurance, flexibility and body composition), physical activity, sedentary behavior, and academic outcomes in a sample of college students. Based on previous research with other age groups, we hypothesized that there would be a positive relationship between fitness and academic outcomes for college students.

Participants

Participants were volunteers enrolled in for-credit physical activity and nutrition classes that required a fitness assessment as a part of their course requirements. Courses drew from all colleges across the universities and were a part of a student general education requirement. Students were invited to take part in the survey between September and December 2018 and provided written consent to use their data. This study was approved by the Institutional Review S.R.R. Government College, Karimnagar.



Protocol

Muscular Endurance -

Assessments included two tests; a one-minute maximum repetition push-up test and modified curl-up test. Modified curl-up's are performed under a 40bpm cadence (max number possible to perform is 75 repetitions).

Body Composition -

Height, weight, waist girth, Body Mass Index (BMI), and body fat percentage via bioelectrical impedance were used to assess subject's body composition and weight status.

Flexibility -

Trunk flexion was assessed with a standard sit-and-reach box, with total distance recorded in centimeters

Following the objective fitness measurements, subjects were asked to complete a brief survey. An identifying code number generated during the fitness assessment linked the participant's fitness outcomes with their survey responses.

Demographics -

Students self-reported their current academic year, age, sex, and race/ethnicity.

Behavioral Outcomes -

The International Physical Activity Questionnaire was used to assess moderate and vigorous leisure, occupational and transportation related physical activity (8). Minutes per week of moderate and vigorous physical activity were used in analyses. Students were asked to report number of hours/day spent sitting or reclining on a typical weekday to examine sedentary behavior. Participants also reported how many hours per day they spent using social media using a continuous scale of 0–24 hours. The distribution for social media was examined and the median was 2 hours per day, then social media use was dichotomized as less than or greater than 2 hours per day.

Academic Factors -

Individuals reported their current grade point average (GPA) using a continuous scale. The distribution was then examined and the median was 3.2. GPA was then dichotomized into less than/equal to or greater than 3.2 (all values rounded to the nearest tenth). Participants also indicated how many credits they were currently enrolled in using a continuous scale and the hours per day they spent studying and doing academic work.

Statistical Analysis

Basic descriptive statistics described the sample. Pearson correlations examined the relationships between the fitness, behavioral and academic outcomes. Independent t-tests were conducted to compare the differences for high/low social media use, study time and GPA for behavioral and fitness outcomes. Significance levels were set at $p < .05$ and all analyses were run using SPSS 22.0

Results Of REsearch Study

Table shows the demographics of the sample ($n=512$) of students. The majority of the population was white (76%) and upperclassmen (67%). For overall physical activity levels, 76% of the population met current physical activity guidelines (17). A majority (55%) of students reported studying more than 2 hours/day, 51.8% were taking 16 or more credits in the current semester, 61% reported using more than two hours of social media per day, and 59% of the sample had a GPA equal to or greater than a 3.3.



Table 1
Demographic characteristics of the sample

Demographic Variable	n (%)	Mean (SD)
Gender		
Male	261 (50.4)	
Female	256 (49.6)	
Academic Class		
Lower classmen	171 (33)	
Upper classmen	346 (67)	
Race/Ethnicity		
Non-Hispanic White	408 (78)	
Non-Hispanic Black	30 (6)	
Hispanic	29 (6)	
Asian American/Pacific Islander	43 (8)	
Other	8 (2)	
Behavioral outcomes		
Moderate physical activity minutes/week		290.38 (310.55)
Vigorous physical activity minutes/week		259.23 (245.13)
Sedentary behavior (hours/weekday)		3.00 (1.79)
Fitness Outcomes		
Predicted VO ₂ max (ml/kg/min)		37.35 (8.81)
% Body Fat		20.59 (13.09)
Body Mass Index (kg/m ²)		24.60 (4.08)
Curl ups (per minute)		46.50 (23.46)
Push-ups (per minute)		31.41 (14.07)
Trunk Flexion (cm)		18.50 (4.26)
Academic Outcomes		
Grade point average		3.31 (1.47)
Hours studying/day		3.91 (1.41)
Number of credits in current semester		15.40 (2.47)
Social media use hours/day		3.88 (1.51)

The correlational analyses of fitness variables with academic outcomes study variables are shown in Table 2. Hours of studying was positively associated with body fat ($r=0.13, p<.001$) and negatively associated with predicted VO₂max ($r=-.011, p=.02$). Social media use was positively associated with body fat ($r=.09, p=.04$). Number of credits was negatively associated with vigorous physical activity ($r=-.09, p=.05$).



Table 2
Correlations between fitness, behavioral and academic outcomes.

Fitness and Behavioral Outcomes

Academic Outcomes		Body Fat	BMI	Predicted VO ₂ max	Curl Ups	Push Ups	Trunk Flexion	VPA min/week	MPA min/week	Sitting time hrs/weekday
GPA	R	0.06	-0.08	-0.04	0.01	-0.02	0.06	-0.07	-0.02	0.03
	p	0.22	0.11	0.36	0.84	0.70	0.19	0.14	0.62	0.55
Hrs Studying/Day	R	0.13	0.01	-0.11	-0.04	-0.03	0.08	-0.06	-0.06	0.16
	p	0.00	0.85	0.02	0.36	0.56	0.07	0.16	0.19	0.00
Social Media Use hrs/day	R	0.09	-0.08	-0.05	0.01	-0.08	-0.01	-0.08	-0.04	0.08
	p	0.04	0.06	0.23	0.91	0.09	0.82	0.07	0.35	0.09
Number of credits	R	-0.06	-0.02	-0.05	-0.01	-0.01	0.01	-0.09	-0.04	0.01
	p	0.36	0.71	0.34	0.93	0.95	0.85	0.05	0.39	0.87

Note: Boldface indicates significance, GPA-Grade point average, BMI-body mass index, VPA-vigorous physical activity, MPA-moderate physical activity

The results of t-test analyses comparing academic outcomes (high/low study time, social media use, GPA and number of credits) with fitness outcomes are found in . Higher social media use was associated with greater body fat, lower BMI, less vigorous activity and more sedentary behavior compared with low social media use. Greater study time was associated with a lower predicted VO₂max, greater hip flexibility, and more sedentary behavior than low study time. Higher GPA was associated with a higher BMI and taking a higher credit load was associated with less vigorous physical activity.

Discussion

This study of college students outlines a possible relationship between behavior, fitness and academic variables. During college years, there are a number of personal habits that have the potential to impact health behaviors, including time management, academic activities, leisure activities and social media use. This study attempted to examine how lifestyle health behaviors in college student populations are related to academic factors and physical health outcomes. The implications of this study are relevant for college student healthcare providers, campus health and fitness departments and college administrators for informing preventative health interventions to impact lifelong health and fitness.

The sample in the current study reported that a majority of students both studied for more than two hours and used more than two hours of social media per day. These findings also found that hours of studying were positively associated



with body fat and that high levels of social media use were correlated with higher body fat. Despite the findings with study time, no relationship with GPA and fitness was found. There is significant evidence among youth that indicates academic outcomes are positively related to better health outcomes, though it appears that, among college students, the evidence is much less clear. Similar to our findings, one study of medical students found no relationship between BMI and academic performance. A prospective study of 12–18 year olds found that physical activity was related to greater cognitive performance in early adolescence, but by 18 years the most active youth had lower cognitive performance. This indicates a possible shift in this relationship during the adolescent years. Furthermore, a study with college freshmen by Economos and colleagues found that weight gain was associated with increased academic workload.

In regards to our findings on social media, limited research has examined how health behaviors and outcomes are related to social media use. Meta-analyses of weight management and social media use found inconclusive evidence for a relationship between BMI and social media use, though the majority of this research involved older populations than those in the current study. Our findings provide a foundation for further investigation, including examining daily time use.

Correlational analyses indicated that there was a significant relationship between study time compared to physical activity and fitness outcomes. Reported study hours were negatively associated with VO₂max and vigorous physical activity. Further analyses revealed differences in vigorous activity between high (less active) and low social media use (more active) and credit load (lower load, higher activity). VO₂max also differed between high (less fit) and low study time (more fit). A similar study involved 493 college students participating in 10 fitness conditioning activity classes. For men, computer use was negatively associated with vigorous exercise and participation in activity, and among women, television watching was negatively correlated with typical frequency of exercise, and history of vigorous physical activity. Time spent studying was positively correlated with days per week of strength training for females, and with minutes per week of exercise for both males and females. These differences suggest that further inquiry is necessary about the impact of social media and study time on physical activity behavior and related health outcomes. Future physical activity interventions targeting college students may need to consider the role of social media when developing intervention strategies or use social media as a behavior change strategy.

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