

## Effect of Sport on academic performance on student-athletes of Obafemi Awolowo University Ile –Ife Osun State in 2011 and 2014 Nuga games

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### Abstract

This study examines how participation in sports affects students' academic performance in Obafemi Awolowo University between 2011 and 2014. The study used a mixed-methods approach, analyzing both qualitative information from student involvements in sports and quantitative data from academic records and questionnaires. The results show a positive relationship between participation in sports and academic success, indicating that students who regularly engage in physical activity have better time management, increased focus, and less stress. The study also looks at how athletics can help develop leadership and teamwork abilities, both of which are advantageous in educational environments. The findings pointed out how crucial it is to involve sports into university life in order to support students' overall development. These observations can help modify university policies around student participation and support systems, advocating for a balanced approach to academic and extracurricular activities.

**Keywords:** Sport; Physical exertion and skill; Physical and Health Education; Athletes

### 1. Introduction

The connection between playing sports and academic achievement has drawn a lot of attention in recent years from researchers in the fields of education and psychology. Sports have always been seen mostly as leisure pursuits that promote social and physical development. Nonetheless, a growing amount of data indicates that playing sports may have a significant impact on academic performance, affecting time management, cognitive function, and general student wellbeing.

While some studies stress how sports might serve as a distraction and cause students to do worse academically because of time restrictions or exhaustion, other research underlines the advantages of playing sports. These advantages include increased focus and self-control as well as better mental health, all of which can lead to higher academic success. Through a comprehensive analysis of the different elements that affect this link, including the type of sport, frequency of participation, and individual student characteristics, this manuscript aims to understand the complex dynamics between physical exercise and academic performance.

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In order to support students' holistic development, educators, legislators, and parents must have a thorough understanding of how athletics affect academic achievement. The results of this investigation may also help guide suggestions about how to balance academic and extracurricular activities and include sports programs into school curricula. This publication seeks to add to the continuing discussion regarding the influence of physical activity on academic achievement and student well-being by the significance of the problem and lays the groundwork for additional research on the connection between academic achievement and athletics.

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## 2. Effects of sport on academic performance

Sport is a type of physical activity that is distinct from recreation (e.g., going to the gym or dancing), active transport (e.g., walking or biking to school or work), and other forms of physical activity (e.g., physically active employment or household chores). Physical activity has also been connected in recent studies to have advantages in cognition and academic performance in both older adults and children (Esteban-Cornejo et al., 2015; Hillman et al., 2008). Despite the advantages of physical activity, about 80% of teenagers nowadays do not follow the suggested levels of physical activity (Piercy et al., 2018).

It is believed that inactivity poses a serious risk to one's bodily and mental well-being. Higher cortical functions, or so-called executive functions, are found in the prefrontal cortex and exhibit rapid development throughout this stage of development (Lebel et al., 2008). The notion that exercise improves these executive processes is becoming more and more supported by research (Li et al., 2017). Additionally, physical exercise may improve processing speed and concentration. The emergence of executive functions is dependent upon these two fundamental brain processes. Moreover, neurocognitive processes are a necessary precondition for learning success (Brown & Blanton, 2002;).

Diamond, 2013 believed that because cognitive outcomes and academic achievement are heavily dependent on frontal lobe functioning, they may not be optimally maximized and supported. The benefits of physical activity on cognitive outcomes and academic achievement are thought to be mediated by a few physiological pathways. A single physical exercise session, often known as acute physical exercise, raises levels of neurotransmitter release and cerebral blood flow, resulting in elevated arousal, attention, and effort levels that quickly after engaging in physical exercise, significantly influence performance on cognitive tasks (Best, 2010; Kashihara et al., 2009; Tomporowski, 2003). It has been demonstrated that repeated bouts of physical activity, also known as chronic physical activity or chronic exercise, promote angiogenesis, synaptogenesis, and neurogenesis (Best, 2010; Hillman et al., 2015; Ross et al., 2015). While there has been a good amount of research on the connections between Physical Activity and academic achievement, less is known about the independent relationships between athletic involvement and academic achievement. Engaging in sports also exposes participants to social elements that are frequently absent from unstructured physical activity. Nevertheless, little research has evaluated the effects of Physical Activity and sports participation on different elements of academic performance characteristics while also accounting for significant variables at the child and family levels.

Scholars have traditionally expressed substantial interest in understanding whether sports participation impacts on students' academic performance by addressing the topic from different perspectives, such as education, psychology, sociology, and sports (Feldman and Matjasko, 2005). Despite the wealth of research on the correlation between sports participation and academic performance (Chuan, Yusof, & Shah, 2013), there is currently no consensus regarding the effect the former has on the latter. Our aim is to provide a more rounded understanding of extracurricular participation and subsequent academic achievement among students in higher education (i.e., the direction of the effect is from sports participation academic achievement, rather than the other way around). The focus of this study is on the assessment of academic performance of student- athletes of Obafemi Awolowo University Ile-Ife of Osun State from 2011 to 2014

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## 3. Literature review

### 3.1. Meaning and definition of academic performance

In educational institutions, success is measured by academic performance, or how well a student meets standards set out by institution itself. According to Wikipedia (2014), academic achievement or academic performance is the outcome of education – the extent to which a student, teacher or institution has achieved their educational goals. Academic achievement is commonly measured by examinations or continuous assessment but there is no general agreement on how it is best tested or which aspects are most important.

Participation in structured athletic activities is said to promote a wide range of “social, physical, and intellectual skills,” leading to better classroom performance (Eccles, Barber, Stone, & Hunt, 2003). As noted above, university school

athletes on average perform better academically than non-athletes, an association that persists even after controlling for factors such as race, ethnicity, and family background variables.

These general benefits of athletic participation and spectatorship may include:

Improving health and exerting surplus energies; (2) obeying the competition or societal rules and constraining delinquent behaviors (such as cheating, acting violently, consuming illegal substances, and drinking excessive alcohol, etc.); (3) promoting societal values, and self-esteem; (Eitzen & Sage, 2008; Shaffer, & Wittes, 2006; Woods, 2006). Studies supported that collegiate student-athletes were often more engaged in academic and campus activities than their non-athlete peers (Umbach, 2006).

Holloway (2002) found that educators believe that athletic participation reduces the probability of school dropout by approximately forty percent. Involvement in these activities was perceived by educators to support at-risk students by maintaining, enhancing, and strengthening the student-school connection. The time allocated to physical education in the majority of schools has declined over the last decade, with a consequent increase in time allocation for other academic subjects (Hillman et al., 2008). There was even a perception amongst key decision makers that time spent on non-academic pursuits might impact negatively on academic achievement (Lidner, 2002).

One area of recent interest has been whether or not participation in sport and other forms of physical activity can enhance cognitive function, including memory and concentration. Large, all-encompassing reviews examining this relationship between physical activity and learning behaviour have suggested that school children may indeed derive cognitive benefits from participation in physical activity including sport (Sibley and Etnier, 2003; Tomporowski, 2003). Associated with these cognitive benefits it has been suggested that physical education, physical activity and sport may enhance classroom behaviour contributing to the enhanced academic achievement of pupils (Mahar, 2006).

The World Health Organization (WHO, 2010) suggests that physical activity participation assists social development of young people by promoting self-expression, social interaction, and social integration.

### **3.2. Assessment in academic performance of student**

The school uses multiple evaluation and assessment strategies to continuously monitor and modify instruction to meet student needs and support proficient student work. An assessment and accountability programme is coordinated by school and district leadership. Continuous assessment is the one that best results not only in terms of rate of return and success rate but also in terms of grades.

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## **4. Methodology**

The purpose of this work was to assess the academic performance of student athletes of Obafemi Awolowo University during NUGA 2011 and 2014. This chapter is concerned with the presentation of the procedure used for the conduct of the study.

### **4.1. Research Design**

The research design for this study is descriptive. It employed a survey approach which was intended to assess the academic performance of student athletes of Obafemi Awolowo University Ile-Ife, Osun State.

### **4.2. Population of the study**

The population of the study comprised all the student athletes of Obafemi Awolowo University Ile-Ife Osun State.

### **4.3. Sample and Sampling Technique**

Fifty student-athletes of Obafemi Awolowo University Ile-Ife who took part in two NUGA games were purposely selected based on their chance of meeting the criteria set. Also, fifty current student-athletes who were willing were selected to complete the questionnaire guide.

### **4.4. Research Instrument**

Record was used to extract student-athletes name, registration number and was taken to computer center for the student-athletes cumulative grade point average. An interview guide was used to assess the following variables; time management, low economic status, low parental moral support, student health status, administrative policy, student

cognitive ability, student active involvement, lack of goal and misplacement of priority by the student, wrong choice of course or discipline by the student, inability to interact with people who could help influence on academic performance of student-athletes.

#### 4.5. Validity of Instrument

The data of all Obafemi Awolowo University athletes that participated in two NUGA games during 2011 and 2014 was collected from the Obafemi Awolowo University sports council. Similarly, the results of this group of students were also collected from the Obafemi Awolowo University computer center. To ensure the validity of the result a letter was presented to the management of sport in Obafemi Awolowo University Ile-Ife to determine the validity of the results and an interview guide, the supervisor went through the questionnaire and corrections were made.

#### 4.6. Procedure for Data Collection

In order to gather information concerning Obafemi Awolowo University student athletes that participated in 2011 and 2014 NUGA games, lists of all the student-athletes that participated was obtained from the Obafemi Awolowo University sports council. In a bid to assess the academic performance of student-athletes, the researcher obtained a letter from her supervisor, and the Head of Department Physical and Health Education Obafemi Awolowo University, to the dean of academic affairs and then to the computer center for the purpose of gaining access to the management for the study.

#### 4.7. Procedure for Data Analysis

The data of the study were analyzed using descriptive statistical method and inferential statistics such as mean, frequency distribution, t-test, ANOVA. Tables were also used when necessary.

#### 4.8. Student-athletes performance

To answer the research question: “How did the student athletes perform between 2011 and 2014?” descriptive statistics such as mean,

**Table 1** Descriptive statistics of student athletes C.G.P.A NUGA and Non-NUGA year

YEARS	N	Mean	Std. Deviation	Std. Error	Minimum C.G.P.A.	Maximum C.G.P.A.
2010/2011CGPA NUGA	50	2.8780	0.90728	0.12831	1.08	4.65
2011/2012CGPA NON-NUGA	50	2.9322	0.86024	0.12166	1.30	4.63
2012/2013 CGPA NUGA	50	3.0176	0.88009	0.12446	1.00	4.66
Total	150	2.9426	0.87870	0.07175	1.00	4.66

The average performance of these 50 students was higher in 2012/2013 (during NUGA) than in any other year with a deviation of 0.88009 which standardized future experimentation using this procedure to an average which lies between  $(3.0176 - 0.88009 =) 2.13751$  and  $(3.0176 + 0.88009 =) 3.89769$  within an error of 0.07175. The range shows that the lowest and the highest CGPA in 2012/2013 was 1.00 and 4.66 respectively. The overall mean performance of student athletes between 2011 and 2013 is 2.9426 which were generally fair but not impressive since it lies between an average of 2.5 and 3.0 CGPA using a 5.0 CGPA system.

#### 4.9. Effect of student-athletes sport participation on their academic performance

To answer the research question: “Does participation in sports affect their academic performance?” t- Test was used. Using t-Test, it was revealed that there was no significant difference in the academic performance of student athletes between 2011 and 2013. Also comparing all the results between NUGA and a non-NUGA year, it was seen that there was no significant difference in the academic performance of student athletes between NUGA and a non-NUGA year. Therefore, NUGA cannot be used as an excuse for any poor academic performance of athletes.

**Table 2** t-Test statistics showing differences in NUGA and non-NUGA year

Categories of student- athletes academic performance	N	Mean	Std. Deviation	Std. Error Mean	T	Df	P
2011/2012CGPA NON-NUGA	50	2.9322	0.86024	0.12166	-0.102	148	0.919
2010/2011CGPA and 2012/2013 CGPA NUGA	100	2.9478	0.89203	0.08920			

**4.10. Differences in student-athlete academic performance between 2011, 2012, and 2013**

To answer the research question: “With there any differences in the academic performance of student athletes between 2011, 2012, and 2013?” t-Test was used to compare between the periods while ANOVA was used for the whole periods between 2011 and 2014. Using Independent Samples t-Test and assuming equality of variances, it was discovered that there was no significant difference in the academic performance of student athletes between 2010/2011 (during NUGA) and 2011/2012 (during non-NUGA period). This is because the p value of 0.76 was greater than 0.05 level of significant chosen for this study (as shown below).

**Table 3** t-Test showing differences in 2010/2011 NUGA and 2011/2012 non NUGA year

	T	Df	P
Student-athletes academic performance between 2010/2011 (during NUGA) and 2011/2012 (during non-NUGA period)	-0.307	98	0.760

**Table 4** t-Test showing differences in 2010/2011 NUGA and 2011/2012 non NUGA year

	T	Df	P
Student-athletes academic performance between 2010/2011 (during NUGA) and 2011/2012 (during non-NUGA period)	-0.307	98	0.760

**Table 5** t-Test showing differences in 2010/2011 Nuga and 2011/2012 non Nuga year

	T	Df	P
Student-athletes academic performance between 2010/2011 (during NUGA) and 2011/2012 (during non-NUGA period)	-0.307	98	0.760

**Table 6** t-Test showing differences in 2010/2011 Nuga and 2012/2013 Nuga year

	T	Df	p
Student-athlete academic performance between 2010/2011 (during NUGA) and 2012/2013 (during NUGA)	-0.781	98	0.437

Moreover, t-Test shows that there were no significant differences in the academic performance of student athletes between 2010/2011 (during NUGA) and 2012/2013 (during NUGA). This is because the p value of 0.437 was greater than 0.05 level of significance chosen for this study (as shown below).

**Table 7** t-Test showing differences during 2011/2012 NUGA and 2012/2013 non NUGA year

	<b>T</b>	<b>Df</b>	<b>p</b>
Student-athlete academic performance between 2011/2012 (in a non-NUGA period) and 2012/2013 (during NUGA)	-0.491	98	0.625

Finally, t-Test shows that there were no significant differences in the academic performance of student athletes between 2011/2012 (in a non-NUGA period) and 2012/2013 (during NUGA). This is because the p value of 0.625 was greater than 0.05 level of significant chosen for this study (as shown below).

**Table 8** Analysis of variance (ANOVA) showing differences in student-athletes academic performance

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>P</b>
Between Groups	0.495	2	0.248	0.318	0.728
Within Groups	114.549	147	0.779		
Total	115.044	149			

To answer the research question: “Does student active involvement in sports affect their academic performance?” ANOVA test was used. Using ANOVA, it was revealed that there was a significant difference in the academic performance of student athletes based on their active involvement in sports. ANOVA (Analysis of Variance) was tested at 0.05 level of significance. From the table above, the ANOVA value is  $F=3.836$  and  $P=0.0728$ . Since the P value is less than 0.05 (the chosen level of significance), the result is significant. Therefore, the hypothesis was rejected while an alternative to it is accepted. The accepted alternative is that there is a significant difference in the academic performance of student-athletes.

However, the improvement is not the same on all levels. Students having the highest level of active involvement in sports (level-10) have the highest academic performance of 3.59. While those having middle level involvement between level 2-4 and 6-9 have lower academic performances which were not statistically significant from each other.

#### 4.11. Paired sample t-test to compare NUGA and Non-NUGA period academic performance

**Table 9** Paired Samples Statistics

		<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>	<b>Std. Error Mean</b>
Pair 1	2010/2011CGPA NUGA	2.8780	50	0.90728	0.12831
	2011/2012CGPA NON- NUGA	2.9322	50	0.86024	0.12166
Pair 2	2012/2013CGPA NUGA	3.0176	50	0.88009	0.12446
	2011/2012CGPA NON- NUGA	2.9322	50	0.86024	0.12166

**Table 10** Paired Samples Test

		<b>T</b>	<b>Df</b>	<b>p</b>
Pair 1	2010/2011CGPA NUGA - 2011/2012CGPA NON-NUGA	-1.804	49	0.077
Pair 2	2012/2013CGPA NUGA - 2011/2012CGPA NON-NUGA	2.261	49	0.028

To compare students 'academic performance during NUGA and NON-NUGA periods, paired sample t- Test was used. Using paired t-Test, it was revealed that there was no significant difference between 2010/2011 NUGA and 2011/2012 NON-NUGA academic performances.

Comparing the mean (2.8780) from 2010/2011 NUGA and that (2.9322) from 2011/2012 non- NUGA period, a negative t-value and a p-value greater than 0.05 level of significance confirms the similarity in the academic performance of student athletes during 2010/2011 NUGA and 2011/2012 non-NUGA periods.

However, the reverse is the case between 2012/2013 NUGA and 2011/2012 NON-NUGA academic performances. It was observed that there was significant difference between 2012/2013 NUGA and 2011/2012 NON- NUGA academic performances, the t-calculated is greater than the t-tabulated because the t-calculated is 2.261 in 2012/2013 and the level of significance used to differentiate is 0.

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## 5. Discussion of Findings

The finding obtained from the study is given in the section of the report. The research revealed the effect of participation in sport on academic performance, and it can provide both positive and negative effects on academic performance. According to some findings, participation in structured athletic activities is said to promote a wide range of “social, physical, and intellectual skills,” leading to better classroom performance (Eccles, Barber, Stone, and Hunt, 2003). The World Health Organization (WHO, 2010) suggests that physical activity participation assists social development of young people by promoting self-expression, social interaction, and social integration. The results of past research indicate that athletic participation does have positive effects on academic achievement, as well as positive effects in other areas such as self-esteem, social status, and future success in education. We cannot say that active involvement in sport can enhance academic performance or cannot enhance academic performance because sport is not the only factors which can be used to measure progress of student-athletes, other factors that can contribute to the success or failure of students include: time management, lack of goal, wrong choice of course, economic status, parental support etc.

The study reveals that there was a significant difference in student-athletes' academic performance using the paired t-test in 2012/2013 NUGA year and 2011/2012 non-NUGA year. Hence, it cannot be said that sports participation negatively affects academic performance.

Academic performance of student-athletes during NUGA and non-NUGA year. The average performance of these 50 students was higher in 2012/2013 (during NUGA) than in any other year with a deviation of 0.88009.

Effects of student-athletes' sport participation on their academic performance. It was revealed that there was no significant difference in the academic performance of student athletes between 2011 and 2013. Also, comparing all the results between NUGA and a non-NUGA year, it was seen that there was no significant difference in the academic performance of student athletes between NUGA and a non-NUGA year. Therefore, NUGA cannot be used as an excuse for any poor academic performance of athletes. Hence, participation in sports does not affect the student-athletes' academic performance.

The following conclusion was made on the findings of the study;

- Despite the fact that student-athletes of Obafemi Awolowo University participated in sport during 2011 and 2014 NUGA games, the academic performance of students was not poor or low. NUGA cannot be used as an excuse for poor academic performance.
- Apart from taking part in NUGA, other factors can cause poor academic performance of students if not properly handled. Such factors include poor time management, lack of goal, lack of parental support, low economic status, and if all these are managed properly, the student-athletes' academic performance will be above average.

### *Recommendations*

The following recommendations were made based on the results of the study;

- Each student-athletes should cultivate the habits of managing time properly, which will help to make wise use of time for relevant things like reading, researching; an individual who wants to achieve in life will state his or her objectives so as to enable him or her to know what to do, how to do it, and what time frame it should be done to yield a positive result.
- There is need for the school administrators to establish sports policies that would encourage students to participate in sport and at the same time provide them with ample opportunities to perform well academically.
- It is recommended that the school should provide opportunities for student-athletes to cover the time lost during competition.

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## Compliance with ethical standards

### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

### *Statement of ethical approval*

I, Zainab, hereby confirm that this study has been conducted in accordance with the ethical standards of Obafemi Awolowo University. Also, I ensure that the study was conducted with integrity, respect for participants.

### *Statement of informed consent*

All participants provided informed consent prior to participation, and all data were anonymized and handled confidentially.

- This study did not involve any harm or risk to participants.
- All participants provided voluntary and informed consent.
- Confidentiality and anonymity of participants were maintained.
- The study complies with relevant laws and regulations.

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