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THE LEVEL OF MUSCULOSKELETAL FITNESS OF MALE PUPILS (9-11) YEARS IN A SAMPLE OF ALGERIAN PRIMARY SCHOOL CHILDREN

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ABSTRACT. This study aimed to identify the level of musculoskeletal fitness of male students 9-11 For this purpose, the researchers used the descriptive method on a randomly selected sample of 750 pupils from the primary education stage in schools in the state of Oran. For the purpose of this study, the researchers used three tests, namely the basketball throwing test from a long sitting position to measure muscular strength, the sitting test from the knees with bent knees 60 seconds to measure muscular endurance, and the trunk forward flexion test from a standing position on the box to measure flexibility. After analysing the obtained results, the researchers concluded that the level of musculoskeletal fitness components was low, and this decrease was not equal in all musculoskeletal fitness components, as the decrease in muscular endurance, flexibility, and muscular strength component was better compared to previous studies. In addition, there were statistically significant differences in the musculoskeletal fitness components according to the age variable, in favour of the age group 9 years in the flexibility variable, in favour of the age group 10 years in the (muscular endurance) variable and in favour of the age group 11 years in the muscular strength variable.

Keywords: *Physical fitness, musculoskeletal fitness, primary school.*

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INTRODUCTION

The current time is characterized by a technological revolution that has brought about a significant change in the world in the lifestyle and behavior of food and living. His use of transportation and the electric elevator in most of his movements instead of walking, climbing stairs and sitting for long hours in front of the television and computer has reduced his movement and reflected negatively on his health with the spread of lethargy, which has become predominantly of the nature of lack of movement, causing the emergence of many diseases.

In this regard, the mufti of Ibrahim points out that the modern era was characterized by growing scientific discoveries that provided all the tools and devices made by advanced technology that enabled man to end almost all his daily life activities without much physical effort. The tools and devices also interfered in every work performed by man today in his daily life, which explains the very big difference between what man was doing yesterday and man today in terms of physical effort (Marwan, 2004). Movement and activity. What increased the situation was the clear and scandalous impact on the lifestyle of young children who are in the construction stage, so inactivity and lack of movement was the lion's share in enabling them to stagnate in their various movements from running and jumping to sitting in front of video games and just pressing buttons.

In order to maintain the health of the rising generation, it is necessary to focus on physical fitness, which is the cornerstone of physical activity, which is one of the basic components of the health of the individual in order to enable him to perform the requirements of life and its functions to the fullest, as well as its direct correlation with personal health and proper texture (Yazid, 2001).

Experiments, bodies and the world health organization have also proven that lack of physical activity and movement in daily life is accompanied by many non-communicable diseases, such as cardiovascular diseases, hypertension, obesity and other diseases, and this is confirmed by the American college of sports medicine (Pate, 1995; Hazaa, 2004).

Physical education and sports have a great role in maintaining human safety and health, as confirmed by several studies and research that sport is a means of prevention, treatment and adaptation, in addition to being the best and most economical way to acquire and maintain health (Abdelwaheb, 1995).

Therefore, we find that encouraging the practice of sports in developed countries is no longer limited to athletes only, but has extended to become the subject of interest by those interested in health, doctors, medical and sports workers, and the subject of fitness has become an obsession for many of them.

Therefore Moh, Hasanin, & Abou Ali (2005), many countries and governments have tended to raise the level of fitness related to health in order to prepare a generation that enjoys activity and good health, hence the need to practice physical activity for the purpose of health (Abou, 2011).

Having a minimum level of health-related fitness is important to achieve the prevention of some diseases related to the performance of efficient movement and physical effort and to reach a state of health advancement (Mofti, 2019).

From the above, the extent of the close relationship between the level of both health and fitness is clear. Health-related fitness has several elements that can be measured and developed. It is mentioned Ortega (2008) that fitness is an important indicator of health in children and adolescents. Health-related fitness includes physical formation, cardiorespiratory fitness, and musculoskeletal fitness.

Several studies have shown that each of the components of fitness has a positive effect on health (Garcia-Hermoso, Correa-Bautista, Olloquequi, & Ramirez-Vélez, 2018; Smith, Eather, Morgan, & Plotnikof, 2014). Musculoskeletal fitness is one of the elements of health-related fitness, and its importance lies in raising the efficiency of the body's functional capabilities. High levels of its elements are related to the ability to accomplish daily tasks, the ability to move around, and the improvement of lifestyle in general. Improving musculoskeletal fitness also positively affects the cardiovascular system and musculoskeletal metabolism, which are muscle strength, muscular endurance, and flexibility (Kell et al, 2001).

Muscular strength is one of the health-related fitness components that can be defined as the maximum amount of force that can be generated by single or group of muscles in one contraction (Frontera et al., 2006). Muscular strength is important for everyone, it allows us to perform endless activities and tasks in our life (any physical action needs strength) thus, living well and independently (Barker, 2004; Dahoune et al, 2018). Because of its important role in life, muscular strength testing is administered. There are numerous fitness test batteries assessing health-related fitness.

Muscle strength is related to the general health of the individual, as it works to develop the muscular tone of the body (Terry-Ann & Werner, 2003). However, muscle strength is one of the most important elements of fitness related to health, especially in the elderly community. Muscle strength helps to live independently without the help of others, and muscle strength has a positive impact on the quality of life, and when muscle strength increases, it increases the ability to move and increases the ability to enjoy life (Alourfi, 2023).

Muscle endurance is also the second element of fitness, whether in terms of health or in terms of its association with sports competitions, as it plays a role

in reducing exposure to heart and circulatory diseases by improving high-density lipoproteins (HDL) and reducing cholesterol. It also increases the strength of bones, ligaments and tendons, as it works to increase the percentage of net muscle weight with some simple changes in body measurements (Abou, 2011).

He points Alalaia (2012) out that flexibility is an essential element of physical fitness as it allows the athlete to perform sports movements in an economically feasible manner, which is a mobility through which the individual can perform various movements in a large and wide range. Flexibility, along with other physical traits, forms the pillars on which the rapid acquisition and mastery of motor performance is based, in addition to helping to avoid injury (Bakir, 2011).

Through the experience of researchers in the sports fields and their active follow-up of the reality of physical activity in children, it was noted the lack and decline in the level of the elements of musculoskeletal fitness and the rapid fatigue of students, and the interest of many researchers in studying this matter, which is to know the level of physical fitness associated with health among various groups of society in some Arab and foreign countries, such as a study in Vanhelst et al (2020) addition to Rached (2022) and El Rashidi (2021) studying, studying Zahi (2020) and studying El Halama (2020), and given the scarcity of research that was concerned in its study with the level of the elements of musculoskeletal fitness in Algerian society, there are still no studies that measure the level of musculoskeletal fitness of primary school students in Algeria in general, and male students 9-11 years in the primary stage in the state of ORAN in particular. To fill this gap in the research, this study aimed to explore the relationship between students' PF levels and the, and musculoskeletal fitness in Algeria primary schools. It can be hypothesized that better musculoskeletal fitness could be associated with high levels of motivation and Algeria children and demographic characteristics (e.g., grade, ethnicity, parent education, and BMI) affect musculoskeletal fitness. The knowledge gained through this study may facilitate the development of health promotion policies and programs for Algerian children.

MATERIALS AND METHODS

1. Study Design and Participants

The researchers used the descriptive approach in the survey method to suit the study and to achieve its objectives.

The study population consists of all male pupils of the third stage of primary education (fifth year) in the schools of the state of Oran for the age group 9-11 years in the academic year 2023-2024.

2. Procedure

The study sample included 750 primary school students in the schools of Oran state who were randomly selected from the study population.

3. Assessments

3.1. Independent Variable (Musculoskeletal Fitness)

All the assessments were examined by the trained assessors. The data were collected via the annual tests of physical fitness that were conducted during class hours, and the tests were compulsory, as provided by Algeria's Ministry of Education. In addition, the components of Musculoskeletal Fitness were evaluated via the following tests with the revised 2021 version of the Algerian National Student Musculoskeletal Fitness Standard (CNSPFS) battery (Dahoun,2021). Which was both valid and reliable in assessing the eight main components of physical fitness. It is reliable and effective to use these test items to measure the Musculoskeletal Fitness of Algerian teenagers. The test-retest reliability achieved for all the assessments conducted in the current study was an ICC (intra-class correlation coefficient) > 0.85, and the result was generally acceptable. The surrogate assessment of body composition is BMI, which measures not only the height (cm) of the participants within 0.1 cm but also the weight (kg) within 0.1 kg through GMCS-IV, Jianmin, Beijing, China. During the anthropometric measurements, children were barefoot in light clothes. The BMI scores are obtained by the weight in kilograms divided by the squared height in meters kg/m^2. BMI = weight kg/height m^2. By following the procedure of the International Standards for Anthropometric Assessments (ISAK), two readings were recorded for every measurement, and a third reading was recorded if the difference was greater than 10% (Belhaidas,2021). The final results were obtained by working out the average value of the readings.

3.2. Muscular Strength

Muscular strength was examined by organising a seated basketball shooting exercise.

Starting from the wall, a 10-metre tape measure is fixed to the floor, and the pupil sits on the floor with his/her back to the wall.

The buttocks, back, shoulders and head should remain in contact with the wall, and the legs should remain straight with the feet closed (no space between the feet).

The pupil assumes a basketball chest pass position with the elbow touching the wall and then tries to pass the chest to achieve the longest possible distance.

The distance achieved is measured in centimeters when the basketball first touches the floor. Each student makes two attempts.

The longest distance is recorded in meters (Belaidas et al, 2021).

3.3. Muscular endurance

Second test: Sit-ups with knees bent (count) 60 seconds.

Test objective: To measure abdominal muscle strength and endurance.

The subject lies on his/her back on the foam mattress, with knees bent at an angle of approximately 80 degrees, feet close together, hands placed on the chest and crossed fingers of the right hand towards the left shoulder, and vice versa.

Another colleague stabilizes the feet by gently squeezing them with the hand (not the knee).

Scoring: The score is recorded by counting the number of correct repetitions. Sitting and lying down are counted as one complete attempt, and so on.

3.4. Flexibility

Based on the result of the sit-and-reach test, the flexibility of the lower part of the body was measured (Zhu, 2017). Under the instructions, the participants sat down, and their knees were fully extended. Further, their feet were firmly placed against vertical support. Along a measuring line, they were requested to reach forward with their hands as far as possible. The best score of the two attempts was recorded (Corrected to 0.1 cm), (WTS-600, Jianmin, Beijing, China).

4. Controlling Variables

Demographic information on study participants' grades, gender, ethnicity, and parent's education levels was measured by a self-reported questionnaire. These demographic factors were treated as covariates in further statistical analysis.

5. Statistical Analysis

Table 1. Shows the statistical description in the basic variables under research for the research group, n= 1830

Statistical significance / Variables	Unit of measure-ment	Lower value 97	Largest value	Mean, arithmetic(al) (maths.)	Standard deviation (maths.)	Modulus of torsion = torsion modulus (mech.)	Flattening coefficient
Age	years	9.00	11.00	9.87	0.62	0.09	0.46
Height	cm	1.21	1.76	1.42	0.07	0.30	0.34
Weight	kilogram	20.00	78.00	36.09	8.58	1.44	2.55

It is clear from table no. 01 regarding the statistical description of the research sample in the basic variables under research that the data of the total research sample are moderate, non-dispersive and characterized by the normal distribution of the sample. It is clear that the torsion coefficient of the sample members is limited to 3, -3, which indicates the moderation of the distribution of the sample's variable data in a normal distribution.

Stability

The study tool was consistently verified by applying it to a sample of 10 students who were taken from the study population and excluded from entering the study sample by the test-retest method with a one-week time difference between the two applications (the first application and the second application).

The Pearson correlation coefficient was calculated between the two applications and on each of the tests for the elements of musculoskeletal fitness and table no. 02 shows this.

It is clear from table no. 2 that the value of the coefficients of the physical fitness tests is positive and statistically significant at the level of significance 0.05. The coefficients of consistency between 0.73 and 0.95 are greater than the value of Pearson's correlation coefficient 0.52, which indicates that the tests are statistically significant, that is, there is a correlation in the results of the pre and post tests, which confirms the stability of the tests used and thus the possibility of using them in the basic study.

Table 2. Shows Pearson correlation coefficient for tests of muscle fitness elements, exploratory sample, n=10

Indicators	Examinations	Mean		Standard deviation		Sample size	Degree of freedom n-1	Level of significance	Calculated t	Scheduling
		pre-assessment	post-assessment	pre-assessment	post-assessment					
muscle power	basketball throw from long sitting	319	318	27.26	24.40	10	9	0.05	0.95	0.52
muscular endurance	sitting from lying down with knees bent (60s)	19.9	19.9	2.38	1. 91				0.73	
flexibility	bend torso forward from standing position on box	-7	6-8	4.67	4.42				0.81	

Table 3. Shows the results of the correlation coefficient values (validity) between the two tests (pre-post) in the tests of musculoskeletal fitness

Indicators	Examinations	Calculated t	t√ = self-authenticity	Sample size	Degree of freedom n-1	Significance level	Scheduling
power muscularity	throwing a basketball from a long sitting position	0.95	0.97	10	9	0.05	0.52
muscular endurance	sitting from lying down with knees bent 60 seconds	0.73	0.85				
flexibility	bend torso forward from standing position on box	0.81	0.90				

Through table no. 4, it is clear that the value of the validity coefficient (coefficient of severity of correlation) calculated for the tests at the level of significance 0.05 and the degree of freedom n-1=9 ranged from 0.85 to 0.97, which is greater or equal to the tabular value 0.52, from which there is a statistical significance, meaning that the test is true to what it was developed to measure.

Objectivity: these tests used are standardized tests that have been used previously in previous and similar studies, in addition to being clear, easy, non-translatable and far from self-assessment, which indicates that they have high objectivity.

RESULTS

It is clear from table no. 5 that the general arithmetic mean of muscular strength was 341.51 cm with a standard deviation of 68.14. Among the age groups, the arithmetic mean of muscular strength was 9 years old 335.20 cm with a standard deviation of 64.88, while the arithmetic mean of muscular strength was 10 years old 339.88 cm with a standard deviation of 64.46, while the arithmetic mean of muscular strength was 11 years old 349.52 cm with a standard deviation of 74.12.

As shown in table no. 5, the general arithmetic mean of muscular endurance was 18.51 repetitions with a standard deviation of 3.48. Among the age groups, the arithmetic mean of muscular endurance was 9 years 17.69 repetitions with a standard deviation of 3.48, while the arithmetic mean of muscular endurance was (10) years 19.23 repetitions with a standard deviation of 3.23, while the arithmetic mean of muscular endurance was 11 years 18.51 and a standard deviation of (3.48).

It is clear from table no. 5 that the general arithmetic mean of flexibility was -13.97 cm with a standard deviation of 7.37. Among the age groups, the arithmetic mean of flexibility was for 9 years -9.94 cm with a standard deviation of 6.16.

While the arithmetic mean of elasticity was for 10 years -13.88 cm and with a standard deviation 6.72 while the arithmetic mean of elasticity was for 11 years -18.16 and with a standard deviation 6.82.

It is clear from table no. 6 of the variables under research according to the age of the research sample that there are statistically significant differences at the level of 0.05 in all variables, as the value of F calculated was greater than the value of the table at the level of 0.05.

It is clear from table no 6 of the toki s.d.h test at the level of 0.05 to determine the significance and direction of the differences in the extracted significant variables, and it is clear from the one-way variance analysis that there are differences between the age groups as follows:

- There are statistically significant differences in the variable of muscle strength in favor of the age group 11 years compared to the age groups 9-10 years, and there were also differences in favor of the age group 9 years on the age group 10 years.

- There are statistically significant differences in the muscular tolerance variable in favor of the age group 10 years compared to the age groups 9-11 years. There were also differences in favor of the age group 9 years compared to the age group 10 years.

- There are statistically significant differences in the variable of flexibility in favor of the age group 9 years compared to the age groups 10-11 years, and there were also differences in favor of the age group 10 years on the age group 11 years.

It is clear from tables no. 6 when comparing the differences in the statistical significance of the level of muscular strength between the categories 9-11 that there are statistically significant differences in favor of the age group 11 years, where the arithmetic mean was 349.52 cm, which is higher than the arithmetic mean of the age group 9-10 years, which was 335.20 - 339.88 cm, respectively. These results are consistent with the study of Ziada (2004); Hijazi (1987) and Zahi (2020) that muscular strength is at this age stage in favor of the elderly. The researchers attribute this result to the fact that muscle strength increases with age, and this is what indicated Abou Arida (1998) that the increase in muscle strength continues to increase with age to 25-30 and then begins to decline.

When comparing the differences in statistical significance in muscular endurance between the age groups 9-11 years, it is clear from tables no. 6 that there are statistically significant differences in favor of the age group 10 years, as the arithmetic mean was 19.22 repetitions, which is higher than the arithmetic mean of the age group 09-11 years, which was 17.68 - 18.65 repetitions, respectively. The researchers attribute the reason for the weak element of muscular endurance in the age group 9-11 years to the low element of flexibility, and this is consistent with what he indicated Kamel (2006) that one of the reasons for the weakness of the abdominal muscles and their endurance and the muscles behind the thighs is the result of low flexibility and the accumulation of fat between the muscles, tendons and joints that move and oppose the movement of the joint, as well as the lack of concentration often in the exercise necessary to develop the elements of physical fitness, in addition to the lack of exercise in sports and focus on the skill side.

With regard to comparing the differences in statistical significance in the level of flexibility between the age groups 9-11 years, through tables no. 6, it is clear that there are statistically significant differences in favor of the age group 9 years, where the arithmetic mean was -9.94 cm, which is higher than the arithmetic mean of the age group 10-11 years, which amounted to -13.88, -18.16 cm, respectively. This confirms Jamil el Ridi (2004) that the younger the player is, the more flexible he is in the joints than the big player. the researchers attribute the reason for the weak element of flexibility in the age group 10-11

years is that it is due to the ability to overcome external resistances due to their increased growth and large muscles, that is, the larger the muscle, the stronger it is and the less flexible it is, and this is what he pointed out Hassen (1978), and he adds that the age to the age of ten is equal to the muscular strength of males with females in the field, and when age increases, the rate of muscular strength in males increases very quickly. This is what the results of the study and the study agree with Hamed (2018).

In addition, flexibility, as Pnatt (1989) is considered one of the inherited physical abilities, has a tendency to decline to the lowest level during the age 10-12 years, while it improves and develops linearly towards adulthood. He points out AL-Hazaaa (2002) that there are other factors that influence how resilient individuals are, such as age, gender, body style, and training.

Table 4. Shows the arithmetic means and standard deviations of the level of performance of the test of the variables of musculoskeletal fitness among primary school students 9-11 years, n= 750 students.

Variables	Age	Sample	Arithmetic arithmetic	Standard deviation (maths.)	Less value	Biggest value
muscle power	09 years	254	335	88	180	600
	10 years	246	339	64	200	510
	11 years	250	349	74.12	170	600
	total	750	341	14	170	600
muscular endurance	09 years	254	17.69	3.48	10	29
	10 years	246	19.23	3.23	13	30
	11 years	250	18.65	3.55	10	29
	total	750	18.51	3.48	10	30
flexibility	09 years	254	-9.94	-16.6	-25	6
	10 years	246	13.88	6.72	-35	8
	11 years	250	18.16	6.82	-35	2
	total	750	97	7h 37m	-35	8

Table 5. Shows the statistical indications of the variables under consideration according to age, n= 750 pupils.

Statistical significance/ variables	Source of variance	Total squares	Degree of freedom	Squares mean	F value calculated	F value tabular	Level sig
muscle power	between groups	26818.57	2	13409.28	2.90	3.01	0.05
	within groups	3450978.90	747	78			
	total	3477797.47	749				

Statistical significance/ variables	Source of variance	Total squares	Degree of freedom	Squares mean	F value calculated	F value tabular	Level sig
muscular endurance	between groups	304	2	152	12.98	3.01	0.05
	within groups	78	747	11.74			
	total	37	749				
flexibility	between groups	11	2	05	98.65	3.01	0.05
	within groups	32204.41	747	43.11			
	total	40710.52	749				

* the value of (f) is significant at the level of (0,05).

Table 6. Shows the toki s.d.h test at the level of 0.05 to determine the significance and direction of differences in the significant variables extracted from the one-way variance analysis, n= 750 students.

Statistical significance variables	**Age**	**Mean, arithmetic(al) (maths.)**	**Significance of differences between averages**			
			10 years		**11 years**	
muscle power	09 years	335	681	722	323	.048
	10 years	339			642.0	0.255***
	11 years	349				
muscular endurance	09 years	685	543	0.001	967	0.005
	10 years	228			0.576	0.148
	11 years	652				
flexibility	09 years	945	937	0.001	215	0.001
	10 years	882			278	0.001
	11 years	160				

* moral at a level of significance less than 0.05.

DISCUSSION

The level of musculoskeletal fitness elements is low, and this decline was not equal in all elements of musculoskeletal fitness, as it shows a decrease in muscular endurance and flexibility, and the element of muscular strength was better compared to previous studies.

There are statistically significant differences in the elements of health-related fitness according to the age variable and in favor of the age group 9 years in the variable of flexibility and in favor of the age group 10 years in the variable muscular endurance and in favor of the age group 11 in the variable of muscular strength.

1. Study Strengths and Limitations

Firstly, the main strength of this study is that it utilized a relatively large sample size of 750 pupils for the first time to examine the relationship between physical fitness and musculoskeletal fitness in Algerian students during physical education. Secondly The results of the comprehensive muscular fitness test in this study, which was designed to assess Assessment of flexibility, strength endurance, muscular strength, vital capacity and body composition, were obtained from a standardized, nationally standardized test and are therefore highly reliable. III, Participants were enrolled through random sampling, which enhanced the validity of the study.

However, there are several limitations that should be recognized. Firstly, the cross-sectional design of the study may not satisfactorily explain causality. Consequently, prospective and experimental research designs should be adopted to understand the causal relationship between the causal relationship between adolescents and pupils' musculoskeletal fitness level. Second, as the PF evaluations were conducted in schools in an open-ended testing environment rather than in a laboratory setting, this may have influenced the accuracy of the results. This may have affected the accuracy of the results. The data collected in this study should be interpreted with caution. Thirdly, since the samples were collected from 15 schools for third-grade primary education (Year 5) in Beijing, they may not be fully representative of primary school students across the country. For this reason, the applicability of the findings in this study to a wider population is limited. Finally, there may have been some biases in the use of a questionnaire for data collection.

2. Practical Implications

The findings of this study have some practical implications for improving the physical well-being of Algerian students. Firstly, equal access to physical education apparatus for both boys and girls will be conducive to lessening the gender gap in physical fitness. Thus, creating a holistic educational environment involving inclusive and mindful teaching techniques will help to improve the general outcomes of physical activity for both genders. Secondly, it is arguable whether helping students achieve academic success or even giving students more validation of their academic achievements can positively influence their mental health and well-being. Thirdly, this study also highlights that helping students to maintain their BMI within a healthy range will be favorable to significantly improving their mental health. Possible methods to achieve this may include adding nutrition classes to the curriculum, teaching students about mindful eating, and incorporating more vegetables and proteins into school

meals. Indeed, any other practical recommendations aimed at improving either a student's physical or mental wellbeing are supported by the findings of this study, as the two have been verified to be closely correlated.

CONCLUSIONS

To conclude, this study has provided new insight into the relationship between musculoskeletal fitness and Physical Fitness in Algerian children, an issue that is rarely explored in academia in the public health field. Overall, this study has stressed the role of physical fitness in the well-being, motivation, and enjoyment of adolescents. Thus, it is essential to investigate whether the findings of this study can be reproduced in further studies of other population groups such as children, university students, and people from low- and middle-income countries. Apart from that, prospective and experimental research designs should be taken into account to better understand the causal association between PF and mental well-being.

Musculoskeletal fitness is an important and inadequately appreciated component of overall health and well-being. Wellness as it applies to strength and conditioning has numerous benefits. It allows maintenance of functional independence for longer periods in older adults. It impacts the metabolic capabilities of children and adults affecting the ability to maintain an ideal body weight. It has been shown to influence the prevalence and possibly the prevention of many musculoskeletal disorders such as muscle sprains, low back pain, osteoarthritis, osteoporosis, shoulder instability, and knee stability and pain. The current author summarizes the most recent recommendations for achievement and maintenance of musculoskeletal fitness for children and adults.

Author Contributions

Conceptualization, K.M., B.A. and M.M.; methodology, G.A. and B.A.; formal analysis, M.M. and G.A.; investigation, K.M., G.A. and M.M.; resources, B.A.; data curation, K.M.; writing-original draft preparation, K.M. and G.A.; writing—review and editing, M.M., K.M. and G.A.; visualization, M.M.; supervision, M.M.; project administration, G.A. and K.M. All authors have read and agreed to the published.

Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The original contributions presented in this study are included in the article. Further inquiries can be directed to the corresponding author.

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Conflicts of Interest

The authors declare no conflict of interest.

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