International Journal of Arts Humanities and Social Sciences Studies
Volume 10 Issue 06 ǁ June 2025
ISSN: 2582-1601
www.ijahss.com

The Comprehensive Analyses of the Relationships between Regular Physical Exercises and Overall Humanistic Health Implications' Outcomes "Oxygen Consumption (VO2 max) Effects"

[1]Dr. Park E. Atatah, [2]Dr. Catherine W. Kisavi-Atatah, [3]Dr. Angela Branch-Vital, [4]Dr. Latricia L. Kyle

[1] Ph.D. Assistant Professor, School of Public Allied Health (SPAH) Division of Public Health & Health; Research Coordinator, Prairie View A&M University (PVAMU), Prairie View, TX, USA
[2]Ph.D., Assistant Professor, School of Public Allied Health (SPAH) Director Division of Public Health & Health; Prairie View A&M University (PVAMU), Prairie View, TX, USA
[3]Ph.D., Executive Director & Professor School of Public Allied Health & Health (SPAH) Prairie View A&M University (PVAMU), Prairie View, TX, USA
[4]Ph.D., Adjunct Faculty Los Angeles Pacific University, San Dimas, California, USA

Abstract: The focus of this research study was to analyze, assess, and evaluate comprehensive collected actual exercises intensities' levels of participants' data that could possibly shed some lights about the relationships or associations between intensities of exercises and overall health implications outcomes due to their exercising levels and oxygen consumption (VO_2). This research study used "Social Facilitation" theory that plays roles in motivating individual or groups' performances during any targeted plans' intensities' levels, and overall healthcare outcomes; hence it was selected as the theoretical framework in these critical systematic analyses, assessments, and evaluations research study. This comprehensive, complex, and complicated research study selected quantitative "Non-Experimental Research Descriptive Statistics" as lens of analyses of collected secondary data analyses as the only option of methodology. This research study collected confidential secondary data for already available dataset that comprises of 300 volunteered participants. Of the 300 available participants 60 out of 300 or 20% were randomly selected and analyzed, assessed, and evaluated in this critical research study. The selected 20% in totality appeared "Robust" enough the data due to verification by the "Effect Sizes" and it was tested in the "One-Sample Effect Sizes." The study found One-Sample Test in Sig. (2-tailed) significant differences between the independent and dependent variables and .000 for age, .000 for Resting HR (BPM), .000 for VO2 MAX (ML/KG/MIN), and .000 for Mile-Time (Min). Finally, the research study found, recommends, demonstrated, and concludes that all the results and findings of this complicated, complex, comprehensive research study should be reviewed carefully and implemented systematically by all public health practitioners and beyond as to bring some "POSITIVE SOCIAL CHANGES" to all the localities, statewide, nationally, and POSIBLY WORLDWIDE participants eventually.

Key Words; Ages, Exercises, Intensities, Levels, Resting HR (BPM), VO2 MAX, Oxygen Consumptions, (ML/KG/MIN), Mile-Time (Min), Health, Physical Education, Healthcare, Overall Healthcare Outcomes

I. Introduction

While there has been overwhelming debates concerning the ages of participants, Resting HR (BPM), VO2 MAX (ML/KG/MIN, and Mile-Time (Min) about how they impact V02 "The most precise measure of intensity is oxygen consumption (VO_2)" responses to overall humanistic health outcomes, the debates still continue indefinitely till today. Over the years, these debates have not been settled because many argued that the levels of exercises' intensities' levels have limited correlations or relationships with efficacy of oxygen consumption. As such, the focus of this research study was to analyze, assess, and evaluate comprehensive collected actual exercises intensities' levels of participants' data that could possibly shed some lights about the relationships or associations between intensities of exercises and overall health implications outcomes due to their exercising levels and oxygen consumption (VO_2).

II. Background and Literatures Review

Heart Rate is typically used as a measure of exercise intensity. Heart rate can be an indicator of the challenge to the cardiovascular system that the exercise represents. The most precise measure of intensity is oxygen consumption (VO_2). VO_2 represents the overall metabolic challenge that an exercise imposes. There is a

direct linear relationship between intensity of aerobic exercise and VO_2. Our maximum intensity is a reflection of our maximal oxygen consumption (VO_2 max). Such a measurement represents a cardiovascular fitness level (see Triplett, 1898; Strauss, 2002; Bond &Titus, 1983; Zajonc 1965; Markus, 1978; Izuma, et al. 2010 for more).

VO_2 is measured in METs (mL/kg/min). One MET, which is equal to 3.5 mL/kg per minute, is considered to be the average resting energy expenditure of a typical human being. Intensity of exercise can be expressed as multiples of resting energy expenditure. An intensity of exercise equivalent to 6 METs means that the energy expenditure of the exercise is six times the resting energy expenditure. Intensity of exercise can be expressed in absolute or relative terms (see VO_2max: what do we know, and what do we still need to know, 2008; Vehrs, 2011 for more). For example, two individuals with different measures of VO_2 max, running at 7 mph are running at the same absolute intensity (miles/hour) but a different relative intensity (% of VO_2 max expended) (see "Fitness Fundamentals: Guidelines for Personal Exercise Programs", 2011., VO_2max: what do we know, and what do we still need to know, 2008; Vehrs., 2011; Di Donato et al 2014; Persinger et al. 2004; Foster et al. 2008; Elmahgoub et al. 2011 for more).

The individual with the higher VO_2 max is running at a lower intensity at this pace than the individual with the lower VO_2 max is. Some studies measure exercise intensity by having subjects perform exercise trials to determine peak power output, which may be measured in watts, heart rate, or average cadence (cycling). This approach attempts to gauge overall workload. An informal method to determine optimal exercise intensity is the talk test. It states that exercise intensity is "just about right", when the subject can "just respond to conversation." The talk test results in similar exercise intensity as the ventilator threshold and is suitable for exercise prescription (see Persinger, 2004; Vehrs, 2011; Di Donato el al, 2014; Koeslag et al. 1980; Evans et al. 2017; van Loon et al 2001; CDC, 2014; **C**owdzia et al 2023; Beetham et al 2019; Anderson et al 2021for more).

III. Theoretical Framework

Social facilitation can be defined as a tendency for individuals to perform differently when in the mere presence of others. Specifically, individuals perform better on simpler or well-rehearsed tasks and perform worse on complex or new ones. In relation to this, there are three main empirical relationships which are the activation, evaluation, and attention theories. The activation theory describes how we are physiologically aroused and how that affects our functioning. The evaluation theory relates to the systematic assessment of the worth or merit of some object. The attention theory takes into account possession in the mind including focalization and concentration of consciousness.

In 1897, Triplett studied the effect on performance of having an audience. Triplett's experiment had a simple design; a cyclist's performance when alone was compared with a cyclist's performance when racing against another cyclist. He found that the cyclist was slowest when he was only racing the clock and not another cyclist. He attributed these results to a competitive instinct which releases energy that was not available when pedaling alone. Triplett's study started off a revolution of studies attempting to examine the theory that people's performance is influenced by the presence of others. In 1898, while studying the competitive nature of children he found that children were much faster at completing their given activity (winding string) while they were competing, which caused him to wonder whether or not simply having another individual there would have the same effect (see Persinger, 2004 for more). To determine this, Triplett studied the race time of cyclists and found that cyclists had faster race times when in the presence of other cyclists. He theorized that the faster times were because the presence of others made individuals more competitive, and further research led Triplett to theorize that the presence of others increases individuals' performances in other noncompetitive situations as well.

In 1924, Floyd Allport, coined the term social facilitation (see Persiner, 2004 for more). Allport conducted studies in which participants sat either alone or with other participants and did a variety of tasks such as word association tasks and multiplication assessments. He found that people performed better when in a group setting than when alone for the majority of tasks (see "Calories Burned Running Calculator", 2019 for more). However, at this time, social facilitation simply meant an "increase in response merely from the sight or sound of others making the same movement" (see Persinger, 2004, pp. 1632-1636 for more).

Hazel Markus of the University of Michigan conducted an experiment to test the hypothesis that the mere presence of others can influence an individual's performance (see CDC, 2024 for more). A task that lacked a rubric structure and was likely to cause the subject to be apprehensive of how they would be evaluated was used. Performance times on the task of dressing and undressing in familiar and unfamiliar clothing were compared with subjects working alone, working in the presence of a passive inattentive person, and working in the presence of an attentive spectator. Compared to the alone condition, both social conditions (audience and incidental audience) enhanced performance on the well-learned aspects of the task of dressing and undressing with the subject's own familiar clothing and hindered the subject's performance on the more complex aspects of the task of dressing and undressing using unfamiliar clothing. It was concluded that the presence of others is a

sufficient condition for social facilitation and social interference effects. Therefore, the presence of an audience causes an individual to do better on a simple task or worse on a more complicated task.
Practically, the evaluation theory relates to the systematic assessment of the worth or merit of some object. The attention theory takes into account possession in the mind including focalization and concentration of consciousness. Based on the roles "Social Facilitation" theory plays in motivating individual or groups' performances during any targeted plans' intensities' levels, and overall healthcare outcomes, hence it was selected as the theoretical framework in this critical systematic assessments and evaluations research study.

IV. Research Design

This comprehensive, complex, and complicated research study selected quantitative "**Non-Experimental Research Descriptive Statistics**" as lens of collected secondary data analyses as the only option of methodology.

Methodology

The methodology selected in this critical systematic assessments and evaluations research study (see Atatah et al, 2020; Atatah et al, 2020; Atatah et al, 2021; for more information). This study used Quantitative Research Study using "**Non-Experimental Research Descriptive Statistics"** as a way to calculate the differences between dependable and independent variables (see Frankfort-Nachmias, &Nachmias, 2000; 2008; Creswell, 2009 for more). It was selected because its' primary goal of this research study was to analyze available secondary dataset data which did not expose participants to any form of treatments in this current research study.

Hypotheses

This study hypothesized two major research hypotheses as shown below;

Alternative Hypothesis 1 *H1*

There are profound significant correlations or relationships between the participants' Age, Resting HR (BPM), VO2 MAX, (ML/KG/MIN), and Mile-Time (Min) based on the intensities of exercises and oxygen consumption, and their overall healthcare outcomes.

Null Hypothesis 1 *Ho*

There are no significant or insignificant correlations or relationships between the participants' Age, Resting HR (BPM), VO2 MAX, (ML/KG/MIN), and Mile-Time (Min) based on the intensities of exercises and oxygen consumption, and their overall healthcare outcomes.

Data Collections

This research study collected confidential secondary data for already available dataset that comprises of 300 volunteered participants. Of the 300 available participants 60 out of 300 or 20% were randomly selected and assessed and evaluated in this critical research study. Of the selected 20% in totality appeared "**Robust**" enough the data "**Effect Sizes**" and it was tested in the "**One-Sample Effect Sizes"** (see Table 8 below for more).

V. Software Used Analyzing Collected Secondary Data

The selected secondary data were fed into **Statistical Package for Social Sciences (SPSS) Version 27**; and the collected data were crunched; and the results and findings after complicated and comprehensive overwhelming analyses are shown below as the results and findings of the research study. The statistical analysis software was set at **0.005 or 95%** as statistical significant differences between the correlation or relationships between independent and dependent variables.

VI. Results and Findings of the Study

Table 1. Frequencies Distributions

Statistics

		Age	Resting HR (BPM)	VO2 MAX (ML/KG/MIN	Mile-Time (Min)
N	Valid	60	60	60	60
	Missing	29	29	29	29
Mean		30.2000	75.6500	36.7000	7.8003
Std. Error of Mean		.76202	.76720	.60052	.11167
Median		30.0000	75.0000	36.0000	7.8000
Mode		30.00[a]	72.00	31.00[a]	7.80
Std. Deviation		5.90260	5.94274	4.65159	.86496
Variance		34.841	35.316	21.637	.748
Skewness		.367	.318	.541	.070
Std. Error of Skewness		.309	.309	.309	.309
Kurtosis		-.236	-.886	-.074	-1.044
Std. Error of Kurtosis		.608	.608	.608	.608
Range		26.00	23.00	20.00	2.70
Minimum		19.00	67.00	30.00	6.50
Maximum		45.00	90.00	50.00	9.20
Sum		1812.00	4539.00	2202.00	468.02

a. Multiple modes exist. The smallest value is shown

Table 1. Showed the Frequencies Distributions of all participants with age range of 26.00, resting HR (BPM) of 23.00, VO2 MAX (ML/KG/MIN of 20.00 and Mile-Time (Min) of 2.70.
It also showed the Std. Deviations of 5.9, 5.9, 4.7, and .865 respectively. Finally it showed the variances of 34.9, 35.3, 21.6, and .75 respectively with no missing number (see Table 1 above for more).

Table 2 Age

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	19.00	1	1.1	1.7	1.7
	20.00	1	1.1	1.7	3.3
	21.00	1	1.1	1.7	5.0
	22.00	5	5.6	8.3	13.3
	24.00	1	1.1	1.7	15.0
	25.00	5	5.6	8.3	23.3
	27.00	5	5.6	8.3	31.7
	28.00	5	5.6	8.3	40.0
	29.00	5	5.6	8.3	48.3
	30.00	6	6.7	10.0	58.3
	31.00	6	6.7	10.0	68.3
	34.00	5	5.6	8.3	76.7
	35.00	6	6.7	10.0	86.7
	40.00	6	6.7	10.0	96.7
	42.00	1	1.1	1.7	98.3
	45.00	1	1.1	1.7	100.0
	Total	60	67.4	100.0	
Missing	System	29	32.6		
Total		89	100.0		

Table 2. Showed the **Ages** of the participants with a 100% cumulative frequency with no missing number (see Table 2 above for more).

Table 3. Resting HR (BPM)

Resting HR (BPM)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	67.00	5	5.6	8.3	8.3
	69.00	6	6.7	10.0	18.3
	70.00	6	6.7	10.0	28.3
	72.00	7	7.9	11.7	40.0
	74.00	6	6.7	10.0	50.0
	76.00	5	5.6	8.3	58.3
	78.00	5	5.6	8.3	66.7
	79.00	1	1.1	1.7	68.3
	80.00	5	5.6	8.3	76.7
	81.00	2	2.2	3.3	80.0
	82.00	5	5.6	8.3	88.3
	85.00	5	5.6	8.3	96.7
	86.00	1	1.1	1.7	98.3
	90.00	1	1.1	1.7	100.0
	Total	60	67.4	100.0	
Missing	System	29	32.6		
Total		89	100.0		

Table 3. Showed the "**Resting HR (BMP)"** rates of the participants with a 100% cumulative frequency with no missing number (see Table 3 above for more).

Table 4. VO2 MAX (ML/KG/MIN)

VO2 MAX (ML/KG/MIN

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	30.00	5	5.6	8.3	8.3
	31.00	6	6.7	10.0	18.3
	33.00	5	5.6	8.3	26.7
	34.00	5	5.6	8.3	35.0
	35.00	6	6.7	10.0	45.0
	36.00	6	6.7	10.0	55.0
	38.00	6	6.7	10.0	65.0
	39.00	6	6.7	10.0	75.0
	40.00	5	5.6	8.3	83.3
	41.00	1	1.1	1.7	85.0
	42.00	2	2.2	3.3	88.3
	43.00	1	1.1	1.7	90.0
	45.00	5	5.6	8.3	98.3
	50.00	1	1.1	1.7	100.0
	Total	60	67.4	100.0	
Missing	System	29	32.6		
Total		89	100.0		

Table 4. Showed the "**VO2 MAX (ML/KG/MIN)"** rates of the participants with a 100% cumulative frequency with no missing number (see Table 4 above for more).

Table 5. Mile-Time (Min)

Mile-Time (Min)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6.50	5	5.6	8.3	8.3
	6.59	1	1.1	1.7	10.0
	6.70	5	5.6	8.3	18.3
	6.90	6	6.7	10.0	28.3
	7.00	1	1.1	1.7	30.0
	7.50	5	5.6	8.3	38.3
	7.80	11	12.4	18.3	56.7
	7.99	2	2.2	3.3	60.0
	8.00	1	1.1	1.7	61.7
	8.20	6	6.7	10.0	71.7
	8.23	1	1.1	1.7	73.3
	8.32	1	1.1	1.7	75.0
	8.50	5	5.6	8.3	83.3
	9.10	5	5.6	8.3	91.7
	9.20	5	5.6	8.3	100.0
	Total	60	67.4	100.0	
Missing	System	29	32.6		
Total		89	100.0		

Table 5. Showed the "**Mile-Time (Min)"** rates of the participants with a 100% cumulative frequency with no missing number (see Table 5 above for more).

Figure 1. Age

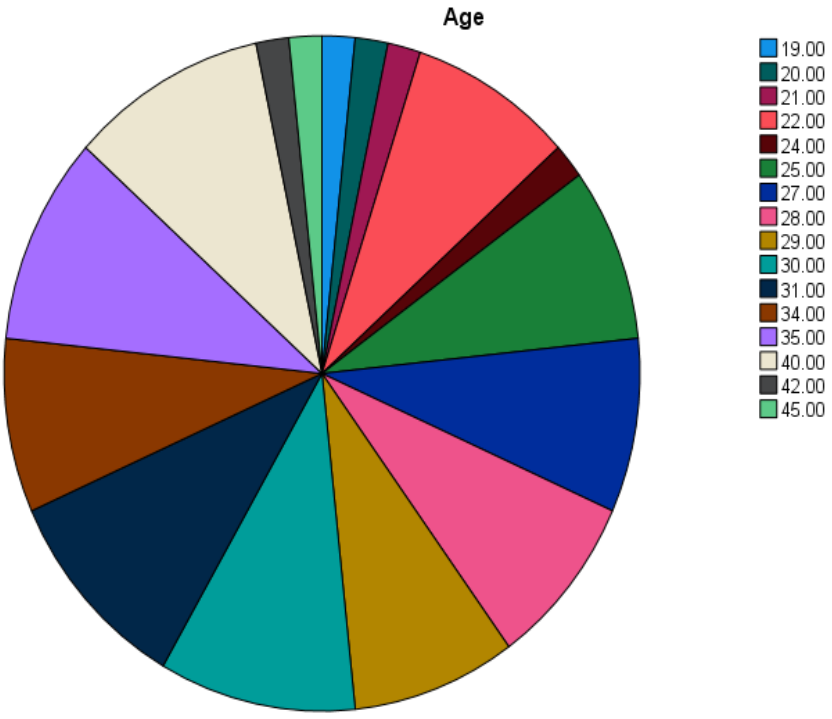

Figure 1. Showed the "**Color Coded Pie Chart**" of the ages of actual participants in the research study with age ranges of 19 as the youngest, 28 as mid age and 45 as the oldest with no missing number (see Figure 1 above for more).

Figure 2. Resting HR (BPM)

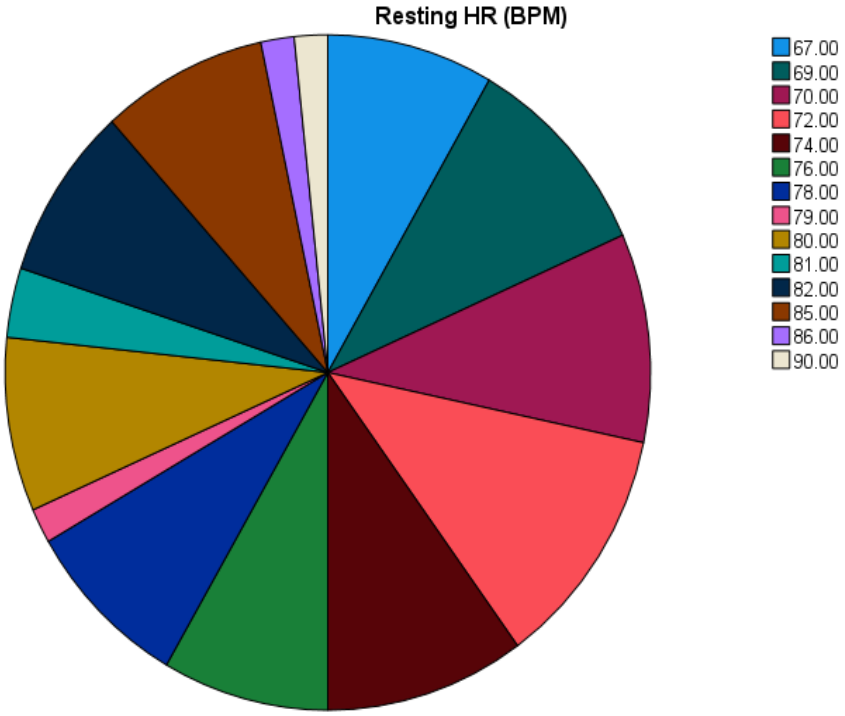

Figure 2. Showed the "**Color Coded Pie Chart**" of the **Resting HR (BPM)** of actual participants in the esearch study with age ranges of 67 as the lowest stage, 78 as mid stage and 90 as the highest HR stage, with no missing number (see Figure 2 above for more).

Figure 3. VO2 MAX (ML/KG/MIN)

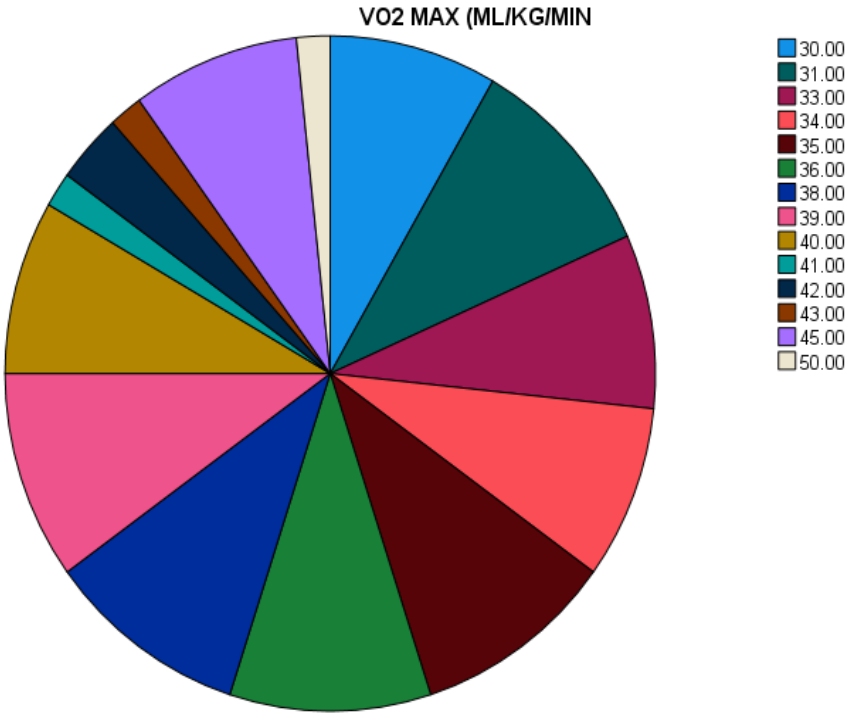

Figure 3. Showed the "**Color Coded Pie Chart**" of the **VO2 MAX (ML/KG/MIN) the** actual participants in the research study with VO2 MAX of 30 as the lowest range, 38 as mid-range and 50 as the highest VO2 MAX range of oxygen consumption, with no missing number (see Figure 3 above for more).

Figure 4. Mile-Time (Min)

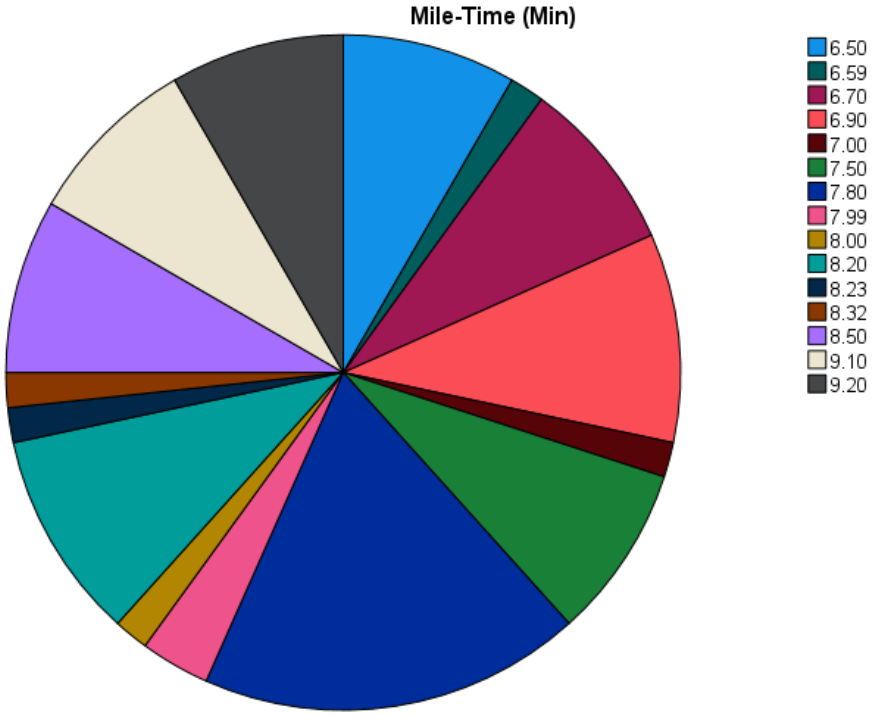

Figure 4. Showed the "**Color Coded Pie Chart**" of the "**Mile-Time (Min)" of the** actual participants in the research study with "**Mile-Time (Min)"** of 6.50 minutes as the fastest time speed, range, 7.99 as mid-time speed, and 9.20 minutes as the slowest time speed to complete a mile and with no missing number (see Figure 4 above for more).

Figure 5. Age

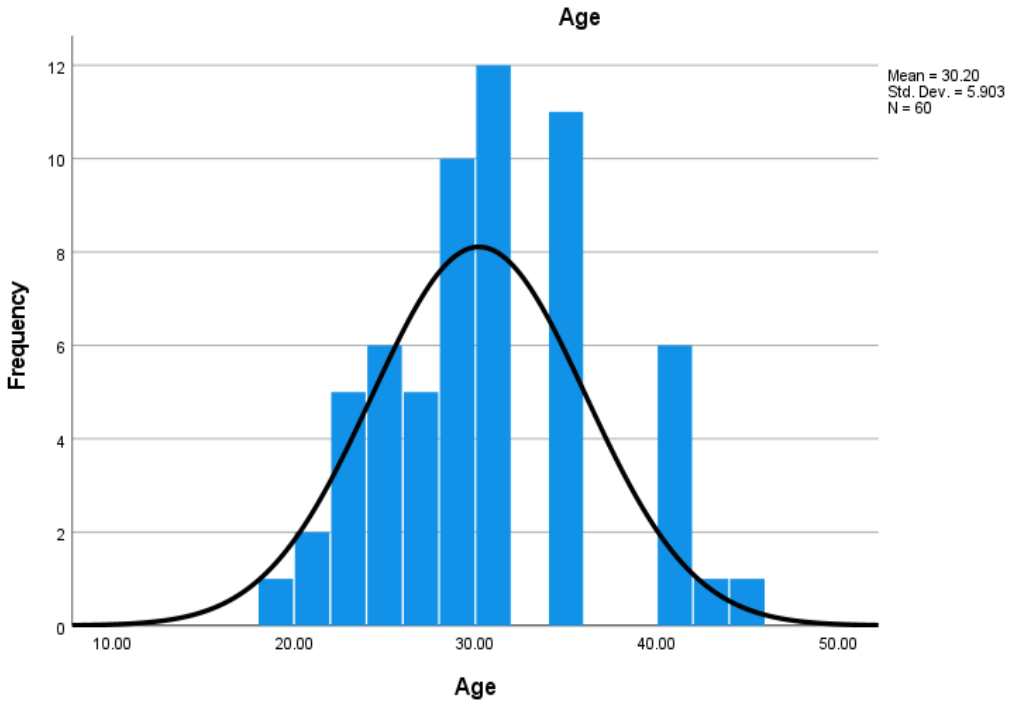

Figure 5. Showed the ages of participants with a Std. Dev of 5.903, mean of 30.2 and N=60 (see Figure 5 above for more).

Figure 6. Resting HR (BPM)

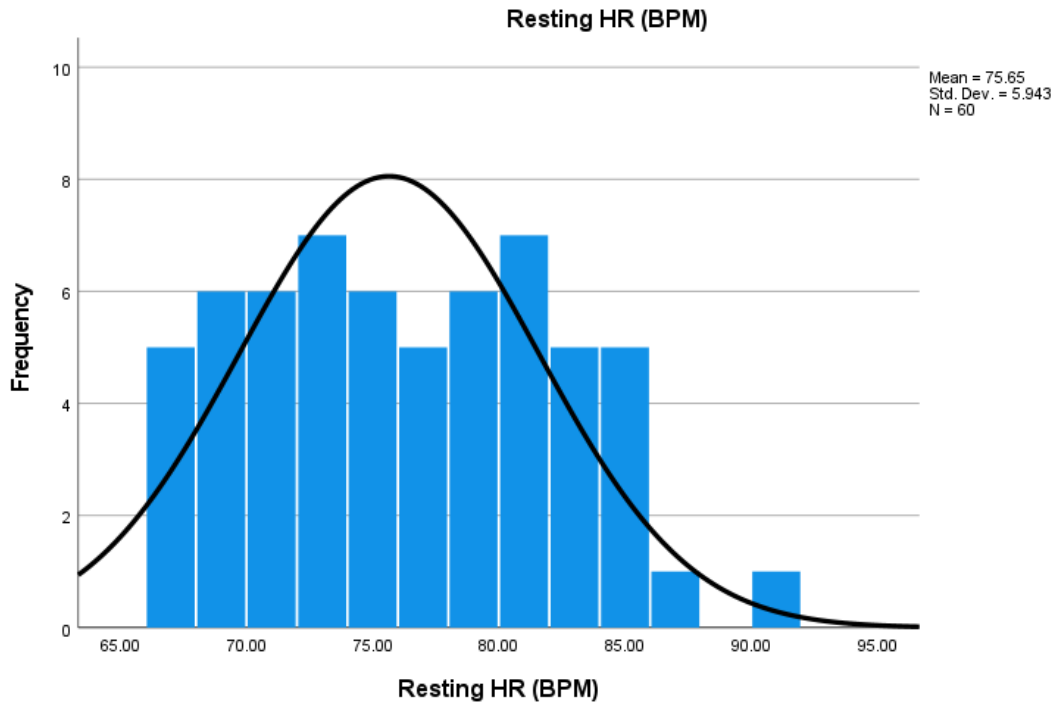

Figure 6. Showed the Resting HR (BPM) of participants with a Std. Dev of 5.943, mean of 75.7 and N=60 (see Figure 6 above for more).

Figure 7. VO2 MAX (ML/KG/MIN)

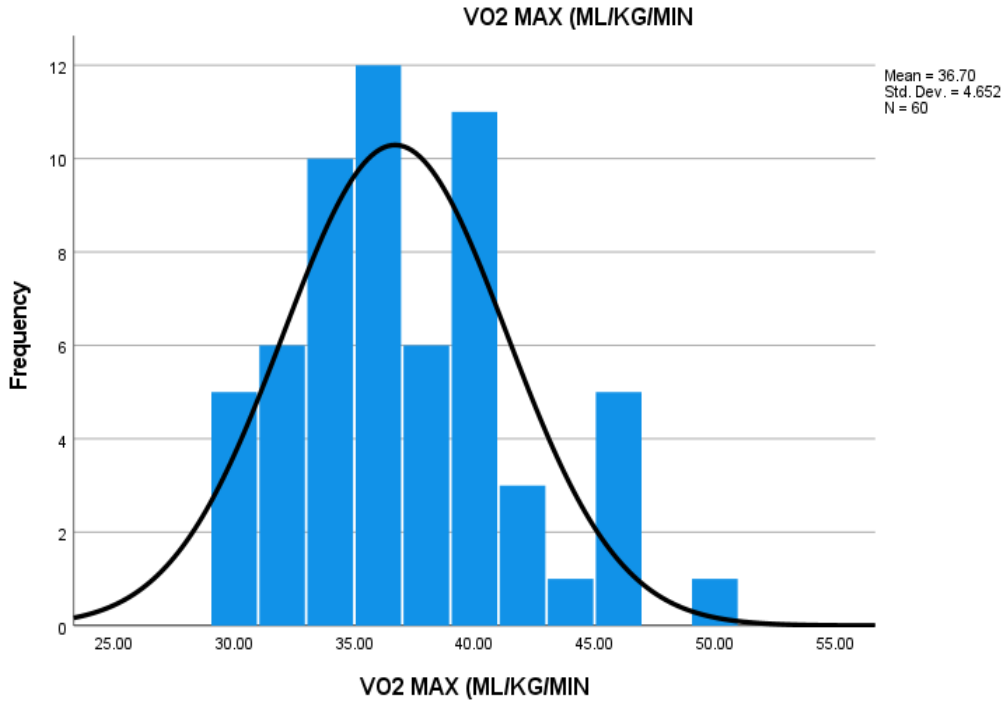

Figure 7. Showed the VO2 MAX (ML/KG/MIN) of participants with a Std. Dev of 4.65, mean of 36.7 and N=60 (see Figure 7 above for more).

Figure 8. Mile-Time (min)

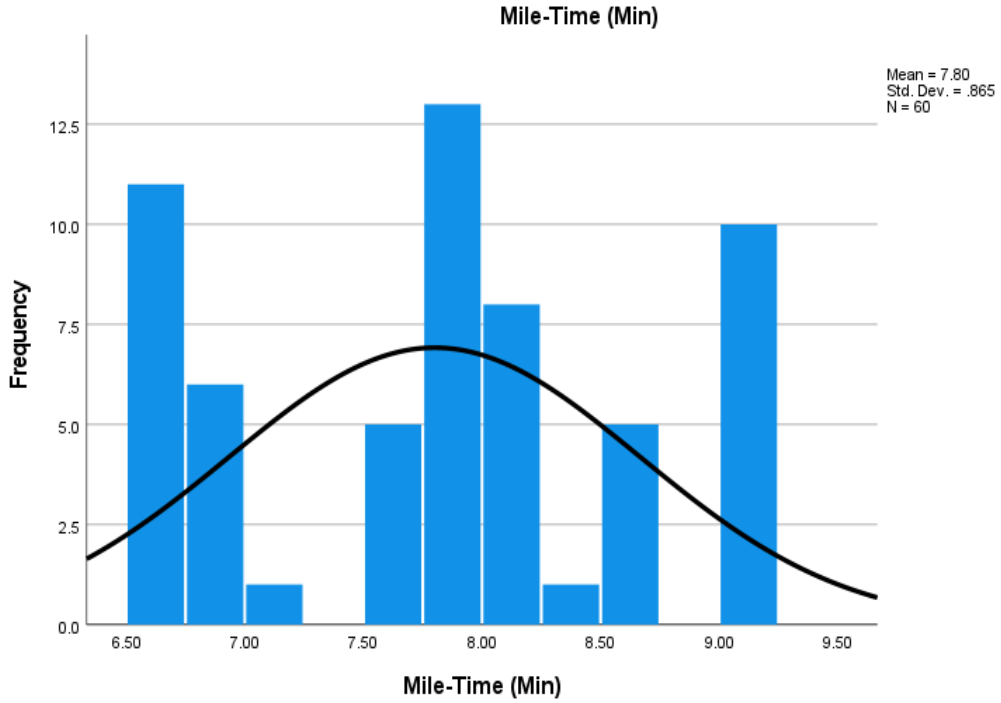

Figure 8. Showed the Mile-Time (min) of participants with a Std. Dev of .86, mean of 7.8 and N=60 (see Figure 8 above for more).

Figure 9. Exercise Intensive

Exercise intensity refers to how much energy is expended when exercising. Perceived intensity varies with each person. It has been found that intensity has an effect on what fuel the body uses and what kind of

adaptations the body makes after exercise. Intensity is the amount of physical power (expressed as a percentage of the maximal oxygen consumption) that the body uses when performing an activity. For example, exercise intensity defines how hard the body has to work to walk a mile in 20 minutes (see Figure 9 above "Fitness Fundamentals: Guidelines for Personal Exercise Programs", 2011 for more).

Table 6. T-Test
One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Age	60	30.2000	5.90260	.76202
Resting HR (BPM)	60	75.6500	5.94274	.76720
VO2 MAX (ML/KG/MIN	60	36.7000	4.65159	.60052
Mile-Time (Min)	60	7.8003	.86496	.11167

Table 6. Showed "T-Test of One-Sample Statistics" with a mean of 30.2 for age, 75.7 for Resting HR (BPM), 36.7 for VO2 (ML/KG/MIN) and 7.8 Mile-Time (Min) with 60 participants and no missing numbers (see Table 6 above for more).

Table 7. One Sample Test

One-Sample Test

	Test Value = 0					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
Age	39.631	59	.000	30.20000	28.6752	31.7248
Resting HR (BPM)	98.605	59	.000	75.65000	74.1148	77.1852
VO2 MAX (ML/KG/MIN	61.114	59	.000	36.70000	35.4984	37.9016
Mile-Time (Min)	69.854	59	.000	7.80033	7.5769	8.0238

Table 7. Showed a One-Sample Test in a Sig. (2-tailed) significant differences between the independent and dependent variables and .000 for age, .000 for Resting HR (BPM), .000 for VO2 MAX, (ML/KG/MIN), and .000 for Mile-Time (Min). This showed 100%, 100%, 100%, and 100% between independent variables and dependent variables (see Table 7 above for more).

Table 8. One-Sample Effect Sizes

One-Sample Effect Sizes

				95% Confidence Interval	
		Standardizer[a]	Point Estimate	Lower	Upper
Age	Cohen's d	5.90260	5.116	4.159	6.069
	Hedges' correction	5.97898	5.051	4.106	5.991
Resting HR (BPM)	Cohen's d	5.94274	12.730	10.423	15.031
	Hedges' correction	6.01964	12.567	10.289	14.839
VO2 MAX (ML/KG/MIN	Cohen's d	4.65159	7.890	6.445	9.329
	Hedges' correction	4.71178	7.789	6.363	9.210
Mile-Time (Min)	Cohen's d	.86496	9.018	7.373	10.658
	Hedges' correction	.87616	8.903	7.279	10.522

a. The denominator used in estimating the effect sizes.
Cohen's d uses the sample standard deviation.
Hedges' correction uses the sample standard deviation, plus a correction factor.

Table 8. Showed **One-Sample Effect Sizes in** Cohen's d versus Hedges' correction of the analysis of the effectiveness of the sizes of collected data was 5.9 versus 5.99 or 98% in ages, 5.9 versus 6.02 or 98% in Resting HR (BPM), 4.66 versus 4.7 or 99% in VO2 MAX (ML/KG/MIN), and .865 versus .881 or 98% in participants' Mile-Time (Min). The amount of collected data for this research study 60 out of 300 or 20% was

more than **ROBUST** enough based on the **Cohen's d versus Hedges' corrections Effects' Sizes** analysis (see Table 8 above for more).

Answers to the Research Questions
Hypotheses
This study hypothesized two major research hypotheses as shown below;

Alternative Hypothesis 1 *H1*
There are profound significant correlations or relationships between the participants' Age, Resting HR (BPM), VO2 MAX, (ML/KG/MIN), and Mile-Time (Min) based on the intensities of exercises and oxygen consumption and their overall health outcomes.

Null Hypothesis 1 *Ho*
There are no significant or insignificant correlations or relationships between the participants' Age, Resting HR (BPM), VO2 MAX, (ML/KG/MIN), and Mile-Time (Min) based on the intensities of exercises and oxygen consumption and their overall health outcomes.

The study found a profound significant correlations or relationship between dependent and independent variables for example, Table 7 showed a One-Sample Test in a Sig. (2-tailed) significant differences between the independent and dependent variables and .000 for age, .000 for Resting HR (BPM), .000 for VO2 MAX, (ML/KG/MIN), and .000 for Mile-Time (Min). This showed 100%, 100%, 100%, and 100% between independent variables and dependent variables (see Table 7 above for more). As such, we rejected Null Hypothesis and accepted the Alternative Hypothesis that "**There are profound significant correlations or relationships between the participants' Age, Resting HR (BPM), VO2 MAX, (ML/KG/MIN), and Mile-Time (Min) based on the intensities of exercises** and oxygen consumption **and their overall health outcomes.**"

Interpretations of the Results and the Findings of the Study
The research study found that the Frequencies Distributions of all participants with age range of 26.00, resting HR (BPM) of 23.00, VO2 MAX, (ML/KG/MIN) of 20.00 and Mile-Time (Min) of 2.70. It also found the Std. Deviations of 5.9, 5.9, 4.7, and .865 respectively. Finally it found the variances of 34.9, 35.3, 21.6, and .75 respectively with no missing number. It also found a "T-Test of One-Sample Statistics" with a mean of 30.2 for age, 75.7 for Resting HR (BPM), 36.7 for VO2 (ML/KG/MIN) and 7.8 Mile-Time (Min) with 60 participants and no missing numbers. Furthermore, it also found that **One-Sample Test in Sig. (2-tailed) significant differences** between the independent and dependent variables and .000 for age, .000 for Resting HR (BPM), .000 for VO2 MAX, (ML/KG/MIN), and .000 for Mile-Time (Min). This showed 100%, 100%, 100%, and 100% between independent variables and dependent variables. Finally, the study found that **One-Sample Effect Sizes in** Cohen's d versus Hedges' correction of the analysis of the effectiveness of the sizes of collected data was 5.9 versus 5.99 or 98% in ages, 5.9 versus 6.02 or 98% in Resting HR (BPM), 4.66 versus 4.7 or 99% in VO2 MAX, (ML/KG/MIN), and .865 versus .881 or 98% in participants' Mile-Time (Min). The amount of collected data for this research study 60 out of 300 or 20% was more than **ROBUST** enough based on the **Cohen's d versus Hedges' corrections Effects' Sizes** analysis (see Tables 1-8, Figures 1-8, & **Appendices 1 for more)**

Confirmation or Disconfirmation of the Theoretical Framework
As "**Social Facilitation**" pinpointed, stressed, and stipulated that "The attention theory takes into account possession in the mind including focalization and concentration of consciousness." Based on the roles "Social Facilitation" theory plays in motivating individual or groups' performances during any targeted plans' intensities' levels, and overall health outcomes, hence it was selected as the theoretical framework in this critical systematic assessments and evaluations research study. The study **DEMOTRATED** the **CONFIRMATION** of the selected Theoretical Framework of "**SOCIAL FACILITATION**" based on the overwhelming findings and unequivocal results of this comprehensive, complicated, and complex of this humanistic research study.

Implications of the Study on Public Allied Health & Health Policy in General
1. This research study demonstrates and recommends that there are profound relationships between physical exercises' levels, consumption of oxygen, and overall health implications in the final analyses to all participants and facilitators.
2. This study also found and recommends that if the regular exercises requirements are not regularly implemented, organized, or supervised daily, week, or monthly, based on participants' limitations to those

overall participations' abilities, capabilities, and capacities, the fundamental health outcomes become complicate, complex, and detrimental to all participants and the facilitators collectively.

3. The study found and recommends that opened eyes should be placed on all participants at all times as to avoid any medical health implications during exercises.
4. The study found and recommends that the **INTERSIVE** exercises guidelines in the Appendices section should be thoroughly reviewed before **ASSINING** any **PATICIPANTS** to any **levels of exercises** they may be equipped or capable to complete without posing any HEALTH IMPLICATIONS.
5. Finally, the research study found, recommends, and sums that all the results and findings of this complicated, complex, comprehensive research study should be reviewed and implemented carefully by all public health practitioners as to bring some **"POSITIVE SOCIAL CHANGES" to all the local, statewide, national, and POSIBLY WORLDWIDE eventually.**

VII. Conclusion and Discussions of the Research Study

Based on the primary purpose of this research study was to answer the endless and everlasting debates about the relationships or correlations between independent and dependent variables during and after exercises as stipulated, pinpointed, and stressed by Atatah above that;

While there has been overwhelming debates concerning the ages of participants, Resting HR (BPM), VO2 MAX (ML/KG/MIN), and Mile-Time (Min) about how they impact V02 "The most precise measure of intensity is oxygen consumption (VO_2)" responses to overall humanistic health outcomes. Over the years, these debates have not been settled because many argued that the levels of exercises have limited correlations or relationships with oxygen consumption. As such, the focus of this research study was to analyze, assess, and evaluate comprehensive collected actual exercises levels of participants' data that could shed some lights about the relationships or associations between intensities of exercises, health implications outcomes due to their exercising levels and oxygen consumption (VO_2). (see p. 2 above for more)

It is true that many public health policies' practitioners have argued about the proper ways to settle these endless arguments, this comprehensive, complicated, complex research study had shed some valuable lights about these arguments. While there are certain limitations about this research study due its "**lack of generalizations**" because of the sectional and limited analyzed, accessed, and evaluated secondary data, the findings and the results of the research study cannot be discounted, undermined, undercounted, or underestimated for any reason due its' findings and results. For example, the study found that **One-Sample Test in a Sig. (2-tailed) significant differences between the independent and dependent variables and .000 for age, .000 for Resting HR (BPM), .000 for VO2 MAX, (ML/KG/MIN), and .000 for Mile-Time (Min).** Finally, the research study found, recommends, demonstrated, and concludes that all the results and findings of this complicated, complex, comprehensive research study should be reviewed and implemented carefully by all public health practitioners and beyond as to bring some **"POSITIVE SOCIAL CHANGES" to all the local, statewide, national, and POSIBLY WORLDWIDE participants eventually.**

VIII. ACKNOWLEDGEMENTS

This study wants to give a special thanks to the **PVAMU the Division of Research & Innovation (R&I) in response to the Faculty and Staffs of the-Research & Innovation for Scholarly Excellence (RISE)** for their continued supports of such research studies. This study wants to thank **PVAMU College of Education** member/s for their contribution to this critical research study. Also, this research study wants to thank **PVAMU School of Public & Allied Health (SPAH) the Divisions of Public Health & Health and Division of Public Allied faculty members and staffs for their continued supports for all researches studies' obligations, objectives, dedications, and commitments. Above all, special THANKS to Los Angeles Pacific University, San Dimas, California, USA collaborator.**

IX. CONFLICT OF INTERESTS

This study shares no conflict of interests.

References

[1]. Atatah et al. (2020). "Underlying Health Conditions Four" Analyses of Underlying Health Conditions Among Minorities' Children in Southwest Houston, Texas and The Roles Parents Play to Complicate the Inabilities to Control Them. Available at

[2]. https://www.nairjc.com/assets/img/issue/pk31sc_vtV7bm_2HlMuR_PLMn1b_466179.pdf

[3]. Atatah et al. (2020). "Underlying Health Conditions Three" Analyses of Underlying Health Conditions Among Minorities' Children in Southwest Houston, Texas and The Roles Parents Play to Complicate the Inabilities to Control Them. Availablhttp://www.ijahss.com/vol5-issue9.html

[4]. Atatah et al. (2021). "Coronavirus COVID-19 Pandemic One" Globalization 4 Analyses of the Races Relationship Implications and Review of Vaccines" Confidences Levels Implications among Blacks/African Americans in the US. Available at
[5]. https://www.nairjc.com/assets/img/issue/IBYMFS_3uBcb8_wsEh22_XMKYV9_225095.pdf
[6]. Anderson, J., Pudwell, J., McAuslan., C., Barr, L., Kehoe, J., Davies, G. A. (December 2021). "Acute fetal response to high-intensity interval training in the second and third trimesters of pregnancy". Applied Physiology, Nutrition, and Metabolism. **46** (12): 1552–1558. doi:10.1139/apnm-2020-1086. hdl:1807/108271. ISSN 1715-5312. PMID 34433004.
[7]. Beetham, Kassia S.; Giles, Courtney; Noetel, Michael; Clifton, Vicki; Jones, Jacqueline C.; Naughton, Geraldine (7 August 2019). "The effects of vigorous intensity exercise in the third trimester of pregnancy: a systematic review and meta-analysis". BMC Pregnancy and Childbirth. **19** (1): 281. doi:10.1186/s12884-019-2441-1. ISSN 1471-2393. PMC 6686535. PMID 31391016.
[8]. Bond, C. F., Titus, L. J. (1983). "Social facilitation: a meta-analysis of 241 studies". Psychological Bulletin. **94** (2): 265–92. doi:10.1037/0033-2909.94.2.265. PMID 6356198.
[9]. CDC (29 October 2024). "Pregnant & Postpartum Activity: An Overview". Physical Activity Basics. Retrieved 14 November 2024.
[10]. **C**owdzia, Jenna B.; Hazell, Tom J.; Berg, Emily R. Vanden; Labrecque, Lawrence; Brassard, Patrice; Davenport, Margie H. (1 September 2023). "Maternal and Fetal Cardiovascular Responses to Acute High-Intensity Interval and Moderate-Intensity Continuous Training Exercise During Pregnancy: A Randomized Crossover Trial". Sports Medicine. **53** (9): 1819–1833. doi:10.1007/s40279-023-01858-5. ISSN 1179-2035. PMID 37213048.
[11]. Creswell, J.W. (2009 & 2008). Research Design: Qualitative, Quantitative, and Mixed Methods Approach. 3rd Thousand Oaks. Sage Publications, Inc; 2009. 2.
[12]. Di Donato, D., West, D., Churchward-Venne., Tyler; et al. (2014). "Influence of aerobic exercise intensity on myofibrillar and mitochondrial protein synthesis in young men during early and late postexercise recovery". American Journal of Physiology. Endocrinology and Metabolism. **306** (9): E1025–E1032. doi:10.1152/ajpendo.00487.2013. PMC 4010655. PMID 24595306. Retrieved 14 June 2015.
[13]. Elmahgoub, S. S.; Calders, P.; Lambers, S.; et al. (2011). "The effect of combined exercise training in adolescents who are overweight or obese with intellectual disability: The role of training frequency". Journal of Strength and Conditioning Research. **25** (8): 2274–2282. doi:10.1519/JSC.0b013e3181f11c41. PMID 21734606. S2CID 38959989."Calories Burned Running Calculator". 29 October 2019. Retrieved 20 January 2024.
[14]. Evans, M., Cogan, K. E., Egan, B. (1 May 2017). "Metabolism of ketone bodies during exercise and training: physiological basis for exogenous supplementation". The Journal of Physiology. **595** (9): 2857–2871. doi:10.1113/JP273185. ISSN 1469-7793. PMC 5407977. PMID 27861911.
[15]. "Fitness Fundamentals: Guidelines for Personal Exercise Programs". (2011). www.fitness.gov. The President's Council of Physical Fitness and Sports. Archived from the original on 3 April 2011. Retrieved 5 April 2011.
[16]. Foster et al. (2008). "The Talk Test as a Marker of Exercise Training Intensity". Journal of Cardiopulmonary Rehabilitation and Prevention. **28** (1): 24–30. doi:10.1097/01.HCR.0000311504.41775.78. ISSN 1932-7501. PMID 18277826.
[17]. Frankfort-Nachmias, C., & Nachmias, D. (2007, 2008). Research Methods in the Social Sciences. 6th ed. Wadsworth, New York. 2007 & 2008. 3.
[18]. Frankfort-Nachmias, C. and Nachmias, D. (2008) Research Methods in the Social Sciences. 7th Edition, Worth, New York
[19]. Izuma, et al. (April 2010). "Processing of the Incentive for Social Approval in the Ventral Striatum during Charitable Donation". Journal of Cognitive Neuroscience. **22** (4): 621–631.
[20]. Koeslag, J. H.; Noakes, T. D.; Sloan, A. W. (April 1980). "Post-exercise ketosis". The Journal of Physiology. **301**: 79–90. doi:10.1113/jphysiol.1980.sp013190. ISSN 0022-3751. PMC 1279383. PMID 6997456.
[21]. Markus, H. (1978). "The Effect of Mere Presence on Social Facilitation: An Unobtrusive Test" (PDF). Journal of Experimental Social Psychology. **14** (4): 389–397. doi:10.1016/0022-1031(78)90034-3. hdl:2027.42/22584. Retrieved 13 November 2014.
[22]. Persinger et al. (2004). "Consistency of the talk test for exercise prescription". Medicine and Science in Sports and Exercise. **36** (9): 1632–1636. ISSN 0195-9131. PMID 15354048.
[23]. Triplett, N. (1898). "The Dynamogenic Factors in Pacemaking and Competition". The American Journal of Psychology. **9** (4): 507–533. doi:10.2307/1412188. ISSN 0002-9556. JSTOR 1412188
[24]. Strauss, B. (July 2002). "Social facilitation in motor tasks: a review of research and theory". Psychology of Sport and Exercise. **3** (3): 237–256. doi:10.1016/S1469-0292(01)00019-x. S2CID 13868628.

[25]. VO_2max: what do we know, and what do we still need to know. (2008). Levine, B.D. Institute for Exercise and Environmental Medicine, Presbyterian Hospital of Dallas, TX 75231. The Journal of Physiology, 2008 Jan 1;586(1):25-34. Epub 2007 Nov 15.
[26]. Vehrs, P. (2011). Physical activity guidelines. In Physiology of exercise: An incremental approach (pp. 351-393). Provo, UT: BYU Academic Publishing.
[27]. van Loon, L. J.; Greenhaff, P. L.; Constantin-Teodosiu, D.; Saris, W. H.; Wagenmakers, A. J. (1 October 2001). "The effects of increasing exercise intensity on muscle fuel utilisation in humans". The Journal of Physiology. **536** (Pt 1): 295–304. doi:10.1111/j.1469-7793.2001.00295.x. ISSN 0022-3751. PMC 2278845. PMID 11579177.
[28]. Zajonc, R. B. (July 16, 1965). "Social Facilitation". Science. **149** (3681): 269–274. Bibcode:1965Sci...149..269Z. doi:10.1126/science.149.3681.269. JSTOR 1715944. PMID 14300526

Appendices

Recommendations to lead a healthy lifestyle vary for individuals based on age, weight, and existing activity levels. "Published guidelines for healthy adults state those 20-60 minutes of medium intensity continuous or intermittent aerobic activity 3-5 times per week is needed for developing and maintaining cardiorespiratory fitness, body composition, and muscular strength" (see Elmahgoub, 2011 for more).

Physical Activity	**MET**
Light Intensity Activities	**< 3**
sleeping	0.9
watching television	1.0
writing, desk work, typing	1.8
walking, 1.7 mph (2.7 km/h), level ground, strolling, very slow	2.3
walking, 2.5 mph (4 km/h)	2.9
Moderate Intensity Activities	**3 to 6**
bicycling, stationary, 50 watts, very light effort	3.0
walking 3.0 mph (4.8 km/h)	3.3
calisthenics, home exercise, light or moderate effort, general	3.5
walking 3.4 mph (5.5 km/h)	3.6
bicycling, <10 mph (16 km/h), leisure, to work or for pleasure	4.0
bicycling, stationary, 100 watts, light effort	5.5
Vigorous Intensity Activities	**> 6**
jogging, general	7.0
calisthenics (e.g. pushups, sit-ups, pullups, jumping jacks), heavy, vigorous effort	8.0
running jogging, in place	8.0
rope jumping	10.0