

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

CrossFit for Kids: An Academic Well-Being Program for Middle School Children

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By

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Abstract

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There is a decrease in the mental health and academic well-being amongst middle school students. Researchers have successfully implemented self-reflections and physical activity to improve these aspects of a student's life, but CrossFit Kids has yet to be utilized for this purpose. Self-Reflections and CrossFit Kids may promote improved emotional and physical health, which in turn may also motivate children to become more interested and involved in their academics.

Chapter I

Introduction

According to the National Center for Education Statistics (2017), there are approximately 50.4 million children in primary and secondary schools in the United States of America (USA). Of the 50.4 million children, only 35.4 million children will be in primary school, which includes prekindergarten through eighth grade (National Center for Education Statistics, 2017). However, Corsi-Bunker (2015) posits that some consider middle school (e.g. sixth, seventh, and eighth grade) secondary school. Regardless, this paper will only focus on children in middle school, which includes ages of 11- to 14-years-old (Corsi-Bunker, 2015).

Corsi-Bunker (2015) contends that the child begins in primary education. He/she receives an abundant amount of knowledge. First and foremost, the fundamentals are focused throughout the years in the institution. These include such basics as mathematics, reading, and writing. As the student continues his/her duration, subjects are added in order to diversify the student's knowledge base, especially in middle school. Some of these subjects include the following: history, music, science, and physical education (Corsi-Bunker, 2015). Even though the secondary educational system's subjects may appear to be comprehensive, Bidwell (2013) argues that American students do not fare well with their academic achievement and standardized testing.

According to Bidwell (2013), children in the USA score poorly on academic achievement, and cognitive functioning tests, in comparison to other developed (i.e. third-world) countries around the world. While international children continue to

progress, American children remain at the bottom. Castelli, Hillman, Buck, and Erwin (2007) hypothesize this decline in academics may be a result of the immense pressure of the institutions to *only* improve and include the students' pertinent academics (e.g. mathematics, reading, and writing). As a result, particular subjects are being removed from the curriculum. One subject in particular is physical education (Wilkins et al., 2003).

Lee, Burgeson, Fulton, and Spain (2007) estimate that less than four percent of all primary schools offer physical education classes on a weekly basis. Many students face a reality in which they may not receive a specific class providing physical activity. Instead, students must find physical activity in another way. However, it does not appear as though children would seek to engage in physical activity on their own. Balantekin and Roemmich (2012) discovered that children, boys and girls, actually prefer sedentary behaviors rather than physical activity. Lou (2014) asserts that some of these sedentary behaviors include, but not limited to, playing video games, watching television, and searching the internet. There have been many estimates as to how much children engaged in sedentary behaviors; but Lou's research suggests that children accumulate an average of six to eight hours *per day* (2014). This is much more than what the American Academy of Pediatrics ("AAP") suggests. According to the AAP (2001), children should only participate in sedentary behaviors for up to two hours per day. This recommendation is due to the research that an increase in sedentary behaviors affects a child's livelihood, in more ways than one.

Asare (2015) states that sedentary behaviors affect a child's physical health. Physical inactivity has been demonstrated to increase a child's probability of developing type

2 diabetes, obesity, and heart issues (Asare, 2015). These conditions have a profound effect on the child, so much so that they may lower the child's quality of life (Sahoo et al., 2015). Additionally, physical inactivity tends to be associated with the consumption of unhealthy food and beverages. Instead of consuming fruits, vegetables, and water, children who engage in sedentary behaviors tend to favor high calorie snacks and drink carbonated beverages (Lou, 2015). With low levels of physical activity and high levels of sedation, children are predisposed to an unhealthy physical life (e.g. obesity). However, being inactive does not only affect the child's physical health, but it also affects his/her mental health too.

According to Asare (2015), children suffer from a variety of mental health problems. For instance, children experience anxiety, depression, and low self-esteem. These children also experience a low primary school attendance rate, in addition to learning problems due to their mental illness. However, the questions that deserves to be posed is: do children who engage in chronic physical inactivity develop mental health issues? To answer such a question, this researcher conducted a meta-analysis of sedentary behavior and children's mental health. Asare discovered that physical inactivity *is* associated with depression in children. This discovery is consistent with other studies with adults and physical inactivity. That is to say, adults who participate in sedentary behaviors for multiple hours throughout the day display symptoms of depression, as their child counterparts (Asare, 2015). Furthermore, Asare and Danquah (2015) studied sedentary behavior and mental health with children from Ghana. Through their research, they discovered that

lower levels of physical activity, as well as high levels of sedentary behavior was associated with depressive symptoms, such as low self-esteem.

Another aspect of a child's life that has been affected by this increase in sedentary behavior is academics. As mentioned above, the academics amongst the primary school students is quite low in comparison to other comparable third-world countries (Bidwell, 2013). This decrease in academics may be a result of the sedentary behavior of these students (Hancox, Milne, & Poulton, 2004). Instead of studying for class, students appear to be utilizing their time at home watching television or playing video games. These students may be unaware of the benefits of physical activity due to the lack of physical educational programs (Lee et al., 2007). In support of this, Basch (2011) considered the elimination of physical education may be the result of the decline in academics. If this is true, then it might be significant to reintroduce physical education, or at the very least physical activity, into the regular curricula. Not only for the benefit of the students' physical and mental health, but also their academics.

In the past, there have been many successful interventions utilizing physical activity to benefit students' academics. For instance, short breaks of physical activity during class time and incorporating structured physical activity has been demonstrated to have a positive effect on the students' academics (Mahar, 2011; Chang, Labban, Gapin, & Etnier, 2012). In addition, interventions such as incorporating sports clubs and before-school physical activity correlate with positive student academics (Käll, Nilsson, & Lindén, 2014; Tompkins, Jacob, Lauren, & Brock, 2012). Fitness test scores have also suggested similar results. That is to say, studies suggest that there is a positive relationship between

physical fitness test scores and academic achievement (Field, Diego, & Sanders, 2001; Taras, 2005). For instance, the California Department of Education (2001) conducted a study on 900,000 students. After examining their fitness test scores and academic accomplishments, the researchers concluded there was a positive correlation between the two variables. Furthermore, Chomitz et al. (2008) conducted a similar study with children in the grades of 4th, 6th, and 8th grades. The researchers discovered that if the child passed both the Massachusetts Comprehensive Assessment System (MCAS) mathematics and English test, the quantity of passed fitness tests increased as well (Chomitz et al., 2008). With such compelling correlations, one might wonder if the brain undergoes specific changes during physical activity, resulting in one's academics being greatly affected by exercise.

According to Cipolla (2010), the brain maintains a relatively constant blood flow at homeostasis, which is known as autoregulation. But during exercise, the cerebral blood flow increases. Rodi (2006) notes that oxygen and nutrients are delivered to the brain, in addition to the body producing a chemical known as IGF-1. Enos (2011) points out that this chemical produces proteins known as brain-derived neurotrophic factors ("BDNF"), which has been linked to an increase in neurotransmitters. Neurotransmitters signify an individual is learning a new skill or acquiring more knowledge. As a result, an individual who has *more* BDNF, and more neurotransmitters, have a "greater capacity for knowledge whereas brains with low BDNF shut themselves off from new information" (Enos, 2011, p. 6). In other words, if an individual exercises more, the greater chance they have at learning, whereas an individual who exercises less or none whatsoever, the less likely

he/she will be able to learn new information. All in all, Enos (2011) concluded that exercise greatly benefits those individuals in academics, regardless if the reason may be ultimately scientific or psychological.

Although the reasons for an increase in academics due to exercise may not be definite at this point in time, one intervention to increase academic well-being has not been popularized in the literature: CrossFit Kids. This is a branch of CrossFit that incorporates general, broad and inclusive fitness. It includes gymnastics and functional lifts (e.g. squats, presses, pulls). The hypothesis is that the incorporation of CrossFit Kids, in addition with reflections, will greatly benefit the child's physical and mental health, as well as increase their academic well-being.

Personal Investment

I decided to do a project about CrossFit because of the impact it has had on my life. CrossFit has taught me the importance of improvement. I never realized that a person can continually improve in his/her life. It may sound ignorant, but it never occurred to me that a person can improve in his/her life, whether that is professionally or personally. But, CrossFit has changed that. I learned through CrossFit and its training that we can always improve; regardless if it is being a parent or a Marriage and Family Therapist, we can always improve. This concept, as little or large as it may sound, has greatly impacted my view on the world, so much so that it has been a part of my life for the past six years.

My passion for this sport, as some may refer to it as, has extended into the realm of coaching. Not only have I coached adults and adolescents since 2011, but I also coach children too. Of course, training in CrossFit is exciting, let alone competing in it. Howev-

er, coaching athletes, partially adolescents, brings me more joy than I can ever imagine. Watching these adolescents grow mentally, emotionally, and physically from CrossFit Kids truly makes me happy that I have the unique opportunity to coach them and instill the concept of improvement into their daily lives.

With that said, I knew that if I were to do a project to complete my Master of Science degree, it would have to be a passion of mine. That is why I chose to use CrossFit. However, I cannot simply discuss CrossFit, there must be a problem to discuss. After research what little literature there is regarding specifically CrossFit Kids, I discovered an article by Lisa Bakshi (2009), which in essence, discussed her master's thesis at San Diego State University. She described the decline of academic well-being of children in the United States and her intervention: CrossFit Kids. She used CrossFit Kids to improve the academic well-being of her second grade students. Her results - 15 percent increase in mathematics and 12 percent increase in language arts - astounded me so much so that I wanted to do something of similar nature, but with a psychological twist (Bakshi, 2009).

With a problem in mind (decline of academics) and a passion (CrossFit Kids), it was time to research psychological principles to be used in conjunction with CrossFit Kids. After researching the literature about improving adolescents' academic well-being, I discovered self-reflections (Williams, 2006; Lew & Schmidt, 2011). It never occurred to me that researchers incorporated self-reflections to improve academic well-being; lo and behold, Williams (2006) and Lew and Schmidt's (2011) research results suggested that self-reflections do, in fact, improve academic well-being! It was at this point in which I realized that I have my passion of CrossFit Kids, a psychological principle of self-reflec-

tion, and a problem in academics. I was ready to take on the project head-on, with both feet on the pedal.

Statement of Problem

The problem that requires addressing will be three-fold: the decreasing academic well-being and mental health amongst students in primary schools and the limited to nonexistent physical educational programs in the USA. By increasing the physical activity at school, this may help promote and increase students' academic well-being and mental health.

Statement of Purpose

The purpose of this project will be to develop a program of self-reflection and CrossFit Kids that will be implemented in middle schools as a way to both promote improved emotional and physical health, which in turn may also motivate children to become more interested and involved in their academics. The self-reflections (the prominent psychological theory for the project) should help serve as a stepping stool, so to speak, to help the children become more motivated to learn material in class and, hopefully, improve their academic well-being (as presented by Williams, 2006; and Lew & Schmidt, 2011).

Statement of Significance

Not only will children benefit from the implementation of self-reflections and CrossFit Kids, but schools will be able to improve their physical education programs while finding an alternative way to motivate their students.

There will be a concerted effort in the literature review to demonstrate the academic decline of American children, as well as the proposed solution of incorporating not only physical education into the regular curricula of primary schools, but primarily CrossFit Kids. In order to better understand this issue, it is necessary to review previous studies and research regarding academics, physical activity, physical education, and CrossFit Kids, which will be covered in the following chapter.

Definitions

The following will describe the pertinent terminology and its associated definitions.

- Student: a person who is registered at a school of knowledge (Student, 2016).
- Secondary School: an academic institution in the United States of America, involving the sixth, seventh, and eighth grade (Corsi-Bunker, 2015).
- Academic Achievement: a representation of how well a student achieved his/her specific academic goals (Steinmayr, Meibner, Weidinger, & Wirthwein, 2015)
- Physical Education: a class that instructs students on physical exercise (Physical Education, 2016).
- Sedentary: an activity that requires sitting in one place for a period of time (Sedentary, 2016).
- Academic Well-Being: the attitudes and behaviors associated with the endeavors of learning academic material.

- Mental Health: a person's psychological and emotional state of being (Mental Health, 2016).
- CrossFit: a fitness program designed to incorporate aspects of gymnastics, powerlifting, olympic weightlifting, and metabolic conditioning (Glassman, 2010).
- CrossFit Kids: a version of CrossFit designed specifically for the ages of three to 17-years-old, while still including the main aspects of CrossFit as previously mentioned (CrossFit, 2016).
- Self-Reflection: analyzing academic material and personal experience in order to achieve greater understanding and meaning of his/her academic well-being (Lew & Schmidt, 2011).

In order to better understand these issues in preparing the workshop, it is necessary to discuss sedentary behavior, mental health and mental illness, physical health, academics, self-reflection, and CrossFit Kids, which will be covered in the following chapter.

Chapter II

Review of Literature

This chapter will begin with a discussion of sedentary behavior, in addition how this behavior affects children and their mental and physical health, as well as their academics. This will be followed with an analysis of an increase of physical activity, and its effect on children's mental health, physical health, and academics. There will then be an examination of the concept of CrossFit Kids, and how such a program can impact the academic well-being of children.

Sedentary Behavior

Sedentary behavior involves low activity, which results in low energy expended by the individual (Sedentary, 2016). These include, but not limited to, watching television, playing video games, and searching the internet (Healthy Kids, 2017). Although the AAP recommends that children engage in no more than two hours of sedentary activities per day, this hardly appears to be the case (Faigenbaum, 2015). Children in the USA participate, on average, seven hours per day in sedentary activities. Lou (2014) notes that this statistic is a combination of leisure (e.g. watching television) and productive (e.g. utilizing the computer for homework) sedentary behavior. This statistic appears to be increasing (Lou, 2014). There are now more ways to participate in sedentary activities, particularly with the inventions of the "smartphone" and tablet. Children are capable of sitting or lying down, engaging in their sedentary activity in almost anywhere there may be a cellular signal.

With an increase in sedentary behavior, gender, race, and socioeconomic status may help determine which group is affected by this inactivity the most. According to Lou (2014), Caucasian children do not spend as much time in sedentary activities as African American children. Also, children who were raised in low-income housing participated in more sedentary behavior than those who grew up in affluent families. Although illuminating this data might suggest, it deserves mentioning that these findings “are not evident in studies based on objective measures” (Lou, 2014, p. 3). In other words, the sedentary behavior between race and socioeconomic status are exposed to subjective interpretation of one’s own sedentary behavior; thus the reliability of these studies may not be as high as compared to objective measures (e.g. devices that measure the sedentary activity). The research regarding the differences between the genders is mixed. There is data demonstrating girls as the more inactive gender; while at the same time, there are surveys that suggest boys participate in more sedentary behavior (Lou, 2014). Regardless of these statistics, children are being affected by their choice in activities, or lack thereof. The effects of sedentary activities are detrimental to a child’s mental and physical health.

Children and Mental Health

Mental health and mental illness. Mental health and mental illness are two separate, yet intertwined aspects of a human being. First and foremost, mental health refers to a person’s psychological, emotional, and social well-being (Mental Health, 2017). With good mental health, an individual is capable of living a life full of relationships, dealing with daily challenges, and using his/her abilities to reach his/her fullest potential. There are a multitude of ways to improve and maintain good mental health. For instance, an in-

dividual may talk and express their feelings in a positive manner (e.g. in therapy with a licensed professional). A person can also exercise, eat healthy meals, and acquire adequate sleep. These are simply some of many ways to establish a life with good mental health. However, there are some individuals who do not have the same abilities to even have mental health. Instead, these individuals may suffer from a mental illness (Government of Western Australia Mental Health Commission, 2017).

In comparison to mental health, mental illness is a problem with one's health. It affects the person's ability to think, feel, and behave. Some mental illnesses affect how a person interacts with others. On the other hand, one's mental illness may alter how a person functions on a daily basis. There is not simply one mental illness; instead there are a variety of mental illnesses, each varying in degrees of severity. Mental illnesses are defined and delineated in the Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5; American Psychiatric Association [APA], 2013). Some of these disorders include, but not limited to, Anxiety Disorders, Autism, Bipolar Disorder, Borderline Personality Disorder, and many others. Many factors have been shown to contribute to a person's mental illness; for instance, stress, substance abuse, genetics, and social factors (e.g. finances, violence, isolation, etc.) (APA, 2013). Mental illness is a serious problem, particularly for those who live in the USA.

According to the National Alliance on Mental Illness (2016), the prevalence of mental illness in America is high. One in five Americans are diagnosed with a mental illness each year, estimated at 43.8 million people. As previously mentioned, a person with mental illness may experience an interference with their normal life (National Institute of

Mental Health, 2017). They no longer live the life they once did. They must manage their life in a different manner, one that includes a mental illness. It deserves mentioning that mental illness just not simply affects the average American. Mental illness does not only target Caucasian Americans. Quite the contrary, mental illness has an effect on all lifestyles and races. For instance, it is estimated that 26% of the homeless community live with mental illness (National Alliance on Mental Illness, 2017). State prisoners and local jail prisoners suffer from mental illness, as much as 20% are diagnosed with mental illness (U.S. Department of Justice, 2006). In terms of racial groups in America, the Agency for Healthcare Research and Quality found Caucasian Americans utilize mental health services more than other races. It was estimated that Hispanic Americans and African Americans use about half while Asian Americans use about one-third of what Caucasian Americans utilize (Agency for Healthcare Research and Quality, 2010). With such a high rate of mental illness seen from the research in the general public, from lifestyle to races, it begs to ask the question: are children affected by mental illness too?

Children in the USA are often diagnosed and affected by mental illness. According to the Marikangas et al. (2011), approximately twenty percent of American children are diagnosed with a mental illness. There are some uncommon disorders that only affect a small portion of the children population, for example, eating disorders, generalized anxiety disorders, panic disorders, and dysthymia only impact less than one percent of the population of children. However, one of the most seen diagnoses among children is Attention Deficit/Hyperactivity Disorder (ADHD). Mercola (2013) estimates that eight percent of children exhibit symptoms and are diagnosed with ADHD each year; and the

number of children being diagnosed with mental illness as a whole continues to increase. Some professionals theorize that the increase of symptomology is a byproduct of toxic exposure, electromagnetic fields (i.e. cell phone), vitamins D deficiency, or poor gut health (Mercola, 2013). While others, contribute this increase to the ever-so increasing sedentary lifestyle of the present day children of the USA.

Sedentary lifestyle influences mental health. A child's mental health may be affected by his/her sedentary lifestyle. While there may be no clear and/or direct evidence that clearly states the reason why sedentary behavior contributes to poor mental health (Suchert, Hanewinkel, & Isensee, 2015), many studies have demonstrated strong correlations between the two. For instance, in examining Canadian adolescents, Herman, Hopman, and Sabiston (2015) utilized a self-rated mental health and screen time questionnaire. They found a strong correlation with an increase in screen time, the adolescents had an increase change of reporting depressive symptoms. Cao et al. (2011) administered a depression self-rating scale and screen time open-ended questions to secondary school students. According to the researchers, students who reported high screen times was associated with depressive symptoms. In terms of other mental health issues than depression, Jackson, Von Eye, Fitzgerald, Zhao, and Witt (2010) examined the affect sedentary behavior may have on self-esteem. In a study with over 500 American youth, these researchers discovered a strong correlation between adolescents who engaged in sedentary activities (e.g. playing video games) and low self-esteem - than those adolescents who played less video games (Jackson et al., 2010).

These studies and publications are only a few amongst many (e.g. Hoare et al., 2014; Mathers et al., 2009; Park, 2009) that have demonstrated a strong correlation between sedentary behavior and poor mental health. Although the researchers generally focus on depression, some attempted to examine anxiety and suicidality. These attempts of establishing a correlation were not successful. In fact, Messias et al. (2011) and Gross (2004) discovered no association between sedentary behavior and poor mental health. Even a meta-analysis conducted by Hoare, Milton, Foster, and Allender (2016), who examined over thirty studies of this subject, they even concluded that there is a lack of studies to truly establish this correlation between sedentary behavior and poor mental health as fact. Although this may be the case, it is perhaps difficult for one to ignore the numerous studies previously mentioned and how sedentary behavior affects children across the world, both mentally and physically.

Children and Physical Health

Sedentary lifestyle influences physical health. As of late, there has been a growing concern regarding children's physical health and their sedentary behavior (Lou, 2014). Children and adolescents are continuing to spend an average of six to eight hours in sedentariness, respectively. This statistic reflects during and after school. According to Tremblay et al. (2011), children and adolescents who participate in such sedentary behavior have a greater risk of developing a variety of physical ailments. Some of these physical health problems include a higher body mass index and fat mass, as well as obesity.

In the United States, nearly one-third of all children and adolescents are obese (Ogden, Carroll, Kit, & Flegal, 2012). However, it is important to note that amongst Lati-

no and African American children, let alone low socio-economic households, the rate of obesity is higher. Obesity has been linked to many serious physical health problems for children and adolescents (Freedman, Mei, Srinivasan, Berenson, & Dietz, 2007). Some of these problems have the potential for lifetime risk, such as stroke, asthma, cardiovascular disease, and some cancers (Dietz, 2004). But watching television, another type of sedentary activity, appears to be the biggest link to childhood obesity.

Amongst the many ways children and adolescents may engage in sedentary behavior (e.g. playing video games), watching television appears to be a significant link childhood obesity. There are many factors that connect watching television to childhood obesity. Some of these factors include, but not limited to unhealthy eating, lack of physical activity, and effects of sitting for long periods of time (Buchowski & Sun, 1996). Sitting for long periods of time has also been connected with type 2 diabetes (Corliss, 2015). It appears as though long periods and persistent sedentary behavior amongst children and adolescents has links to many unwanted physical health effects, as well as mental health effects (see previous section). However, sedentary behavior does not only affect the physical and mental well-being of the child, but also academic well-being too (Tremblay et al., 2011; Hancox et al., 2004).

Children and Academics

Sedentary lifestyle influences academics. A child and adolescent's academic well-being can be affected by his/her sedentary activities and/or low levels of physical activity (Kantomaa, Tammelin, Demakakos, Ebeling, & Taanila, 2009; Kwak et al., 2009; Trudeau & Shepard, 2010; Syvaoja et al., 2013). In a study of 845 adolescents, Corder et

al. (2015) examined the effects of physical activity and sedentary behavior on academics. The researchers did not necessarily use standard grades to assess the change in academics. Instead, they utilized the General Certificate of Secondary Education (“GCSE”) results of the British adolescents to assess any changes in the child’s academics. In order to objectively measure the physical activity and sedentary behavior, Corder et al. provided the adolescents self-reported measures. By the conclusion of the study, these researchers discovered that physical activity did not affect academic performance. However, an increase in non-screen time (e.g. reading) was associated with more points on the GCSE, whereas increased screen-time (e.g. watching television) was associated with less points on the GCSE. From their accumulation of their data, they concluded that although this may be a unique study, the results may simply be a result of students who have increased screen-time may struggle at school (i.e. score poorly on exams) and do little to no homework (Corder et al., 2015).

Haapala et al. (2016) examined the relationship between physical activity and sedentary time between sexes, in order to see if there was a difference of academics being affected by sedentary behavior between males and females. The data collected is as follows: 153 children in the first grade (64 girls, 89 boys), 149 children in the second grade (62 girls, 87 boys), and 145 children in the third grade (59 girls, 86 boys). The researchers assessed the students academics via a reading achievement test known as the Ala-asteen lukutesti (“ALLU”), a reading comprehension test (from the ALLU), and an arithmetic test with basic mathematics (e.g. addition and subtraction). In order to assess the child’s physical activity, or lack thereof, Haapala et al. attached a heart rate and

movement sensor to the children. The children were instructed to wear the monitor for four consecutive days. By the end of the experiment, these researchers concluded that the boys and girls of the study differed greatly in their academics. As for the females, their physical activity and sedentary time was not related to academic achievement in grades one, two, and three. However, the male subjects differed greatly. The boys of the study, particularly those in the first grade, who engaged in high amounts of sedentary time were related to lower reading and arithmetic skills. In order to explain their findings, they suggested that the high levels of sedentary time and low levels of academic well-being may be related to less developed brain structures of the boys or this gender may not receive the educational support they need from their parents in comparison to girls (Haapala et al., 2016). In another study, Kristjanson and Sigfusottir (2009) confirmed the latter point, finding that it was girls who generally receive this support.

In comparison to the previous recent studies where the researchers examined if sedentary behavior influences academics, Lizandra et al. (2016) conducted an experiment to determine if academic well-being predicts sedentary behavior. The researchers utilized 755 adolescents from the Canary Islands. Over the course of three years, the researchers assessed the students with the Adolescent Sedentary Activity Questionnaire (“ASAQ”), which is a self-report instrument. The ASAQ examines the student’s sedentary behavior in three categories: academic activities (i.e. completing homework with or without the computer), technological-based activities (e.g. watching television and playing video games), and social-based activities (i.e. exchanging messages via computer and/or mobile device). In terms of the academics, students self-reported the previous

school year in one of four categories: four or more failed subjects, between one to three failed subjects, no failed subjects and mediocre grades, and no failed subjects and exceptional grades. After compiling the data, the researchers concluded that academic well-being does, in fact, predict sedentary behavior. That is to say, those adolescents who performed better in their academics, spent less time in sedentary behavior and more time studying (Lizandra et al., 2016).

Although the aforementioned studies mention a correlation between high levels of sedentary behavior and low levels of academic well-being, it is important to note that this is not always the case. For instance, Borzekowski and Robinson (2005) concluded that an increase in screen-time activities (e.g. watching television) was correlated to *better* academic well-being in children. Munasib and Bhattacharya (2010) and Johnson, Cohen, Kasen, and Brook (2007) conducted a similar study with television viewing. What both studies' findings suggest is that there is no correlation to a decrease in academic well-being. Furthermore, Esteban-Cornejo et al. (2014) performed an objective physical activity measure in relation to academic well-being in children and adolescents. While there was a positive correlation for the 11-, 13-, and 16-year-olds, the children scored worse in their academic well-being assessments when combined with physical activity (Esteban-Cornejo et al., 2014).

It would appear reasonable to conclude that a child's inactivity is disadvantageous in three primary areas of his/her life: mental health (Herman et al., 2015), physical health (Tremblay et al., 2011), and academics (Kantomaa et al., 2009). If this is the case, high levels of sedentary behavior is correlated to poor mental health, physical health, and poor

academics, would it be crazy to assume that the opposite is true? Therefore, could one assume that instead of physical *inactivity* being correlated to these issues, physical activity may improve these aspects of the child's life? The following section will delve deeper into this issue.

Physical Activity

Physical activity improves mental health. Physical activity has been linked to improved mental health in children and adolescents (Biddle & Asare, 2011). Some of the mental health disorders that have been studied include: depression (Rape, 1987), anxiety (Brown, 1982), and learning disorders (Watters & Watters, 1980). Rape (1987) examined the relationship between running and depression. Utilizing the Beck Depression Inventory, Rape assessed whether teenagers who engaged in running would be less depressed than non-runners, so to speak. By the end of the study, the researcher concluded that the teenagers who ran were significantly less depressed than the subjects who did not participate in exercising (Rape, 1987). In another study, Crews, Lochbaum, and Landers (2004) examined how physical activity may affect depression amongst fourth-grade children (total of 66, 33 boys and 33 girls). The children were separated by either being apart of the aerobic intensity program or controlled intensity program for six weeks. After the six week, the researchers assessed the children's depression via the Beck Depression Inventory. What they discovered was that the children in the aerobic intensity program reported significantly less depression (Crews et al., 2004).

While the symptoms of depression were improved via physical activity, people with other mental health disorders (e.g. learning disorders and anxiety) may receive the

similar benefits. In a study with five autistic boys, Watters and Watters (1980) wanted to examine if these boys would continue self-stimulation after one of three interventions: physical activity, television watching, or academic activities. Although there were no differences in the levels of self-stimulation after watching television and participating in academic work, this was not the case following physical activity; the lowest levels of self-stimulation were found after physical activity amongst these five autistic boys. In terms of anxiety, Brown (1982) conducted an experiment with four-year-olds. This researcher encouraged the four-year-olds to engage in physical activity (more specifically, movement training) for ten weeks. He noted that the four-year-olds had reduced anxiety by the conclusion of the experiment, thus he contributed this reduction to the ten week physical activity intervention (Brown, 1982).

Despite the previous studies, two meta-analyses were performed to investigate the link between physical activity and mental health. Larun, Nordheim, Ekeland, Hagen and Heian (2006) compiled a total of 38 studies relating to physical activity and mental health outcomes. Even though some of the studies that were analyzed suggested that physical activity decreases depression and anxiety self-reported scores, the researchers concluded that there was not enough data to definitely claim that physical activity is linked to less mental health outcomes. Ahn and Fedewa (2011) performed a meta-analysis; however, instead of only examining 38 experiments, they analyzed 73 studies. In comparison to the previous meta-analysis, They concluded that physical activity does, in fact, have an effect on a child's mental health. Furthermore, the researchers suggest that physical activity

should be an effective component to already established psychotherapeutic interventions (e.g. cognitive-behavioral therapy) (Ahn & Fedewa, 2011).

Psychological explanations for physical activity's link to improved mental health. Rowland (1991) provides two theories that may help explain why physical activity improves mental health: the time-out theory and self-significance theory. In terms of the time-out theory, the author contends that physical activity provides the individual the unique opportunity to be preoccupied. The individual's stressors (internal or external) may receive a *time-out*, or break, while the individual participates in the physical activity. Over time, Rowland claims that the individual's mental health disorder (particularly depression) may be reduced as a result of the physical activity. On the other hand, the self-significance theory begins with the following assumption: society views an individual who participates in physical activity as *good*. This individual who may suffer from depression, for instance, may not conceptualize themselves as good. However, as the individual continues to overcome obstacles and reach goals via physical activity, he/she may begin to gain a sense of control, competence, and self-discipline. Thus, an alleviation of symptoms may start to occur (Rowland, 1990).

Physical activity improves physical health. The physical health of children can be improved by physical activity (Castelli, 2015). According to the U.S. Department of Health and Human Services (2008), some of the benefits of physical activity for children and adolescents include the forming healthy bones muscles, as well as improving blood pressure and cholesterol levels. Furthermore, physical activity helps prevent obesity and chronic diseases, such as colon cancer, diabetes, and cardiovascular disease (U.S. De-

partment of Health and Human Services, 2008) because children are able to maintain a healthy body weight (World Health Organization, 2017). Alexander and Monga (2016) point out that girls - who are in the beginning stages of developing their menstrual cycle - can especially benefit from physical activity. Physical activity produces specific hormones known as endorphins, which help ease the abdominal and back pain girls experience during their menstrual cycle (Alexander & Monga, 2016). With all of these physical health benefits of physical activity for a child, does a child's academics benefit with physical activity too?

Physical activity improves academics. Physical activity can benefit a child's academic well-being (Castelli, Glowacki, Barcelona, Calvert, & Hwang, 2015). Many studies have demonstrated this correlation by either regular or short sessions of physical activity. Donnelly and Tambourine (2011) conducted a regular physical activity program titled Physical Activity Across the Curriculum. With 24 elementary schools, they wanted to examine if physical activity may have long-term benefits. In order to do this, the researchers first randomly assigned schools to either incorporate physically active lessons or seated, inactive lessons. Donnelly and Tambourine compiled three years of these students' standardized test scores. By the end of the study, they discovered that those students who received the physically active lessons did six percent better than their counterparts who received the sedentary lessons (Donnelly & Tambourine, 2011). In a similar study, Pesce, Crova, Cereatti, Casella, and Bellucci (2009) examined children and standardized test scores. There were 287 children in the fourth and fifth grade. The schools were randomly assigned to the physical activity program (Action School in British Co-

lumbia) or no physical activity program. The results of the study suggest that those students who participated in the physical activity program increased their standardized test scores than those who were not selected in the physical activity program. In order to explain their results, the researchers indicate that the storage processes for memory may become easier and more accessible by the physiological arousal induced by exercise (Pesce et al., 2009).

While the previously mentioned studies were conducted for regular periods of physical activity, research also shows short bouts of physical activity improves academics too (Castelli et al., 2015). In a meta-analysis of 19 articles, Kibbe et al. (2011) examined how classroom breaks of physical activity may affect children's academic well-being. The results indicated that the physical activity reduced the time (up to 20 percent) spent on non-academic tasks, such as classroom management and transitioning students from one activity to another. In the same review, improvements were also found in the students' academic well-being, particularly with standardized test scores. There were increases on the Texas Assessment of Knowledge and Skills and Florida Comprehensive Achievement Test (Kibbe et al., 2011). In another study regarding single sessions of physical activity, but this time specifically on concentration, Caterino and Polak (1999) utilized second, third, and fourth grade students. The students were randomly assigned to either walk before taking a test or simply sit in the classroom. Utilizing the Woodcock Johnson Test of Concentration, the researchers assessed whether this short physical activity would improve or decrease the students' concentration. Although there was no difference in the test scores for the second and third grade students, the fourth grade students

who participated in the physical activity significantly outperformed those students who stayed in the classroom (Caterino & Polak, 1999).

A vast majority of studies show academic well-being is increased by physical activity, with only a few demonstrating negative effects (Castelli, 2015). This even includes studies that include systematic reviews (Mitchell & Byun, 2014). However, Castelli (2015) postulates that it is difficult to recommend a specific type, intensity and timing of physical activity, due to the variety many studies employ. Further, the effects of the physical activity may not be the same across races, ethnicities, socioeconomic statuses, and academic abilities. These are some, but not all, of the factors that remain to be examined. Regardless, the current evidence of this association (CDC, 2010) does provide rationale for an increase in physical activity for students in the hopes of improving their academic well-being (Castelli, 2015).

Physiological explanations for physical activity's link to increased academic well-being. The brain of adolescents is considered plastic or changeable (Spinks, 2000). The brain has the capacity to be altered as a result of what the adolescent undergoes, such as physical activity. According to Charles Basch of Columbia University (2010), physical activity may affect the adolescent's brain in three ways: increase of oxygen, increase of neurotransmitters, and increase of BDNF to the brain. BDNF "assure[s] the survival of neurons in areas responsible for learning, memory, and higher thinking" (Spark, 2012), such as the hippocampus and basal ganglia. Recent studies have demonstrated that physically active children actually have larger hippocampal volume (Chaddock et al., 2010) and basal ganglia (Chaddock et al., 2012). Therefore, it may be possible to suggest that

physically active children are better able to recall information and learn new information as a result of their exercise directly increasing oxygen (Basch 2010), neurotransmitters (Jensen, 2010; Shepard, 1997), and BDNF (Basch 2010) to their hippocampus (Chaddock et al., 2010) and basal ganglia (Chaddock et al., 2012).

Self-Reflection Improves Academics

The overarching psychological theory for the project is self-reflection. Self-Reflection has been demonstrated to be an effective intervention to improve academics (Lew & Schmidt, 2011). In a study with three middle school students (two females and one male), Williams (2006) examined if self-reflection improved academic well-being over the course of three months. In order to assess their improvements, This researcher utilized the *Culture Fair Test of Intelligence, Forms A and B*, the *16-PF Personality Inventory*, and the *Group Embedded Figures Test*. Although two students dropped out of the study by month two, one student remained. By the end of the study, her grades significantly improved. Williams ascribes that the self-reflection increased the student's self-efficacy and agency, thus the student had a sense of control in her academic well-being. Even though this student did note boredom as a predominant topic, The researcher notes that this may play an important role in self-reflection, whereas other students may use electronics to entertain themselves, self-reflection may provide a unique avenue to increase their academic well-being (2006).

Yusuf (2015) also performed an experiment with academic well-being and self-reflection. In comparison to utilizing middle school students, Yusuf examined this relationship with Saudi Arabian, 4th year Pharmacy students in the Middle East. The study

group consisted of 22 males, whereas the control group was 33 females. The researcher noted that this dichotomy of the gender was necessary due to the cultural values of the Saudi people (i.e. males cannot be in the same room as females, and vice versa). The study group would engage in self-reflection exercises for 25 minutes during the discussion portion of two classes: Therapeutics-3 and Pharmacoeconomics. The academic well-being portion was assessed via quizzes, mid-terms, and final exams. By the end of the experiment, Yusuf concluded that there was a slight academic improvement in the study group than in the control group. Yusuf noted that this is only a pilot study. But the results suggest that self-reflection - throughout the semester - could possibly improve critical thinking and greater engagement in the course material (2015), which may have contributed to the improvements in the study group's academic well-being.

In a similar study, Lew and Schmidt (2011) also posited that self-reflection influences academic improvement. With 690 first year polytechnic students, Lew and Schmidt required the students to reflect electronically five days per week. The reflections were not simply open-ended, mindless writing entries. Instead, the researchers required the student to include how and what he/she learned in his/her classes. The academic assessment was conducted with "four knowledge acquisition tests" (p. 533), which estimated how well the student was able to apply and understand the learned material. After compiling the data, the researchers concluded that self-reflection - to a small extent - improves academic well-being, but only when they reflect on what and how they learn. Lew and Schmidt note that it is a *small extent* because many of their students may not have been experienced at self-reflection. Thus, reflecting on their own academic improvement may have

explained why it is only a weak relationship between self-reflection and academic improvement. Although the research regarding specifically self-reflection improving academic well-being is not extensive, this study does provide some hope that incorporating such practices may improve other adolescent's academic well-being (Williams, 2006).

CrossFit Kids

According to Glassman (2010), CrossFit is a type of physical activity that is best described as a strength and conditioning program. It is conducted in a class environment with a group of people (participants) and one or two Coaches. The Coaches instruct the class on a variety of movements, such as Gymnastics, Olympic Weightlifting, and Powerlifting. More specifically, Athletes can be seen performing pull-ups, push-ups, squats, rope-climbs, running, rowing, and so on (Glassman, 2010). Although CrossFit was created primarily for adults, Bakshi (2009) points out that it has been adapted for children over the past decade. CrossFit Kids is "designed for universal scalability, making it the perfect application for any child, regardless of experience" (p. 18). In other words, all movements and workouts utilized within the scope of CrossFit Kids can be applicable for any child - since all movements can be scaled appropriately (Bakshi, 2009).

To date, Bakshi (2009) contends that her master's thesis experiment has been the only study published that incorporated CrossFit Kids as an intervention to improve a child's academic well-being. Bakshi (2009) utilized her second-grade students in the experiment. The demographics of her treatment group are as follows: 13 were boys and seven were girls, 90% were native English learners, 5% had an Individualized Educational Plan, and 100% lived in poverty. Bakshi (2009) wanted to explore if an increase in

physical activity (with CrossFit Kids specifically) would result in an increase in cognitive functioning. She engaged her students in 30 minutes of CrossFit Kids every day of the week. By the end of the study, her results reflected in the areas of academics and psychosocial improvements (Bakshi, 2009).

Bakshi's (2009) research results indicated that her students greatly improved in their academics and psychosocial factors. For example, 85% of the total class population (i.e. 17 children) scored either proficient or advanced in mathematics (a 15% increase from the previous year) whereas 35% of the total class population (i.e. seven children) scored either proficient or advanced in language arts (12% increase from the previous year). In terms of the psychosocial results, Bakshi notes that the students appeared to have an increase confidence in their academics and physical activity capacity. Furthermore, Bakshi mentions that the students appeared to collaborate better with one another as evidenced by their support and encouragement of one another inside and outside the classroom (in comparison to earlier in the year when there was aggressive behavior between students). At the end of her study, Bakshi asked the students to evaluate their experience with the intervention. All of the students (i.e. 100% of the classroom) stated that they would prefer to continue CrossFit Kids the following year, while 47% reported that CrossFit Kids "made them feel smarter" (Bakshi, 2009, p. 18).

Despite these results, there are limitations to this study. For one, Bakshi does not provide the reader any psychological or biological explanation(s) for the academic improvements. Bakshi only makes note of the improvements without much justification or reason. Second, the sample size was quite small scale (20 students). The study only in-

cluded one school. With such a little sample size, it is difficult to generalize the findings (Unite for Sight, 2017). Lastly, Bakshi does not inform the reader how she obtained the improvements in the academic areas; she does not mention any academic assessments whatsoever. Nonetheless, Bakshi's study does provide some insight into the potential CrossFit Kids may contain for a child's academic well-being (Bakshi, 2009).

A child's academic well-being has the potential to be improved with CrossFit Kids as evidenced by Bakshi's (2009) experiment. Despite the fact that children are increasing in their sedentary behavior (Lou, 2014), and it has been shown to affect their academic well-being (Donnelly et al., 2009), CrossFit Kids may be able to improve this problem. Regardless of the limitations of Bakshi's (2009) research, her study provides some light that a child's academic well-being can be improved through a CrossFit Kids intervention. With the intention of improving the academic well-being of middle school aged students, self-reflection exercises (Lew, Schmidt, Rotterdam School of Management, & Rotterdam, 2011) coupled with instructional physical activity (Rotch, 2014) will be utilized in this proposed intervention. The details of the program will be discussed in Chapter 3.

Chapter III

Intervention

In order to begin the CrossFit Kids intervention, an e-mail (see Appendix A) will be sent to a Principal of a local Middle School and district administrator. This e-mail will be my first contact with the person with the highest authority at this educational institution. Hopefully a response will be received within two calendared weeks. If not, a follow-up e-mail (see Appendix B) will not only be sent to the Principal, but I will also add carbon copies to the administrators of the local middle school.

After receiving my e-mail(s) and scheduling a meeting, I will have the opportunity to present my proposed CrossFit Kids intervention to individuals who are in a position to green light the program. The participants of the meeting will include, but not limited to the Principal, Physical Activities instructors and other relevant Administrators of the middle school. The meeting will be for 30 minutes. I will provide the participants of the meeting with an outline of the meeting materials (see Appendix C).

During the meeting, I will present my CrossFit Kids proposal via PowerPoint (see Appendix R). The proposal will include research regarding sedentary behavior, mental and physical health, physical activity, and academic well-being. It is at this point in the meeting in which I will transition to CrossFit Kids and an explanation of what this physical activity entails. It will also include the maximum amount of students in the CrossFit class - as it is significant to only have one CrossFit Kids Coach per 15 students (Various, 2012) - and the type of activities in the class. The type of activities include the warm-up, focus, workout, and reflection portions of the class. Students and their reflection exercis-

es will be further explained as it relates to improving their academics (Lew & Schmidt, 2011) simultaneously with their physical activities (Rotich, 2014).

A waiver (see Appendix D) will also be provided for the meeting attendees in order to demonstrate my understanding and knowledge of the legal realm of conducting any type of physical fitness on school or private property. This waiver will be a similar one used by the adult clients at CrossFit Synapse, as it is sufficient according to CrossFit Headquarters (CrossFit Training, 2016). The cost of the program to the middle school will also be provided and explained (see Appendix Q), as well as a brief note that my services will be pro bono. Lastly, I will respond to any questions and/or comments from the meeting attendees. Before the meeting concludes, I will ask the meeting participants for their approval to be included in the next Parent-Teacher Association meeting. This will provide me an opportunity to show the parents how important physical fitness and activity is for their children's academic and physical well-being.

The meeting with the PTA members will be for sixty minutes. It will include an outline (see Appendix E) for the parents and teachers that will correspond to the Power-Point presentation (see Appendix S). I will introduce myself and my qualifications, as well as a description of what CrossFit Kids entails. Then I will discuss what the CrossFit Kids class at the middle school will include, such as class size, ratio, time, and type of activities. At this point, there will be a brief explanation of the self-reflection portion of the class and my hopes of utilizing this psychological principle (i.e. self-reflection, Lew & Schmidt, 2011; Williams, 2006) in addition to the physical activity (Rotich, 2014) to improve their adolescent's grades. Assuming the number of people in this meeting will be

greater than the former meeting, a considerable amount of time will be allocated for questions and/or comments from the audience.

If the Principal, administrators, teachers, and parents agree to approve the CrossFit Kids intervention, I will provide the campus administrators with a detailed written report of the CrossFit Kids intervention (see Appendix F). The report will include the following: detailed explanations of the warm-up, focus, WOD, and reflections, as well as the 10-week CrossFit Kids course for the local middle school. An equipment list (see Appendix Q) will be supplied to the administrators so the necessary purchases can be made by the middle school before the CrossFit Kids class begins. While the intervention details were discussed, the reasons for the age of the students will be explored next.

The level education of the children will be eighth grade, which is generally between the ages of 12.9 to 13.8 years-old (Grade Placement Chart, 2017). This age range was chosen for a reason: children around this age (i.e. 12-years-old) are considered to be in the formal operational stage of Piaget's cognitive development theory (1936).

Piaget (1936) developed a model of cognitive development to demonstrate that intelligence is not fixed. Rather, Piaget believed that intelligence is a continual process resulting from the interaction between a person's biology and his/her interaction with the environment. There are four stages: sensorimotor (birth to two-years-old), preoperational (two- to seven-years-old), concrete operational (seven- to 11-years-old), and formal operational (11-years-old to adulthood). The last stage, which is the age range of the participants in the CrossFit Kids intervention, suggests that abstract thought begins to develop. This particular process of thinking would appear necessary as a prerequisite to thought-

fully respond to the reflections (see Appendices G-P), since abstract thought involves transferring what one learns from one context to another (e.g. improving grades in school like improving skills in CrossFit Kids) (Ylvisaker, Hibbard, & Feeney, 2017).

Granted that normally developed children at this age may possess the cognitive skills to participate in the reflection portion of the intervention (see Appendices G-P), the physical abilities of the children may be of concern. One might think: my child may not already have the skill levels and/or experience to participate in this CrossFit Kids intervention, will he/she sit out while the other children participate? In short, the answer is no. Any child can participate in CrossFit Kids (Bakshi, 2009). Regardless of the child's skill level, experience, injuries, etc., CrossFit, and CrossFit Kids especially, was designed for "universal scalability" (p. 18). Any child can experience this intervention. All the movements can be scaled appropriately for any child's current skill level and/or physical activity experience. However, the person who does the scaling is the Coach; and the Coach, by law, is required to have a certain type of certified training before he/she can properly scale and Coach.

As a certified CrossFit Level One Trainer ("CF-L1") and CrossFit Kids Coach since 2011 and 2016, respectively, I am legally able to Coach the CrossFit Kids intervention at a local Middle school (CrossFit Training, 2016). These courses have provided valuable information on how to properly begin and maintain a CrossFit Kids program, in addition to scaling for each child. Furthermore, I have over five years of experience coaching adults and children. With both the certifications and experience, I feel confident in my ability to incorporate this intervention successfully for a local Middle School.

Although there is a review of the literature and details of the intervention, it would behoove us to not incorporate a formative evaluation. This will serve a significant purpose: to ensure the project is practical and plausible. The project will be evaluated by two individuals, one of which owns a CrossFit gymnasium, the other serves as an administrator for a local middle school in Tarzana, California. Both individuals agreed to review the intervention and both PowerPoints. Also, each individual will respond to four questions (see Appendix T). These responses will provide a unique outlook on my project, to such an extent that I will include their responses in the following chapter (i.e. chapter four).

Chapter IV

Results

Summary of Project

The “CrossFit for Kids” project discussed how sedentary behavior negatively affects mental health (Suchert et al., 2015) and physical health (Asare, 2015). Also, academic well-being appears to be negatively impacted too (Corder et al., 2015). This behavior appears to be a growing concern in the USA, particularly with adolescents, who already do not fare well, in terms of standardized scores, against other third-world country adolescents (Lou, 2014) (Bidwell, 2013). However, physical activity and self-reflections may help with this predicament. Physical activity has been demonstrated to improve mental health (Biddle & Asare, 2011), physical health (Castelli, 2015), and academic well-being (Donnelly & Tambourine, 2011). Research with self-reflections suggest that this intervention may also improve academic well-being too (Lew & Schmidt, 2011). With the implementation of self-reflection and an increase in physical activity (via CrossFit Kids) in the middle schools, adolescents may begin to improve not only their academic well-being, but also their standardized test scores.

Summary of Formative Evaluation Results

Two professionals were contacted in order to evaluate the intervention of the project. The first person, Allison, owns a local CrossFit gymnasium. The other individual, Kim, actively holds a position on the administrative staff of a local middle school in the San Fernando Valley. Both participants agreed to respond to the following questions:

- What suggestions do you have to improve the proposed program?

- What benefits, other than academics, do you anticipate as a result of this program?
- Any suggestions how to best market this program schools?
- Does the program appear to meet the stated objectives and outcomes?

Allison recommended to add more information into the intervention and Power-Points. She points out that it might be beneficial to explain more about the connection between self-reflection, CrossFit, and academic well-being. Allison also notes that there needs to be more information about *why* the school should use this type of program. She points out that the school already offers physical education, so how does “CrossFit for Kids” benefit the school more than or in addition to standard physical education? This is a valid question and should be incorporated into the project. Although Allison’s responses were pithy, Kim’s answers provided extensive feedback.

Kim suggested that the classes need to be flexible. There cannot be simply one way to teach the class. All students learn differently, so the Coach must recognize how each student learns best and utilize that in order to teach the movements to the student. This is a particularly interesting aspect of the program that was never considered before. Of course, scaling the movements for each student was mentioned, but coaching differently to the students was an aspect of the program that should be addressed. Kim anticipated that there might be a plethora of benefits as a result of this program. For instance, the students might develop inner strength, self-esteem, self-confidence, self-worth, humility, and modesty. The students could also learn time management due to the complexity of the workouts, which may spill over to their school work and thus improve their academics.

Recommendations for Implementation of the Project

Both Allison and Kim mentioned how it may be best to implement the project into local middle schools. Allison recommended that it may be best to know *why* it is beneficial for the middle school to use this program. Middle schools already have a physical education program. But Allison suggested that it might be best to have something to the effect of answering the questions of “why should the middle school spend money on CrossFit for Kids?” in the PowerPoints and/or intervention details. Conversely, Kim suggested to network with parents at the middle school. She mentioned that the best way to mark the program is through word of mouth. So personally connecting with the students’ parents may be the best option to promote this program.

Recommendations for Future Research

The research on the link between self-reflections, academic well-being, and CrossFit Kids is non-existent. Granted that there is research on self-reflections improving academic well-being and CrossFit Kids improving academic well-being, there still remains to be seen a study that incorporates all three (Williams, 2006) (Bakshi, 2009). Nonetheless, there are other psychological principles that could be considered within the context of examining CrossFit Kids and academic well-being. For instance, Kim suggested that children may develop an increase in self-esteem as a benefit from this program. But the connection between self-esteem and academic well-being is inconclusive, whereas the relationship between self-esteem and physical activity appears to be positive (Booth & Gerard, 2011) (Liu, Wu, & Ming, 2015). In terms of self-esteem and academic well-being, this is supported via the study conducted by Alves-Martins, Peixoto, Gou-

veia-Pereira, Amaral, and Pedro (2002). Alves-Martins et al. included 838 secondary students from the USA. The researchers' results suggested that although there was a relationship between academic well-being and self-esteem for seventh-grade students, there was no relationship for ninth-grade students (2002). Liu et al. (2015) conducted a meta-analysis of 25 randomized and 13 non-randomized trials involving physical activity and self-esteem. Their results suggested that there is a correlation between physical activity (as an intervention) and increased self-esteem. But, there still remains to be a study which incorporates all three aspects: self-esteem, CrossFit Kids, and academic well-being.

Conclusion

The "CrossFit for Kids" project has considerable potential. With the use of self-reflections and CrossFit Kids, it would appear reasonable to hypothesize that this specific intervention would improve middle school students' academic well-being. Of course, there is the potential of some barriers. For instance, a middle school may not have the adequate funding or time to allocate for such a program. Or it might be as simple as the school administrators may have little to no interest. Regardless of what the barriers may be, "CrossFit for Kids" is needed.

The academic well-being of students in the USA does not compare well to other first-world countries' students (Bidwell, 2013). Self-reflections, general physical activity, and CrossFit Kids have been demonstrated to improve a student's academics, but never together (Williams, 2006; Donnelly & Tambourine, 2011). "CrossFit for Kids" may be the first intervention of its kind; and it may lead to further research in this particular area.

CrossFit Kids has the capacity to be involved with future research in the field of Psychology. For instance, research suggests that an increase in physical activity improves mental health. So it does not seem inconceivable that CrossFit Kids may improve a child's mental health too (Biddle & Asare, 2011). Some of the potential mental health benefits with CrossFit Kids include, but not limited to an increase in self-esteem and decrease in the symptomology of depression and anxiety. It would be an interesting study to see how CrossFit Kids may also improve the relationships between students. The students could consistently do team workouts, which require consistent communication and teamwork to complete each task. A sense of comrade may begin to develop amongst the students throughout the intervention; so much so, bullying may decrease.

The incorporation of CrossFit Kids for students in middle school appears to have an enormous amount of possibilities. Whether it is to improve academics or mental health, the inclusion of CrossFit Kids may be *the* intervention missing from middle schools. Hopefully this project will be the first step, amongst many, that includes CrossFit Kids as a tool for improving the lives of middle schools students.

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Appendix A

E-mail to Principal

Subject: Improving the Academics at a local Middle School with CrossFit Kids

Dear Principal:

My name is Matthew Kloeris and I am e-mailing you in regards to the academics at a local Middle School. I recently finished a Master's Project at California State University, Northridge in which I researched the connection between physical activity and academics.

The research suggested that academics and physical activity are connected more than we thought before! In fact, an increase in physical activity may increase a student's academic well-being.

However, one physical activity intervention has not yet been popularized: CrossFit Kids. It incorporates gymnastics and conditioning over the course of 20-25 minutes and has shown to help improve academic performance. As a CrossFit Kids coach, I have seen children enjoy this physical activity in the gymnasium, and I would like discuss with you this unique opportunity to use CrossFit Kids as a academic well-being program at your middle school.

I have prepared a power point presentation about my proposal: including costs, rationale and details of the activities associated with the program. I would like to set up a 20 minute meeting with you and your staff. Please let me know the best way to help arrange such a meeting. I appreciate your consideration. Please contact me at XXXX. I hope to hear back from you soon.

Sincerely,

Matthew Kloeris

Appendix B

Follow-up E-mail

Subject: Follow-up E-mail - Academic Improvement with CrossFit Kids

Dear Principal:

I hope all is well. I am following-up in regards to my previous e-mail regarding academics at Portola Middle School.

As of late, I finished my Master's Project at California State University, Northridge regarding the improvement of academics via the implementation of CrossFit Kids.

I believe that the implementation of CrossFit Kids will greatly improve the academics at your educational institution.

When you have a moment, I would love to schedule a 15-20 minute meeting with you and/or any of your staff to demonstrate the potential CrossFit Kids will have on the academics of your students.

Have a great day and looking forward to your response.

Sincerely,

Matthew Kloeris

Appendix C

Outline for the Principal and/or Campus Administrators

The participants in the meeting will be Matthew Kloeris, Principal, and administrators of the local middle school. The length of the meeting will be 30 minutes. My proposal will be presented via PowerPoint (see Appendix R). Below is the outline provided to the meeting participants:

I. Introduction - Matthew Kloeris

II. The Research

I. Sedentary Behavior

II. Sedentary Behavior and Academic Well-Being

III. Physical Activity and Academic Well-Being

III. CrossFit Kids

IV. CrossFit Kids Class

I. Class Size

II. Ratio

III. Type of Activities

V. Waiver

VI. Costs

VII. Questions/Comments

Appendix D

Waiver

Local Middle School Participant Agreement/Waiver

Participant Name (if over 18)*	Date of Birth*	Contact Number*
EMAIL*	Street Address*	City, State, Zip Code*
Participant(if under 18)	Date of Birth	

Emergency Contact Information*	
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Participant Agreement, Release and Assumption of Risk (The Agreement) – Synapse Strength and Conditioning

I have voluntarily elected to use and, if applicable, to allow the minor child(ren) identified above and referred to individually and collectively herein as "Child", to use the Synapse Strength and Conditioning facilities and equipment located at 18750 Oxnard St STE 402, Tarzana, Ca 91356, (the "Synapse Facility"). In consideration for being allowed to use said facilities and equipment, and any other services provided by Synapse Strength and Conditioning, LLC, or its employees or agents at said location, or any other location within the state of California I represent, acknowledge and agree as follows:

- I acknowledge and agree that this Agreement covers and is intended to release and provide other benefits and consideration to Synapse Strength and Conditioning, LLC and their respective and collective agents, owners, officers, managers, shareholders, affiliates, volunteers, participants, employees, and all other persons or entities acting in any capacity on their respective or collective behalf (collectively, "Synapse") I am 18 years of age or older. I am entering this agreement on behalf of myself, my spouse or domestic partner, the Child, and our respective and/or collective issue,

parents, siblings, heirs, assigns, personal representatives, estate(s), and anyone else who can claim by or through such person or persons (collectively, the "Releasing Parties").

- I acknowledge and agree that the use of barbells, kettlebells, weights and the other equipment at the Synapse Facility is inherently and obviously dangerous. These risks include physical or emotional injury, paralysis, death, or damage to myself, the Child, and/or third parties, and the personal property of any or all such persons. I understand that such risks simply cannot be eliminated without jeopardizing the essential qualities of the activity, which I further agree is for recreational purposes and completely voluntary. I acknowledge and agree that while Crossfit, Weightlifting and other activities that take place at the Synapse Facility are monitored generally by Synapse Facility employees, it is not feasible for such employees to monitor the activities and actions of all customers at all times or all customers simultaneously. Furthermore, Synapse Facility employees have difficult jobs to perform. They seek safety, but they are not infallible. They might be unaware of a participant's health or abilities. They may give incomplete warnings or instructions, and the equipment being used might malfunction.
- I acknowledge and agree that I and the Child are participating voluntarily at our own risk, that the actions or activities of other customers, or the actions or inactions of Synapse Facility employees, could cause me or the Child significant bodily injury (as described herein), and that Synapse is not responsible for the actions or activities of customers using the Synapse Facility or the negligence of its employees in supervising the Synapse Facility or its usage, including actions, activities, or omissions that result in such harm. Some of the risks include the following: (Note: This list of risks is illustrative only.)
 - a. Participants may suffer cuts, scrapes, bumps, bruises, the transmission of disease strains, and allergic reactions through use of the Synapse Facility equipment or contact with other participants or surfaces they have contacted. Participants may sprain, pull, break or otherwise seriously externally or internally injure their head, face (including nose and teeth/jaw), neck, torso, spine, arms, wrists, hands, legs, ankles, feet or other body parts as a result of Crossfit, Weightlifting, Gymnastics, and the use of barbells, kettlebells, weights or other equipment, or making contact with other participants. Such injuries can lead to paralysis, disfigurement or death. Participation may result in heat stroke, heart attacks, dehydration and other exertion-related medical events.
 - b. Traveling to and from stations can result in similar physical injury (even if the participant is not him or herself participating at the time).
- I acknowledge, accept, and assume the risk of any and all medical conditions, limitations, or disabilities (whether temporary or permanent) that I or the Child possess, whether known or unknown, which might contribute to or exacerbate any injury I or the Child might sustain as a result of using the Synapse Facility or any of its equipment.
- I acknowledge and agree that if medical assistance (of any form, including emergency care, hospitalization, outpatient care, and/or physical therapy) is required or performed as a result of any injury I or the Child sustains while using the Synapse Facility, such assistance shall be at my own expense.
- **RELEASE OF LIABILITY** The Releasing Parties hereby irrevocably and unconditionally release, waive, relinquish, discharge from liability and covenant not to sue Synapse, other persons using the Synapse Facility, and their successors, predecessors-in-interest, and insurers (collectively, the "Releasees") from any and all claims, demands, rights, actions, suits, causes of action, obligations, debts, costs, losses, charges, expenses, attorneys' fees, damages, judgments and liabilities, of whatever kind or nature, in law, equity or otherwise, whether now known or unknown, suspected or unsuspected, and whether or not concealed or hidden, related to or arising, directly or indirectly, from my or the Child's use of the Synapse Facility and its equipment, the Child's and/or my entry into the Synapse Facility, the condition, maintenance, inspection, supervision, control or security of the Synapse Facility, the failure to warn of dangerous conditions in connection with the Synapse Facility, and/or the acts or omissions of Synapse or any of the Releasees, including without limitation any claim for negligence, failure to warn or other omission, property damage, personal injury, emotional injury, illness, bodily harm or death. In the event that any claim released herein is brought by, or asserted on behalf of, me or the Child, I shall indemnify, defend and hold harmless the Releasees, and any of them, from any loss or liability, including reasonable attorneys' fees, associated therewith or arising therefrom.
- On the Child's and my behalf, I knowingly and voluntarily waive any and all rights and benefits conferred upon us by the provisions of Section 1542 of the California Civil Code or by any similar law or provision, which Section reads as follows:
 - c. "A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS SETTLEMENT WITH THE DEBTOR."
- I understand and fully acknowledge and agree that all of the risks identified herein and any other risks associated with use of the Synapse facility and its equipment are beyond the control of the Releasees.
- I agree and acknowledge that should Synapse or any other Releasee or anyone acting on their behalf be required to incur attorneys' fees and/or costs to enforce this agreement, I agree to indemnify and hold it or them harmless for and against all such attorneys' fees and/or costs.

In connection with my and the Child's use of the Synapse Facility, I consent to the recording of the Child's and my physical likeness and/or voice through mechanical, photographic, technical, digital, electronic or other means ("Recordings"). I hereby consent

to and authorize Synapse and its agents, representatives, employees, successors and assigns to use, in perpetuity, such Recordings, as well as the Child's name and my name, for any purpose, including advertising, promoting, exploiting and/or publicizing the Synapse Facility. I further agree that the foregoing includes the consent to use the Child's and/or my physical likeness in any form. In addition, I waive any and all claims I may have in connection with the Recordings.
I would like to receive email promotions, discounts, and other advertisements from Synapse and its partners at the email address provided above. I may unsubscribe at any time.

I have had sufficient opportunity to read this document. I have read and understood and agree to be bound by its terms. I understand that employees working at the Synapse Facility, including the manager, do not have the authority to waive any provision of this Agreement. This Agreement constitutes and contains the entire agreement between Synapse and me relating to the Child's and my use of the Synapse Facility. There are no other agreements, oral, written or implied, with respect to such matters. I agree that if any portion of this Agreement is found to be unenforceable, the remaining portions shall remain in full force.

By signing below, I represent and warrant that I am the parent or legal guardian of the above listed Child(ren) and have the authority to execute this Agreement on his/her or their behalf and to act on his/her or their behalf. I have read each and every paragraph in this document and I and they agree to be bound by the terms stated therein, including the release of liability contained therein. I further agree to indemnify and hold harmless the Releasees from any and all claims which are brought by, or on behalf of this or these minor Child or Children, or any of them, which are in any way connected with, arise out of, or result from their use of the Synapse Facility.

Participant/Parent/Guardian <u>Print Name</u>*	Signature*

Appendix E

Outline for the PTA

The participants in the meeting will be Matthew Kloeris, members of the PTA, and administrators of the local middle school. The length of the meeting will be 60 minutes. My proposal will be presented via PowerPoint (see Appendix S). Below is the outline provided to the meeting participants:

- I. Introduction - Matthew Kloeris
- II. The Research
- III. CrossFit Kids
- IV. CrossFit Kids Class
 - I. Class size, ratio, and time
 - II. Type of activities
 - III. Sample Class
- V. Self-Reflection
- VI. Questions/Comments

Appendix F

Intervention Details

CrossFit Kids incorporates gymnastics and metabolic conditioning over the course of thirty minutes. All of the movements require the entire body throughout the class. The general layout of the intervention is:

- Connection and Introduction (2-3 minutes)
- Warm-up (3-5 minutes)
- Focus (3-5 minutes)
- Workout Of the Day (“WOD”) (5-7 min)
- Reflection (10 minutes)

The first portion of the CrossFit Kids class is referred to as connection and introduction. The first class will be different than the other classes, due to the fact that the adolescents do not entirely know who I am and/or why they are participating in CrossFit Kids. That is why I included a narrative of the first connection and introduction:

“Alright kids, come on over. Circle up, circle up. I am Matt Kloeris, but you can call me Coach Matt. Today is the first day you’ll be doing CrossFit Kids. CrossFit Kids is a lot like P.E., but one of the main differences is that you’ll be learning movements that we do in CrossFit, such as push-ups, sit-ups, and jump rope. *And*, you’ll be getting smarter by not only doing this fun workout stuff, but you’ll also doing some reflections at the end of each class.

Our class is only for 30 minutes. *But*, the good thing about CrossFit Kids is that we can get a lot done in those 30 minutes. Every class we will be doing a connection and introduction, warm-up, focus, workout, and reflection.

First, we will be doing what is called a connection and introduction. In this part, we will talk with one another to check in to see how everyone is doing with their academics. Then, I will introduce you all to what we will be doing for the day. This will include the reflection topic, warm-up, focus, and work-out.

Next, our warm-up will be short and sweet, just some easy movements to get you all warm. Then we will be participating in the focus part of class. The focus allows us to *focus* on one to two specific CrossFit movements. After that, we will workout! You're workout may last anywhere from four to seven minutes. The workout may sound short, but it's always different, which makes it really fun because it is never the same.

Last but definitely not the least, we will be doing a reflection. The reflection will be the same reflection topic mentioned earlier in the connection and introduction. We will sit down and discuss the reflection topic. For instance, the first topic, which is today, is about your motivation to improve in your academics.

It is my hope that at the end of this program, after you have attended all the classes and completed all the reflections you will have better grades than before! Doesn't that sound awesome?!?!

Now, today's warm-up is going to include running and jumping jacks. Then, our focus is going to include movements called air squats and burpees. After, we are going to workout with the same movements we did in the focus. We are going to do a workout

known as an AMRAP. That stands for As Many Rounds As Possible. All you are going to do is workout for five minutes, but get as many rounds as you can in the following order: 5 repetitions of air squats, 5 repetitions of burpees, and a 100 meter run. After you have completed five air squats, then five burpees, then a 100 meter run, you will do it all over again, in the same order until five minutes is up! Don't worry if you don't know any of these movements, I'll be going over each and every one with you all so we're all on the same page.

After we have recovered from the workout, we are all going to participate in the day's reflection. Today's reflection, like I previously mentioned, is about your motivation for improvement. You'll fill out a piece of paper, then we all will discuss our thoughts. And that will be that. So, without further ado, let's get started kids!"

The other nine classes will have different narratives for the connection and introduction, mainly because the adolescents already know who I am and what their main objective is for participating in CrossFit Kids. With that said, in general, the connection is simply an attempt to connect with the adolescents by asking simple questions, such as "how is everyone's day going so far?" or "did you all have a test today?" or "who is ready for the weekend?" The questions should serve as a way to establish and continue a connection between myself and the adolescents. In terms of the introduction, this provides an opportunity to explain the reflection topic (e.g. day two is "reasons for doing well"), warm-up, focus, WOD. That way the children have an idea of what is being asked of them throughout the course of the CrossFit Kids class.

The warm-up is intended to increase the heart rate, thus the body begins to receive an increase in blood flow and the joints begin to loosen. Since the CrossFit Kids warm-up is only three to five minutes, it is generally short. For example, a warm-up may include the following:

2 rounds

- 30 seconds of shuttle runs
- 30 seconds of sit-ups

The movements are chosen for a purpose; they are not too technical or skill-based. In general, they will include running, jump rope, sit-ups, and agility drills. The coach will first demonstrate the movements of the warm-up to the entire class. Afterwards, the class will then be instructed to complete the warm-up at their own pace.

After the warm-up, the focus is the next part of the class. The focus is a portion of the class dedicated to one to two movements. These movements may include, but not limited to squats, push-ups, burpees, and many others. It is important to note that these movements can be scaled appropriately for each participant. Regardless of the student's skill level, he/she will be completing the movement at his/her own skill level. For instance, if the student is unable to do push-ups on his/her feet, the student will complete push-ups on his/her knees.

During the focus portion, the coach will demonstrate how to properly perform the movement; thus the students will have a visual of how the movement should be performed, including the scaled alternative. Afterwards, the coach will ask the class to perform a number of repetitions of the movement (e.g. five to 10). This is done so the coach

can assess the students ability to perform the movement, in addition to scale any student accordingly.

After the students have demonstrated their capacity to perform the focus movement(s), the WOD will be the next section of the class. The WOD may have a movement that has not been covered and/or discussed in either the focus and/or the warm-up. In this case, the coach will, as similarly done in the warm-up and focus, demonstrate the movement and ask the students to perform the movement so the coach can assess and scale accordingly.

The WOD is conducted in a fashion known as As Many Rounds As Possible (“AMRAP”) or For Time. For the former, a period of time (e.g. five minutes) the students are instructed to earn as many rounds as possible without altering the format of the WOD.

For example:

5 Minute AMRAP of

- 5 repetitions of squats
- 5 repetitions of burpees
- 100 meter run

From this example, the student will start with five squats, then five burpees, and finally run 100 meters. After one round is complete, the student must continue in this order until the time of five minutes is completed. In terms of the latter, the student is instructed to complete the given rounds and/or reps. For example:

For time: 5 rounds of

- 5 repetitions of squats

- 5 repetitions of burpees
- 100 meter run

This example illustrates that the student will start with five squats, then five burpees, and finally run 100 meters. After one round is conducted in this manner, the student will have four more rounds to complete the WOD. Regardless if the WOD is an AMRAP or For Time, he/she may complete the WOD as fast or as slow as he/she is able to do so. What matters is that they are learning how to move their body in accordance to his/her skill level.

Lastly, the students and the coach will engage in the week's reflection, which is conducted with a paper and pen, followed by an open discussion with the group. The reflections provide an opportunity for the student to contemplate the week's theme, which coincides with the various aspects of the student's academics. For example, week one's theme is "Motivation for Improvement." The student will consider his/her own reasons for motivation to improve in the following subjects: Math, English, Science, and Social Studies. With these reflections, in addition to the physical activity, it is hypothesized that these students will increase their academic well-being (as seen by Lew & Schmidt, 2011; Williams, 2006 for self-reflections for reflection and academic well-being; as seen by Rotich, 2014 for physical activity and academic well-being).

The following is the 10-week CrossFit Kids intervention for a local Middle School.

Week 1 (30 minutes¹)

- I. Connection and Introduction (3 minutes)
- II. Warm-up (4 minutes)
 - A. Tabata² (the students will alternate between shuttle runs and jumping jacks; e.g. round 1 will be only shuttle runs, round 2 will only be jumping jacks, round 3 will only be shuttle runs, etc.)
 - 1. shuttle runs
 - 2. jumping jacks
- III. Focus (5 minutes)
 - A. Air squat
 - B. Burpees
- IV. WOD (5 minutes)
 - A. 5 minute AMRAP of
 - 1. 5x air squats
 - 2. 5x burpees
 - 3. 100 meter run
- V. Reflection Number One (10 minutes): Motivation for Improvement
 - A. See appendix G

Week 2 (30 minutes)

¹ Although the minutes for the warm-up, focus, WOD, and reflection do not add to exactly 30 minutes, the additional time is needed to transition from one part of the class to another (e.g. warm-up to focus), not to mention collection of materials and reflections.

² Tabata is a term used to describe a participant exercising for eight rounds, twenty seconds of exercising and ten seconds of resting.

- I. Connection and Introduction (2 minutes)
- II. Warm-up (3 minutes)
 - A. For time (slow to medium pace) - 3 rounds of
 - 1. 30 seconds of jump rope
 - 2. 30 seconds of push-ups
 - 3. 30 seconds of tuck jumps
- III. Focus (5 minutes)
 - A. air squat
 - B. sit-ups
- IV. WOD (6 minutes)
 - A. For Time: 10 rounds of
 - 1. 5x air squats
 - 2. 10x sit-ups
- V. Reflection Number Two (10 minutes): Reasons for Doing Well
 - A. See appendix H

Week 3 (30 minutes)

- I. Connection and Introduction (2 minutes)
- II. Warm-up (4 minutes)
 - A. Tabata
 - 1. shuttle runs
 - 2. burpees
- III. Focus (5 minutes)

- A. air squat
 - B. push-up
- IV. WOD (6 minutes)
- A. For Time: 7 rounds of
 - 1. 3x push-ups
 - 2. 7x air squats
 - 3. 100 meter run
- V. Reflection Number Three (10 minutes): People Who Have Helped Me
- A. See appendix I

Week 4 (30 minutes)

- I. Connection and Introduction (2 minutes)
- II. Warm-up (5 minutes)
- A. For Time (slow to medium pace): 3 rounds of
 - 1. 100 meter run
 - 2. 5x sit-ups
 - 3. 10x mountain climbers
- III. Focus (5 minutes)
- A. front squat with polyvinyl chloride (“PVC”) pipe
- IV. WOD (4 minutes)
- A. 4 minute AMRAP of
 - 1. 10x front squats
 - 2. 10x bar facing burpees

V. Reflection Number Four (10 minutes): Academic Confidence

A. See appendix J

Week 5 (30 minutes)

I. Connection and Introduction (2 minutes)

II. Warm-up (4 minutes)

A. For Time (slow to medium pace): 2 rounds of

1. 10x jumping jacks
2. 10x air squats
3. 10x mountain climbers
4. 2x shuttle runs

III. Focus (5 minutes)

A. front squat with PVC pipe

IV. WOD (5 minutes)

A. 5 minute partner³ AMRAP

1. 200 meter run (100 meter run per partner)
2. 12x front squats (6x front squats per partner)
3. 8x push-ups (4x push-ups per partner)

V. Reflection Number Five (10 minutes): CrossFit Kids and Academic Improvement

A. See appendix K

Week 6 (30 minutes)

³ Children will be paired in teams of two. Both children exercise to complete the WOD, but only one child exercises at a time - the other child rests.

- I. Connection and Introduction (2 minutes)
- II. Warm-up (4 minutes)
 - A. Tabata
 - 1. jump rope
 - 2. air squats
 - 3. push-ups
 - 4. sit-ups
- III. Focus (5 minutes)
 - A. push press with PVC pipe
- IV. WOD (7 minutes)
 - A. 7 minute partner AMRAP
 - 1. 40x jump rope (20x jump rope per partner)
 - 2. 20x air squats (8x air squats per partner)
 - 3. 10x push press (5x push press per partner)
- V. Reflection Number Six (10 minutes): Effort
 - A. See appendix L

Week 7 (30 minutes)

- I. Connection and Introduction (2 minutes)
- II. Warm-up (5 minutes)
 - A. For Time (slow to medium pace): 3 rounds of
 - 1. 10x high knees
 - 2. 10x butt kickers

3. 10x broad jumps

4. 10x burpees

III. Focus (5 minutes)

A. push press with PVC pipe

IV. WOD (7 minutes)

A. For Time: 5 rounds of

1. 5x push press

2. 100 meter run

3. 5x front squat

4. 100 meter run

V. Reflection Number Seven (10 minutes): Fun with Learning and Improving in Academics

A. See appendix M

Week 8 (30 minutes)

I. Connection and Introduction (2 minutes)

II. Warm-up (3 minutes)

A. For Time (slow to medium pace): 3 rounds of

1. 2x shuttle runs

2. 10x squats

3. 10x jumping jacks

4. 10x push-ups

III. Focus (5 minutes)

- A. thruster⁴ with PVC pipe
- IV. WOD (5 minutes)
 - A. 5 minute AMRAP of
 - 1. 5x thrusters
 - 2. 5x bar facing burpees
- V. Reflection Number Eight (10 minutes): Proud Learning Moment
 - A. See appendix N

Week 9 (30 minutes)

- I. Connection and Introduction (2 minutes)
- II. Warm-up (4 minutes)
 - A. Tabata
 - 1. mountain climbers
 - 2. tuck jumps
- III. Focus (5 minutes)
 - A. thruster with PVC pipe
- IV. WOD (4 minutes)
 - A. For Time: 3 rounds of
 - 1. 100 meter run
 - 2. 10x thrusters
- V. Reflection Number Nine (10 minutes): Improvement via CrossFit Kids

⁴ A thruster is a combination of performing a front squat then immediately performing a push press.

A. See appendix O

Week 10 (30 minutes)

I. Connection and Introduction (2 minutes)

II. Warm-up (4 minutes)

A. Tabata

1. shuttle run
2. jumping jacks
3. burpees
4. tuck jumps

III. Focus (5 minutes)

A. thruster with PVC pipe

IV. WOD (6 minutes)

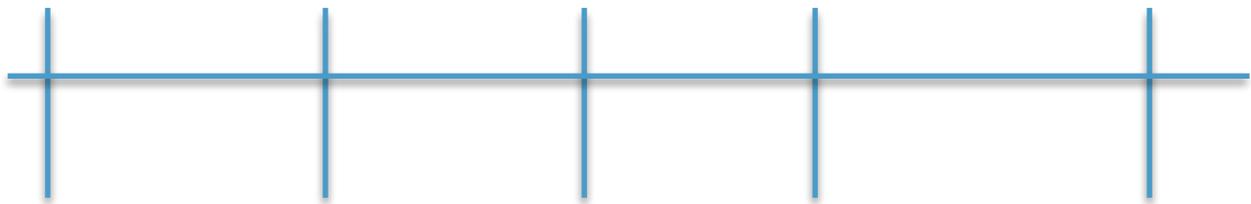
A. 6 minute AMRAP of

1. 5x push-ups
2. 10x thrusters
3. 15x mountain climbers (each side)

V. Reflection Number Ten (10 minutes): Participation Evaluation Form

A. Students will fill-out the Participation Evaluation Form.

English: I would like to improve my grades in English.



1

2

3

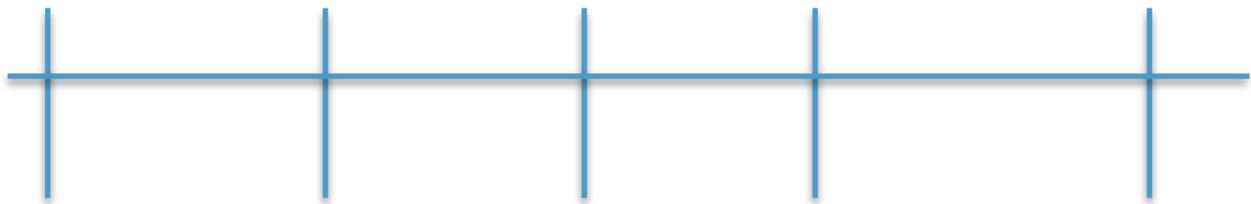
4

5

strongly disagree somewhat disagree neutral somewhat agree strong-
ly agree

Comments: _____

Science: I would like to improve my grades in Science.



1

2

3

4

5

strongly disagree

somewhat disagree

neutral

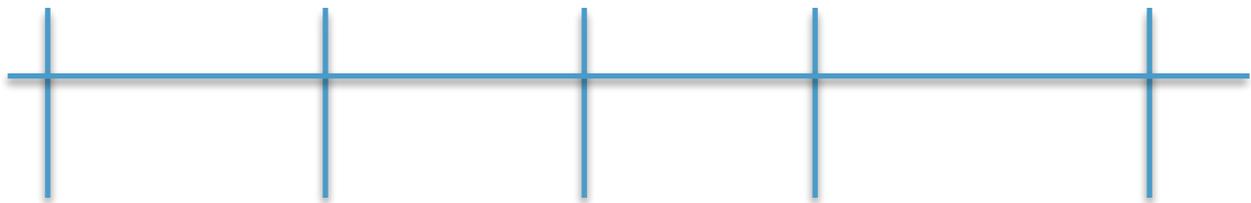
somewhat agree

strong-

ly agree

Comments: _____

Social Studies: I would like to improve my grades in Social Studies.



1

2

3

4

5

strongly disagree

somewhat disagree

neutral

somewhat agree

strong-

ly agree

Comments: _____

Appendix H

Reflection Number Two: Reasons for Doing Well

Please list 5 reasons why you would want to do well in your academics (Stevens, 2013).

1. _____

2. _____

3. _____

4. _____

5. _____

Appendix I

Reflection Number Three: People Who Have Helped

Please identify people in your life who have helped you improve in your academics.

Name them. How did they help you with your academics (Stevens, 2013)?

1. _____

2. _____

3. _____

Appendix J

Reflection Number Four: Academic Confidence

We have all had times in which we experienced low academic confidence (Stevens, 2013). That is to say, we may not believe we are capable of doing well in school or a particular subject.

When did you experience low academic confidence?

What contributed to your low academic confidence?

What was it like for you to have low academic confidence?

How did you go from ***low*** academic confidence to ***high*** academic confidence? Did anyone help you during this time?

Appendix K

Reflection Number Five: CrossFit Kids and Academic Improvement

Please complete the following sentence:

CrossFit Kids has improved my academics in the following ways...

1. _____

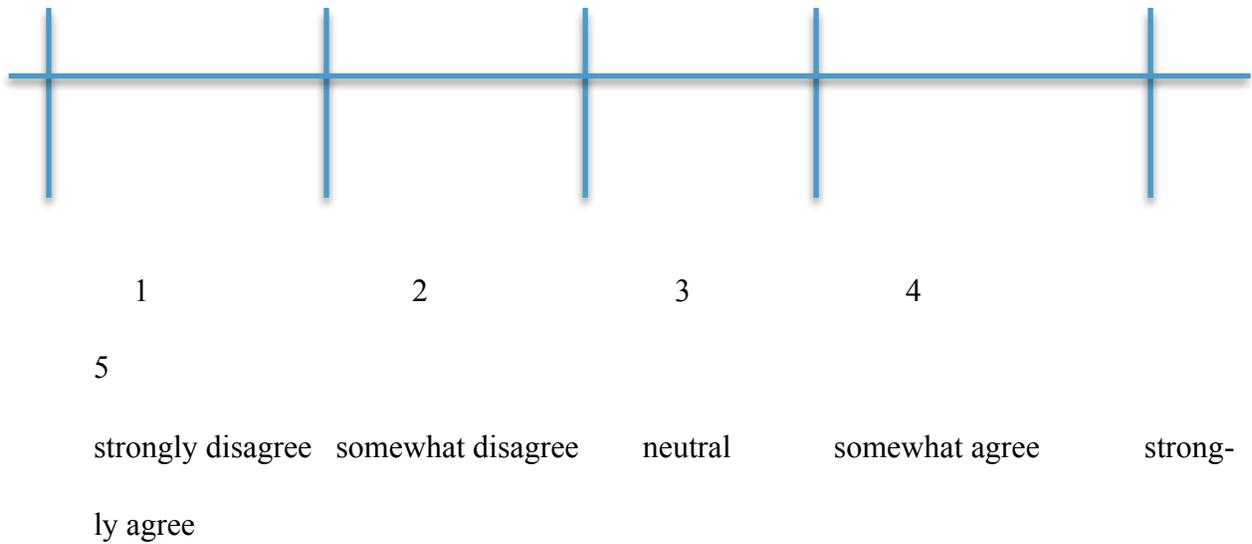
2. _____

3. _____

4. _____

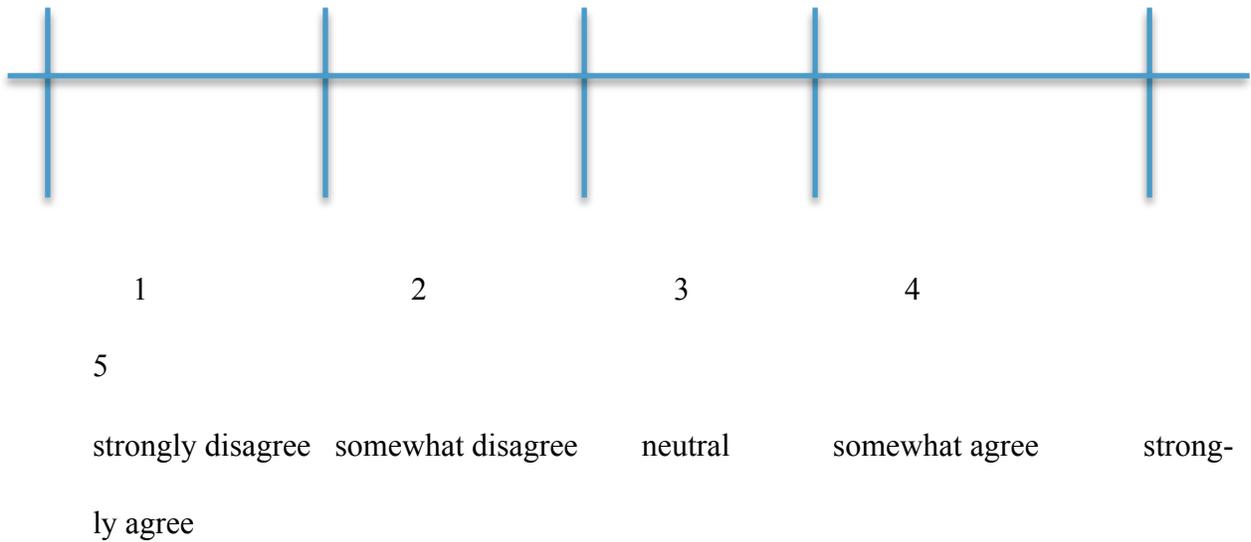
Comments: _____

English: I give a lot of effort in the subject of English in order to continually improve and do well in the subject.



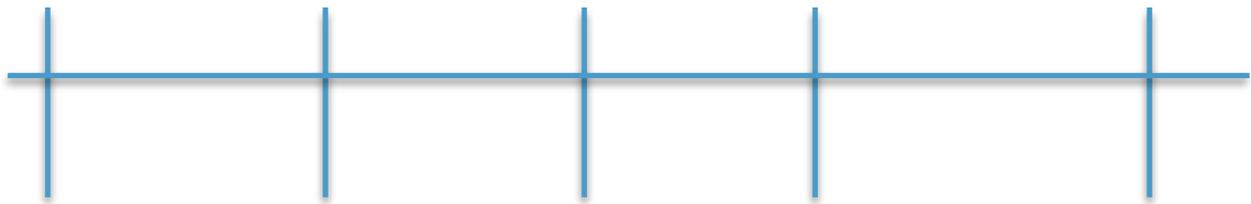
Comments: _____

Science: I give a lot of effort in the subject of Science in order to continually improve and do well in the subject.



Comments: _____

Social Studies: I give a lot of effort in the subject of Social Studies in order to continually improve and do well in the subject.



1 2 3 4 5

strongly disagree somewhat disagree neutral somewhat agree strong-
ly agree

Comments: _____

Appendix M

Reflection Number Seven: Fun with Learning and Improving in Academics

What subject(s) do you experience *fun* learning and improving?

Comments: _____

What makes this subject(s) *fun* for you?

Comments: _____

What subject(s) do you experience *difficulty* learning and improving?

Comments: _____

What makes this subject(s) *difficult* for you?

Comments: _____

How could you make this subject *fun*? List at least three ways (Stevens, 2013).

1. _____

2. _____

3. _____

Appendix N

Reflection Number Eight: Proud Learning Moment (Stevens, 2013)

A Proud Learning Moment (Stevens, 2013) is a time in which you were able to accomplish or complete an assignment, skill, and/or task that you previously believed was impossible.

What was the assignment, skill, and/or task that you once believed was impossible?

Comments: _____

What type of uncertainties did you have about the assignment, skill, and/or task?

Comments: _____

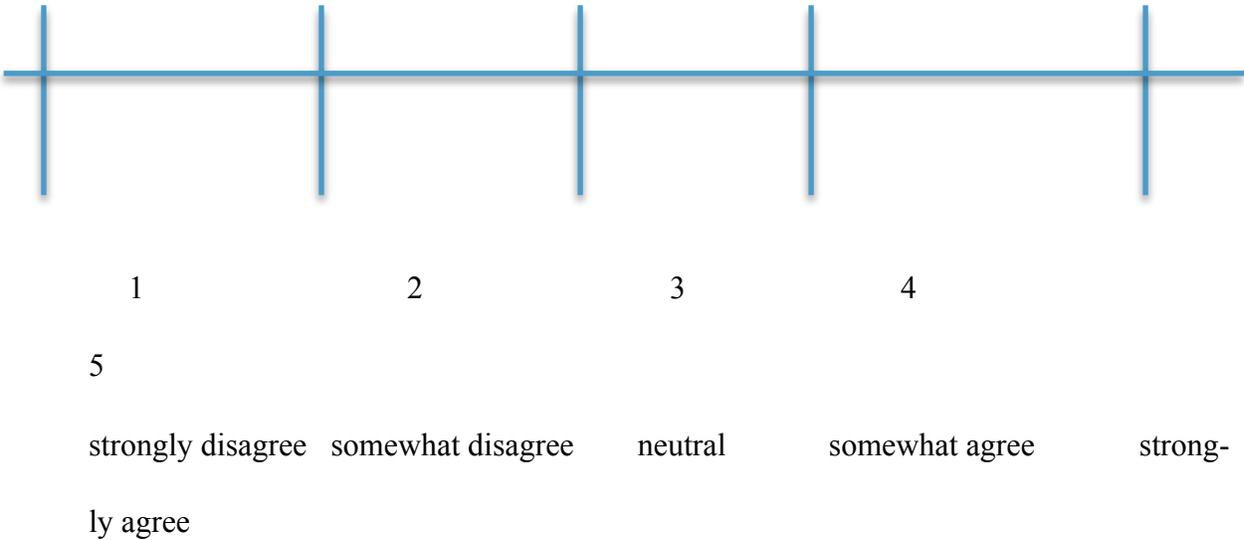
How did you accomplish or complete the assignment, skill, and/or task?

Comments: _____

How did you ask for help? Who did you ask? How did he/she help you?

Comments: _____

Social Studies: I improved my grades in Social Studies as a result of CrossFit Kids.



Comments: _____

Appendix P

Reflection Number Ten: Participant Evaluation Form

Name: _____

Date: _____

Grade: _____

Age: _____

Semester: _____

1. How much did you enjoy CrossFit Kids? (**please choose one**)

All of it

Most of it

Some of it

None at all

Comments: _____

2. What did you *enjoy* about CrossFit Kids? (please check **all** that apply)

- It helped with my academics
- I became friends with more people in class
- It showed me that I can always improve in my academics
- I felt more capable of learning new material
- It was fun

Comments: _____

3. What did you *not enjoy* about CrossFit Kids? (please check **all** that apply)

- It was too difficult
- I was too tired to learn afterwards
- The Coach was not helpful in demonstrating the movements
- It was a waste of time
- It was boring

Comments: _____

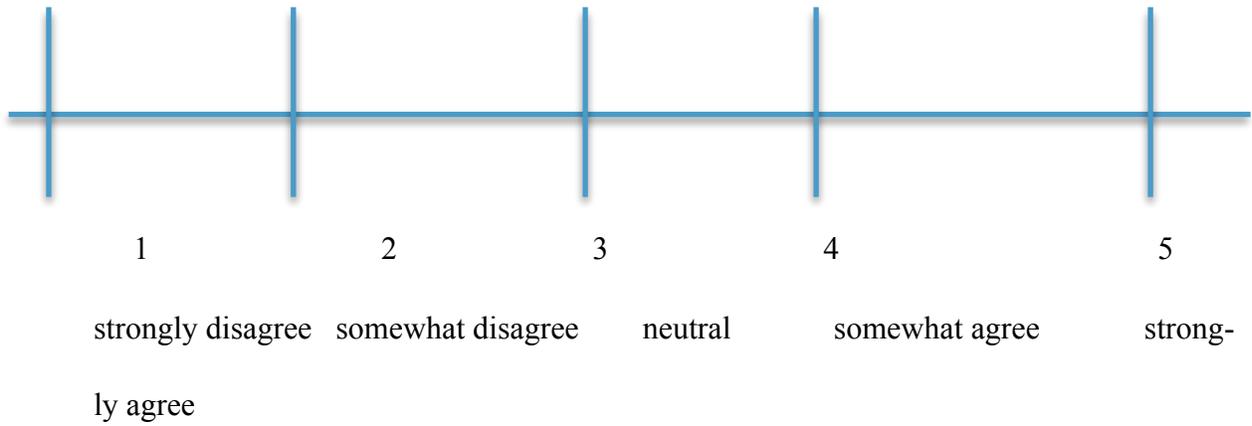
4. After hearing that you would be doing CrossFit Kids to improve your academics, how *did you feel* about doing CrossFit Kids? (please check **all** that apply)

- Excited
- Fascinated
- Optimistic
- Anxious
- Confused
- Happy
- Discouraged
- Overwhelmed
- Angry
- Sad
- Skeptical
- Irritated
- Ashamed
- Trusting

Comments: _____

5. On a scale from 1 (strongly disagree) to 5 (strongly agree), please rate the following statement and explain your answer:

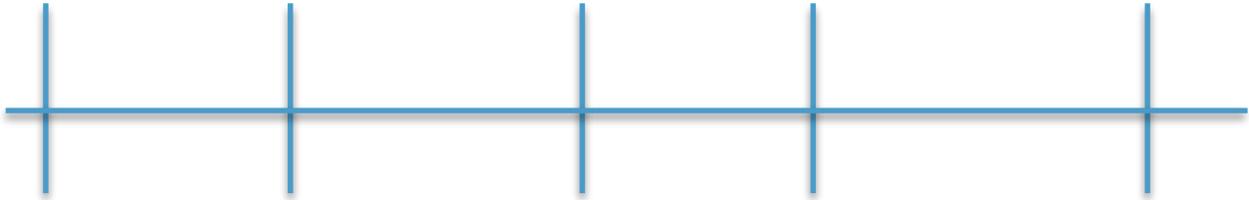
CrossFit Kids helped improve my academics.



Comments: _____

6. On a scale from 1 (strongly disagree) to 5 (strongly agree), please rate the following statement and explain your answer:

Other people in my middle school can improve their grades by doing CrossFit Kids

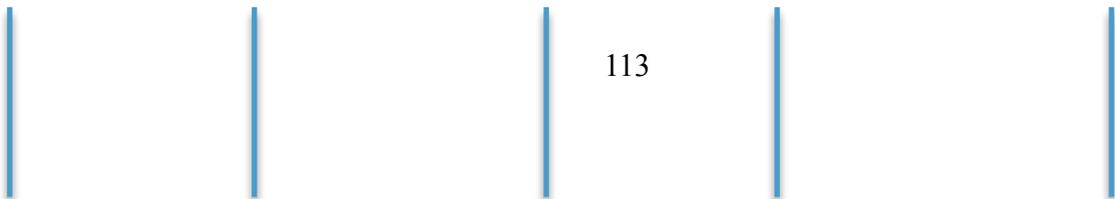


1 2 3 4 5
strongly disagree somewhat disagree neutral somewhat agree strong-
ly agree

Comments: _____

7. On a scale from 1 (strongly disagree) to 5 (strongly agree), please rate the following statement and explain your answer:

CrossFit Kids improved my self-confidence in my academics



1 2 3 4

5

strongly disagree somewhat disagree neutral somewhat agree strong-
ly agree

8. After doing CrossFit Kids to improve your academics for a semester, what do you think about doing CrossFit Kids again next semester? (please check **all** that apply)

- Excited
- Hopeful
- Thankful
- Confident
- Appalled
- Disappointed
- Annoyed
- Furious
- Mad
- Frustrated
- Nervous
- Worried
-

Overwhelmed

Anxious

Indifferent

Shocked

Eager

Confused

Comments: _____

Appendix Q

Equipment List

The prices for the equipment is the following:

- 20x 5 feet PVC pipes (price per PVC pipe is \$4.30, The Home Depot, 2017) = \$86.00
- 20x jump ropes (price per jump rope is \$7.99, ProSource, 2017) = \$159.80

The total price (without taxes) is \$245.80

Appendix R

PowerPoint Presentation for the Meeting with the Campus Administrators



CrossFit for Kids:
An Academic Well-Being Program

Presented by:
Matthew Kloeris

Presentation Outline

1. Introduction
2. The Research
3. CrossFit Kids
4. CrossFit Kids Class
5. Waiver
6. Costs to the Middle School
7. Questions / Comments

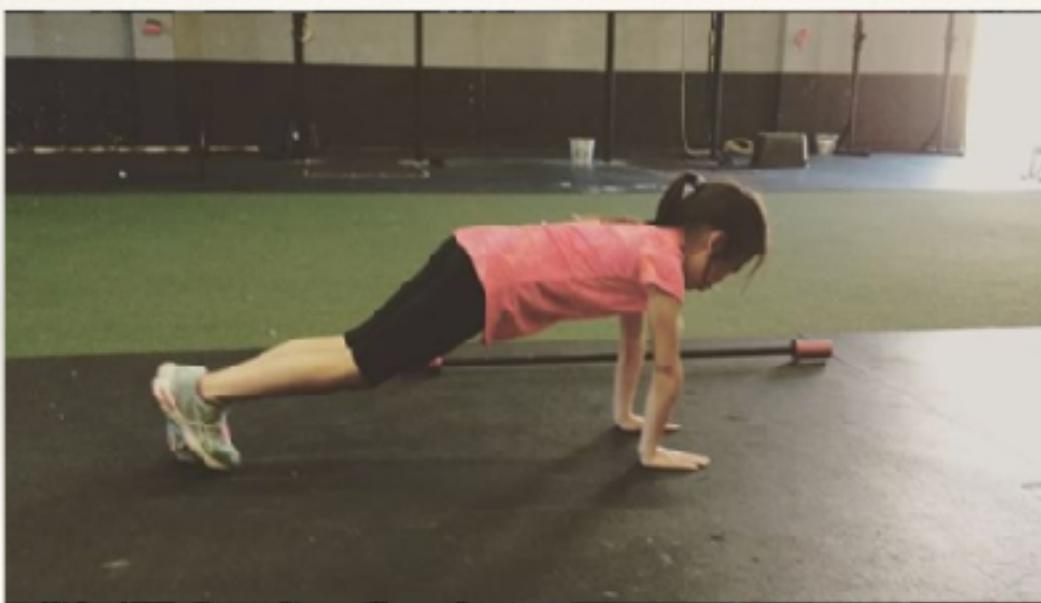
Introduction



Matthew Kloeris, MFT-Trainee

- ◆ CrossFit L-1 and CrossFit Kids Coach since 2011
 - ◆ Coaching experience with Adults, adolescents, children
 - ◆ Director of CrossFit Kids program at CrossFit Synapse in Tarzana, California
- ◆ M.S. in Counseling, with a specialization in Marriage and Family Therapy
- ◆ Master's Project: CrossFit for Kids: An Academic Well-Being Program

The Research



Sedentary Behavior

- ❖ Low activity, which results in low energy expended by the individual
- ❖ 2 hours of sedentary behavior per day Children in the USA participate, on average 7 hours per day in sedentary activities
- ❖ This statistic appears to be increasing
- ❖ More ways to participate in sedentary activities (e.g. tablet and “smartphone”)

Sedentary, 2016; American Academy of Pediatrics, 2001; Lou, 2014

Sedentary Behavior and Academics

- ❖ Child and adolescent's academic well-being can be affected by his/her sedentary activities and / or low levels of physical activity
- ❖ increased "screen-time" (e.g. watching television) = less points on the General Certificate of Secondary Education
- ❖ high amounts of sedentary time correlated with lower reading and arithmetic skills

Kantornaz, Tammelin, Demakakos, Ebeling, & Taarila, 2009; Corder et al., 2015; Haapala et al., 2016

Physical Activity and Academics

- ❖ Physical activity can benefit a child's academics
- ❖ improvements in standardized test scores
- ❖ students who participated in the physical activity significantly outperformed those students who stayed in the classroom

Castelli, Glowacki, Barcelona, Calver, & Hwang, 2015; Kibbe et al., 2011; Catering & Pelak, 1996

What the Research Suggests

Increase in Sedentary Behavior  Decrease in Academic Well-Being

Increase in Physical Activity  Increase in Academic Well-Being

CrossFit Kids



CrossFit Kids

- ◆ physical activity that is conducted in a class environment with a group of people and one or two Coaches
- ◆ instruct the class on a variety of movements, such as Gymnastics, Olympic Weightlifting, and Powerlifting
- ◆ although CrossFit was created primarily for adults, Bakshi (2009) points out that it has been adapted for children over the past decade
- ◆ CrossFit Kids is “designed for universal scalability, making it the perfect application for any child, regardless of experience” (p. 18).

Glassman, 2010; Bakshi, 2009

CrossFit Kids Class



CrossFit Kids Class

- ◇ **Class size:** 15 students
- ◇ **Ratio:** 1 CrossFit Coach per 15 students
- ◇ **Time:** 30 minutes
- ◇ **Types of Activities**
 - ◇ Connection and Introduction
 - ◇ Warm-up
 - ◇ Focus
 - ◇ Workout of the Day
 - ◇ Reflection

Costs to the Middle School

20x 5 feet PVC pipes (price per PVC pipe is \$4.30) = \$86.00

20x jump ropes (price per jump rope is \$7.99) = \$159.80

Total cost (without taxes) = **\$245.80**

Questions/Comments



Appendix S

PowerPoint Presentation for the Meeting with the PTA



CrossFit for Kids:
An Academic Well-Being Program

Presented by:
Matthew Kloeris

Presentation Outline

1. Introduction
2. The Research
3. CrossFit Kids
4. CrossFit Kids Class
5. Self-Reflection
6. Questions/Comments

Introduction



Matthew Kloeris, MFT-Trainee

- ◆ CrossFit L-1 and CrossFit Kids Coach since 2011
 - ◆ Coaching experience with Adults, adolescents, children
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- ◆ M.S. in Counseling, with a specialization in Marriage and Family Therapy
- ◆ Master's Project: CrossFit for Kids: An Academic Well-Being Program

The Research

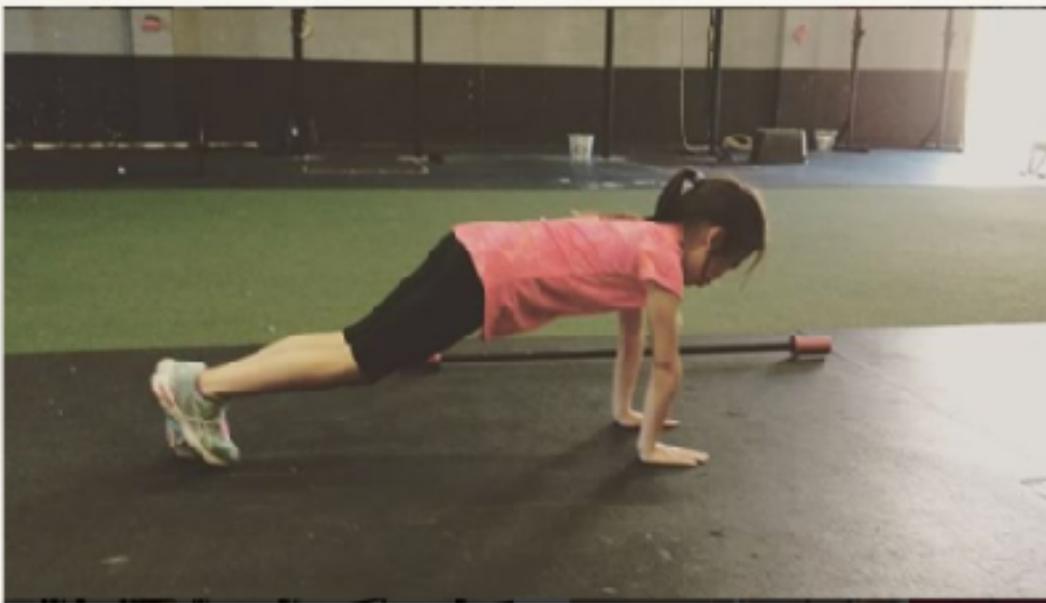


What the Research Suggests

Increase in Sedentary Behavior → Decrease in Academic Well-Being

Increase in Physical Activity → Increase in Academic Well-Being

CrossFit Kids



CrossFit Kids

- ◆ physical activity that is conducted in a class environment with a group of people and one or two Coaches
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Glassman, 2010; Bakshi, 2009

CrossFit Kids Class



CrossFit Kids Class

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 - ◇ Focus
 - ◇ Workout of the Day
 - ◇ Reflection

Self-Reflection



Self-Reflection

- ❖ Improve adolescent's academic well-being via self-reflections
- ❖ self-reflections are directed toward's the adolescent's academics (e.g. motivation for improvement)

Williams, 2006; Lew & Schmidt, 2011

Questions/Comments



Appendix T

Formative Evaluation Questions

Two individuals, one of which owns a CrossFit gymnasium, the other serves as an administrator for a local middle school in Tarzana, California, will review the intervention and two PowerPoints. In order to provide a formative evaluation, they will respond to the following four questions:

- What suggestions do you have to improve the proposed program?
- What benefits, other than academics, do you anticipate as a result of this program?
- Any suggestions how to best market this program to schools?
- Does the program appear to meet the stated objectives and outcomes?