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# PHYSICAL ACTIVITY GUIDELINES FOR CHILDREN

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## Abstract

*Motor skill is a crucial element to be concerned since early childhood because it supports the children to pass through their development tasks and helps the children in doing their daily activity. Children who have a high-level of motor skills tend to be more confidence and have more self-esteem when engaging with their friends. In contrast, children who have a low-level of motor skills tend to have less confidence and self-esteem. This group of children could be excluded when playing sport games because their friends assume that their involvement could disadvantage the team. This situation could produce psychological effects to the children. Therefore, children should get supports to develop their motor skills by doing many kinds of physical activities and sports. In addition, we need to consider about the appropriate amounts and methods when giving children forms of physical activity. This article will describe about proper physical activity guidelines for children, along with its benefit and type. This article also describes how to set the intensity for children in doing physical activity and how to promote physical activity for children, especially in the school setting. The objective is to provide knowledge to the community about the appropriate method of giving physical activity for the children. The term of children cover 5 – 11 years old range.*

*Keywords: guideline, physical activity, children*

## Abstrak

*Keterampilan motorik adalah elemen yang krusial untuk diperhatikan sejak usia dini karena keterampilan tersebut akan mendukung anak dalam melewati tugas-tugas perkembangannya dan membantu anak dalam melakukan aktivitas sehari-hari. Anak yang memiliki level tinggi keterampilan motorik cenderung lebih percaya diri dan memiliki harga diri lebih tinggi ketika bergaul dengan teman sebayanya. Secara kontras, anak yang memiliki level rendah keterampilan motorik cenderung memiliki rasa percaya diri dan harga diri yang rendah. Kelompok anak berketerampilan motorik rendah ini dapat dihindari menjadi teman satu tim ketika bermain karena diasumsikan bahwa keterlibatan mereka dalam permainan akan merugikan tim. Situasi ini dapat menimbulkan efek psikologis buruk bagi anak. Oleh karena itu, anak harus mendapat dukungan dalam mengembangkan keterampilan motoriknya dengan melakukan berbagai jenis aktivitas jasmani dan olahraga. Hal yang harus diperhatikan adalah dosis dan metode yang tepat dalam memberikan anak bentuk-bentuk aktivitas jasmani. Artikel ini akan mendeskripsikan panduan aktivitas jasmani untuk anak, beserta dengan keuntungan dan tipe-tipenya. Selain itu juga memberikan informasi mengenai cara menentukan intensitas anak dalam beraktivitas jasmani dan bagaimana cara mempromosikan aktivitas jasmani bagi anak, terutama dalam setting sekolah. Tujuannya yaitu untuk menyediakan pengetahuan bagi masyarakat mengenai cara yang tepat dalam memberikan aktivitas jasmani untuk anak. Istilah anak dalam konteks ini adalah anak usia 5-11 tahun.*

*Kata Kunci: panduan, aktivitas jasmani, anak*

## INTRODUCTION

Early childhood plays an important role in the children's growth and development. In this period, children experience many significant changes, such as posture, brain, language ability, motor skills, and emotion. Gallahue & Ozmun (1998: 190) stated that children's brain develops up to 75% of adult's brain

when they are 3 years old and up to 90% when they are 6 years old. In addition, myelin developments are mostly completed in the end of early childhood which make the delivery of nerves impulses become faster. This process allows children to response the stimulus better than before (Gallahue & Ozmun, 1998: 192). Because of this condition, early childhood is the best period to give children various skills and exercises.

One of the skills that is crucial but tend to be ignored is a motor skill. Apotheosis to the cognitive, language, and affective domains mostly makes motor skills to be neglected whereas children need these skills to support their daily activity, such as to do sports, physical activities, recreation games, and other daily activities like gardening, climbing tree, cycling, and running. In addition, the chance for children to develop motor skills is diminished due to the changing of lifestyle and the limited space, especially in the urban area. Children tend to love sedentary activity more than physical activity. They tend to spend more time with cellular phone, computer, play station, or television than doing any games involving physical activities. The limited space because of new buildings construction also makes this situation worse and needs to be solved.

Early childhood is the most appropriate time to develop various positive behaviors in children. One positive behavior is a healthy lifestyle by doing physical activity regularly in sufficient amounts every day. By familiarizing the children to perform more physical activity since early childhood, it will make them more active in doing physical activity in the future. Ruiz (2000) suggested that promoting lifelong physical activity should begin in early life before behavioral patterns are fully established. He found that the low level of physical activity tended to remain in later years. Research also found that promoting physical activity for the youth was effective at increasing physical activity levels for children (Pangrazi, et al., 2003).

Therefore, we have to know the proper amounts and methods in giving children physical activity. This article will explore physical activity especially for the children. The objectives are to present an importance of doing physical activity, to provide knowledge of appropriate ways to give physical activity for children, to inform types and intensity of physical activity and to describe how to promote physical activity, especially in the school settings.

## DISCUSSION

### Defining Physical Activity, Exercise, And Sport

The term "physical activity" is different from "exercise" and "sport". Firstly, physical activity is any activity that involves some forms of physical exertion and voluntary movements which burn calories and cause a person's body to work harder than normal condition (Zourikian, Jarock, and Mulder, 2010: 12-1). In line with previous definition, it was stated on the 2008 Physical Activity Guidelines for Americans that physical activity is any body movement which is resulted from skeletal muscles contraction that improves the energy expenditure to above of basal level and refers to body movement that enhance health (U.S. Department of Health and Human Service, 2008: 2). Furthermore, Winsley and Armstrong in Green & Hardman (2005: 65) expressed that physical activity is a complex behavior variable which varies from day to day, in term of intensity, frequency, and duration, and consists of inevitable activity (such as walking to work place or to school) and voluntary activity (such as sport and recreation). So It can be concluded that physical activity is any body movement that resulted from skeletal muscles contraction which increases the energy expenditure to above of basal level and burns calories; consists of inevitable activity (such as walking to work place or to school) and voluntary activity (such as sport and recreation); varies in intensity, frequency, and duration and enhances our health.

Secondly, exercise is a special form of physical activity that is planned, structured, and repetitive to increase health and fitness (U.S. Department of Health and Human Service, 2008: 7). World Health Organization (WHO) stated a similar definition that exercise is a subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective (<http://www.who.int/dietphysicalactivity/pa/en/>). On the other hand, Australian Bureau of Statistics (2008) defined exercise as any structured and/or repetitive physical activity performed or practiced where the main intention is to achieve improved physical fitness,

but this may include ineffective exercise, where individuals intend to achieve a fitness benefit, but do not. The conclusion of exercise is a subcategory of physical activity that is planned, structured, repetitive, and purposeful where the main intention is to achieve improved physical fitness; it may include ineffective exercise where individuals intend to achieve a fitness benefit but do not. In addition, all exercise is physical activity while not all physical activity is exercise. The examples of exercises are jogging, recreational swimming, aerobic, and cycling.

Thirdly, definition of sport is part of physical activity and exercise but it is more specific in that it has a set of rules or goals to train and excel in certain athletic skills (Zourikian, Jarock, and Mulder, 2010: 12-1). Sport is also defined as an activity involving physical exertion and skill in which an individual or team competes against another or others for entertainment (Oxford Advanced Learner's Dictionary). Australian Bureau of Statistics (2008) stated that sport is an activity involving physical exertion, skill and/or hand-eye coordination as the primary focus of the activity, with elements of competition where rules and patterns of behavior governing the activity exist formally through organizations. It can be concluded that sport is part of physical activity and exercise which involves physical exertion, skill and/or hand-eye coordination as the primary focus of the activity; and it contains rules and pattern of behavior that is regulated formally through organization. Examples of sports are golf, basketball, volleyball, tennis, badminton, and soccer.

#### The Importance of Physical Activity for Children

Studies showed that participation in physical activity regularly provides many advantages for health. For children and adolescence, the benefits of doing physical activity regularly are: improving cardiorespiratory and muscular fitness, enhancing bone health, improving cardiovascular and metabolic health, and shaping favorable body composition (U.S. Department of Health and Human Service, 2008: 9).

Rippe and Hess (1998: S32) stated that physical activity affects body composition positively. They also pointed out that it is important to consider the energy restriction and physical activity frequency and duration to get an effective weight lost. Body composition

means the relative amount of muscle, fat, bone, and other vital parts of the body (Balagopal, 2006: 816). It is vital to maintain body composition along the growth phases because once fat cells increase, it cannot be reduced and can only be minimized by the size (Brooks & Fahey, 1984: 670). It would make an overweight children tends to be an overweight adolescence because of the excessive amount of fat cells. Therefore, children need various physical activities to control the addition of fat cells.

Wilmore & Costill (1994: 407) argued that early studies investigating the development of fat cells and fat mass showed that the number of fat cells become fixed in the early days of life. This leads scientists believed that maintaining total low body fat during early childhood will minimize the development of total number fat cells in the later phase. It was assumed that the maintenance of fat cells amount during childhood will substantially reduce the possibility of obesity in adulthood. However, recent evidences indicate that the number of fat cells can continue to grow throughout life. When the fats are added to the body, it will fill the fat cell up to a certain critical volume. When the fat cells are fully charged with fat substance, then the new fat cells are formed. So it is important to consider the food intake and the regular physical activity throughout life to control the number of fat cells in the body.

Some studies stress on the positive association between physical activity and bone health (Baptista, et al., 2012; Rautava, et al., 2006; Farr, et al., 2011; Chain, Koury, & Bezerra, 2012; Harvey, et al., 2012). Wilmore & Costill (1994: 404) revealed that exercise, as one form of physical activity, is essential for bone growth. Although exercise has little or no effect for the bone extension, it can increase the bone width and density by storing more minerals in the bone matrix which elevates the bone strength. Brooks & Fahey (1984: 668) suggested a similar explanation that exercise which presses and stimulates bone growth does not seem to increase the bone growth, but it increases the bone density and width. It makes the bones stronger and better to withstand the pressure.

#### **Physical Activity Guidelines for Children**

According to the 2008 Physical Activity Guidelines for Americans, generally, children should do 60

minutes (1 hour) or more daily physical activity. The forms that are suggested to do are (U.S. Department of Health and Human Service, 2008: vii):

- a. Aerobic: 60 minutes or more a day, in medium to high intensity of aerobic physical activity, and should include high-intensity physical activity at least 3 days a week.
- b. Strengthening muscles: as part of 60 minutes or more of daily physical activity, children should do muscle-strengthening physical activity for at least 3 days a week.
- c. Strengthening bones: as part of 60 minutes or more of daily physical activity, children should perform physical activities to strengthen the bone at least 3 days a week.

It was stated in Canadian Sedentary Behavior Guidelines (2012) that for health benefits, children aged 5–11 years should minimize the time they spend being sedentary each day. This may be achieved by limiting recreational screen time to no more than 2 hours per day; also limiting sedentary (motorized) transport, extended sitting and time spent indoors throughout the day. To achieve that standard, it is important to give children more opportunity to participate in various enjoyable physical activities which match their interests, abilities, and skills. Children are naturally very fond to the new and challenging activities. Providing interesting and challenging physical activities will encourage them to be active and interested in physical activities rather than doing sedentary activities.

**Types Of Physical Activity for Early Childhood**

The physical activity guidelines for children focus on three types of activities: aerobic, muscle-strengthening, and bone-strengthening (U.S. Department of Health and Human Service, 2008: 16). Each type contributes to the health benefit of children.

**Aerobic Activity**

Aerobic activity is a kind of activity that involves the movement of large muscles in rhythmic. The examples of aerobic activity are skipping, hopping, jumping the rope, swimming, dancing and cycling. Aerobic activities could improve cardiorespiratory fitness. Children often do these activities quickly in

a short time which may not be technically included to aerobic activity. However, it is still included to the category of aerobic activity.

**Muscle-Strengthening Activity**

Muscle-strengthening activities make the muscles work more than the usual daily activities. It is called “overload” and strengthens muscles. Muscle-strengthening activities could be an unstructured activity and become a part of the game, such as playing on the playground equipment, climbing trees, and playing tug of war. Muscle-strengthening activities could be in the form of a structured activity such as weight lifting. Yet, this sort of activity should consider its load. The load may not be too heavy because it can affect the bone growth of the children. We can use the children weight itself in the weight training.

**Bone-Strengthening Activity**

Bone-strengthening activities produce a force that result on the growth and the strength of the bone. This condition is usually generated by the collision with the ground. Running, hopping, jumping the rope, playing basketball, and playing tennis are the examples of bone strengthening activities. Bone strengthening activities could also in the form of aerobic and muscle-strengthening activity.

**Table 1. Example of Physical Activity for Children**

Activity Type	The Example of Activity
Aerobic-moderate intensity	<ul style="list-style-type: none"> <li>• Active recreation, like hiking, skateboarding, and rollerblading</li> <li>• Riding a bike, brisk walk</li> </ul>
Aerobic-high intensity	<ul style="list-style-type: none"> <li>• Active games involved running and hunting like a romp game</li> <li>• Riding a bike, jumping a rope, running</li> <li>• Martial arts such as karate</li> <li>• Sports such as football, basketball, swimming, and tennis</li> </ul>
Muscle-strengthening	<ul style="list-style-type: none"> <li>• The games such as tug of war, modified push up (with knees on the floor)</li> <li>• Weight training using body weight or other loads</li> <li>• Climbing rope or tree , sit up, swinging on playground equipment</li> </ul>
Bone-strengthening	<ul style="list-style-type: none"> <li>• Jumping, hopping, skipping, jumping a rope, running</li> <li>• Sports such as gymnastics floor, basketball, volleyball, tennis</li> </ul>

Note: Some activities such as cycling could become a medium or high intensity activity depends on the level of effort. Source: U.S. Department of Health and Human Service, 2008: 18

## The Intensity of Physical Activity For Children

One simple way to measure the intensity of physical activity for children is by doing the talk test. According to the book "Physical Activity and Health in Children and Adolescents", talk test is a simple test of exercise intensity that rates the ease with which a person can talk while exercising, which categorize activities into three types: light intensity, moderate intensity, and vigorous intensity ([http://www.msssi.gob.es/en/ciudadanos/proteccion Salud/adultos/actividadFisica/docs/actividadFisicaSaludIngles.pdf](http://www.msssi.gob.es/en/ciudadanos/proteccion%20Salud/adultos/actividadFisica/docs/actividadFisicaSaludIngles.pdf)).

- a. Light intensity: a person who is active at a light intensity level should be able to sing or carry on a normal conversation while doing the activity. An example of light activity is walking or cleaning.
- b. Moderate intensity: a person who is active at a moderate intensity level should be able to carry on a conversation but with some difficulty while engaging in the activity. An example would be brisk walking, biking, or dancing.
- c. Vigorous intensity: If a person becomes winded or too out of breath to carry on a conversation easily, the activity can be considered vigorous. Examples of *vigorous* activity would include jogging or running and strenuous sports such as basketball, swimming, handball, etc.

## Physical Activity Promotion

Being concerned with the importance of physical activity for the children and being well informed about the physical activity guidelines for children then bring us to the next step that is how to make children more physically active, especially in the school setting. This is considering that children spend many of their times at school. The discussion of this part will be divided into three parts: physical active before school, during school, and after school.

### Physical Activity before School

Physical activity before school can be done in the following way. First, encourage students to do some physical activities at home before leaving for the school, for example doing some stretching in the morning before taking a bath and cleaning the bedroom. You can also suggest the students to help their parents to clean the house, water the plants,

or wash the vehicle. Second, encourage students to walk or to bike to go to the school if the distance is not too far and the traffic flow is relatively safe.

## Physical Activity during School

Physical activity during school can be done in the following way:

- 1) Get the Children Active Before the Lesson Start  
Providing equipment around the children will encourage the students to be physically active. Teacher can decide the activity theme on each day, for example: Monday is a ball day, Tuesday is a jumping rope day, and Wednesday is a throwing day. Another way is by invite the children to do a collecting garbage game before the lesson start. Children must collect the garbage by various movement, for example by jumping, running, hopping, even crawling. This activity could enhance the amount of physical activity and makes the environment clean. Teacher also can make the children to do physical activity by lining up them together in front of the class and then singing a song while doing some movement.
- 2) Get Children Active During The Lesson  
Integrating physical activity to every lesson is another way to get the children more active. Teacher can ask children to do hopping while counting in math lesson or jumping 5 times before they may drink. It is also a good idea to start the lesson by doing some stretching. It will make a good blood circulation so that it will enhance the body readiness in receiving lesson. Teacher has to pay attention when children getting sleepy in the class because it means that there is something wrong. How to refresh student again can be done by doing some physical activity through games or ice breaking activities. For example, play a simple music and ask them to do a free movement in the classroom. It will also increase their creativity in creating movement. For physical education lesson, get all the children active along the class by various physical activity choices based on their ability. Reduce the waiting time in taking turn or doing activity. For example, you can play two different games in the same field using two or more balls. The crash could be sometime happen

during the game, but each team will focus with their own game.

### 3) Get Children Active During The Recess Time

To make children more active during the recess time, provide them with facilities and equipment. The equipment does not need to be expensive. Teacher together with students can create simple equipment with little cost. For example, make a ball using a waste paper and optimize the using of a simple rope to do many kind of physical activities. Encouraging the children to do traditional games is another way. Many traditional games do not need any equipment. It may only need a field with some lines. Beside the fact that the traditional games facilitate children in moving, it also can help to preserve the culture.

### Physical Activity after School

Physical activity after school can be done by supporting the children to participate in physical activity program after school. The children could follow the sport extracurricular activities in the school or follow the sport club outside the school. Teacher could also give physical activity homework to the children. Have children to do some physical activity with their friends or family after the school time and ask them to record it and collect it as portfolio.

### CONCLUSION

Physical activity has many benefits for children. So we need to encourage children to do a physical activity in proper amount and method based on physical activity guidelines for children. School, through the teacher, could be a good media in facilitating children to do physical activity, whether physical activity before school, during school, or after school. The most important thing is that we have to promote physical activity to the children and we have to encourage them to be physically active every day.

### REFERENCES

Australian Bureau of Statistics. (2008). Defining Sport and Physical Activity, a Conceptual Model. Retrieved from [www.abs.gov.au](http://www.abs.gov.au). Accessed September 4<sup>th</sup>, 2015.

Australian Department of Health. (n.d.). National physical activity recommendations for children 0-5 years. Retrieved from <http://www.health.gov.au/internet/main/publishing.nsf/Content/npra-0-5yrs-brochure>. Accessed September 4<sup>th</sup>, 2015.

Baptista, F., Clara, H. S., Fragoso, I., Barrigas, C., Vieira F., Homens, P. M., Teixeira, P. J., & Sardinha, L. B. (2012). The role of lean body mass and physical activity in bone health in children. *J Bone Miner Metab*, 30:100–108. doi: 10.1007/s00774-011-0294-4.

Brooks, George A. & Fahey, Thomas D. (1984). *Exercise physiology: human bioenergetics and its applications*. USA: John Wiley & Sons, Inc.

Canadian Society for Exercise Physiology. (2012). *Canadian Physical Activity Guidelines; Canadian Sedentary Behavior Guidelines*. Retrieved from [www.csep.ca/guidelines](http://www.csep.ca/guidelines). Accessed September 4<sup>th</sup>, 2015.

Chain A., Koury, J. C., Bezerra, F. F. (2012). Physical activity benefits bone density and bone-related hormones in adult men with cervical spinal cord injury. *Eur J Appl Physiol*, 112:3179–3186. doi 10.1007/s00421-011-2303-7

Farr, J. N., Blew, R. M., Lee, V. R., Lohman, T. G., & Going, S. B. (2011). Associations of physical activity duration, frequency, and load with volumetric BMD, geometry, and bone strength in young girls. *Osteoporos Int* (2011) 22:1419–1430. DOI 10.1007/s00198-010-1361-8

Gallahue, David L., & Ozmun, John C. (1998). *Understanding motor development infants, children, adolescents, adults*. Singapore: McGraw-Hill.

Green, Ken & Hardman, Ken. (2005). *Physical education essential issues*. Great Britain: Athenaeum Press Ltd, Gateshead.

Harvey, N. C., Cole, Z. A., Crozier, S. R., Kim, M., Ntani, G., Goodfellow, L., ... Cooper, C. (2012). Physical activity, calcium intake and childhood bone mineral: a population-based cross-sectional study. *Osteoporos Int*, 23:121–130. doi 10.1007/s00198-011-1641-y.

<http://www.oxforddictionaries.com/definition/english/sport>. Accessed September 4<sup>th</sup>, 2015.

nn. (n.d). *Physical Activity and Health in Children and Adolescents*. Retrieved from <http://www.msssi.gob.es/en/ciudadanos/proteccionSalud/adultos/actiFisica/docs/actividadFisicaSaludIngles.pdf>. Accessed September 4<sup>th</sup>, 2015.

- Pangrazi, R. P., Beighle, A., Vehige, T., Vack, C. (2003). Impact of Promoting Lifestyle Activity for Youth (PLAY) on children's physical activity. *The Journal of School Health*, 73.8, 317-21.
- Rautava, E., Veromaa, M. L., Mottonen, T., Kautiainen, H., Heinonen, O. J., & Viikari, J. (2006). Association of reduced physical activity and quantitative ultrasound measurements: a 6-year follow-up study of adolescent girls. *Calcif Tissue Int* (2006) 79:50\_56. doi: 10.1007/s00223-005-0306-2.
- Ruiz, A. (2000). Tracking physical activity from childhood to adolescence. *Journal of Physical Education, Recreation & Dance*; Mar 2000; 71, 3; ProQuest pg. 10.
- U.S. Department of Health & Human Services. (n.d.). What is physical activity? Retrieved from <http://www.nhlbi.nih.gov/health/health-topics/topics/phys/>. Accessed September 4<sup>th</sup>, 2015.
- \_\_\_\_\_.(n.d.). Physical activity guidelines for Americans. Retrieved from <http://www.health.gov/PAGuidelines/guidelines/appendix3.aspx>. Accessed September 4<sup>th</sup>, 2015.
- Wilmore, Jack H. & Costill, David L. (1994). *Physiology of sport and exercise*. USA: Human Kinetics.
- World Health Organization. (n.d.). Physical Activity. Retrieved from <http://www.who.int/dietphysicalactivity/pa/en/>. Accessed September 4<sup>th</sup>, 2015.
- Zourikian, N., Jarock C., & Mulder K. (2010). *Physical Activity, Exercise and Sport*. In the *All About Hemophilia: A Guide for Families*, Second Edition. Canadian Hemophilia Society: Montreal.