



Promoting Physical Activity among Buddhist Monks: The Role of Nurse

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Abstract

Buddhist monks suffer from chronic illnesses that could be prevented or delayed if they engaged in proper physical activity. Because a monk's lifestyle differs from a normal Buddhist, physical activity maybe neglected. Physical activity is usage of energy by using muscles in various parts of the body. If the body does not completely metabolize excess fat, it will result in accumulation of fat. Nurses have an important role in promoting physical activity among Buddhist monks, which will result in better health for monks, prevention of complications of diseases and reduce risk of noncommunicable diseases (NCDs) such as diabetes, hypertension, chronic kidney disease, hyperlipidemia, obesity, heart disease, cancer and osteoporosis, which is usually caused by monks' lack of physical activity. Buddhist monks have religious disciplines and duties that make their life style differ from normal citizens. This article shows the role of nurses in promoting physical activity among Buddhist monks that doesn't go against monks' discipline; consisting of evaluation of physical activity using Global physical activity questionnaire, International physical activity questionnaire, calculation of energy usage (Metabolic Equivalent: MET), different ways for monks to exercise such as fast walking, Taichi-Qigong, Yoga and concentration activity, including the spread of awareness to monks and nurses to support and design physical activity program that is adequate and suitable for monks. If nurses become more active and emphasize this topic more, there will be more projects and programs that promotes physical activities among monks to improve monks' physical well-being.

Introduction

Monks are missionaries of Buddhism. They practice Buddhism strictly and their roles are to spread the religion, improve people's virtue and morality and be a good role model for Buddhists,. The way that monks take care of themselves and the environment in temples

can affect community health. The way monks live is different than normal Buddhists; they have to obey the 227 precepts of Buddhism, be composed physically, verbally and mentally. You'll find that 95 percent of Thais practice Buddhism, and use the principles in their daily life to the point that Buddhism is the foundation of Thai's tradition and culture (Health Assembly, 2012).

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From an academic survey regarding monks' health, most suffer from chronic diseases, most common ones such as diabetes, hypertension, ischemic heart diseases, dyslipidemia, obesity, chronic obstructive pulmonary disease and arthritis. There are many factors that contribute to these illnesses such as genetic, behaviour, belief, medical care and environment. One important cause is the food given to monks by people who lack the knowledge, understanding and acknowledgement of the negative consequences of some of the food, for example, food with high fat or salt content (Angkatavanich et al., 2014). Moreover, monks have little to medium physical activity, most activities are ones that they perform on a daily basis such as walking or cleaning, older monks have less physical activity, most are idle like sleeping after breakfast and lunch (Tongterm & Kaewma, 2019). These reasons cause monks to suffer from non-infective chronic diseases. A health query of monks throughout Thailand, totaling 122,680 monks, in 2016 showed that the most common disease are diabetes and hypertension, and a health query of 6,375 monks in Bangkok in 2016 showed a reduction of healthy monks from 60.3% to 28.5%. The 5 most common diseases that asked for treatment were as follows; hyperlipidemia, hypertension, diabetes, chronic kidney disease and osteoarthritis where the risk behaviors are smoking, food and lack of exercise. (Priest hospital, 2017) Osteoarthritis is more common in older and overweight monks. (Tangtrakulwanich et al., 2006) Also, a number of monks that suffer from diabetes still have inappropriate health behavior and use inappropriate drugs. (Yensabai et al., 2016) Even though Dharma practice and meditation can reduce blood pressure and stress for monks (Moceri & Cox, 2019), there should be more promotion for physical activity for monks. This article will emphasize physical activity that will help reduce risk factor of diseases among monks, answering Thailand's statement in the 71st World Health Assembly, where many countries support the promotion of physical activity. (World Health Organization, 2018) As for Thailand, we have programs promoting physical activity but are unable to reach some of the population, especially monks.

Monks have limitation in their movement, because as a missionary, they have to be composed physically due to the precepts of Buddhism. Some of the activities that monks perform on a daily basis are asking for alms and cleaning temples which are appropriate according to Buddhist precept, but are inadequate to prevent and

recover from chronic non-infective diseases. Thus, the role of health care providers plays an important part in promoting physical activity that will improve monks' lives while being able to carry out the duty of missionary, reducing risk factors of chronic non-infectious diseases.

The importance of physical activities

Physical activity helps strengthen the circulatory system and respiratory system. For monks, it plays a very important role in keeping their circulation, heart and gas exchange healthy to prevent diseases that may be caused by lack of exercise. If monks care more about their health, it will keep their blood vessels, heart and metabolism healthy.

Definition and evaluation of physical activity

Physical activity means movements of body in daily life that induces metabolism including working, travelling and recreational activities. We can rank the levels of physical activity by using the combination of risk of disease and WHO classification that uses Metabolic Equivalent of Task (MET). MET is the objective measure of the ratio of the rate at which a person expends energy, relative to the mass of that person, while performing some specific physical activity compared to a reference where 1 MET = 1 kcal/kg/hr which is roughly equal to the rate of energy produce by a person seated at rest. Therefore, the level of physical activity in monks can be divided into 3 levels (Department of Health, 2018), as follows

Low physical activities mean movements that use little energy, movements that occur normally in daily life, using less energy than 600 MET-minutes/week such as low distance walking, carrying light items, meditation, praying etc.

Moderate physical activities mean activities that cause moderately tiredness, but still able to talk while performing the activity, continuously for more than 10 minutes each time, using energy between 600 MET-minutes/week and 1,500 MET-minutes/week such as fast walking, sweeping, washing clothes etc. Moderate physical activity uses 4 times more energy than sitting still.

Severe physical activities mean activities that cause severe tiredness, make the participant unable to hold a conversation while performing the activity, induce faster breath and heartbeat, continues for more than 10 minutes each time, using more energy than 1,500 MET-minutes/week such as sprinting, heavy lifting,

construction work etc. Severe physical activity uses 8 times more energy than sitting still.

The comparison between the MET value during activity and resting metabolic rate will result in a value called METs, multiply that by the amount of minute of the activity duration to get the MET-minutes value. Calculate MET-min/week of severe, moderate and walking activities using a reference standard values (Ainsworth et al., 2011) results in 1) An average MET value for walking = 3.3 METs 2) moderate-intensity activities = 4.0 METs and 3) vigorous-intensity activities = 8.0 METs. Calculating the values for each activity (per week) results in 1) Walking MET-minutes/week = $3.3 \times \text{walking minutes} \times \text{walking days}$ 2) Moderate MET-minutes/week = $4.0 \times \text{moderate-intensity activity minutes} \times \text{moderate days}$ and 3) Vigorous MET-minutes/week = $8.0 \times \text{vigorous-intensity activity minutes} \times \text{vigorous-intensity days}$. Total Physical Activity MET-minutes/week = sum of Walking + Moderate + Vigorous MET minutes/week scores.

Thai Health Promotion Foundation promoted “Klai Rok Thai Buddhist Monk Project” program to promote healthiness among monks and show that monks can exercise within the rules of the 10 routines of monks’ activities, because lack of physical activity is a significant factor that contributes to manifestation of chronic diseases and 5.1 percent of Thais death, and illustrate poster showing energy usage of various monk activity per 40 minutes in calories unit, shown in Table 1.

Table 1 Energy usage in 40 minutes (Klai Rok Thai Buddhist Monk Project, 2017)

Monks activities	Monks younger than 50 years old	Monks older than 50 years old
Alms round	210	190
Walking around	100	80
Sweeping	140	120
Arm swings	220	200
Clothes washing	110	95
Temple works	240	210

Monks are present in temple and other religious sites all over Thailand. Study on monks suffering from non-communicable diseases show that they have moderate physical activities (Laochai & Preechawong, 2020), so health care staffs should promote physical activities among monks and be able to evaluate the level of physical activity of each monk to suggest the appropriate physical activity to prevent diseases. Common surveys for evaluation used globally are as

follow:

Global physical activity questionnaire (GAPQ) from WHO (2002) is a survey for physical activity and sedentary behavior. It has a total of 16 questions divided into 4 parts including physical activity during work, physical activity during travelling, physical activity during recreational activity and sedentary behavior. Each question is a Yes/No question that also ask for the duration of activity. Gathering data on level of activity and duration allows the calculation of the MET-min/week value mentioned above.

International Physical Activity Questionnaire (IPAQ) - Short and Long Forms Contents (IPAQ Research Committee, 2005) is a commonly used survey that has been translated to many languages. The short form has only 4 questions while the long form has 27 questions composed of 5 parts including; part (1) job-related physical activity which has 7 questions, part (2) transportation physical activity which has 6 questions, part (3) housework, house maintenance, and caring for family which has 6 questions, part (4) recreation, sport, and leisure-time physical activity which has 6 questions, and part (5) time spent sitting which has 2 questions. This survey gathers data to evaluate the level of physical activity of the past 7 days.

The surveys mentioned above will let the health care staffs know about monks’ level of physical activity, and also let the monks know about their level of physical activity. The uses of these surveys will allow for more concrete data which can be used to promote physical activity among monks in the future.

Promotion of physical activity in monks

Nurses that are taking care of monks should have a role in promoting physical activity among monks. They must be knowledgeable about monks’ rules and limitations and understand how to treat them, for example, in Thai language; the words people used with monks are different from the words used with normal people. The desired effect from exercise of monks differs from other people. Normally people exercise to gain worldly benefit, strength or looks, but exercising for monks is limited to just keeping the body from illnesses. So, for monks, no matter what type of exercise, consider it as Dharma practice too. So, the meaning of exercise for monks is movements based on 4 natural body gestures, which are standing, walking, sitting, and sleeping. Be conscious of the movement to strengthen both the mind and the body. The promotion of physical activity among

monks should follow the following:

1. Activity must be composed and be accepted according to Buddhist teaching.

2. The activity should be held in a private place such as the monks' room or temple grounds etc. The place should also have good air flow, have smooth ground, and be dry.

3. Regarding clothes worn during activity, the Sorong might be worn without the yellow robe for more flexible movements. Shoes should be worn to prevent injuries, especially for monks who suffer from diabetes.

4. Activity should be appropriate for the monk's age and health condition.

5. There should always be warmups and cooldowns before and after the activity.

6. Activity should be held when the monk isn't either hungry or shortly after eating a meal.

7. Activity should not be held when it's too hot.

8. If there are any abnormalities during the activity such as chest pain, shortness of breath, palpation, headache etc. the activity should be halted, and if the condition does not get better, a doctor from a nearby hospital should be consulted.

activities for monks that are allowed by monk discipline are these 4 exercises that stretch body muscles and resemble monk's normal activities (Priest hospital, 2010)

The first exercise is a breath training and muscle relaxing exercise. It strengthens shoulder and arm muscles. First, the monk sit cross-legged, rest both hands face up or face down on his knees in a relaxed position. Then, inhale and rotate both hands toward the body and contract both shoulder until they move up into a sit up straight position. Then, exhale and move both hands back to the first position as shown in Fig. 1. Repeat at least 10 times. This exercise is good for monks that want to do physical activity while meditating.

The second exercise strengthens hands, elbows and shoulders muscles. First, the monk sits up straight cross-legged, exhale and rotates both hands to face the body at chest level. Then, push both hands forward until the elbows straighten with both arms parallel to the floor. Then, inhale and rotate both hands and pull both arms back into the first position as shown in Fig. 2. Repeat at least 10 times.



Fig. 1 Breath training and muscle relaxing exercise; strengthen shoulders and arms muscles (Priest hospital, 2010)

Monks can perform physical activities to strengthen their circulation system by consistently moving such as when they take alms, sweeping etc. The activity should be moderate level and the duration should be around 30 minutes 3-5 times per week.

Exercise for monks

Exercise for monks can reduce or prevent illnesses that are caused by lack of physical activity, which can be perform in various ways such as fast walking, arm swings, Taichi-Qigong, yoga etc. Examples of physical

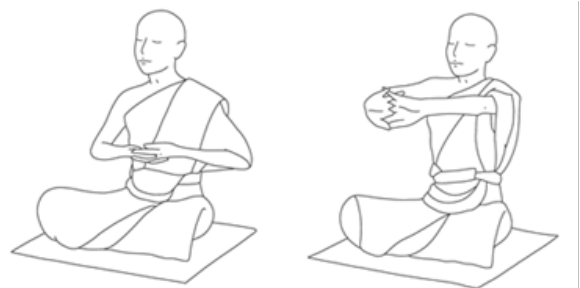


Fig. 2 Hands, arms, shoulders stretching exercise (Priest hospital, 2010)

The third exercise uses the lower body muscles and hips. The monk sits up straight and faces both feet toward each other, grip the feet with his hands and pull them toward the body while inhaling keeping the knee from moving up. Then, exhale, lean forward, bends both elbows while gripping the feet with hands until he feels the stretch at the back, stay in this position for a moment. Then inhale and lean back into the first position as shown in Fig. 3. Repeat at least 10 times.



Fig. 3 Exercise that uses lower body muscles and hips (Priest hospital, 2010)

The fourth exercise stretches knees muscles and lower back muscles. This exercise is good for monks who have muscles and knee problems. First, the monk sit stretching both legs forward, strait back, both hands placed on the knees. Then, exhale, lean forward and push both hands toward the feet until he feels the stretch at the back. Stay in this position for 5 seconds then slowly inhale, lean back, pull both hands back into the first position as shown in Fig. 4. Repeat at least 10 times (The 50th Anniversary Mahavajiralongkorn hospital foundation, 2016). All these 4 exercises can be performed during both warm up and cool down.



Fig. 4 Exercise that stretches knees and lower back.

There are also other easy ways to do physical activities for monks; they can be performed during normal monk activities to strengthen the circulatory and respiratory system to reduce risk of illnesses, for example:

1. Physical activities that helps strengthen the circulatory and respiratory system

Fast walking, more than 10,000 steps per day can help reduce blood pressure, and if it is done every day, it will help control the sugar level and increase the amount of beneficial lipid in the body. 12,000 to 15,000 steps per day will help lose weight, improve metabolism of the body, and strengthen bones and muscles (Kupnirattisayakul, 2012).

The process of this activity should be as follow; each step should not be too big, it should be small but frequent and along with arm swings. The proper speed is different for each person, an easy way to tell is that you should feel tired with a bit of sweat but can still talk and not be gasping for breath; you should feel that you breathe faster and your heart beat faster. The duration is 20-30 minutes, but beginner may split it into 2 rounds of 15 minutes with a 2-3 minutes break in between.

Arm swings should be performed in a spacious place with good air flow such as in a garden. Doing it continuously for 10 minutes will benefit your circulation and makes you feel happier. For better results, do it more frequently and longer in duration, this will help reduce accumulation of fat, reduce blood pressure, reduce stress, make you feel refreshed and relaxed.

The process of this activity should be as follows; stand up straight, align boot feet with shoulders, relax your arms so they fall by gravity, the fingers shouldn't split, face your hands backward, calm your mind. Swing both arms forward to about 30 degrees in angle, breathe in, and swing them backward to about 60 degrees in angle, breathe out. Do this for at least 10 minutes each time, and at least 30 minutes per day, for 5 days per week (Fig. 5).

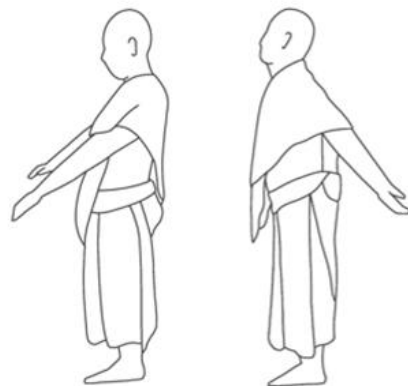


Fig. 5 Arm swings

2. Physical activities that strengthen the muscles of monks

Monks that have muscle weakness (Muscle strength grade II-III) should perform Yoga, Qigong, and stretching exercise. For weak monks, these exercises will help stimulate nerves and muscles to help strengthen them (Fig. 6).



Fig. 6 Qigong

3. Physical activities that improve muscle flexibility for monks

Slowly stretching muscles can reduce the risk of injuries. Stretching should only be done to the point where the performer feels the stretch but not pain, alternate with relaxing them, do movements repeatedly to improve flexibility. Monks can increase the duration of stretch to 1 minute, but if there is potential for injuries, they should keep it at no more than 20 seconds (Fig. 7).

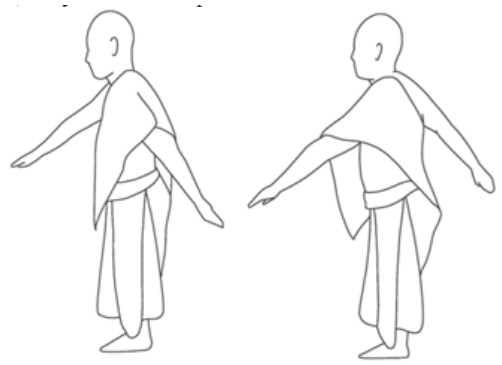


Fig. 7 Stretch exercise

Benefits of physical activity

1. Heart and lungs works well, which allows for longer duration of physical activity. Reduce resistance of blood vessels, which reduce risk of illness from hypertension. Reduce harmful lipid (Triglyceride, LDL) and increase beneficial lipid (HDL), which reduce risk of vessels diseases (Hiranrat, 2003).

2. Musculoskeletal system; strengthen muscles, more fluid joints; reduce risk of injuries from slipping and falling accidents.

3. Nervous system; stimulate nerves, better reflexes, improved memory and concentration. Reduce risk of brain conditions, stress and improve mental health.

4. Gastrointestinal; Complete digestion of food, allow for consistent excretion.

5. Better immunity, more resistant to diseases. Increase agility, improve personality and self-confidence.

6. Endocrine; help use up excess energy, control body weight, reduce risk of obesity, increase insulin sensitivity.

Physical activity can benefit monks in many ways like mentioned. There are still many more ways to exercise that aren't mentioned here. If we can design an activity that goes along with religious rules, monks will be more familiar to exercising. This is a great opportunity for monks to become stronger while keeping their normal life style and duties.

Roles of nurses in promoting physical activity for monks

Nurses have to take different approaches when promoting physical activity for monks than for normal people. Tanakronpaisal (2011) said that monks are a group of people that have very little contact with healthcare services; they have less opportunity to receive primary, secondary and tertiary medical services, they also have to do religious activities which give them less time to take care of their health. Additionally, the lack of health knowledge and lack of physical activity leads to health problems. Primary healthcare nurses in Sweden succeeded in promoting health for citizens, because they gave importance to promoting health and have good organization such as giving professional growth to nurses that performed well in promoting health. (Maijala et al., 2016) A health-promoting organizational culture (e.g., the respectful management of health promotion) and nurses' health orientation and development (e.g., nurses' professional growth and work well-being) were found as the main elements required for the success of the health promotion practices in primary health care.

Factors that promote physical activity are promotion of self-confident, belief that physical activities are beneficial, individual evaluation of physical activity and physical activity promotion training (Crisford et al., 2018) [Self-efficacy in physical activity (PA) promotion, positive beliefs in the benefits of PA, assessing patients' PA, and PA promotion training were the main factors associated with engaging in PA promotion.]. So, nurses should teach monks about physical activity, its health benefits, variants that do not go against religious rules, give proper evaluation and adjustment to their physical activity to reduce risk of chronic diseases. A community-based intervention program, based on self-efficacy theory, improves older adults' self-care behaviors as well as health outcomes related to hypertension and dyslipidemia. randomized controlled trial Body mass index, blood pressure, hyperglycemia, and high-density lipoprotein cholesterol in the intervention group improved significantly from baseline (Wu et al., 2019). So, if nurses can utilize intervention program based on self-efficacy theory to promote physical activity for monks, it will benefit monks and reduce risk of hypertension and dyslipidemia.

We can summarize the roles of nurses as:

1. Health educator role: health promotion and health prevention especially diet and physical activities. Nurses should provide information on proper nutrition such as low salt, low fat food and how to exercise to burn excess fat. They should also promote people to choose proper food to give to monks. Moreover, nurses should promote monks to be more considerate about their health by having proper nutrition and exercise. They should teach monks about exercises that do not go against religious rules, so monks can perform those exercise properly by themselves.

2. Health care provider: health problem screening, nursing activity for the monks who got the NCDs. Nurses and health care team should provide annual checkup for monks such as examination of blood pressure, blood sugar, and BMI, to diagnose illnesses and provide treatment. Furthermore, they should also inform monks on how to perform self-basic diagnosis like measuring blood pressure, BMI, or feet examination.

3. Advocate and campaign for health promotion project: nurses should hold events promoting physical activity for monks where people can participate, and campaign for promotion of monks' health which has monks as leader or a good role model.

What could the nurses do to promote physical activities for Buddhist monks?

Begin by setting a mindset that monks daily activities such as alms round, cleaning, or other chores can be performed to increase physical activity. Then provide information on physical activity that do not go against religious rules to monks such as the ones mentioned in this article, yoga, resistance exercise using dumbbells or other weights to increase muscle strength. Moreover, nurses can develop integrated health promoting programs that emphasize physical activity, proper nutrition and stress management and suggest them to the temple leader or an affiliate organization.

Conclusion

Nurses' role to promote physical activity among monks is considered to be an active role and is very important to prevent chronic non-infectious diseases that are caused by lack of physical activity. So, Nurses should be knowledgeable about physical activity promotion and proper treatment for monks. They should use the proper words in conversations, be able to convey the right information about exercising and not go against Buddhism discipline. They should also be able to evaluate physical activity levels of monks, design proper physical activity programs for each monk and make people understand about the negative effects of lack of physical activity. To make monks become more knowledgeable about physical activity and be able to perform physical activity, and to make common citizen understand and support physical activity among monks. For sustainability of adequate physical activity, resulting in monks being able to complete their duties and enjoy better quality of life.

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