

Narrative Report 17



Combating physical inactivity during COVID-19 pandemic in Sri Lanka: being active at home

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Summary

Preventive strategies undertaken against the novel coronavirus disease especially social distancing and movement restrictions seem to have major impacts on physical activity of people in Sri Lanka. With 'staying at home', most people now tend to be seated for a significant time period. The national physical activity recommendations include at least 60 minutes per day physical activity for most of the days of the week for 6-19-years-olds; at least 150 minutes of moderate, or 75 minutes of vigorous or an equivalent combination of moderate and vigorous intensity physical activity throughout the week for 20-years and above, including muscle and bone strengthening, flexibility and balancing exercises. This article provides the recommendations and examples on home-based physical activities for the population during the current context for the Sri Lankan population across the life span.

Public health response and its impact

Coronavirus disease-2019 (COVID-19) is caused by a novel virus that emerged in China in 2019. The World Health Organization declared it a pandemic on 11 March 2020. As of 11 May 2020, a total of 4,063,525 confirmed cases and 282,244 deaths were reported across the globe (1), and there were 869 confirmed cases with nine deaths in Sri Lanka (2).

With identification of the first local case in the country on 11 March 2020, various activities were

undertaken by the Government of Sri Lanka to control the spread of the disease, including declaring island wide curfew, implementing stringent restrictions on people's mobility. As a result, nationwide schools, universities and other tertiary education institutions are closed up to date; cultural, sports events and other public gatherings were ordered to be cancelled and travel bans were implemented. The work settings are now allowed only a limited staff and people were advised to 'stay at home'. However, it is important to apprehend the potential negative effects of this restricted

mobilization. Now, people tend to be seated, reclined or lying for a substantial time period watching and working on screens (television, mobile, iPad, desktop and laptop computers), engaging in sedentary behaviour, which is characterized by low energy expenditure [less than or equal to 1.5 metabolic equivalents of task (METs)], resulting in a significant impact on the health, well-being, sleeping patterns and the quality of life. Associated unhealthy dietary behaviour (consuming finger foods, confectionaries, un-balanced meals, stress-related eating) make the matter worse.

Physical inactivity is a major risk factor for non-communicable diseases (NCDs) (3). The Sri Lankan population is highly vulnerable for NCDs due to high prevalence of the risk factors including physical inactivity. The STEP Survey 2015 found out that 30.4% (22.5% males and 38.4% females) of the Sri Lankan adult population do not engage in the recommended 150 minutes of moderate intensity physical activity per week (4). In addition, the school-based Student Health Survey 2016 found out that 18.2% boys and 18.9% girls do not engage in physical activity (5). There is ample evidence available on the physical and psychological benefits of being physically active at all ages (6-8). In addition, there is evidence to indicate that physical activity increases immunity, increases the resistance, reduces the risk and severity of respiratory viral infections (9), which would be of high importance in the current context. Thus, it is essential that physical activity be promoted at all times for all ages, especially activities that can be done at home during the periods of epidemics that may extend to several weeks or months, to negate the physical and psychological impacts of sedentary behaviours during these time periods.

Physical activity, exercise or physical fitness?

The terms 'physical activity', 'exercise' and 'physical fitness' are commonly seen to be used interchangeably but, these terms describe different concepts altogether. Physical activity is 'any bodily movement produced by skeletal muscles that requires energy expenditure', thus includes activities done while carrying out any household chores (10). Exercise is a subcategory of physical activity, which

is defined as an activity that is 'planned, structured, repetitive, and aims to improve or maintain one or more components of physical fitness' (10). Thus, the energy expenditure due to physical activity by an individual per day would be the cumulation of energy expenditure performing exercise and non-exercise activities during the day. Physical fitness on the other hand is a set of attributes that people have or achieved and is defined as 'the ability to carry out daily tasks with vigor and alertness, without undue fatigue and with ample energy to enjoy leisure-time pursuits and to meet unforeseen emergencies'.

The components of physical fitness fall into two categories; a) health related components that concerns more with public health e.g. cardiorespiratory endurance, muscular endurance, muscular strength, body composition, flexibility and b) skill-related components that concerns more with athletic ability e.g. agility, balance, coordination, speed, power, reaction time (10). Thus, the aim should be to promote physical activity among the population so that they gain or improve health related components of physical fitness.

Recommendations of physical activity and being active at home

Even though outdoor physical activities are minimized due to the current physical distancing protocols, it is essential that individuals of all ages be physically active as much as possible. Essentially, the public should be educated to reduce the long seated periods, by taking a break every 30 minutes to do an activity such as walking (on the spot or in and around home or garden), stretching, climbing up and down a staircase, at least for 5 minutes (11).

The national recommendations of physical activity for different age categories (Ministry of Sports, 2018, unpublished; Ministry of Health and Indigenous Medical Services, 2020, unpublished) are given in Table 1, along with the potential activities that can be conducted within home.

Table 1: National recommendations and examples of home-based physical activities for different age categories

Age category	National Recommendation	Home Based Activities
Infants less than 1 year of age	Should be physically active several times a day	Spend time doing floor-based play with your baby in a prone position and spread this throughout the day when the baby is awake
Children less than 5 years of age	Should be physically active throughout the day, every day	Active play in and around home. Include sports and games that require running, skipping, jumping, to improve their skills such as catching, kicking, and to develop their posture and balance
Children and adolescents between 6-19 year	<p>Aerobic: for ≥ 60 min /day; moderate* intensity; on most days of the week or vigorous** intensity activities for 2-3 days/week.</p> <p>Muscle and bone strengthening: Moderate* intensity activities for at least 3 days /week</p>	<p>Aerobic: Active games in and around home.</p> <p>Muscle and bone strengthening activities: using the body weight such as squats, push-ups, lunges, leg raise, bridge exercises, planks, T stand, and deadlift. Overhead press by lifting improvised weights such as bottles/buckets full of water or sand</p>
Adults of 20 years and above	<p>Aerobic:</p> <p>At least 150 minutes of moderate*-intensity aerobic (endurance or cardio-respiratory) physical activity throughout the week, or at least 75 min of vigorous** intensity physical activity throughout the week, or an equivalent combination of moderate* and vigorous** intensity activity throughout the week For additional health benefits</p> <p>overweight and obese adults should increase their moderate*-intensity physical activity to 300 minutes per week, or equivalent</p> <p>Muscle and bone strengthening activities: Should be done involving major muscle groups on 2-3 non-consecutive days; of moderate* intensity; using the body weight, or a weight that can be lifted; in 8-</p>	<p>Aerobic: Household chores such as sweeping, cleaning, washing; raking; gardening; dancing; Zumba dancing; playing with kids; walking, running around the house</p> <p>Use a treadmill, cross-trainer, stationary cycling, ergometer if available at home.</p> <p>Muscle and bone strengthening exercises:</p> <p>using the body weight such as squats, pushups, lunges, leg raise, bridge exercises, planks, T stand, and deadlift. Overhead press by lifting improvised weights such as bottles/buckets full of water or sand.</p> <p>Use Dumbbells if available at home</p> <p>Flexibility: sky reach, toe touch, neck roll, shoulder roll, side reach, chest</p>

	<p>12 repetitions in 2-4 sets until fatigue; with 2 minutes rest between sets.</p> <p>Flexibility activities: Should do 2-3 sessions per week preferably on daily basis; 4 or more repetitions per muscle group; stretch to the point of slight discomfort or tightness</p> <p>Balance: Older adults and those with poor mobility should perform physical activity to enhance balance and prevent falls, 3 or more days per week</p>	<p>expansion, front swing, side cross swing, torso twist, ankle roll</p> <p>Balance exercises: standing in one foot, standing in one foot with eyes closed, passing ball at each other while standing in one foot</p>
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* The individual is able to talk, but cannot sing while performing the activity

** The individual finds it difficult to even talk while performing the activity

It is important to initiate each exercise session with a 2-5minute warm-up session including stationary walking, jogging and stretching. Warm-up sessions will dilate the blood vessels to ensure a good oxygen supply to the muscles and will slowly raise the heart rate, preparing the body for the workout and preventing injuries during the session. Cooling down following each exercise session is also as important as the warm-up. After a workout, the heart rate and body temperature will be high, and the blood vessels are dilated. Therefore, a cool-down will gradually bring the body back to the normal levels. Thus, a 2-5 minutes of cooling session including stationary walking and stretching should be performed after each exercise session.

It is important to note that for an individual who has not been active earlier, the activities should be initiated at a low intensity and frequency to suit the ability of the individual and then gradually increase. Therefore, the activities initially could be done at 10-minute bouts and then gradually be increased to reach the recommended levels, and the activities can be done with support e.g. using a chair. It is important initially to increase the duration of time that the activity is performed and then gradually increase its intensity.

Examples of home-based muscles and bone strengthening exercises using the body weight for beginners and advanced level are shown in Table 2.

Table 2: Home based muscle and bone strengthening exercises for beginners and advanced levels

Exercise	Frequency*	
	Beginner level	Advanced level
Squats	Half squat: 1-2 sets of 8-12 repetitions	Full squat: 2 -3 sets of 8-12 repetitions
Pushups	Knee pushups: 1-2 sets of 8-12 repetitions	Plain pushups: 2 - 3 sets of 8 -12 repetitions
Lunges	Half Lunges: 1- 2 sets of 5 repetitions	Full Lunge: 2 -3 sets of 10 repetitions
Planks	1-2 sets of 10- 30 sec	2-4 sets of 20 - 30 sec
Bridges	Double leg bridge: 1-2 sets of 10-30 sec	Single leg Bridge: 4 - 6 sets 10 - 30 sec

Sustaining physical activity practices

There are several reasons as to why people do not engage in regular physical activity. Lack of time management, unavailability and unaffordability of facilities for physical exercises, several myths related to physical activity are perceived to be few main reasons (12).

In Sri Lanka, majority of the population may not be able to afford to visit gymnasia which are mostly private institutions. And gymnasia which are established and functioned by the government will be no or minimal. Thus, unavailability and unaffordability are highly associated with utilizing gymnasia. Therefore, it is of utmost importance that physical activities which can be done in and around home, and activities using the body weight and by utilizing things that are easily available around home are promoted. This is especially important in epidemic situations where out-door mobilization is being restricted. In addition, setting up a regular time and a routine to be physically active every day, being active with the family members would support the sustainability of these practices. Addressing various myths related to physical activity also is important. These would support in breaking the mind-set of people to whom being physically active is still 'alien'; those who believe that attending a gymnasium, utilizing exercise machinery, wearing a separate suit and shoes are essential to be physically active. Thus, as public health officials, health policy planners and implementers of the country, we have an important role in changing the mind-set of the population, breaking the myths related to physical activity and promoting each and every individual to 'move more'.

Conclusions

Sri Lanka has been requesting people to stay at home during lockdown to prevent COVID-19 transmission. In this background, it is essential to promote the people to move more by practising simple, feasible, home-based activities that can be undertaken during the prevailing COVID-19 pandemic to improve the physical and mental health of the people.

Author Declaration

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