

Aerobic exercise protocol for people living with HIV: A logic model approach

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Abstract

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There are many challenges that people living with HIV (PLHIV) often face including psychological health challenges such as muscle loss, fatigue, and mental health disorders. Regular physical activity, particularly aerobic exercise, has been shown to improve cardiovascular health, muscle strength, and mental well-being. However, there are not many clear exercise guides with evidence for practitioners and PLHIV to use as a reference while engaging in physical activities. Therefore, a structured and supervised exercise programs were designed tailored to the specific needs of PLHIV was tested and found effective. The study utilized a logic model to design, implement, and evaluate a supervised aerobic exercise program aimed at improving clinical outcomes among PLHIV. The logic model served as a framework to align inputs, activities, and expected outcomes, ensuring a systematic and evidence-based approach. A detailed exercise protocol for 6 days a week was designed for clients to engage in at least 3 days with not less than 2 days of rest in a week. A total of 135 participants were enrolled and randomly assigned 67 to experimental and 67 control group. The experimental group engaged in a five-phase aerobic exercise regimen, including warm-up, endurance training, cool-down, recovery, and flexibility exercises, performed three times per week with music set at 120–150 BPM to guide intensity. The control group was followed-up with weekly phone calls to ensure they don't feel left out of the study. Clinical outcomes, including immunological markers (CD4 cell count), functional work capacity, and psychological well-being, were assessed before and after the intervention. Results indicated significant improvements with a p-value of < 0.01 in: aerobic capacity, muscle strength, mental health, and immune function among participants in the exercise group compared to controls. These findings suggest that this aerobic exercise protocol is a safe and effective complementary intervention for improving the quality of health in PLHIV. Incorporating supervised exercise programs using this protocol into routine HIV care could enhance long-term health outcomes and overall well-being in this population. This exercise protocol is therefore recommended for use in people living with HIV.

Introduction

People living with HIV frequently suffer a wide range of physical and psychological problems that can significantly impact their overall health and well-being. Physically, they experience muscle wasting, persistent fatigue, and impaired functional capacity as a direct

consequence of the disease itself, as well as from the effects of the antiretroviral treatment. Psychologically, depression, anxiety, and other mental conditions are common, often due to stigma, loneliness, or the chronic nature of the disease (O'Brien et al., 2016). These conditions, if not treated, can lead to poor medication

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adherence, lower physical function, and lower quality of life in PLHIV (Mills et al., 2005).

Physical exercise has shown to be a useful, intervention in managing these issues. There are various studies that have attested the physiological and psychological advantages of supervised exercise programs in PLHIV like improved cardiovascular function, improved muscular strength, and depression and anxiety symptoms decrease (Fillipas et al., 2006). Of all the types of exercise, supervised aerobic programs appear most effective because they can be tailored specifically for each person's clinical and physical requirements such that safety and effectiveness are assured. Supervision also encourages adherence and motivation, both of which are critical in sustaining long-term health improvement. Nicholas et al. (2024) add that supervised, individualized aerobic exercise intervention has an essential function in addressing the complicated exercise needs of the clients. A logic model was used to create an effective exercise intervention in PLHIV. A logic model is a conceptual tool to guide the development, implementation, and evaluation of health interventions. It helps in mapping the relationships between resources, activities, outputs, and desired results so that the program outcomes are focused and evidence based (Kellogg Foundation, 2004). The logic model made it possible to define the most urgent health concerns of PLHIV and to connect specific exercise interventions with measurable clinical outcomes. The objective of the program was to enhance the health quality of PLHIV by enhanced physical conditioning, reduced mental symptomatology, and enhanced overall well-being through structured aerobic exercise.

Methodology

The Logic model, which links short- and long-term outcomes with programmatic activities, inputs, processes, outcomes, and theoretical assumptions and principles, was used to develop the exercise protocol in order to archive its purpose. Logic model is a visual representation of the elements and sequence of events required to obtain meaningful program results (Das et al., 2014). Using logic model, it created a feeling of community belonging among study staff, participants, and the researcher by depicting the connections between resources, activities, inputs, outputs, and outcomes. Inputs are resources needed to initiate and implement the exercise program. They were human, physical, and

financial resources that facilitated the implementation of the program. In a PLHIV exercise program, the following inputs were used: Expertise in HIV Care and management, collaborate with health practitioners who have expertise in HIV care, physical therapists, and exercise trainers was of help. A rechargeable speaker with music of tempo from 120 to 150 beats per minute to cater for the principle of progressive progression was used. After this, activities were developed for different days to implement the five phase aerobic exercise sessions using consultations with experts and published articles.

An experimental study with a pre-test and post-test design with a control group was used systematically to determine the effectiveness of an intervention of the aerobic exercise protocol for people living with HIV (PLHIV), for example. Participants who volunteered to participate were randomly allocated into the two groups: experimental group, who attended the exercise sessions and the control group, who did not attend, they were only called weekly not to make them think they were out of the study. Both groups were pre-tested to get a baseline for the clinical outcomes and after the intervention both groups went through a post-tested using the same measures. Then the outcome from pre-to post-test in the experimental and control groups was compared, in order to determine whether the aerobic exercise had a statistically significant effect.

Data was analysed using descriptive statistics to report participant characteristics and outcome measures, and means and standard deviations at baseline and post-test intervention. To determine the effectiveness of the aerobic exercise protocol, a two-tailed independent t-test was used to compare the difference in mean change in outcomes (pre-test to post-test) between the experimental and control groups. A p-value of less than 0.05 indicated that the differences observed were unlikely to occur by chance and therefore supported the conclusion that the exercise intervention significantly improved the clinical outcomes of the experimental group.

Outputs

Participants who were 135 in number were engaged, one was dropped, 67 were allocated in the experimental group and 67 in the control group. The experimental group selected appropriate days, pre-test was conducted and the exercise session started. Each client was asked to select at least 3 days a week where they were supposed to

attend the exercise session. A daily talk programme was initiated to motivate the participants and a weekly call made to the control group to ensure they don't feel left out of the study.

Five Phases of Aerobics Class

An organized method of cardiovascular training with five separate phases that are all intended to increase workout efficiency and lower injury risk is sometimes referred to as a 5-phase aerobic exercise session. Numerous exercise programs frequently employ these phases to increase muscle stamina, cardiovascular endurance, and general fitness.

Warm-up phase where one progressively raises body temperature, circulation, and heart rate, the warm-up phase gets the body ready for exercise. Additionally, it prepares joints and muscles for more strenuous action. This stage usually lasts five to ten minutes (5-10 minutes) and might involve dynamic stretches to increase joint mobility and flexibility as well as mild cardiovascular exercises like walking or slow running (ACSM 2018).

The primary aerobic exercise phase is called endurance training (main workout), during which participants perform continuous cardiovascular activities including brisk walking, dancing, jumping jacks, cycling, swimming, or running. It seeks to increase heart and lung function as well as cardiovascular endurance. Depending on the person's degree of fitness, the intensity ranges from moderate to high, this study utilized moderate intensity using music tempo of 120BPM to 150bpm and the session usually lasts 20 to 25 minutes.

In order to progressively lower heart rate and enable the body to revert to its pre-exercise state, the cool-down period is crucial. This stage aids in boosting general healing and lowering the likelihood of lightheadedness and muscle stiffness. It entails mild static stretching after a brief cardiovascular workout (such as walking or leisurely cycling) (American Heart Association 2020).

After the main workout, the body can relax and recover during the recovery period. To increase blood flow to the muscles and help eliminate metabolic waste products like lactic acid, active recovery exercises like walking or mild cycling can be incorporated. This stage aids in minimizing tiredness and lessening muscle soreness. The penultimate stage of training concentrates on increasing flexibility, which contributes to increased joint mobility and muscle elasticity. In order to avoid injury, this phase usually consists of static stretches or

yoga, which should be done slowly and softly. Stretching helps to prevent post-exercise muscle stiffness, ease tension, and encourage muscle relaxation. These stages guarantee that aerobic exercise is safe and effective while also improving flexibility, muscular recovery, and cardiovascular health (Gormley et al., 2008).

Prescribed aerobic sessions are separated into different levels of intensity and levels of difficulty and will have five stages: warm-up (5-10 minutes), cardiovascular conditioning (25-30 minutes), muscular strength and conditioning (10-15), then lastly a cool-down (5-10 minutes) and stretching and flexibility (5-8 minutes) the time was allocated like this to cater for progressive progression the final week the maximum time was considered.

Tempo: Start at 120 BPM (beats per minute) and build to 150 BPM this was achieved by setting music beats at that tempo.

With the use of Highly Active Antiretroviral Therapy (HAART), medical advancements have transformed HIV infection into a chronic illness that is associated with diminished exercise capacity, disability, impairment in everyday activities, and several comorbidities come along with that (Eggleton & Nagali, 2020). The mortality and morbidity of HIV-infected clients have significantly decreased in the HAART era leading to increased life expectancy. Although HAART has significantly decreased the incidence of immunosuppression and wasting syndrome in HIV patients, it is linked to anthropometric and metabolic disorders such as insulin resistance, dyslipidaemia, and an irregular distribution of body fat (Nsagha et al., 2012). One important management technique used by rehabilitation health professionals to promote health and improve the quality of life for clients with HIV is aerobic exercise. It may be able to reduce a number of HIV-related adverse effects in addition to the morphological and cardio-metabolic issues (such as inflammation, oxidative stress, and mitochondrial dysfunction) that can arise with HAART, (Grace et al., 2015). Exercise clearly helps people with HIV infection improve their quality of life, increase their aerobic capacity, increase their functional ability, decrease insulin resistance, improve their oxidative stress, muscular strength, lipid profile, and lower their risk of cardiovascular disease (Camara et al., 2020). Importantly, aerobic exercise is thought to be safe, and there is no proof that regular, moderate-intensity

exercise may impair immune function in HIV/AIDS patients who are asymptomatic or symptomatic (Jaggers and Hand, 2016). When combined with progressive resistive exercise (CARE), aerobic exercise (AE) improves a number of health indices in HIV-positive clients more effectively than when either is used alone (O'Brien, et al. 2010). The American College of Sports Medicine has lately recommended and used CARE (Nweke et al., 2022)

In a study to assess the implication of aerobic exercise on clinical outcomes of PLHIV the following exercise protocol was used that showed significant improvement of the clients that participated in clinical outcomes like: Immunological measures using CD4 cell count, functional work capacity and psychological markers in Uganda.

Outcomes

Outcomes are short-term, medium-term, and long-term changes that occurred as a result of the aerobic exercise program. Outcomes included changes in physical, psychological, and social health. It was realised that exercise without equipment would be more feasible in this case since equipment's were expensive. This protocol was used in a study to assess the effect of aerobic exercise on clinical outcomes of HIV positive clients in Uganda. The results were good where the CD4 increased by 29% for both male and female (Nicholas et al., 2024), there was a reduction in heartbeat, improved VO₂ max of the experimental group which meant an improved functional work capacity and a general improvement in the psychological markers (Nicholas et al., 2024). Other short-term outcomes included: increased knowledge of exercise benefits, Sudden change in mood and level of energy, Improved adherence to anti-HIV drugs due to good health. Medium-Term Outcomes: Increased capacity for cardiovascular exercise, Increased strength and flexibility, Lower levels of fatigue and overall quality of life, Greater self-efficacy and confidence in HIV living. Long-Term Outcomes: Health results and increased lifespan. Reduction of hospitalization and associated healthcare costs, Increased social interaction and mental health (Munsell and MacDonald, 202; Tse and Anderson, 2021).

Ethical Approval

The Study was approved by: Lacor Hospital Institutional Research and Ethical Committee (RHIREC) No 0183/07/2020 and it was carried out in accordance with the Code of Ethics

of the World Medical Association also known as a declaration of Helsinki. And thereafter approved by Uganda National Council for Science and Technology Ref: HS 1276ES

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Conflict of Interest

The authors hereby declare that there was no conflict of interest in conducting this study.

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Appendix 1

The Exercise Protocol

Mondays

S/NO	Activity	Procedure	Duration
1	Warm-up		5-10 min
	Play tag		
	Walk on the spot	Use labels to teach participants on the right arm as you look for one to tag you also hide your arm not to be tagged.	
	Jog		
	Side step	Walk on spot with arm action for 1 minute. Jog on spot with arm action for 1 minute.	
	Invisible rope skipping	Side step with arm action.	
	Stretching	Side step raising the arms up and down.	
	Standing quadriceps stretch	Skip an imaginary rope Do a dynamic stretch from the feet to the head. Bring your heel closer to your buttocks, bend your right knee while standing. Using one or both hands, grasp your ankle. Don't pull your knees out to the side; instead, keep them in line with one another as you pull your feet towards balms. Stay in that position for about 30 seconds. Do the same on the other side. Repeat the same for 2 to 3 times.	
2	Workout		20-25 min
	Jog on the spot	Jog on the spot while keeping your core tight with different forms of arm movement. Move with high knee while raising the hand up ensure the core is tight as you lift the knees change forms of hand movement	
	High knee		
	High knee waist twist side by side	Simple jumps with a waist twist as you move your elbow towards your knee alternately Jump/skip an invisible rope while keeping the knees soft	
	Jump rope (invisible rope)		

Trunk jump
Slow jogging
on the sports
Jab switch -
jump squats
Raise legs
while lying on
your back

Using your core to lift the body with knees bent, trunk jump

Jog on the spot with different arm movement

Do 8 jabs jump while changing side and 8 jabs again as you bend as low as you can while keeping core tight.

With your legs straight and together, lie on your back.

Holding your legs straight, raise them to the ceiling until your butt lifts off the ground.

Return your legs to a slightly elevated position by lowering them gradually. Hold on a second.

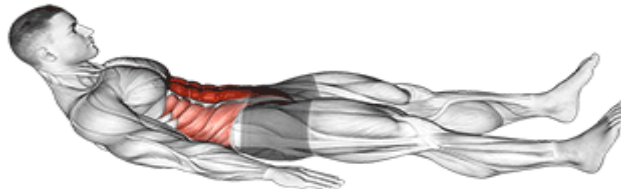
Repeat the same as you raise the legs.



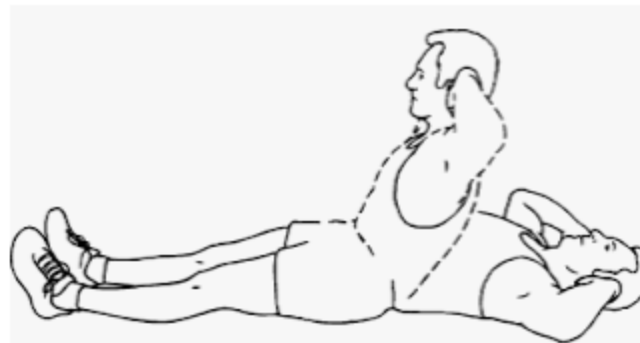
Quarter sit-up



Air twisting
crunch
Front plunks



Raise your feet straight up in the air at a 70-degree angle after placing your hands behind your head. bringing your left knee up to your right elbow. Don't only move your elbows; make sure your rib cage is moving as well. To finish one rep, turn sides and perform the identical motion on the opposite side.



While holding your ears with elbows straight, move the elbow towards the knee alternately
Maintain a push-up position while elbows are on the ground



3 **Cool down** 5 min

Jog on the spot
High knee while raising the hand up

Jog on the spot while keeping your core tight

While raising the hand up ensure the core is tight as you lift the knees alternatingly

Hip flexor burners

Stretch

Arm reach



With elbows raised, raise the knee up to the chest level while tapping on the ground and hold it up without tapping down and then extend the leg to make it straight

Start by placing your feet wider than hip-width apart while standing. Swing your right arm across your chest while pivoting on your right foot. In the same direction, twist your upper body and torso.

Tuesdays

S/NO	Activity	Procedure	Duration
1	Warm-up		5-10 min
	Slow jog on the spot	Jog slowly on spot for 1 to 2 minutes	
	Side step	Side step with different arm action	
	Arm reach	Place your feet wider than hip-width apart while standing. Swing your right arm across your chest while pivoting on your right foot. In the same direction, twist your upper body and torso. Repeat with the opposite arm right away. Continue for 1minute	
	Side reach		
	Hip rotations	Place your feet wider than hip-width apart while standing. Bend your right knee slightly and tilt your body to the right. At the same moment, extend your left arm diagonally, parallel to the rest of your body, to the sky. Lengthen your left leg. Repeat on the other side. Continue for 1-2 minutes.	
	Knees lift	Place your feet wider than hip-width apart and begin while standing. Put your hands behind your head and bend your arms. As you raise one leg, bend your knee. Move that leg in a circle over your body, up to your chest, and back down to the beginning. Continue for 1 to 2 minutes	
	Place your feet wider than hip-width apart and begin standing. Put your hands behind your head and bend your arms. As you raise one leg towards your torso, bend your knee as though you were attempting to use it to touch your rip cage. Continue for 1 to 2 minutes.		
2	Workout		20-25 mins
	On spot jogging	Jog on spot with different arm movement	
	Shoulder burners in pli��	Perform shoulder burners in pli�� starting with wide leg lift and hands straight and then flap them up and down with knees bent and feet facing sides, swing the arms backwards and forward then take them up and down while ensuring they stop at the shoulder level and swing them while writing letter 'O' with the fingers	
	4 x4 hopes	Perform 4 x4 hopes, with one leg raised, do 4 hopes each side while first is raised to the shoulder level and repeat	
	Jab switch jump squats		
	Hip flexor burners	Perform 8 jabs jumps while changing sides and 8 jabs again while bent as low as you can keeping your core tight.	
	Low plunk position	Perform hip flexor burners, with elbow raised raise and the knee up to the chest level while tapping on the ground hold it up without tapping down then extend the leg to make it straight. In a low plunk position with elbows on ground and body straight, alternate knees as you plunk.	
	Switch heel kicks	While keeping low and high in trunk position, squiz the stomach forward while keeping core tight to perform Pulse tucks	
	Lying bent knee oblique	While switch heel kicks, step on heel and keep knees soft to perform heel kicks,	
	Shoulder taps		
	Spiderman planks		



Stand your shoulders above your wrists in a high-plank stance on your mat.

Raise your right hand off the floor and contact your left shoulder while using your core to keep your body stable. Using your left hand, repeat while maintaining a firm hip position.



With your feet hip-width apart, your elbows bent and beneath your shoulders, and your torso in a straight line, begin in the low plank position.

Your right knee should be brought to your right elbow.
Extend your right leg back and return to the starting position.
Do the same on both sides of the legs



To begin, place your hands by your head, elbows wide, and lie face down on the floor. To support your lower back, keep your feet flat and use your core and glutes. Then, raise your shoulders, head, and chest off the ground by using your back muscles throughout your spine, and maintain this position for the

necessary amount of time.

Using your upper back muscles, try to push your shoulder blades together on your back. Additionally, keep your chin slightly tucked in and stare down at the floor directly in front of you rather than raising it to look forward.



3	Cool down		5 min
	Cool down dance Children pose	Slow-motion dance for 30 seconds, then rest. Repeat until cool. Lean back to sit on your heels from a table top position, extending your arms in front of you or beside you.	
		Breathe deeply while letting your chest drop heavily into your thighs. Put your forehead down on the ground.	
	Marching arm circles	Stay in the same position for one to three minutes.	
		With your arms shoulder-level and out to the sides, march in place. Rotate your arms forward for eight to ten times. Rotate your arms backwards for eight to ten times.	

Wednesdays

S/NO	Activity	Procedure	Duration
1	Warm-up	When Coach shouts out a traffic light colour, pretend to be automobiles.	5-10 min
	Red light, green light:	Everyone at the starting line should be ready, Move to the finish line when you hear green light, When red Light' is said everyone must halt instantly. When all cross the finish line or when the majority do so, a new round begins.	
	Obstacle course:	Construct a basic obstacle course. Among the concepts are hopping over imaginary lines, zigzagging between cones, etc. do the same for about 2minutes	
	Touch toes:	Extend your arms to the sides. Touch your right hand to your left foot while bending at the waist. Touch your left hand to your right foot after standing up maintain a flat back. Continue until you are warm.	
	Flap your wings:	For 30 seconds, flap your arms like a bird. Now jog for 30 seconds while flapping your arms in place. Continue until you are warm.	
2	Dance party:	Play music and stay still for 30 seconds. Put an end to the music. Take a break, then restart the song and repeat until you are warm. Stretch all the major muscles	20-25 min
	Dynamic stretch		
	Workout		
	Imaginary rope jump	Make ten double counts by acting like you are skipping a rope.	
	Jumping jacks	While performing jumping jacks, spell out "Marathon Kids." At a musical pace	
	Jog and jump	After 30 seconds of stationary jogging, 30 seconds of stationary jumping. Repeat after resting until heated up.	
	Arm circles		
	Tuck jumps	Make large forward motions with your arms, then backward motions.	
	High jumps	Perform ten tuck jumps. Leap up and bring your knees to your chest. Bend your knees as you land. Count ten times rest then repeat for three sets.	
	Moving plunks	With legs together jump high with hands raised To perform moving plunks, make 4 steps each side while keeping shoulders elbows and wrists in line.	
	Jog	While keeping your core tight, jog on spot Perform alternate high knee raises while raising the hand up and ensure the core is tight as you lift the knees	
	High knee	Perform 8 elbows. Elbow 8 times and one step sideways as you touch the ground	
	8 elbows	Perform mummy kicks with alternate hand twist while keeping the core tight	
	Mummy kicks		
		With the hands raised to shoulder level, trot side by side three steps on each side and then tap the ground and move the opposite side keeping your core tight.	

Side shuffles

High plunk

High plunk alternate
knees fast
Windmill
Isometric hold



In a plunk position take the knees towards the elbow while alternating them and keep your core tight to perform high plunk.

High plunk alternate knees fast (do as the but at faster pace)



3

Cool down

Stretching with squats

Stand up, bend your knee, and use your right hand to grasp your left ankle. Practise your balance. Hold for 20 seconds. Change legs. Repeat three times.

5 min


Copy cat

As the group duplicates, participants alternately show off their preferred stretch. Do not forget to stretch slowly and softly. Do for each participant once.

Touch down	Maintain a shoulder-width distance between your feet. For 20 seconds, touch the ground. For 20 seconds, touch your right foot. Change legs. Continue for 30 seconds.
Shaking the body	Shake your right arm gently, then your left, and finally both arms simultaneously. Shake your right leg first, followed by your left. Then shake your entire body, including your head and hips. Give every bodily part a shake. for 1 minute. Add some general body stretch

Thursdays

S/NO	Activity	Procedure	Duration
1	Warm-up		5-10 min
	Walk on the spot	Use stickers to tag each participant on the right arm as you look for one to tag you also hide your arm not to be tagged	
	Jog	Walk on spot with arm action for 1 minute Jog on spot with arm action for 1 minute	
	Side step	Side step with arm action Side step raising the arms up and down	
	Invisible rope skipping	Skip an imaginary rope Do a dynamic stretch from the feet to the head	
	Stretching	To bring your heel closer to your buttocks, bend your right knee when standing.	
	Standing quadriceps stretch	Hold your foot towards your buttocks with both hands. Do not pull your knees out to the side; instead, keep them in line with one another. Hold this position for 30 seconds. Do it for the other leg. Repeat for two to three times.	
2	Workout		20-25 min
	Jump rope s-s	While keeping feet together, skip a rope and land softly side by side	
	Jog on spot	Jog on the spot while keeping your core tight	
	High knee	While alternating your knees and hand up ensuring tight core, lift the knees high to perform high knee raises.	
	Switch kicks	Switch kicks with elbows raised at the shoulder level	
	Level drill	Level drill (raise hands go down do 4 push-ups and 4 bicycle rides continuously.	
	Heisman		
	8 switch kicks/8 hop squats		
	Hold centre		
	Single leg raise	Alternate high knee raise with wide legs keeping core tight	
	Both legs raise	To perform 8 switch kicks/8 hop squats, kick alternately in air and hold the body tight as you jump squat	
	Pike push-up	Hold centre (hands held together on the chest level bend back a little... Perform Single leg raise bending as you raise up and then stretch as you take it down Raise both legs while bending and stretch as you lower your legs	
			

3	Cool down	5 minutes
Bending forward while standing	Bend forward from a standing position, slowly hinge at the hips. While maintaining a small bend in your knees, lengthen your spine and let your head drop heavily towards the floor.	
Share on Pinterest	interlace your hands behind your back, place your hands on the floor, or hold opposing elbows in front of or behind your thighs. Be in this position for 1 minute.	
Stretching the shoulder	Adjust this stretch if your hands can not reach the floor. Instead of placing hands on the floor, place them on a block or other solid object. The advantages will remain the same.	
	Place your hand close to your neck or spine and raise your right elbow from a standing or sitting position. Gently press your right hand farther down your spine, place your left hand on your right elbow. Bring your left arm up beside your torso and clasp your right hand with your left hand to extend the stretch.	
Legs-up-the-wall pose	extend your reach, grasp an imaginary towel or resistance band. Stay in that position for 30 seconds. Repeat on the opposite side.	
Corpse pose	Place your right side against a wall and take a seat. Lying on your back, swing your legs up along the wall. Put your hips a few inches from the wall or against it. Position your arms overhead, on your stomach, or next to your body. Put your hips a few inches from the wall or against it. Be in that position for about five minutes.	
Spinal twist		
		
<p>With your feet slightly wider than your hips and your toes spread out to the sides, lie on your back with your arms at your sides, palms facing up. Release any stress or tightness in your body by relaxing. Breathe deeply and let your body drop heavily to the floor. Be in that position for five minutes or longer. With your left leg bent or outstretched, lie on your back. Pull the right knee up to the chest. Place the left hand on the outside of the right knee and extend the right arm to the side. Turn to the left with gentleness. For 30 seconds, hold the twist. On the other side, repeat. Do general body stretch from head to toe</p>		

Fridays

S/NO	Activity	Procedure	Duration
1	Warm-up Do what the leader does:	Select a participant to serve as the "leader." Ask the "leader" to select their favourite movement-inducing warm-up exercises that the others will imitate. Engage in play 2 minutes.	5-10 min
	Move in form of figure 8	Run or walk in different-sized figure eights. Make sure you walk quickly and feel the stretch in your hips and back.	
	Bicycles	Place your legs and feet in the air while lying on the back. Legs should be moved like a bicycle pedal. For 30 seconds each, pedal slowly, mediumly, and quickly. Between each pedalling pace, take a break.	
	Skipping high	For a certain distance, skip as high as possible. To jump even higher when you skip, make sure to extend your lifted arm high.	
	Walk like a robot:	Raise one leg straight up and bend the waist so that the hand touches the toes. Touch your toes alternately with each gradual stride until they are warm.	
	Walk like a crab:	For a predetermined distance, walk backwards like a crab on hands and feet. Continue until you're warm.	
2	Workout		20-25 min
	Start with a high knee lift	Spend 20 seconds doing high knees. Bring the knees as high as they will go while you jog in place. Repeat after resting for three sets.	
	Jogging	Jog on the spot while keeping your core tight	
	High knee with hand raising up	High knee while raising the hand up ensure the core is tight as you lift the knees	
	Sideways squat	Sideways squat	
	Rotational squats	Rotational squats	
	Jump squats		
	High knee waist twist side by side	Feet shoulder width apart then you jump as you spring from your toes make the core tight	
	Jump rope (invisible rope)		
	Trunk jump	Jump rope/invisible rope while keeping the knees soft	
	Wide trunk jump	Use the core to lift the body with knees bent to do trunk jumps.	
	8 fast feet/8 hooks	Wide trunk jump (land softly while the knees are bent)	
	Moving ski hopes	While fast running on spot do 8 fast feet/8 hooks keeping the core tight	
	Hit the floor	Perform moving skip hopes starting with leg together hope side by side make four kicks and land softly	
	C-sits	Touch the floor in the middle of your legs with the rear leg slightly bent and raise the hands up as you turn and touch the floor alternately to perform hit the	

	Twist with knee lift side by side A-frame	<p>floor exercise.</p> <p>C-sits with hands below the knees</p> <p>Twist with knee lift side by side</p> <p>Keeping hands together lift the hands side by side and then lift the knees alternately to perform A-Frame</p>	
3	Cool down		5 min
	Light jogging or walking	Do three to five minutes of easy or brisk walking after three to five minutes of mild jogging.	
	Do the upper body stretches	<p>Press palms up towards the ceiling while interlacing fingers, either standing or sitting.</p> <p>Keeping spine straight, draw hands as far back and up as you can.</p> <p>After that, position your left arm in front of your right and extend hands back and forth while facing each other with your palms facing each other.</p>	
	Seated forward bend	<p>Repeat on the opposite side.</p> <p>Legs should be out in front of you as you sit.</p> <p>Raise your arms.</p> <p>You can fold forward by hinging at your hips.</p> <p>Put your hands on the floor or on your legs.</p> <p>Be in this position for one minute.</p> <p>With your left leg bent or outstretched, lie on your back.</p> <p>Interlace your fingers around the front of your shin and pull your right knee in towards your chest.</p> <p>Maintain this posture for a maximum of one minute.</p>	
	Push your knees to chest and pose	On the other side, repeat.	
	Reclining butterfly pose	Perform each side two or three times.	
	Cat Stretch	<p>With your knees out to the sides and the soles of your feet together, lie on your back.</p> <p>Arms can be placed overhead or next to your body.</p> <p>Maintain this posture for a maximum of five minutes.</p> <p>With a flat back, begin on your hands and knees.</p> <p>Inhale deeply, then arch your back so that your shoulders move back and your belly moves downward towards the earth, allowing the "cats" to gaze upward.</p> <p>As the "cats" stretch their backs, release the breath and turn the back curve around.</p>	

Saturdays

S/NO	Activity	Procedure	Duration
1	Warm-up		5-10 min
	DO climbers of a mountain	Take a push-up position to begin. For 20 seconds, legs "climb the mountain," much like while running. Hands remain on the floor. Repeat after resting for three sets.	
	Do star jumps	Perform 10-star leaps. While in the air, leap with your arms and legs out like a star. Repeat after resting for three sets.	
	Crawl like a bear	From one predetermined position to another, crawl like a bear on your hands and feet. Count ten rest then repeat for three sets.	
	Balance on one leg	At the same time, make 30 circles with both arms. Next, raise one straight leg off the ground and perform ten circles. Change legs. Continue for ten revolutions.	
2	Workout		20-25 min
	Jogging on the spot	Jog on the spot while keeping your core tight	
	High knee with raised hands	High knee while raising the hand up ensuring tight core as you lift the knees	
	Walk as you stretch with alternate hands	Walk as you stretch while alternating the hands	
	One leg squat		
	Forward and reverse lunge		
	Jump over the log		
	8 high knee/8 power jacks	Jog and jump over an imaginary log side by side landing softly	
	8 alternate high knees	Alternate high knee and power jack by bending down Keep your feet hip-width apart and your arms by your sides. As you start this exercise, stand erect and position your thighs perpendicular to the floor, being careful not to	
	High knee waist twist side by side	Lift one knee at a time, slowly. Lift and lower your legs at the same steady pace as you alternate between each knee one at a time. Raise your left hand.	
	Jump rope (invisible rope)	Keep your pace slow and start swinging your arms. From your shoulder, swing your arms.	
	Trunk jump		
	Wide trunk jump	Jump an invisible rope while keeping the knees soft Perform trunk jump while using the core to lift the body with knees bent.	

Perform wide trunk jump and land softly while the knees are bent.

3	Cool down		5 min
	Quad Stretch	Stand up, bend your knee, and use your right hand to grasp your left ankle. Practise your balance. Hold for 20 seconds. Change legs. Continue for three sets.	
	Copy Cat	As the group duplicates, children alternately show off their preferred stretch. Don't forget to stretch slowly and softly. Continue for three sets.	
	Ground Down	Maintain a shoulder-width distance between your feet. For 20 seconds, touch the ground. For 20 seconds, touch your right foot. Change legs. Repeat for three sets.	
	Body shakes	Shake your right arm gently, then your left, and finally both arms simultaneously.	
		Shake your right leg first, followed by your left.	
		Then shake your entire body, including your head and hips.	
		Give every bodily part a 30-seconds shake.	
		A general body stretch	
Sundays			
Rest day			