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An Educational Review on Circuit Training and Its Role in Improving Fitness Levels

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Abstract
Circuit training is an adaptable and time-efficient exercise method that integrates resistance training, cardiovascular activities, and high-intensity movements performed in a repeated sequence with minimal rest. Originating in the early 1950s at the University of Leeds, circuit training has evolved into a widely practiced fitness approach suitable for individuals of all skill levels. This paper provides an overview of circuit training, its structure, types, and practical applications for home-based, gym-based, and outdoor workouts. The discussion highlights how circuit programs can be tailored using timed circuits, repetition circuits, competitive formats, and sport-specific drills to meet diverse fitness goals. The benefits of circuit training including improvements in cardiovascular endurance, muscular strength, metabolic rate, flexibility, mobility, and weight management are examined in detail. Overall, circuit training is presented as a versatile exercise strategy that promotes total-body conditioning and supports long-term physical health and wellness.

Keywords: ***Circuit training, Fitness regimen, High-intensity exercise, Cardiovascular endurance, Muscular strength, Bodyweight training, Timed circuits, Repetition circuits, Exercise physiology, Metabolic health, Flexibility, Home workout, Strength and conditioning.***

1.Introduction
Similar to high-intensely interval training, circuit training is a type of body conditioning that includes resistance training, endurance training, high-intensity aerobics, and activities done in a circuit. It focuses on increasing muscular endurance and strength. Completing every exercise in the program is known as an exercise "circuit." After finishing a circuit, the initial exercise is repeated for the subsequent circuit(1). In circuit training, the intervals between exercises are often brief and frequently involve a quick transition to the subsequent exercise. The origins of circuit training can be traced back to the early 1900s. It was first created in 1953 at the University of Leeds in the United Kingdom by R.E. Morgan and G.T. Andersons.

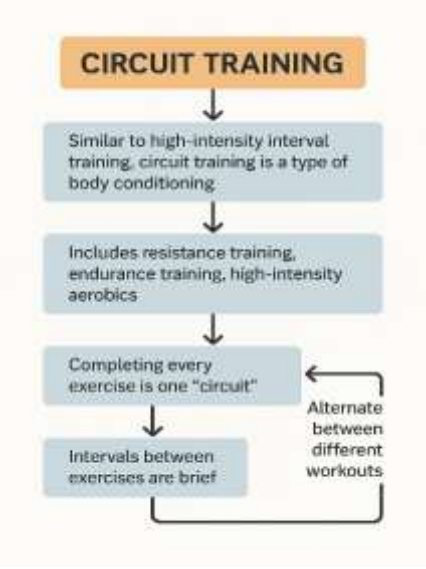

FIGURE 1 Circuit Training

Circuit training is a type of exercise where you alternate between different workouts that focus on different body areas. A good workout that fits into a healthy lifestyle is one that involves concentrating on various muscle groups for brief periods of time(2).

2.Circuit training

A fitness regimen known as circuit training entails executing a number of exercises repeatedly with little to no rest in between. Using a variety of workout equipment is a common part of circuit training.

Something that keeps going back to its starting point is called a circuit. The complete set of exercises is performed a predetermined number of times during circuit training(3).

A common exercise regimen that is easily adaptable to your fitness objectives (cardio, strength, endurance, etc.) is circuit training. People of all skill levels can perform circuit training, which can be done alone or in a group setting.

About circuit training

Circuit training is a workout format in which you move through a sequence of up to ten exercises, each targeting different muscle groups. It isn't defined by any single exercise type, but by the structured way the session is organized. Because the exercises are performed in quick succession, a full circuit session usually takes only about 30 to 45 minutes to complete.

How Is Circuit Training Performed?

Circuit training can be performed in a variety of ways. You may create your own routine, follow a structured program available online, or work with a coach or personal trainer. Effective circuit programs typically include exercises that develop cardiovascular endurance along with upper- and lower-body strength. Each exercise is usually performed at a moderate intensity for 30 to 90 seconds, or for 10 to 15 repetitions.

After completing the assigned repetitions or duration for one movement, you immediately move on to the next exercise using the same time frame or rep count(4). Circuit training is characterized by this continuous flow, with minimal or no rest between stations. Once every exercise in the sequence is completed, the entire circuit is repeated for three rounds or more, depending on the design of the workout.

Example Exercise Workouts including circuit training can be tailored to your personal preferences and desired level of intensity. Resistance training, bodyweight exercises, and sport-specific drills are examples of exercises.

Body-Weight Circuit at Home Every exercise should be done for 30 seconds. Proceed to the subsequent exercise and perform it again without stopping. After finishing every exercise, take a two-minute break before performing the circuit three times. Jumping jacks Squats Push-ups and lunges that alternate Crunches in the abdomen Burpees, glute bridges, and bench dips

3.Circuit training types include stage circuits

- Normal circuits,
- Timed station circuits, and
- Total exercise.

The Primary Circuit Training Types As previously said, circuit training is completely customizable, meaning that there are countless ways to organize your circuit training sessions. Your workouts will be more successful and interesting if you know what kinds of circuit training exercises to incorporate and how to change them up depending on your fitness objectives. To give you an idea of the various kinds that are accessible, below are some examples of circuit training(5).

1.Timed Circuit: In this circuit style, rest and exercise periods are timed to a predetermined duration. Depending on the group or individual performing the circuit, the work/rest time ratio can be altered. For a group of individuals with average fitness levels, a typical timed circuit would consist of 30 seconds of circuit training followed by 30 seconds of rest. On the other hand, an athlete's timed circuit can consist of 80 seconds of circuit workout and just 20 seconds of rest.

2.A competition circuit is comparable to a timed circuit, but the goal is to challenge yourself to complete as many repeats as possible in the allotted time. You could be able to finish 12 push-ups in 30 seconds, for instance(6). The goal is to increase the number of repetitions you can complete within the allotted time while maintaining the same time frame.

3.Repetition Circuit: This kind of circuit works well when working with big groups of people who have varying skill and fitness levels. The plan is for the most fit group to perform, say, 20 repetitions of each exercise, the intermediate group to perform only 15, and the novices to perform only 10 repetitions.

An All-Inclusive Circuit Exercise This circuit should take roughly ten minutes to complete and can be completed alone or in a group(7). After every exercise, beginners should relax for 30 to 45 seconds, and after every circuit,

they should rest for 3 to 5 minutes. Intermediate exercisers should rest for two to three minutes after each circuit and for twenty seconds after each exercise. However, more experienced exercisers shouldn't take a break until each circuit is finished(8).

1. 10 to 15 repetitions of squat jumps
2. Common push-ups: ten to fifteen repetitions
3. 15–20 repetitions of calf raises
4. 10 to 15 reps of bench dips
5. Perform 15 to 20 reps of abdominal crunches
6. 60-second jump rope 7
. 10 to 15 repetitions of squat jumps
8. Common push-ups: ten to fifteen repetitions
9. 15–20 repetitions of calf raises
10. 10 to 15 reps of bench dips
11. Perform 15–20 reps of abdominal crunches
12. 60-second jump rope

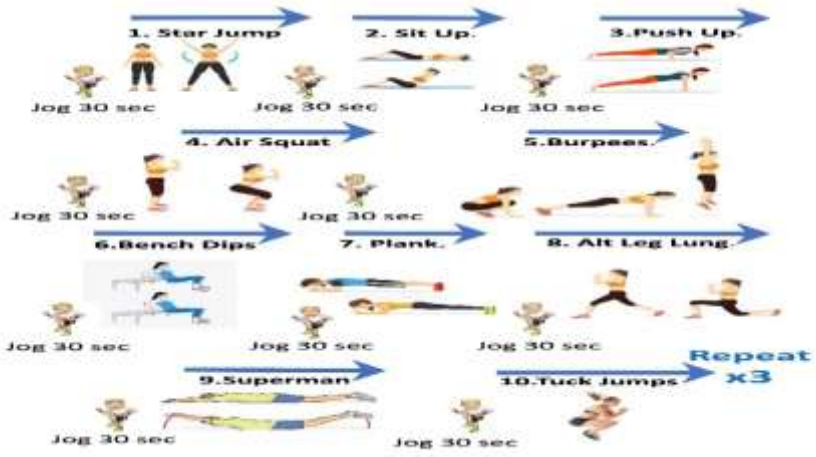

FIGURE 2 Fitness Exercise

4.Running Circuit: Running or sport-specific circuits are best completed outside or in a spacious, open space. Select workouts tailored to your sport or focus on a particular area of your sport that you'd like to get better at. Then, do 200 or 400 meters of easy running in between exercises rather than just resting. You can even include rapid 400-meter runs or sprints in your fitness regimen(9).

A Training Exercise Using an Outdoor Running Circuit This circuit can be completed alone or in a group and is done outside on a level surface or a jogging track. Until the rotation is finished, mark out 200 meters, and then walk or run the 200 meters in between each exercise. Feel free to assign a certain number of repetitions or a time interval to each exercise. For instance, perform each exercise for 30 seconds or 20 repetitions. While more experienced exercisers should run the 200 meters, beginners can walk the 200 meters between each exercise to collect their breath and get ready for the next one.

1.Lunges for walking
2. Crunches with twists
3. Jacks
4. Push-ups
5. The squat
6. Squat Jumps
7. Bench Dips
8. Push-ups
9. Crunches
10. Lunges for Walking

Benefits of circuit training:

Cardiovascular health: By raising blood flow and heart rate, circuit training can help your heart stay healthy.
Strength: You may increase your muscular mass, improve your form, and learn to manage your muscles.
Weight loss: Compared to conventional cardio activities, circuit training can help you burn more calories in less time.
Muscular endurance: You can maintain activity for a while with circuit training.
Metabolism: Even after a workout, circuit training can increase your metabolism and aid in fat loss.
Mobility: You can increase your mobility with circuit training.by doing circuit training.
Flexibility: Circuit training can be performed at any fitness level, anywhere, and with or without equipment. Strength and cardio workouts are combined in circuit training. It entails doing many workouts back-to-back.

Summary

Circuit training is a type of exercise where you alternate between a variety of activities for a set period of time or number of repetitions while getting little to no rest in between(10). Circuit training can help you gain strength, strengthen your heart, and reduce weight because it is time-efficient and works your entire body. With a wide variety of workout combinations, circuit training is adaptable. Use sport-specific drills or incorporate upper- and lower-body routines.

4.Conclusion

Circuit training through its structured, fast-paced rotation of exercises emerges as one of the most versatile and accessible forms of physical conditioning. As outlined throughout this report, the method's adaptability allows it to be tailored to virtually any fitness level, environment, or training objective. Whether designed as a timed circuit, a repetition-based sequence, or a sport-specific running circuit, the format consistently blends cardiovascular work with muscular strength and endurance challenges. This combination allows participants to engage multiple physiological systems within a single session while keeping overall training time efficient and manageable.

The research continues to show that circuit training provides robust benefits for cardiovascular health, muscular development, weight management, and metabolic function. Because exercises are performed with minimal rest, heart rate remains elevated, supporting cardiorespiratory fitness improvements similar to those achieved in traditional endurance training. At the same time, repeated bouts of strength-focused movements promote muscular hypertrophy, enhanced movement control, improved mobility, and increased functional capacity. Its capacity to elevate metabolic rate both during and after exercise further underscores its effectiveness for fat loss and body-composition improvement. These advantages are particularly important for individuals seeking time-efficient ways to improve their overall health.

Furthermore, the inclusivity of circuit training makes it suitable for a wide range of populations, from beginners who require modifications and structured rest intervals to advanced athletes seeking high-intensity, performance-oriented circuits. The ability to incorporate body-weight exercises, resistance equipment, sport drills, or aerobic components provides virtually limitless combinations, helping reduce monotony and increase long-term adherence. As highlighted in the literature, circuit-based programs can also support specialized goals such as rehabilitation, fall prevention in older adults, and improved functioning in individuals managing chronic health conditions.

Overall, circuit training stands out as a dynamic, comprehensive, and customizable training method that strengthens the heart, builds muscle, enhances endurance, and promotes general well-being. Its flexibility, time efficiency, and broad range of benefits support its role as an excellent exercise strategy for both novice and experienced individuals. When integrated consistently into a healthy lifestyle, circuit training offers a powerful way to improve fitness, support long-term health, and encourage sustainable physical activity habits.

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Conflicts of interest

The authors have no conflicts of interest to declare

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