



# Volleyball Athlete Oriented Circuit



Louisa Hahn, Adi Perets, Romi Weiss, Madison Li, and Katie Lee



# Goals

A volleyball player wishes to improve the speed and power of her vertical leap, so that her spikes will be more powerful. The Fitness Component goal is to also improve overall cardio; doing so will increase stamina during matches. The player's core muscles must also be improved, since core muscles are part of almost every movement.



As you can see, this is a volleyball player.

# Exercise Terms

- Cardiovascular:** Term referring to the heart and blood vessels.
- Sets:** A group of repetitions (of an exercise) A circuit contains several sets
- Interval Training:** Training that involves repeated sets with intervals of rest
- Tabata Format:** A type of high intensity interval training, where the athlete works out for 20 seconds and rests for 10 seconds
- Intensity:** How hard someone works-out. It can range from high (anaerobic = pushing limits) and low intensity (aerobic = lighter, easy)

# Goal: Improving Vertical Jump

## Targeted Muscle Groups

### Ankle Plantarflexion:

- **Calves:** also known as gastrocnemius, aids in jumping, mostly when leg is straight

### Hip Extension:

- **Gluteus Maximus and Medius:** moves leg backwards, and moves leg sideways
- **Hamstrings:** three muscles on the back of leg, Biceps femorus, Semitendinosus, and semimembranosus
- **Adductor Magnus:** aids in hip extension

### Knee Extension:

- **Quadriceps:** four main muscles in leg, all thigh muscles: Vastus Medialis, Vastus Intermedius, Vastus Lateralis, and Rectus Femorus.

## Equipment and Exercises

**Bosu-** Bosu side-to-side

**Medicine Ball-** Medicine Ball Slams

**Power bands-** Partner Squat and Burpees

# Goal: Cardiovascular

## Targeted Muscle Groups

**Heart:** The most essential part of your body, pumps blood to all parts of the body. Cardio's purpose is to make the heart healthier and more efficient.

**Lungs:** The pair of organs that stores oxygen and carbon dioxide, essential for breathing. Cardio makes the lungs healthier and more efficient.

### Major Leg Muscle Groups\*:

- **Calves:** also known as gastrocnemius, aids in jumping, mostly when leg is straight.
- **Hamstrings:** three muscles on the back of leg, Biceps femorus, Semitendinosus, and semimembranosus
- **Quadriceps:** four main muscles in leg, all thigh muscles: Vastus Medialis, Vastus Intermedius, Vastus Lateralis, and Rectus Femorus.

\*Our cardio exercises, jump rope, hurdle jumps, and bosu side-to-side, involve the leg muscles.

## Equipment and Exercises

**Jump rope-** Jump roping

**Mini Hurdles-** Jump-overs

**Bosu-** Bosu Side-to-Side

# Core Muscles:

## Targeted Muscle Groups

**Core Muscles:** four muscles that have apart in almost every movement in the body: Transverse abdominal muscle, Multifidus muscle, Abdominal external oblique muscle, and Psoas major muscle

**Calves:** also known as gastrocnemius, aids in jumping, mostly when leg is straight

**Hamstrings:** three muscles on the back of leg, Biceps femorus, Semitendinosus, and semimembranosus

**Gluteus Maximus and Medius:** moves leg backwards, and moves leg sideways

**Quadriceps:** four main muscles in leg, all thigh muscles: Vastus Medialis, Vastus Intermedius, Vastus Lateralis, and Rectus Femorus.

**Proneous longus:** muscle spanning from knee to toes, muscle for lateral movements

Core Muscles are involved in almost any movement. Therefore, our circuit includes exercises that work on the core muscles.

## Equipment and Exercises

**Medicine Ball-** Medicine Ball Slams

**Power bands-** Partner Squat and Burpees

# Circuit explanation

The circuit is built specifically for a volleyball player, who wants to improve her vertical leap. The Fitness Component needed was Cardiovascular, and the required piece of equipment was power bands. Our format was Tabata, which is 20 seconds of intense workout, and 10 seconds of rest. Our circuit is 15 minutes long: 6 exercises and 5 total rounds.

The muscles used in a vertical leap are major leg muscles, such as the hamstrings, glutes, and quads. Therefore, we incorporated exercises that work on the leg muscles. Bosu side-to-side, mini-hurdle jump-overs, and partner squat and burpees with power band are all exercises that involve the leg muscles.

We also included cardiovascular exercises, in order to exercise the heart and lungs. Jump rope, mini-hurdle jump-overs, and bosu side-to-side are cardio exercises.

# Tabata Format

The Tabata format is 20 seconds of exercise, and 10 seconds of rest.

It was created by Dr. Izumi Tabata, a Japanese man who coaches and studies fitness.



This is Dr. Izumi Tabata



# Tabata Format

The circuit will span 15 minutes. There are 5 rounds, with 6 exercises per round. The exercises will be in the order shown on the right. The class will form groups of 2 then find 5 other groups to form a group of 6 pairs, or 12 people, with one pair per exercise. If there are remainders, the remainders will form a smaller group, but still rotate in the same manner.

**Rotation:** Back to front. 1 Goes to 6 to rotate again

## Exercises (in this order):

1. Bosu side-to-side
  2. Jump rope
  3. Partner squat and burpees with power band
  4. Med ball slam
  5. Partner plank hold and jump-over
  6. Mini-hurdle jump-overs
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# Dynamic warm-ups

## Criss cross jacks:

1. Stand straight with your feet shoulder-width apart, bring your arms up and extend out to the sides.
2. Jump up and start by crossing your left leg in front of the right, and your left arm on top of the right.
3. Jump again and return to the starting position.
4. Repeat, and reverse the position of your arms and legs.

The exercises warms up the major leg muscles (inner thigh and outer thigh, and glutes), abs, and shoulders.

## Squats

1. Stand straight with feet shoulder-width apart, with feet slightly pointed outward
2. Stare forward constantly, and squat down. Keep back straight, and keep weight on the balls of your feet
3. Keep knees in line with feet. Your legs should form a 90 degree angle with the ground.
4. Rise up in the same manner

This exercise warms up the core, the leg muscles, glutes, and back.

# Dynamic warm-ups

## Quickfeet:

1. Stand with feet shoulder-width apart
2. Bend down slightly
3. Move feet rapidly back and forth

This exercise works on the glutes and major leg muscles (quads, hamstrings, calves)

# Bosu side to side

## Muscle groups:

1. Glutes
2. Calves
3. Knees (includes quads, hamstrings, and calves)
4. hamstrings

## Fitness components and skill components:

1. Improves speed and stamina of legs
2. Muscular endurance

# Demonstration

Standard: step onto bosu, jump and switch the foot that is on the bosu (if right foot is on bosu, jump sideways to left foot)

Modification: step onto bosu, step onto bosu with other leg and step off with the original leg. (start with right, then switch to left and step down with right)

Progression: step into bosu, jump and switch the foot. Touch the ground with fingers after switching



# Jump ropes

## Muscle groups:

1. Gastrocnemius
2. Hamstring
3. Glutes
4. Abdominals
5. Forearms
6. Deltoids

## Fitness components and skill components:

1. Improves agility
2. Improves hand-eye coordination
3. Improves balance
4. Improves stamina in jumping
5. Cardiovascular

# Demonstration

Standard: Normal jump ropes with higher jumps

Modification: Jump normally, with normal height as well

Progression: Jumping normally, but backwards.



# Partner Squats and Burpees with Power Band

## Muscle groups:

1. Thigh muscles: hips, quads, glutes
2. Arms
3. Chest
4. Glutes
5. Hamstrings
6. Core

## Fitness components and skill components:

1. Full body strength
2. Strengthens the thighs for jumping
3. Muscular Endurance



# Demonstration

Standard: One partner squats, the other partner does burpees, while connected by a power band

Modification: One partner holds squat position while other runs in place

Progression: One partner does jump squats while the other partner does burpee pushups



# Medicine Ball Slams

## Muscle groups:

1. Tricep
2. Abdominals
3. Quads
4. Deltoids

## Fitness components and skill components:

1. Improves power
2. Improves strength
3. Improves speed
4. Muscular Endurance

# Demonstration

Standard: bring med ball over your head, pivot, turn, and slam ball down with all strength

Modification: bring med ball to chest, pivot, turn, and slam down ball

Progression: jump up, bring med ball over head while jumping, and then slam down



# Plank Hold and Jump overs

## Muscle groups:

1. Transverse abdominus
2. Rectus abdominus
3. External oblique muscle
4. Glutes

## Fitness components and skill components:

1. Muscular Endurance
2. Strengthen core muscles
3. Strengthen jumping ability and stamina

# Demonstration

Standard: one partner holds the high plank position while the other jumps over the partner's legs

Modification: one partner holds low plank position, while the other steps over the partner's legs

Progression: one partner does push-ups while the other tuck-jumps over the partner's legs



# Mini Hurdle Jump-overs

## Muscle groups:

1. Calves
2. Glutes
3. Hamstrings
4. Quadriceps

## Fitness components and skill components:

1. Muscular Endurance
2. Improve jumping ability
3. Improve stamina and consecutive jumps

# Demonstration

Standard: tuck jump over hurdles

Modification: jump normally over hurdles

Progression: tuck jump sideways over hurdles



# Cool down exercises

## Jog in place:

- Targets the heart and lungs
  - Targets lower body: hamstrings, knees (consists of hamstrings, calves, and quads) calves and quadriceps.
1. Stand in place
  2. Start lifting both legs, alternating
  3. Start running
  4. Make sure to stay in place

## High knees:

- Targets heart and lungs
  - Targets lower body: glutes, hamstrings, quadriceps, and calves
1. Stand in place
  2. Reach legs up, with knee reaching the hip
  3. Alternate the leg movement and speed up



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