

VOLLEYBALL
Conditioning



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Volleyball Conditioning System

Introduction

There is nothing more important in volleyball than conditioning drills, other than basic technique. Even if players understand the formations and have perfect technique, they will never win games and become successful if they are not strong enough to dominate their opponents. To become strong, players must engage in weekly conditioning workouts that focus on developing agility, vertical leaping skills, and quickness.

Workout Plan

Volleyball conditioning does not require a gym or an arsenal of expensive equipment, but it does require dedication and commitment. Players should be conditioning a minimum of three times per week for 15 to 20 minutes. It is best to condition before practice begins in order to protect muscles. Each workout should begin with a very light warm-up, such as a slow 2 lap jog to wake up the muscles.

The workout should be done continuously so as to fatigue the muscles quicker and achieve better results. The less the time between sets or exercises, the faster the muscles will become completely fatigued and the stronger they will become after rebuilding.

The workout should end with a cool-down and stretching, which should last at least 5 minutes. If possible, allow a 10 minute cool-down and stretching period. If the workout is followed immediately by volleyball practice, the cool-down and stretching period should be included after the entire practice is complete.

Stretching after a workout is essential because it promotes healthy rebuilding of muscle tissue and reduces the chances of post-workout soreness, which comes from a build-up of lactic acid in the muscle tissue. This lactic acid, the by-product of breaking down the microscopic muscle fibers used in conditioning, can be dispersed by proper stretching.

Set and Repetitions

Each player must work their body beyond what feels comfortable, although pain is never a good sign with conditioning. If a team is very new to conditioning, players should do no more than two sets of an exercise with no more than 12 repetitions of each move per set. For more advanced teams, three sets of all exercises is important to achieve maximum performance levels. Repetitions can be increased up to 15 as the coach sees fit.

When players are reaching a plateau or no longer feel the impact of their workouts, coaches should lead players through a more advanced conditioning program. Changes can be very small but have a very big impact. The easiest way to increase difficulty is to increase the number of repetitions of an exercise or to increase the resistance of the exercise. For players without access to free weights or weight machines, increasing repetitions or using body weight resistance is a hassle-free way of staying strong and fit.

Exercises

Squats

Squats are one of the simplest exercises but also one of the most effective for building lower body muscle and strength. To do squats, players keep their backs straight and their shoulders rolled back. They widen their feet just beyond shoulder-width apart with the knees and toes facing forward. Some athletes prefer to clasp their hands behind their backs or put their hands on the small of their backs to maintain a good back and shoulder position.

Players bend the knees, making sure to keep the knees over the toes and not letting the knees expand past the ankles. This often means that the majority of the player's weight is over their heels and in their glutes. This improves the move and isolates the glute muscles, which are essential in vertical leaps.

At the bottom of this exercise, it will be necessary for players to bend forward at the waste to keep the weight on the heels and to prevent themselves from falling over. The mistake to avoid is to bend at the shoulders or the mid back instead of at the waist. The back should remain straight; it is simply tilted forward but the spine remains straight, not curved.

When players have lowered down until their quadriceps and hamstring muscles are parallel to the ground, they can raise slowly back up, making sure not to wobble or put undo pressure on the knees or ankles. When players raise back up, they should not straighten their legs so completely that they lock out their knees. This causes unnecessary pressure on the knees and promotes fainting.

To make squats more difficult, try one of these variations:

1. Use free weights to add resistance. Players can hold small dumbbells in their hands as they squat. Dumbbells should be held at the shoulder level so as to not affect the back during the exercise.
2. Use only one leg. Players can significantly increase the difficulty of the move if they hold one leg out in front. It becomes much more difficult to lower all the way down on one foot, so players must watch out that they do not let the knee bend over the ankle in an attempt to sink lower into the move or to keep from falling over. To prevent this from happening, players must remember that it is acceptable to bend forward at the waist.
3. Do squats against the wall. Players can put their backs against a wall and sink into a squat. This ensures that the glutes and hamstrings are isolated and allows the player to hold the move for much longer, increasing the affect it has on the muscles. To make the move work the quadriceps as well, players should focus on putting constant pressure against the wall, as if they were trying to push a door open with their backs.
4. Hold the squat longer at the bottom. Increasing the amount of time players spend in the actual squat position can go a long way toward increasing the difficulty of the move. Coaches should time players as they sink down. If they are doing squats without the wall, players should hold each repetition between three and five seconds. If players are doing the wall variation, they should hold the squat for at least 30 seconds.

Squat Jumps

Squat jumps are similar to squats, but with a jump for added difficulty and strength-building. Players begin the same way for squat jumps as squats, with a straight back and their shoulders rolled back. Often times the arms are crossed behind the back or clasped for balance purposes.

Players lower into the squat, remembering to keep their knees aligned over their ankles. They should sit back into the move like in the regular squat, with their weight over the heels more than the toes. This will keep the knees properly aligned.

At the bottom of the squat, players should explode off the ground, rolling through the entire foot and jumping into the air. The purpose of the jump is to increase quadriceps strength, and players should strive to jump as high as possible, straightening their legs completely in the air and reaching up, as if they were blocking a hit from the other team.

The arms are incredibly important on this move. There are two philosophies, and coaches are encouraged to have players try the drill both ways. The first philosophy is that the arms stay behind the back, forcing the legs to do all the work and increasing the effectiveness of the workout. The second philosophy is that the arms should be available to help with the jump, so they are allowed to come back and swing forward as the player jumps. This teaches the importance of using the arms and the extra momentum they can provide.

To teach players to jump using their arms, they should do several squat jumps without the arms, like normal. Then add the arms. The arms should be behind the player at the bottom of the squat. As the player jumps, the arms should swing through to the front, passing the player's sides and following through into the air. The most common mistake players make is to not finish the follow through on their arms, which actually hurts their upward motion more than helps it.

Players must let their arms come all the way through until they are straight up, as if they were blocking an attack. Shortly after passing the player's side, the player should be in the air, and the arms help propel the body upward and prolong the leap.

The major mistake to avoid with squat jumps is allowing the back to fall too far forward at the bottom of the squat. As players get tired, they will naturally bend farther forward at the waist to take some of the work off their legs, but this gives them less momentum as they jump and will wear them out faster.

To make squat jumps more difficult, try one of these variations:

1. Add light dumbbells. When using dumbbells with this exercise, players will have to use the "no arms" version to avoid injuring their shoulders. Players can place weights near their shoulders and do the same lower body movement.
2. Bring the feet together in the air. At the top of the jump, players can bring the legs together and cross them, uncrossing them before landing. This makes the movement feel almost like a "beat" and takes just a second. It works the inner thighs and helps fatigue the players faster.

Coaches and players should remember one last important thing about squat jumps. As they land, players must roll through the ball of their foot to avoid injury to the feet and ankles. Players should land on their tip toes and roll through the foot until they are standing back on solid ground. To land with flat feet or straight knees is disastrous to the body and should be avoided at all costs.

Mountains

Mountains are the perfect endurance-building and quickness-increasing exercise. It is extremely simple but also very effective. This is a sprinting exercise that works well in a gymnasium with painted lines for markers. Players begin at one end of the gym in a straight horizontal line.

They start running at a sprint to the first painted line and touch the ground with their hand. They then turn around and run back to the starting point as fast as possible, also touching the ground when they arrive.

From there, players run to the next painted line and touch the ground before turning around and running back to start, again touching the ground. This goes on until the players are sprinting from one end of the court to the other and back with just the touch of the ground for a break. Figure 1 shows the pattern most commonly used by coaches and players.

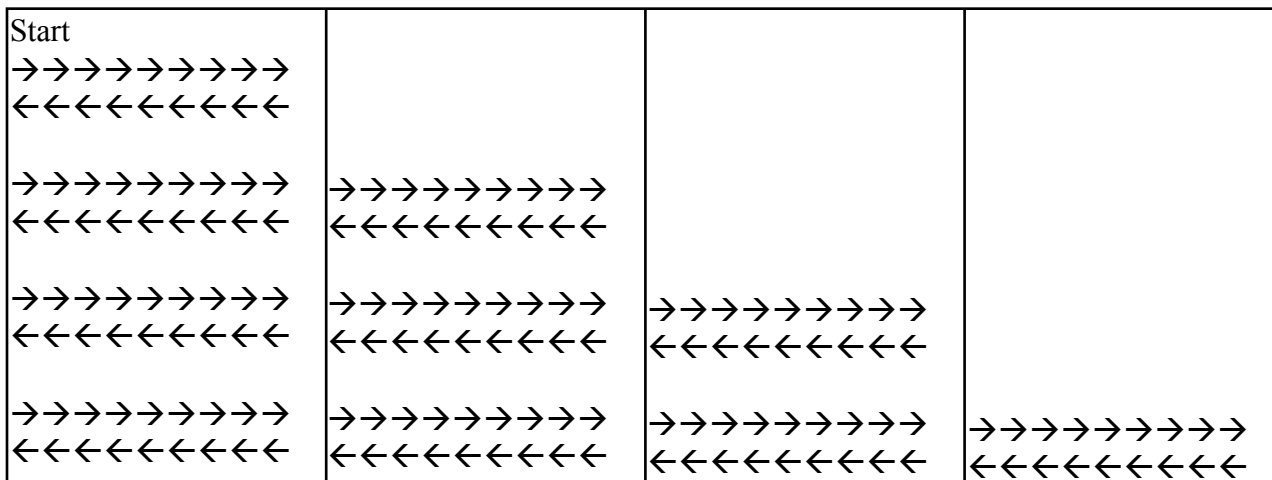


Figure 1

There really is no way to increase the difficulty of this drill, but it is sufficiently tiring that most players will not need to up the intensity. Coaches should be constantly pushing players to run harder and faster, which is the best way to increase the level of workout received from this drill. Players are encouraged to use their arms to help as they run.

Military Running

Military running is also used to increase quickness and decrease reflex time. To do this exercise, players start with their legs a bit farther than shoulder-width apart with knees slightly bent. Players begin to “jog” in place somewhat, with their legs doing all the work. In this drill, the upper body does not do any work until the floor

section. When standing, the legs do all the work. Players must jog using only their toes, almost mimicking the movement of jumping rope, but as quick as possible.

This move ends up looking like players are simply tapping the floor with the ball of their feet and switching to the other foot. This forces their muscles to respond quickly and fatigue just as quickly.

Military running works the leg muscles primarily, including the quadriceps, hamstrings, and glutes. Depending on how high on the toes the players are, it can also work the calf muscles. This move is also a cardiovascular workout because of the prolonged activity that raises the heart rate.

Coaches can begin just with 30 seconds of military running, but there are several variations that really make the exercise more complete. After 30 seconds of running upright, players should drop to the ground and do two push-ups with good form. Good form means a straight back, without the buttocks sticking up or sinking down. The arms must make a 90 degree angle at the bottom of the pushup and the head should be aligned with the spine, looking straight down.

After the two push-ups, players jump back to their feet and engage in another 30 seconds of military running. This drill, including the push-ups, decreases reaction time and keeps the heart rate high, ensuring a workout for both the heart and the other major muscles in the body.

To make military running more difficult, try one of these variations:

1. Players can do military running through obstacles, such as running through tires or around cones. The purpose of every obstacle is to force players to move their entire bodies while maintaining the quick pattern of their feet.
2. Run in different directions. Military running sideways increases the difficulty immensely and mainly works the side to which the player is moving. For this reason, it is important to do side military running going both directions. Military running can also be done backwards, which puts the emphasis of the exercise on the glutes and calves. This also requires more thinking from players and keeps them from getting mentally fatigued.
3. High knees. Military running can be combined with high knees, where players pull their knees up as high as possible as they run in place. Because of the short time between strides, players won't be able to bring their knees up very high, but it will increase the workout and put more emphasis on the glutes and quadriceps.

Push-Ups

Strong upper bodies will help players hit harder, have stronger blocks, and get more momentum on jumps. Push-ups, though simple and often boring, are the best way to target the entire upper body in one movement.

There is a reason that push-ups are included in every basic workout plan. They are a relatively easy movement to do and they get great results. To do a push-up, start in the plank position with the hands directly under the

shoulders and the hips aligned in back. The players should be on the balls of their feet with the feet about hip-width apart.

Players bend the arms, lowering their bodies closer to the ground. Players must remember to keep their bodies in line as they get lowered to the ground. This means that the head is in line with the rest of the spine and facing straight down. The shoulders stay pushed back and don't hunch forward. The hips stay in line with the rest of the body and do not tilt upward or sink down. The knees stay straight and strong and do not bend or touch the ground.

Players should lower into the push-up until their arms make a 90 degree angle with the floor. The closer in the arms are to the body, the harder it will be to reach that 90 degree angle, so players must adjust based on their current strength and their body size until they find a comfortable hand placement.

Push-ups work nearly all the muscles in the upper body, including the biceps, triceps, pectoral muscles, and upper back or dorsal muscles. They also engage the core muscles and work the glutes and hamstrings.

To make push-ups harder, try one of these varieties:

1. One leg push-ups. Instead of keeping both feet on the floor, pick up one leg during the push-up. This will require the other leg to spread slightly farther out to keep players from falling over and losing their balance. It engages the glutes and hamstrings specifically and requires core muscles to stay in the correct position.
2. Tricep push-ups. To focus the work on the triceps, bring the arms in close to the body and place the hands at chest level. This variation requires the players to start lying on their stomachs and pushing up after their arms are in the correct position. The elbows should face backward in this position and the shoulders should be rolled as far back as possible. Players lower into the move just as a normal push-up, but the range of motion is severely decreased, so they should not expect to go as low.
3. Decline push-ups. Players do the same push-up move but with their feet elevated, which puts more weight on the hands and increases the resistance to the move. To elevate the feet, players can rest the front of the ankles on a low step or bench. It is very easy to let the hips push upward in this move, so players must remember to keep the body in line.
4. Weighted push-ups. Players can increase the resistance of the move by placing a small dumbbell on their upper back. This move can also be accomplished with a partner. The partner can put pressure on the person's back and act as a weight, resisting them when they push up from the lowered position.
5. Push-ups to elbows. Players start in the regular push-up position and do eight regular push-ups. Then, they lower one arm down to the elbow and then the other arm, so they are now resting on the balls of the feet and the forearms. Players then push back up into the regular push-up position. This must be done starting the elbow drop with both arms, because the arm that starts pushing the body back into the standard position gets a much bigger workout than the other arm.
6. One arm push-ups. Perhaps the most difficult of all variations, this one requires the use of only one arm. Players start with their feet wider apart than normal to compensate for the use of only one arm. Keeping the body in line, they lift one arm and place it behind the back. Using only the arm left on the ground, players engage in a regular push-up.

Abdominal Curls

Though it may not seem like having strong abdominal muscles will help in volleyball, a strong core is the key to any competitive game. Without a strong core, players will not be able to hit as hard, jump as high, or keep their balance as well when switching directions quickly. Basically, a strong core means a better game.

There are many different ways to work abdominal muscles, and many variations will be provided below. The basic ab workout is the curl or crunch. This starts with players lying on their backs with their knees bent and their feet flat on the floor. Players should place their hands behind their heads or at the base of the neck.

To start the curl, players should roll the hips upward slightly so there is no room between the lower back and the floor. This not only protects the lower back during the workout, it also engages some rarely used deep abdominal muscles that increase the effectiveness of the workout.

Players begin the curl with their shoulders pushed back, as if they are trying to pull their shoulder blades together in their back. Then, players lift their upper body off the floor. Most athletes can raise their shoulders and heads off the floor and maintain good form. Players should keep the shoulders rolled as far back as possible and not let the upper back arch over to reduce the workout.

There are many ways to cheat with abdominal curls, so coaches must watch that their players maintain good form. The first way to cheat is to let the elbows sink in toward the face, which allows the upper body to curl and reduces the work the abdominals must do.

The second way of cheating is to use the hands to pull up the head and neck, which is not only cheating but can also hurt the head and neck. Coaches should always advise players against using their hands to help them up, as this often leads to very sore neck muscles.

Another way to cheat is to use the quadriceps to help pull the body up. This is often denoted by the feet raising off the ground slightly as the upper body raises and then lowering as the upper body reaches the top of the curl.

The basic move requires the players to engage their abdominal muscles primarily to raise their neck and shoulders off the ground without the assistance of other large muscle groups. When done properly, abdominal curls will fatigue players after around 50. These can be split into sets if coaches prefer.

Try these variations to increase the difficulty of abdominal curls:

1. Reverse curls. Instead of raising the neck and shoulders, raise the feet and hips. Leave the head on the floor and raise the feet off the floor, trying to pull the lower abdominal muscles in so that the hips come off the floor. Players must remember not to use the quadriceps muscles to get the legs off the floor on this move.
2. Double curls. Raise both the neck and shoulders as well as the hips and feet off the floor at the same time. This engages all the abdominal muscles and gives a better workout.

3. Curls with the legs straight up. Instead of having the legs on the floor, players can put their legs straight in the air and raise up to meet their toes. This works the abdominals in a different way.
4. Oblique curls. Instead of targeting the front abdominals, players can turn their hips to one side and do the same curl motion. This targets the side abdominal muscles known as the obliques.

Lunges

Lunges are another great leg exercise that are similar to squats but work the legs in a different way. Lunges start with the players standing with their feet together and their backs straight. Shoulders should be rolled back so that the body is open and in good alignment.

Players step forward with one leg and bend the front leg until the legs make 90 degree angles. As with squats and all leg exercises, the knee should never go past the ankle when at the bottom of the move. If necessary, players can extend their step so that there is enough room to sink all the way down without endangering their knees or ankles.

After reaching the bottom of the move, players push off the front leg and bring themselves back to the starting position. Players should alternate which leg goes forward, because that is the leg that gets the greatest workout.

This move works the quadriceps, hamstrings, calves, and glutes. It is a great, simple move for players needing to improve their vertical jumping, because it works every muscle used in those jumps.

To increase the difficulty of the lunges, try one of these variations:

1. Reverse lunges. Instead of stepping forward, players step backwards and push forward to come back to start. This puts more work on the glutes instead of the quadriceps, so coaches can mix things up to get a good workout for all the muscle groups.
2. One leg lunges. This move isolates one leg at a time and gets great results. Players put one leg up on a bench or short table. They bend the front leg, the only one on the ground, just like they were doing a regular lunge. This move requires the core muscles as well as the leg muscles, because it is much harder to hold the lowest position with only one leg on the floor. Players then stand back up on that leg and are back in the start position.
3. Lunges with weights. Players can easily hold dumbbells in their hands while doing lunges to add resistance to the process. If dumbbells are not available, players can use any weighted object, such as a large book.
4. Walking lunges. With walking lunges, instead of stepping back to start after hitting the lowest position, players bring the back leg forward to meet the front leg. The player has now taken a giant step and is ready to start another lunge. Players can either alternate which leg goes in front or maintain the same leg, but both legs need to go in front at some point to ensure that both legs get worked equally.

Running Sprints

There is no better way to increase endurance and build muscle than running sprints, and chances are, players will be aware of sprints and somewhat dreading them. They are an exercise that tires players quickly, but they work the heart extremely well and teach fast-twitch muscle patterns that are necessary in a quickly changing game like volleyball.

When running sprints, players should start the exercise by jogging lightly to warm up the muscles. This drill can be easily done in a gym with the players running in a large oval. After 2-3 laps to warm-up and get the muscles ready, players should begin a series of 7-10 sprints.

These sprints require players to run at their full speed for the long sides of the ovals and walk during the short curves. This gives them a little time to recover between bursts of energy but still keeps their heart rates up and their muscles working.

If players are not ready for a full sprint drill, they can run or jog the long sides of the oval and walk the short curves. No matter how fast they are going, the short bursts of energy required will burn fat and build muscle faster than ordinary running alone.

To ensure proper form, players should run “through” their feet, making sure to land each step on the balls of their feet and not flat-footed. This will help protect the knees and shins, which are often injured in running drills. Although this drill is called a “sprint,” players must not exceed the speed at which they can run without pain. Some players try to run faster than their bodies will allow and injure a quadriceps muscle, which takes a long time to heal and is very painful.

Coaches must also encourage players to use their arms effectively in sprints. The arms should work opposite the legs. This means that when the right leg is running forward, the left arm should be in front. This helps increase momentum and maintain balance.

To increase the intensity of sprints, try these variations:

1. Jog the short curves. Sprinting the long sides and jogging the short curves will significantly increase the intensity of the workout, because the players never have the chance to fully recover. This should be eased into gradually so as to not injure players.
2. Sprint only half the long side of the oval. By shortening the sprint, players are able to get more sprints in during the workout and will fatigue quicker. They can sprint the first half of the long side, walk or jog the second half, sprint around the short curve, walk or jog the first half of the second long side, sprint the second half of the long side, and walk or jog the second short curve. This gets in three sprints where there were previously only two.

Plank

The plank exercise seems simple and even boring, but it, like the push-up, works nearly every muscle in the body. There are tons of variations to keep people from getting bored, and it is effective at working the abdominals, arms, quadriceps, hamstrings, and glutes.

To start, players lie on their stomachs with their hands under their shoulders. They push up on their elbows and raise up onto their toes, such as a modified push-up position. Players can hold this position, making sure that the hips stay in line with the back, or they can push up to their hands and hold the plank position that way. Most of the varieties listed work best with the elbows on the ground, but coaches may modify the suggestions however is best for their team.

While in the plank position, players should engage their abdominal muscles by pulling their navels to their spines. This is different than just sucking the stomach in because it should feel like the players are actually compressing their entire stomachs instead of just one section of it, which is what happens when people suck in.

To increase the difficulty of the basic plank position, try these varieties:

1. One leg plank. In this variation, players lift one leg off the ground while they hold the plank position. This puts extra work on the abdominal muscles as well as the glutes, hamstrings, and quadriceps of the leg in the air. Players must remember in this position to keep their hips in line with their body.
2. Crossed leg plank. This variety is similar to the one leg plank, but players take that leg that is raised and slowly move it out to the side and back in until it crosses the body. This works the leg that is in the air as well as the abdominal muscles.
3. Rock back and forth. While on the elbows with both feet on the ground, players should rock slightly forward and backward. This engages the abdominal muscles more completely as well as the quadriceps.
4. Pendulum plank. This variation starts in the regular plank position but requires the players to push their hips in the air, forming a ^ shape with their bodies. The players should hit the top of the pendulum and come back to start. This works the arm muscles and the abdominal muscles.
5. Leg lift plank. This variation again requires the player to be on one leg, but instead of moving the leg side to side, players move the leg up and down. This isolates the glutes and gives a difficult workout.

Conclusion

Although weight rooms and specialized equipment help during the conditioning routine, volleyball players can easily get stronger, jump higher, and attack harder just using body weight resistance and variations on basic exercises. Every workout session should begin with a warm-up and light stretching period and should consist of 15 to 20 minutes of constant conditioning. After the conditioning, players should either move into regular volleyball practice or go through a cool down session, with stretches held longer and a focus on breathing and relaxing.

For volleyball players, the main muscle groups to focus on include the legs, abdominals, and arms. With the workouts listed above, players will see a gradual improvement of their physique, their stamina, and their overall performance level.