



# | Strength Training Exercise Program

## Young Athlete Center

**Children's**  
HOSPITAL • ST. LOUIS  
BCH HealthCare

 **Washington**  
University in St. Louis  
Physicians

## STRENGTH TRAINING EXERCISE PROGRAM

Strength training can help young athletes increase strength and overall health when performed in a safe, supervised environment. By focusing more on proper technique and less on the amount of resistance, the benefits of youth strength training far outweigh the risks.

Before beginning any strength training program, consult your primary care provider if you have any questions about whether your child should participate. It's also important to follow the guidelines of a well-designed program and have adult supervision. Most injuries that occur during strength training are due to improper technique, misuse of equipment and/or lifting inappropriate amounts of weight.

### RULES OF STRENGTH TRAINING:

- Always have adult supervision
- Always have a person spotting when using weights and resistance
- Use equipment properly
- No horseplay
- Always put equipment away after use

### BENEFITS OF STRENGTH TRAINING:

- Increases strength, endurance and overall physical fitness
- Creates a healthy lifestyle
- Increases coordination and agility for specific sport movements
- Prevents and rehabilitates injury
- Increases self-esteem and feelings of accomplishment through increased repetitions or resistance

## KEYS TO A SUCCESSFUL STRENGTH TRAINING PROGRAM:

- Warm-up before and cool-down after each workout
- Focus on proper technique and form (see exercise descriptions and pictures)
- Strength training sessions should be done 2-3 times per week (non-consecutively)
  - Strength training sessions should last at least 20-30 minutes
  - Each session should include 6-8 exercises with 2-3 exercises per muscle group
  - Start with 1-2 sets of 10-15 repetitions (reps), moving up to 2-3 sets
  - Single 'maximum' repetitions should be avoided until a young athlete has finished puberty
- Start each session with more complex exercises, then progress to more isolated exercises
  - Complex exercises: These exercises usually work major muscle groups and/or multiple muscle groups throughout the exercise.
  - Isolated exercises: These exercises usually work one muscle or minor muscle groups.
- Increase weight, sets and/or reps slowly
  - Increase weight by 5-10% when the athlete can do 15 reps without muscle failure.
  - Be patient. Expect to see results after 8-12 weeks of strength training.
  - Be consistent. Strength decreases 3% each week, with gains completely lost 8 weeks after discontinuing strength training.
- Allow muscles to recover by having at least one rest or cross training day in between each strength training session.



## STRENGTH TRAINING EXERCISES:

These exercises are separated into major muscle groups. Be sure to follow the guidelines for strength training and select exercises depending on the designed workout for your session. **DO NOT** do all of these exercises in one session. **DO NOT** complete any exercises that cause pain or discomfort. If you experience any pain, consult with your physician or other health care provider.

# CORE

## PLANK

Start by lying on your stomach, propped on your forearms. Tighten your core muscles and lift your hips and legs into a plank position. Keep your elbows directly under your shoulders. Make sure to keep your back and hips level with the ground to avoid a “V” shape or sagging your stomach down towards the ground. Hold this position as long as you can, aiming for 3 sets of 30-60 seconds.

### CORRECT



### INCORRECT



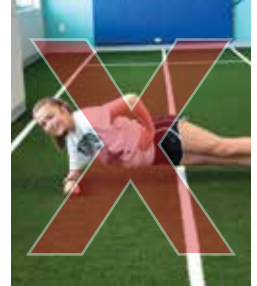
## SIDE PLANK

Start by lying on your side, resting on your forearm with your legs stacked one on top of another. Place your opposite hand on your hip. Make sure to keep your head and ankles in a straight line with your trunk. Tighten your core and lift your hips up off the floor until your body is in a straight line and your hips and shoulders are facing forward. Avoid rotating or flexing hips into a “V” shape. Hold this position, aiming for 2 sets of 30-60 seconds on each side.

### CORRECT



### INCORRECT



## PRONE BACK EXTENSIONS (“SUPERMANS”)

Start by lying on your stomach with arms straight out over your head and legs straight down from the hips. Keep your arms and legs straight, slowly lift them up until your stomach is the only thing touching the surface. Hold this position for 3-5 seconds, and return to the starting position. Repeat and complete 3 sets of 10 repetitions.

### CORRECT



## HIP BRIDGES

Start by lying on your back with feet flat on the ground, shoulder width apart and knees bent. Tighten your core and lift your hips up until your body is straight from knees to shoulders, with your hips level. Hold for 3-5 seconds then slowly lower your hips back to the starting position. Avoid arching your back as you lift. Repeat and complete 3 sets of 10 repetitions.

### CORRECT

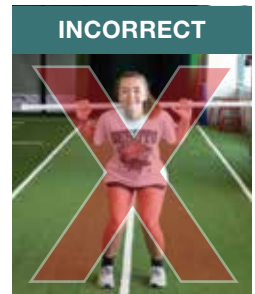


# LOWER EXTREMITY

## SQUATS

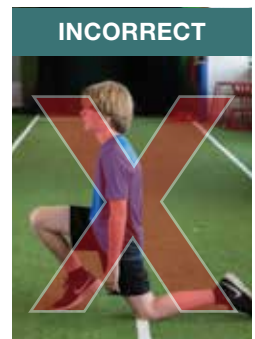
**Level 1 (no weight):** Start by standing with your feet hip-width apart with hands straight out. Slowly bend at the hips, knees and ankles until your knees are bent to 90 degrees. Keep your chest upright and sit the hips backwards. Slowly stand up by straightening your hips and knees. Keep your back straight throughout the exercise and knees should not buckle inwards. Repeat and complete 3 sets of 10 repetitions.

**Level 2 (weighted):** Start with weight(s) racked at chest height. When using barbells, position the weight behind the head and across the shoulders, with hands gripped slightly wider than your shoulders. Form should not change when weight is added. Keep your back straight and knees should not buckle inwards. Complete 3 sets of 10 repetitions.



## FORWARD LUNGES

Start by standing with your feet hip-width apart and hands on your hips. Slowly step one foot out forwards, bending at both knees and dropping the hips towards the ground until the leading knee is bent to 90 degrees. Bring the trailing leg even with the leading leg as you stand upright on the leading leg. Repeat and alternate between legs. Keep the back straight, chest upright and hips level. Knees should not buckle inwards and leading knee should not extend past the toes. Complete 2 sets of 10 lunges on each leg.



## CALF RAISES

Start by standing with the feet hip-width apart. Slowly lift your heels off of the ground, moving up on your toes as far as you can. Hold this position for 2-3 seconds, then slowly lower back down onto your heels. Repeat and complete 3 sets of 10 repetitions. To make it more difficult, try balancing on one leg.



## NORDIC HAMSTRINGS

Start by kneeling on the ground with a partner behind you, applying firm pressure to both ankles. Keep your hips and back straight, slowly lean forward, bending only at the knees. When you cannot hold your body anymore, catch yourself with your hands. Push off the ground with your hands, keeping your body straight and pulling yourself upright with your hamstring muscles. Repeat and complete 3 sets of 5 repetitions.



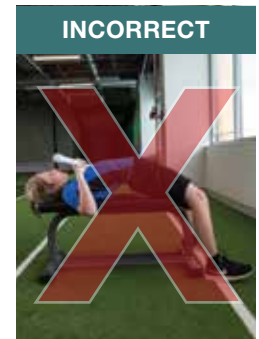
# UPPER EXTREMITY

## PUSH-UP/BENCH PRESS

**Level 1 (push-up):** Start in the push-up position with your arms slightly wider than your shoulders with your feet together. Keep your shoulders, hips and feet in a straight line. Lower yourself while keeping your elbows at your sides. Push yourself back up while maintaining a straight back and chin tucked in during the exercise. Complete 3 sets of 10 push-ups, resting between each set.



**Level 2 (bench press):** Start by lying flat on your back on a bench with the weight racked above your forehead. Hands should be placed slightly wider than your shoulders on the bar. Lift the weight off the rack, position weight directly over chest, and slowly lower it to your mid-chest keeping your elbows at your sides. Push the weight directly up from your chest, not over your neck or head. Keep your feet flat on the floor and core tight so your lower back does not arch off of the bench. Complete 3 sets of 10 repetitions, resting between each set.



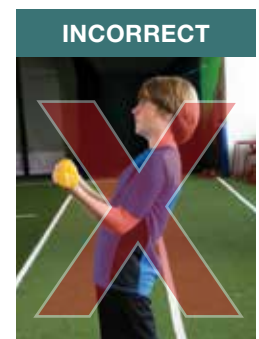
## SHOULDER PRESS/PUSH PRESS

**Shoulder Press/Push Press (standing):** Start with your feet hip-width apart and weight(s) at shoulder height. Your hands should be slightly wider than the shoulders and palms facing forward. Slowly press the weight(s) over your head, extending your arms straight upwards and keeping your core tight so your lower back does not arch. Slowly lower the weight down until your elbows make a 90 degree angle. Complete 3 sets of 10 repetitions, resting between each set. This exercise can be done with barbells, dumbbells or resistance bands.



## BICEPS CURL

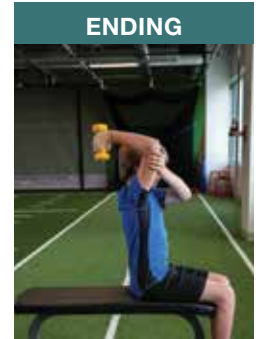
Start by standing in an upright position holding a weight in one hand with your palm facing forward. Slowly curl the weight up toward your shoulder, then lower it back down. Keep your core tight, elbows at your sides, and do not rock backwards during the motion. Complete 3 sets of 10 repetitions on each arm, alternating between sets.



# UPPER EXTREMITY (cont.)

## TRICEPS EXTENSION

From seated position, hold a small weight in one hand. Lift your elbow to your ear and straighten your arm. Reach your opposite arm across your face to support the movement arm. Slowly bend your elbow and then return back to the starting position. Be sure to keep your core tight so your lower back does not arch. Complete 3 sets of 10 repetitions on each arm, alternating between sets.



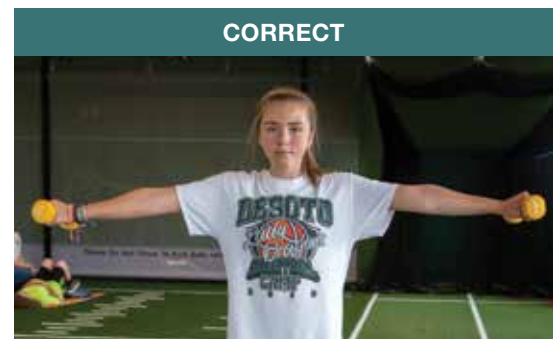
## STANDING SHOULDER FORWARD FLEXION

Stand straight with arms in front holding a weight. Palms should face the body. Keeping the elbow straight, slowly raise your arms up to the front until you reach shoulder height, keeping the palms facing down. Slowly return to starting position, keeping the palm facing your body. Keep your core tight and do not shrug your shoulder while raising or lowering your arm. Complete 3 sets of 10 repetitions, resting between each set.



## STANDING SHOULDER ABDUCTION

Stand straight with arms at side holding a weight. Palms should face the body. Keeping the elbow straight, slowly raise your arms up to the side until you reach shoulder height, keeping the palm facing the ground. Slowly return to starting position with the palm facing your body. Keep your core tight and do not shrug your shoulder while raising or lowering your arm. Complete 3 sets of 10 repetitions, resting between each set.



## BENT OVER ROW

With a weight in one hand, bend over, placing the opposite hand and knee on a bench. Keep your back flat and lower the weight towards the ground with palm facing the bench. Moving slowly, pull the weight up to your trunk, keeping your elbow at your side, and squeezing your shoulder blade inwards as the weight rises; then lower the weight down towards the ground. Keep your core tight, back flat and do not shrug your shoulder. Complete 3 sets of 10 repetitions on each arm, resting between each set.



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# Young Athlete Center

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