KIDS CAN BENEFIT FROM *Strength* TRAINING

But Are They Ready Mentally?

dr. leslie solomonian, nd,
shivangi maheshwari, and natalie hennessey

When we think of kids and exercise, most of us think about soccer games at the local field or playing tag with friends at the park. It's not uncommon, however, for kids to have focused training programs, especially those who are in competitive sports like gymnastics and hockey. All athletes benefit from cross-training, including cardiovascular and resistance training (RT), in addition to skills development (e.g., sports practice).

Resistance training is important for people of all ages to improve and maintain strength, build muscle, and maintain strong bones and mobility. Most kids engage in RT naturally through play that involves climbing, jumping, hanging, and tumbling. Focused RT may also be of interest to kids for performance purposes, or just because it feels good. RT is healthy and safe for most children, as long as proper equipment and technique are used.

ARE YOUR KIDS READY?

RT is a method of conditioning that involves the progressive use of resistance. This could take the form of moving the weight of one's body mass, using resistance bands, or weighted objects.[1] The term resistance training is interchangeable with strength training and although some may think of it as weight training, weights are not a necessary part of RT.

When considering a more structured RT routine for kids, it's important to keep a few things in mind: Kids should be both mentally and physically mature in a way that ensures the safety of all parties involved, and children should be able to easily follow directions and have good balance (although a smart training plan will also improve balance). An important factor in RT is proprioception, which is the body's ability to sense movement, location, and action. Adequate proprioception naturally develops in most children around seven to eight years of age, ensuring that body movement is smooth and doesn't require thought. It's also advised that children with documented medical conditions be checked out by a qualified healthcare practitioner before starting a structured RT routine.[2]

BENEFITS OF RT

Resistance training has both short and long-term effects. In the short term, RT improves overall fitness and sports performance. RT also enhances lean body mass, which results in more efficient use of oxygen and fuel by all tissues of the body, improving metabolism. Stronger muscles and improved motor skills reduce the risk of sports (and play) related injuries. The International Olympic Committee (IOC) and the National Strength and Conditioning Association (NSCA) also support engagement in resistance training for this reason. Resistance training also benefits mental health and concentration, and can enhance academic performance. The confidence and fitness gained from RT in childhood and adolescence promote health as kids move into adulthood, thereby preventing common diseases such as diabetes, cardiovascular disease, and osteoporosis.[1,3,4,6,7]

RISKS OF RT

While RT has many benefits, there are also a few potential risks. High volume and/or intensity RT can cause injury. Injuries in children typically occur due to a lack of qualified supervision and improper exercise technique. This can be exacerbated by inappropriate training during key stages of growth, improperly sized equipment or inadequate nutrition for growing and active bodies. The most common injuries in children are scrapes, bruises, and muscle soreness, especially around the abdomen and back. More serious are injuries of the epiphyseal plate, which is the growth centre of the long bones of the arms and legs. A plate injured due to inappropriate resistance training can cause growth stunting or fracture. The American Academy of Pediatrics advises that preadolescents and adolescents should avoid powerlifting, bodybuilding, and maximal lifts until they reach physical and skeletal maturity.[1,3,7]

The best way to avoid unnecessary injury during RT is to ensure children are properly educated and supervised to perform activities most appropriate to their size, fitness level, and ability. This will also help to educate kids about proper gym etiquette and safety.

SAFETY POINTS FOR KIDS IN RT

1. Proper education regarding program design, technique, and use of equipment.
2. Adequate supervision to reinforce the above.
3. Gradual and strategic increase in load and complexity over time.

Sample Routines

BASIC RT PLAN—TWO DAYS PER WEEK (FULL BODY)

All of these exercises can be made more challenging, even without the use of weights, and all can be modified; there are many resources online with videos to ensure correct form is being maintained.

Workout—Day 1

» 5 minute warm up: Full body stretch (world's greatest stretch)

» 2 sets each of 30 seconds: squat jumps, push-ups, pull-ups, plank

» 2 sets each of 30 seconds: 360-degree lunges, dips, reverse flies, bird dog

» Repeat

Workout—Day 2

» 5 minute warm up: Full body stretch

» Set 1: split jumps, narrow hand push-ups, narrow hand pull-ups, side plank (each side)

» Set 2: step ups (each side)

(start with low reps and gradually increase with each new workout)

Basic RT Grouping Plan
—Three days a week

» **Day 1:** push resistance exercises and legs

» **Day 2:** pull resistance exercises and legs

» **Day 3:** full body: Day 1 or 2 of basic RT plan

WORKOUT BASICS

Kid-focused training classes are a great way to ensure your child knows how to train without injury. Programs can be found in fitness facilities, sports training centres, and some schools. A well-designed training program should provide proper education, supervision, and safe form/position instruction–and can enhance athletic performance and reduce the risk of injuries.[3] It should also be balanced with sufficient mobility training (e.g., stretching, yoga) and cardiovascular activity (i.e., movement that uses large muscle groups and increases heart and breathing rate for sustained periods). These can be blended into interval-type workouts and classes, or integrated over time into a comprehensive fitness plan appropriate to the child.

WARM-UP & COOL-DOWN

A warm-up before and cool-down after are integral parts of a safe and effective workout. Warming up offers the body time to adjust to increased blood flow, can improve exercise outcomes, and prevent injury. A proper cool-down period can foster flexibility and decreases the risk of next-day pain. Ensuring proper warm-ups and cool-downs with each workout also encourages children to continue these habits into adulthood, when recovery often occurs at a slower rate (we're talking to you, 40-plus weekend warriors!).

PROPER FORM

While learning new movements, children should start by completing the moves unweighted to ensure proper positioning and appropriate muscle activation. Once they have the correct form, they can slowly increase the resistance. Working through all major muscle groups to ensure the strength and mobility of each joint remains balanced is very important for all athletes—but especially for growing kids. The major muscle groups to focus on are the shoulders, chest, abdomen, as well as the back and legs. Depending on how many days a week a youth is working out, these can be grouped to ensure they are all covered (see sample routine). It can be good to aim for two to three days a week to start. A common sentiment in the training world is "start big, end small". "Starting big" refers to movements that are full body or use multiple groups of large muscles (e.g., squat or push-up). Ending small refers to single muscle-focused movements, such as bicep curls, dips, or hamstring curls. This prevents injury by making sure smaller muscles are not overwhelmed too early.

BUILDING STRENGTH

To achieve the muscle breakdown necessary to build strength, each "set" of an exercise should be completed to "failure". This means that you cannot perform one more repetition using the correct form.[2] It can take several weeks of experimentation to find this point of "failure." Logging the details of each workout allows you to make sure you are choosing the appropriate resistance the next time. Young people, again, should not be performing maximal lifts; thus, performing one to two sets of six to eight repetitions per exercise is a good starting point, and can be increased as fitness increases. A good guideline is not to increase both the resistance and the number of repetitions at the same time, and never increase either more than 10 percent per week.[2]

It's not necessary (nor is it feasible) to continue to build strength indefinitely. Studies have found, however, that once RT is discontinued, approximately three percent of strength is lost per week. For this reason, young athletes are encouraged to continue maintenance RT, especially if they are cross-training in competitive sports.[2] Most well-designed training programs move in cycles of six to eight weeks, allowing rest periods and changing up the plan regularly (movements, combination, sets, or all of the above) to require the muscles and nerves to keep adapting to change, which maximizes function, strength, and injury prevention.[2]

NUTRITION

Good nutrition further supports the benefits of RT. During strength training, there is a necessary breakdown of muscle that is followed by repair. The body interprets the damage as a need to rebuild stronger. Because protein is an essential part of muscle structure and function, this cycle has the potential to cause a protein deficiency.[8,9] It's recommended, for most people, to have at least 0.8–1.2 grams of protein per kilogram of body mass daily.[8] However, according to the American College of Sports Medicine and American Dietetic Association athletes, active individuals, and/or those who participate in RT should consume more protein (e.g., 1.2–1.8 g per kg of body mass) to ensure that they are meeting their nutritional requirements. Ingesting a protein-rich snack before exercising helps to ensure that protein levels stay appropriate to the body's needs during the workout.[5] Adding a source of carbohydrates before and/or after strength training also helps in building muscle protein.[9]

GOOD PROTEIN OPTIONS:

» Protein shakes
» Lentils
» Meat
» Tofu

Ultimately, whether encouraging your kids to jump and climb at the playground, or introducing them to a fitness facility or group fitness class, resistance training is great for kids' physical and mental health. It can enhance performance, and—when done properly—reduce injury and encourage lifelong health and wellness.•

For references visit *ecoparent.ca/EXTRAS/WIN22*