



POCKET RESOURCE GUIDE

Welcome



Albert C. Hergenroeder, M.D.

Chief of Adolescent Medicine Service and Sports Medicine Clinic,
Texas Children's Hospital
Professor of Pediatrics, Baylor College of Medicine

Joseph N. Chorley, M.D.

Staff Physician, Sports Medicine Clinic, Texas Children's Hospital
Associate Professor of Pediatrics, Baylor College of Medicine

Roberta Anding, M.S., R.D., L.D., C.S.S.D., C.D.E.

Director of Sports Nutrition in Adolescent Medicine and
Sports Medicine, Texas Children's Hospital

The Houston Texans Kids Triathlon Pocket Resource Guide, written by Texas Children's Hospital, is designed to provide educational information only to help parents educate children on the importance of physical activity. It is not the intention of the physicians or health care providers who contributed to this guide to provide specific professional medical advice or establish any professional relationship with any reader of this guide or any information contained therein. If any reader of this guide is experiencing any symptoms of ill health, please contact a licensed medical doctor to diagnose, treat and professionally address those medical needs before beginning any of the activities contained in this guide. No portion of this guide may be reproduced without the express written consent of Texas Children's Hospital.

Introduction

Triathlons are among the fastest growing sports in the world, and kid's triathlons are a vital part of this trend. Texas Children's Hospital and the Houston Texans, in partnership with the nonprofit organization Kids Triathlon, Inc., have partnered to bring you the 2015 Houston Texans Kids Triathlon presented by Texas Children's Hospital. Held in April, this event is expected to be the largest USA Triathlon-sanctioned kid's triathlon in the world for the second year in a row, with 3,000 participants

ages 6 to 15. Thousands of people will gather for the interactive triathlon expo and tons of racing fun. Texas Children's Hospital is proud to support this PLAY60 initiative, helping to build a generation of healthy, active and responsible kids. To prepare yourself and your children for the Houston Texans Kid's Triathlon, please use this pocket guide as a resource. Other tools to stay active can be found at texaschildren.org/texans. We look forward to your participation at this event.



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Chapter 1

GETTING A SAFE START

Prior to participating in any physical activity program, have your child evaluated by a physician.

Certain conditions may affect your child's physical activity program.

Notes:

CARDIAC CONCERNS

Children with a history of heart problems or a heart murmur need clearance from their doctor before participating. Those who faint, nearly faint, have chest pain or have an irregular heart beat during exercise cannot exercise until their physician clears them. In addition, children who have a parent or sibling who died from a heart problem before the age of 50 need clearance from their doctor before they participate.

MUSCULOSKELETAL ISSUES AND INJURIES

Injuries that have not been properly rehabilitated can be a risk factor for subsequent injuries as a child starts a running or other physical activity program. Injuries from a previous running program will happen again if the cause of the problem is not addressed. Be sure to have your child evaluated and diagnosed if he or she has any issues with previous injuries.

PRE-EXISTING MEDICAL CONDITIONS

If your child has a chronic condition such as asthma, diabetes or seizures, he or she may still continue to participate in physical activities under the guidance of a physician. The key is optimal management of these conditions to minimize their impact on physical activity and daily living.

OVERWEIGHT/OBESITY

Overweight and/or obese children should be allowed to walk, run, bike and swim as much as they can tolerate and should have unlimited access to water during training.

Chapter 2

FITNESS FOR LIFE

Fitness doesn't happen overnight. It takes time, discipline and hard work.

When picking up a sport for the first time, new muscles are used. Endurance must be built gradually to avoid injury and burnout.

Notes:

To begin building endurance, have your child run, swim and bicycle at least three times during each week. Children should train in the manner they plan to complete the race.

- To build running endurance, start with a 90 second run without stopping and gradually increase to 18 minutes or a full one-half or one mile, depending on age.
- To build endurance on the bicycle, start with five to 10 minutes without stopping and work up to at least 20 minutes, or the full three or six miles, depending on age.
- For swimming long distances, endurance can be built by starting with one lap in the pool and increasing to at least four laps without stopping, or a full 100 or 200 yards, depending on age. Your goal should be to help build your child's endurance so he or she can cover the distance of the swim portion of the triathlon comfortably and safely.

RACE DISTANCES

Age	SWIM Pool Swim	BIKE Closed Course	RUN Cross Country
Juniors Ages 6-10	100 yards	3 miles	1/2 mile
Seniors Ages 11-15	200 yards	6 miles	1 mile

Chapter 3

SAFETY

When beginning a triathlon training program, safety is key. Follow these simple guidelines to make sure your child stays protected and minimizes the risk of injury.

Notes:

- Avoid running or bicycling if the temperature is too hot. Early morning may have a lower heat index in the summer than mid-day or afternoon and may be better for walking, running or bicycling.
- Be aware that drivers may not be looking for walkers, joggers or bicyclers. Have your child wear white, bright colors or a reflector badge on his or her shirt.
- Your child should warm up by walking for two to three minutes before running or bicycling.
- When swimming, always make sure a lifeguard is on duty nearby or ensure vigilant supervision by a parent or guardian.

Chapter 4

HEAT, HUMIDITY AND HYDRATION

As your child begins a training program, be sure he or she stays adequately hydrated.

Here are some practical ways of monitoring hydration and dietary tips to improve fluid balance.

Notes:

MONITORING HYDRATION

Bodies are about 65% water, and any quick change in weight is because of changes in fluid balance. Monitoring weight before and after exercise is a practical and quick way of monitoring fluid loss during activity. This is known as a “sweat rate.” Losing one pound during exercise is equal to a 16 ounce fluid loss, or about the size of an average water bottle.

Another quick way to assess hydration is the color of urine. In general, urine should be the color of pale lemonade. If urine looks like apple juice, you are likely dehydrated. According to the American College of Sports Medicine, the goal of drinking before, during and after exercise is to prevent weight loss of greater than 2% of total body weight during physical activity. Being well-hydrated can actually improve an athlete’s performance.

Did you know children sweat when swimming? Even though they are in water, they still need to drink plenty of fluids to remain hydrated.

IMPROVING FLUID BALANCE

Fluids come from two main sources – fluids you drink and fluids you eat. The best hydration beverage is water, and if the duration of exercise is under an hour, plain water is preferred. Sports drinks are appropriate for exercise greater than an hour and during hard training.

Sports drinks provide carbohydrates and electrolytes and because of the flavoring, children will often drink more of these beverages than they will drink of water, helping to maintain hydration. Sports drinks can be used before, during and after exercise, but have little value in the lunch box or at meal times.

Chapter 4 *continued*

PREVENTION OF HEAT INJURY: Heat injury encompasses a wide range of effects on the body from too much heat and/or humidity to not enough hydration during physical activity. If not treated, this condition can become very serious.

- Drink one to two cups of water two to three hours before exercise.
- Stay in the shade as much as possible when not competing.
- The best fluid to drink during competition is the fluid your child has been drinking during training.
- Drink the minimum of one to two cups of water about every 20 to 30 minutes during competition.
- The colder the water, the faster it is absorbed.
- Drink even when not thirsty. Thirst will underestimate how much fluid is needed.
- **DO NOT TAKE SALT TABLETS.** They are unnecessary and may be dangerous.
- Wear loose-fitting clothing (i.e., cotton blend/light colored).
- Do not drink sodas, caffeinated or carbonated drinks or fruit juices during exercise.
- Water is the best drink unless the exercise is continuous and greater than an hour.
- Start conditioning slowly before the training session begins.
- It takes 10 to 14 days of heat exposure (15 to 30 minutes in the heat each day) for your child's body to acclimate to the heat.

Heat Injury Symptoms

EARLY SIGNS

- Goosebumps on chest and upper arms
- Headache
- Unsteadiness or dizziness
- Nausea
- Muscle spasms or cramps
- Muscle fatigue
- Profuse sweating

If your child experiences these warning signs, he or she should stop physical activity, begin oral rehydration in a cool, shaded environment and consult a trainer or a physician.

LATE SIGNS

- Confusion
- Exhaustion
- Unconsciousness
- Dry skin
- Rising body temperature
- Vomiting

At this stage, the athlete is in extreme danger.

A doctor should be consulted and emergency measures begun. Emergency medical services (EMS) should be called for transportation to an emergency center. Remember that the effects of competing in hot weather are additive. This means that one is more likely to develop heat illness on the second or third day of competition if attention is not paid to drinking the necessary amounts of fluid during the first two days of competition.

Chapter 5

PERFORMANCE-BASED NUTRITION

Good nutrition is important, but it goes beyond the way we look and feel. For children, maintaining a balanced diet is critical to the health, growth and development, safety and success in their sport.

Eating the right kinds of foods at the right time can help provide the sustained energy during exercise and promote the recovery muscles need after strenuous exercise.

Notes:

IS MY CHILD GETTING ENOUGH PROTEIN?

Protein is necessary to build and repair muscle and to boost the immune system. The need for protein in an athlete is increased, but many athletes over-consume protein and under-consume calories. Your child can make healthy protein choices by choosing lean meats (turkey, fish, sirloin, beans, tofu), using egg whites instead of whole eggs, choosing low-fat dairy products (skim milk, 1% milk, low-fat yogurt), and avoiding fried meats. Having protein at each meal helps muscles to recover and get ready for more physical activity.

ARE CARBOHYDRATES IMPORTANT?

Quality carbohydrates are the fuel of exercising muscle. Carbohydrates consist of both sugars and starches. Sugars appear in cookies, candies, cake, pies and many snacks that children love. The sugars in these foods often contain large amounts of fat, making them unsuitable for athletic performance. The staple of the well-fueled athlete are starches such as bread, rice, beans, some fruits and vegetables. If physical activity is quickly approaching, it is best to use a sports drink or carbohydrate gel/honey.

If your child has more time, foods like whole grain cereal and milk or graham crackers with some peanut butter and honey would be a good choice. A low-fat meal such as chicken, spaghetti or a sandwich with fruit can also be considered part of your child's performance plate. Protein alone does not fuel muscles for activity.

Chapter 5 *continued*

HOW SHOULD I PLAN MEALS FOR MY CHILD?

When foods are chosen by a few basic principles, the plate becomes an ally in the prevention of chronic illness and a strategy to improve performance. The principles are simple: choose a plate rich in colorful produce, quality whole grain carbohydrates and lean protein.



- About half of children’s plates should be fruits and vegetables, which are 90% water, and can help prevent dehydration.
- Whole grain carbohydrates such as whole grain pasta, brown rice, oatmeal and 100 percent whole wheat bread should take up one-fourth of their plate. These high fiber foods contribute to a sense of fullness and may aid in weight reduction. If your child doesn’t like these whole grain foods, consider food that has some whole wheat in it. There are pastas, for example that combine white and whole wheat flours to make a less chewy product.
- Lean protein should be approximately one-fourth of the plate and should be consumed at each meal. Some protein suggestions for breakfast include flavored Greek yogurt, egg whites or Canadian bacon added to the first meal of the day.

Visit kidseatright.org and choosemyplate.gov for meal-planning ideas.

Chapter 6

PROPER TRAINING GEAR

It's important that children understand the importance of wearing proper running shoes and gear, as they directly affect comfort level and performance and reduce the risk of injury.

Activity:

Finding the Right Shoes

Have your child place his or her wet foot in the middle of a dry towel so the impression of the foot will appear. Then, he or she will be able to identify his or her foot type.



- 1 The “flat” or pronator foot has a low arch and an imprint that looks like the entire sole of the foot. While running, a person with a flat foot usually strikes on the outside of the heel and rolls inward excessively. This foot type needs stability or motion control shoes.
- 2 The “normal” or neutral foot has a normal-sized arch and an imprint that shows the forefoot and heel connected by a wide band. While running, the foot lands on the outside of the heel, then rolls slightly inward to absorb shock. This foot type needs cushioned shoes.
- 3 The “high-arch” or supinator foot shows a very narrow band connecting the forefoot and heel. This foot type is not an effective shock absorber. This foot type needs cushioned shoes.

It is best for children to tie their shoelaces each time they put shoes on their feet. Most running shoes will last six to nine months, or 300 to 500 miles.

Chapter 6 *continued*

PROTECTION

There are many things you can do to protect your child while they are training for a triathlon. Providing proper clothes, sunscreen and the right equipment can prevent things like injury, heat exhaustion and skin damage.

Children who use walkers or wheelchairs may want to wear gloves to reduce the risk of developing blisters on their hands.

Notes:

BICYCLE SAFETY

Kids are expected to grow out of their bicycles every year or two. The bicycle should fit the child. Be sure the tires are properly inflated and the brakes are working properly. Make sure children wear safety helmets every time they ride bicycles.

COLD WEATHER CLOTHING

Layering allows children to adjust to changes in weather and in body heat generated. The deepest layer should allow sweat evaporation and the outer layer should be water/wind resistant. Middle layers should be designed for warmth and insulation. A hat will protect against heat loss from the head.

WARM WEATHER CLOTHING

White-colored shirts are preferred during hot weather as they do not absorb as much heat. Cool/thin clothes that have breathable material allow the body to cool quickly.

SWIMMING ATTIRE

For the swimming portion of the race, a properly fitted one-piece swimsuit, or swim trunks, tight goggles and a cap are recommended.

SKIN PROTECTION

Protecting your child's skin with sunscreen is essential at all times, regardless of the weather. Even if the sky is cloudy and overcast, UVB sun rays can still damage your skin.

Chapter 7

THE CARDIOVASCULAR SYSTEM

The cardiovascular system is responsible for pumping blood and delivering nutrients throughout the body as well as removing gaseous wastes.

These organs are at the heart of training. It's important to learn to monitor their output.

Notes:

Cardiorespiratory endurance will improve in response to a triathlon training program. Numerous cardiovascular adaptations occur in response to training, including:

- Heart size will increase due to hypertrophy of cardiac muscles and increased size of the heart chambers due to increased blood volume.
- This hypertrophy of the cardiac muscles means that the heart is stronger and can pump blood more effectively. In other words, cardiac output increases.
- Because the heart beats stronger, the number of contractions per minute (the heart rate) will be lower after a training program compared to before the training program. Specifically, in a sedentary person, the resting heart rate will decrease during the initial phase of a training program by an average of one beat per minute for each week in training.
- The number of small blood vessels (capillaries) to muscles involved with training will increase, resulting in greater blood flow and oxygen delivery to those muscles. This results in the person being able to exercise for a longer period of time.
- Resting blood pressure typically goes down to 11 mm Hg (systolic) and 8 mm Hg (diastolic) in borderline hypertensive or hypertensive people after an aerobic training program.
- Children with a heart or blood pressure problem should consult with a physician and get approval for participation or proper restrictions on physical activity.

Chapter 7 continued

HOW IS YOUR CHILD'S HEART RATE? (PER MINUTE)

- Excellent (70-79)
- Good (80-89)
- Above average (90-99)
- Average (100-105)
- Below average (106-115)
- Poor (116-129)
- Very poor (Greater than 130)

Notes:

Have your child guess his or her heart rate for 15 seconds and fill in the chart. Then, have your child place his or her index and middle finger on his or her neck or wrist. Count how many beats he or she feels in 15 seconds and fill in the chart. Multiply by four to get his or her heart rate per minute, fill in the chart and compare to the ranges to the left.

Guess what your own heart rate will be for 15 seconds and fill in the chart. Then, place your index and middle finger on your neck or wrist. Count how many beats you feel in 15 seconds and fill in the chart. Multiply by four to get your heart rate per minute and fill in the chart. Your heart rate should be lower than your child's.

	Child	Parent
15 second heart rate (guess)		
15 second heart rate (actual)		
Heart rate per minute (guess)		
Heart rate per minute (actual)		

Chapter 8

THE MUSCULOSKELETAL SYSTEM

The musculoskeletal system describes your muscles, bones and how they interact via joints, ligaments and tendons.

Training programs can often lead to soreness as these muscles start to fatigue.

Notes:

Discuss why muscles get sore during the onset of or change in exercise or physical activity.

What happens to sore muscles when an individual continues to exercise or participate in physical activity?

Ask your child to list the names of each family member living in your household, including yourself. In your child's fitness journal, log the number of times each person can squeeze a ball before fatigue sets in.

Name	Number of times ball squeezed	Comments

Medical Notes:

- Muscles and bones adapt to training by becoming stronger as long as the training is gradual and at an appropriate weight-bearing load for the person. If the training program is too long, too fast or increases the training volume too fast, muscles and bones can be injured in the form of strains and stress fractures.
- Weight-bearing exercise can cause bones to be stronger. Muscles involved in training will have more small blood vessels (capillaries) flowing into the muscles as an adaptive response to exercise. This means the muscles can do more work (e.g., running faster and longer) after an effective training program.
- While a child is recovering from an injury, stretching, strengthening, endurance and balance exercises specifically for rehabilitating the injury should be performed. Exercise to maintain general cardiopulmonary fitness should be done. Riding an exercise bicycle during physical education class is often a good way to improve cardiovascular fitness and make the legs stronger while letting overused injuries of the lower extremities recover. These exercises could be done during physical education class if the child is unable to participate in the training plan for that day.
- Lower extremity muscles may increase in size in response to a training program. For children who use wheelchairs, upper extremity muscles will increase in size.

Chapter 9

THE METABOLIC SYSTEM

Exercise has a direct effect on the glucose, insulin, muscle and blood lipids in a body.

Being physically fit can lead to more energy and can help prevent health challenges such as type 2 diabetes mellitus.

Notes:

- Type 1 diabetes mellitus (T1DM) has been referred to as “juvenile onset” diabetes mellitus, as it usually begins in childhood or adolescence. In T1DM, not enough insulin is produced; therefore, glucose does not enter the cells of the body as easily as it normally would. This causes the blood sugar level to be high, and the person can develop life-threatening ketoacidosis.
- Type 2 diabetes mellitus (T2DM) traditionally has been called “adult onset” diabetes mellitus because it was seen primarily in adults. However, more children and teenagers are being diagnosed with T2DM. This is because obesity has increased among children and teens, and obesity causes insulin resistance. In T2DM the insulin level is elevated, yet the cells of the body are resistant to insulin (hence the term “insulin resistance”) resulting in high blood sugar levels. Usually these patients do not develop life-threatening ketoacidosis.

T2DM increases a person’s risk of heart attack, stroke and kidney failure.

The more physically active a person is, the less likely he or she is to have T2DM.

Evidence suggests that increased physical activity can prevent or delay the onset of T2DM.

Physical activity tends to improve glucose control in people with T2DM.

Chapter 10

REST AND SLEEP

Getting adequate amounts of sleep affects your child's life and training program.

A well-rested child has improved memory, metabolism and overall health.

Notes:

REST

- Before race day, take two to three days per week without training to allow your child's body to recover.
- Participating in other physical activities can maintain and build fitness while decreasing injuries.

SLEEP

- Teenagers need approximately nine hours of sleep per night.
- Prolonged naps during the afternoon hours can interrupt restful nighttime sleep.
- Sleep hygiene means avoiding naps and getting eight to nine hours uninterrupted sleep at night.





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