ANDREWS INSTITUTE
SICKLE CELL TRAIT

WHAT IS SICKLE CELL TRAIT?

An athlete with sickle cell trait (SCT) has inherited one gene for sickle shaped hemoglobin and one gene for normal shaped hemoglobin. SCT is an inherited trait and cannot be prevented. During intense exercise, the sickle hemoglobin can change the shape of red blood cells from round to quarter-moon, or "sickle". The sickled cells can "logjam" blood vessels and lead to collapse from rhabdomyolysis, the rapid breakdown of muscles starved of blood. Exertional rhabdomyolysis, resulting from exertional sickling, is a medical emergency.

RISK FACTORS FOR EXERTIONAL SICKLING

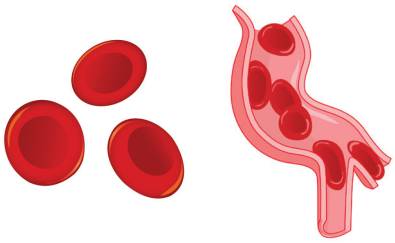
ENVIRONMENTAL

- Heat stress
- High altitude
- High intensity exercise
- Short rest intervals

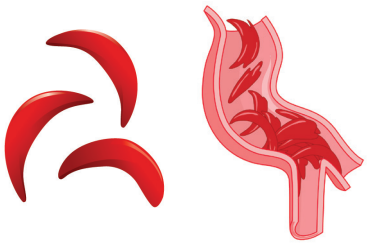
INDIVIDUAL

- Asthma
- Dehydration
- Recent illness
- Unacclimated

NORMAL RED BLOOD CELLS



SICKLED RED BLOOD CELLS



FREQUENTLY ASKED QUESTIONS

Can my child still participate in sports?

SCT will not disqualify an athlete from participating in any sport. Thorough screenings, education, and modified activity can help limit medical emergencies and allow for safe participation in sport. Student-athletes with SCT do best when they are allowed to set their own pace. Athletic trainers can work with coaches to monitor recovery time between drills, have water readily available, and limit activity if the athlete is ill or displaying signs or symptoms of exertional sickling.

What are the signs and symptoms of SCT?

Sickling can begin as soon as 2-3 minutes of any all-out exertion – and often occurs during the first 30 minutes of heavy exercise. All student-athletes are different and may not react to a sickling episode in the same way. During a sickling episode, athletes may feel like muscles are cramping, but muscles typically look and feel normal. The athlete may slump to the ground due to weak muscles. Breathing may be rapid, but the student- athlete is usually still able to speak. Chest or abdominal pain may also be present.

When should my child be removed from play?

Student-athletes with the signs or symptoms of a sickling episode should be removed from activity immediately. In the event of athlete collapse, 911 will be called and the athlete transferred to a hospital as soon as possible. It is important for parents to work with coaches and the athletic health care team to help create an environment where student-athletes feel comfortable reporting symptoms without fear of consequence.

When should my child see a physician?

Student-athletes should follow up with a physician trained in the management of exertional sickling after any episode of sickling or anytime a question or concern about sport participation arises. Physician clearance is required for return to play after a sickling episode. Andrews Institute Sports Medicine Outreach athletic trainers and physicians are available to work with the student-athlete, parents, and coaches to limit risks and provide a safe environment for sport participation.

What is the recovery process after an exertional sickling episode?

Recovery rates vary by individual. The athlete will be required to go through a gradual return to play based on the level of sickling and severity of symptoms. The recovery and return to play process is physician guided and is a collaborative effort of the athletic health care team to ensure the student-athlete is safely returned to sport participation.