Sickle Cell Trait Policy

The NCAA made the mandate in January 2022 that all student-athletes must prove sickle cell trait status with a blood solubility test prior to starting any athletic activity. This eliminates the option for student-athletes to waive and decline the sickle cell solubility test. The presence of the sickle cell trait does not exclude an athlete from participation in intercollegiate athletics. The sickle cell trait is a hereditary gene which has the potential to cause red blood cells to collapse or "sickle" and collect within the blood stream blocking the normal flow of blood to muscles and other tissues. Sickling of red blood cells is at a higher risk with bouts of intense exercise. Other factors include exercise at high altitudes, in extreme heat, athletes who are in a dehydrated state, or those suffering from asthma.

As such, Messiah University requires all student-athletes to provide evidence of sickle cell trait status via lab testing, and must submit the copy of the lab report. Any verification of the testing without proof of the lab results will not be accepted. Most athletes have been tested at birth for the sickle cell trait and thus do not need to be retested provided they can produce proof of former testing. These athletes will be provided with education and counselling materials regarding the sickle cell trait and athletics participation.

As of May 2025, those who are born in the state of Pennsylvania do not have sufficient testing at birth (isoelectric) to meet the requirements of the NCAA for appropriate sickle cell testing, and must prove hemoglobin solubility testing instead. Any other state that only tests via isoelectric testing will have to have a solubility test ordered instead.

Following the submission of a positive sickle cell trait test, the protocol below will be followed:

1. The key individuals below will be notified of the student-athlete sickle cell status:
    a. The student-athlete
    b. Athletic Training staff
    c. Team Physician
    d. Coach(es)
2. The student-athlete and Head Coach will watch the "The Student-Athlete with the Sickle Cell Trait"
    a. https://www.youtube.com/watch?v=sQvna_2sP6o
3. The student-athlete and Head Coach will review the signs, symptoms, and precautions associated with participating in athletics. In addition, the student-athlete and Head Coach will adhere to the precautions.
4. The student-athlete and head Coach will be educated on the Messiah University Emergency Action Plan for the Sickle Cell Trait Positive Student-Athlete by the Director of Sports Medicine or Team Physician.
5. The student-athlete, Head Coach, and sports medicine staff will sign a sickle cell trait education acknowledgement agreement.

Sickle Cell Trait Signs and Symptoms

- Fatigue Collapse early in exercise
- Leg or low back muscle cramping Abdominal pain
- Leg or low back weakness Rapid heartbeat
- Difficulty breathing Chest pain
- Dizziness Excessive thirst
- Nausea Frequent urination
- Soft, flaccid muscle tone

Precautions to Follow with Sickle Cell Trait Carriers

1. Gradually build up the student-athlete's intensity in training both during practice and over the course of the season.

2. Allow for longer period of rest and recovery between repetitions.
3. Encourage participation in preseason strength and conditioning programs to enhance the preparedness of athletes for sport-specific performance testing.
4. Cessation of activity following the onset of symptoms (cramping, pain, swelling, weakness, tenderness, shortness of breath, fatigue).
5. Afford the sickle cell trait carrier student-athlete the opportunity to set their own pace.
6. Student-athletes with sickle cell trait who perform repetitive high speed sprints or interval training that induces high levels of lactic acid should be allowed extended recovery between repetitions.
7. Due to the effects of ambient heat stress, dehydration, asthma, illness, and increased altitude (>2,000 ft) have on student-athletes with the sickle cell trait, the following should be followed to prevent the onset of crisis during physical exertion.
    a. Adjust work/rest cycles for environmental heat stress;
    b. Emphasize hydration;
    c. Control asthma;
    d. Refrain from workout out if ill;
    e. Watch and monitor student-athlete closely during altitude changes;
    f. Be more cautious and limit activity when conditions are hot/humid.
8. Educate all involved parties to foster an environment that encourages student-athletes with sickle cell to report any symptoms immediately.

Sickle Cell Trait Emergency Action Plan

In the event an athlete identified as having the sickle cell trait has a sickling collapse, the situation should be treated as a medical emergency and the following should be adhered to:

1. Check vital signs.
2. If available, administer high-flow oxygen, with a non-rebreather mask.
3. Cool the student-athlete if participating outside in hot and/or humid conditions.
4. Consider heat stroke with any neurologic signs or symptoms, check rectal temperature immediately.
5. If a student-athletes' vital signs decline or they have a change in mental status, call 911, and attach an AED, following instructions from the AED. For heat stroke patients, cool to 102°F via rectal thermometry before transport.
6. Inform the ED physicians to expect explosive rhabdomyolysis and grave metabolic complications. Inform them of sickle cell trait and exercise.