

seek permission from the student-athlete and parents or guardians to communicate to the team physician any ongoing problems that could affect safe participation.

After the initial clearance, the clearing physician should modify the athlete's level of participation as new or changing medical conditions arise. Following injury that requires medical intervention, a return to play evaluation and subsequent clearance to participate signed by a physician is required by high school governing bodies in some states and also in some sports programs before the athlete can return to practice or competition. Likewise, a new heart murmur or episode of syncope may require a change in the participation status until the athlete has had a complete evaluation and is deemed safe to return to activity. Finally, the primary care or team physician may find it necessary to rescind participation clearance based on changes in the athlete's health status that would affect the initial clearance decisions. This includes contacting school officials and/or the athletic trainer at an institution to inform them of the change in the athlete's clearance status. The specifics of the condition do not need to be shared unless the patient and family grant their permission.

TABLE 5-1. MEDICAL CONDITIONS AND SPORTS PARTICIPATION^{a,b}

Condition	May Participate
Atlantoaxial instability (instability of the joint between cervical vertebrae 1 and 2) <i>Explanation:</i> Athlete (particularly if he or she has Down syndrome or juvenile rheumatoid arthritis with cervical involvement) needs evaluation to assess risk of spinal cord injury during sports participation, especially when using a trampoline.	Qualified yes
Bleeding disorder <i>Explanation:</i> Athlete needs evaluation.	Qualified yes
Cardiovascular disease Carditis (inflammation of the heart) <i>Explanation:</i> Carditis may result in sudden death with exertion. Hypertension (high blood pressure) <i>Explanation:</i> Those with severe hypertension (>99th percentile for age plus 5 mm Hg) should avoid heavy weight and power lifting, bodybuilding, strength training, and high-static component sports (Figure 5-1). Those with sustained hypertension (>95th percentile for age) need evaluation. The National High Blood Pressure Education Program working group report defined prehypertension and stage 1 and stage 2 hypertension. Congenital heart disease (structural heart defects present at birth) <i>Explanation:</i> Consultation with a cardiologist is recommended. Those with mild forms may participate fully in most cases; those with moderate or severe forms or who have undergone surgery need evaluation. The 36th Bethesda Conference defined mild, moderate, and severe disease for common cardiac lesions. Dysrhythmia (irregular heart rhythm) Long QT syndrome Malignant ventricular arrhythmias Symptomatic Wolff-Parkinson-White syndrome Advanced heart block Family history of sudden death or previous sudden cardiac event Implantation of a cardioverter-defibrillator <i>Explanation:</i> Consultation with a cardiologist is advised. Those with symptoms (chest pain, syncope, near syncope, dizziness, shortness of breath, or other symptoms of possible dysrhythmia) or evidence of mitral regurgitation (leaking) on physical examination need evaluation. All others may participate fully.	No Qualified yes Qualified yes Qualified yes

TABLE 5-1. MEDICAL CONDITIONS AND SPORTS PARTICIPATION^{a,b}, CONTINUED

Condition	May Participate
<p>Cardiovascular disease, continued</p> <p>Heart murmur <i>Explanation:</i> If the murmur is innocent (does not indicate heart disease), full participation is permitted. Otherwise, the athlete needs evaluation (see congenital heart disease, structural heart disease [especially hypertrophic cardiomyopathy and mitral valve prolapse]).</p> <p>Structural/acquired heart disease Hypertrophic cardiomyopathy Coronary artery anomalies Arrhythmogenic right ventricular cardiomyopathy Acute rheumatic fever with carditis Ehlers-Danlos syndrome, vascular form Marfan syndrome Mitral valve prolapse Anthracycline use <i>Explanation:</i> Consultation with a cardiologist is recommended. The 36th Bethesda Conference provided detailed recommendations. Most of these conditions carry a significant risk of sudden cardiac death associated with intense physical exercise. Hypertrophic cardiomyopathy requires a thorough workup and repeated evaluations, because disease may change manifestations during later adolescence. Marfan syndrome with an aortic aneurysm can also cause sudden death during intense physical exercise. An athlete who has ever received chemotherapy with anthracyclines may be at increased risk of cardiac problems because of the cardiotoxic effects of the medications, and resistance training in this population should be approached with caution; strength training that avoids isometric contractions may be permitted. Athlete needs evaluation.</p> <p>Vasculitis/vascular disease Kawasaki disease (coronary artery vasculitis) Pulmonary hypertension <i>Explanation:</i> Consultation with a cardiologist is recommended. Athlete needs individual evaluation to assess risk on the basis of activity of disease, pathologic changes, and medical regimen.</p>	<p>Qualified yes</p> <p>Qualified no Qualified no Qualified no Qualified no Qualified yes Qualified yes Qualified yes</p> <p>Qualified yes</p>
<p>Cerebral palsy <i>Explanation:</i> Athlete needs evaluation to assess functional capacity to perform sports specific activity.</p>	<p>Qualified yes</p>
<p>Diabetes mellitus <i>Explanation:</i> All sports can be played with proper attention to diet, blood glucose concentration, hydration, and insulin therapy. Blood glucose concentration should be monitored before exercise, every 30 minutes during continuous exercise, 15 minutes after completion of exercise, and at bedtime.</p>	<p>Yes</p>
<p>Diarrhea, infectious <i>Explanation:</i> Unless symptoms are mild and the athlete is fully hydrated, no participation is permitted, because diarrhea may increase the risk of dehydration and heat illness. See fever.</p>	<p>Qualified no</p>
<p>Eating disorders <i>Explanation:</i> Athlete with an eating disorder needs medical and psychiatric assessment before participation.</p>	<p>Qualified yes</p>

TABLE 5-1. MEDICAL CONDITIONS AND SPORTS PARTICIPATION^{a,b}, CONTINUED

Condition	May Participate
<p>Pregnancy/postpartum <i>Explanation:</i> Athlete needs individual assessment. As pregnancy progresses, modifications to usual exercise routines will become necessary. Activities with a high risk of falling or abdominal trauma should be avoided. Scuba diving and activities posing a risk of altitude sickness should also be avoided during pregnancy. Postpartum, physiologic, and morphologic changes of pregnancy take 4 to 6 weeks to return to baseline.</p>	Qualified yes
<p>Respiratory conditions Pulmonary compromise, including cystic fibrosis <i>Explanation:</i> Athlete needs individual assessment, but generally, all sports may be played if oxygenation remains satisfactory during a graded exercise test. Athletes with cystic fibrosis need acclimatization and good hydration to reduce the risk of heat illness.</p> <p>Asthma <i>Explanation:</i> With proper medication and education, only athletes with the most severe asthma will need to modify their participation. For those using inhalers, recommend having a written action plan and using a peak flow meter daily. Athletes with asthma may encounter risks when scuba diving.</p> <p>Acute upper respiratory infection <i>Explanation:</i> Upper respiratory obstruction may affect pulmonary function. Athlete needs individual assessment for all but mild disease. See fever.</p>	<p>Qualified yes</p> <p>Yes</p> <p>Qualified yes</p>
<p>Rheumatologic diseases Juvenile rheumatoid arthritis <i>Explanation:</i> Athletes with systemic or polyarticular juvenile rheumatoid arthritis and history of cervical spine involvement need radiographs of vertebrae C1-C2 to assess risk of spinal cord injury. Athletes with systemic or HLA B27-associated arthritis require cardiovascular assessment for possible cardiac complications during exercise. For those with micrognathia (open bite and exposed teeth), mouth guards are helpful. If uveitis is present, the risk of eye damage from trauma is increased; ophthalmologic assessment is recommended, and if visually impaired, guidelines for functionally one-eyed athletes should be followed.</p> <p>Juvenile dermatomyositis (JDM), idiopathic myositis Systemic lupus erythematosus (SLE) Raynaud phenomenon <i>Explanation:</i> Athlete with JDM or SLE with cardiac involvement requires cardiology assessment before participation. Athletes on systemic corticosteroids are at higher risk of osteoporotic fractures and avascular necrosis, which should be assessed before clearance; those on immunosuppressive medication are at higher risk of serious infection. Sports activity should be avoided when myositis is active. Rhabdomyolysis during intensive exercise may cause renal injury in athletes with idiopathic myositis and other myopathies. Because of photosensitivity with JDM and SLE, sun protection is necessary during outdoor activity. With Raynaud phenomenon, exposure to the cold presents risk to hands and feet.</p>	<p>Qualified yes</p> <p>Qualified yes</p>
<p>Sickle cell disease <i>Explanation:</i> Athlete needs individual assessment. In general, if status of the illness permits, all sports may be played; however, any sport or activity that entails overexertion, overheating, dehydration, and chilling should be avoided. Participation at high altitude, especially when not acclimatized, also poses risk of sickle cell crisis.</p>	Qualified yes

TABLE 5-1. MEDICAL CONDITIONS AND SPORTS PARTICIPATION^{a,b}, CONTINUED

Condition	May Participate
Sickle cell trait <i>Explanation:</i> Athletes with sickle cell trait generally do not have an increased risk of sudden death or other medical problems during athletic participation under normal environmental conditions. However, when high exertional activity is performed under extreme conditions of heat and humidity or increased altitude, such catastrophic complications have occurred rarely. Athletes with sickle cell trait, like all athletes, should be progressively acclimatized to the environment and to the intensity and duration of activities and should be sufficiently hydrated to reduce the risk of exertional heat illness and/or rhabdomyolysis. According to NIH management guidelines, sickle cell trait is not a contraindication to participation in competitive athletics and there is no requirement for screening prior to participation. More research is needed to fully assess potential risks and benefits of screening athletes for sickle cell trait.	Yes
Skin infections Herpes simplex, molluscum contagiosum, verrucae (warts), staphylococcal and streptococcal infection (furuncle [boils], carbuncle, impetigo, methicillin-resistant <i>Staphylococcus aureus</i> [cellulitis, abscess, necrotizing fasciitis]), scabies, tinea <i>Explanation:</i> During contagious period, participation in gymnastics with mats; martial arts; wrestling; or other collision, contact, or limited-contact sports is not allowed.	Qualified yes
Spleen, enlarged <i>Explanation:</i> If the spleen is acutely enlarged, participation should be avoided because of risk of rupture. If the spleen is chronically enlarged, individual assessment is needed before collision, contact, or limited-contact sports are played.	Qualified yes
Testicle, undescended or absence of one <i>Explanation:</i> Certain sports may require a protective cup.	Yes

^aAdapted with permission from: Rice SG, American Academy of Pediatrics Council on Sports Medicine and Fitness. Medical conditions affecting sports participation. *Pediatrics*. 2008;121(4):841–848.

^bThis table is designed for use by medical and nonmedical personnel. “Needs evaluation” means that a physician with appropriate knowledge and experience should assess the safety of a given sport for an athlete with the listed medical condition. Unless otherwise noted, this need for special consideration is because of variability of the severity of the disease, the risk of injury for the specific sports listed in Box 5-1, or both.

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