NEWS RELEASE

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Oregon Public Health officials point to multiple factors in McMinnville High School football team's illnesses

Health officials issue recommendations to coaches and school to prevent similar injuries

After investigating the illnesses that affected the McMinnville High School Football Team in August, Oregon Public Health officials concluded that multiple factors were likely the cause. They also are issuing recommendations to prevent similar injuries from happening to other athletes.

"There is not one factor that we can pinpoint as the cause. Rather, it appears that multiple factors including the type of exercise, the hot day and not enough water for some of the players contributed to their illnesses. Our goal is to prevent similar injuries in our state's young athletes," said Katrina Hedberg, M.D., M.P.H., Oregon state epidemiologist.

Specific factors contributing to the illnesses included the intense, short-duration, repetitive burst of resistance exercise on Sunday, Aug. 15, which focused on the upper body including the arm muscles, as well as bodily stress from heat and unrecognized dehydration. Water was available and coaches encouraged consumption. However, most team members did not drink water while inside in the wrestling room, where an upper arm workout session was held.

During the week of August 15, 43 football team members participated in a pre-season varsity football camp. Of those players, three had triceps compartment syndrome requiring surgery; five members had rhabdomyolysis with muscle pain and creatine kinase levels 100 times the upper limit of the normal range, according to the laboratory limits; and 14 others had muscle pain and creatine kinase levels between 10 and 100 times the upper limit of normal. Compartment syndrome is characterized by abnormally high pressures in an enclosed muscle compartment that impedes blood flow and requires surgery. Rhabdomyolysis is muscle injury that can lead to kidney failure. Creatine kinase is a blood test marker of muscle injury.

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Football team members did not report use of illicit or performance-enhancing drugs. Blood tests for creatine levels were inconclusive because the tests do not distinguish creatine supplementation from naturally occurring creatine levels.

Facilities assessment of the gym and wrestling room did not find any evidence that other environmental factors, including water quality, carbon monoxide, or other possible toxins contributed to illness. There was no evidence that infections or contaminated food or drinks were associated with illnesses.

Oregon Public Health Division began its investigation in coordination with the Yamhill County Health Department on August 23. Health officials interviewed 40 of the 43 team members and met with coaches, school administrators, hospital administrators, and Willamette Valley Medical Center physicians who treated the players. Health officials also reviewed the team's hospital medical records and they systematically assessed symptoms and exposures. The state public health team included two epidemiologists, a public health intern, an industrial hygienist, the state epidemiologist, a medical epidemiologist and the manager of the injury prevention and epidemiology section.

Public Health officials began investigating to confirm the diagnoses and to identify the factors that led to the illnesses to help ensure the safety of people participating in sports and to prevent similar illnesses from recurring.

Based on this preliminary report, public health officials recommend for exercise programs that:

1. Oregon coaches, trainers, school administrators, health professionals, parents and recreational athletes recognize that intense, short-duration, repetitive resistance exercise involving a single muscle compartment can lead to serious health complications.
2. Both during and outside of the official sports season, Oregon coaches, trainers, and school administrators routinely and explicitly assess potential health and safety hazards to student-athletes, and implement appropriate countermeasures as warranted, such as activity modification, rest breaks, and hydration.

The full report is public and is available on the public health Injury Prevention website.

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