

Psychosomatic

Post-workout muscle pain or Rhabdomyolysis?

How to tell the difference.

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Due to new high-intensity exercise routines, hospitals have seen a rise in cases of rhabdomyolysis. Exercise-induced rhabdomyolysis is the breaking down of skeletal muscle, resulting in a release of creatine kinase (CK) levels and myoglobin in the blood stream, which can damage the kidneys.

The diagnosis of rhabdomyolysis is commonly established by taking a thorough history and observing spikes in activity levels, as well as determining if CK levels are 5-10 times higher than baseline, with a urine test providing the definitive diagnosis. Pain is considered as a critical part of the clinical picture. It is often described as a localised soreness of a muscle group that is more intense than would be expected with an over-use injury.

Twenty-four healthy subjects (14 women and 10 men, ages 24-27) were recruited from a university setting in Norway to participate in the study. Blood levels were recorded 1 before and 4 days after the exercise component, so that the participants were acting as their own controls. Prior to the study, participants were instructed to refrain from any exercise for a week and to complete a questionnaire on how often they performed strength training.

For the study, the participants performed a high-intensity 'Tabata' type workout, lasting approximately 50 minutes. The program started with a generalised warm-up, then progressed to high intensity exercises for all major muscle groups over 8 different exercise stations, with short breaks (10 seconds of rest in between activity bursts of 20 seconds). Every exercise was repeated 6 times before a 1-minute break and change of exercise.

All participants had an elevation in CK levels, with 14 of the 24 participants having levels that qualified as 5 times the normal limits (>5000 IU/l). Of these, 4 participants had urine tests positive for blood on day 4 post-testing, and of these, 3 had muscle pain. Those who engaged in regular strength training had a smaller elevation of CK levels.

This study found that an elevation in CK levels is a normal reaction to high-intensity workouts.

Nevertheless, the authors point out that there is a likelihood that rhabdomyolysis goes untreated. As no single sign can definitively diagnose rhabdomyolysis, it is important for clinicians to be aware of the possible signs.

Clinical signs to consider are:

- Engaging in strenuous exercise beyond that of one's normal routine;
- Muscle pain;
- Changes to urine output and/ or colour.

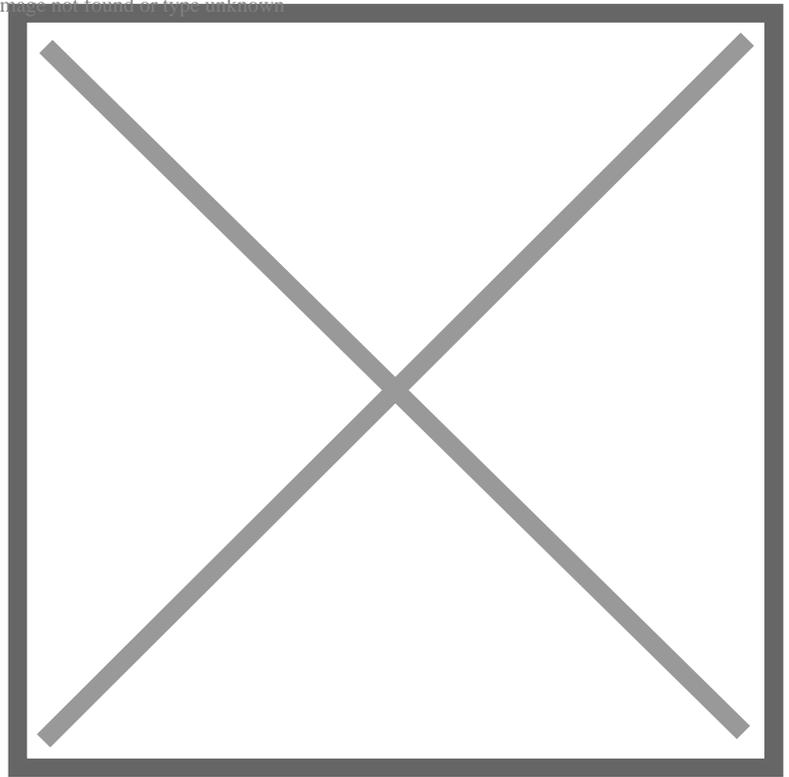
If any of these signs are present, a blood test for further diagnosis is indicated.

Expert opinion

This study has several obvious limitations, such as sample size and subjects acting as their own controls. However, it does raise an important point regarding symptoms that need to be considered to treat possible cases of rhabdomyolysis adequately.

The authors also provide a few helpful tips for those who may be at risk to avoid rhabdomyolysis, such as maintaining hydration levels, being aware not to overheat, and to progress gradually into new exercise routines.

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