

## Modification of vastus lateralis muscle homeostasis after an acute bout of unaccustomed exercise

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The purpose of this study was to investigate skeletal muscle changes during rhabdomyolysis induced by an acute bout of jumping exercise in sedentary individuals. Healthy volunteers (N=26) did a bout of jumping exercise (10 sets of 10 squat jumps to maximal jump height rest between sets was 1 min). Blood samples were drawn immediately before the exercise intervention and 6, 24, 48 and 72 hours after. The vastus lateralis was biopsied before (9 or 4 days) and 3 days post-intervention. Subjects were divided into two groups on individual CK responses on day 3 after exercise: high (n=10) and low responders (n=16). The cut-off limit used to diagnose rhabdomyolysis after exercise was  $CK \geq 1000$  U/L. Structural (dystrophin staining) and ultrastructural (transmission electron microscopy) analysis of muscle fibres did not evidence any difference between high and low responders despite that the high responders perceived more muscle soreness than low responders. Moreover, high responders presented significantly higher muscle myeloperoxidase (MPO) levels at both baseline and postexercise biopsies compared to the baseline of the low responder group. The results seems to indicate that rhabdomyolysis after exercise is caused by secondary inflammatory damage.

### References

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### Key words

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Rhabdomyolysis, skeletal muscle, jump exercise.