Flex Therapist CEUs

Blood Flow Restriction Training Physiological Effects

Effects of training with flow restriction on the exercise pressor reflex

1. The exercise pressor reflex implies mechano- and chemo-sensitive receptors that affect afferent nerve traffic in _____, which in turn increase the sympathetic outflow to the heart and resistance vessels.

A. A-fibers
B. B-fibers
C. C-fibers
D. D-fibers

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2. This study indicates that relative ischemia induced by flow restriction during exercise appears to increase the exercise pressor reflex.

A. True
B. False

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3. The fact that the difference in responses occurred only during the _____ of an isometric contraction suggests that the altered exercise pressor response depends on an altered afferent signaling originating from the muscle chemoreflex or a blunted increase in central command due to decreased muscle fatigue.

A. First quarter
B. Last quarter
C. First half
D. Second half

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4. It has previously been shown that, during isometric handgrip, endurance training of the forearm reduces the increase in:

A. Muscle sympathetic nerve activity
B. Mean arterial pressure
C. Heart rate
D. Endurance training of the forearm reduces the increase in MSNA, MAP, and HR

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5. The present results indicate that the metabolic disturbance per se induced peripheral adaptations that reduced the exercise pressor response.

A. True
B. False

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6. There were no observed changes in EPR after NR-training, despite about _____ increase in peak performance.

A. 10%
B. 20%
C. 30%
D. 40%

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7. The difference between the R- and NR-trained leg occurs in the second half of the isometric contractions in which pressure responses?

A. Muscle sympathetic nerve activity and mean arterial pressure
B. Heart rate and muscle sympathetic nerve activity
C. Heart rate and mean arterial pressure
D. Muscle sympathetic nerve activity, mean arterial pressure, and heart rate

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8. The chemoreflex comes into effect after some time, because of its dependence on the gradual accumulation of metabolites and decrease in pH.

A. True
B. False

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9. Previous studies have shown that regular training without flow restriction (NR-training), performed as in the present study, increases the aerobic capacity and acts to alter the metabolic capacity towards a more aerobic profile with an increased capillary density.

A. True
B. False

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10. It has been shown that endurance-trained individuals have a lower exercise pressor response during isometric contraction of the _____ muscle, compared to untrained subjects.

A. Quadriceps
B. Hamstrings
C. Gastrocnemius
D. Tibialis

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11. The maximal voluntary contraction increased after training, with approximately _____ in the flow-restricted trained leg.

A. 2%

B. 5%
C. 8%
D. 12%

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12. A decrease in exercise pressor response was apparent in the:

A. Non flow-restricted leg
B. Flow-restricted leg
C. Both the non flow-restricted and the flow-restricted legs
D. Neither the non flow-restricted nor the flow-restricted legs

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Anaerobic metabolism induces greater total energy expenditure during exercise with blood flow restriction

13. Findings suggest that peripheral perturbation induced by blood flow restriction in arterial and venous leg blood flow, including local hypoxia and reduce venous return, produces elevated metabolic demand.

A. True
B. False

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14. Compared to the low-intensity endurance exercise group, greater responses in all of the following were found in the low-intensity endurance exercise with blood flow restriction group, except for:

A. Lactate concentration
B. Heart rate
C. Ventilation
D. Cardiac output

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15. This study's findings suggest that cycling exercise undertaken with blood flow restriction is able to provoke additional perturbations to homeostasis necessary to induce improvements in VO2max, which normally take place during moderate-vigorous intensity endurance exercise without blood flow restriction.

A. True
B. False

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16. It was shown that decreases in locomotion economy with BFR were caused by the increased:

A. Lactate concentration
B. Heart rate
C. Ventilation

D. Cardiac output

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17. It is suggested that the elevated _____ response is due to the local hypoxia induced by BFR.

A. Ventilation
B. Cardiovascular
C. Lactate buildup
D. VO2max

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18. All of the following occur during BFR exercise, except for:

A. The metabolic stress will be increased.
B. Metabolic sensitive group III and IV efferent nerve endings within the active muscle will be stimulated.
C. There is an increase in efferent sympathetic nerve activity and systemic arterial pressure, known as muscle metaboreflex.
D. There is an autonomic cardiorespiratory response to exercise, as well as, increased ventilation and heart rate.

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19. It is suggested that metaboreflex causes a delay in the reactivation of the sympathetic system.

A. True
B. False

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20. Exercise at _____ of peak workload can induce an important pressor reflex.

A. 20%
B. 40%
C. 60%
D. 80%

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21. What is the link between metabolic perturbation and cardiorespiratory adaptation induced by low-intensity endurance exercise with blood flow restriction?

A. Lactate concentration
B. Local hypoxia
C. Systemic arterial pressure
D. Energy demand
