



FITNESS HOMEWORK:

Breathing

Does Breathing Pure Oxygen Speed Recovery?

It's now a common sight to see dramatic camera closeups of exhausted players fighting fatigue by breathing from an oxygen mask.

But is the breathing of pure oxygen really effective for speeding recovery in tired athletes?

Should you consider it for your team?

Actually...no. Studies have shown that breathing pure oxygen is of little physiological benefit in helping athletes recover from strenuous exercise.

Rationale for Breathing Pure Oxygen

There is some basis for the use of pure oxygen in speeding recovery.

Fatigue is caused by the buildup of lactic acid and carbon dioxide in the blood after hard exercise. Because oxygen is required to remove these substances from the bloodstream, it was thought that breathing pure oxygen would increase its levels in the blood and speed this process.

Tests

However, research has not supported this hypothesis.

One related study involved treadmill tests in which two groups of athletes were run to exhaustion, given a recovery period of five minutes, then run to exhaustion again. During the recovery period, one group breathed room air while the other breathed pure oxygen from a mask.

Blood lactate levels were measured four minutes after each run and the time to exhaustion was measured.

After three hours the two groups changed roles and the procedure was repeated.

Results

It was found that the athletes who breathed pure oxygen did not recover faster than those who breathed only room air—their blood lactate levels and the time to exhaustion in the second run showed no real advantage.

Why Oxygen Doesn't Aid Recovery

Breathing pure oxygen does not improve recovery time because the extra oxygen cannot be effectively transported.

Under normal conditions, the atmosphere provides red blood cells with all the oxygen they can handle. In regular air, hemoglobin leaving the lungs is already 98.5% saturated with oxygen.

And although some extra oxygen can be added to the bloodstream in dissolved form, this higher concentration of dissolved oxygen becomes diluted as soon as the mask is removed and regular air is breathed.



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When & How Pure Oxygen Can Help

However, there does appear to be some benefit to breathing pure oxygen before exercise...but only if the exercise requires breath-holding which prevents the dissolved oxygen in the blood-stream from becoming diluted by regular air.

(So, if you are coaching a varsity snorkeling team, you might indeed consider the purchase of an oxygen cannister or two).

Also, studies have shown that breathing pure oxygen can improve performance during exercise. However, wearing an oxygen cannister isn't practical in most scholastic sports.

Why Do Pro Teams Use Oxygen?

The reason pro teams use oxygen appears to mainly psychological — a fact freely admitted by Jerry Rhea, head athletic trainer for the Atlanta Falcons NFL team and the president of the National Athletic Trainers Association.

However, Mr. Rhea has noted a different benefit: when breathing through a mask, players tend to breathe more deeply and slowly, which is more effective than short, shallow breathing in aiding recovery.

Conclusion

Breathing pure oxygen does not speed recovery from strenuous effort. However there might be some psychological benefit to its use.

Convince your athletes that deep, slow breathing is the real aid to faster recovery. It's also a heck of a lot cheaper than bottled oxygen.