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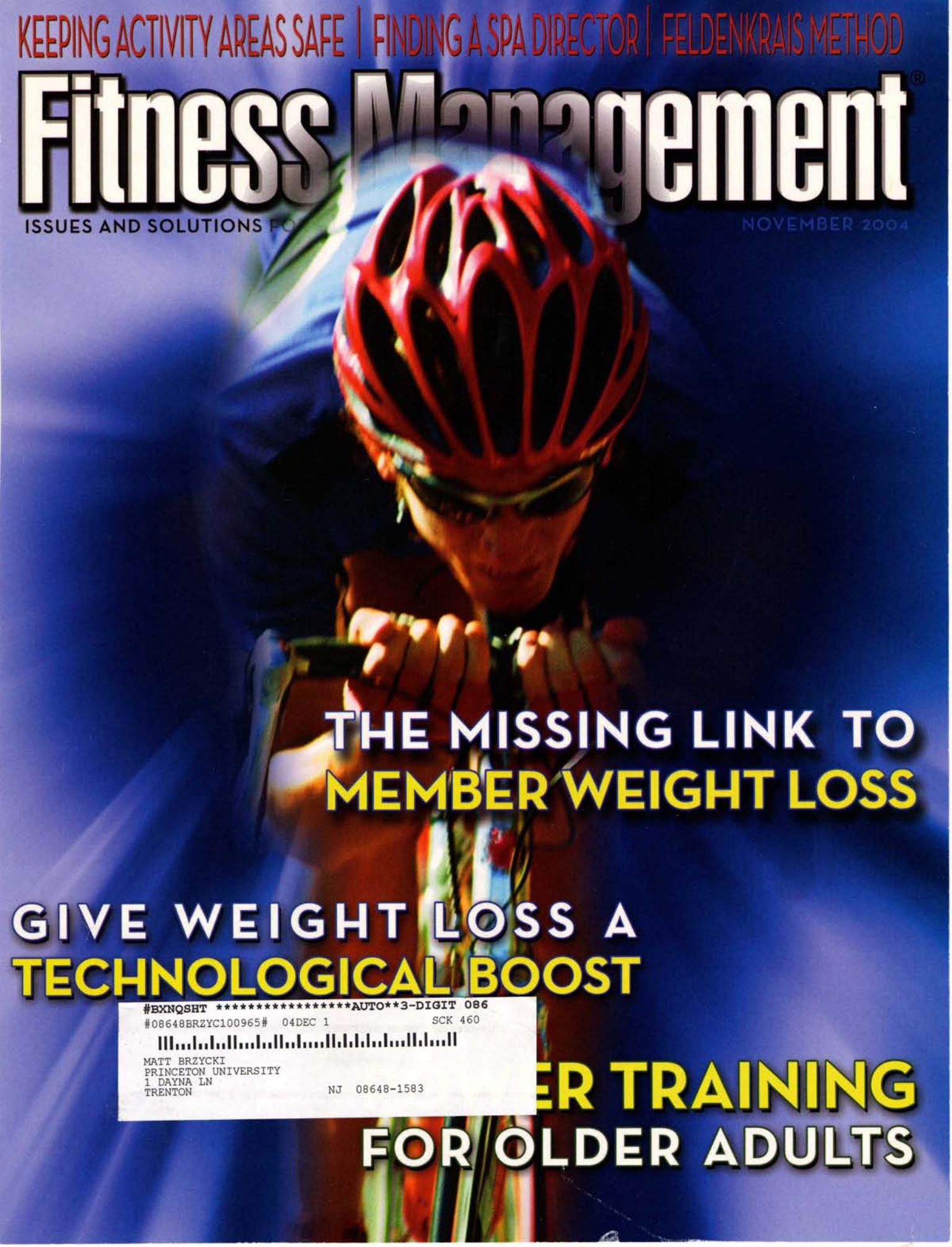
NOVEMBER 2004



THE MISSING LINK TO MEMBER WEIGHT LOSS

GIVE WEIGHT LOSS A TECHNOLOGICAL BOOST

ER TRAINING FOR OLDER ADULTS

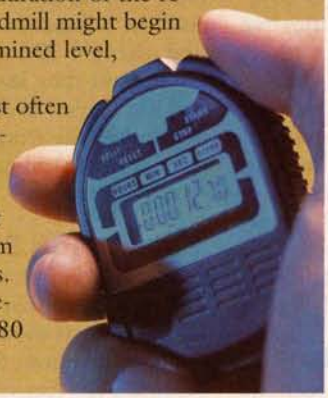
universityfitness Q&A

By Matt Brzycki

What are appropriate recovery periods for interval training?

Traditionally, cardio training is performed using continuous, long-duration efforts of low intensity. A recent trend, however, is to perform interval training (or, more simply, intervals), which involves a series of intermittent, short-duration efforts of high intensity.

The period of exertion is the work interval; the period of recuperation between the work intervals is the recovery (or rest) interval. The duration of the recovery interval is related to the time that it takes to complete the work interval. One way to set the duration of the recovery interval is to use heart rate. For example, runners on a treadmill might begin the next work interval when their heart rate drops to a predetermined level, such as 60 percent of the age-predicted maximum.



Another way is to assign a work:recovery ratio. The ratio is most often designated as 1:1, 1:2, 1:3 or 1:4. These ratios state that the recovery interval should be one, two, three or four times the duration that it took to perform the work interval. Anaerobic efforts that take less than 30 seconds require a work:recovery ratio of at least 1:3. So, an all-out effort that takes 15 seconds to perform should be followed by a recovery interval of at least 45 seconds. Anaerobic efforts performed in 30 to 90 seconds need a work:recovery ratio of between 1:3 and 1:2; those performed in 90 to 180 seconds need a work:recovery ratio between 1:2 and 1:1.

When lifting weights, phase of a repetition

Research has shown that muscular soreness can occur if a muscle is loaded excessively in a concentric, isometric or eccentric manner. And some studies have shown that eccentric contractions don't induce a greater level of muscular soreness than concentric contractions.

Keep in mind that, when lifting weights, the duration of the eccentric phase of a repetition involves a relatively brief period of loading. If a weight is lowered in about three to four seconds per repetition, for example, then the eccentric loading that occurs during a set of 15 repetitions only lasts about 45 to 60 seconds.

should the eccentric be minimized?

The eccentric phase of a repetition — and eccentric activity, for that matter — is safe and productive as long as it isn't performed to an extreme. As muscles become more familiar with eccentric loading, any amount of muscular soreness that may be experienced will be reduced.

Are there any benefits to taking the supplement nitric oxide?

Recently, nitric oxide has been promoted by the supplement industry as a performance-enhancing substance. Nitric oxide is actually a gas, though not to be confused with nitrous oxide or "laughing gas." As strange as it seems, nitric oxide was best known as an air pollutant (formed when nitrogen burns, such as in automobile emissions). Needless to say, it came as quite a shock when the biological functions of nitric oxide were discovered in the 1980s. In fact, *Science* magazine named it "Molecule of the Year" in 1992. And three pharmacologists from the United States were awarded the 1998 Nobel Prize in Physiology or Medicine for discovering the role of nitric oxide as a "signaling molecule in the cardiovascular system."

In the body, nitric oxide has numerous functions. For one, it signals the body to dilate blood vessels, thereby increasing blood flow. (Apparently, nitroglycerin acts by releasing nitric oxide gas, which widens the coronary artery.) In addition, nitric oxide is an important neurotransmitter that relays messages between nerve cells.

This doesn't mean that there are any benefits to taking nitric oxide as a supplement. At the present time, no scientific research has shown that nitric oxide supplementation will improve physical performance, or any of the aforementioned biological functions. So it appears as if nitric oxide is just another supplement in a long line of products that offers more hype than hope.

Matt Brzycki is coordinator of recreational fitness and wellness programs at Princeton University, Princeton, N.J. He has more than 20 years of experience at the collegiate level and has authored, co-authored or edited 11 books.

Do you have questions that you need answered? Email them to edit@fitnessmgmt.com.