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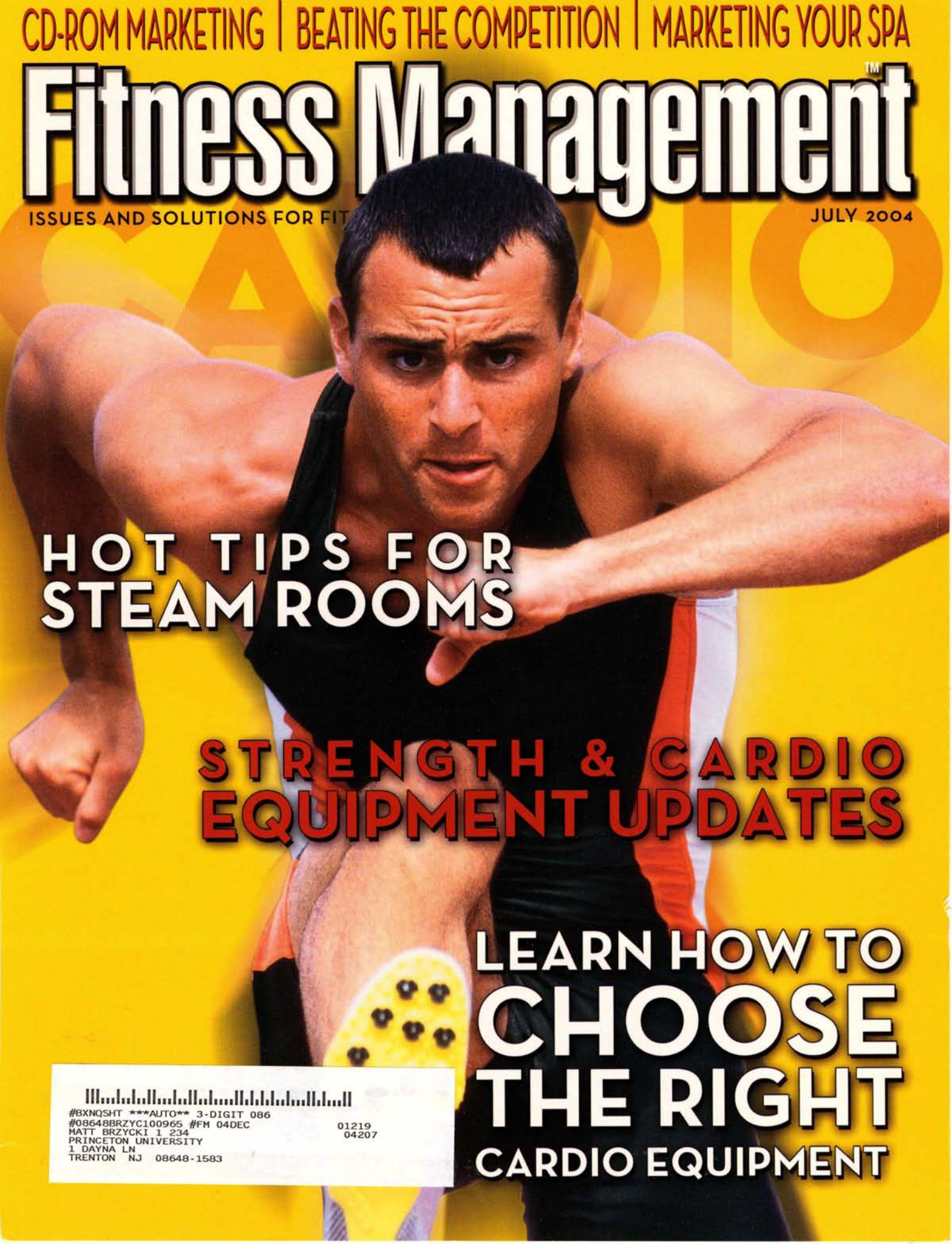
Fitness Management™

ISSUES AND SOLUTIONS FOR FIT

JULY 2004



HOT TIPS FOR STEAM ROOMS

STRENGTH & CARDIO EQUIPMENT UPDATES

LEARN HOW TO CHOOSE THE RIGHT CARDIO EQUIPMENT

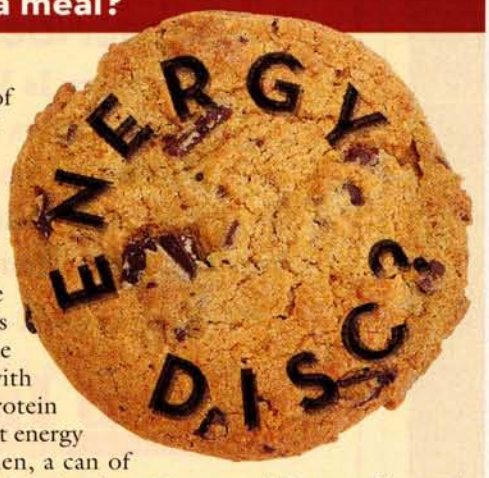
universityQ&A

By Matt Brzycki

Doesn't the seated leg curl offer a greater stretch of the hamstrings than the prone leg curl?

The differences between leg-curl machines were discussed in the March issue (p.56). And, yes, in addition to those discussed in that issue, the seated curl also offers a greater stretch to the hamstrings. The hamstrings are made up of three separate muscles: the semimembranosus, semitendinosus and biceps femoris. These muscles are somewhat unique in that they cross two joints: the hip and the knee. This means that they influence movement at both of those joints. Specifically, the hamstrings extend the hip and flex the knee. This also means that the hamstrings can be stretched at either — or both — of those joints. During a seated leg curl, the hamstrings receive a better stretch because the hips are flexed more than in the prone position.

Is there anything wrong with eating energy bars in place of a meal?



Keep in mind that use of the term "energy" can be misleading. Numerous products use the word "energy" in their names, which suggests that the product will improve stamina or make people more energetic. In truth, calories provide energy, and three nutrients provide you with calories: carbohydrates, protein and fat. In short, people get energy from food. Technically, then, a can of soda is an "energy drink," a hot dog is an "energy roll," a pat of butter is an "energy square," a slice of bacon is an "energy strip," a chocolate-chip cookie is an "energy disc" and an ice-cream sandwich is an "energy bar."

That said, there's nothing inherently wrong with most of the products that are dubbed "energy bars." So, an individual can eat an energy bar — especially when it's convenient because of time constraints. But people should not make a habit of eating energy bars instead of regular foods and meals. There's nothing wrong with energy bars, but there's nothing magical about them, either.

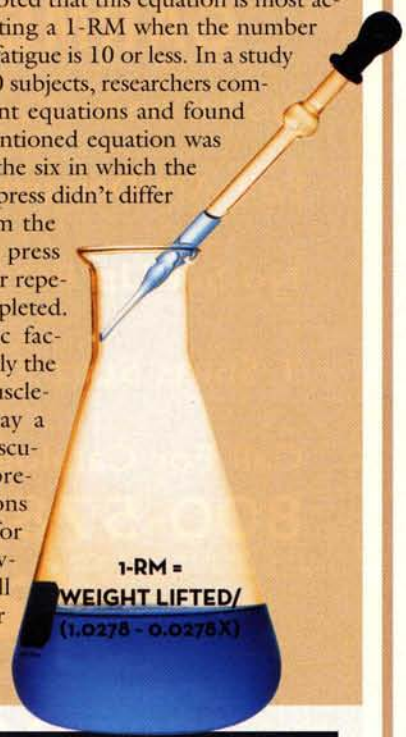
What's a good formula for estimating a one-repetition maximum?

A number of prediction equations have been developed and used to estimate a one-repetition maximum (1-RM) based on the relationship between muscular strength and endurance. By using a prediction equation, a 1-RM can be estimated in a safe and practical, yet reasonably accurate, manner without having to "max out." The following equation can be used to predict a 1-RM based on repetitions-to-fatigue (where X equals the number of repetitions performed): predicted 1-RM = weight lifted/(1.0278 - 0.0278X).

For example, suppose a client is able to perform eight repetitions to the point of muscular fatigue with 150 pounds. Inserting these values into the equation yields a predicted 1-RM of about 186 pounds [0.0278 x 8 = 0.2224; 1.0278 - 0.2224 = 0.8054; 150/0.8054 = 186.24].

In a study that involved 48 subjects, researchers found that this equation had a high correlation for predicting a 1-RM bench press and squat; in a study that involved 67 subjects, researchers showed that this equation had a high correlation for predicting a 1-RM in all three of the competitive powerlifts: the bench press, squat and deadlift.

It should be noted that this equation is most accurate for predicting a 1-RM when the number of repetitions to fatigue is 10 or less. In a study that involved 220 subjects, researchers compared six different equations and found that the aforementioned equation was the only one of the six in which the predicted bench press didn't differ significantly from the actual bench press when 10 or fewer repetitions were completed. (Because genetic factors — particularly the predominant muscle-fiber type — play a major role in muscular endurance, prediction equations aren't accurate for everyone. However, they're still practical for much of the population.)



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