universityQ&A

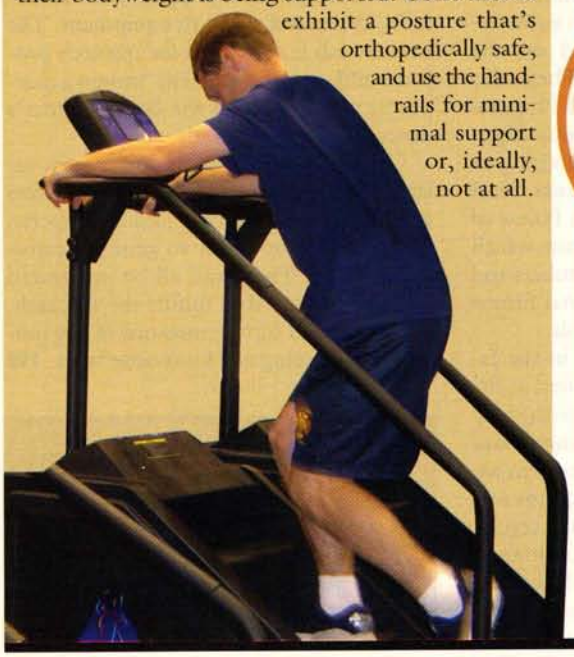
By Matt Brzycki

How does holding onto the handrails of a stairclimber affect performance?

The handrails of stairclimbing equipment allow users to better maintain their balance. Sometimes, however, users apply a death grip to the handrails, which essentially makes the activity easier. Worse, some hold onto the handrails and lock their elbows. Or, they lean forward and hug the console in what appears to be a romantic embrace (which, incidentally, puts the lower back in a precarious position). In these instances, users make themselves lighter on the machine, thereby reducing the demands on their cardiovascular and musculoskeletal systems.

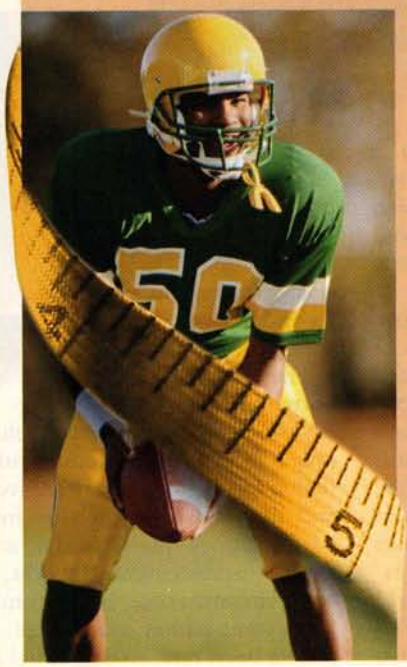
But how much does this really affect performance? In one study, 15 subjects were randomly assigned to three different methods of using the Stepmill 7000PT (which is basically a revolving staircase). In two treatments, subjects held the handrails with varying grips; in the other, subjects didn't hold the handrails. The researchers found that subjects who used the handrails had oxygen intakes that were as much as 8 percent lower than subjects who didn't use the handrails. Additionally, the study showed that subjects who used the handrails had exercising heart rates that were as much as 5 percent lower than subjects who didn't use the handrails. The bottom line is that holding the handrails made the activity easier and less effective.

Also consider that when holding onto the handrails, the data displayed by the console is inaccurate. The machine cannot discern whether individuals are using the handrails, or how much of their bodyweight is being supported. Users should exhibit a posture that's orthopedically safe, and use the handrails for minimal support or, ideally, not at all.



Is body mass index a valid indicator of being overweight or obese?

Body mass index (or BMI) is simply a ratio of height to weight. It has been used as a quick and handy way to estimate if a person is underweight or overweight. But keep in mind that BMI is just that: an estimate. Individuals can have a high BMI, yet not need to lose any weight. Consider this example: An individual who is 5 feet 10 inches and weighs 209 pounds has a BMI of more than 29.9, which is categorized as obese. But this happens to be the height and weight of Emmitt Smith, who has rushed more yards than any running back in the history of the National Football League. A quick glance at this future Hall of Famer would reveal that he's not anywhere near being obese. In fact, his percentage of body fat is undoubtedly in the single digits. So, BMI can certainly be used to estimate if someone needs to gain or lose weight, but body composition is much more valid, and should be taken into consideration.



Should personal trainers prescribe the same general protocol to all clients?

Your personal trainers should not dispense identical prescriptions for exercise. There are at least two reasons for avoiding the cookie-cutter approach.

First, people who use a personal trainer have different needs and desires. Some may need to improve the function of their cardiovascular systems; others may desire an increase in muscular strength. Second, research has shown that a variety of protocols can be used to improve strength and fitness. The fact of the matter is that any program will be productive, as long as it incorporates several basic concepts. For example, trainers should implement the Overload Principle, which is the most important underlying construct for improving physical performance — whether it's strength, endurance or even flexibility. In addition, they should encourage clients to use a high, but appropriate, level of effort. And, over time, the program should be made progressively more challenging. **FM**

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 eight books.

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