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AF Q & A

BY MATT BRZYCKI

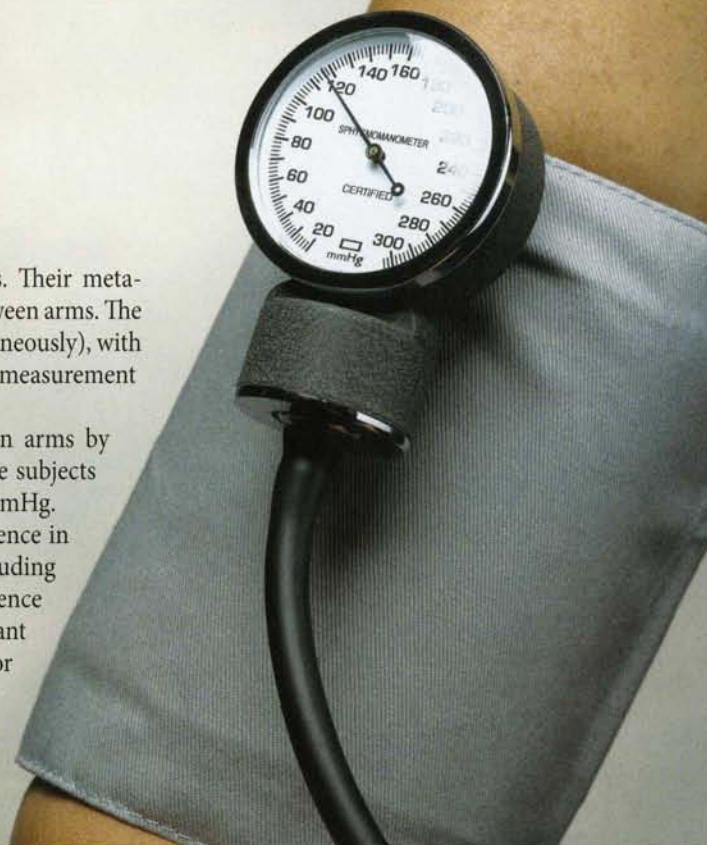
Does it matter which arm is used to measure blood pressure?

Researchers pooled data from 22 studies that involved 14,540 subjects. Their meta-analysis showed that there were differences in blood pressure readings between arms. The differences were greater when measuring sequentially (rather than simultaneously), with a manual device (rather than an automatic device) and performing one measurement (rather than multiple).

Overall, it was found that blood pressure readings differed between arms by 5.0 mmHg for systolic and 4.0 mmHg for diastolic. However, 14% of the subjects had a difference in systolic pressure between arms that was at least 10.0 mmHg.

What's the big deal? Well, studies have shown that a significant difference in blood pressure between arms may be indicative of several conditions, including congenital heart disease and peripheral vascular disease. Even in the absence of disease, a significant difference in the readings between arms is important since using the arm with the lower reading could misdiagnose whether or not an individual has hypertension.

Based on the data, the researchers advise that multiple readings of blood pressure should be taken in both arms at the same time with one automatic device that has two cuffs or two identical automatic devices.



Which is more effective for fat loss: eating less or exercising more?

Of course, a loss of fat can be achieved by either decreasing caloric intake (eating) or increasing caloric use (exercising). But is one more effective than the other?

One 12-month study involved 39 subjects from the St. Louis metro area who were randomly assigned to three groups: a group that restricted their calories, a group that exercised, or a control group that wasn't given a diet or exercise prescription unless requested (which was minimal). The study was designed so that both experimental groups produced the same caloric deficit, whether through

a decreased consumption of calories or an increased expenditure of calories—specifically, 16% for the first three months and 20% deficit for the last nine months.

Weight loss was about the same in the two experimental groups. However, fat loss was a different story. The group that exercised lost nearly twice as much intermuscular and visceral fat as the group that ate less.

So for fat loss, it appears as if exercising more is better than eating less. But the combination of these two practices is the preferred way to lose fat.

How do scientists measure the number of calories that are used during exercise?

Technically, a calorie is a unit of heat. Measuring caloric expenditure—essentially, the release of heat—is known as calorimetry. There are two main types of calorimetry: direct and indirect.

Direct calorimetry is a direct measure of the heat that's given off by an individual during rest and/or activity in a specialized room or metabolic chamber. Here, scientists measure the change in temperature. In addition, direct calorimetry is used to measure the thermic effect of food. This is the amount of calories that are used by the body to digest, absorb and transport food. Direct calorimetry is also used to measure the amount of calories in a food. The food is burned inside a container and the increase in the temperature of the surrounding water is measured.

Unfortunately, it's said that there are only 17 metabolic chambers in existence. And even then, the equipment and labor require no small expense.

Indirect calorimetry is an indirect measure of the heat that's given off by an individual based on the consumption of oxygen and/or production of carbon dioxide. It's known, for example, that 5.0 calories are used for every liter of oxygen that's consumed. So if it's determined that an individual consumed 3.0 liters of oxygen per minute, his caloric expenditure is 15.0 calories per minute.

There are no significant differences between indirect calorimetry and direct calorimetry in measuring caloric expenditure.

MATT BRZYCKI is the Assistant Director of Campus Recreation, Fitness at Princeton University. He has more than 30 years of experience at the collegiate level and has authored, co-authored and edited 17 books.

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