

Back to Basics: Benefits of a Standard Exercise Program

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Research shows that a basic exercise program of strength, flexibility and cardiovascular endurance is beneficial for beginning exercisers, and a prerequisite for more advanced training.

In the age of functional training, newcomers to the fitness profession may question the value of a standard exercise program. Although perceptions of a standard exercise program may vary somewhat, such an approach typically includes about a dozen basic strength exercises, at least 20 minutes of aerobic activity and several stretches.

Strength program research

At the South Shore YMCA in Quincy, Mass., we recently studied the benefits associated with a basic exercise program. Our program was designed for beginning exercisers, and included the following components:

Muscle strength. Using 12 weightstack machines, participants performed leg extensions, leg curls, chest crosses, chest presses, pullovers, lateral raises, bicep curls, tricep extensions, abdominal curls, and neck flexions and extension.

Joint flexibility. Twelve stretches were performed in conjunction with the strength exercises (quadriceps stretch followed leg extension exercise, hamstrings stretch followed leg curl exercise, etc.).

Cardiovascular endurance. Participants used treadmills for walking or running, or stationary cycles.

The program. The exercise program required approximately 50 minutes for completion. Each strength exercise was performed for one set of eight to 12 repetitions at about six seconds each (two-second lifting phase, four-second lowering phase). Participants took about one minute between strength exercises, during which time they performed a 20-second stretch for the muscles that were just worked. The time for completing the 12 pairs of strength and flexibility exercises was typically 25 minutes.

Aerobic activity was increased gradually to 25 minutes on the treadmill or stationary cycle. Participants trained between 70 and 80 percent of maximum heart rate, which generally corresponded to a 12 to 14 rating on the Borg Scale of Perceived Exertion.¹

The 148 people in the study (108 females and 40 males, mean age 57.6 years) trained in small classes (six participants with two instructors) for 10 weeks. About half of the subjects exercised twice per week (Tuesday and Thursday), and half exercised three times a week (Monday, Wednesday and Friday). Previous research with more than 1,100 subjects revealed about 88 percent as much muscle gain and fat loss for the two-days-per-week group versus the three-days-per-week exercisers.²

All of the participants were assessed before and after the training program for the following fitness parameters: bodyweight, percent fat, fat weight, lean weight, muscle strength (isometric), joint flexibility, balance (one foot, eyes closed), systolic blood pressure and diastolic blood pressure. They were also assessed for at-rest blood pressure before and after their 25-minute workout during the third, sixth and ninth week of the training program.

Research results

The results of the 10-week standard exercise program were impressive. On average, the participants reduced their fat weight by 4.5 pounds, and increased their lean (muscle) weight by 2.6 pounds (Table 1). They also increased their muscle strength (independent isometric measurement) by 12 percent, enhanced their joint flexibility by 10.8

percent and improved their standing balance by 35.2 percent (Table 2). Over the same training period, the subjects experienced a 6.3 mmHg reduction in resting systolic blood pressure, and a 2.2 mmHg reduction in resting diastolic blood pressure (Table 2). Consider that the standard exercise program produced fitness benefits ranging from body composition to balance to blood pressure.

Benefits of a basic program

There is a lot to be said for a basic program of strength, flexibility and endurance exercise. In essence, it is easy for beginning exercisers to understand and implement. It is also safe from an injury perspective. Over the past 10 years, the injury rate in our standard exercise program (approximately 5,000 research subjects) has been nearly nonexistent.

In addition to the exercise adaptations, program participants experienced beneficial physiological changes during the exercise process. As shown in Table 3, the subjects' systolic blood pressure was lower after they performed 25 minutes of strength exercise. Notice that the before-strength-workout to after-strength-workout blood pressure reduction was 1.2 mmHg in week three, 2.5 mmHg in week six and 4.5 mmHg in week nine. It would, therefore, appear that this beneficial exercise process effect increases with continued training. And, contrary to popular misconception, strength exercise seems to result in temporarily reduced systolic blood pressure after the workout, and permanently reduced blood pressure (systolic and diastolic) after the 10-week training period.

In our opinion, the standard exercise program is useful for all fitness enthusiasts, and particularly valuable to beginning participants. It is safe, effective and efficient, and always well-received by new exercisers (our program evaluations show a 95 percent satisfaction level with the standard exercise program). While we do not believe that basic training protocol should be continued indefinitely, we think it should precede highly specialized or segmented exercise programs. Overall conditioning for the musculoskeletal and cardiovascular systems seems to be a sensible prerequisite for more advanced training. Considering that exercise/fitness should be a long-term lifestyle, we recommend starting new participants with a standard exercise program, and progressing to more challenging training alternatives when they are prepared to do so safely and successfully. FM

REFERENCES

1. Borg, G. Borg's Perceived Exertion and Pain Scales. Human Kinetics: Champaign, Ill., 1998.
2. Westcott, W., and J. Guy. A physical evolution: Sedentary adults see marked improvements in as little as two days a week. IDEA Today 14 (9): 5-8 65, 1996.

Table 1. Body Composition Changes

10-week body composition changes for participants in a standard strength and endurance exercise program (148 subjects, mean age 57.6 years)

Variable	Pre	Post	Change	% change
Bodyweight	177.5 lbs.	175.6 lbs.	1.9 lbs.	1.1 %
Percent fat	29.6 %	27.6 %	2.0%	6.8 %
Fat weight	54.6 lbs.	50.1 lbs.	4.5 lbs.	8.2 %
Lean weight	122.9 lbs.	125.5 lbs.	+2.6 lbs.	2.1 %

Table 2. Fitness Changes

10-week fitness changes for participants in a standard strength and endurance exercise program (148 subjects, mean age 57.6 years)

Variable	Pre	Post	Change	% change
Strength	50.4 lbs.	56.4 lbs.	+6.0 lbs.	12.0 %
Flexibility	32.6 cm.	36.1 cm.	+3.5 cm.	10.8 %
Balance*	7.1 seconds	9.6 seconds	+2.5 seconds	35.2 %
Systolic blood pressure	133.4 mmHg	127.1 mmHg	6.3 mmHg	4.7 %
Diastolic blood pressure	81.4 mmHg	79.2 mmHg	2.2 mmHg	2.8 %

*64 subjects were tested for balance

Table 3. Blood Pressure Changes

Systolic blood pressure readings before and after a strength-training workout during weeks three, six and nine of a standard exercise program (140 subjects, mean age 56.5 years)

<i>Variable</i>	<i>Before strength workout</i>	<i>After strength workout</i>	<i>Change</i>	<i>% change</i>
Systolic blood pressure, week three	133.5 mmHg	132.3 mmHg	1.2 mmHg	0.9 %
Systolic blood pressure, week six	134.5 mmHg	132.0 mmHg	2.5 mmHg	1.9 %
Systolic blood pressure, week nine	134.0 mmHg	129.5 mmHg	4.5 mmHg	3.4 %