

SECTION 4: PRINCIPLES, PROGRAM DESIGN & TRAINING SPLITS

Here are some basic principles, some basic repetition/workload guidelines and some basic guidelines for scheduling training splits. This is not an exhaustive list, nor will every instance work for every person, but this is a good place to start.

Principles of Training

Keep these principles in mind when designing your workout. Increasing or decreasing any of these principles will help you to adjust your workout based on individual goals.

Overload: Exercise harder, more often or longer than normal. Increase overload when workouts get easier, but not necessarily on a set schedule. Example: If your goal is to bench press 300 lbs. 10 reps per set, you may increase the weight slightly (see the 10% rule below) when you can do 11 or 12. However, it may not be advisable to plan to add 10 lbs. per week to the bench. Only increase your overload when you surpass your goal.

Progression: Increase overload gradually. Use the 10% rule: never add more than 10% to your intensity (i.e. weight, reps, time).

Specificity: In order to increase a skill, you must practice that skill. i.e: If you want more power you must lift weights, and if you want better cardio conditioning you need to run. This may also refer to specifically training a particular muscle group to make it stronger.

Individuality: Everyone has different genetic makeup. Not everyone can be a powerlifter or a marathon runner, due to the different makeup of muscle types, cardiovascular differences, etc.

Reversibility: Use it or lose it!

Strength training program design

These are general repetition and workload guidelines to help you design your workout based on your goals.

1RM means one rep max, the maximum amount of weight you can lift in one try. You do not necessarily need to know your exact one rep max; for example, if you reach exhaustion at about six reps, you are probably lifting at 85% of your one rep max. Check out this site if you want to use a safe method to determine your 1RM:

<http://www.strengthcats.com/maxcalculator.htm> (ignore the rest of the page).

Power/Strength (lifting a maximal load) = 1-6 rep / 85%+ 1RM. Ability of muscle to produce maximum amount of force (powerlifting range).

Hypertrophy (increasing muscle size) = 65%-85% 1RM, 6-12 reps. Increase in muscle size (bodybuilding range).

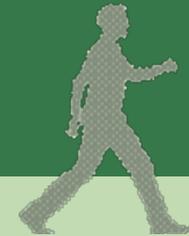
Muscular endurance (Sustaining a muscular effort for a longer period of time) = Less than 65%, 12+ reps. Ability of muscle to perform high repetitions of weight (often used for muscular definition, as well as sports that require many repetitive movements).

FITT Principle, ACSM Guidelines for Healthy Populations

See the next page for the Health, Physical Education & Recreation Department's guidelines



FITT Principle ACSM Guidelines for Healthy Populations



	Frequency	Intensity*	Time*	Type
Cardiorespiratory Endurance (ability & efficiency of circulatory & respiratory systems to supply oxygen during sustained activity)	3-5 days per week	40%/50% - 85% HRR or 64%/70% - 94% HR max HRR – Heart Rate Reserve	20-60 minutes per day or 150-300 min/wk	Rhythmic, aerobic exercise of moderate intensity involving large muscle groups requiring minimal skill is recommended (Walking, cycling, swimming, cross-country skiing, racquet sports, basketball)
Muscular Fitness (strength-exert maximal force against an object- or endurance-sustain continual muscular exertion over given period of time)	Resistance exercise each muscle group 2-3 non-consecutive days per week (48 hours between exercising same muscle group)	Volitional fatigue (19-20 RPE) or Stop 2-3 reps before volitional fatigue (16 RPE) RPE – Rate of Perceived Exertion	2-4 sets of 8-12 reps/set with rest interval of 2-3 min. between sets to improve muscular fitness	Free weights, bands, or machines Perform 8-10 multi-joint exercises that train major muscles of hips, thighs, legs, back, chest, shoulders, arms, & abs
Flexibility [ability of a joint to move through a full range of motion (ROM)]	2-3 days per week, ideally 5-7 days per week when muscles are warm	End of the range of motion at a point of tightness, without discomfort	Hold each stretch 15-30 seconds, 2-4 repetitions of each stretch	Static and/or range of motion stretches involving major muscle tendon group (seated toe touch, modified hurdler's stretch, kneeling hip & thigh stretch)
Body Composition (ratio of fat mass to fat free mass)	Every day	Cardio & muscular strength recommendations	Appropriate exercise + moderate eating	Proper exercise and nutrition to maintain healthy norms

*Level determined by physical fitness level.

Physical Activity Guidelines for Americans 2008 (www.health.gov/paguidelines) For substantial health benefits, adults should do at least 150 minutes a week of moderate-intensity, or 75 minutes a week of vigorous-intensity aerobic physical activity. Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week.



SAMPLE TRAINING SPLITS

There are many training splits from which to choose, depending on individual goals, and what each individual is trying to emphasize with their workout. Here are a few samples to consider. This is by no means an exhaustive list. *Remember, not every split is appropriate for every person's goals. See me, and we'll figure out yours!*

Full body: 8-12 exercises, working each body part (Chest, upper back, lower back, biceps, triceps, shoulders, quads, hamstrings, glutes, adductors, abductors, abs, calves). Especially useful for general conditioning/maintenance, beginning strength trainers and those coming back from a long break.

Note: If doing a full body workout, one full day of rest is required between workouts.

Upper/Lower body

No day of rest required between workouts, however experts usually recommend one to two days off each week.

3 day splits

No day of rest required between workouts, however experts usually recommend one to two days off each week.

Opposing muscle groups:

Day 1: Chest, upper back, lower back, abs

Day 2: Biceps, triceps, shoulders

Day 3: Legs, abs

Day 4: Rest

Advanced workout requiring high intensity lifting. Each body part worked one day a week. At least one day off, preferably two.

Pre-exhaust workout (larger muscle groups first)

Day 1: Chest, triceps, abs

Day 2: Back, shoulders, biceps

Day 3: Legs, abs

Day 4: Rest **4 day splits**

Sample opposing muscle groups split:

Day 1: Chest, back, abs

Day 2: Biceps, triceps

Day 3: Shoulders, abs

Day 4: Legs

Day 5: Rest

Sample pre-exhaust workout (larger muscle groups first)

Day 1: Chest, triceps, abs

Day 2: Back, biceps

Day 3: shoulders, abs

Day 4: Legs

Day 5: Rest

A note on abs

A quick abdominals guideline: I know you have heard that you should do abs every day, but your abs are just like any other muscle, and need rest. Recovery from the muscular breakdown of a workout is what builds muscles that are bigger, stronger and have more endurance.

The spot-reduction myth

Feel free to do a million crunches every day, but if you don't do cardio and put down the fork, you will not see your abs of steel. My favorite example: Sumo Wrestlers have the strongest abs in the world. They are required to lift 400+ lb. men out of the ring, but no one ever sees their six-packs.

Also, save your money and don't buy those gizmos off of late night television. They're rip-offs and don't work any better—and sometimes much worse—than ball crunches and bicycle maneuvers.



Health advice, exercise library, ACE Fit Facts and more at: www.acefitness.org

A good place to start: <http://exercise.about.com/cs/exbeginners/a/exforbeginners.htm>

Somewhat more advanced: <http://www.exrx.net/>

Ab gizmos: <http://www.acefitness.org/getfit/studies/BestWorstAbExercises.pdf>