

RESISTANCE TRAINING

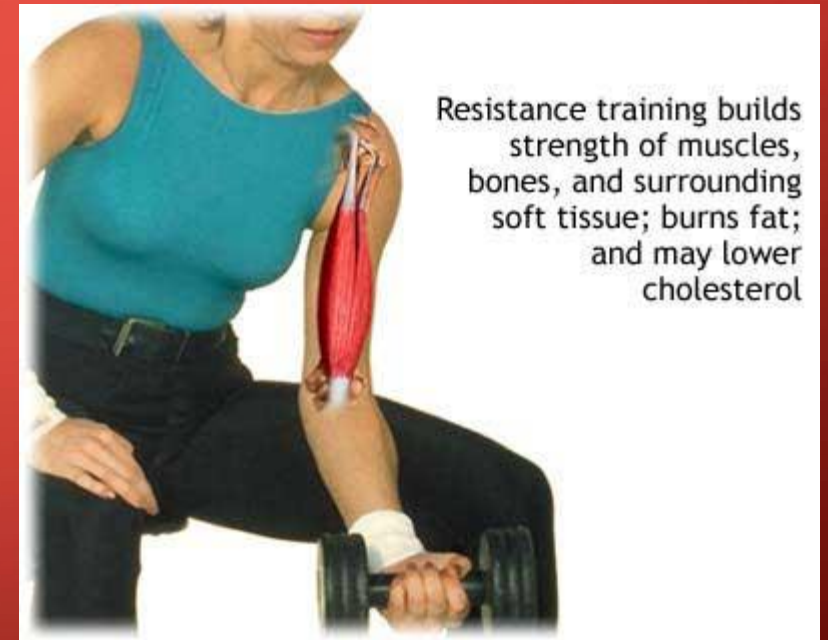


WHO NEEDS RESISTANCE TRAINING?

- **Everyone can benefit from resistance training!**
- Muscle mass naturally diminishes with age.
- "If you don't do anything to replace the lean muscle you lose, you'll increase the percentage of fat in your body," says *Edward R. Laskowski, M.D., a physical medicine and rehabilitation specialist at Mayo Clinic, Rochester, Minn., and co-director of the Mayo Clinic Sports Medicine Center.* "But strength training can help you preserve and enhance your muscle mass at any age."

FITNESS BENEFITS

- Cardiovascular Fitness: Strength training improves both strength and cardiovascular endurance
- Weight Control: Increase the muscle to fat ratio
- Cosmetic Improvements: Subtract inches from the waist, define the upper and lower arms and tone legs.
- Organic Improvement: Enhanced muscle tone associated with strength training improves circulation and aids in the improvement of gastrointestinal functioning.



Resistance training builds strength of muscles, bones, and surrounding soft tissue; burns fat; and may lower cholesterol

THINGS TO CONSIDER...

- First decide what your goal is...do you want to gain strength or more endurance in the muscles? (this helps you decide how much weight and how many reps you should be doing)
- Next, take a mental note of how long it has been since you have done any sort of strength training. If it has been awhile, start slow with lighter weight and less reps for the first couple of workouts so that muscles can adjust.
- Then decide how much time you have to devote to training to determine how long workouts will be and how many you will have each week.

ESTABLISH A FOUNDATION



• **When returning to lifting after a layoff or when starting to lift for the first time concentrate on:**

1. Developing proper lifting techniques
2. Overcoming weaknesses
3. Rehabilitating injuries
4. Improving flexibility
5. Developing appropriate opposing muscle ratios

LET'S GET STARTED

- In order to select the proper exercise and movement type the lifter needs to be able to answer the following:
 - What is the primary purpose of the exercise program (fitness, body building, sport, employment, rehabilitation)?
 - What muscle groups need emphasis?
 - What is the primary type of muscle action to be utilized (dynamic – concentric or eccentric, isometric, functional isometric, plyometric)?
 - What are the movement patterns and speeds needing to be developed?
 - What exercise contraindications should be addressed?

MUSCLE
HYPERTROPHY



TABLE 13.3**Resistance Training Systems**

Type	Definition
Single-set	Performing one set of each exercise
Multiple-set	Performing a multiple number of sets for each exercise
Pyramid	Increasing (or decreasing) weight with each set
Superset	Performing two exercises in rapid succession with minimal rest
Drop-sets	Performing a set to failure, then removing a small percentage of the load and continuing with the set
Circuit training	Performing a series of exercises, one after the other, with minimal rest
Peripheral heart action	A variation of circuit training that uses different exercises (upper and lower body) for each set through the circuit
Split-routine	A routine that trains different body parts on separate days
Vertical loading	Performing exercises on the OPT template one after the other, in a vertical manner down the template
Horizontal loading	Performing all sets of an exercise (or body part) before moving on to the next exercise (or body part)

- Your first week should be spent in determining poundage and developing proper lifting technique. Use a moderate weight that can be lifted twelve to eighteen times. Your second and third week should be spent maintaining approximately the same repetition/poundage established but attempting to increase the number of sets performed to two. So the first week do one set, the second and third week do two sets.

Table 2. The ACSM Guidelines for Resistance Training (2010)

Frequency	Intensity	Repetitions	Sets	Type
2–3 days/week with at least 48 hours rest for the same muscle groups	Moderate to hard; the last repetition should be difficult	8–12 (healthy adults) 10–15 (older adults)	2–4, with a rest interval of 2–3 minutes between sets	Multi-joint exercises using more than one muscle group. (May also include single-joint exercises.)

CONDITION WITH PURPOSE

- Specificity conditioning for any purpose (FITNESS, SPORT, CAREER, REHABILITATION) should be dynamically connected to the physiological demands of the activities associated with the conditioning purpose
 - **Muscular endurance** is the ability to repeatedly perform a lift, exercise or activity over extended periods of time. High to very high number of repetitions at light intensity: Formula = 1-3 sets of 12-20 reps.
 - **Muscular Hypertrophy** is the increase in size (enlargement) of muscle due to imposed resistance activities. Moderate to high repetitions and moderate to heavy intensity: Formula = 2-6 sets @ 8-12 reps.
 - **Muscular Strength** is the maximum force a muscle group can exert. Low to moderate number of repetitions and a heavy to maximal intensity. 3-7 sets @ 2-6 reps.

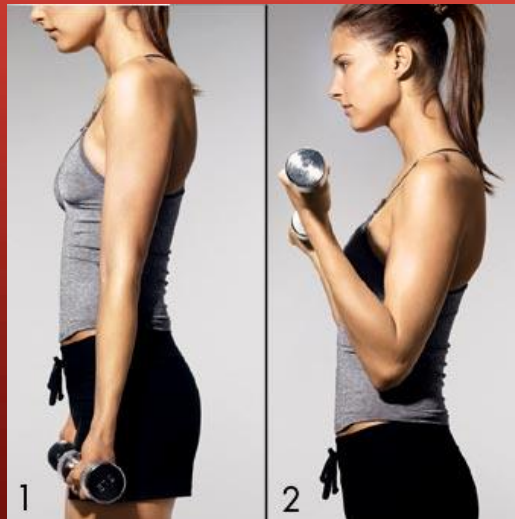
BODY DEVELOPMENT

- When designing an exercise program one should always begin with a strong foundation (a core program). This accomplished by developing all the major muscle groups of the body. Multiple joint (squat, leg press, bench press – free weight or machine) exercises should make up the major portion of the core program. A sample core program would include the following exercises:

- Power clean or hang clean
- Squat or leg press
- Hip flexor
- Bench Press
- Long pull or bent row
- Shoulder press or push press
- Lat pull or chin pull
- Dips or seated dip press
- Upright row
- Crunch
- Dead Lift or modified dead lift

MUSCLE BALANCE

- All major muscle groups need to be developed in order to insure muscle balance. (opposing motions) If you push a weight away from your body for one exercise then a balancing exercise would be to pull a weight toward your body.
- **Example:** If you are going to exercise the front of the upper arm; perform an exercise that causes the muscles of the upper arm to contract (biceps curl) then choose an exercise that causes the muscle of the upper arm to extend (triceps press).



WHAT EXERCISES SHOULD YOU DO?

- **Quads** – squats, lunges, one legged squats, box jumps
- **Butt and Hamstrings** – hip raises, deadlifts, straight leg deadlifts, good morning, step ups.
- **Push (chest, shoulders, and triceps)** – overhead press, bench press, incline dumbbell press, push ups, dips
- **Pull (back, biceps, and forearms)** – chin ups, pull ups, inverse body weight rows, dumbbell rows
- **Core (abs and lower back)** – planks, side planks, exercise ball crunches, mountain climbers, jumping knee tucks, hanging leg raises.

Pick one exercise from each category listed on the left for a workout, and you will work almost every single muscle in your body. The exercises listed are just a few examples however more will be given later on.

Add variety to your routine, pick a different exercise each time and your muscles will stay excited.

LIFTS

• Upper Legs

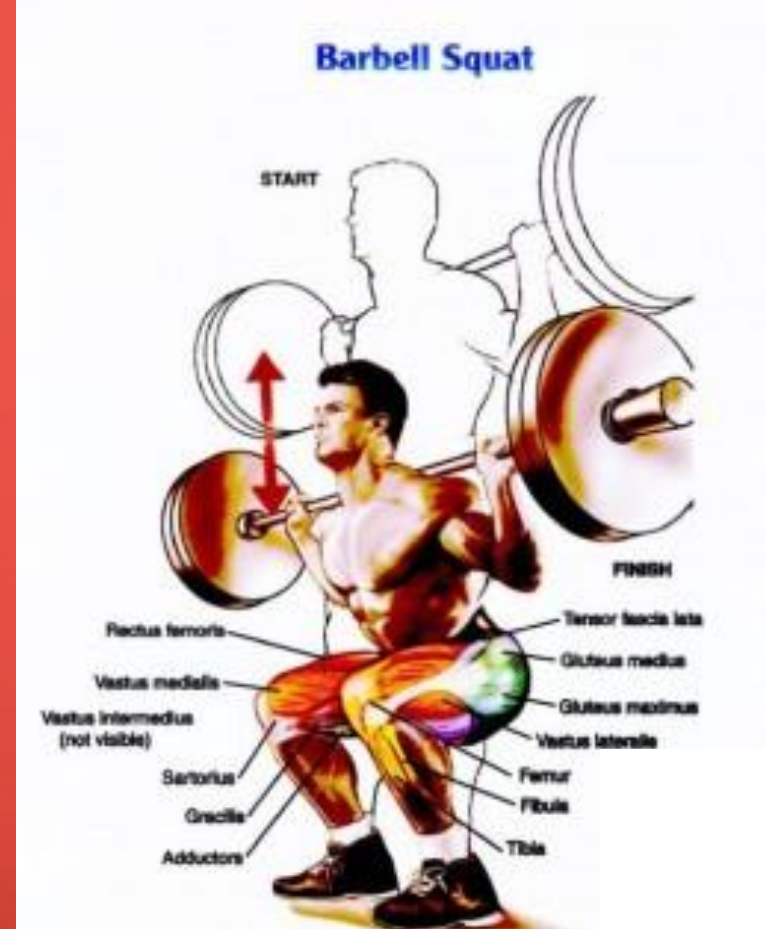
• A. Quadriceps (Front of Thigh)

- Squats**
- Straddle Squat
- Leg Press
- Lunges
- Quad extensions

• B. Hamstrings (Back of Thigh)

- Hamstring Curl**

**Incicates exercises shown



LIFTS

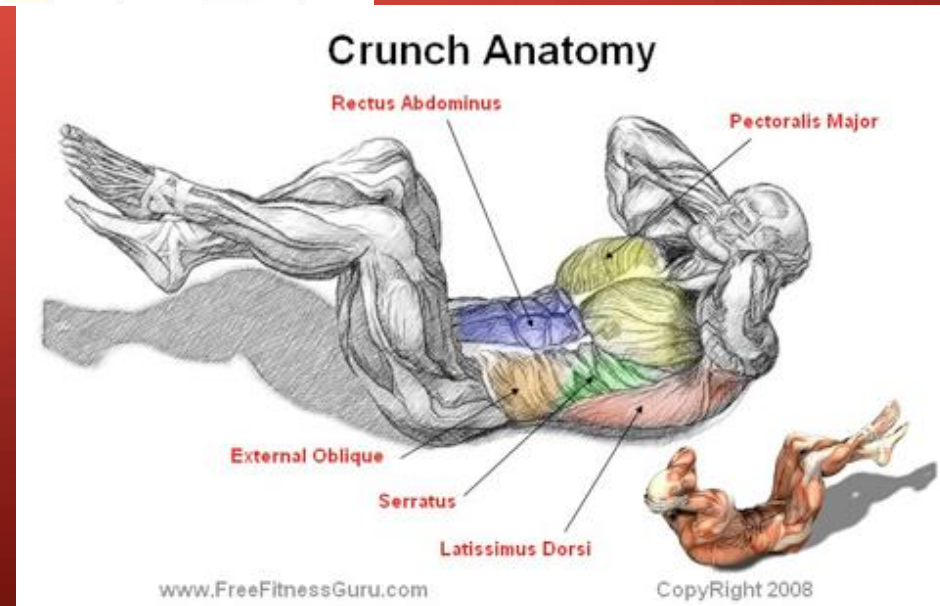
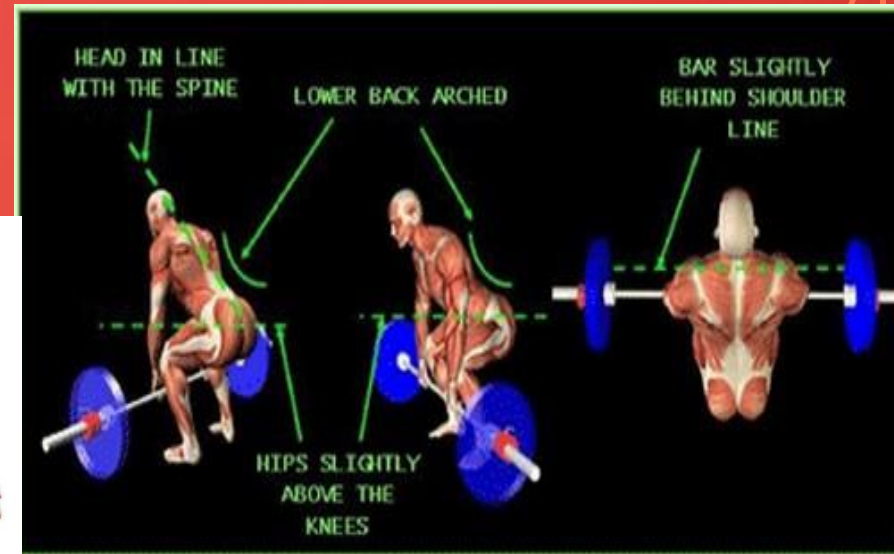
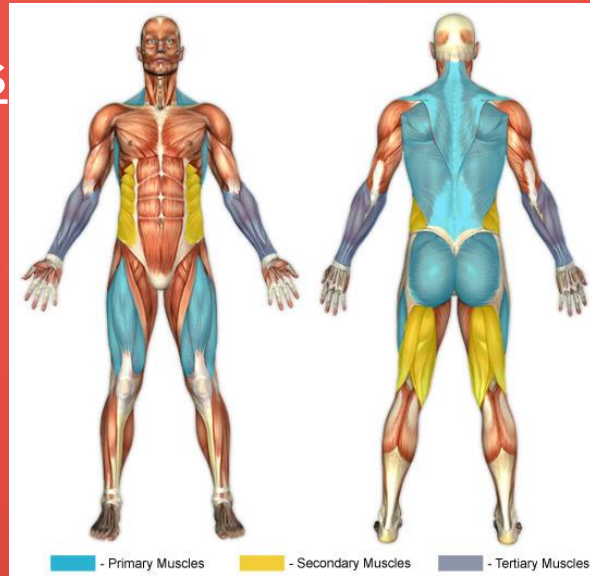
Lower Back and Abdominals

A. Erectors

- Dead Lift**
- Back Raise
- Sidebends

B. Abdominals

- Crunch**
- Flexed Leg Lifts (Hip Flexor)
- Side bends



** Indicates exercise shown

LIFTS

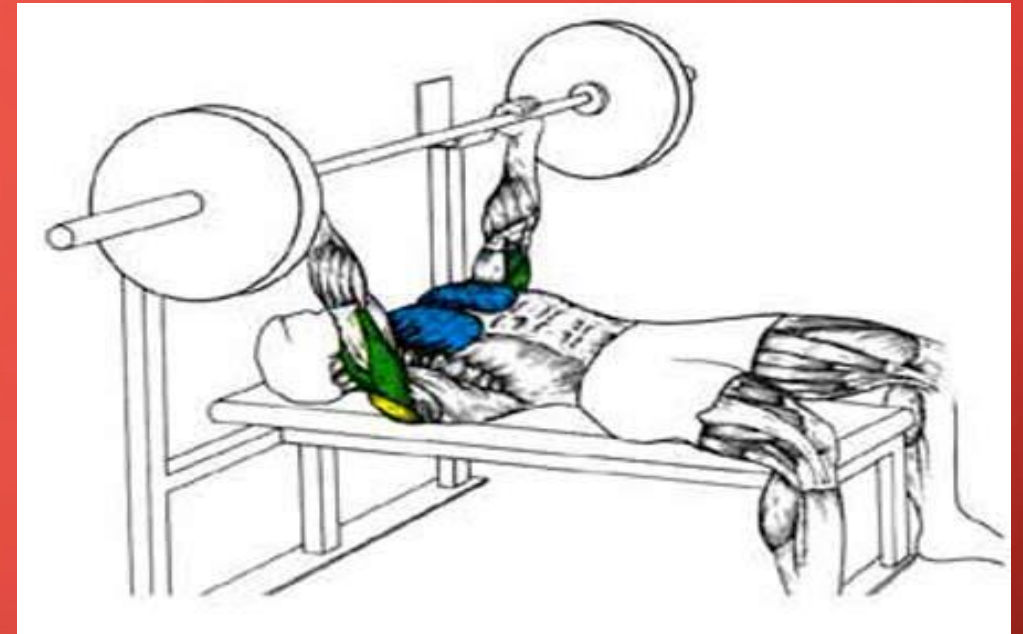
- Upper Back, Chest and Shoulders

- **Lats**

- Bent Row
- Pull-up or Lat Pull
- Seated Row

- **Pectorals**

- Bench Press**
- Incline Press
- Decline Press
- Bench, Incline, Decline Flies
- Pullover



- **Deltoids, Trapezius, Rhomboids**

- Seated Press (Shoulder Press/Partial Press)
- Upright Row
- Raises or Flies (Front, Lateral, Incline)
- Shoulder Shrug

** indicates exercise shown

LIFTS

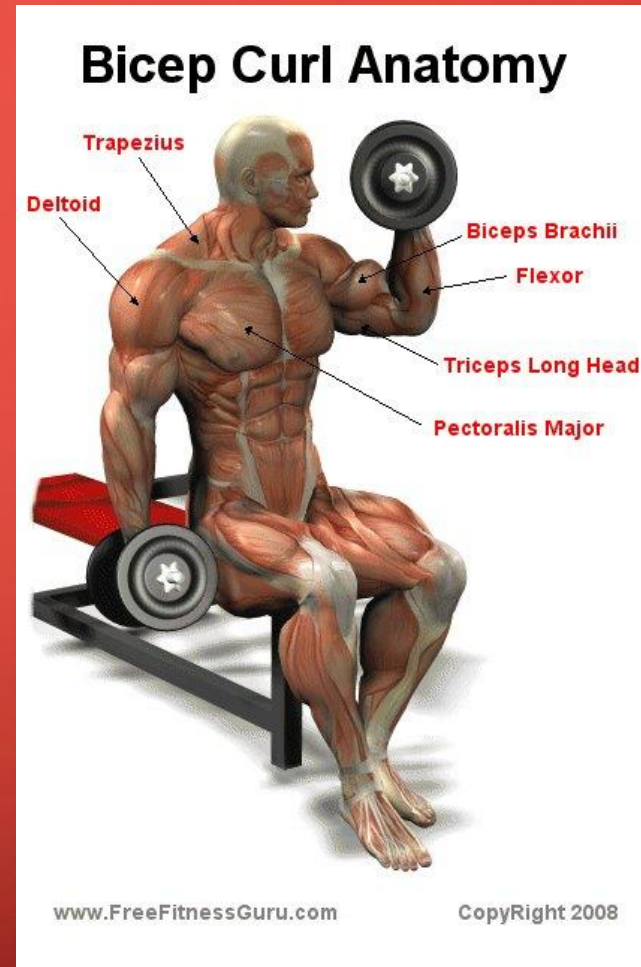
- Upper Arms

- Biceps

- Curl (barebell, dumbbell, machine)**
- Regular, Reverse and Intermediate Grips

- Triceps

- Tricep press (barbell, dumbbell, machine)
- Regular and Intermediate Grips
- Dips



**Indicates exercise shown

LIFTS

- Lower Legs

- Gastrocnemius (Calf)

- Heel Raise (Toe Raise)
 - Calf Press (Toe Press)
 - Donkey Calf Raise

- Shin

- Dynamic Shin Flexion (Foot Flexion)



LIFTS

- Forearm

- Extensors

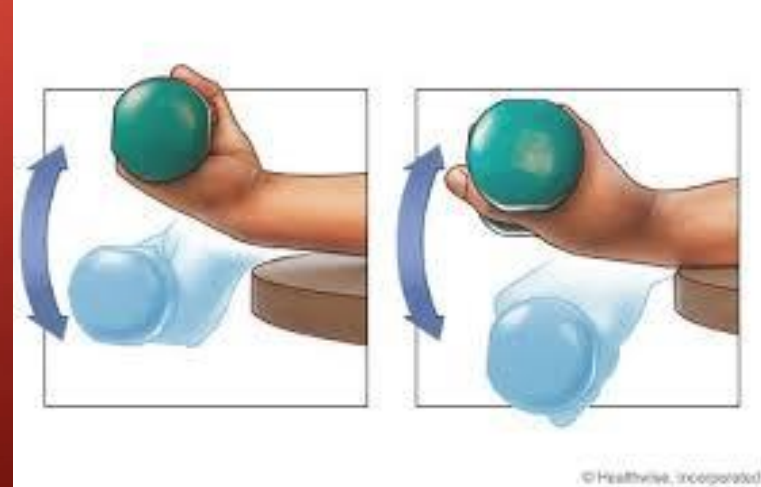
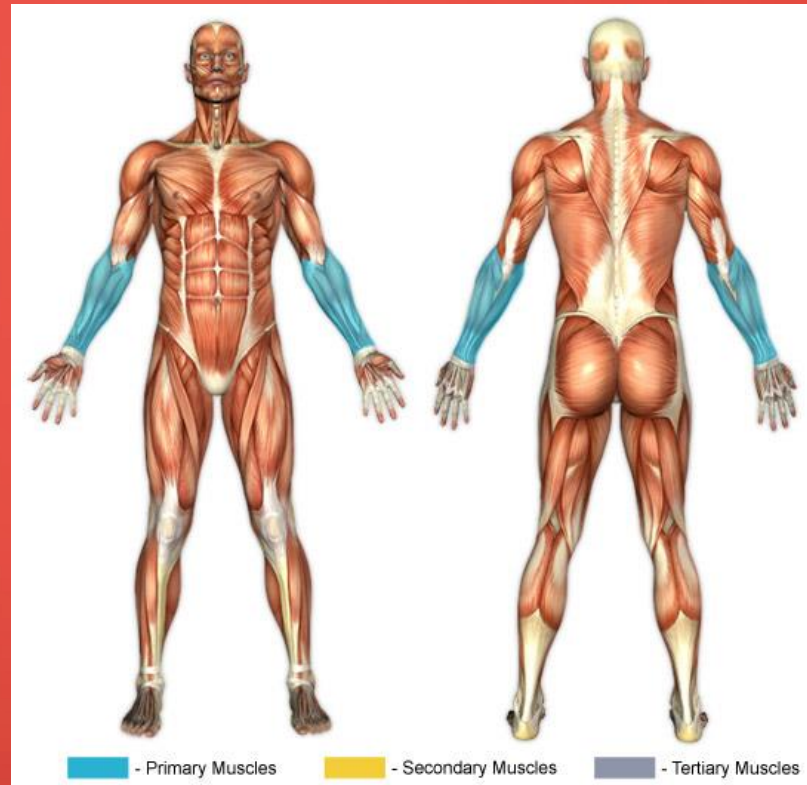
- Wrist Press
 - Reverse Wrist Roll

- Flexors

- Wrist Curl**
 - Wrist Roll

- Deviators

- Thors Hammer



** indicates exercise shown

REST

	Suggested Rest Intervals Between Sets		
Lifting Protocol	Set (Reps)	Work to Rest Ratio	Rest Range
Muscle Endurance	1-3 (12-20)	1:1	30 to 60 Seconds
Circuit Weight Training	1-3 (12-18)	1:1	30 to 60 Seconds
Hypertrophy	3- (7-11)	1:1-3	30 to 90 Seconds
Strength	3-7 (1-6)	1:4-6	120-240 Seconds

DON'T EXPECT INSTANT RESULTS, YOU'RE NOT A SUPERHERO!

Anyone can be fit with the right approach. But you do need to take it slowly, especially in the beginning. Give your body and mind time to adjust to the stresses of physical activity. Start easy and be regular!

