Strength and Conditioning

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Strategy

Strategy is generally what is lacking when people perceive an exercise as impossible!

It is much easier to strength train if you know what you are doing!

Components of Fitness

1) Muscular Strength
2) Muscular Endurance
3) Cardio-Respiratory Endurance
4) Flexibility
5) Body Composition

Exercise

The basic principle behind exercise is ADAPTATION!

Stimulus >> Adaptation>> Stimulus >> Adaptation>> Stimulus….

Components of a Fitness Routine

- Warm-up
- Stretching
- Resistance Training
- Cardio-Respiratory Conditioning
- Cool-down

Warm-up

- 5-10 minutes of light to moderate activity like walking or biking
- Purpose is to increase heart rate and blood flow which, in turn, “warms” the muscles and to reduce chance of injury
- Use equipment, if necessary, like a rubberband!

Stretching

- Purpose is to increase flexibility and decrease chance of injury
- Stretches should be performed after you warm up
- Warm muscles and connective tissue are less likely to tear or break

Resistance Training

1) Build Muscular Strength and Power
2) Improve Athletic Performance
3) Strengthen Connective Tissue (reduce injury)
4) Increase Bone Density (reduce injury)
5) Increase Metabolic Rate

Resistance Training Increases Metabolic Rate

- More carbohydrate calories are taken up into muscles, rather than stored as fat
- More calories are burned at rest
- Bigger muscles burn more calories (they need more energy)

Stimulus and Adaptation Cycle

- To increase strength you must increase the stimulus (i.e. the resistance)
- Once you have adapted to the stimulus, doing the same thing offers little benefit, so…
- Increase the stimulus to perpetuate the adaptation process!

Keys to Success

- Increasing the intensity of the stimulus (i.e. the resistance) once you have adapted to it
- Consistency!
- Motivation *gets* you going, but habit *keeps* you going

Work SMART

- The order in which you exercise is important
- You will build more strength and burn more fat if you do resistance training prior to cardio-respiratory conditioning

Always do cardio AFTER resistance training

- The first place that your body goes for energy is your stored glycogen
- Glycogen is your stored form of carbohydrates
- Some is stored in muscle cells, but most in liver cells
- Goal is to utilize your glycogen stored in your muscles for short bursts of intense activity (ex. your resistance training)

Results

- Does this really work?
- Let's look at an example…

Usage			
Number of Weeks:	10.0		
Number of Sessions:	23.0		
Ave sessions per week:	2.3		
Body Composition			
	10/26/2012	***1/17/2013***	***Change***
Weight (lbs):	105.5	109.0	3.5
Body Fat%:	9.0	5.0	-4.0
Lean Mass (lbs):	96.0	103.6	7.5
Fat Mass (lbs):	9.5	5.5	-4.0
Gross Change in Body Composition (lbs)			11.6
Strength			
Exercise	***10/26/2012***	***1/22/2013***	***% Change***
Leg Press	75	395	427%
Leg Extensions	45	150	233%
Leg Curls	30	75	150%
Calf Raises	55	255	364%
Chest Press	15	135	800%
Lat Pulldowns	30	135	350%
Shoulder Press	10	90	800%
Seated Rows	30	135	350%
Seated Tricep Press	30	135	350%
Bicep Curls	10	75	650%
Average Total Body Increase in Strength			424%

Body Composition

- Refers to how much of your body is made up of fat versus how much is made up of lean tissues
- Lean tissues include muscle, bone, organs, blood, etc..
- Of the lean tissues, the one you have the most control over to change is muscle
- To improve body composition, you must increase muscle and reduce fat

Variables of a Fitness Routine

1) Choice of Exercises
2) Arrangement of Exercises
3) Frequency
4) Duration
5) Intensity

Beginner, intermediate and advanced examples will be provided…

Choice of Exercises

- Which exercises should I do?

    - Should be chosen based on athletes current level and ability

    - Any structural or anatomical challenges should be taken into consideration

    - Keep it as simple as possible to start

Arrangement of Exercises

- Large muscles groups first, smaller muscles groups later
- Alternate between pushing and pulling (depending on routine)
- Always end with abdominals

Frequency

- How often should I do strength and conditioning exercises?

  - Varies depending on the athlete's level and schedule

Duration

- How long should I exercise for?

- In the case of resistance training this comes down to how many “sets” and how many “reps”

Intensity

- How hard should I be working?

    - In terms of resistance training, this is measured by the “resistance” (i.e. how much weight am I lifting?)

    - This is dependent on the athlete’s current level but the final reps of an exercise should be challenging

Beginner Examples

- Intensity
  - 1 set or 10-12 repetitions per exercise
  - 30 seconds rest in between
- Duration
  - 1 exercise per muscle group
  - 12-16 sets total
- Frequency
  - 2 days per week
- Work major muscle groups, mostly compound movements with some isolation

Intermediate Examples

- Intensity
  - 3 sets per exercise
  - 30-60 seconds rest in between
  - Set A= 6-8 reps, Set B= 8-10 reps, Set C= 10-12 reps
- Duration
  - 2 exercises per muscle group
  - 12-16 sets total
- Frequency
  - 3 days per week
  - Split routine between push and pull
- Work major muscle groups, mostly compound movements with some isolation

Advanced Examples

- Intensity
  - 4 sets per exercise
  - 60-90 seconds rest in between
  - Set A= 4-6 reps, Set B= 6-8 reps, Set C= 8-10 reps, Set D= 10-12 reps
- Duration
  - 3-4 exercises per muscle group
  - 12-20 sets total
- Frequency
  - 4-5 days per week
  - Split routine between muscle groups
- Work major muscle groups, mostly compound movements with some isolation

Major Muscle Groups and Their Basic Exercises

- Glutes
- Quads
- Hamstrings
- Calves
- Chest
- Upper Back
- Shoulders
- Biceps
- Triceps
- Abdominals

- Leg Press
- Leg Extensions
- Leg Curls
- Chest Press
- Seated Rows
- Shoulder Press
- Tricep Press
- Bicep Curls
- Abdominal Crunches

Glutes and Thighs

Thighs

Hamstrings

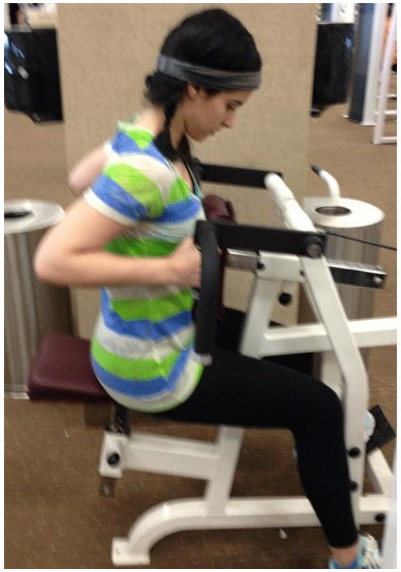
Calves

Chest Press

Pec Flies

Shoulders

Back



Triceps

Biceps

Abdominals

Special Olympics Athletes

- K.I.S.S. = **K**eep **I**t **S**afe and **S**imple
- Many athletes are creatures of habit and routine. Teach them good habits and that will become their routine!
- Reinforce good habits and correct poor habits