

New Directions in Cardio Training

EXERCISE
ETC. INC.



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How to Get Your CE Certificates

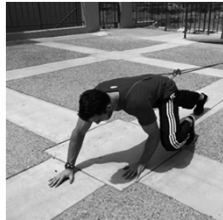
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PLEASE NOTE:

- Remember to complete this webinar and print the certificate by December 31 of *this year*.
- Certificates with *next year's* date may not be accepted by your credentialing organization.

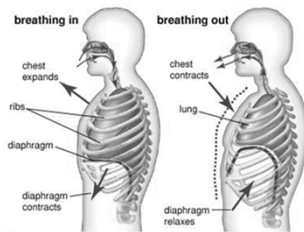
What's Hot Right Now

1. Power breathing
2. Heart rate training
3. The lactate debate
4. The Dynamic Warmup
5. Extreme Cardio Training
6. Metabolic Training
7. Other Hot Trends



1) POWER BREATHING

- "Inspiratory Muscle Training"
- A means to increase strength of respiratory muscles to enhance power & performance
- Accomplished by providing muscles with overload



Resisted IMT Training

- Train twice a day
- Breathe in & out as far as possible using the diaphragm
- Start with no resistance & gradually add resistance (straw)
- Perform 25 – 35 breaths per session
- Respiratory fatigue = “failure to achieve a satisfying breath”



2) Heart Rate Training: What Heart Rate Reveals

- Correct intensity for aerobic & anaerobic systems
- Correct durations for time in training zones
- Appropriate recovery periods
- Evaluation of adaptations to training programs
- Early warning signs of overtraining
- Early signs of heat stress
- Early signs of energy depletion
- Race pace strategy for longer competitions

Mythconceptions

- Myth #1: You can predict your maximum heart rate
- Myth #2: Fitness tests are always reliable
- Myth #3: Doctors' offices will provide a true max test
- Myth #4: Heart rate responses are the same across all exercise modes



RPE, Exertion & Talk Test

RPE	% VO2	Exertion	Talk Test
9	50%	Very light	Speaks normally
11	60%	Fairly light	Speaks normally
13	70%	Somewhat hard Endurance	Slightly short of breath
15	75%	Hard Stamina phase	Speaks haltingly
17	85%	Hard to very hard Economy phase	Can gasp out 1 or 2 words
19	95%	Very, very hard Speed phase	Cannot speak

According to the Old Wife's Club...



- One of the most common old-wife's tales in fitness:
- "You burn more fat at lower levels of exertion"

Caloric Burn: Sitting on Your _____



- 200 lb person
- Sitting = 68 calories burned per hour,
- **100% of those calories are fat calories**
- If burning a maximal percentage of "fat calories" were the goal, this would be the perfect workout.

Understanding Fuel Sources

132 lb (60 kg) person, 30 min of cardio

Intensity (% of VO2)	Total cals burned	Fat cals burned & % fat cals	Main substrate	EPOC 24 hrs	Fat cals & Tot cals
50% Walk, 3.5mph	126	~106 (84%)	Fat	0	106 / 126
70% Jog, 5 mph	228	~152 (66%)	Fat	0	152 / 228
80% Run, 6 mph	273	~89 (32%)	Glycogen	160	249 / 443
90% (20 sec) / 70% (40 sec) 9 mph / 5mph	298	~105	ATP / Glycogen & fat	200 ±	305 / 498

3) The Great Lactate Debate

- What we used to think:
 - Lactic acid is a waste byproduct of anaerobic metabolism, responsible for muscle fatigue & exhaustion.
- What we know now:
 - Lactic acid is a form of fuel that is a direct precursor to several performance enhancing hormones.



The Work/Rest Cycle

- **HIGH INTENSITY WORK**
 - Utilizes ATP / CP in muscles
 - Then uses glycogen in muscles
 - Next uses glucose in bloodstream
 - Lactic acid levels increase
- **REST**
 - Lactic acid returns to liver & converts back to glycogen
 - ATP /CP replenishes
 - Hormonal boost

4) The Dynamic Warmup

- 5-15 minutes duration
- Low to moderate intensity: Should result in light to moderate perspiration (core temp increases 1 – 2 ° F)
- Rest for 5-10 minutes prior to a competition
- Move in all 3 planes of movement.
- NO static stretching: use active, dynamic stretches instead



Putting It All Together: Sample 10 Minute Warm-up

- | | |
|---|--|
| <ul style="list-style-type: none">• General warm up• (2 mins)<ul style="list-style-type: none">– Light jog– Jumping jacks– Jump rope• Dynamic Stretches• (2 mins)<ul style="list-style-type: none">– Arm, Leg Pendulums– Inverted Ham Stretch | <ul style="list-style-type: none">• Mobility Drills• (3 mins)<ul style="list-style-type: none">– 3 Hops Fwd, 1 Back– Lateral jacks– Butt kicks• Movement Prep• (3 mins)<ul style="list-style-type: none">– Goose Walks– Walking Lunges– Retro Walk, Run |
|---|--|

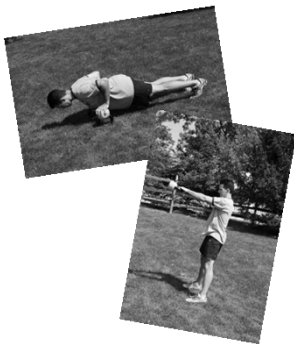
5) Metabolic Training: Muscle Building, Fat Burning Workouts



Why Perform These Drills?

- Clients who participate in these drills will improve dynamic balance, spatial awareness, rhythm, and core strength.
- These drills provide a strong foundation for neuromuscular control and motor skill function.
- They also accelerate fat loss & lean mass development.
- Plus – they’re fun!! (There’s only so much you can do on a treadmill!)

What’s Old is New: Supersets



- Supersets:
- Select 2 Exercises and alternate them with little or no rest between sets
- Strategic manipulation of rest optimizes metabolic benefit
- Select multi-joint (compound) exercises for upper & lower body

Traditional Supersets: Sample

Exercise #1	Exercise #2
Squats	Deadlifts
Chest press	Horizontal Rows
Bicep curls	Tricep extensions
Leg extensions	Hamstring curls
Supine flyes	Reverse flyes
Bridge	Plank

Non-Traditional Supersets: Sample Program for time **OR** repetitions

Exercise #1	Exercise #2
Push-ups	Lunges
Lat pulldowns	Jumping jacks
Decline press	High Step-ups
Horizontal row	Squats
Deadlifts	Mountain climbers
Inverted pull-ups	Burpee

Ultimate Burpee Challenge



- Burpee
 - Squat Thrust + Push-Up + Squat Jump
- “A Century of Burpees”
 - Add 1 more push-up & squat jump to each rep
 - Count up until by rep ten you do 10 push-ups & 10 squat jumps
 - Count back down to 1

Lift and Carry Odd Objects

- An extra water-cooler bottle works great
- Heavy stones left from a gardening project
- Sandbags
- Bag of mulch or top soil
- Slosh-Pipes
 - 7’ to 9’ x 3.5” to 4” PVC filled 2/3 with water
- Car Tires



Other Metabolic Training Activities



- Rope Climbing
- Tire flips
- Resisted Sprinting
- Monkey Bars
- Sledgehammer Drills
- Jump Rope
- Agility Ladder Drills

The '300'-Movie Workout

- Thematic Timed Challenge
- Select up to 6 challenging exercises
- Perform a total of 300 repetitions
 - 6 Exercise x 50 Reps Each
- Work against the CLOCK!



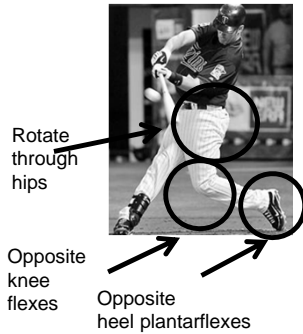
Ever Do One-Hundred Reps?



- Great buddy or group activity
- Select an activity that consumes no more than 3 minutes
 - 100 Pullover Crunches
 - 100 Med Ball Slams
 - 100 Band Press-downs

Rotational Core Training

- Emphasize acceleration through hips and shoulders -- NOT lumbar spine
- Focus on speed of movement not load
- Teach proper weight shifting and pivoting



Front Rotation & Toss



Side Facing Rotation & Toss Rear Facing Rotation & Toss



Rotation & Slam



Dynamic Cardio Core Workout

Set	Double leg lifts	Oblique crunch (ea side)	Abdominal crunch	Plank
1	40 sec	•Rest 10 seconds between sets		
2	30 sec	30 / 30 sec	•Rest 1 minute between blocks	
3	20 sec	20 / 20 sec	30 sec	
4	20 sec	20 / 20 sec	30 sec	30
5	20 sec	20 / 20 sec	20 sec	20

Cardio Core: Static Cardio Core Workout

Set	Bridge	Side plank	Bird dog	Plank
1	40 sec	•Rest 10 seconds between sets		
2	30 sec	30 / 30 sec	•Rest 1 minute between blocks	
3	20 sec	20 / 20 sec	30 sec	
4	20 sec	20 / 20 sec	20 sec	30
5	20 sec	20 / 20 sec	20 sec	30

6) Extreme Cardio Training



The CrossFit Craze

- What is CrossFit? According to the official CrossFit website, they:
- Are a fitness program that is "...broad, general and inclusive..."
- Specialize in "...not specializing..."
- Target "committed individuals regardless of experience..."
- Use the same program for "...the elderly as for cage fighters."
- "Don't change programs."



The Background



- Began in Santa Cruz, CA in 1995 as a method to train police officers
- These are "affiliations" not "franchises"
- An affiliation costs \$2000 per year; no geographic exclusivity
- Required certification = \$2000 (Seminar + test)
- Affiliates are free to design their own "workout of the day" (WOD) or use the WOD provided by the company.

CrossFit: The Good

- Strives for proficiency in 10 domains:
 - Strength, stamina, power, flexibility, speed, agility, balance, coordination, accuracy, endurance
- Stresses functional, core exercises
- “CrossFit is a well-rounded and very efficient way to achieve a higher level of fitness.”
 - Discovery Health Network



CrossFit: The Bad



- “Risks outweigh benefits”
 - Dr. Stuart McGill, Waterloo University
- They have been criticized for:
 - Lack of progressions or periodization
 - Randomness of exercises
 - Lack of modifications for special populations
 - Poorly trained / certified leaders

CrossFit: The Ugly



- In 2006 a CrossFit participant was awarded \$300,000 in damages.
- He claimed he developed rhabdomyolysis as a result of the workout.
- Due to perceived risk and lack of certification credentialing, many affiliates cannot get liability insurance.
- CrossFit has established a Risk Retention Group (RRG) a form of self insurance.

Ready for the Warrior Dash?

- Extreme obstacle course workouts that draw hundreds of people at a time.
- Combination of running, swimming, jumping, climbing, crawling.
- Excellent team building drills



“The Warrior Roast”

Sample Warrior Dash Events

- Mud Mounds
- Storming Normandy
- Petrifying Plunge
- Road Rage
- Great Warrior Wall
- Viscious Valley



Giant Cliffhanger

Prepare Yourself: “The Tough Mudder”

- “Probably the toughest event on the planet.”
- 10 – 12 mile obstacle course designed by British Special Forces.



“The Arctic Enema”

7) Other Hot Cardio Trends

- Zumba
- Cardio Dance
- Drums Alive
- Pole Aerobics



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