

Health Sciences Applied To Coaching Phase II

Top Form Inc.



TOP FORM, INC.



LIVE IT!

www.topform.us

**TOP FORM
ATHLETIC TRAINING
SERVICES**

CONTRACTS
SCHOOLS
PREMIER CLUBS
PROFESSIONAL

**TOP FORM
PERFORMANCE**

PERFORMANCE CENTER
ADULT PERSONAL
TRAINING
YOUTH PERFORMANCE
TRAINING
GROUP/TEAM TRAINING
SUMMER CAMPS
BOOT CAMPS

**NUTRITION
CENTER**

**TOP FORM
EDUCATION**

EDUCATION CENTER
CPR/AED/FIRST AID
NYS COACHING COURSES
SCHOOL CHEMICAL
HEALTH
WELLNESS
LIFE COACHING
NUTRITION

**TOP FORM
FRANCHISING**

Words of Caution On Searching the Internet

- ❑ [19] Get A Chair & Watch Your Stubborn Belly Fat Burn Off (SEATED ONLY) – YouTube
- ❑ [19] Best Six Pack Abs Workout At Home (Get 6 Pack in 21 Days) – YouTube
- ❑ [19] 8 Exercises to Lose Hanging Lower Belly Fat - YouTube
- ❑ [19] Box jump for plyometric training – YouTube (knee bend)
- ❑ [19] Top 5 Box Jump Drills For Vertical Jump and Lateral Power – YouTube done right, but level 4!!
- ❑ [19] The Perfect Overhead Dumbbell Press – YouTube supraspinatus pinch

Demands of Your Sport!



Components of Strength and Conditioning Programs

- ☐ **Aerobic**
- ☐ **Non-Aerobic**
- ☐ **Strength**
- ☐ **Flexibility**
- ☐ **Power**
- ☐ **Speed**
- ☐ **Balance**
- ☐ **Sport Specific Training**
- ☐ **Vision**
- ☐ **Mental**
- ☐ **Nutrition**

Now write a S & C outline for your pre-season

Concepts of Training

» EXERCISE PRESCRIPTION

- **Safety First!!!**
- **Exercise Selection/Mode (Isometric, Isotonic, isokinetic)**
- **Exercise Order**
- **Muscle Balance (Agonist, antagonist)**
- **Frequency**
- **Duration/Rest**
- **Intensity (Volume vs Absolute) Load**
- **Periodization**

Write again



First ask yourself
what you are
trying to
accomplish!

Fitness & Conditioning Systems in Sport

□ Aerobic

- Krebs Cycle over 2min reaching 60-90% *VO2 Max*
- Foundation
- Base
- With Oxygen
- LSD
- HR Management
- Fat Burning

□ Non-Aerobic

- w/Out Oxygen
- Sprint
- Lifting
- Lactic System 2min
- ATP-PC 30sec
- PC 10sec
- Glycolysis
- Onset of Blood Lactate Accumulation (OBLA)



Fitness & Conditioning

Aerobic

- **Slow Twitch Muscle Fibers**
- **Low Power Production**
- **Incr. Energy Efficiency**
- **Incr. Waste Removal Efficiency**
- **Cardio Strength**
- **Incr. Circulatory Efficiency**
- **Incr. Muscular Efficiency**
- **Incr. Metabolism/Endocrine Response**
- **Repletion Krebs' Cycle/ETS**

Anaerobic

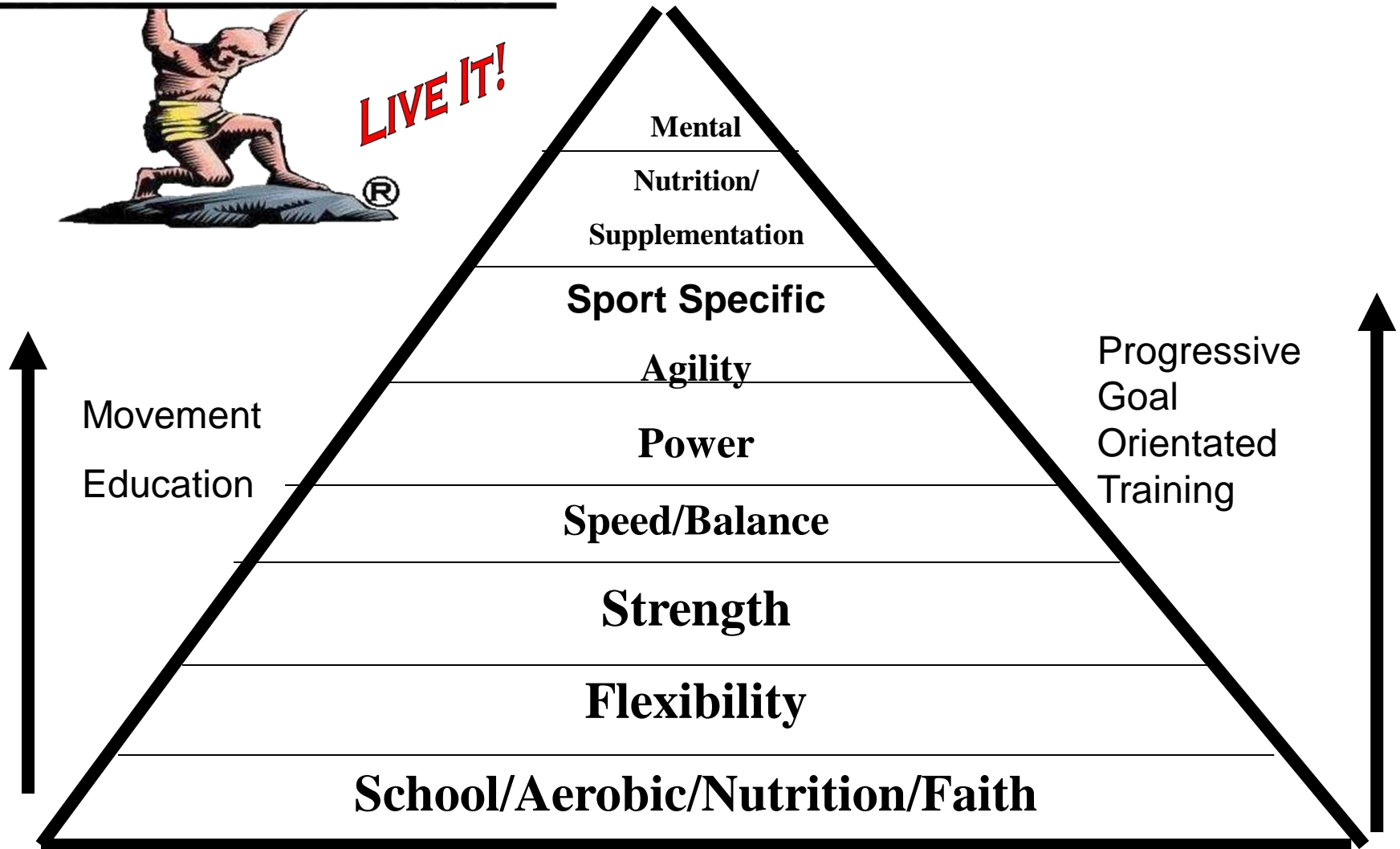
- **Fast Twitch Muscle Fibers**
- **Very FT Muscle Fibers**
- **Incr. Power Production**
- **Decr. Efficiency**
- **Poor Stamina**
- **Incr. Skeletal Strength**
- **Incr. Metabolism/Endocrine Response**
- **Repletion/glycogenolysis**

The Top Form Training Pyramid

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Fitness and Conditioning

☐ **CO = Stroke Vol x HR** ⁽¹⁹⁾
Cardiac Output Explained: Heart Rate X Stroke Volume = Cardiac Output | Exercise Physiology – YouTube

☐ **Max Oxygen Uptake**

☐ **Tidal Volumes**

☐ **Glycogenolysis** ⁽¹⁹⁾ Metabolism | Glycogenolysis - YouTube

☐ **Oxygen Deficit** why so important?

☐ **Ph** ⁽¹⁹⁾ Acidosis and Alkalosis MADE EASY – YouTube Cramps?

☐ **Lactic Acid** ⁽¹⁹⁾ The Truth about Lactic Acid – YouTube cramps/energy/krebs cycle

☐ **Gluconeogenesis** ⁽¹⁹⁾ Metabolism | Gluconeogenesis – YouTube making glucose out of lactic acid!!

☐ **V02** ⁽¹⁹⁾ V02 and Oxygen Consumption Explained for Beginners | Corporis – YouTube
mitochondria + O₂ = Energy

The Warm-Up

- **Increase tissue Temp**
 - Increase Synovial Fluid
- **Prepare Neuromuscular Response (Golgi Tendon Organ, Muscle Spindle)**
- **Prepare Lymphatic Response**
 - Increase Hormonal Response
- **Increase Blood Flow To The Brain!!**
 - Increase Blood Flow to Eyes
- **Sensory Preparation**
 - Begin Heating/Cooling Regulation
- **Increased tissue temperature is optimal for increasing enzymatic activity**
- **Increase disassociation of oxygen from RBC**
- **Loosens connective tissue**
- **General vs Specific**

- **THIS REALLY DOES MORE THAN YOU THOUGHT!**

Growth and Development

- ❑ **Elementary**
- ❑ **Middle School** Epiphyseal F
- ❑ **High School**
- ❑ **College**
- ❑ **Weekend Warriors**
- ❑ **Baby Boomers**



Flexibility

□ Static



Active Stretch
Passive Stretch
Stretch Reflex

Reciprocal Inhibition (Muscle Energy)

Autogenic Inhibition (PNF)

Posture is single biggest concern when stretching!

- **Ballistic** (19) Ballistic Stretching - Incorrect Stretching Technique – YouTube one say no
- (19) Dynamic Stretch Hip Flexors – YouTube the other says yes
- **PNF (Two Person)**
- **Dynamic**
- **Muscle Energy**

Strength

□ **What do you want to do?**

□ **Safety First** **2** **3**

- **ABSOLUTE**
- **ENDURANCE/FATIGUE**
- **MINOR REPETITIVE**
- **POWER LIFTING**
- **BODYBUILDING/SCULPTING**
- **REFER TO SLIDE 4**
- **No Squat???, No Bench??** [\(19\) Functional Alternatives to the Squat, Deadlift, and Bench Press \(That You Can Do Anywhere\) - YouTube](#)

Speed

□ Start Acceleration The Best

□ *Speed Strength

□ Reaction (physical/mental)

□ *Quickness *Speed Endurance

□ Straight (Stride Length x Leg Turn Over = Speed)

□ Lateral

□ Back

□ Back Diagonal

Upper

15%

Middle

35%

Lower

50%

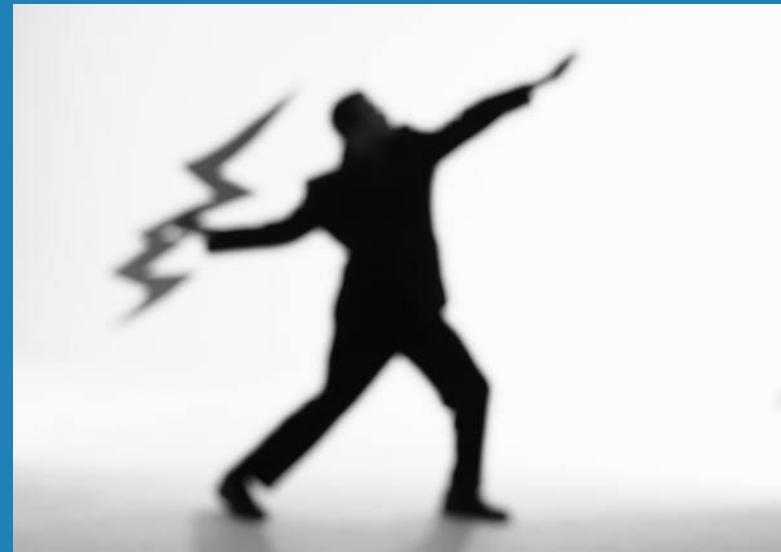
How to Train
Speed?



Power

- **Speed x Strength = Power**
- **Developing Power Through Weights**
- **Developing Power Through Speed**
 - **10% Rule**
 - **Olympic Lifts**

Ply ometrics



Balance/Proprioception

□ Training The Core

- Abs Push up variations
- Back

□ Non-Functional Training

- Why bother?
- Practice Instability Do we ALWAYS play in good positions????
 - Thera- Ball
 - Mini Trampolines
 - Med Ball Training



Sport Specific Training (SST)

- ❑ Key Word: **Training!!**
- ❑ Match Demands of Your Sport To Training
- ❑ Biomechanics (HUGE!!)
- ❑ SAID Principle (Example: Bench Press?)
- ❑ Individual Differences
- ❑ **Opposite Side Training**
- ❑ **Backward Training**

Training Vision

- **Why?**
- **What Sports?**
- **How?**
 - **Depth**
 - **Acuity**
 - **Peripheral**



Nutrition

□ Key Words

- Diet
- Nutrient Density, mineral, vitamin
- Weight gain/loss, dehydration/hyperhydration?
- Carbohydrate, protein, fat
- Amino Acid
- Glycogen
- Ergogenic Aids



Nutrition

- ❑ **Breakfast, Breakfast, Breakfast**
- ❑ **Meal Timing**
- ❑ **Power Snacks**
- ❑ **The Skinny on Sugar**
- ❑ **The Skinny on Fake Sugar/Diet Products**
- ❑ **Glycemic Index (gatorade, simple sugars)**
- ❑ **Body Fat %/Body Mass Index BMI**
- ❑ **The Soda Affect**
- ❑ **Chips n dip**



Terms You May Have Heard?

- ☐ **Carb Loading**
- ☐ **Protein Sparing**
- ☐ **Soy**
- ☐ **Whey**
- ☐ **Sleep?**

Mental Training

- ❑ **Arousal, Performance**
- ❑ **Imagery/Focus**
- ❑ **Mental Management Skills (SST)**
- ❑ **Motivation**
- ❑ **Mind's effect on Performance**
- ❑ **Relaxation Techniques**
- ❑ **Pain Management**
- ❑ **Stress** (making the situation normal)



Iron Devil The Program



Columbia High School/ *Iron Devil* Program



What Kind?

- After School Intra-mural Program
- Four Seasonal 10 week cycles
- Commitment based 80% Achievement
- Professional Programming
- PE/Health Components
- Emphasis Hard Work Over Shortcuts
- **Pre and Post Testing**
- Outcome Based/Goal Oriented
- Nutritional Component (PBJ)
- Create Fun/Inclusive Environment
- Direct Supervision
- Rewards!
- Drug/Supplement Free Message