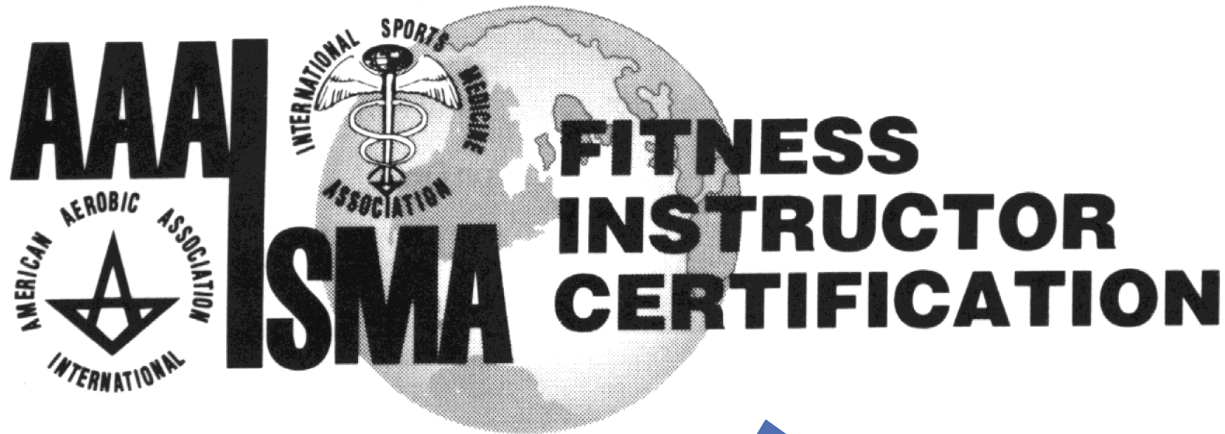


Personal Fitness Trainer Certification Online



Prepared by *Mike Rickett MS, CSCS*D, CSPS*D, RCPT*E*



-
- Get Insurance
 - Get CPR
 - Take 10 Sessions
 - Team Train / Network
 - Tools
 - Business Cards / Brochure
 - Niche
 - Affiliates
 - Trademark
 - Product Development



First Steps

1. Know your Weaknesses
2. 5-Year Plan
3. Find a Mentor
4. Club or Solo?
5. Ask Questions



Introduction to Teaching

- ✓ Interview
- ✓ Health History
- ✓ Release Form
- ✓ Goals / Plan
- ✓ Evaluation

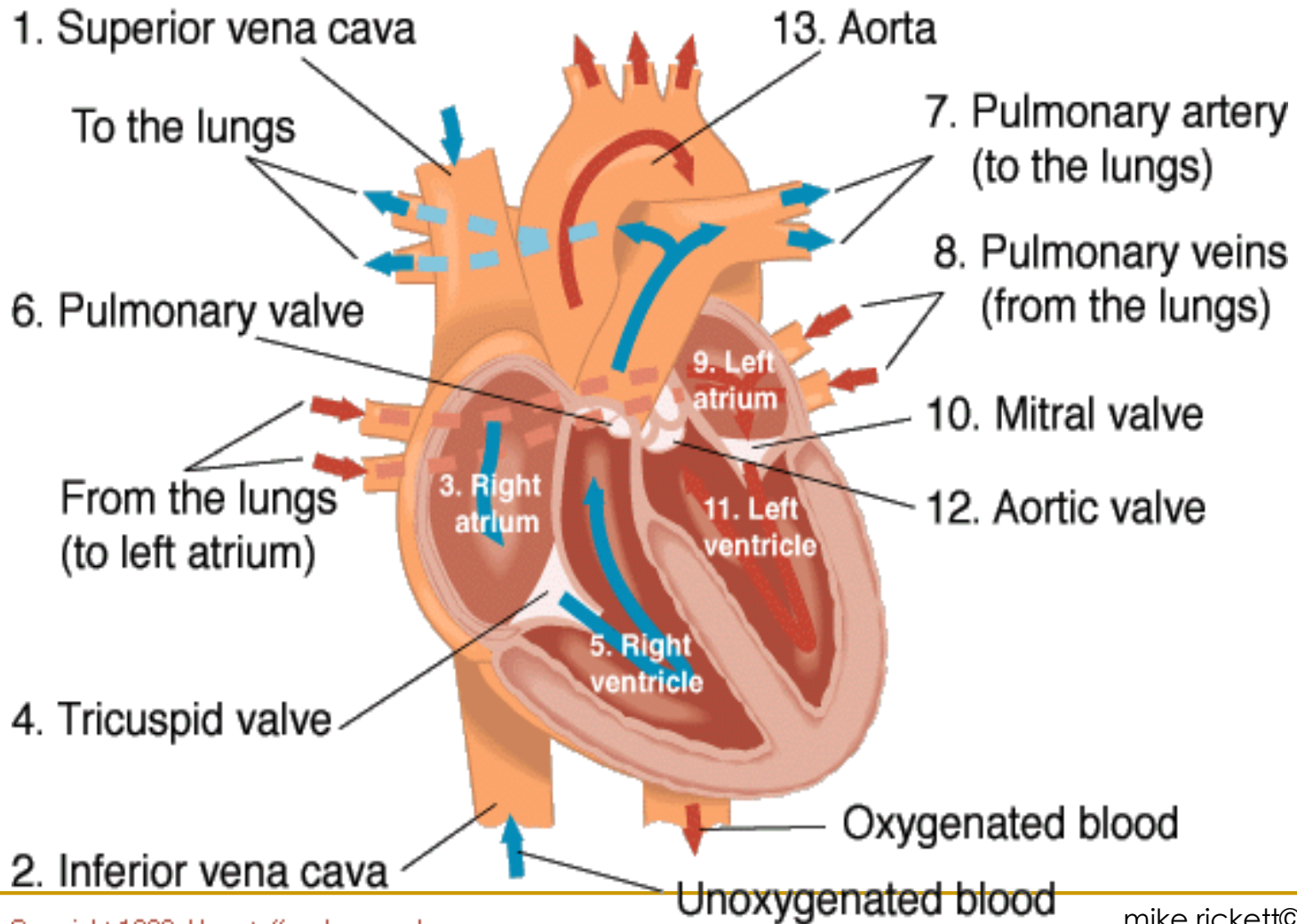


Fitness Components

- Strength
- Endurance
- Flexibility
- Balance / Coordination / Agility
- Body Composition



Heart Anatomy



Cardiovascular Physiology

- **VO_{2max}** (ml O₂ / KG body weight / min)
- **1 MET** = 3.5 ml O₂ / KG BW/ min
- **Cardiac Output** =
Stroke Volume (SV) X Heart Rate (HR)
- **Ejection Fraction**
- **Blood Pressure**
Systolic / Diastolic



Karvonen's Formula

- **220** (Maximum Heart Rate at Birth)
- $220 - \mathbf{Age} = \text{Predicted Maximum HR (PMHR)}$
- $\text{PMHR} - \text{Resting Heart Rate (RHR)} = \text{Heart Rate Reserve (HRR)}$
- $\text{HRR} \times \mathbf{\text{Effort Percentages}}$
(i.e. 60%, 70%, 80%)
- $\text{Add RHR to Effort Values} = \text{Target Heart Rates}$



Muscle Physiology

- Hypertrophy
 - Hyperplasia
 - Atrophy
 - Sarcopenia
- Contraction Types
 - Eccentric*
 - Isometric*
 - Concentric*



Size vs. ***Strength***



Size vs. Strength

✓ Size

- ✓ #Type II_b Fibers
- ✓ Skeletal Size
- ✓ Muscle Belly Size

■ Other Factors

- *Genetics*
- *Nutrition*
- *Toxins*
- *Hormonal Setup*

✓ Strength

- ✓ #Type II_b Fibers
- ✓ Skeletal Size
- ✓ Recruitment
- ✓ Leverage



Muscle Distinctions

- ✓ Cardiac
 - ✓ *Characteristics*
- ✓ Smooth
 - ✓ *Characteristics*
- Skeletal
 - *Functions*



Muscle Fiber Types

➤ Type I
Oxidative

➤ Type IIa
Fast
Oxidative
Glycolytic

➤ Type IIb(x)
Glycolytic

Slow Twitch

Fast Twitch

FOG



Major Energy Producing Systems



Substrate

Oxygen
Required

Speed of
ATP

Total ATP
Production

ATP - CP
<30 sec

*Stored
Phosphagen*

No

Fast

Very Limited

Anaerobic
<3 min

*Glucose and
Glycogen*

No

Fast

Limited

Aerobic
3+ min

*Glucose,
Glycogen,
Protein, & Fat*

Yes

Slow

*Essentially
Unlimited*

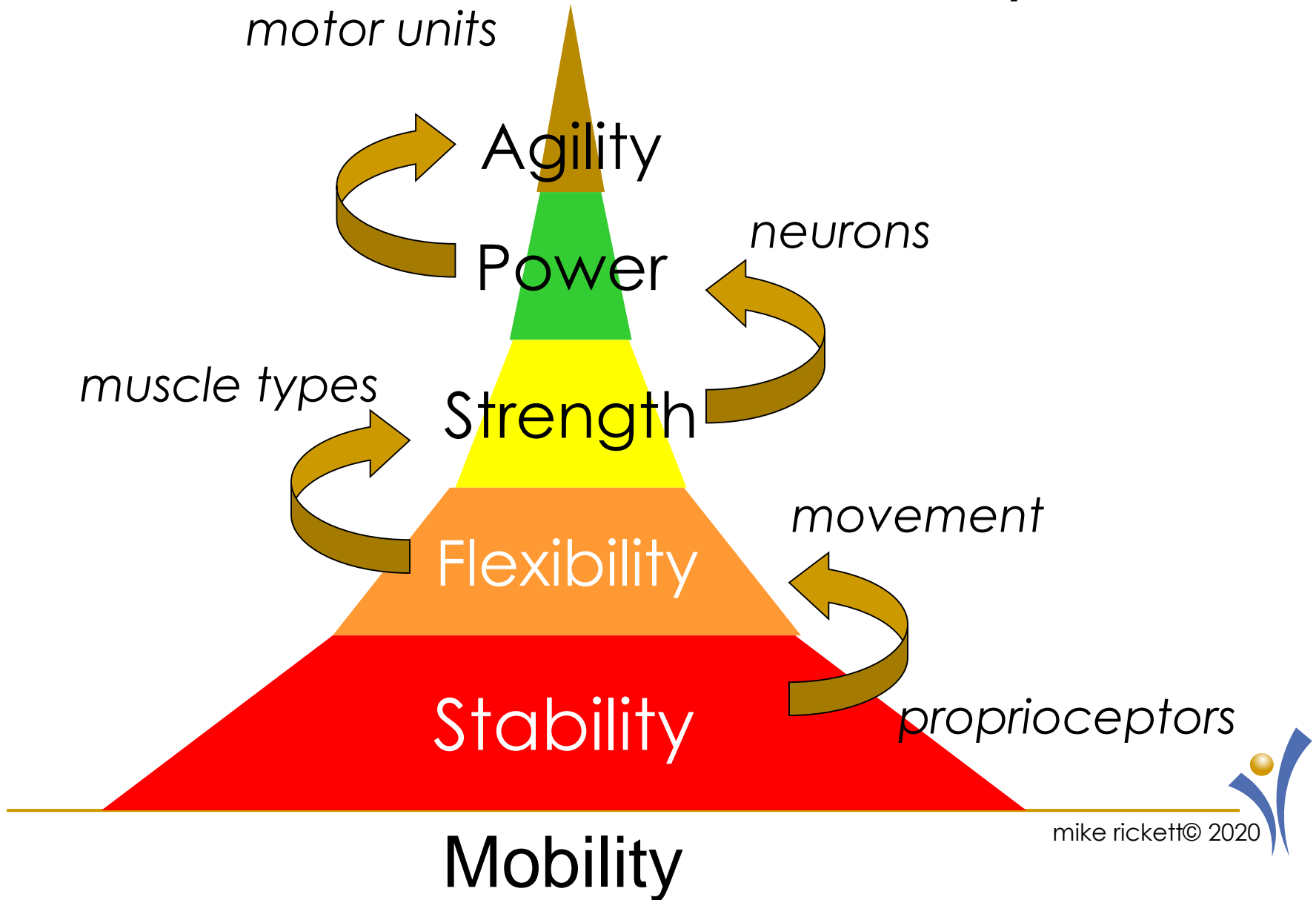


Adaptation to Exercise - Intensity

Level	%VO ₂ max / HRR	% max HR	Adaptations	Type of Exercise
2-3	55-65	60-70	Aerobic Source Pathways	Over Distance
3-4	66-75	71-75	Capillarization FFA Mitochondria	Endurance Foundation / Base
4-5	76-80	76-80	FOG Fibers O ₂ Transport Glycolysis	Endurance Foundation
5-6	81-90	81-90	FOG Fibers AT O ₂ Transport Lactate Clearing	Intervals / Race Pace
7-10	91-100	91-100	FT Fibers Speed Neurons Muscle Coordination	Race



Success Pyramid



Periodization

- **Cycles**

Macro

Meso

Micro

- **Basic Workout Components**

Mental Prep

Warm-up

Skill

Strength

Cardiovascular

Cool-down



Non-Linear Periodization

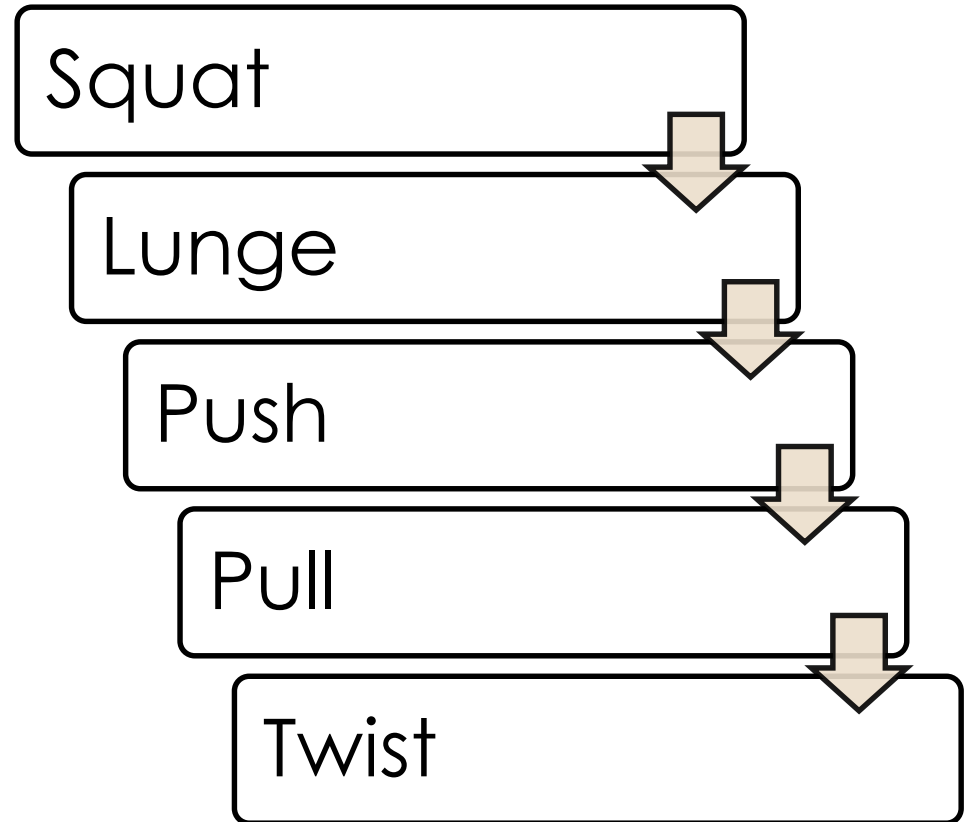
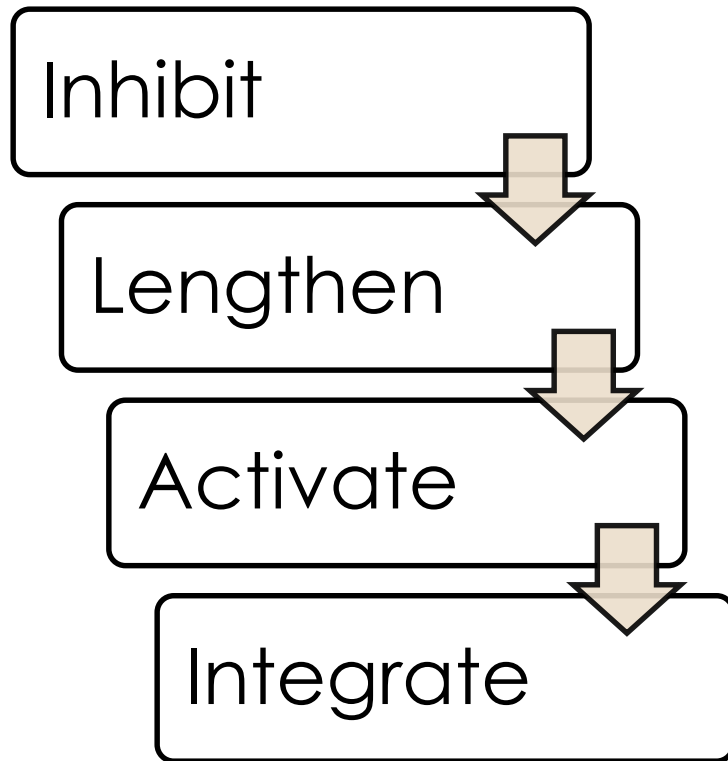
■ Perfect Week:

- Monday – Foundation work
- Tuesday – Tempo
- Wednesday – Circuit
- Thursday – Rest
- Friday – Neurological
- Saturday – Interval
- Sunday - Rest



Workouts Made Simple

Corrective Continuum



Primary Movements



Proprioception

- ✓ Golgi Tendon Organ
- ✓ Muscle Spindle Unit
- ✓ Labyrinthian Receptors
- ✓ Cutaneous Receptors



Lifting Acronyms

➤ SAID

*Specific
Adaptation
to Imposed
Demands*

➤ FITT

*Frequency
Intensity
Time
Type*

➤ GPO

*Gradual
Progressive
Overload*



Recovery

- Rhabdomyolysis
- Mental Reboot
- Duration
 - Resistance
 - Cardio
 - Neurological
 - Injury

Over Training Symptoms

- ✓ Decline in Performance
- ✓ Increased RHR
- ✓ Decreased Immune System
- ✓ Lack of Motivation
- ✓ Injuries
- ✓ Etc.



Injuries

Types

- ✓ *Sprains*
- ✓ *Strains*
- ✓ *Tendonitis*
- ✓ *Bursitis*
- ✓ *Stress Fractures*
- ✓ *Shin Splints*

Treatment

- **RICE**
- Rest*
- Ice*
- C***ompression*
- E***levation*



Basic Nutrition

- Carbohydrates

4 Kcal / gram

Sources

- Protein

4 Kcal / gram

Sources

- Fats

9 Kcal / gram

Kinds

Sources

- Alcohol

7 Kcal / gram



Nutrition Components

- 3500 Kcal / Lb
- 1.0 – 2.0 lbs/week loss
- 5 Components
 - Increase water
 - Increase fiber
 - Reduce toxins
 - Eat a variety of foods
 - Move



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