

# Phoenix 2008

May, 19-22nd

Members, Lt. Rob Robertson, FF, Rick Ihire, FF Peter Briner, FF Paul Peterson, FF Doug Bahr,  
FF Kyle Felmley, FF Dustin Wuebel

## **20th annual symposium**

**Tuesday May 20th**

8-1130 General session

B/C Mike Sandulak

conference mc

[mike.d.sandulak@phoenix.gov](mailto:mike.d.sandulak@phoenix.gov)

**Marty Velasco Hames- Motivational story.** A news reporter who trained two years and completed the Hawaiian Ironman in Kona despite shattering both wrist in a bike accident one month prior to the event.

[martyhames@gmail.com](mailto:martyhames@gmail.com)

## **Dr. Cedric Bryant- Phd, ACE Chief Science Officer.**

The number one reason for a Dr. visit is an orthopedic issue (a problem with the muscle-skeletal system) Question, "Are you built to last?" By the year 2046 they estimate the life expectancy to be between 120 to 150 years, do you have a warranty on your frame work? Is your body going to last?

Are you going to low when you are benching, are you hyperextending your shoulder?

[cedricb@acefitness.org](mailto:cedricb@acefitness.org)

Book on "Framework" by Dr. Nicholas DiNubile

[www.drnick.com](http://www.drnick.com)

7 step program for healthier muscles and joints. alignments and imbalances, 1 seft test, 2 heavy breathing, 3 core, 4 strength and flexible, 5 active rest, 6 you are what you eat, 7 stress management.

Exercise is a strong medicine.

The ideal workout encompasses balance training, cardio training, strength training, flexibility training, and stress management.

warn up before you stretch.

When you weight train exhale on effort.

Exercise relives stress, exercise is most important when you are stressed and very busy, don't cut out exercise when you are busy.

Invest early in good bone and joint health and you will get better returns.

After 40 there is a 10% bone loss per 10 years, weight training reduces that bone loss

## **Training Methodologies**

**Joe Marset, Velocity sports**

bla...bla...bla....

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## **The science of running**

### **Matt Kraemer**

Change your running shoes every 6 months or 500 miles.

insoles Sole on the internet

4 most common runner injuries

- Runners knee
- IT band syndrome
- Plantar fasciitis
- Shin splints

### **I. Runners knee**

#### **Symptoms**

- Front of knee pain
- Dull achey pain
- Pain during and after exercise
- Pain with prolong sitting

#### **Cause**

- Knee cap not tracking in the right place due to tight or weak muscles or poor mechanics. The patella track to the right or left.

#### **Treatment**

- Stretch the quads, hip flexors, and gluts
- Ice
- Advil or ibuprofen
- Change footwear and/or insoles

### **I. IT band syndrome**

- Pain on the outside of the knee or hip
- Sharp pain right before or during a foot strike
- Pain when running down hill or on a slant
- The knee is tender on the outside
- Possibly a snapping
- Painful with the knee bending or straightening

#### **Causes**

- Tight muscles
- Weak muscles
- Bad mechanics
- Footwear
- Sudden increase in frequency and duration
- Bad patella tracking

#### **Treatment**

- Massage/foam roll
- Stretching
- Strengthening

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- Ice
- Ibuprofen
- footwear/orthotics
- Run on a flat surface

## I. **Plantar Fascitis (heel pain)**

- Pain in the heel especially in the am
- Pain improves after 5-10 minutes of running
- Heel is tender to the touch
- Pain when walking and pushing off with the toe.

### **Cause**

- Tight calf muscle
- Insufficient footwear
- Instability
- Bad mechanics

### **Treatment**

- Stretch the Calf/soleus
- Strengthening
- Ice
- Ibuprofen
- Massage
- footwear/orthotics

## I. **Shin splints**

- Pain along the shin bone
- Sharp or dull, may or may not get better
- Tenderness and swelling of the shin

### **Cause**

- Poor shock absorption
- Overuse of muscles

### **Treatment**

- Ice
- Ibuprofen
- Massage
- Stretch/Strengthening
- Inserts
- Footwear

## **Olympic lifting**

## **Incident Safety.**

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## *Dr course*

### **NFPA 1582**

Medical requirements based on essential job tasks.

- 1) performing firefighting tasks (hose line operations, extensive crawling, lifting, and carrying heavy objects, ventilating roofs or walls using power or hand tools, forcible entry, rescue operations and other emergency response actions under stressful conditions, while wearing personal protective ensembles and SCBA, including working in extremely hot or cold environments for prolonged periods of time.
- 2) wearing a self-contained breathing apparatus, which includes a demand valve-type positive pressure face piece or HEPA filter mask which requires the ability to tolerate increased respiratory workloads.
- 3) Exposure to toxic fumes, irritants, particles, biological and non-biological hazards, and/or heated gases, despite the use of personal protective ensemble including self-contained breathing apparatus.
- 4) Demanding on the local jurisdiction, climbing 6 or more flights of stairs while wearing fire protective ensemble weighing at least 50 pounds and equipment/tools weighting an additional 20-40 pounds
- 5) Wearing fire protection ensemble that is encapsulating and insulated. Wearing this clothing will result in significant fluid loss that frequently progresses to clinical dehydration and can elevate core temperature to levels exceeding 39 degrees C
- 6) Searching, finding, and rescue-dragging or carrying victims ranging from newborns up to adults weighting over 200 pounds to safety despite hazardous conditions and low visibility.
- 7) Advancing water filled hose lines up to 2.5 inches in diameter from a fire apparatus to an occupancy, may involve negotiating multiple flights of stairs, ladders and other obstacles.
- 8) Climbing ladders, operating from heights, walking or crawling in the dark along narrow and uneven surfaces, operating in proximity to electrical power lines and other hazards.
- 9) Unpredictable emergency requirements for prolonged periods of extreme physical exertion without benefit of warm-up, scheduled rest, periods, meals, access to medication or hydration.
- 10) Operating fire apparatus or other vehicles in an emergency mode with emergency lights and sirens
- 11) Critical, time sensitive, complex problem solving during physical exertion in stressful hazardous environments (including hot, dark, tightly enclosed spaces) further aggravated by fatigue, flashing lights, sirens and other distractions.
- 12) Ability to communicate (give and comprehend verbal orders) while wearing protective ensemble and self-contained breathing apparatus under conditions of high background noise, poor visibility and drenching from hose lines and or fixed protections systems (sprinklers).

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13) Functioning as an integral component of a team, where sudden incapacitation of a member may result in mission failure or risk of injury or death to other team members.

## Tiered medical program

**Dr. James Fleming**

**Phoenix Medical director**

[james.fleming@phoenix.gov](mailto:james.fleming@phoenix.gov)

Designed to address the 5 most common wellness issues by fire fighters

- Obesity
- Hypertension
- Lung disease
- Cardiac Wellness
- Diabetes

Components of the Tier system

- Body fat %
- Blood Pressure
- Lung Function
- Met levels
- Blood Sugar

Phoenix uses Calipers for body fat percentage because they feel they get less variance than from the bod pod.

**Obesity** is the leading precursor for adult onset diabetes, hypertension, and heart disease.

**Hypertension** is the leading indicator of heart disease and stroke potential. Exercise and diet usually improve levels.

Lung insult is a big concern among firefighters.

Goal- find the problem before it becomes a problem, if everyone is tier 1 how do they work their way to tier 4 if you are evaluating them every year.

Light duty is non-punitive and intended for medical rehab

50% of tier 4 employees are able to get out of tier 4

Phoenix started the program 3 years ago and has phased it in over those years on a case by case basis. Phoenix has not had to let any 4 tier employees go, they find them a spot in a 40 hour week work position.

In 5 years of pulling people off line because of health effects, only 8 have been out longer than 6 months. Average time loss in 2007 = 2.6 days

Employees showing less than 12 METS are predominately not exercising and 70% after working with a peer fitness trainer for 3 months move up one to two tiers.

Type 2 diabetes is almost always associated with obesity and almost 100% preventable.

Goal, to improve the health of the firefighters.

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## **The heart healthy firefighter**

**Melissa Spooner**

[melspooner@shaw.ca](mailto:melspooner@shaw.ca)

[www.endurancehealthandfitness.com](http://www.endurancehealthandfitness.com)

[www.endurancenutritiononline.com](http://www.endurancenutritiononline.com)

Email melissa for her free powerpoint

World health organization definition of health (complete physical, mental and social well being)

Alcohol can increase cholesterol.

Pick frozen fruits and veggies over caned.

Pick organic dairy.

Pick organic soy milk.

Why do you eat....hungry? emotional? time?

Sara Rodgers, Boise, Idaho for nutrition resource. [www.boisenaturalhealth.com](http://www.boisenaturalhealth.com)

1977- 2002 45% or line of duty deaths were from cardio vascular disease

### **Cardiac risk factors**

- Age
- Sex
- Heredity
- Smoking
- Cholesterol
- Elevated Blood Pressure
- Diabetes
- Overweight
- Physical inactivity
  - The last five can be changed through good nutrition

Try and limit your cholesterol to 300 mg per day

One egg yolk has 220 mg

Try and limit sodium to 2300

Restaurant food has high levels of fat and salt( a preservative and good taste)

Your taste buds change over time, allow several weeks for the change

Keep oil away from heat and light

Keep spices away from heat and light

Make eating out a luxury to avoid too much fat and salt.

Avoid aspartame

### **Melissa's salad dressing**

1 part flax oil

2 parts olive oil

1 part balsamic vinegar

Juice from one lemon

1tsp lemon zest

Italian spices

Pepper to taste. Shake and store in the fridge, take out 30 minutes prior to use, can last several weeks in the fridge.

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## **Kettlebell training**

## **Developing fitness for your department**

## **Safe tactics and strategy**

## **Firefighter Awareness**

### **Troy Coe**

Use your pen and clipboard for self defense

### ***Dr. course***

### **Heart and lung disease**

### **Dr. Richard Gerkin**

### **Products of combustion**

Acids

Aldehydes

Ammonia

Carbon Monoxide

Carbon Dioxide

Cyanide

Halogens

Isocyanates

Nitrogen Oxides

Styrene

Sulfur Oxides

### **Air monitoring**

#### **Buffalo**

CO, Benzene, SO<sub>2</sub>, HCN, Aldehydes, HCL, CL<sub>2</sub>FCN<sub>4</sub>, particulates

#### **Boston,**

CO, Acrolein, HCN, HCL, NO<sub>2</sub>

#### **Phoenix**

CO, Acrolein, Formaldehyde, Glutaraldehyde, PAH's

## **Firefighter Cardiac Risks**

- CO
- Shift work
- Acute and Chronic stress
- Exertion
- Diet
- Obesity, LDL, etc.

FF's Heart rate went up 47 beats per minute within 30 sec of alarm

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## **Occupational cancer**

### **Dr. Jeffery Burgess**

**Cancer - has a latency period, most will occur post retirement, current studies reflect past exposures, screening available for some but not all cancers.**

Increased risk Probable for firefighters

Testicular - 1.47

Prostate - 1.30

Non-Hodgkin's - 1.21

Testicular cancer - most common malignancy in men ages 20-34. duration of exposure increases risk. Possible causes dimethylformamide, chromates, tetrachloroethylene, tetrachloroethane, textiles, trauma and heat.

Prostate cancer - possible causes include cadmium, ionizing radiation, agricultural chemicals, dimethylformamide, acrylonitrile, ferrosilicom, ferrochromium, organic chemicals, and androgens.

Non-Hodgkin's - can occur at any age and often marked by enlarged lymph nodes, fever, and weight loss.

Increased risk Possible for firefighters

- Multiple myeloma 1.53
- Skin - 1.39
- Malignant melanoma - 1.32
- Brain - 1.32
- rectum - 1.29
- Buccal cavity and pharynx - 1.23
- Stomach - 1.22
- Colon - 1.21
- Leukemia - 1.14

**Why do you think we have fire fighter presumptive laws in 38 states for Heart and Lung and 21 states for cancer.**

Smoke contains a number of known or suspect carcinogens - butadiene, benzene, aldehydes, PAH's, sulfuric acid, metals on particulate. Another known carcinogen diesel exhaust. Exposures still occur during overhaul with unknown long term consequences, Increased use of SCBA has greatly reduced smoke exposure.

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## **Injury and illness management**

**Dr. James Fleming**

### **Fire ground health issues.**

**Dr. James Fleming**

The study of 500 fires the number of times they found the release of a certain chemical.

- Amonia 424
- Sulfer Dioxide 358
- Potassium Hydroxide 304
- Sulfer acid 169
- Sodium hydroxide 162
- Hydrochloric acid 138
- PCB 117
- Chlorine 112
- Benzene 104
- Ethylene glycol 101
- Indeterminate 92
- HS<sub>2</sub>/SO<sub>2</sub> mix 92
- paint or coating NOS 92
- Butadiene 68
- Hydrogen Sulfide 63
- Ethylene 86
- Mercury 57
- Carbon Monoxide 64
- Nitrogen Fertilizer 53
- Freon #22 46
- Xylene 39
- Toluene 37
- Sodium Hypochlorite 37

**If the haz-mat team showed up to this scene do you think they would go in with out respiratory protection?**

### Fire Scene Health Issues

- 38.2% = respiratory irritation
- 14.8 % = eye irritation
- 12.9 % = Nausea and vomiting
- 9.4 % = Headache
- 9.1 % = dizziness
- 5.5 % = skin irritation

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- 4.1 % = Trauma
- 2.7 % = other
- 2.2 % = Chemical burns
- .7 % = thermal burns
- .4 % = Heat stress

**53% are related to not wearing an SCBA at the fire scene when they should**

2.9% are burns

If you can smell/taste smoke you are to close or should be

FF exposeure concerns

- Motor Vehicle
- Residential
- Commercial
- Haz-mat
- Wildland
- Illegal burn

There are many stresses from the fire ground. NFPA 1584 medical guidelines recommended for rehab

National 2002 Fire fighter injury rate = 7.3%

\$250,000 per 100 fire fighters injured

Knee and shoulder are most costly because of surgery is usually required.

## Thursday May 22nd

0930-1100 General session (Wellness fitness initiative)

### Nuggets

- Firefighter performance expert, PT Larry Farmes, University place, Wa
- [www.ffcancer.org](http://www.ffcancer.org)
- [www.boisenaturalhealth.com](http://www.boisenaturalhealth.com)
- [www.firegroundfitness.blogspot.com](http://www.firegroundfitness.blogspot.com)
- Nutrition class outline
- Garbage in = garbage out. Where did the food really come from.
- Camelback quote "all it takes is determination" 4 days a week 3 time a day climber
- It's important to address the mental health as well as the physical health.
- A firefighters cancer screening should be 10 years earlier than the rest of the population.
- Chief of phoenix supports all members through out their career and has light duty and 40 hour positions for all.
- Employees that get light duty because of tier 4 generally work hard to get back online because they don't want to work 5 days a week.

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