BURNOUT AND OVERTRAINING

Mahrad Saeedi
AFAAA Certified Personal Trainer, LMU
OUTLINE

★ Common Warning Signs and Symptoms of Overtraining Syndrome
★ Recognizing & Treating Overtraining Syndrome
★ Why Rest? What Happens During Recovery?
★ What is Active Recovery?
★ Adaptation to Exercise
WHAT IS OVERTRAINING?

• Overtraining frequently occurs in athletes who are training for competition or a specific event and train beyond the body's ability to recover
• Lack of rest and recovery actually decreases performance
• Conditioning requires a balance between overload and recovery
SYMPTOMS OF OVERTRAINING

- Washed-out feeling, tired, drained, lack of energy
- Mild leg soreness, general aches and pains
- Pain in muscles and joints
- Insatiable thirst
- Loss of concentration/focus
- Sudden drop in performance
- Insomnia
- Headaches
- Decreased immunity
- Decrease in training capacity / intensity
- Moodiness and irritability
- Depression
- Loss of enthusiasm for a sport
- Decreased appetite
- Increased incidence of injuries
- Compulsive need to exercise
• Track your aerobic heart rate at a specific exercise intensity/speed throughout your training and write it down.
• You can also track your resting heart rate each morning. Any marked increase from the norm may indicate that you aren't fully recovered.
• Another way to test recovery is to use the orthostatic heart rate test (developed by Heikki Rusko while working with cross country skiers).
• Keep a training log. Record how you feel each day.
TREATING OVERTRAINING SYNDROME

- Rest and recover. Reduce or stop exercise and allow yourself a few days of rest
- Hydrate and alter your diet if necessary
- Get a massage. This may help relax you mentally and physically
- Try crosstraining. This often helps athletes who are overworking certain muscles or suffering from mental fatigue
Why Rest? What Happens During Recovery?

• Exercise or any other physical work causes changes in the body
• Recovery time allows energy stores to be replenished & allows tissue repair to occur.
• Without sufficient time to repair and replenish, the body will continue to break down from intensive exercise. Symptoms of overtraining often occur from a lack of recovery time.
• **Short-term recovery**, sometimes called active recovery, occurs in the hours immediately after intense exercise.
• There are two forms of active recovery.
• One is during the cool-down phase immediately after a hard effort or workout.
• The second form of active recovery includes the days following a competition or other intense workout.
• Several case studies reveal the beneficial effects of active recovery.
LONG TERM RECOVERY

• **Long-term recovery** techniques refer to those that are built in to a seasonal training program.
• Most well-designed training schedules will include recovery days and/ or weeks that are built into an annual training schedule.
• This is also the reason athletes and coaches change their training program throughout the year, add crosstraining, modify workouts types, and make changes in intensity, time, distance and all the other training variables.
ADAPTATION TO EXERCISE

• When we undergo the stress of physical exercise, our body adapts and becomes more efficient.
• Once you adapt to a given stress, you require additional stress to continue to make progress.
• Doing too much work too quickly will result in injury or muscle damage, but doing too little, too slowly will not result in any improvement!
OPT™ Model

Well done! All of your answers are correct.

Stabilization Endurance Training
Maximal Strength Training
Power Training
Hypertrophy Training
Strength Endurance Training
F.I.T.T.E. Principle: Our bodies adapt so quickly to our environment and the stresses we apply to them that we must have guidelines for change. The F.I.T.T.E. Principal is where we can manipulate the following:

- Frequency
- Intensity
- Time
- Type
- Enjoyment
<table>
<thead>
<tr>
<th><strong>Frequency</strong></th>
<th>F = 2–4 days per week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intensity</strong></td>
<td>I = Weight that you can lift 8–15 times in a row</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td>T = 20-30 seconds per set, completing 2–4 sets, with 6–8 different exercises</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>T = Use body weight, tubing or gym equipment</td>
</tr>
</tbody>
</table>
WHY IS THIS IMPORTANT?

***Active rest appears to allow an athlete to physically and psychologically recover from the stresses of training and competing while still maintaining fitness levels. It is becoming a common part of most training plans and appears to offer more benefit than harm. Consider adding a bit of easy, low-intensity exercise to your post-competition recovery plan and see if you feel better faster***
I would like to acknowledge:

The FitWell Center
LMU
PT Alexa Buerger
Jen Westendorf
QUESTIONS?
REFERENCES

(https://blogeliteihpt.wordpress.com/2009/02/20/fitte-principal/)

(http://sportsmedicine.about.com/od/sampleworkouts/a/RestandRecovery.htm)

(http://sportsmedicine.about.com/cs/overtraining/a/aa062499a.htm)
OVERTRAINING: PHYSIOLOGICAL & PSYCHOLOGICAL IMPLICATIONS

By Alexa Buerger

CPT NASM
TRX Instructor
PRESENTATION OUTLINE

• PHYSIOLOGICAL IMPLICATIONS
  • Autonomic nervous system
  • Adrenal fatigue

• PSYCHOLOGICAL IMPLICATIONS
  • Exercise addiction

• PERSONAL EXAMINATION & Interactive Activity

• MUSIC & EXERCISE—The Mind-Body Connection
PHYSIOLOGICAL IMPLICATIONS: THE AUTONOMIC NERVOUS SYSTEM (ANS)

- **One of many pieces of the puzzle**
- **Largely unconscious; regulation of bodily functions**
THE SYMPATHETIC VS. THE PARASYMPATHETIC SYSTEMS

SYMPATHETIC

• Fight or flight response
• Shallow breathing
• Increased HR contractility

PARASYMPATHETIC

• Rest & Recovery
• Deep, nasal diaphragmic breathing
<table>
<thead>
<tr>
<th>PARASYMPATHETIC NERVES</th>
<th>SYMPATHETIC NERVES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>“Rest and digest”</strong></td>
<td><strong>“Fight or flight”</strong></td>
</tr>
<tr>
<td>Constrict pupils</td>
<td>Dilate pupils</td>
</tr>
<tr>
<td>Stimulate saliva</td>
<td>Inhibit salivation</td>
</tr>
<tr>
<td>Slow heartbeat</td>
<td>Increase heartbeat</td>
</tr>
<tr>
<td>Constrict airways</td>
<td>Relax airways</td>
</tr>
<tr>
<td>Stimulate activity of stomach</td>
<td>Inhibit activity of stomach</td>
</tr>
<tr>
<td>Inhibit release of glucose; stimulate gallbladder</td>
<td>Stimulate release of glucose; inhibit gallbladder</td>
</tr>
<tr>
<td>Stimulate activity of intestines</td>
<td>Inhibit activity of intestines</td>
</tr>
<tr>
<td>Contract bladder</td>
<td>Secrete epinephrine and norepinephrine</td>
</tr>
<tr>
<td>Promote erection of genitals</td>
<td>Relax bladder</td>
</tr>
<tr>
<td></td>
<td>Promote ejaculation and vaginal contraction</td>
</tr>
</tbody>
</table>

Figure 45-20 Biological Science, 2/e
© 2005 Pearson Prentice Hall, Inc.
ADRENAL FATIGUE

- Cortisol & DHEA
- Stressors $\rightarrow$ brain sends ACTH to adrenal gland $\rightarrow$ secretion of adrenaline, cortisol, & DHEA
- Sympathetic system
- Burnout
STAGES OF ADRENAL FATIGUE

• **STAGE I: OVER-SECRETION OF ADRENALINE & CORTISOL**

  • Tired & Tempermental

• **STAGE II: CONSTANT OVER-SECRETION OF HORMONES**

  • Reduced immune function; trouble falling asleep; digestive distress; increase in BP and body fat

• **STAGE III: SHARP DROP IN SECRETION OF HORMONES**

  • Dark rings around eyes; low BP; allergic reactions; salt cravings

  • Cortisol low in the day and release at night ➔ Insomnia
Progression of Stages of Adrenal Exhaustion

- **Cortisol**
- **Pregnenolone**
- **DHEA**

Progression

TIME OF EACH STAGE IS HIGHLY VARIABLE
MORE PHYSIOLOGICAL IMPLICATIONS

• Adding stress & lack of sleep to the equation

• 30 minutes per day

• Know your intentions
PSYCHOLOGICAL IMPLICATIONS: EXERCISE ABUSE

• How often do you workout in the average week?

• Does anything get in the way of working out? What do you sacrifice to come to the gym?

• Did any of those include family, friends, or personal happiness?

• If you had 1 more hour per day, would you spend it in the gym? With loved ones? On Netflix?
"POSITIVE" VS. "NEGATIVE" EXERCISE ADDICTION

**Positive:**

- Controllable, integrated into your everyday life
- Able to miss exercise sessions when necessary; exercise is carefully though diligently scheduled around other aspects of life

**Negative:**

- Compulsivity which overrides health considerations or career
- Feelings of dependence, obligation
- Chronic, habitual, excessive
PHASES OF EXERCISE ADDICTION

Phase 1
Recreational Exercise
Motivation for exercise is enjoyment or fitness improvement. No negative outcomes or consequences.

Phase 2
At Risk Exercise
Reliance on the mood altering effects of exercise. Negative outcomes such as repetitive use injuries are possible.

Phase 3
Problematic Exercise
Life is rigidly scheduled around exercise. Motivation is a desire to escape withdrawal symptoms. Social & physical negative outcomes.

Phase 4
Exercise Addiction
Life revolves around exercise. Frequency, volume & intensity increases to achieve the same degree of satisfaction. Training goes on in spite of injuries & there is little control. Clinical depression may occur.
SELF-HELP STRATEGIES

• **AEROBIC EXERCISE, STRENGTH, BALANCE, FLEXIBILITY, AND POWER ARE ALL IMPORTANT COMPONENTS OF EXERCISE**

• **DAYS OFF & SCHEDULED REST DAYS**

• **KNOW & LISTEN TO YOUR BODY**

• **SELF-SURVEYS**
THE MIND-BODY CONNECTION

• What do you feed your mind? The cells in your body react to everything your mind says.

• Effect of music on mood & recovery

• Changes in the ANS triggered by music

• Rate of perceived exertion (RPE) during low to moderate intensity exercise

• Fun music day!

• Warm up & Cool down
GIVE YOURSELF THE WORKOUT YOUR BODY NEEDS, NOT JUST THE ONE YOUR MIND WANTS.
PERSONAL TRAINING AT LMU

- Visit lmu.edu/fitwell and click the personal training tab for more information
- **Student trainer:** $20/session
- **Master trainer L1:** $30/session
- **Master trainer L2:** $35/session
- Sessions last for 1 hour!
- **5 pack & 10 pack options available**
- **Free consultation and body composition analysis included**
QUESTIONS?
THANK YOU!
SOURCES

OVERTRAINING AND NUTRITION: QUALITY OVER QUANTITY

KATELYN PARKER AND SYDNIE MALTZ

SPRING 2016
PRE-EXERCISE NUTRITION

• Carbohydrates and proteins
• Examples: fruit with peanut butter, granola with yogurt or milk
• Carbs are body's preferred energy source
• Experiment to find what works best for you
ENERGY DURING EXERCISE

• Energy from carbs are stored in muscle, liver, and fat cells to provide energy as needed
• **Low intensity** = fat
  • Ex. Walking on a treadmill for >35-40 mins (30-50% HRmax)
• **Moderate intensity** = carbohydrates
  • Ex. Aerobic activity when you can’t hold a conversation with someone (50-60% HRmax)
• **Vigorous** = carbohydrates then proteins
  • Ex. Plyometric circuits, interval training, marathon running (70-85% HRmax)

• *Really a mix of fuels*
• The more you work out, the more efficiently the body uses fat during moderate intensity workouts
ENERGY DEPLETION

Glycogen stores in muscle fibers

Before workout

After workout
POST-EXERCISE NUTRITION

• Eat carbs and proteins [4 (CHO): 1(PRO) ratio]
  • Ex: chocolate milk/ greek yogurt (1 cup)
• Water
  • You lose water via sweat
  • Replace what was lost during workout
  • Urine should be on the clearer side if you drink enough water
• Replenish electrolytes (sodium, potassium)
  • Ex: bananas, salted peanut butter, olives, pickles
  • *If training is for extended period of time (>1 hour), use sports drinks (Gatorade, Powerade, etc.) to replace
TYPES OF EXERCISE AND NUTRITION

Aerobic Exercise
- Elliptical, treadmill
- Uses carbohydrates (and a little fat) until hit 1hr of vigorous activity
- Muscle begins to break down when it has to use protein as fuel (BAD)
- Replace CHO stores during exercise if prolonged

Resistance Exercise
- Powerlifting, Olympic lifting, general weight lifting
  - Primarily uses carbohydrate during
  - Replace CHO after (within 30 mins)
  - Add protein after to repair and build muscle
ALTERNATING TRAINING

**DO:**
- Mix it up in terms of types of workouts
- Wait 48 hours between training sessions for a particular muscle group
- Hydrate yourself before, during, and after any workout

**DON’T:**
- Perform high-intensity workouts every day
- Push through muscle pain or fatigue
- Drink energy drinks to get yourself through a workout or always substitute water for sports drinks
RECOMMENDED AMOUNT OF EXERCISE

$\geq$ to 30 minutes of moderate intensity aerobic activity (cardio) 5 days per week

OR

at least 25 minutes of vigorous activity 3 days per week

AND

moderate to high-intensity resistance activity 2 days per week

*recommendations from American Heart Association to ensure heart, muscle, and bone health
PROTEIN SHAKES & POWDERS = NOT NECESSARY

1) Body can only metabolize a certain amount of protein at once
   - Macro-dosing on protein in bulk before and after workouts will not mean larger, stronger muscles compared to protein naturally in foods throughout the day.
   - After that, protein is broken down in CHO, stored as fat and the rest is excreted in the urine as urea.

2) Powders and shakes are pricey, processed, and often lack other valuable nutrients (fiber, minerals, vitamins, probiotics)

3) Single amino acid powders (glutamine, arginine) can inhibit the absorption & metabolism of other essential amino acids for optimal health

4) They make you full so total calorie intake may be less than required to replenish the muscles and brain in between workouts—leading to muscle fatigue, and injury

Natural Protein
- Fish, meat (preferably lean, unprocessed, white meat), beans, tofu, nuts, yogurt (Greek), milk
- Alternative= milk with milk powder and 4 instant meal packets (i.e. Carnation)
- Easier to meet protein needs than expected
DANGER OF AMINO ACID AND PERFORMANCE ENHANCING SUPPLEMENTS

- **Amino Acids**
  - Glutamine, arginine, (ends in -ine)
  - Create imbalance of amino acids in body
  - Prevent absorption of other amino acids

- **Performance Enhancers**
  - Creatine monohydrate
    - Safety unknown, may affect kidneys
  - DMAA
    - Outlawed by FDA, linked to seizures, arrhythmias, and death
  - Steroids
    - Lead to skin breakouts, increased aggression, anatomical changes due to hormonal imbalance
  - Growth Hormone (GH)
    - Enlargement of the jaw and head, heart arrhythmias, weight gain
REST IS IMPORTANT

• Take at least **one** active rest day per week
  • Take a low intensity walk, stretch, focus on mental wellness
  • Allows time for muscle repair and build
  • Allows time for bone to begin remodeling process
  • Allows fluids to be replenished

• **Sleep** is necessary to heal
  • Get 8-10 hours per night
  • Natural Growth Hormone is released during sleep, which contributes to muscle anabolism and repair
  • **Sleep deficiency is related to obesity, and early mortality**
THE 3 MAIN NUTRIENTS

- Carbohydrates: energy for body
- Proteins: enzymes, hormones, growth, repairing body tissue (i.e. after exercise)
- Fats: cell membranes, brain development, nerve function, absorption of fat-soluble vitamins
SOURCES OF CARBS

• Fruits
• Vegetables
• Whole grains
• Beans
• Bread
• Pasta

• Aim for carbs containing fiber (i.e. brown rice (whole grain) as opposed to white rice)
• Fiber helps with bowel function and overall health
• Main energy source for the brain (glucose)
SOURCES OF PROTEINS

- Fish
- Poultry
- Meat
  - Limit red meat, increase lean meat
  - Avoid processed (lunch meat)
- Eggs
- Dairy
  - Yogurt, milk, cheese
- Tofu
- Beans
  - Lentils, kidney, black, pinto, etc.
- Nuts
  - Peanuts, almonds, cashews, etc.
- Seeds
  - Sunflower, pumpkin, pepitas, flax, etc.
SOURCES OF FAT

• Want more unsaturated (liquid) than saturated (solid)
  • Less than 7% total kcal from saturated fat
    • Related to increased cholesterol, and related heart disease
• Oils- olive oil, avocado oil, flax oil, grapeseed oil are healthy oils to use
  • **Coconut Oil is the highest in saturated fat
    • Great moisturizer, unhealthy for cooking
• Nuts and seeds
• Dairy
• Eggs
• Olives
• Avocado
• Some fish- i.e. salmon
VITAMINS AND MINERALS IMPORTANT TO MUSCLE AND BONE HEALTH

- Calcium
- Vitamin D
- Magnesium
- Fluoride
- Zinc
- Phosphorus
- Iron
- A varied diet will ensure you get all of these nutrients
- Calcium and vitamin D tend to be hardest to get enough of. Supplements may be needed
BIG PICTURE

• With nutrition and exercise, quality is more important than quantity

• Over exercising is counterproductive

• Refuel properly

• Vary your diet

• Allow yourself to rest
QUESTIONS?
NUTRITION CONSULTATIONS

• Visit www.lmu.edu/fitwell and click on the Nutrition Consultation tab to learn more and to register.
• $10 for 60 minute consultation that includes an In-Body Composition Analysis, 3 day food log review and one-on-one consultation with a peer nutritionist of your choice.

• Thank you!