MEDICAL

Injuries

Injuries can occur at any time of the day, anywhere. It can happen during training, or at the competition. During the competition, ringside doctors and medical personnel will immediately take care of a boxer for any injuries, however, it is coach’s responsibility to take care and protect the boxer from injuries but, also to provide a first-aid treatment, in case of any injuries occurring during training.

Types of injuries in Boxing
- Nosebleed
- Fractured Nose
- Fractured Jaw
- Boxer’s fracture
- Stave Bennett’s fracture
- Intraorbital Injuries
- Periorbital Injuries
- Laceration
- Haematoma
- Facial Tenderness
- Cauliflower Ear
- Perforated Drum
- Concussion

In a case of a knock-down during the training:
- The boxer must stop sparring immediately
- Assess the boxer
  - If necessary, escort the boxer to see a medical doctor

Injury Prevention

In order to prevent injuries, the first and foremost thing that a coach has to do is to provide a safe environment for training. The following criteria can also help boxers from getting injured during training or at the competition.

- Must follow safety guideline for using the facility and equipment
- If equipment is worn out or missing pieces, do not use it
- During the technical training with partner, the boxer must be fully attired with headgear, protectors, training shoes and etc.
- When sparring during the practice, the boxer should wear a headgear that covers most of the head and face and bigger boxing gloves (ex. 16oz gloves)
- During the sparring, the sparring partner has to be selected accordingly, based on the physical and skill level of the boxer, and based on the main objective of sparring.
- The boxer must have a proper Warm-Up before the training and competition
- Provide the boxer with enough time for recovery before or after training and competitions
- Grease or Vaseline rubbed into the face before sparring to prevent injury
Treatment for Minor Injuries

In any cases, if the injuries are more severe than minor cuts or bruises, the Coach should call the emergency medical assistance before conducting any first treatment.

Nosebleeds

Nosebleeds are a common injury in boxing. Most nosebleeds can be stopped by using a nose plug, Vaseline and applying pressure. Never have the boxer lie down or tilt the head backward. Another way to treat nosebleeds is to firmly pinch the nose just below the bone up against the face. Apply pressure for five minutes. If the nosebleed doesn't stop after 10 minutes, seek medical attention.

How to recognize a broken nose or nasal fracture if the nose is not broken or disfigured: If the blood is dark and a constant stream, or constant drainage, then the boxer most likely has a broken nose. There can be possible complications from a broken nose to include:

- Change in the appearance of the nose or the tip of the nose.
- A large amount of blood in the nasal septum.
- A hole in the nasal septum or causing the bridge of the nose to collapse (saddle nose deformity).
- Crooked (deviated) nasal septum.
- Permanent breathing difficulty.
- A change in or loss of sense of smell.

Medical treatment for a broken nose is usually not needed, unless there is disfigurement. For a severe broken nose medical treatment should be done within 7-10 days of the injury.

Treatment for minor nosebleeds

- Sit up straight and tip your head slightly forward
  - Do not tilt your head back. This may cause blood to run down the back of your throat, and you may swallow it
- Breathe through the mouth
- Apply an ice pack to your nose, cheeks, and neck (The cold will stop bleeding and swelling)
- Use thumb and forefinger and firmly pinch the area shown in diagram 1 for 10 – 20 minutes

<<Diagram 1>>

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**Minor cuts, Lacerations**

Minor cuts and lacerations usually occur on a boxer as the result of a head butt, elbow or punch in the area around the eyes. When the cut occurs the bleeding can be stopped by using:

- Vaseline
- Ice bags, No-Swells and Swabs can also be used
  - NOTE: The USA Boxing Technical manual also has a list of various things that can be used during competition to stop the bleeding of cuts, lacerations and nosebleeds.

**Treatment for minor Cut**

- Be sure the wound is cleaned well with disinfectant swab or similar
- Apply plaster strip (bandage)

**Sprains and Strains**

When a strain or sprain happens it is always a good practice to seek medical attention. But until medical aid can be rendered (usually within the first 24-48 hours) use the acronym RICE:

- Rest the sprained/ strained area
- Ice for 20 minutes every hour (never place the ice directly on the skin)
- Compress the area with an ACE bandage, remembering not to wrap it too tightly.
- Elevate the area above the heart level

*Note: With any injury a good rule of thumb is “when in doubt seek professional medical attention.”*

**Treatment for minor Sprain**

- Lay the athlete down on flat ground
- Elevate sprained area
- Apply ice pack or bag of ice cubes on the injured part
  - Do not apply more than 20 minutes at a time
- Use the elastic wrap to wrap the injured area, overlap the elastic wrap by one-half of the width of the wrap. Make sure the wrap does not cut off blood circulation, the wrap should be snug. If the injured athlete’s sprained area becomes cold, blue, or tingle, re-wrap.

**Treatment for Severe Injuries**

In any case of severe injuries during the training, the coach must call the emergency number immediately. Until the emergency medical personnel arrive, the coach must stay with the injured boxer all the time and not perform any treatment on the boxer.
Concussion Awareness

A concussion is a type of traumatic brain injury that changes the way the brain normally works. A concussion is caused by bump, blow, or jolt to the head or body that causes the head and brain to move rapidly back and forth. Even a “ding”, getting your “bell rung”, or what seems to be a mild bump or blow to the head can be serious. As a concerned parent or coach, here’s what to look for in your athlete:

- Appears dazed or stunned
- Is confused about assignment or position
- Forgets an instruction
- Is unsure of game, score, or opponent
- Moves clumsily
- Answers questions slowly
- Loses consciousness (even briefly)
- Shows mood, behavior, or personality changes

Some symptoms reported by the athlete can be:

- Headache or “pressure” in head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light and/or noise
- Feeling sluggish, hazy, foggy, or groggy
- Concentration or memory problems
- Confusion
- Just “not feeling right” or “feeling down”

http://www.cdc.gov/concussion/HeadsUp/youth.html

If an athlete reports one or more symptoms of concussion listed above after a bump, blow, or jolt to the head or body, s/he should be IMMEDIATELY removed from training, the day of the injury, and kept out of play until a health care professional, experienced in evaluating for concussion, says it is okay for the athlete to return to APPROVED activities. Do not attempt to judge the severity of the injury yourself.

Rest is key to helping an athlete recover from a concussion. Exercising or activities that involve a lot of concentration, such as studying, working on the computer, or playing video games, may cause concussion symptoms to reappear or get worse. After a concussion, returning to sports and school is a gradual process that should be carefully managed and monitored by a health care professional.

Tips to prevent a concussion or other serious brain injury

- Follow safety rules
- Practice good sportsmanship at all times
- Wear proper protective equipment that fits well and quality is maintained

This and more information can be found at: http://www.cdc.gov/concussion/sports/index.html
A free online course is available at: http://www.cdc.gov/concussion/headsup/online_training.html
All concussions are serious. If you think you have a **CONCUSSION**:

- Don’t hide it.
- Report it.
- Take time to recover.

It’s better to miss one game than the whole season.

For more information and to order additional materials free-of-charge, visit: www.cdc.gov/concussion.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

June 2010
NUTRITION

- The main goal of diet is to provide adequate energy for recovery and muscle tissues to repair quickly and efficiently without adding body fat.
- The best strategy is to create a year-round eating strategy that includes weight management that ensures the boxer does not get outside 10% of his competitive boxing weight.
- It is recommended to eat approximately every 3-4 hours (Eat minimum four (4) meals per day at regular intervals)
- Drink water or a sport drink to maintain proper hydration, especially during the training.
- Avoid water-like substances such as sodas or lemonades. Although these may contain water and some carbohydrates, they also contain a greater amount of the useless type of carbohydrate source.
- Remember minerals and vitamins.

Plan diets that consist of a wide variety of foods and keep in mind the basic food groups – This is the best insurance for getting the needed nutrients.

- For athletes, it is recommended to compose their diets, based on following ratios (calories):
  - Diet of young athletes should be based on proper selection of nutritional elements such as:
    - Carbohydrates - brown rice, whole-meal pasta, oatmeal, whole-meal bread, vegetables, fruits and potatoes
    - Proteins- tofu, egg, fish, chicken, beef, pork and half fat cottage cheese
    - Fat- butter, seeds, nuts, sea fish, vegetable oils and olive oils
    - For athletes, it is recommended to compose their diets, based on following ratios (calories):
      - Vitamins- vegetables, fruits and other products, rich in following vitamins - C, B, D, A, K
      - Minerals – sodium, potassium, magnesium and iron
  - For athletes, it is recommended to compose their diets, based on following ratios (calories):
    - 55 percent of carbohydrate
    - 1 gram of carbohydrate = 4 calories
    - Example: Based on a consumption of 2,000 calories, 1,100 calories derives from carbohydrate
      - 1,100 calories = 275 grams
    - 15 percent of protein
    - Daily protein intake: 0.75– 0.80g per 1lb of bodyweight
    - 30 percent of fat
    - 1 gram of fat = 9 calories
    - Example: Based on a consumption of 2,000 calories, 600 calories derives from fat 600 calories = about 66 – 67 grams
  - Try to consume additional 300 to 500 calories than your weight-maintenance level during the training season
  - Drink fat-free or low fat milk
  - Increase protein intake to .90g per 1 lb of bodyweight
  - During the off-season, boxers should strive to either increase lean muscles
mass and/or improve their physical weaknesses

**Before and After Training Session**

- 30 to 40 minutes before the training, consume 30 – 40 grams of carbohydrate and 20 grams of protein
- Consume sports drinks or drinks containing carbohydrates and proteins during the training session, and immediately after to avoid dehydration, prevent blood glucose levels falling too low and help maintain the body’s glycogen stores
The eatwell plate

Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.

MyPyramid

STEPS TO A HEALTHIER YOU

MyPyramid.gov
Athlete Eating Guidelines

Focus on the following nutrition principles year-round:

Stay hydrated. Your body is more than 60% water and your muscles depend on water to function properly. A dehydrated body cannot perform or compete at its peak. Drink enough so that your urine looks like pale lemonade or apple juice and so that you are urinating frequently throughout the day.

Fuel up before training. Focus on eating lean proteins, fruits and vegetables and whole grains to ensure that your body is prepared for training. Try not to go into a training session with an empty fuel tank. Eat a meal 3-4 hours or a snack 1-2 hours before exercise.

Boost your immune system. Choose foods that are high in antioxidants such as fruits and vegetables to help keep your immune system healthy and reduce the amount of free radicals that your body builds up during high intensity training. Choose more colorful fruits and vegetables such as blueberries, strawberries, kiwi, oranges, broccoli, carrots and sweet potatoes.

Limit fats. Saturated and trans fats can cause inflammation which is the exact opposite of what elite athletes need. Stay away from foods that are processed or fried, and higher fat meats like chicken wings, bolognese and pastrami. Choose non-inflammatory unsaturated fats such as olives, avocados, nuts, seeds, and salmon.

Eat to recover. Choose carbohydrate rich foods with some protein within 30-60 minutes of finishing a training session to help your body recover faster. Good choices after workouts include: peanut butter sandwich (half or whole), carrot of chocolate milk, or a bowl of cereal with milk or yogurt.

Sport products. Sports bars, gels and drinks do have their place in an elite athlete’s eating program. Be sure to not over-use these types of products, however, as they can deter body weight goals and can replace more beneficial calories from whole foods. Use sports products before, during or immediately after practice depending on your sport needs and goals.
Reading Food Labels

Servings sizes are standardized for foods. Pay attention to how many there are in a food product.

Saturated and trans fats increase inflammation and slow recovery.

Sodium is essential for optimal hydration before, during and after training.

Complex carbohydrates and dietary fiber can stabilize blood sugar, prevent insulin spikes and keep body weight under control.

% Daily Value does not pertain to elite athletes.

Too much cholesterol can contribute to high blood cholesterol levels and be detrimental to health and performance.

Lean protein is necessary for muscle recovery after hard training sessions.

Vitamin and mineral dense foods are important during high intensity training.

Nutrition Facts

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>8 fl oz (236mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servings Per Container</td>
<td>1</td>
</tr>
<tr>
<td>Amount per serving</td>
<td>1</td>
</tr>
</tbody>
</table>

| Calories | 170 |
| Calories from Fat | 20 |
| Total Fat | 3g |
| Saturated Fat | 1g |
| Trans Fat | 0g |
| Cholesterol | 5mg |
| Sodium | 150mg |
| Total Carbohydrate | 26g |
| Dietary Fiber | 3g |
| Sugars | 2g |
| Protein | 3g |
| Vitamin A | 10% |
| Vitamin C | 9% |
| Calcium | 3% |
| Iron | 0% |

Example

Nutrition Facts Skim Milk

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>1 cup (247g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servings Per Container</td>
<td>1</td>
</tr>
</tbody>
</table>

| Calories | 60 |
| Calories from Fat | 2 |
| Total Fat | 3g |
| Saturated Fat | 1g |
| Trans Fat | 0g |
| Cholesterol | 0mg |
| Sodium | 14mg |
| Total Carbohydrate | 11g |
| Dietary Fiber | 0g |
| Sugars | 10g |
| Protein | 8g |
| Vitamin A | 1% |
| Vitamin C | 1% |
| Calcium | 1% |
| Iron | 0% |

Nutrition Facts 2% Milk

<table>
<thead>
<tr>
<th>Serving Size</th>
<th>1 cup (247g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Servings Per Container</td>
<td>1</td>
</tr>
</tbody>
</table>

| Calories | 90 |
| Calories from Fat | 6 |
| Total Fat | 3g |
| Saturated Fat | 1g |
| Trans Fat | 0g |
| Cholesterol | 0mg |
| Sodium | 140mg |
| Total Carbohydrate | 11g |
| Dietary Fiber | 0g |
| Sugars | 11g |
| Protein | 8g |
| Vitamin A | 2% |
| Vitamin C | 1% |
| Calcium | 2% |
| Iron | 0% |

More calories
Higher fat
Cholesterol
Same protein
Calcium
Calcium

Information

Calcium is an essential and abundant mineral in the body. In fact, 2-3 pounds of body weight is calcium, with 99% being stored in the bones and teeth.

Calcium is essential for assisting in optimizing bone mineral density.

- The major functions of calcium include bone metabolism, blood coagulation, blood pressure regulation, neuromuscular excitability, cellular adhesiveness, transmission of nerve impulses, maintenance and functionality of cell membranes, and activation of enzymatic reactions and hormonal secretions.

- The Recommended Daily Allowance (RDA) for Calcium Intake is 1,300 mg per day for teenagers, 1,000 mg per day for adults 19-50 and 1,200 mg per day for women who are amenorrheic. The upper limit of calcium intake is 2500 mg/day and toxicity symptoms include constipation, and urinary stone formation.

- Calcium is found mainly in dairy products, such as milk, yogurt, and cheese. Green leafy vegetables also provide a source of calcium along with calcium fortified foods like OJ and cereal.

- Vitamin D, lactose, glucose and a healthy digestive system enhance calcium uptake while fiber and caffeine may have small effects on calcium loss. Phytates, phosphorus compounds found primarily in cereal grains, legumes, and nuts can also bind with calcium and interfere with its absorption in the body.

Application

Eating an adequate amount of calcium is essential for optimal performance. It will help increase your bone mineral density and help blood clot faster to improve recovery at times of injury.

Adequate calcium intake is important for bone injury rehabilitation (such as stress fractures). Since most of the calcium in the body is stored in the bones, it is important to maintain a high calcium intake during this healing process in order for the body to be able to repair the bone.

Weight bearing exercise, especially if your sport is low impact, is important to stimulate bone cell activity and increase calcium deposition.

INFORMATION

Bone tissue in the skeleton, also known as bone mass, can continue to grow until around age 21. However, up to 53 percent of peak bone mass is acquired by age 0 in girls and age 21 in boys, which makes youth the best time to “build” bone health.

Note: This material was developed by professional sports nutritionists of the United States Olympic Committee. For more information and additional sport performance resources, visit: www.usoc.org/resources/sport-performance

Minerals

Information:
Similar to vitamins, minerals also assist in many body processes and are crucial in muscle contractions, energy expenditure and immune function. Minerals are divided into two groups: Macro-minerals, which are required in amounts greater than 100 mg/day and micro-minerals, also known as trace elements, are required in amounts less than 100 mg/day. Elite athletes have an increased need for both macro and micro-minerals because of the higher stress that is placed on the body during training. The following is a list of all of the minerals, their functions and food sources.

### Macro minerals:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Function in Body</th>
<th>Food Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>Growth and maintenance of bones and teeth, support for heart and skeletal muscle function, nerve impulse transmission, blood clotting, and release of some hormones</td>
<td>Dairy products, dark green leafy vegetables, calcium fortified foods/fortificants, high-protein beans, whole grain breads, fortified foods/fortificants</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Acts in bone strength and structure, cell and bone function, 6-carboxy-3-aminolevulinic acid (6-ALA) formation</td>
<td>High-protein beans, whole grains, fortified foods/fortificants</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Acts in protein synthesis, glucose metabolism, bone structure, muscle contraction</td>
<td>Milk and milk products, meat, fish, whole grains, dark green leafy vegetables, whole grain breads</td>
</tr>
<tr>
<td>Sodium</td>
<td>Acts in ionic balance, muscle function</td>
<td>Processed and canned foods, cheeses, cured meats, sauces (almost everything)</td>
</tr>
<tr>
<td>Chloride</td>
<td>Acts in water balance, muscle contraction</td>
<td>Table salt</td>
</tr>
<tr>
<td>Potassium</td>
<td>Acts in water balance, glucose delivery to cells</td>
<td>Citrus fruits, potatoes, vegetables, milk, meat, fish, bananas</td>
</tr>
</tbody>
</table>

### Micro minerals:

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Function in Body</th>
<th>Food Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron</td>
<td>Acts in oxygen delivery, enzyme for converting vitamin C metabolism</td>
<td>Meat, fish, poultry, shellfish, eggs, whole grains, vegetables, nuts</td>
</tr>
<tr>
<td>Iodine</td>
<td>Acts in production of hormones by targeting thyroid hormones</td>
<td>Iodized salt and seaweed</td>
</tr>
<tr>
<td>Selenium</td>
<td>Antioxidant</td>
<td>Meat, fish, nuts, whole grains, nuts</td>
</tr>
<tr>
<td>Copper</td>
<td>Acts in iron metabolism</td>
<td>Meat, fish, poultry, shellfish, eggs, nuts, whole grains, bananas</td>
</tr>
<tr>
<td>Manganese</td>
<td>Acts in energy metabolism, bone synthesis, bone structure</td>
<td>Whole grains, legumes, green leafy vegetables, bananas</td>
</tr>
<tr>
<td>Zinc</td>
<td>Acts in energy metabolism, protein synthesis, immune function</td>
<td>Meat, fish, poultry, shellfish, eggs, whole grains, vegetables, nuts</td>
</tr>
<tr>
<td>Chromium</td>
<td>Acts in glucose control</td>
<td>Brewer's yeast, roasted coffee, whole grains, nuts, legumes, olives</td>
</tr>
</tbody>
</table>

This material was developed by professional sports nutritionists at the United States Olympic Committee. For more information and additional sport performance resources, visit: www.usoc.org/nutrition/usa-oc-sport-performance

Weight Loss in Sport

An athlete’s desire to lose weight should be rooted in achieving the ideal body composition for performance. A realistic weight loss goal is one that does not compromise performance and maturation, but leads to a gradual decrease in weight of 0.5 – 1.5 pounds per week.

Getting Started on Your Weight Loss Goals

1. Consult a sport dietitian to assist you with an individual plan to meet your goals while maximizing energy and performance.
2. Get a baseline assessment to determine current weight and body composition and to set realistic goals.
3. Plan ahead and outline meals and snacks for the week. Make a grocery list and stick to it while shopping at least once per week to ensure access to the appropriate foods.
4. Manage portion sizes using the Weight Management Athlete Plate as a guide.
5. Listen to your body and stop eating when you are satisfied rather than “starved.” Eat slowly to give your body time to recognize the feeling of fullness.
6. Focus on meals to avoid mindless eating and minimize distractions like the TV and reading.
7. Logging your food and fluid intake is a great way to create awareness, identify areas for improvement, and ensure accountability.
8. Consistency is key when making food choices. At each meal and snack, choose foods that support your weight loss goals.
9. Have a plan when you enter a dining hall or buffet. Start by filling half your plate with veggies and then add a lean protein and grain or carb source.

© USOC SPORT NUTRITION TEAM
ATHLETE’S PLATE

EASY TRAINING / WEIGHT MANAGEMENT:

FATS
1 Teaspoon
- Avocado
- Oils
- Nuts
- Seeds
- Cheese
- Butter

Whole Grains
- Pasta
- Rice
- Potatoes
- Cereals
- Broads
- Legumes

Weight Management
- Easy Training
- Whole Grains
- Lean Protein
- Vegetables & Fruits

Lean Protein
- Poultry
- Beef/Game/Lamb
- Fish
- Eggs
- Low-Fat Dairy Soy (e.g., Tofu, Tempeh)
- Legumes/Nuts

Vegetables & Fruits
- Raw Veggies
- Cooked Veggies
- Veggie Soups
- Fresh Fruit

Water
- Dairy/Nondairy Beverages
- Diluted Juice Flavored Beverages

Coffee Tea

FLAVORS
- Salt/Pepper
- Herbs
- Spices
- Vinegar
- Salsa
- Mustard
- Ketchup

The Athlete’s Plates are a collaboration between the United States Olympic Committee Sport Dietitians and the University of Colorado (UCSS) Sport Nutrition Graduate Program.

For educational use only. Print and use front and back as 1 handout.
The Vegetarian Athlete

Any athlete, regardless of sport, intensity of training, gender, or age can successfully choose a vegetarian diet without risking nutrient shortages or deficiencies. However, such a lifestyle choice will require careful planning to maintain adequate energy for training and to reduce the risk of associated vitamin and mineral deficiencies.

The key to a successful vegetarian diet is understanding which plant foods contain similar nutrients as the foods you are no longer consuming; and which nutrients may be at risk.

Nutrients at risk for the vegetarian athlete:

- Iron
- Zinc
- Vitamin B-12
- Calcium
- Omega 3s
- Protein

Nutrient Information and Sources:
If you do have a known deficiency, it is important to consult your physician to determine appropriate dietary supplements regimen.

Zinc - Necessary for protein synthesis, and supporting immune function, this mineral can be found in whole grains, fortified foods as well as nuts and seeds.

Vitamin B-12 - B-12 is necessary for protein synthesis and aids in energy metabolism but it is only found in animal products, so vegan athletes should look for foods fortified with B-12 or consume a multi-vitamin that contains B-12.

FORMS OF VEGETARIANISM

- **Vegan** - Consisting in only plant-based foods
- **Lacto-ovo** - Includes milk, milk-based foods, and eggs
- **Pesca Vegetarian** - All plant, with fish products and eggs

This material was developed by professional sports nutritionists at the United States Olympic Committee. For more information and additional sport performance resources, visit: www.teamusa.org/resources/usoc-sport-performance

Continued...
Why is Recovery Important?

As a high performance athlete, you've chosen a career where taking care of your body is your job. When you are training and competing, there are several physiological consequences that occur which make you fitter, faster, stronger and/or improve your skill level. A sound recovery nutrition protocol will ensure you can optimize training adaptations and perform at 100% of your body's potential in the next training bout or in preparation for competition.

Are you practicing the 4 R's of recovery?

- Replenish muscle glycogen (carbohydrate stored in muscle) after practice. Eat 0.5 g/lb BW.
- Repair and regenerate muscle with high quality protein. Eat 15 – 25 g (higher and for larger athletes).
- Reinforce muscle cells and immune system with colorful and anti-oxidant rich foods (e.g. fruits, veggies, whole grains, fish, nuts, olive oil). Eat at least 2 cups of fruit and 3 cups of veggies daily.
- Re-hydrate with fluid and electrolytes based on sweat loss in training (3 cups fluid/lb of sweat loss). Use urine color as a hydration guide pre-training.

Nutrition within 30 – 60 minutes after training or competition can enhance recovery due to:

- Increases in heart rate and blood pressure which enhances nutrient delivery to muscles
- Faster glycogen replenishment and initiation of tissue repair
- The body's hormonal switch from muscle breakdown to muscle building cortisol in the recovery timeline
WEIGHT MONITORING

The body weight of the boxers will place boxers into the specific weight categories at the competition. In many cases, boxers begin to control their body weight only a few days before the competition starts. Such habits can be risky, not only for the boxer’s well-being, but also the boxer may not be able to make the specific weight.

It is essential for the coach to constantly monitor and help the boxer to maintain his/her body weight without the competition.

• Before and after every training session, body weight
should be measured to see the amount of water weight lost in training

- It is dangerous to reduce body weight through dehydration or crash dieting
- The coach should monitor the fluid intake by the boxer and help him/her to take a sufficient amount of fluid during training

**WEIGHT MONITORING,**  
(cont’d)

- Losing weight may cause boxers to be tired easily and quickly, the coach shall provide adequate meal plan that includes, time, frequency and what boxer should eat
- If boxer wants to gain weight and build up body mass to compete in upper weight categories, the coach shall provide nutrition plan with a higher calorie intake
- Athletes should reduce intake of the unhealthy food, such as soft drinks, oils, butters, sweets, too much coffee and tea, white bread, fast food
- The nutrition plan should be based on the fruit/vegetables, rice, lean meats, natural drinks, pasta, grains

**BREATHING**

Correct breathing technique may be a challenge to learn. It can however be very easy to teach to the boxing student, because the very first thing they will notice after a few rounds of hitting the bag or the focus mitts, is how quickly they have become winded. This is because boxing is both a highly aerobic activity, and anaerobic as well. Boxing will tax every metabolic system of the body. In fact, it has a way of testing every system there is; including the cognitive abilities and decision making skills under pressure. I mention this because, as in the quote above, the breathing pattern of a boxer can and will mean the difference between catching an opponent’s punch on the glove or square on the jaw.

Controlling the breath during the rest period will maximize the athlete’s recovery for the entire rest period, which will help them focus on the Second’s instruction, and enter the next round with complete confidence and ready muscles. This is not the only area you and your athlete will notice a difference from focused, effective breathing. Below are listed some areas of importance, and methods to train and use the breath to your advantage.

"Control your mind through the breath and you can definitely still yourself”
~ Yogi Bhajan

- Better breathing technique equals more oxygen getting circulated by the blood, which means that lactic acid produced in the muscles from efforts of the prior round
can be removed, and fresh oxygen supplied, that muscles can continue their hard work and postpone fatigue.

- The breath can be an aid in throwing a more powerful punch. If you are about to lift something very heavy, think of how you breathe. At the critical moment of the lift, you are likely to breathe out sharply, allowing full acceleration of your body. The same is true in a powerful punch - as the boxer forcefully expels air, the body is able to fully relax, extend the arm, and transfer the power to the target.

- The pace of the bout can be dictated by the speed of the boxer’s breathing. The boxer may choose to make a series of sharp breaths, even with audible noise, as they unleash a fast combination. They may elect to breathe smoothly and quietly, and then sharply on a few choice counter blows or power shots.

- A boxer can effectively use their breath as a feint, making the noise of a forceful punch while moving the lower body some, to create a believable draw.

- The breath can help a boxer survive a powerful/ surprising body attack by breathing out sharply as the blow makes contact with their target zone. Forcefully expelling your breath is caused by a hard contraction of the diaphragm muscle as well as several surrounding abdominal muscles. This way the body is harder and more able to withstand the blow - and since you have already breathed out, you won’t get the ‘wind knocked out of you’!
Breathing and the Boxer's Mind in the Fight

- A boxer can train to attach a word, or cue, to a specific breathing pattern to assist in focusing. This is a form of mental training where, for example, the boxer may take three short breaths in, then in and out deeply, and say out loud or to themselves, a word that has meaning to their performance, such as “smooth” or “power”
- Have you ever seen a boxer waiting for the decision, after a hard fought match, and notice how they have stopped breathing? This is a natural response from a tense, anxious body. As we know, a tense and anxious body does not lead to the kind of performance that gives a boxer confidence that his or her hand will be raised. Practicing to coordinate the breath with the punches, and stay breathing fluidly throughout the competition is necessary.
- If a boxer is tense before entering the ring, they may have an elevated heart rate, and can adjust it by focusing on breathing in and out, slowly and evenly. This will not only restore confidence and mental focus, increase oxygen to the brain and improve mental attitude, but help remind them of the goal to control the breath between rounds, to better lower the heart rate and allow for a full minute's worth of recovery.
- Should a boxer not win his bout, focusing on the breath and not the emotion can, again, restore focus, increase good feelings and oxygen to the brain, avoid feelings of panic, and help them regain composure, confidence and perspective.

Training for Effective Breathing, and Effective Breathing in Training

- Recover from sprints and hard sparring/training by taking breaths deep into the belly
- Wear a heart monitor during training or sparring to monitor the difference that deep belly breathing can make in the speed of lowering the heart rate between rounds
- Just before cresting a hill as in a hill sprint, or nearing the end of a sprint interval, take shallow rapid breaths, which can help the body expel more air, and finally be able to take a single, nice, deep belly breath
- Just before lifting something heavy, such as preparing to lift a tire or preparing to snatch a barbell, take a deep breath in, holding the tension and gathering energy from it on the initial effort, and sharply expel it upon the moment of critical force
- Leg muscles consume the most oxygen. A boxer benefits from learning to do roadwork by coordinating their breath with alternating strides or footfalls. This allows the athlete to run harder, for a longer period of time, and thereby strengthen the muscles involved in running and breathing simultaneously.
- The harder the lungs have to work, the more fatigued the other muscle group becomes. No matter what kind of exercise you are doing, become aware of your breathing to increase your performance.
- Training done at elevation, or using an elevation training mask will strengthen the cardiovascular respiratory system and improve breathing.
- Swimming laps, yoga, and other cardiovascular exercises strengthen the body’s aerobic capacity.
- Perform deep breathing and core exercises that intentionally strengthen the
diaphragm (which performs 80% of breathing action) as well as the intercostal muscles of the abdomen and rib cage.

- Deep, effective breathing should feel like inflating the belly, placing pressure on the solar plexus, and holding tension for a few seconds; similar to an archer holding the tension in a bow before releasing an arrow.

**Breathing and Safety in the Sport**

- Think of how it feels to work in a crowded office space. Effective breathing maximizes inner body cavity space; allowing organs and muscles can relax and run smoothly.
- Consider having a 'Scent Free Policy' as in some public buildings. This allows the athlete access to as much usable oxygen as possible, and also avoids asthmatic/allergic reactions.
- Any athlete with allergies or who needs to use an inhaler should make the head Coach aware of the medications they take either regularly, as needed, or in the case of an emergency.
- Boxing has been rated the most physically challenging sport that there is. If a boxer is feeling light headed or can’t take in enough air, they must stop all activity and allow the body to recover before continuing.

“Most men breathe from their throats, but wise men breathe from their heels”,
~ Chuang Tzu

**SUGGESTED READINGS FOR ADDITIONAL ASPECTS**

- Boxing and Medicine (out of print), 1995, Cantu, HKP Sports