

HEAT ILLNESS INDEX SCORE (HIIS) RISK ASSESSMENT
TO BE COMPLETED BY THE CERTIFIED ATHLETIC TRAINER

Participant/Athlete: _____ Date: _____ Time: _____

Site: _____ ATC: _____

Part 1. Exertional Heat Illness (EHI) Risk Factors

ATC INSTRUCTIONS: Read each question to the athlete and record the presence of EHI risk factors.

1. A. Have you ever experienced Exertional Heat Illness (use attached descriptions if necessary)? NO / YES

B. If YES, how many incidents? _____
(Complete section below for most recent incident. For more than one incident, complete attached form)

C. How long ago was your most recent incident? _____ days / months / years (Circle one)
What were your signs and symptoms? Use attached Signs and Symptoms of EHI Table and Definitions of EHI to categorize this incident:

Dehydration	Heat Cramps
Heat Exhaustion	Heat Stroke

D. Who restricted you from activity? (Please circle)
Physician / Certified Athletic Trainer / EMT or Paramedic / Parent / Coach / Self / Other _____
How long were you restricted from full activity? (Check one).

Mild = part of a practice or less than 1 day restricted from activity

Moderate = multiple practices or more than 1 day restricted from activity, and/or out-patient hospitalization (≥ 1 day)

Severe = in-patient hospitalization (>1 day)

Previous history of EHI Risk Factor (Circle highest)

- 0 No history of EHI
- 1 One incident of Dehydration
- 2 One or more incidents of Heat Cramps
- 3 One or more incidents of Heat Exhaustion
- 4 One or more incidents of Heat Stroke

2. A. How many hours do you usually sleep on a daily basis? _____ hours

B. In the last week, how many nights did you sleep in a **non-air conditioned** room?

- 0 Once or less
- 1 Twice
- 2 Three times
- 3 Four times
- 4 More than four times per week

C. In the last week, how many nights did you get **less than your normal** amount of sleep?

- 0 Once or less
- 1 Twice
- 2 Three times
- 3 Four times
- 4 More than four times per week

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3. In the last week, have you had any illness with a fever (>101°F) or digestive problems such as vomiting or diarrhea?
- 0 No illness present
 - 1 Less than 1 day in duration
 - 2 Lasting about 2 days
 - 3 Lasting about 3 days
 - 4 More than 4 days in duration

4. When you compete, what is your level of motivation?
- 0 None, I don't want to compete
 - 1 Motivated some of the time
 - 2 Motivated most of the time
 - 3 Highly motivated most of the time
 - 4 Highly motivated all the time

5. In the past 3 months, what was your **average** intensity and duration of your cardiovascular training?
(Circle highest)
- 0 Intense training more than 90 min/week
 - 1 Intense training 30 – 90 min/week
 - 2 Moderate training 30 – 90 min/week
 - 3 Light training more than 90 min/week
 - 4 No activity or Light training less than 90 min/week

Light (6 – 11 on Borg scale) = Extremely light, or very light (easy walking slowly at a comfortable pace)

Moderate (12 – 14 on Borg scale) = Somewhat hard (it is quite an effort; you feel tired but can continue)

Intense (15 – 20 on Borg scale) = Heavy or very strenuous, and you are very fatigued, extremely hard (you can not continue for long at this pace), or maximal exertion

6. Of the cardiovascular training reported in question 5, what **percent of your training** was performed outdoors in the following conditions? (Circle highest)
- 0 At least 75% of my training was outdoors between 10 am and 4 pm in Hot, Humid conditions
 - 1 50 - 74% of my training was outdoors between 10 am and 4 pm in Hot, Humid conditions
 - 2 Less than 49% of my training was outdoors between 10 am and 4 pm in Hot, Humid conditions
 - 3 50% or more of my training was outdoors before 10 am/after 4 pm in Hot Humid conditions or between 10 am and 4 pm in Warm, Dry conditions
 - 4 Less than 49% of my training was outdoors in Warm, Dry conditions or I train in Air Conditioning

Hot, Humid = Greater than 85 °F and 68% relative humidity

Warm, Dry = Between 70 and 84 °F and less than 68% relative humidity

Training History:

Training duration at current geographic location: _____ days / months / years (circle one)

Previous geographic location (City, ST): _____

Training duration at previous geographic location: _____ days / months / years (circle one)

7. A. What products (including medications, drugs, herbs, or supplements) do you consume?
- | | |
|-------------------------------------------------------------------------|------------------------------------------------------|
| <input type="checkbox"/> cold medicine, anti-asthma, or anti-histamines | <input type="checkbox"/> anti-depressant medications |
| <input type="checkbox"/> Ritalin™ or other stimulants | <input type="checkbox"/> diuretics or “water pills” |
| <input type="checkbox"/> ephedra (ma huang, pseudoephedrine) | <input type="checkbox"/> creatine or amino acids |
| <input type="checkbox"/> Red Bull™ or other “energy drinks” | <input type="checkbox"/> Alcohol |
| <input type="checkbox"/> Other? <i>Be specific:</i> _____ | |

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Of the products identified above, how much/how often are these products consumed on a cumulative daily basis? *Specify the type/ brand/ amount consumed:*

- B. Using dose or serving size recommended by manufacturer, identify cumulative amount consumed:
(Circle highest)
- 0 Less than 1 dose or serving/day
 - 1 About 2 doses or servings/day
 - 2 About 3 doses or servings/day
 - 3 About 4 doses or servings/day
 - 4 Greater than 4 doses or servings/day

Part 2. Resting Baseline Information

ATC INSTRUCTIONS: Record the information and circle the number according to the following signs of Exertional Heat Illness

8. Baseline hydration level. *Measure urine specific gravity using clinical refractometer (preferably).*

Method used to determine USG (Circle one). Refractometer / Dip sticks / Other (*Specify*) _____

Athlete's baseline hydration level. (Circle one)

- 0 Less than 1.014
- 1 Between 1.015 – 1.019
- 2 Between 1.020 – 1.024
- 3 Between 1.025 – 1.029
- 4 Greater than 1.030

9. Body Mass Index = (body mass in kg/height in cm x height in cm) x 10,000 = kg•cm⁻²

Record the following: Gender M / F Body mass _____kg Height _____cm Age _____yr

Use the online calculator at: <http://www.halls.md/body-mass-index/av.htm> and record the following:

BMI: _____ and Percentile Rank _____

Athlete's Body Mass Index. (Circle one)

- 0 Less than 25th percentile
- 1 26-40th percentile
- 2 41-60th percentile
- 3 61-84th percentile
- 4 Greater than 85th percentile

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10. VO_{2max} Run Test. Athletes **MUST** be cleared for participation by a physician. This task should be performed prior to the beginning of pre-season practices. After a warm up, have the athlete walk or run as fast a possible for exactly 12 minutes.

Enter the distance s/he was able to reach in 12 minutes: _____ m.

Use the following calculation (Distance covered in meters - 504.9) ÷ 44.73 or the following online calculator to estimate the VO_{2max} : <http://www.brianmac.demon.co.uk/gentest.htm>

Estimated VO_{2max} : _____ ml/kg/min

Athlete's estimated VO_{2max} . (Circle one)

- 0 Superior > 52.4
- 1 Excellent 46.5-52.4
- 2 Good 42.5-46.4
- 3 Fair 36.5-42.4
- 4 Poor < 36.4

Reference: The Physical Fitness Specialist Certification Manual, The Cooper Institute for Aerobics Research, Dallas TX, revised 1997 printed in Advance Fitness Assessment & Exercise Prescription, 3rd Edition, Vivian H. Heyward, 1998.p48. (For Males 20-29 years old).

IF INFORMATION IS AVAILABLE: Has this athlete been tested for Sickle Cell Trait? YES / NO

If YES, what were the results? NEGATIVE / POSITIVE (circle one)

Is this self-report data from athlete? YES / NO (circle one)

Part 3. Assessment of Exertional Heat Illness (EHI) Risk Factors

ATC INSTRUCTIONS: Add the points for each question to determine this athlete's risk of EHI.

Total Score: _____

Number of Questions scoring 4 _____

Total Score	Risk	Recommendations for Exercise in Hot, Humid Environments
30 – 44 or score of 4 on 3 or more questions	High	This athlete is a cause for concern. Reduce intensity and duration of exercise in Hot, Humid Environments and monitor this athlete closely. Strictly follow established guidelines for provision of ample fluids and rest in the shade.
15 – 29	Moderate	There is less of a concern for this athlete; however, risk exists. Follow recommended guidelines for work:rest ratios and provide ample fluids and rest in the shade.
0 – 14	Low	This athlete is least at risk; however, risk exists. Provide ample fluids and rest in the shade according to established guidelines.

This Athlete's risk of EHI: HIGH MODERATE LOW (circle one).

Appendix. Final Heat Illness Screening Instrument

Abbreviations: ATC, certified athletic trainer; EMT, emergency medical technician; USG, urine specific gravity; VO_{2max} , maximal oxygen consumption.

Reference for Borg scale: Borg.²⁵

Manufacturers: Ritalin (Novartis International AG, Basel, Switzerland); Red Bull (Red Bull North America, Santa Monica, CA).