

What is Heat Illness?

Heat Illness is a general term of physical disorders caused by heat. In general, it is divided into three major illnesses.

Heat Cramps

After excessive sweating, supplementing only water can lead to a low level of sodium. With increased tension built up inside muscles, symptoms of painful cramps in the arms, legs or abdomen muscles occur.

Heat Exhaustions

With dehydration, symptoms of fatigue, weakness, nausea, dizziness, vomiting, headache, etc. occur. A slight fever can be noticed.

Heat Stroke

Due to a failure in body temperature control system, major symptoms of high fever and consciousness disorder occur. A degree of consciousness disorder varies from a mild case of confusion or disorientation to a severe case of coma. Dehydration often occurs. Heat Stroke is the severe case of Heat Illness and it can lead to a cause of death.

● Heat Illness is preventable! –5 principles for the prevention–

1 Adequate exercise for the weather condition

Under the management of University, majority accidental deaths caused by Heat Illness occur during sports activities. In hot season, try to schedule exercise at the coolest time of day. Leaders should make sure that members take a frequent break and stay hydrated (preferably every 30 minutes) when exercising long hours.

2 Frequent hydration

In hot weather, excessive sweating without drinking water can lead to a stage of dehydration that weakens the body temperature control and exercise abilities. Make sure to stay hydrated with not only water but also salt solution with an approximate concentration of 0.2% (preferable) such as sports drink (majority available with 0.1–0.2%). It is recommended to replace the amount of fluid lost by sweating. As sweating amount varies by individuals, weigh before and after exercise to figure hydrating amount.

3 Gradual adaptation to heat

Heat Illness tends to occur when body is exposed to a sudden heat without getting enough time to adapt to it beforehand, such as after rainy season. Until you get used to the heat (take approximately 1 week), begin with light exercise for short period. Then adjust the intensity and duration of exercise gradually. There is a risk of becoming Heat Illness when you come back to exercise intensively and suddenly after taking days off for exams, sick etc., or on the first day of sports camps.

4 Wear light clothes and hat and avoid direct sun

Choose light clothes with breathable materials to wear in hot weather. Make sure to wear hat when you stay outside under direct sunlight. When you wear protective gear (e.g. for Kendo(Japanese fencing) or American football), loose them to release the heat off during rest time.

5 Pay attention to those who are weak against heat because of conditions like obesity.

It is necessary to acknowledge that heat tolerance varies by individuals. Those who show a sign of obesity or poor physical strength, those haven't adapted to heat or have experienced of Heat Illness can be specially weak against heat. Thus plan their exercises to be light to be cautious. In fact, under the management of University, more than 70% of accidental deaths caused by Heat Illness has happened to people of obesity.

Physical weakness can lower body temperature control and increase the probability of getting Heat Illness. When you find someone including yourself with symptoms of fatigue, lack of sleep, fever, diarrhea etc., do not force them to exercise.

Heat Illness First Aid Flow Chart

Symptoms of Heat Illness

○ Nausea/Faint ○ Muscle pain/Cramps ○ Excessive sweating ○ Headache/Uneasiness/Nausea/ Vomiting/
Fatigue/Weakness ○ Consciousness disorder/Numbness/Difficulties of moving arms and legs ○ High fever

1 Consciousness?

Yes

2 Lower body temperature

- Move to cool areas
- Remove clothes and cool down

3 Ability to drink water on his/her own?

Yes

4 Replacement of fluids(water and salt)

5 Condition is not improved

No or uncertain

2 Call for ambulance

While waiting for ambulance

3 Lower body temperature

- Move to cool areas
- Remove clothes and cool down

6 Take to a hospital

No

熱中症発生の危険度

相対湿度(%)

	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
40	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	43	44
39	28	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42	43
38	28	28	29	30	31	32	33	34	35	35	36	37	38	39	40	41	42
37	27	28	29	29	30	31	32	33	34	35	35	36	37	38	39	40	41
36	26	27	28	29	29	30	31	32	33	34	34	35	36	37	38	39	39
35	25	26	27	28	29	29	30	31	32	33	33	34	35	36	37	38	38
34	25	25	26	27	28	29	29	30	31	32	33	33	34	35	36	37	37
33	24	25	25	26	27	28	28	29	30	31	32	32	33	34	35	35	36
32	23	24	25	25	26	27	28	28	29	30	31	31	32	33	34	34	35
31	22	23	24	24	25	26	27	27	28	29	30	30	31	32	33	33	34
30	21	22	23	24	24	25	26	27	27	28	29	29	30	31	32	32	33
29	21	21	22	23	24	24	25	26	26	27	28	29	29	30	31	31	32
28	20	21	21	22	23	23	24	25	25	26	27	28	28	29	30	30	31
27	19	20	21	21	22	23	23	24	25	25	26	27	27	28	29	29	30
26	18	19	20	20	21	22	22	23	24	24	25	26	26	27	28	28	29
25	18	18	19	20	20	21	22	22	23	23	24	25	25	26	27	27	28
24	17	18	18	19	19	20	21	21	22	22	23	24	24	25	26	26	27
23	16	17	17	18	19	19	20	20	21	22	22	23	23	24	25	25	26
22	15	16	17	17	18	18	19	19	20	21	21	22	22	23	24	24	25
21	15	15	16	16	17	17	18	19	19	20	20	21	21	22	23	23	24

表にWBGT値を示します。

28℃以上では、熱中症が発生する危険性が増加します。

環境省熱中症予防情報

<http://www.wbgt.env.go.jp/>

で全国各地のWBGT値の速報
を見ることができます

WBGT値	注意 25℃未満	警戒 25℃～28℃	嚴重警戒 28℃～31℃	危険 31℃以上
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(ここで、28℃～31℃は、28℃以上31℃未満の意味)

(日本生気象学会「日常生活における熱中症予防指針」Ver.1 2008.4 から)

参考サイト

日本スポーツ振興センター「熱中症を予防しよう」

https://www.jpnsport.go.jp/anzen/Portals/0/anzen/anzen_school/H30nettyuusyouPamphlet/h30nettyuusyou_all.pdf

学校、スポーツ活動における熱中症の予防について説明されています。

環境省「熱中症 環境保健マニュアル」

http://www.wbgt.env.go.jp/heatillness_manual.php

量がありますが、詳細に書かれていて十分な知識が得られます。

環境省熱中症予防情報サイト(WBGT値)

<http://www.wbgt.env.go.jp/>