Chapter 13 Ensuring physical education and sports safety

Section 1 Introduction

Accidents happen often in physical education and sports even if safety measures are well implemented. Therefore, there is a need for advanced danger prediction and prevention (i.e., obligation to quickly stop an action or behavior when it is deemed dangerous) in physical education and sports. This should be considered by both the managing body and students of the university. Additionally, with the exception of special cases such as classes, self-responsibility is the general principle in sports. In fact, as previously stated, harmful actions could happen during sports, without necessarily violating a sports rule. Therefore, self-responsibility manifests in the fact that every participant is aware of the risk factors, and that they joined the activity with their own will and consent. Sports could be dangerous, but there is much to be gained from them. Therefore, the concept of the permissible danger doctrine was applied. Similar to driving a car, the same safety consideration obligations are required in sports.

From Section 2 onwards, the precautions for ensuring the safety for each facility are described.

Section 2 Pool

Figure 13-1 shows the details of an accident that occurred during a swimming class. The breakdown of accidents includes diving accidents, drowning accidents, and sudden death.

Previously, there was a lawsuit in a private sports club where a member with a pre-existing heart condition died after developing a heart disorder while swimming alone, and the lifeguard had left the location and was late to discover the situation. At our university pool, swimming members are constantly monitored, so even in the unlikely event of an incident, the discovery will not be delayed. However, if the lifeguard is absent for some reason, swimming must be avoided until the lifeguard is back in position. Furthermore, there have been many reports of sudden deaths during swimming that occurred after running. Students who can swim should not be overconfident in their youth and physical strength, and they should pay attention to their physical condition on that day, and carefully conduct preparatory exercises before swimming. Furthermore, if feeling unwell while swimming, then the swimming activity should be promptly ceased, and if necessary, the swimmer must come up to the pool side with the help of lifeguard etc. and keep warm. Simultaneously, based on the situation, the Health Office of the Physical Education and Health Care Center (extension 9824) must be contacted through lifeguard etc.

Accidents during swimming while under school management

Diving accidents	Drowning	Sudden death	Other
44%	20%	25%	11%

Circumstances of diving accidents in school pools

Cervical spine injury	Tooth injury	Death
77%	17%	6%

(National Stadium and School Health Center of Japan)

Figure 13-1 Accident during swimming class

Reference: Kenji Hamada: It is because dangerous that let's instruct.

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These also fall under self-responsibility. Only the individual knows their own physical condition. In addition, it is recommended that friends are invited to swim instead of swimming alone.

Diving accidents constitute over 40% of all accidents, and cervical spine injuries account for a little under 80% of swimming accidents. Unlike the percentage of sudden accidents, such as sudden death, this is thought to be an extremely high percentage even though practical guidance is provided during the class. In other words, diving is dangerous because it is a very difficult technique. The pool is equipped with a diving platform, but amateur students are discouraged to dive into the pool regardless of whether they are using the diving platform. Even for students of the swimming club, beginners should follow sufficient instructional procedures before diving into the pool.

Finally, these are some precautions from a hygiene perspective. Recently, bacterial infections have become a hot topic not only in pools but also in various facilities. At our university pool, water is disinfected with general chlorine and a circulation device is used to sterilize the water with ultraviolet rays. However, a large amount of hair or other substances floating in the pool may affect the circulation device. Therefore, swimming caps should be worn while swimming. Additionally, please use the shower before and after swimming.

Below is a summary of the main points to keep in mind for ensuring pool safety.

1) Students should not be overconfident about their physical strength, should pay attention to their physical condition of the moment, and conduct careful preparatory exercises before swimming.
2) When feeling unwell while swimming, student should immediately stop and retire to the poolside to warm up (contact the Physical Education and Health Care Center through a lifeguard).
3) Students should swim with multiple people instead of swimming alone as much as possible.
4) In the unlikely event that the lifeguard is absent, students should refrain from swimming.
5) Never dive in pool.

6) Students should wear a swimming cap while swimming.

7) Students should take a shower before and after swimming.

8) It is recommended for students to swim in places where their feet can reach (though there may be few such locations) to the extent possible. The maximum depth of the university pool is 1.6 m.

Section 3 Indoor physical education facility and training room

The university has an indoor gymnasium, martial arts hall, and training room as indoor physical education facilities. The general principle of self-responsibility, as well as management of physical condition and implementation of preparatory exercises, should be adhered to even when using these facilities.

The indoor gymnasium has a space for two basketball (or volleyball) courts and six badminton courts, and ball games are primarily conducted here. Relatively minor injuries such as sprains and jammed fingers are common in these sports. Severe injuries are rarely reported, unless the rules of the sport are violated significantly.

For example, badminton doubles are played by four people, but the size of the court is also regulated according to those rules. It is very dangerous for six people to play badminton on the court, even for practice, due to potential incidents such as hitting the body with a racket. As mentioned earlier, danger avoidance based on danger prediction are required when we play sports. In the indoor gymnasium, activity status should be constantly reviewed from the perspective of danger, and sports should be played based on the correct rules (please note that special precautions during the hot summer months will be mentioned for the outdoor physical education facilities).

The martial arts hall mainly involves martial arts club activities such as the judo, kendo, and karate clubs. Light sports such as table tennis are held on the board space. Precautions for students in each club that use the martial arts hall are mentioned.

For sports like karate, there are cases where excessive training and rule violations sometimes lead to court cases. Table 13-1 summarizes the classification and legal responses from the perspective of the danger of sports. Sports like judo, kendo, and karate are those where the martial arts spirit is learned based on the consideration of the other party by directly attacking the other party's body with hands or tools. However, it is extremely dangerous as it involves physical contact, and violation of the rules leads to illegality. Here, violation of the rules is equivalent to driving a car drunk on the road at 100 km / h.

Table 13-1 Classification and legal responses based on the danger of sport

Characteristics of sports	Applicable sports event	Legal response
Sports that directly attack the opponent's body with hands or tools	Judo, kendo, karate, boxing, wrestling, etc.	Rule violations are illegal
Sports conducted in dangerous places	Mountaineering, swimming, skiing, etc.	Advanced care obligations are required
Sports where some physical contact is expected	Ball games such as rugby, soccer, ice hockey, and baseball	Illegality if there is a significant rule violation

Reference: Tetsuro Sugawara, Sports Law Crisis Management, Eidell Institute (revised by author)

Students who participate in martial arts clubs or those who enjoy it should work hard to be considerate toward the other party, and mind the rules.

The training room has equipment such as treadmills, bicycle ergometers, weightlifting machines, and free weights. It is expected that many students will be free to use this equipment because training is easy to conduct by themselves.

However, considering the danger from the perspective of mechanically applying high loads or using weights, two or more people should be in the training room when in use. It is also encouraged to do physical condition management and careful preparatory exercises that are based on the principle of self-responsibility. Next, some precautions for each equipment are described.

The treadmill is an exercise device that conducts simulated running on a rotating belt. It is recommended that the left and right handles be held to support the body until familiarizing oneself with running in treadmill in order to prevent wobbling and falling. Furthermore, when running while letting go of the handles, it is preferable to run while looking straight ahead and having assistance to increase or decrease the speed. Please note that looking at the belt or looking to the side while running leads to falling. Furthermore, when feeling physical abnormalities or light-headedness while running, students should stop exercising immediately.

The bicycle ergometer is a bicycle-driven exercise device, and the risk of falling is low in this device unlike with a treadmill. However, users can fall from the saddle they are sitting on due to physical abnormalities or dizziness during exercise, so if any abnormalities are recognized, exercise should be stopped.

For treadmills and bicycle ergometers, instruction manuals should be carefully read and understood before using the equipment. Questions about their use should be directed to Shionoya of the Physical Education and Health Care Center (extension 9823, Email: shionoya@vos.nagaokaut.ac.jp).

Training with weightlifting machines and free weights (dumbbells, barbells) must be conducted with an appropriate weight load. There are large individual differences for this, but it is recommended that a weight that could be lifted at least 10 times (i.e., 10 rpm) be set as the starting point. Furthermore, free weight

exercises (especially barbells) must be conducted with at least one assistant. This should absolutely be adhered to so that the training individual does not crush their body (especially their chest) after being unable to lift the barbell. The assistant is in a position where the individual can always reach the barbell being lifted (position above the head when only one person: see Figure 13-2, position of left and right weight plates of the barbell when two people: see Figure 13-3), and should always keep the training individual in mind. When the training individual is tired and unable to lift the barbell, the assistant will promptly support and assist with the barbell. Questions regarding training using the weight machines or free weights should be directed to Shionoya, as mentioned above.

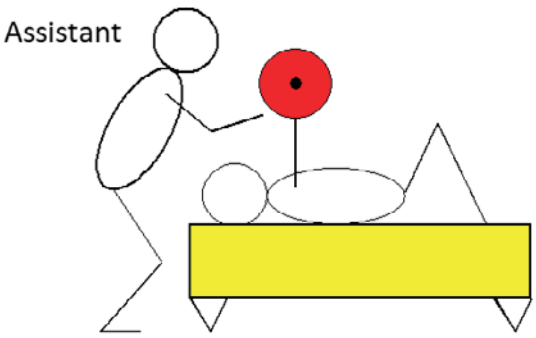

Figure 13-2 Position of assistant (one person)

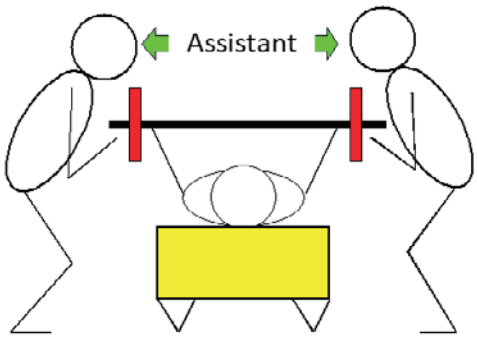

Figure 13-3 Position of assistant (two people)

The following is a summary of the main precautions for ensuring safety in indoor physical education facilities and training rooms.

1) Students should not be overconfident in their physical strength, should pay close attention to their physical condition, and perform careful preparatory exercises prior to their main exercises.
2) If students notice any abnormalities in their physical condition while exercising, they should promptly stop their exercise and contact the Physical Education and Health Care Center if necessary.
3) Students should not violate rules that may be dangerous in ball games performed at the Gymnasium.
4) Judo, kendo, and karate students who are practicing at the martial arts hall should not forget to be considerate of the other party and to comply with the rules due to the dangers related to physical contacts.
5) The training room must be used by at least two people at a given time.
6) Students should be fully aware of how to use the equipment when using a treadmill or bicycle ergometer.
7) Students must have at least one assistant when training with free weights (especially barbells).
8) Questions on usage methods or training methods should be directed to the Physical Education and Health Care Center.

Section 4 Outdoor physical education facilities

The university has a soccer field, baseball field, rugby field, tennis courts (six fields), kyudo-dojo, track field, golf driving range, and multipurpose turf as outdoor physical education facilities.

Even for exercises conducted in the outdoor physical education facilities, students should follow the general principle of self-responsibility and manage their physical condition as well as conduct sufficient preparatory exercises. These are not limited to just within the university but also to physical education and sports activities outside the university.

In Nagaoka City, where the university is located, it snows from December onwards, so the outdoor physical education facilities can be used until November, with peak period goes from June to September. During this time, students need to be mindful of heat stroke due to the hot and humid climate of Nagaoka, particularly in July and August. Heat stroke is a disorder that is caused by the imbalance of water and heat in the body due to heat and where normal function is impaired; this includes heat cramps, heat exhaustion, heat syncope, and heat stroke. Figure 13-4 shows the relationship between temperature/humidity and the risk of heat stroke. Heat stroke is caused not only by high temperatures but also high humidity. The risk of heat stroke increases when the temperature is 29 °C or higher or when the humidity is 90% or higher even when the temperature is low. Students need to pay attention to this not only in outdoor physical education facilities but also in indoor physical education facilities such as the gymnasium, which may not be well-ventilated.

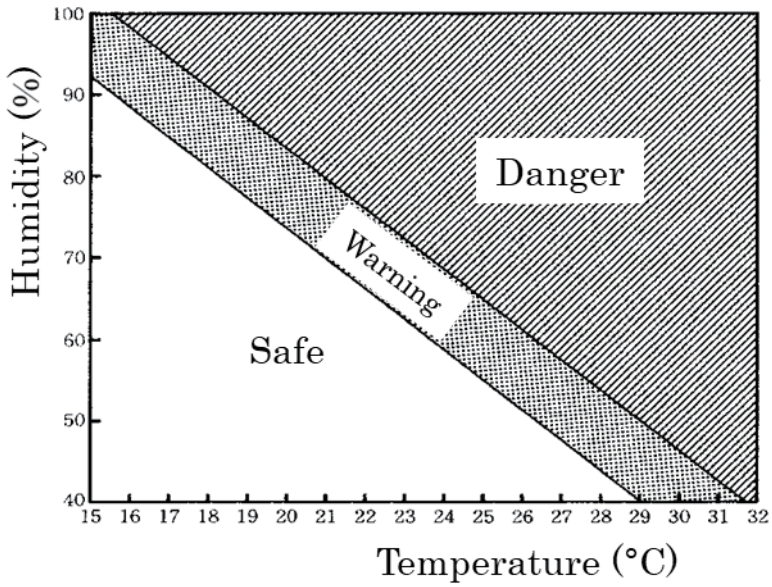

Figure 13-4 Relationship between temperature / humidity and risk of heat stroke
Reference: Hidetoshi Nomaguchi, Sports Accidents and Safety Measures. Baseball Magazine.

Risk factors for heat stroke are (1) playing sports over a lsong period (2) insufficient hydration, (3) rapid rise in air temperature, (4) high temperatures (29 °C or higher), and (5) high humidity (90% or higher), as well as the lack of self-responsibility, i.e., (6) continuing exercising with poor physical conditions.

Heat stroke prevention includes (1) providing sufficient hydration during sports activities, (2) avoiding sports during times of strong sunlight, (3) resting when feeling unwell, and (4) wearing clothes with good airflow. If feeling dizziness, headache, or nausea, then students should move to a well-ventilated and shady area such for rest (reference: Hidetoshi Nomaguchi, Sports Accidents and Safety Measures. Baseball Magazine). If symptoms are more severe, students should contact the Health Office of the Physical Education and Health Care Center (extension 9824). Please refer to the reference above and the webpage on heat stroke (http://www.japan-sports.or.jp/tabid/523/Default.aspx) for detailed information.

Lightning strikes are mentioned as a problem that is unique to outdoor physical education facilities. An average of 60 lightning strikes occur annually, and accidents during sports also occur. In terms of the frequency of occurrence, golf is the most common sport where such strikes occur, followed by soccer, rugby, and tennis, suggesting that this is an event that could occur the university's outdoor physical education facilities. Additionally, carbon fiber reinforced plastic (CFRP) using carbon fiber is the main type of sports equipment these days, but it has been statistically reported that carbon products have been involved in many lightning strikes. CFRP is used for golf clubs, tennis rackets, baseball (metal) bats, bows, etc. Students should be careful when using such equipment.

Safety measures against lightning strikes include (1) evacuating to a building or a car, (2) moving to a safe place even when a distant thunderstorm occurs, (3) sheltering in place, (4) using a large object (height of four meters or more) for protection (i.e., two meters or more away from the object and at an elevation angle of 45 degrees or less) and lowering posture as much as possible, (5) evacuating to a dry location, (6) avoid gathering in one location, and (7) letting go of protruding items (e.g., bats, rackets) (reference: Hidetoshi Nomaguchi, Sports Accidents and Safety Measures. Baseball Magazine).

Please refer to the above reference for information on lightning strikes.

Finally, safety measures at the golf course are described. Figure 13-5 shows the tee ground at a private golf course. The size of the tee ground may differ slightly based on the golf course; however, as shown in the figure, the magnitude and degree of safety confirmation obligations vary depending on whether the tee ground is separated (or not), whether the tee ground and moving space are separate (or not), etc. Many accidents at the golf course are caused by the club that is swung at the tee ground striking another person. Thus, the person trying to swing the club must pay close attention to their surroundings, including their back and perform a safety check before swinging. Simultaneously, the surrounding people must also pay close attention to the movements of the person who is about to swing the club. Furthermore, if there is no clear separation between the tee ground and the moving space, then the person who is about to swing the club needs to be careful and conduct safety checks.

The same incidents can occur on tennis courts as well.

The following is a summary of the main points to keep in mind for ensuring safety in outdoor physical education facilities.

1) Students should not be overconfident in their physical strength, should pay close attention to their physical condition, and perform careful preparatory exercises prior to their main exercises.
2) If students notice any abnormalities in their physical condition while exercising, they should promptly stop their exercise and contact the Physical Education and Health Care Center if necessary (same as for pools and indoor physical education facilities up to this point).
3) Students should be able to take preventive measures against heat stroke.
4) Students should be able to take preventive measures against lightning strikes.
5) Students should not forget to be careful and ensure safety checks at the golf course.

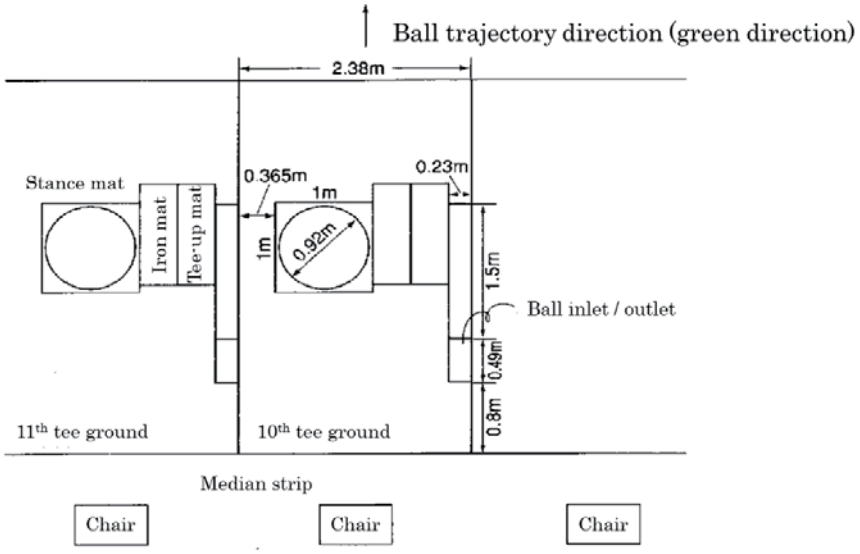

Figure 13-5 Tee ground at private golf course

Reference: Koichiro Mochizuki, “Cases of injury at golf courses” Security Sports Life. Vol. 4

The measures for ensuring safety in physical education and sports have been described, and new needs will likely emerge depending on the situation. The basis for ensuring safety in such situations involves danger prediction obligations based on self-responsibility and the corresponding danger avoidance obligations (i.e., obligation to immediately stop actions and behaviors that are considered dangerous to avoid that danger), and the ability to do so. By acquiring such abilities, students will likely be able to incorporate physical education and sports activities as part of their enriching student life.