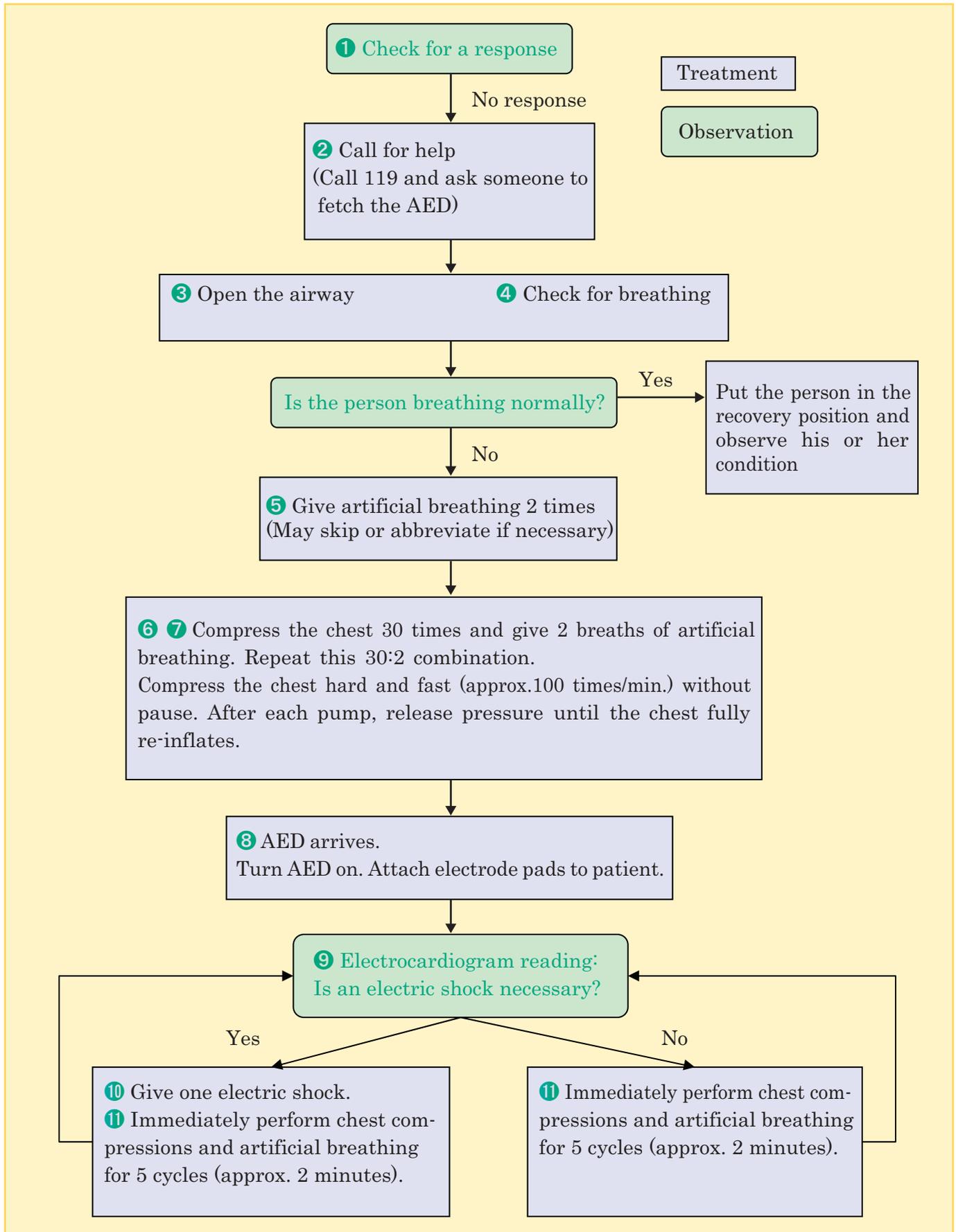


# Lifesaving Procedures

## I Order of lifesaving procedures (giving CPR and using the AED)



## II How to perform lifesaving procedures (giving CPR and using the AED)

### 1 Giving CPR (Cardiopulmonary Resuscitation)

#### 1 Checking for a response

- To check for a response, shout "Are you OK?" or "Hello, can you hear me?" in a loud voice into the person's ear while tapping him or her on the shoulder.

##### Important Points

- If the person does not open his or her eyes to the sound of your voice, reply vocally or otherwise respond in a recognizable manner, assess him or her as "unresponsive."
- If the person responds and is conscious, ask him or her what the problem is and give the necessary treatment.



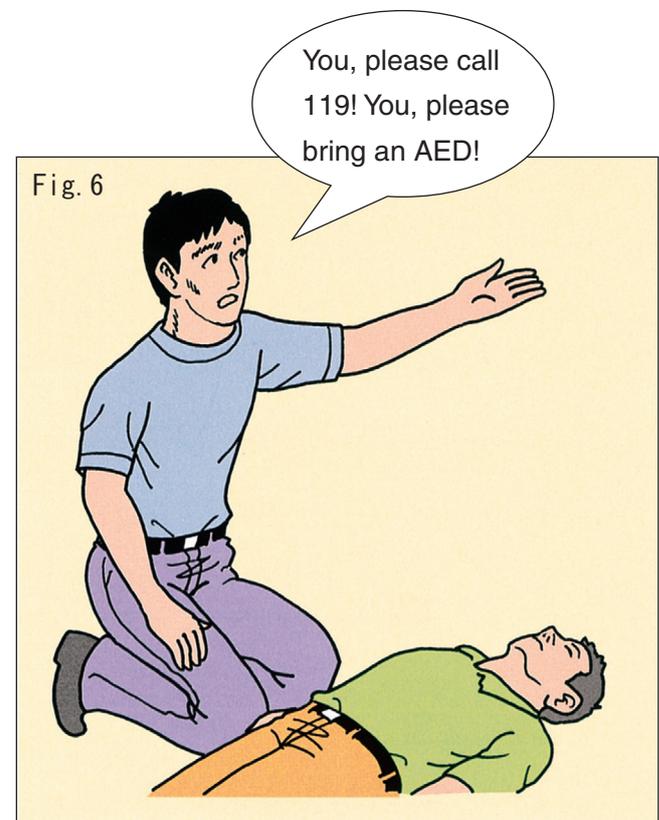
Checking for a response

#### 2 Calling for help

- If there is no response, call for help by shouting out in a loud voice, "Somebody please come and help! This person is hurt!"
- When people come to help you, direct one person to dial 119 and another person to bring an AED (automated external defibrillator).

##### Important Points

- If you are alone as the rescuer or if nobody comes to help, call 119 yourself first before you go to the next step.



Calling 119 and getting the AED

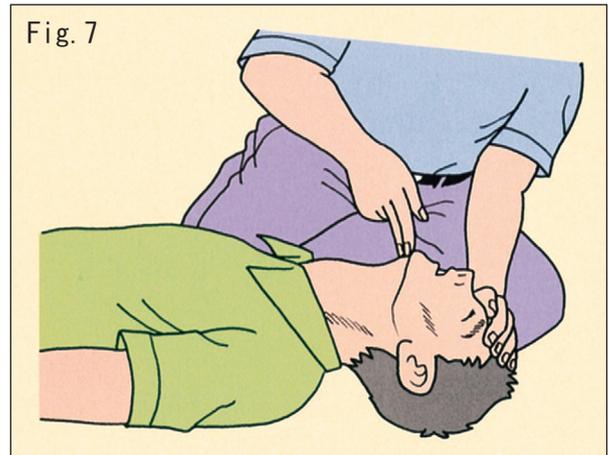
### 3 Opening the airway (head-tilt chin-lift maneuver)

This maneuver opens the back of the throat of the person, making it easier for air to pass into the lungs.

- Place one hand on the person's forehead and the index and middle fingers of the other hand just under the chin (the hard part with the bone). Tilt the head backwards and lift the chin upwards.

#### Important Points

- Do not apply too much pressure to the soft part under the chin.



Head-tilt and chin-lift

### 4 Checking for breathing

Check whether the person is breathing normally or not.

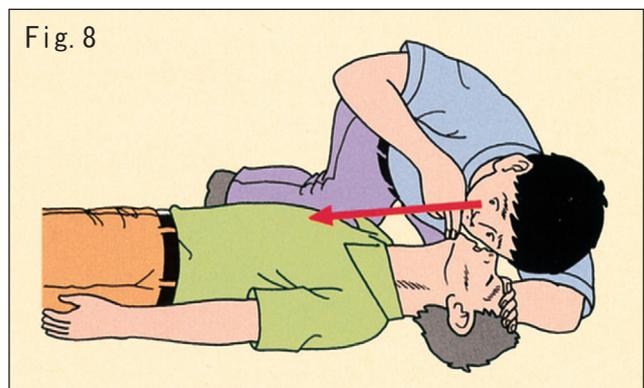
- With the airway open, face the person's chest and bring your cheek close to his or her mouth and nose.
- If the person is breathing normally, within 10 seconds you should: ① See the chest and abdomen rising and lowering, ② hear the person's breathing, and ③ feel the person's breath on your cheek.

#### Important Points

In the following cases, you should conclude that the person is NOT breathing normally:

- If you do not see the chest and abdomen moving and do not hear or feel any breathing.
- If you are unsure of the person's breathing condition after checking for 10 seconds.
- If the person's breathing is irregular, stopping and starting as if he or she is hiccupping.

Intermittent breathing – similar to hiccupping – may be a symptom of cardiac arrest and is called "agonal respiration." Agonal respiration is not normal breathing.

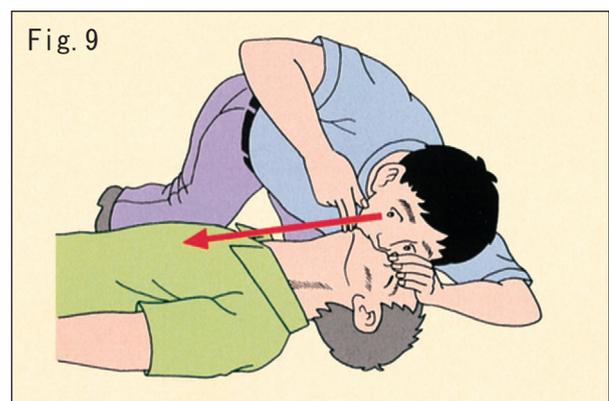


Look, listen and feel to check breathing

### 5 Artificial breathing (mouth-to-mouth resuscitation)

If the person is not breathing normally, blow air into his or her lungs with mouth-to-mouth resuscitation.

- Maintaining an open airway, pinch the person's nose with the thumb and index finger of the hand you put on his or her forehead.
- Open your mouth wide and completely cover the person's mouth. Blow air into the person's mouth for about one second without letting any air escape. Check to see that the person's chest rises.
- Move your mouth away, then repeat the process once more.

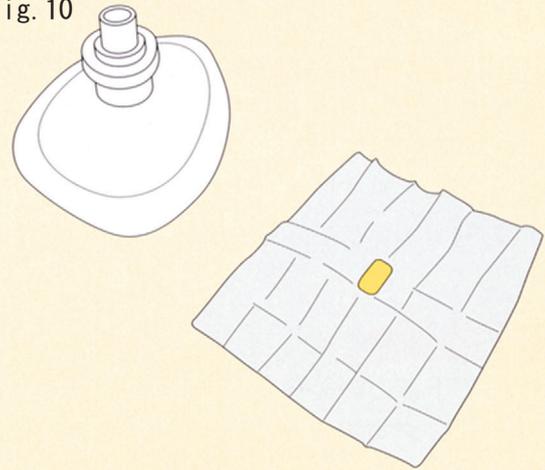


Check to see that the chest rises

### Important Points

- If the chest does not rise with the first breath, reopen the airway and try blowing in again. Even if the chest does not rise, breathe in only up to 2 times, and then move immediately on to compressing the chest.
- If you have a mouth-to-mouth resuscitation apparatus available that would prevent infection of disease (such as a face shield or a mask apparatus with a one way valve), please use it.
- If the person is bleeding or you do not have any resuscitation apparatus and are therefore hesitant to perform mouth-to-mouth resuscitation, skip the artificial breathing and go straight to the chest compressions.

Fig. 10



Mouth-to-mouth apparatuses that can prevent the spread of infectious disease

Fig. 11



Face shield with a one-way valve

Fig. 12

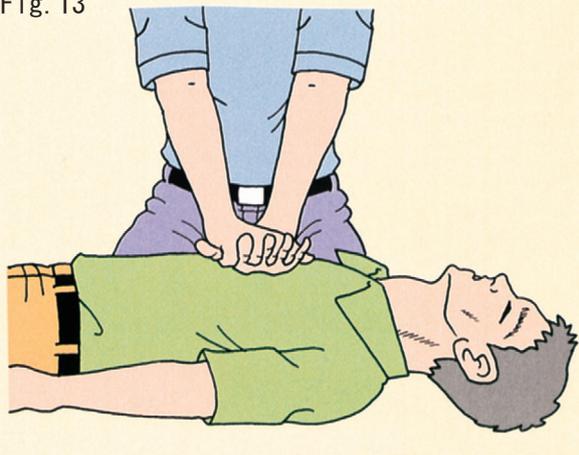


Mouth-to-mouth mask with a one-way valve

## 6 Chest Compressions (Cardiac Compressions)

After giving two breaths of mouth-to-mouth, or after skipping the artificial breathing, immediately begin chest compressions to get the blood flowing through the person's body.

Fig. 13



Chest Compressions

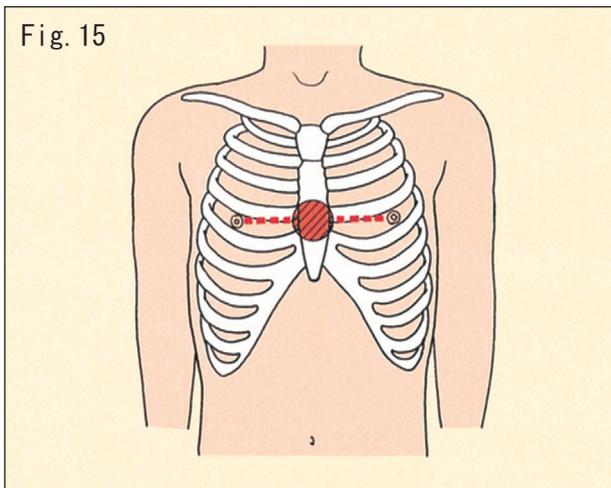
Fig. 14



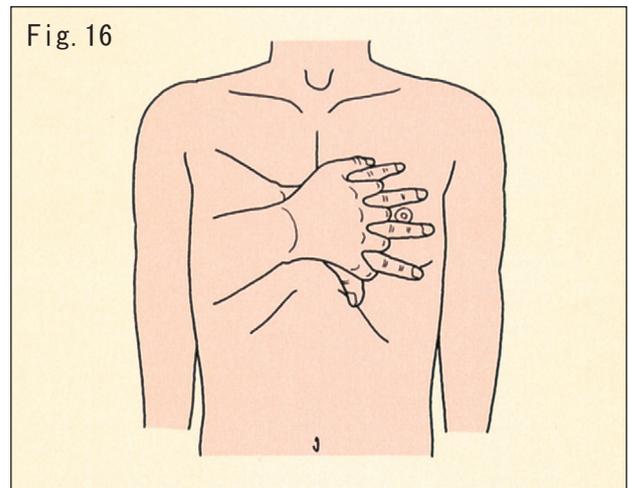
Body posture for chest compressions

● Put one hand over the other and press down on the middle of the chest **hard, fast and without pause**.

- Put the heel of one hand over the middle of the chest right between the nipples.
- Put your other hand on top. Interlocking your fingers will better focus your strength.

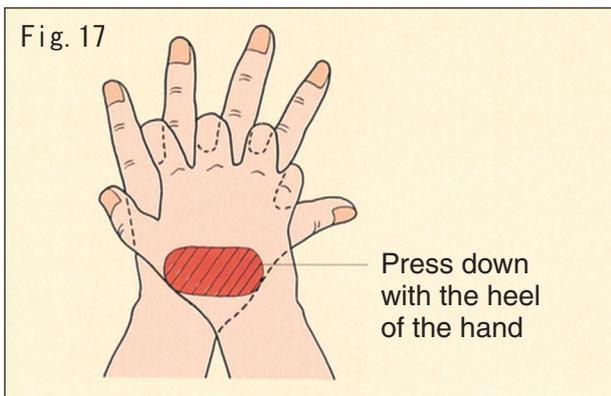


Where to press down on the chest

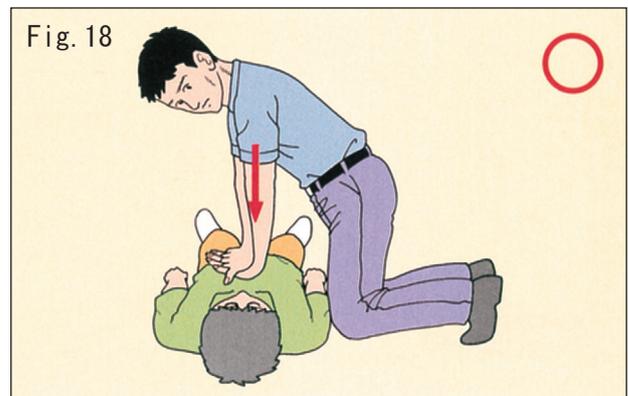


How to position the hands

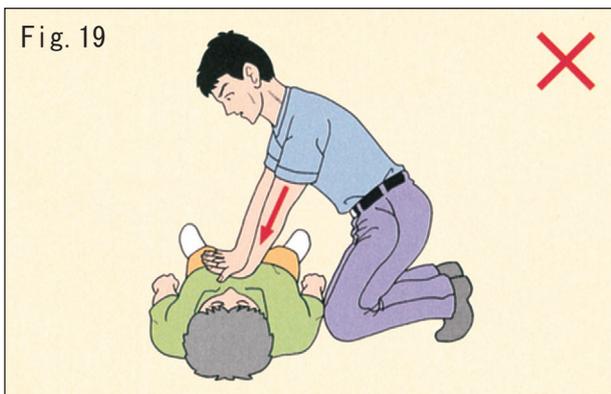
- Keep your elbows straight and push your weight down through the heel of your hand. Press down hard enough that the person's chest compresses by 4~5 cm.
- Press down 30 times without pause at a rate of 100 presses per minute.
- Between each press, release enough pressure for the chest to re-inflate to its original state.



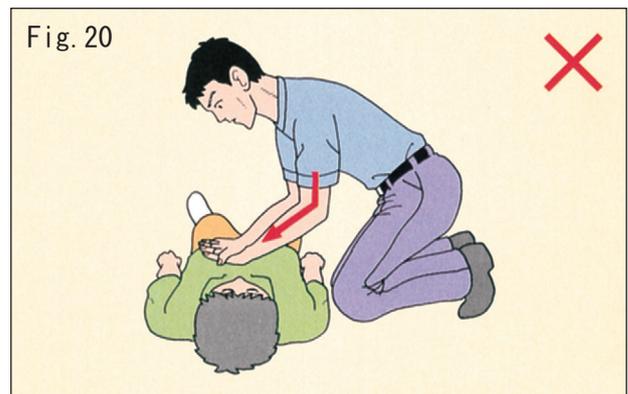
Interlock the fingers and press with the heel of the hand



Push straight down



Do not push diagonally



Do not bend your elbows

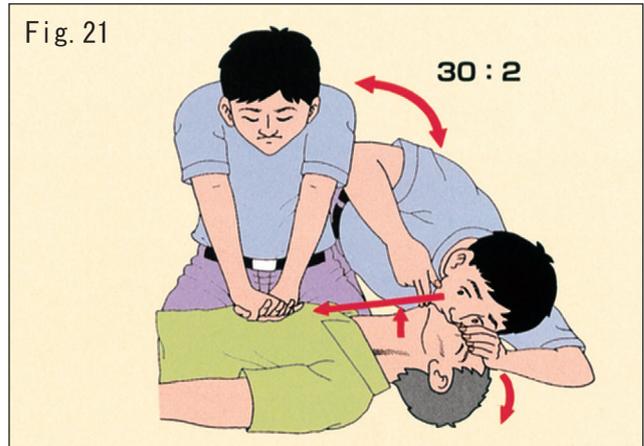
## 7 Performing CPR (combining artificial breathing and chest compressions consecutively)

- After compressing the chest 30 times, give two breaths of mouth-to-mouth breathing.
- Repeat this combination of chest compressions and artificial breathing (in the 30:2 ratio) without pause until the emergency rescue team arrives and takes over.

### Important Points

- If there are two or more people available who can perform CPR, switch every 2 minutes (or every 5 cycles) to avoid getting tired. It is important to keep performing CPR without pause.
- Stop performing CPR when ① the person begins moaning or starts breathing normally, or ② when the emergency team takes over (do not stop CPR when the emergency team arrives. Keep going and calmly follow their directions.)

Fig. 21



Combining chest compressions with artificial breathing

### ☆ 30 Chest Compressions

- Press down the middle of the chest (between the nipples)
- Hard (so that the chest compresses by 4~5 cm)
- Fast (at a rate of 100 presses per minute)
- Without pause (30 times)
- Release pressure between each push (without taking your hands off the body)

### ☆ 2 Breaths of Artificial Breathing (skip in some cases)

- Pinch the nose and breathe in mouth-to-mouth
- Watch for the chest to rise
- Blow for about 1 second each time
- Do this twice

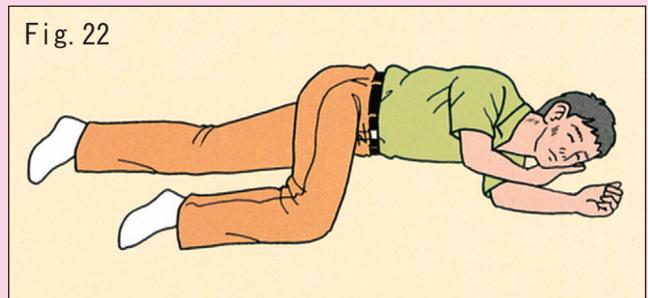
### Important Points

If the person is unresponsive but is breathing normally...

Recovery position

- If the person is unresponsive but is breathing normally, keep the airway open and wait for the emergency team to arrive. If there is a risk of the person suffocating on vomit or other things, or if you have no choice but to leave the person alone, put him or her in the recovery position.
- Put the person on his or her side, put the chin forward and rest the person's face on the back of his or her hand of the upper arm. Bend the upper knee about 90 degrees and position the person so that he or she does not roll over onto his or her back.

Fig. 22



The recovery position

## 2 Using the AED

- If the AED arrives while you are giving CPR, immediately prepare the AED.
- There are many different kinds of AED, but they are all designed to be operated in the same way. When you turn the machine on, a lamp and a recorded voice will give you directions. Please remain calm and follow the directions.

### For your information

The AED can of course be used with adults (those aged 8 and older are considered adults), but can also be used with children between the ages of 1 and 8. The AED cannot be used with infants under 1 year old.

## 8 The arrival and preparation of the AED

- ① Place the AED to the side of the person
  - Put the AED to the side of the person's head. Take it out of its case.

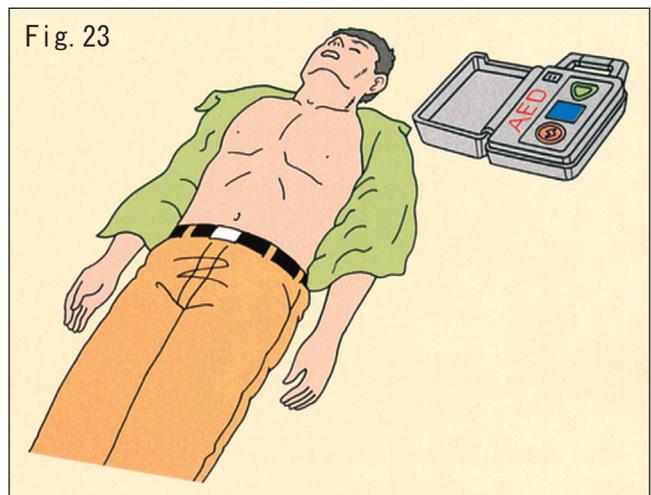


Fig. 23

Where to put the AED

- ② Turn the AED on
  - Open the AED and turn it on. Some machines turn on automatically as soon as you open them.
  - After turning the AED on, follow the recorded directions and lamp signals.

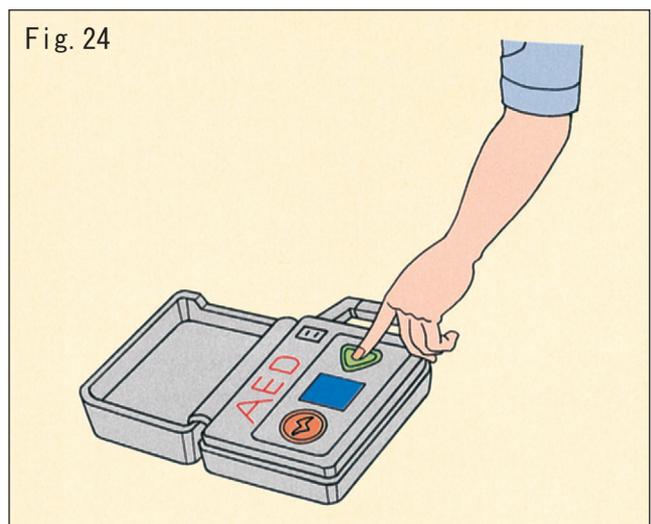


Fig. 24

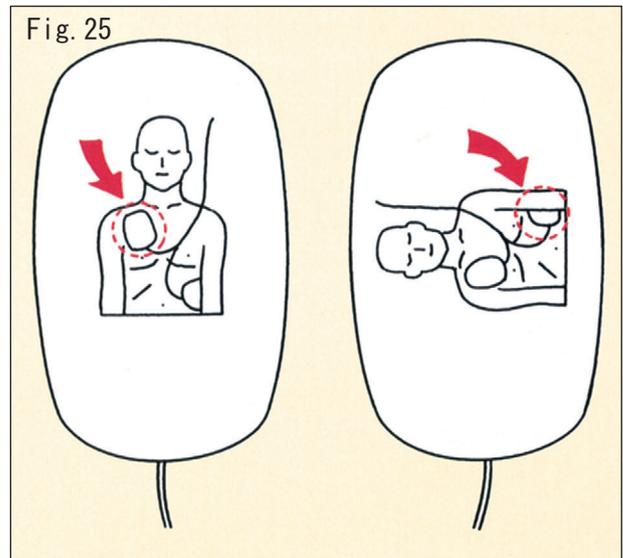
Turn the AED on

### ③ Attach the electrode pads

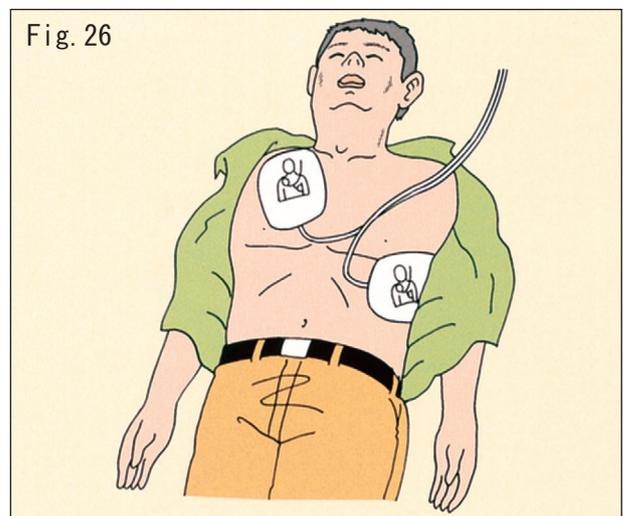
- Open the person's clothes so that the chest is exposed.
- Open the pouch containing the electrode pads and remove the backings from the adhesive sides. Firmly stick the pads to the person's chest according to the diagrams on the pads.
- Some AEDs require you to plug the pad's wires into the AED machine where it is flashing.

#### Important Points

- Stick one pad on the upper right side of the chest (below the right collar bone and to the right of the sternum) and the other one about 5~8cm below the underarm on the left side. Continue chest compressions as much as you can even while applying the pads.
- Press the pads down firmly so that no gap opens up between the pad and the skin. Be careful not to put the pad over any accessories the person may be wearing.
- Sometimes there are 2 different sets of pads—one for adults and one for children. Do not use the children's pads on an adult (adult = someone aged 8 or older).



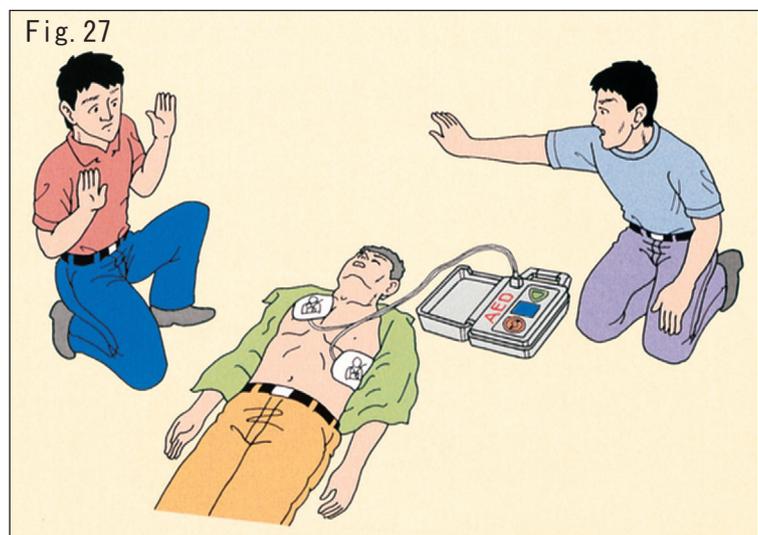
The electrode pads



Where to stick the electrode pads

### ⑨ The electrocardiogram reading

- After you attach the electrode pads, a recorded voice will tell you not to touch the person's body, and the electrocardiogram will automatically take a reading. Tell everyone to move away from the person and make sure that nobody is touching him or her.
- Some machines require you to press a button to start the electrocardiogram reading. A voice will tell you to do so. Please follow its directions.



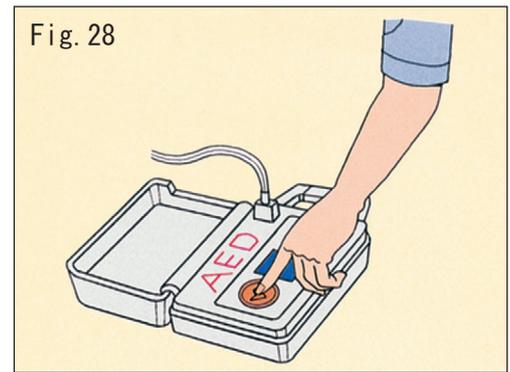
Follow the recorded directions and move away from the person during the electrocardiogram reading

## 10 The electric shock

- A recorded voice will tell you if an electric shock is necessary, and the AED will automatically begin charging itself. The charging will take a few seconds.
- Once the device is fully charged, the shock button will illuminate, and a sound will notify you that the AED is fully charged. It will tell you to press the shock button.
- When the AED is charged, warn everyone to move away and that you will shock the person. Make sure that nobody is touching the person, and press the shock button.

### Important Points

- Make sure that neither you nor anybody else is touching the person when you press the shock button.
- When the person is shocked, the muscles in his or her arms and body will twitch for a moment as if cramping or convulsing.



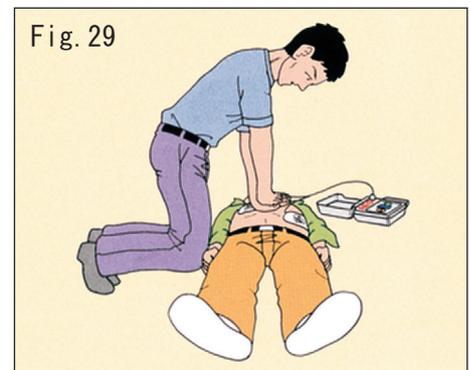
Press the shock button

## 11 Resume CPR

- After the electric shock is completed, a recorded message will tell you to resume giving chest compressions. Follow the directions and give chest compressions. Repeat the combination of 30 chest compressions and 2 breaths of artificial breathing.

### Important Points

- Even when using the AED, it is important to continue performing CPR (chest compressions and artificial breathing) without pause, except for times when you cannot continue, such as when the electrocardiogram is taking its reading or when the AED is giving the person an electric shock.



Immediately resume giving chest compressions

## 12 Repeating operation of the AED and CPR

- When 2 minutes have passed after you resume CPR (roughly 5 cycles of 30 chest compressions and 2 breaths of artificial breathing), the AED will automatically take another electrocardiogram reading. Follow the recorded directions and take your hands off the person. Tell others to move away from the person.
- Repeat steps 9 (electrocardiogram reading), 10 (electric shock) and 11 (resuming CPR) every 2 minutes.

### For your information

#### ● You may stop performing CPR when,

- ① the emergency team takes over. When the emergency team arrives, tell them as much as you know about the conditions of the person, the treatment given (CPR), the number of times he or she was shocked by the AED, etc. The AED will also have automatically recorded the electrocardiogram readings and the number of times it gave electric shocks.
- ② the person starts moving, moaning or breathing normally. However, you may have to reopen the airway, so observe the person carefully until the emergency team arrives. Leave the AED electrode pads on the person and do not turn off the AED.

## What about when...?

### ① Attaching the electrode pads

- Moisture on the chest

If the person's chest is wet, wipe the moisture away with a towel or cloth, and then attach the electrode pads.

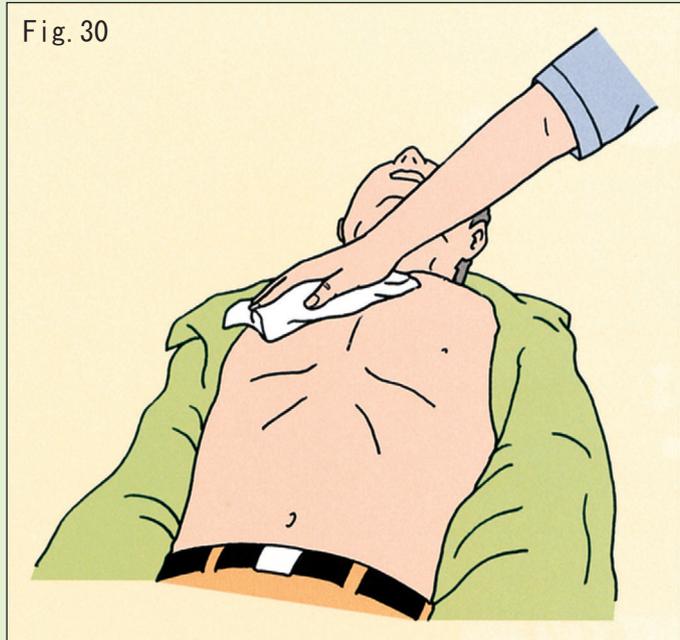


Fig. 30

Wipe away moisture from the chest

- Adhesive medical patches

Adhesive medical patches may contain nitroglycerin or asthma medication. If the person has a patch and it obstructs attachment of the electrode pads, remove the patch, wipe off the medicine, and then attach the electrode pads.

- Pacemakers or defibrillators under the skin

If the person has a pacemaker or defibrillator under the skin, you will notice a raised bump on his or her chest that will feel hard to the touch. If you find such a bump, apply the electrode pads about 3 cm away from it.

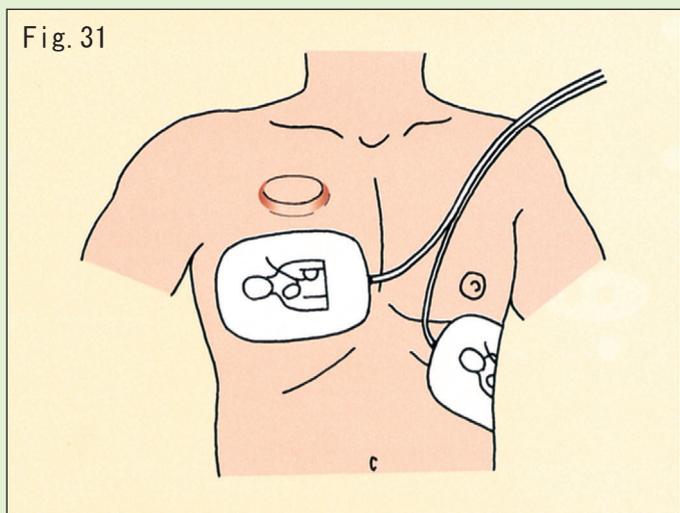


Fig. 31

When the person has a pacemaker or defibrillator under the skin

- Thick chest hair

Thick chest hair may prevent the electrode pads from sticking directly to the person's chest. You may get error messages from the AED such as "Attach the pads firmly" or "The connection is not good." You can try pressing the pads down hard until they stick well, or you can take one pad, stick it to the chest, and quickly tear it off, thereby removing the chest hair. After removing the chest hair, take an extra electrode pad and apply it to the chest.

## ② An electric shock is unnecessary

Following the electrocardiogram reading, a recorded message may tell you that, "An electric shock is unnecessary. Begin chest compressions." If you hear this message, it may mean that defibrillation cannot reestablish the heart's rhythm. Follow the AED's instructions and resume performing CPR, giving 30 chest compressions for every 2 breaths of artificial breathing.

After 2 minutes of CPR (roughly 5 cycles), the AED will automatically take another electrocardiogram reading. Follow the machine's directions.

## ③ The AED's directions differ from the directions in this booklet

Ⓞ Depending on the model, the AED's audio directions may differ from the directions in this booklet. In which case, follow the directions of the AED.

The newest AED models are programmed to operate along the order described in this booklet. After taking an electrocardiogram reading, they will give an electric shock only once and only if necessary, and then direct you to give chest compressions and artificial breathing. After approximately 2 minutes of CPR, they will take another electrocardiogram reading.

Some older models are programmed to operate in a different order from this booklet. They will take an electrocardiogram reading and give an electric shock if necessary, but may then immediately take further electrocardiogram readings and give more electric shocks for a total of up to 3 times, and only then direct you to give chest compressions and artificial breathing.

Newer models of AEDs will continue replacing older models, but if you encounter one of the older models, follow its recorded directions and lamp signals. Give electric shocks as directed. The older models are still effective. No matter how different the models and their orders of operations may be, the important thing is to follow the directions and give the necessary electric shocks.

# Stopping Bleeding

Rapidly losing 20% of one's blood supply causes a serious condition called "hemorrhagic shock," and losing 30% is life threatening. It is therefore imperative to stop bleeding as quickly as possible, and the greater the bleeding, the quicker it must be stopped. The basic method of stopping bleeding is applying pressure directly to the wound.

## Direct Pressure to Stop Bleeding

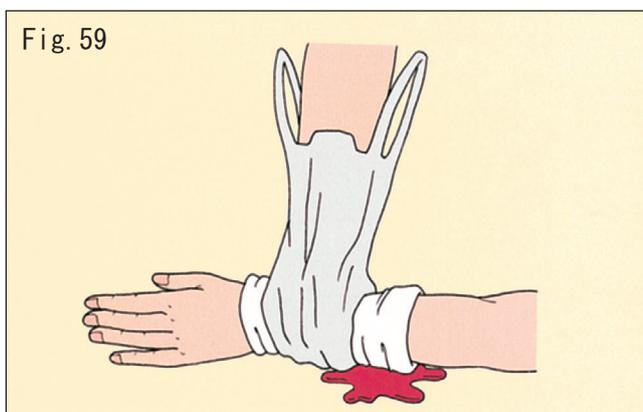
### 1 Check the wound

### 2 Apply pressure to the wound

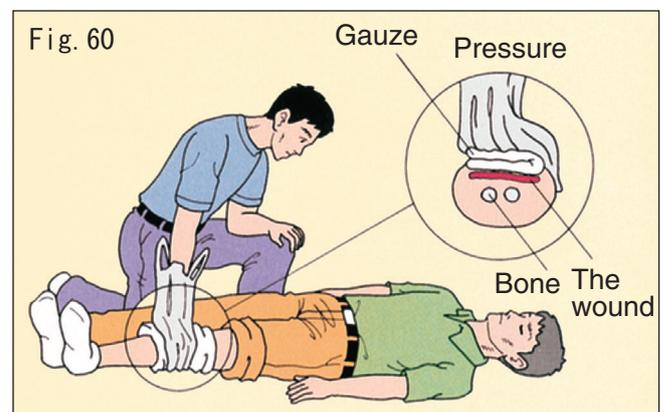
- Apply pressure to the wound with clean gauze, handkerchiefs or towels.
- In cases of heavy bleeding from a large blood vessel, pressure applied with one hand may not be sufficient. If such is the case, apply pressure with both hands and press down on the wound with your body weight.

### Important Points

- Use plastic gloves or bags to cover your hands when applying pressure. In order to avoid infection, do not touch the blood directly.
- Do not use strings or wires to bind limbs, as this may cause injury to nerves and muscles.
- If the gauze continues to get soaked with blood, this may be because you are either applying pressure to the wrong place or you are not using enough pressure.



How to stop bleeding with plastic bags



How to stop bleeding

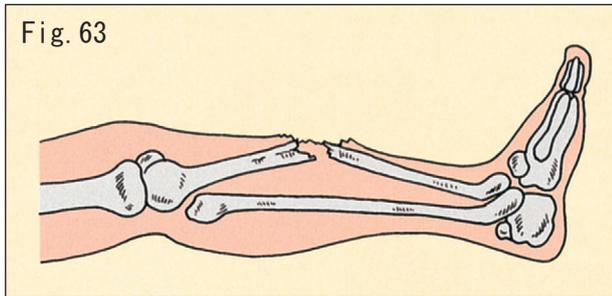
# First Aid for Broken Bones

## 1 Injury check

- Ask where it hurts.
- If possible, check for deformations or bleeding.

### Important Points

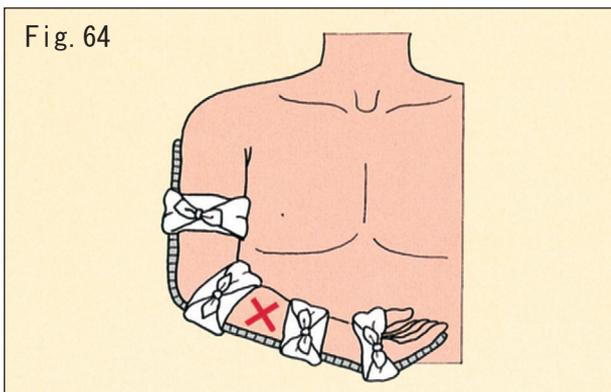
- When checking, do not unnecessarily move the painful area.
- Check the condition of the injury (severe pain, swelling, inability to move, deformation, bone protrusion).
- If you suspect a fracture, treat the injury as a fracture.



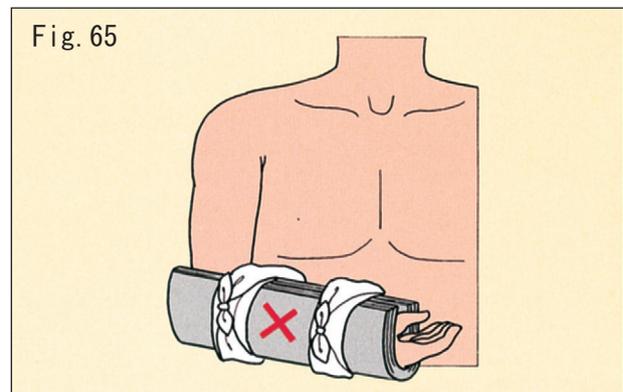
Fracture

## 2 Stabilization (splints, slings, etc.)

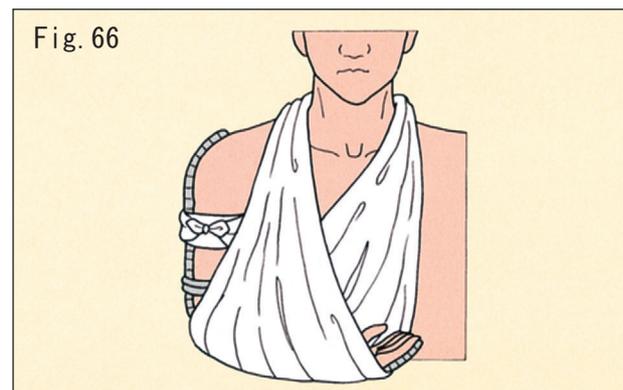
- If there is a deformation, do not attempt to force it to its original position.
- If there is someone there to help you, have him support the injured body part.
- If the injured person can support her injured limb or body part herself, ask her to do so.
- Attach a splint.
- Bind and stabilize the splint.



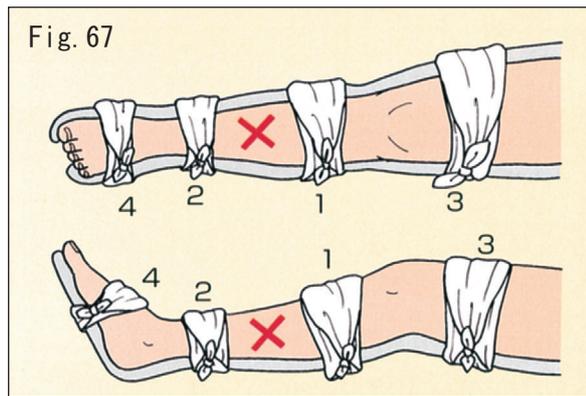
Stabilization of the arm



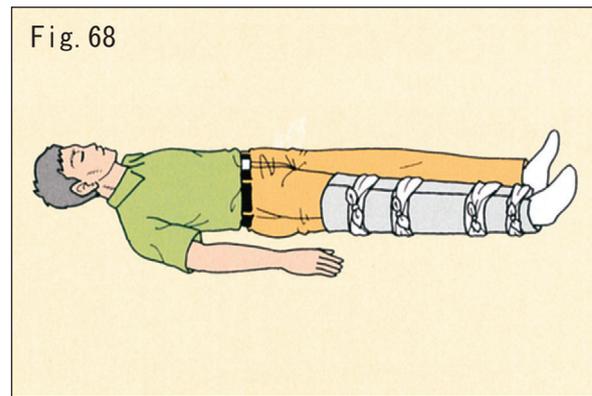
Stabilization of the forearm with magazines



Suspending the arm with a sling



Stabilization of the leg



Stabilization of the lower leg with cardboard, etc.

### Important Points

- Splints should be long enough to immobilize the joints on either side of the fracture.
- Inform the injured person before immobilizing a limb. Observe the color and expression of her face as you immobilize the limb.

## First Aid for Sprains and Bruises

- Cool the affected area with cold water or something else cool. This will reduce internal bleeding and swelling.

## First Aid for Cuts and Scrapes

### 1 Treating the wound

- If the wound is dirty, clean away the dirt with clean water.

### 2 Dressing the wound

- Bandages protect the wound and prevent bacterial infection.
- Use a bandage big enough to cover the entire wound.
- If the wound is still bleeding, use thick or layered gauze.
- If the wound is open, use sterilized gauze. Do not use absorbent cotton or anything dirty.

### Important Points

- Please be careful when dressing wounds. Applying bandages too tightly may cut off circulation, but applying them too loosely may allow them to slip.
- Do not tie the knot directly over the wound.

### 3 Triangular bandages

- Triangular bandages can be used on any part of the body.
- You can use them no matter how big the wound is.
- First cover the wound with gauze, then use a triangular bandage to keep it in place.

## Moving a Victim

There are several ways to carry the sick and wounded after they have received first aid or when they need to be moved from a dangerous location. When carrying a victim, it is important to be careful not to inflict any additional pain.

### Carrying by Stretcher

- When carrying someone on a stretcher, it is important to keep the victim warm and to always carry him with his feet in front. Minimize any shaking or swinging as you carry him.

### Carrying by Hand (without a stretcher)

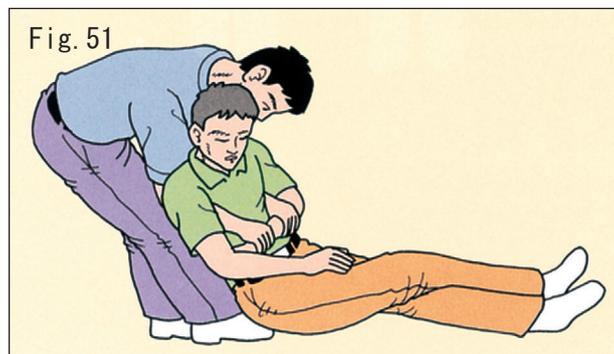
- In places or situations where it is impossible to use a stretcher, it becomes necessary to carry a victim from the scene of the accident to a safer place by hand.

#### Important Points

- No matter how carefully you do it, carrying by hand places great strain on the sick and injured. Do it only when absolutely necessary.

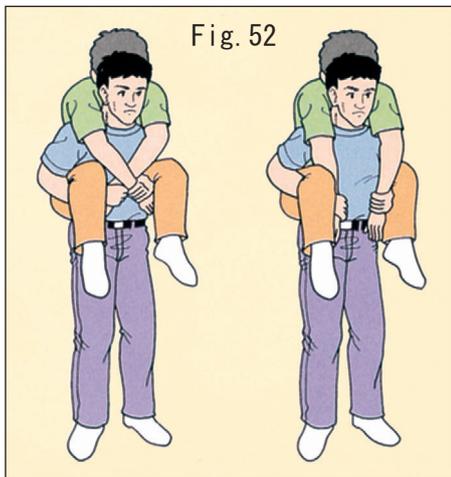
### 1 How to move someone alone

- Hold the person from behind and pull him backwards, raising his buttocks.



Moving someone alone

- Carry the victim on your back and hold both of her hands, keeping her arms parallel or crossed as in Figure 52.
- Small children, babies and people of small build may be easier to carry across the chest as in Figure 53.



Carrying someone on your back

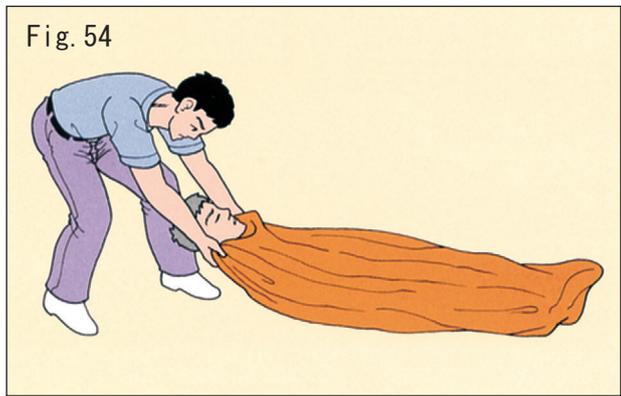


Carrying someone across your chest

- There is also a method of moving people using a blanket or sheet, but be careful not to put pressure on the chest.

**Important Points**

- Except when absolutely necessary, avoid carrying someone alone.



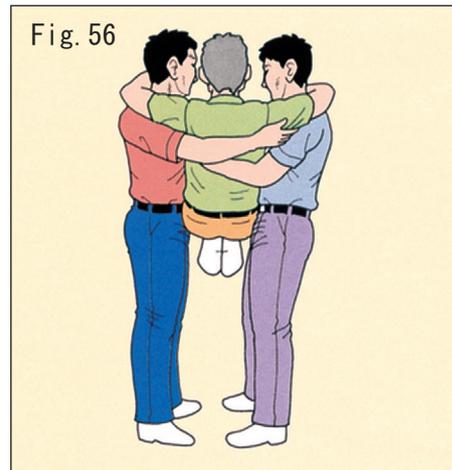
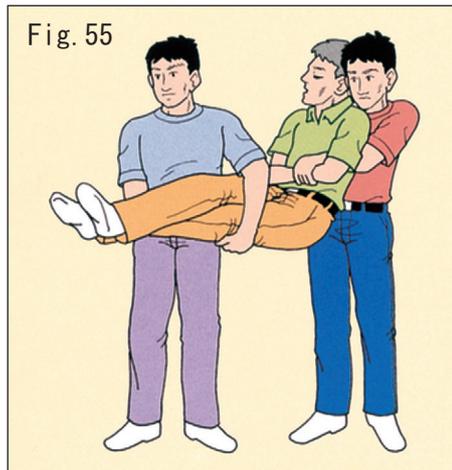
Carrying someone with a blanket

## 2 How to move someone in pairs

- One method is for one person to carry the person's legs and the other to carry her torso, as in Figure 55.
- Another method is for the two carriers to cross their arms when holding the person, as in Figure 56.

### Important Points

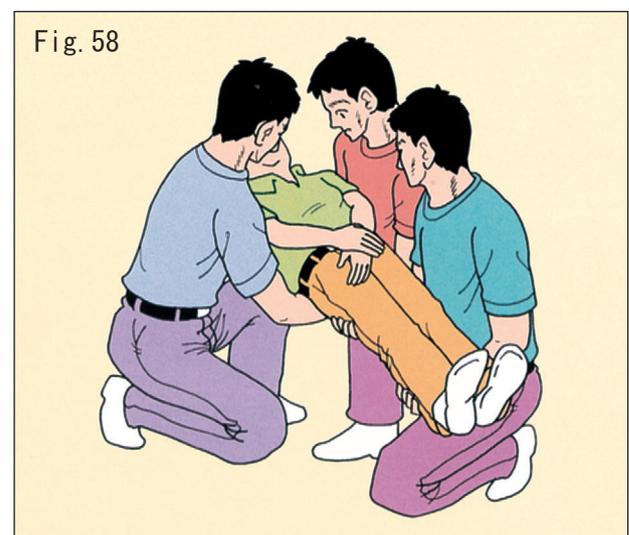
- As the person's neck may fall forward, make sure to secure the respiratory tract.
- Keep in step with each other to avoid shaking the person.



Carrying someone in pairs

## 3 How to move someone in threes

- Kneel down as in Figure 57. Your knee that is closer to the victim's feet should be on the ground. Your knee that is closer to his head should be up.
- Stick your arms far underneath the victim's body as in Figure 58.
- All three carriers must move simultaneously.



Carrying someone in threes

## First Aid for Burns

Burns are caused by coming into direct contact with hot water, oil, flames, kettles and other hot items. Items that do not feel too hot, like hot water bottles, can still cause low temperature burns if kept in direct contact with the skin for long periods of time. Chemicals like hydrochloric acid can cause chemical burns.

### 1 First Aid for Burns

- Cool the affected area with water. It is important to immediately cool the burn with water. This not only reduces pain, but also prevents the burn from getting worse.

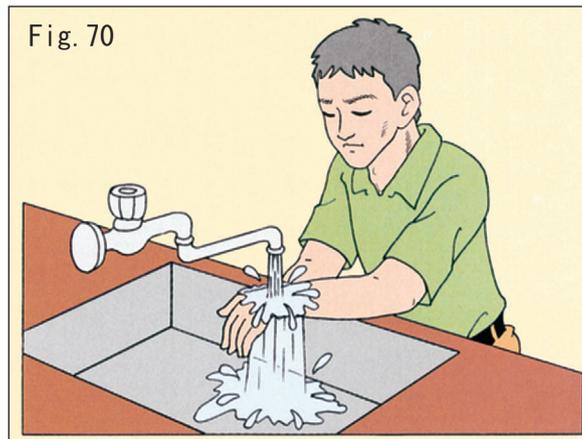


Fig. 70

Cooling down a burn

#### Important Points

- Cool the burn with clean, running water as soon as possible.
- If the victim is wearing socks or other clothes, cool the clothes along with him.
- Applying ice or ice packs for long periods of time can cause overcooling and aggravate the burn. Please be careful.
- When treating widespread burns, cool the affected areas for 10 minutes or less to avoid overcooling the whole body.

### 2 Treatment and Severity of Burns

The severity of a burn depends on its depth and breadth.

#### ● First degree burns

- Much like sunburns, first degree burns turn the skin red and may cause a stinging sensation. They do not cause blisters.
- In these cases, adequately cooling the burn is usually enough, and in most cases they heal on their own without hospital treatment.

#### ● Second degree burns

- Second degree burns cause blisters.
- Do not pop, tear or remove the blisters, as they protect the wound.
- With the exception of small burns (such as on a fingertip), cool the affected area with water and cover it with gauze or towels. Be careful not to tear any blisters, and seek medical attention as soon as possible.
- If blisters tear, do not apply any medication or ointment.
- If the blister becomes too big to cover with gauze or a towel, call an ambulance.

## ● Third degree burns

- Third degree burns do not cause blisters, but the skin may turn white or black. When burns are this severe, victims may not feel any pain.
- These kinds of burns are difficult to heal and may require surgery. Do not be relieved at the absence of pain, and seek medical attention immediately.
- If the burn covers a large area, call 119 immediately. Cool the burn with running water as you wait for the ambulance.

### Important Points

- For small children and the elderly, even if the burn is relatively small, it may still be life-threatening.
- If the victim has inhaled any smoke during the fire, there may be damage to the lungs in addition to burns. Please call an ambulance and get her to the hospital.

## Extinguishing Fire

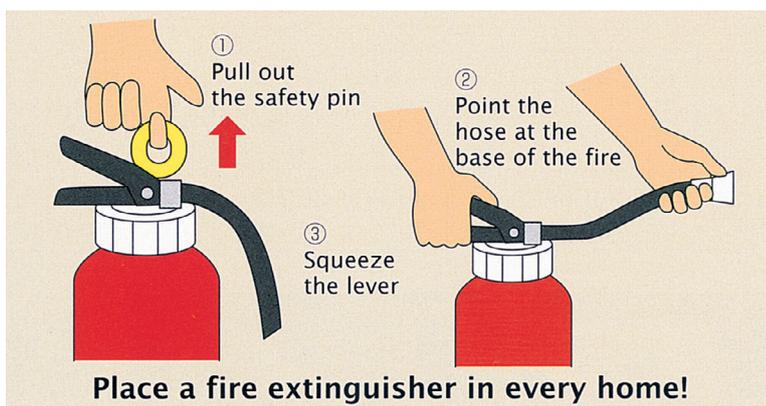
### You have 3 opportunities to put out fires

- ① **When you first feel small tremors**  
If possible, put out all fires when you first hear rattling.
- ② **When the tremors die down**  
Your first priority is to ensure your own safety, so wait until the tremors die down before fighting any fires.
- ③ **When fire breaks out**  
If you put it out within 1-2 minutes, it will not spread. Act when the fire is still small.

### FIRE!!

- ① **Quickly Let People Know**  
Yell 'Kaji' at the top of your voice to let your neighbors know.
- ② **Extinguish the Fire**  
Put it out quickly before the flames reach the roof.
- ③ **Run Away**  
If the fire reaches the roof, run away immediately.

## Prepare a Fire Extinguisher



## In the Earthquake Simulator

- Do not get up from your chair while the simulator is in operation.
- Hold down your desk during the quake.
- Be careful not to get your feet crushed under the legs of your desk.
- As this simulation takes place in a truck, the range of motion is smaller than in a real earthquake.

