



- Portable
- Comfortable
- Timesaving
- Reduce manpower requirements

Ski resort stretcher design.
A truly efficient ski resort rescue experience.



SNO W A V E R

HOW COOL IS IT



Skiing, a game for the brave, is accompanied by speed and excitement, and you can experience a moment of freedom and relaxation. Of course, this is a huge test for your physical fitness and skiing skills.

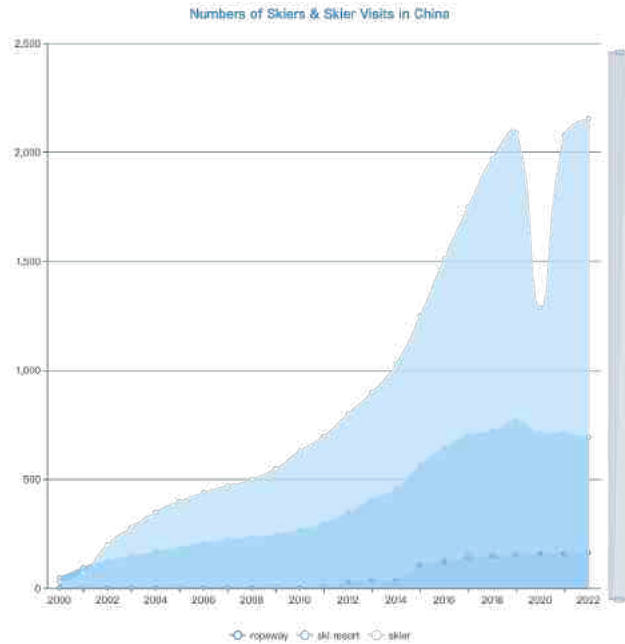
BUT



In recent years, the national skiing population has gradually increased. In the 2021-2022 snow season, the number of people participating in ice and snow sports in China has reached 346 million, and the number of skiing injuries has also increased.

For this reason, there is a better demand for the efficiency and capacity of medical rescue.

RESEARCH



injured population

What impressed you in the process of being rescued?



Only pain.

Besides your body, is there any other reason for you to feel this way?



I wanted to go to the hospital early, but then I think **being dragged** on the snow is a little bit embarrassing.

rescue team

Did you encounter any special problems while transporting the wounded?



Some injured parts were **too severe to lie down**, making rescue difficult.

What do you think is the important factor hindering the rescue efficiency in the rescue process?



Now that the number of skiers has increased, there will be a shortage of rescuers, including the stretchers themselves being **a bit bulky**.

Are there any secondary injuries to the injured during the rescue?



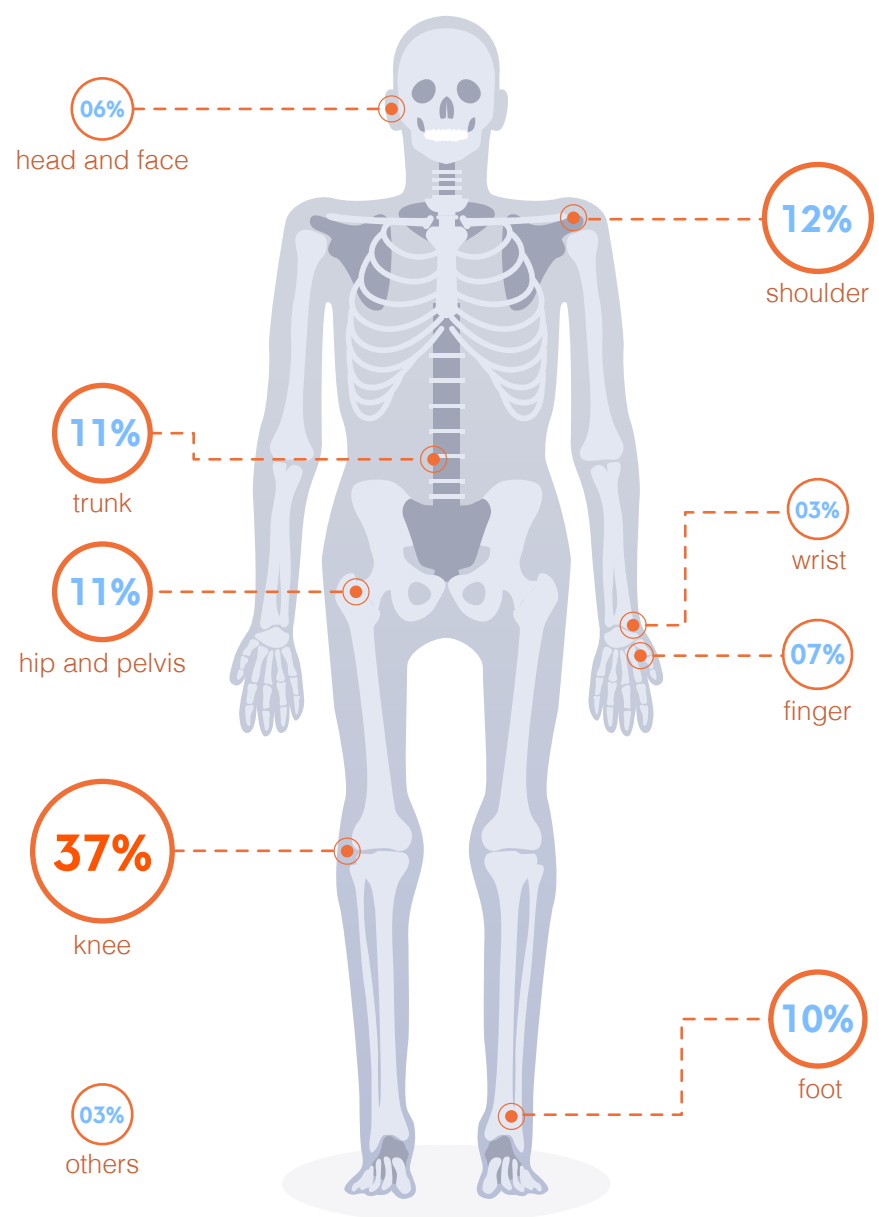
Since the terrain of the snow field is not completely flat, transporting it carefully can **also cause pain** to the injured. There are also **unexpected situations**. For example, some snow friends will hit the injured person during transportation, causing secondary injury.

further research

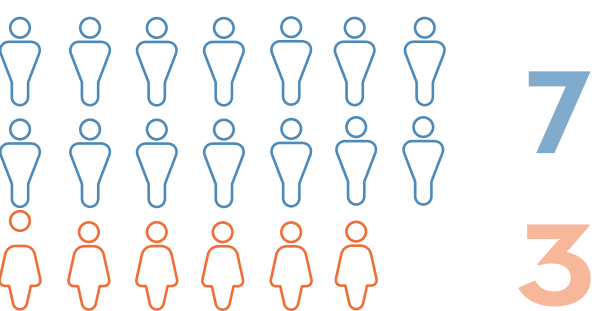
Through the snow rescue team as well as skier research, I found that the existing snow stretcher has many problems, **including the comfortness of the stretcher, carrying difficulty, gliding difficulty, and the psychology conditions of the injured**. Based on the aspects mentioned above, I did further research.

injured population percentage

percentage of injured parts

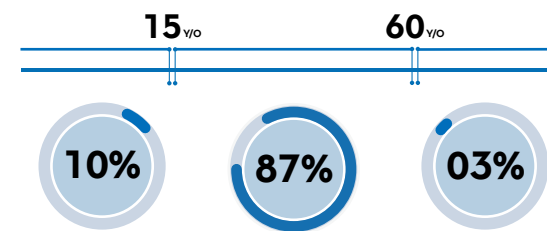


proportion of sexes in the total number of injuries

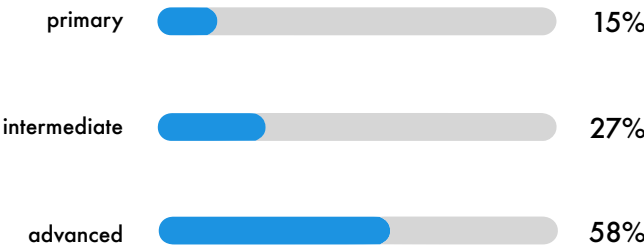


Ninety-five percent of the total number of skiing deaths each year are among **males**.

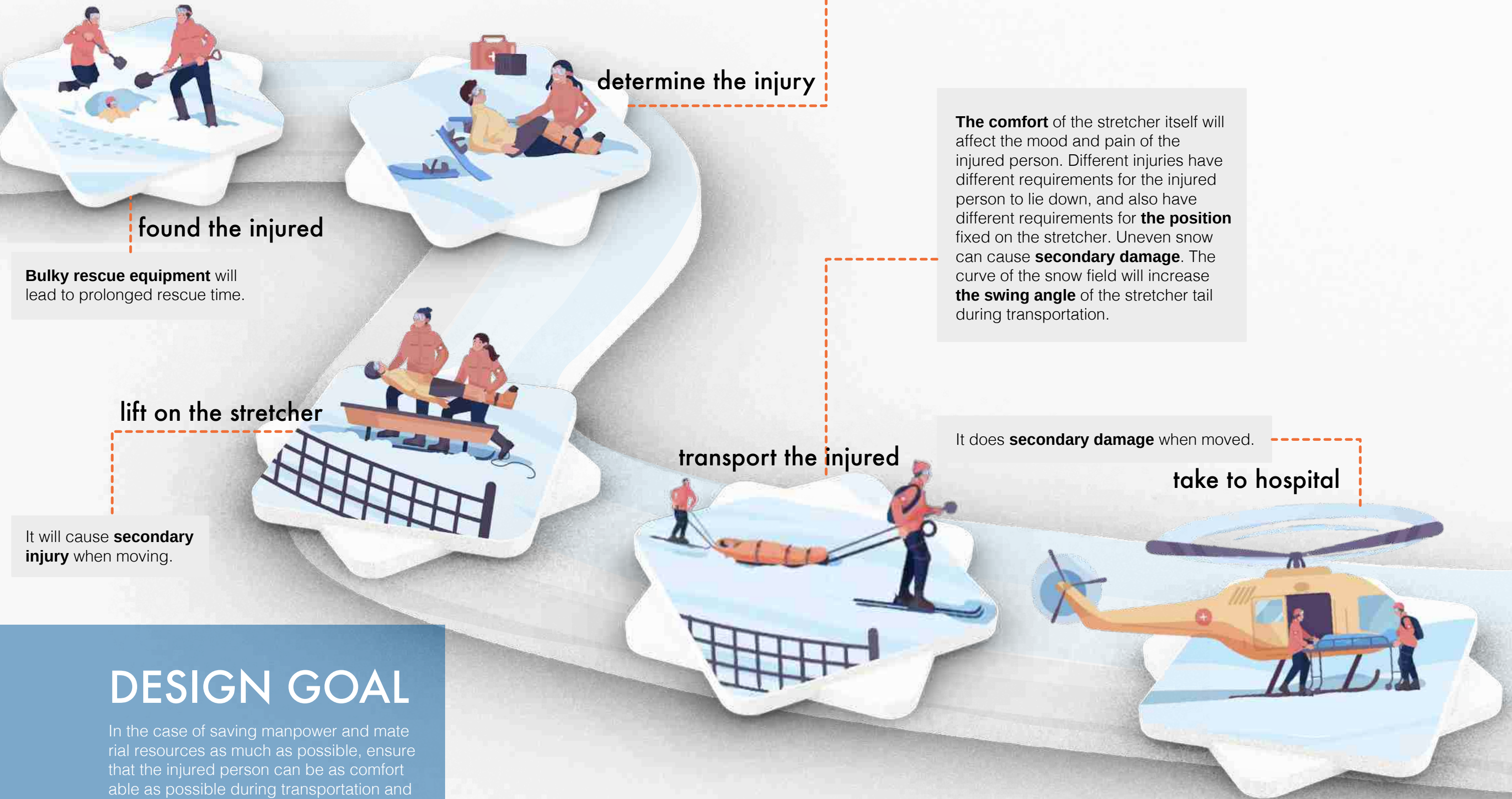
age distribution of total injuries



Skill level of total injuries



RESCUE PROCESS

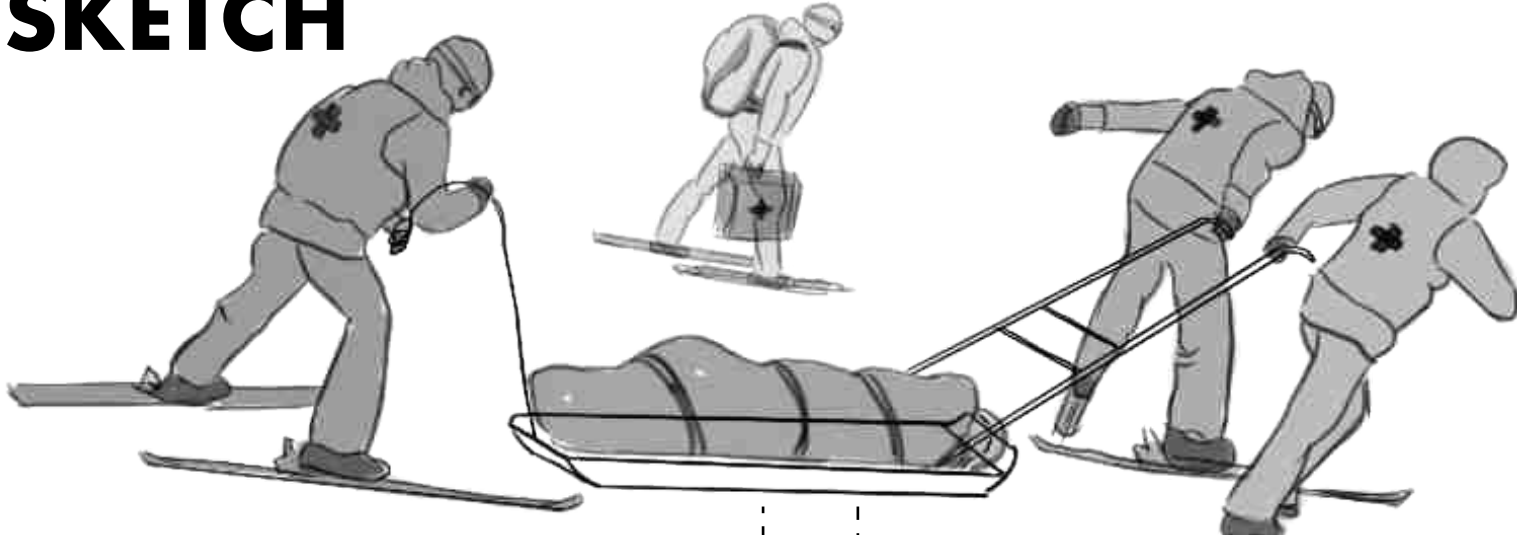


DESIGN GOAL

In the case of saving manpower and material resources as much as possible, ensure that the injured person can be as comfortable as possible during transportation and reduce the probability of secondary injury.

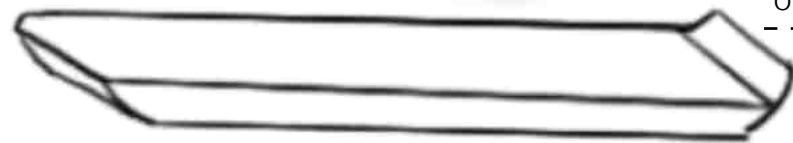
SKETCH

current snow rescue method



Existing snow stretcher composition

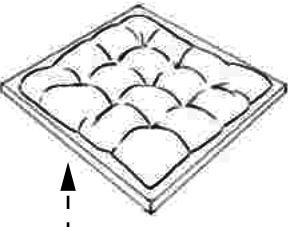
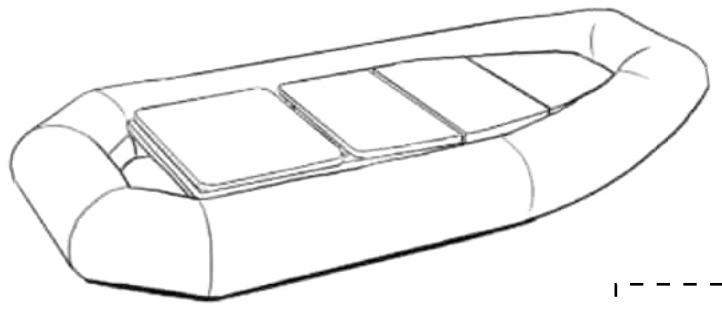
Lying requirements for different injured parts



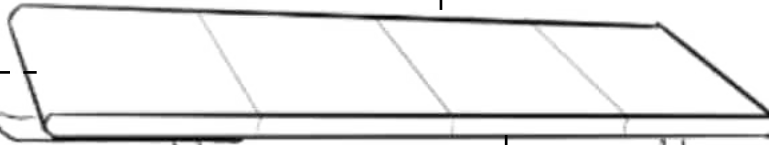
folding and storage idea



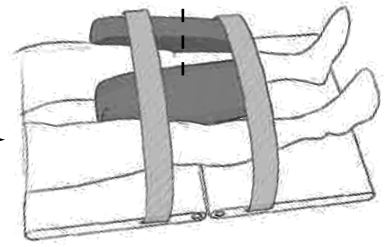
After unfolding



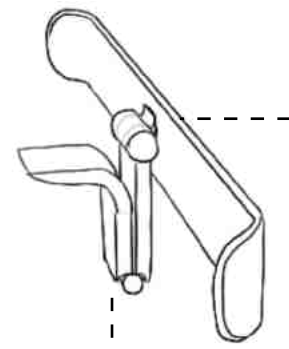
Improve comfort



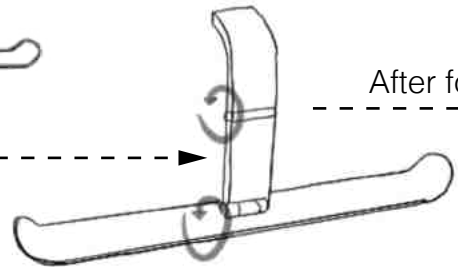
Wound Fixation



Air bag

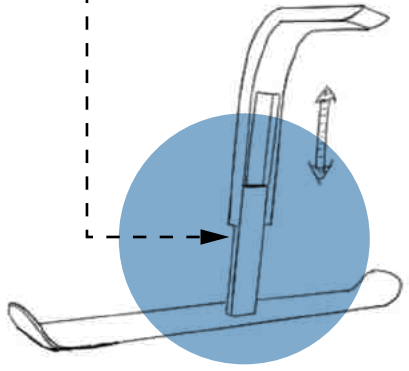


After folding

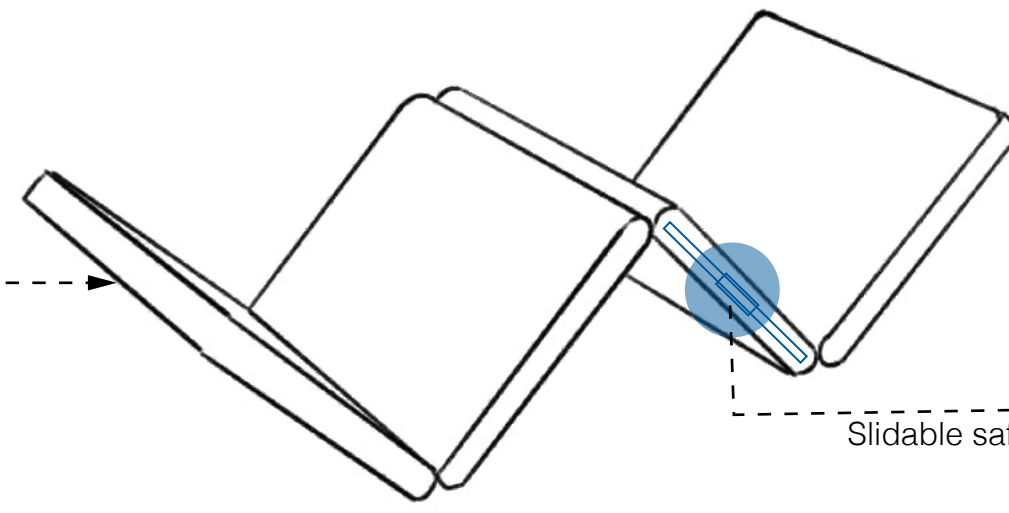


Reduce the feeling of being dragged on the snow

Foot elevation requirement



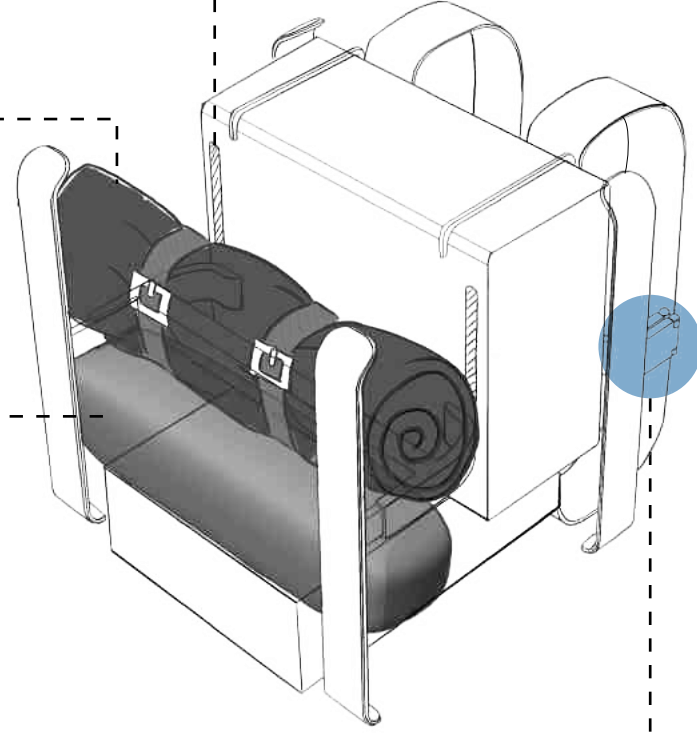
Slidable safety belt



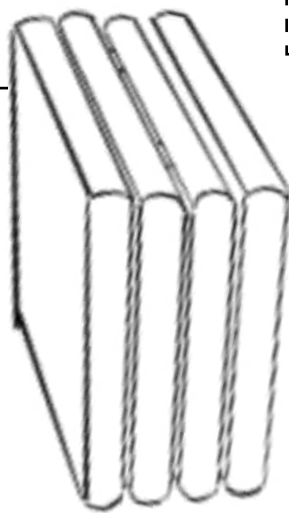
Connection method

Velcro

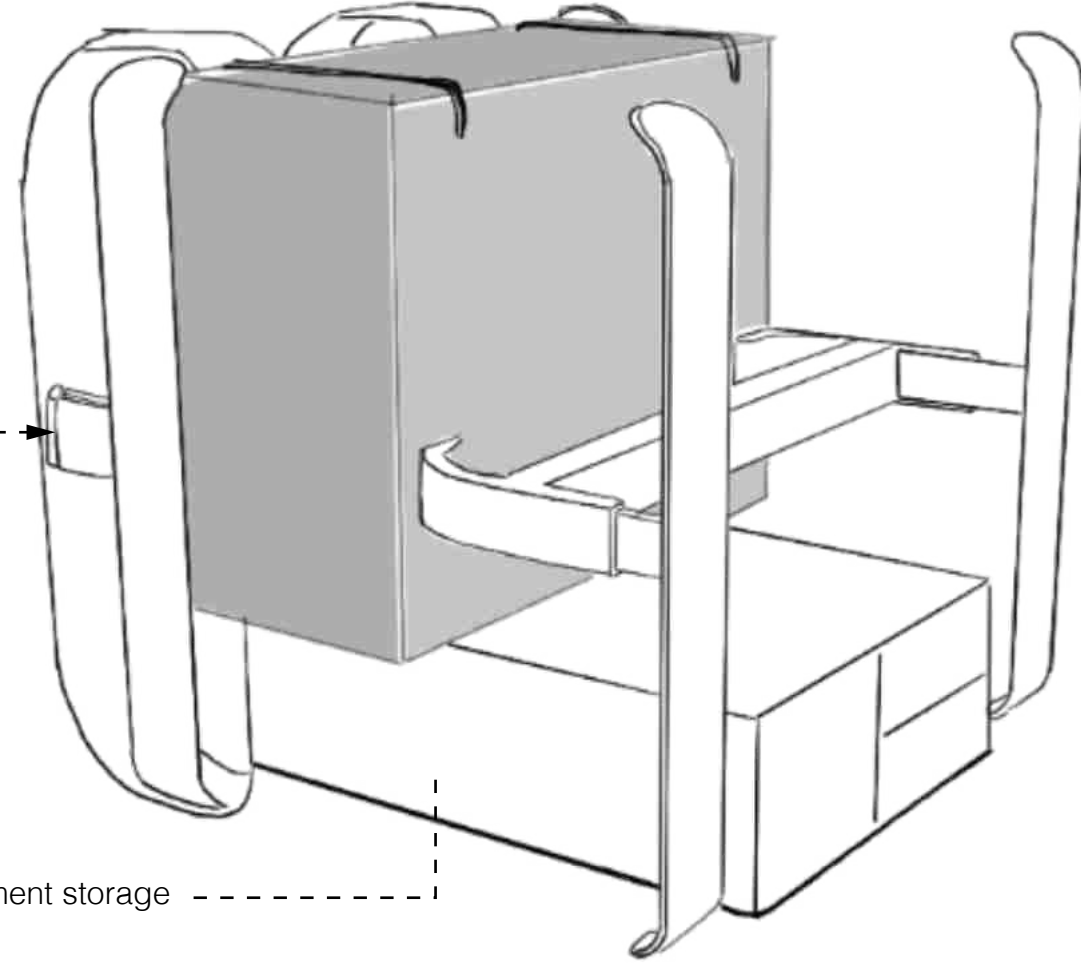
Insulated quilt



Combination

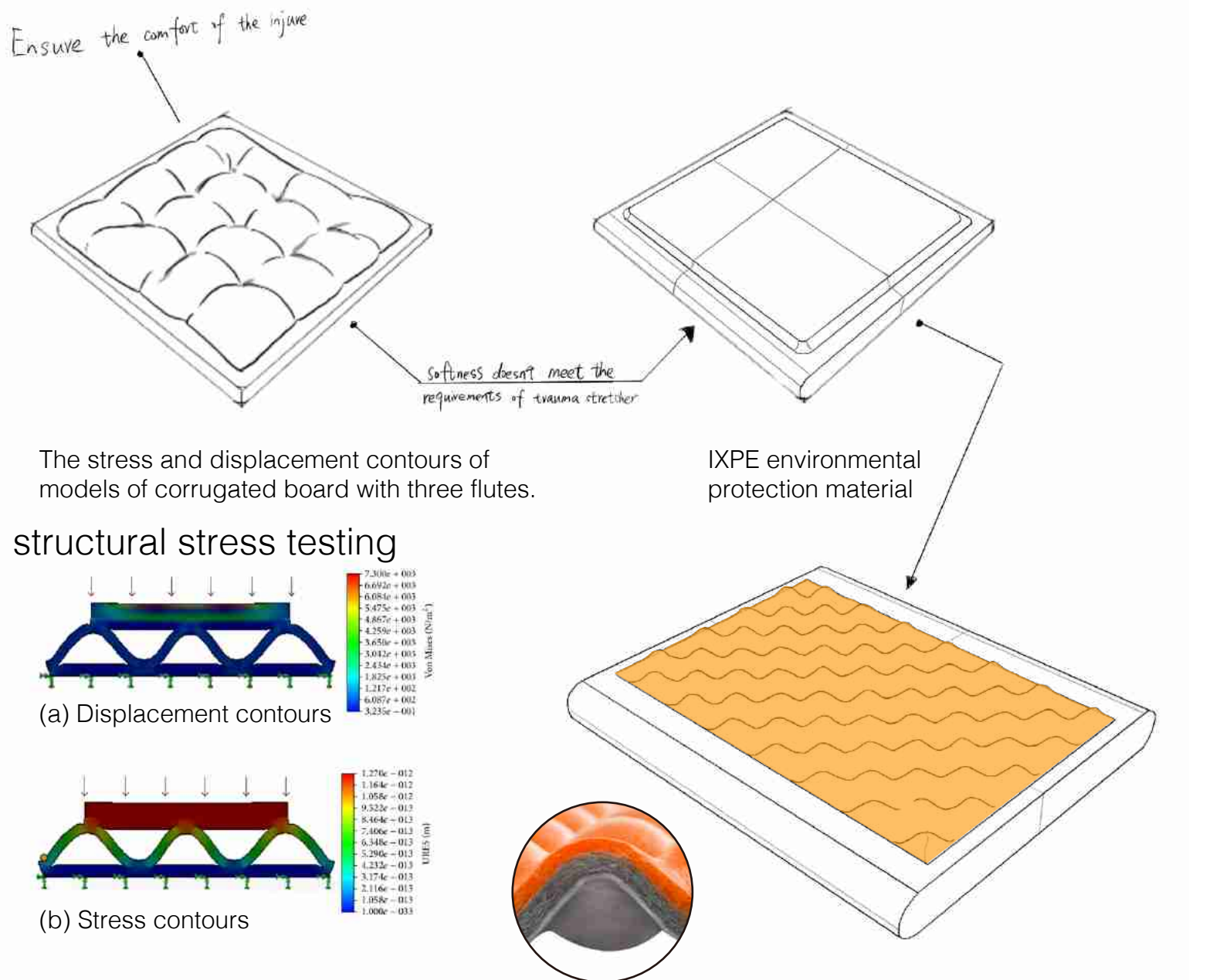


Medical equipment storage



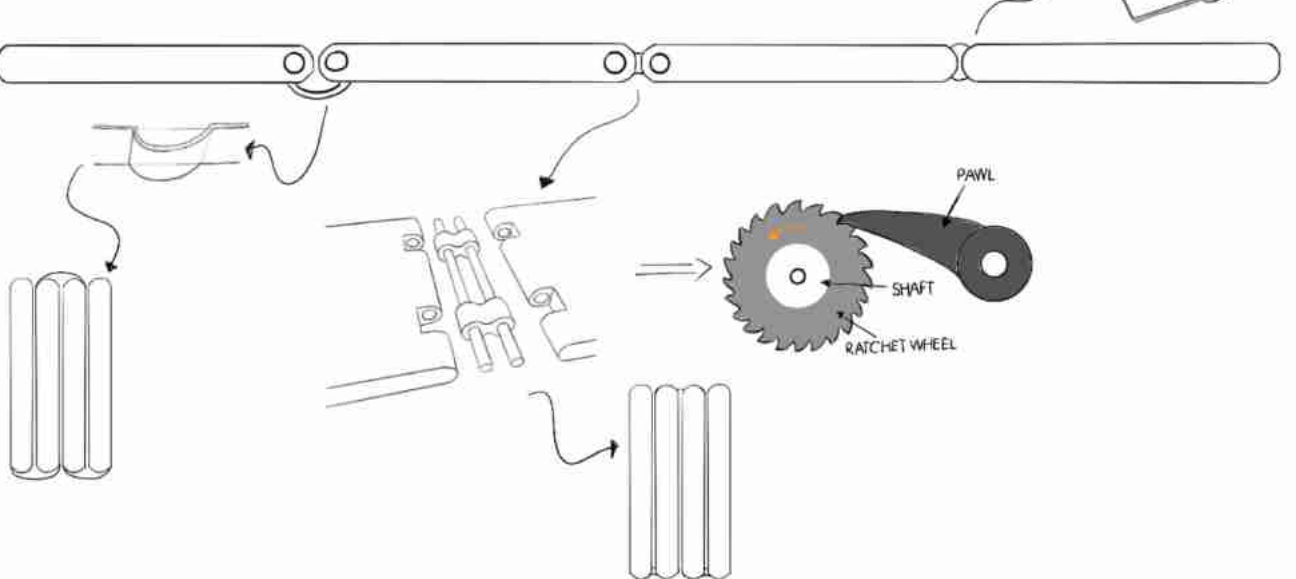
DETAIL RESEARCH

choice of cushion



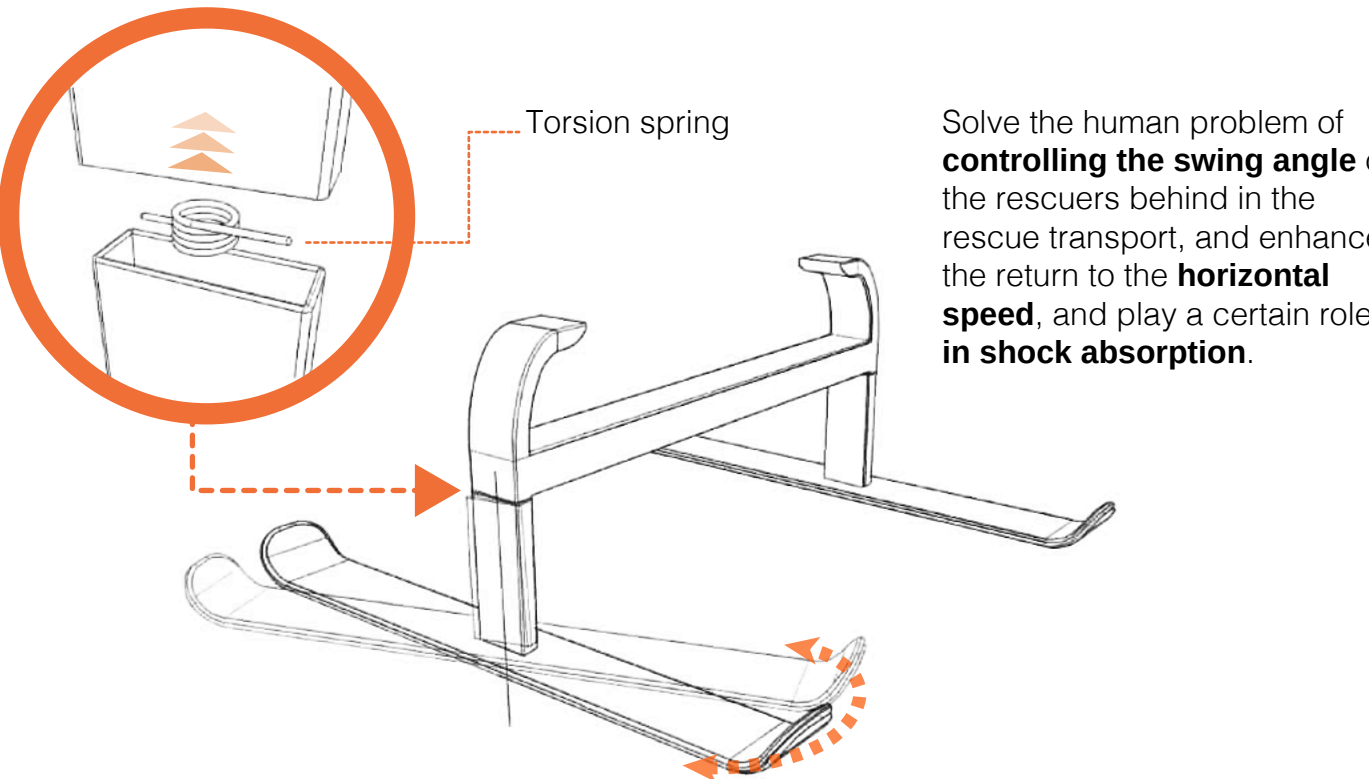
- Waterproof and moisture-proof
- Stretch soft and comfortable
- Strong cold insulation
- Flame retardant insulation
- Lightweight and portable
- Durable

choice of folded structures

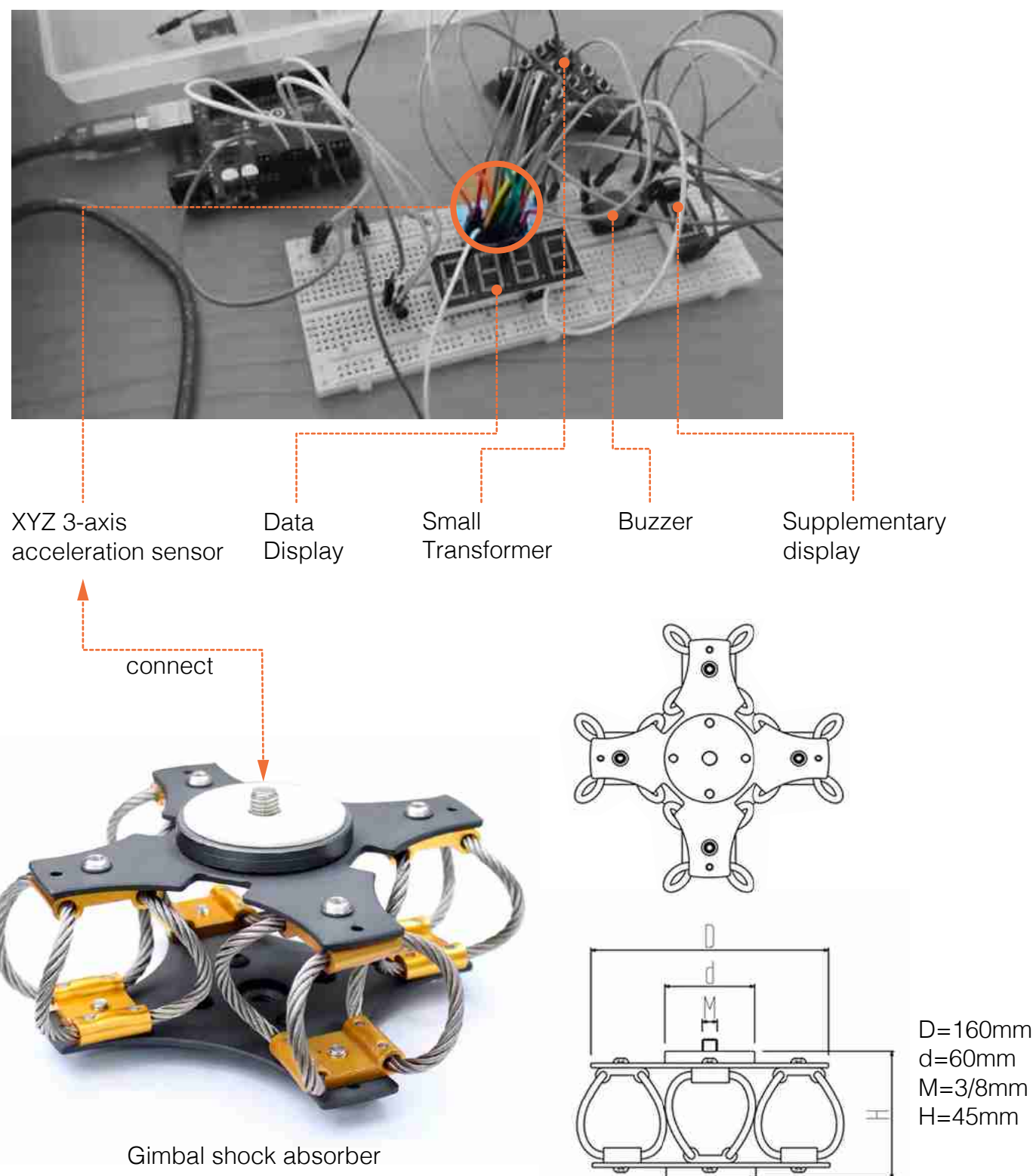


choice of shock absorption

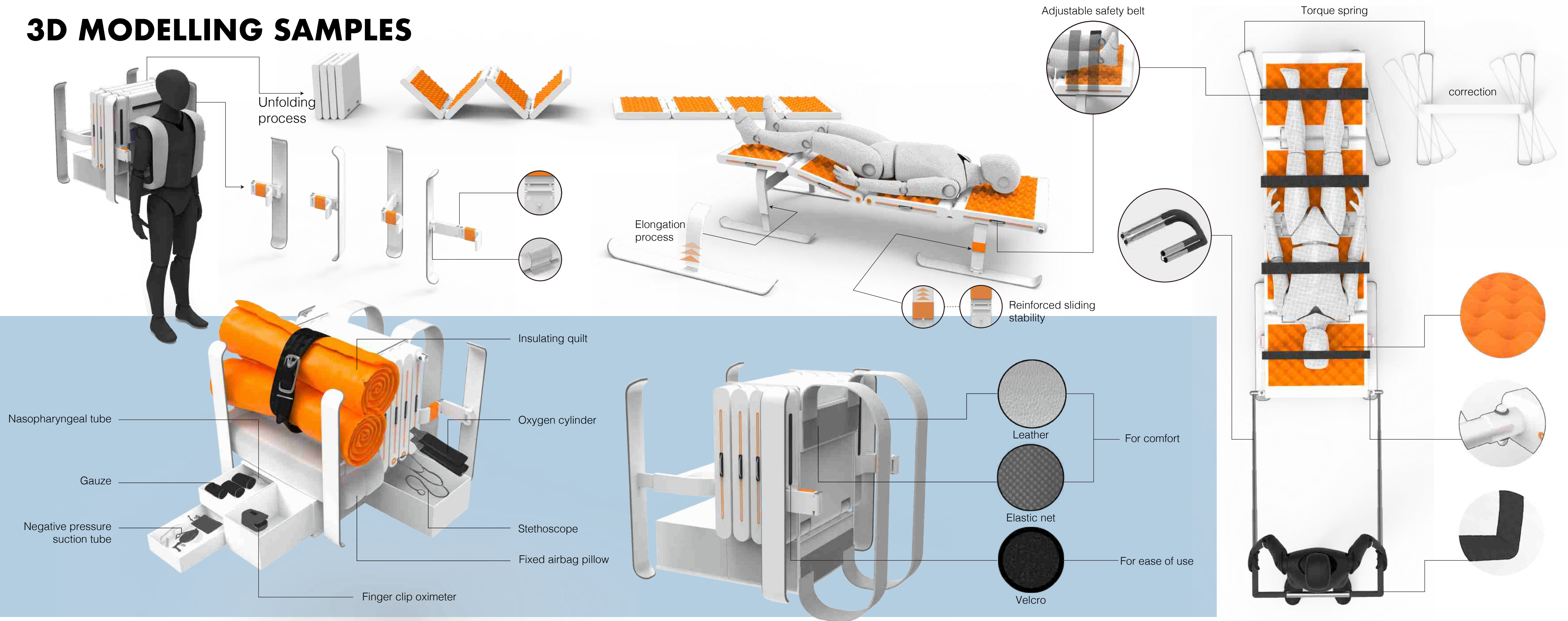
1. adjust to the correct position



2. shock absorber test

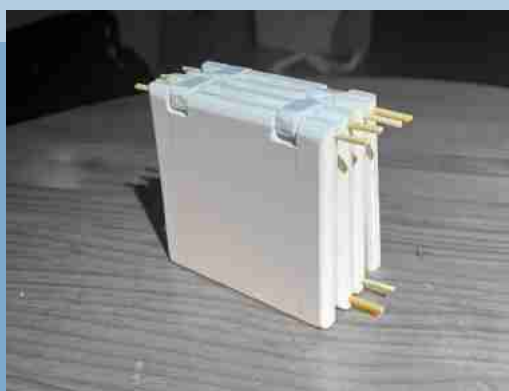
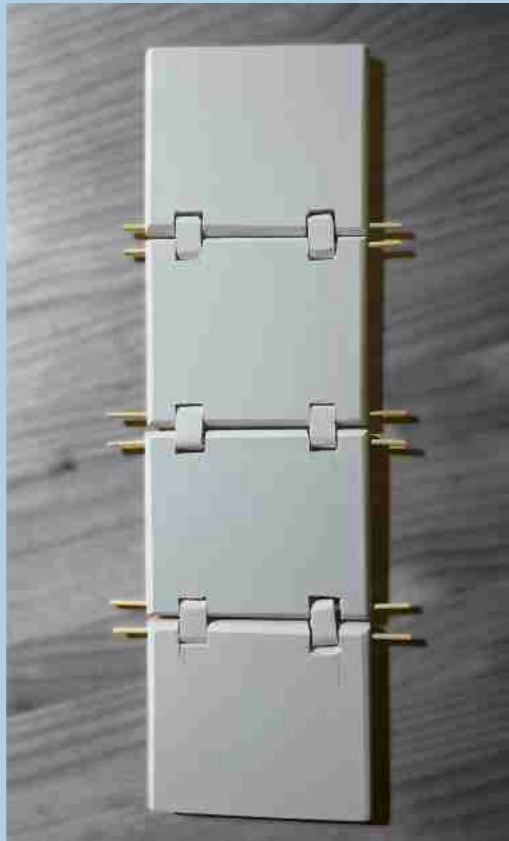


3D MODELLING SAMPLES



MODELING MAKING

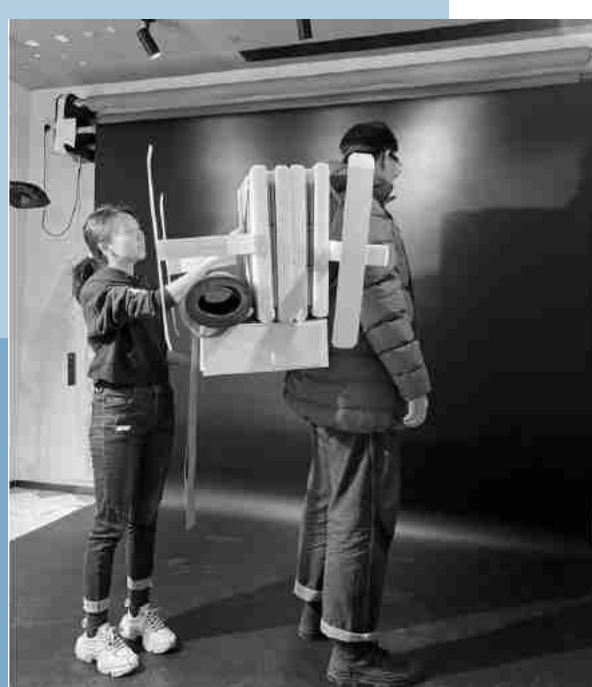
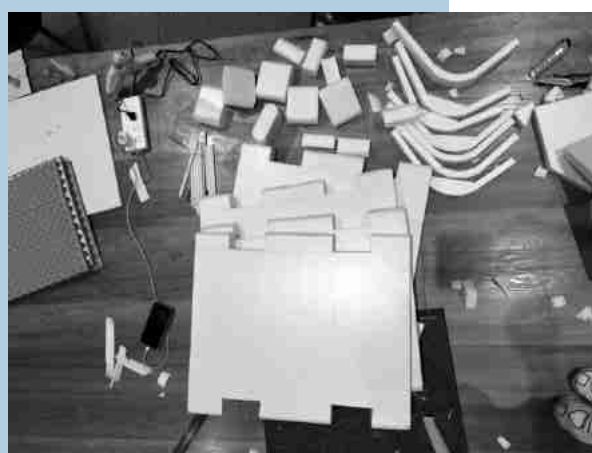
1:5 scale, foam



full scale, foam



Step 1: Make a 1:5 model to determine the feasibility of the model structure.
Step 2: Make 1:1 scale model for man-machine testing and analysis.



physical model renderings

parts diagram



Assembly Diagram

folding process



snow stretcher form



snow stretcher rescue backpack form

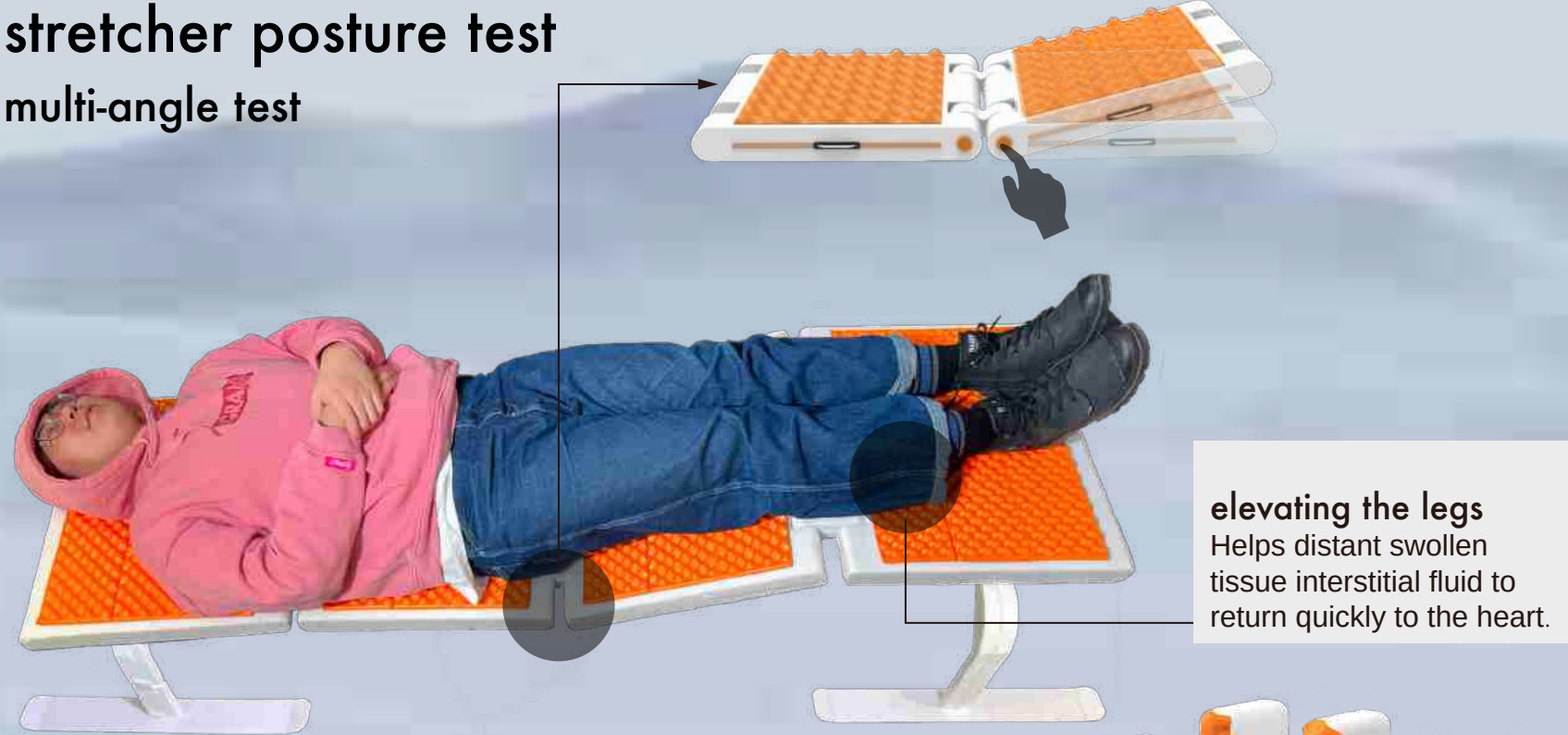


MAN-MACHINE TEST

Test engonomics for the injured and the rescuer.
stretcher aspect ratio test



stretcher posture test multi-angle test



stretcher lying flat test



backpack man-machine test



Simple operation, **improve the comfort** of the injured when using, increase **the fixed injury adjustability and stability**. Medical equipment is stored at the bottom of the backpack for **easy access** by rescuers.

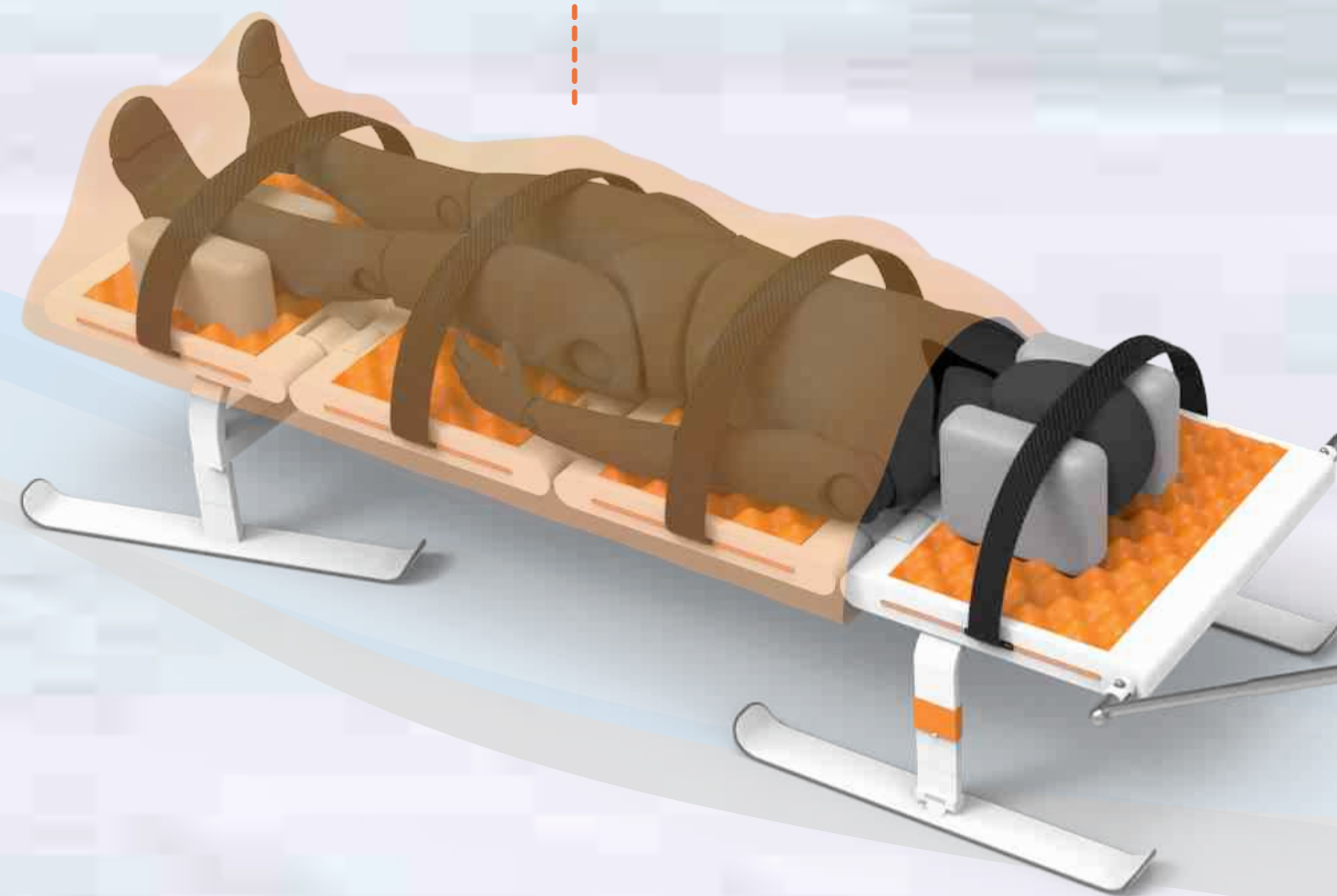
The rescuers who had to drag and balance the stretcher were no longer needed. **Reduced secondary damage** in transit. It reduces **the mopping sensation** of the injured.



Looking for the injured



Give first aid



Transport the wounded

The stretcher and backpack are **effectively combined**, each other's structure, reduce the load, easy to carry.