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Background

FITNESS NEEDS GROWING DEAMND FOR FITNESS

The number of people exercising is increasing year by year. The survey found that among people aged 7 and above in my country, 67.5% participated in physical exercise at least once a week, an increase of 18.5% from the 2014 survey.

Sub-health conditions are common due to a series of reasons such as long working hours and prolonged sitting. Data released by the 2017 Chinese Conference on Functional Neurosurgery show that the age group at which cervical spondylosis is most common in China is earlier 10 years old than before. The prevalence of cervical spondylosis among young people under 30 years old has increased to 40%.

According to a survey by the Cervical and Lumbar Disease Prevention and Treatment Committee of the Promotion of International Medical Care, cervical and lumbar spine problems are more prominent among people born in the 1980s and 1985s, and 60% of people born in the 1990s suffer from this problem.

The outbreak of the epidemic has further increased people's attention to physical health. 93.9% of the expenditure on health is greater than or equal to the original amount, and nearly half of consumers said they would increase their expenditure on health.



COMMON FITNESS PLACE

THEIR STRENGTHS AND WEAKNESS

As for gym

- 1>Time cost: commuting and preparation time, energy consumption.
- 2> Economic costs: Gym fees are high, and personal training is expensive.



As for home

- 1>Space requirements: You need a specific space/place in your home to place fitness products. Need to be taken out when using. Need to be stored after fitness.
- 2>Experience requirements: Since there is no one to guide you, fitness requires you to find references and learn on your own, which has a certain learning cost.
- 3> Equipment restrictions: Limited space results in only single small fitness options such as dumbbells and yoga mats. instrument. Although dumbbells are used in a wide range of applications, the standard requirements for movements are relatively high. Novice users are prone to self-injury due to non-standard movements.



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CONTEMPORARY YOUNG PEOPLE

REASON FOR CHOOSE THEM

1.Purchasing power

The per capita annual consumption exceeds 7,000 yuan, and more than 60% of users have increased their sports consumption in the past five years.

3.Physical Condition

The physical condition is worrying but the work pressure is huge. Only 22% of young people can get off work before six o'clock, 35% of migrant workers still work overtime in the company after eight o'clock, and 8% work close to the early morning. 42.22% of young professionals work more than or equal to 10 hours. Among them, 42.85% of migrant workers in first-tier cities work 10 hours or more per day.

2.Their demand

There is greater demand for venues, professional teaching, etc., but they face problems such as insufficient budget. Problems such as few sports venues, expensive some sports equipment, few professional training institutions, few professional events, and few sports clubs also plague young people who are keen on sports. This also means that more professional institutions and platforms are needed to provide Professional training services, equipment procurement and advice, site operation and maintenance and services, etc.



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Design Process



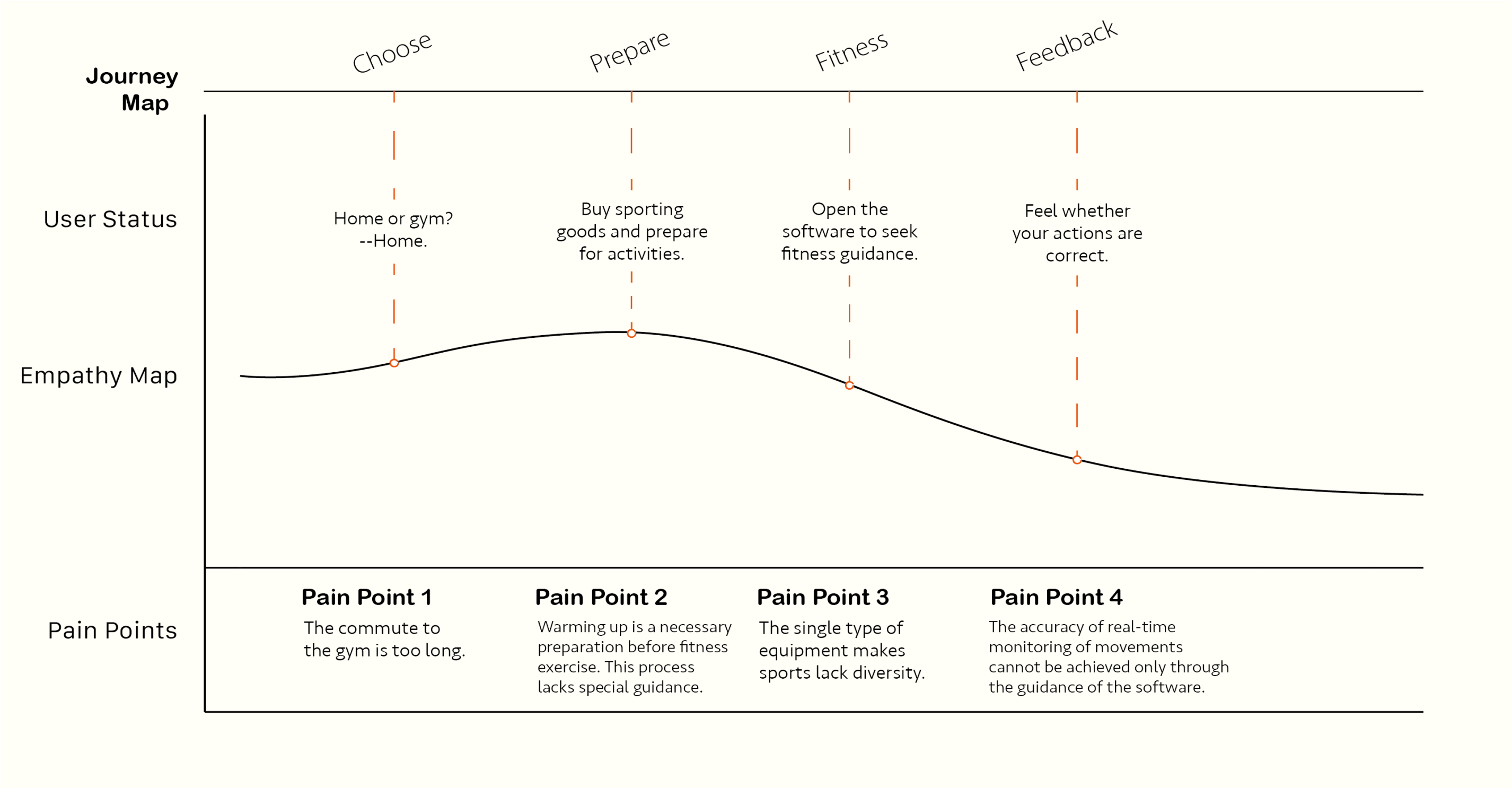
Xiao Hong

Female,
Age:24

Waiter

Xiaohong likes to do yoga and fitness exercises, but she is usually very busy at work. She goes to work at 8 a.m. and doesn't get off work until 9 p.m., and she still needs to take the subway for an hour from the restaurant to her home. There are no gyms near the restaurant or home, so even if Xiaohong wants to work out during the week, she doesn't have time. She can only find time to go to the gym on weekends

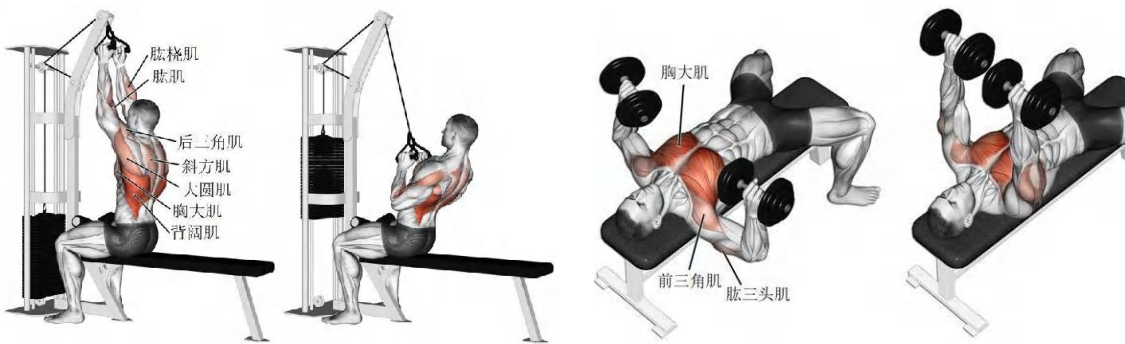
And She longs for a simple, easy and comprehensive fitness program that can meet her abdominal and back fitness needs and can be carried out at home without the need for bulky fitness equipment.



FUNCTION RESEARCH

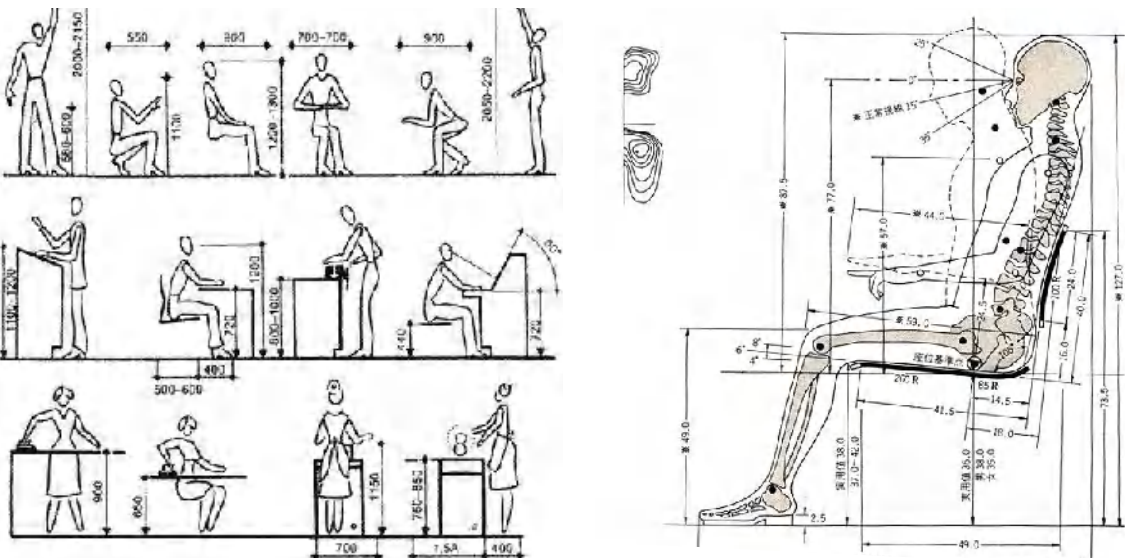
POSTURE ANALYSIS

Based on the analysis of common fitness muscle groups and corresponding fitness movements, we summarized and extracted various movements and their corresponding equipment and postures, and finally decided to include fitness movements related to sitting, standing and reclining into the function presets of the equipment.



DIMENSION ANALYSIS

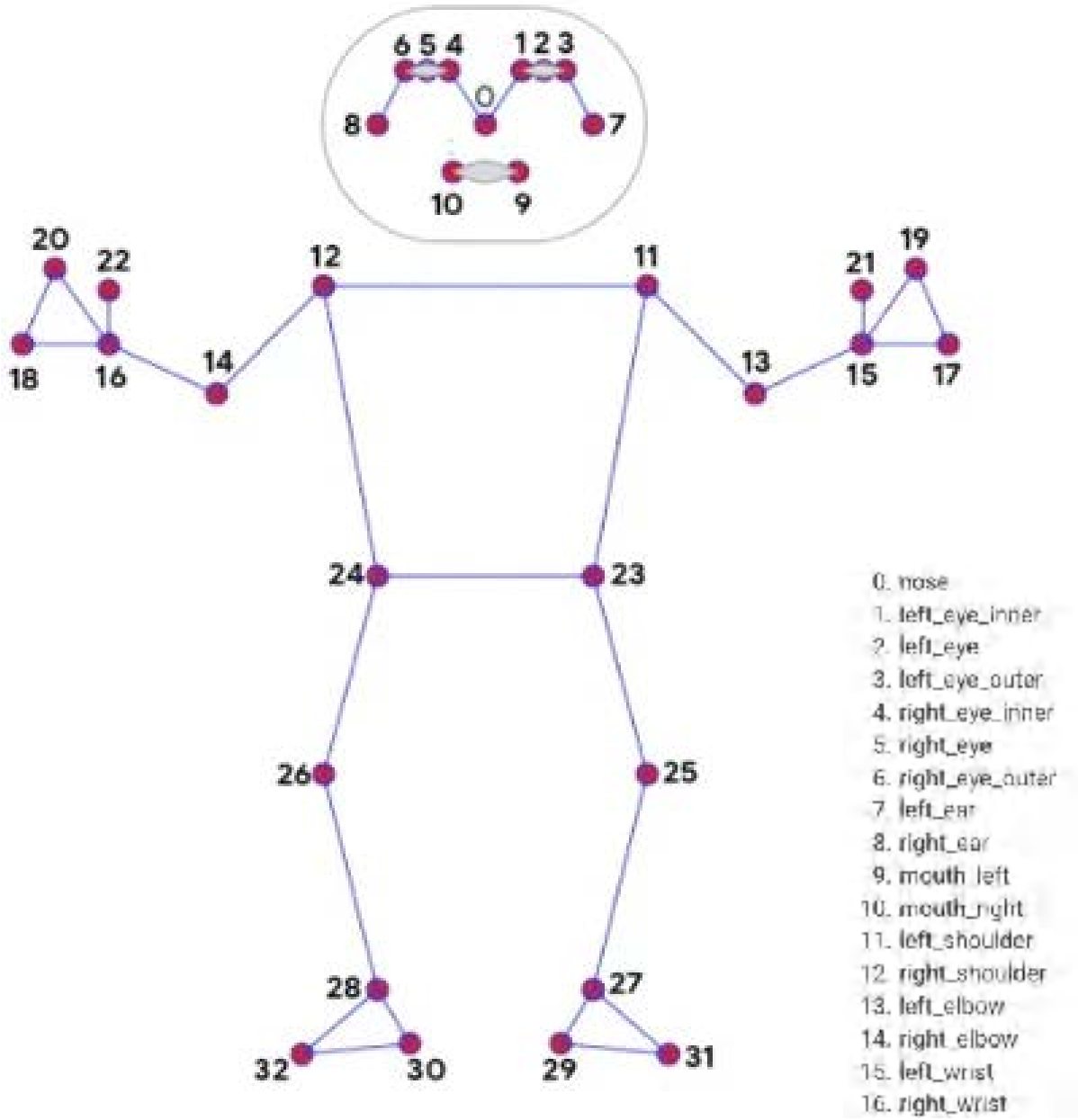
Based on the above actions and corresponding ergonomic parameters, we determined the approximate size of the product, and based on the actions, we determined that the outline is mainly trapezoidal, which greatly reduces the risk of users colliding with the edge of the equipment during the fitness process.



MOTION MONITORING TECHNOLOGY RESEARCH

Different camera angles have different accuracy for motion monitoring. Using the front view, we can access the left and right sides. We can use the slope and angle of each landmark to analyze exercises such as overhead presses, side planks, sit-ups, and crunches. We can use the side view to better estimate various inclinations with respect to vertical or horizontal. This information helps analyze exercises such as squats and push-ups.

Summary: Cameras from two angles can monitor movement accuracy more accurately.



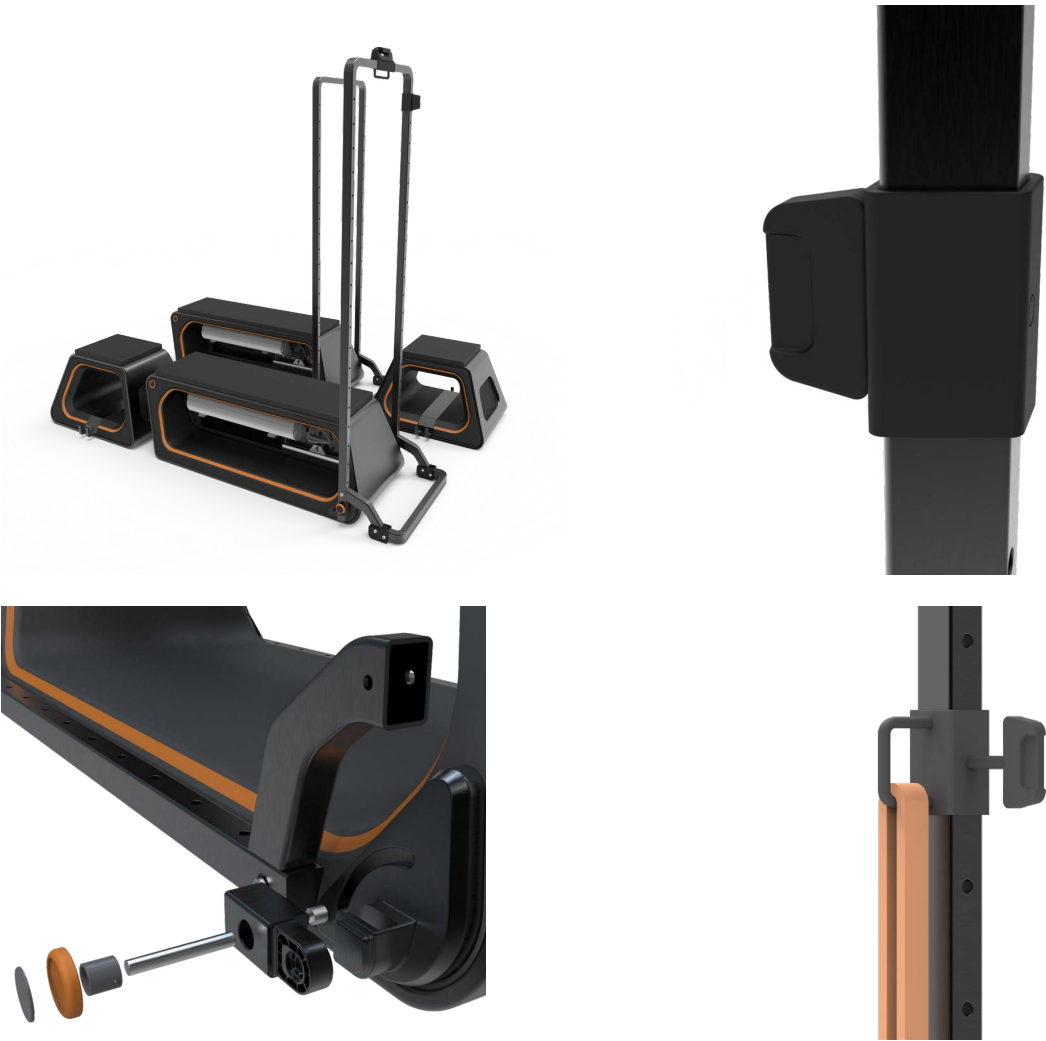
MATERIAL COMPOSITION SELECT AND COMBINE



SUPPORT ROD EXPAND AND STORE

In order to meet more diverse user needs, the types of sports that the product can perform are increased. We have added a horizontal bar-like support rod design to our products. Considering the storage problem, we added a folding function to the support rod. At the same time, the hole position on the support rod provides more options for height adjustment of the elastic band fixing component,

so that users of different heights and different body types can use the support rod to make their expected movements. In order to ensure that the support rod can withstand a large enough load without tipping or shaking, we designed a corresponding locking structure to ensure the stability of the support rod during use.



SEAT BACK

MULTI-ANGLE ADJUSTMENT

Fitness seats have irreplaceable functions for many fitness enthusiasts. Fitness movements such as dumbbell rows, bench presses, incline bench presses and shoulder presses all require fitness chairs with different tilt angles. In order to adjust the tilt angle of the chair back, we designed multiple gear slots and a support rod that can hide itself. When the user needs the chair back to lie flat, the chair back can naturally fit the device



MODULAR SEATS

COMBINATION AND SEPARATION

Through research, we found that specific rowing and lat pull-down movements require independent chairs to assist users. So we divided the seat into two parts, which are connected magnetically. When connected together, they are integrated and strong enough. And when specific actions are needed, users can simply separate them.



PERFORATED PLATE

CUSTOM STORAGE

Considering the variety of equipment needed during home fitness, we designed the seat hollow part as a unique storage part. Dumbbells, elastic bands, handles, yoga mats and other items can be stored here. The partitions are filled with holes, giving users a high degree of customization and more storage possibilities.



CAMERA

GUIDANCE AND FEEDBACK

For many enthusiasts, fitness is a sport that involves certain risks and requires professional guidance. Therefore, we designed a camera that can record the user's fitness movements in real time. It can be magnetically attached to the device, or anywhere the user sees fit. By connecting with the mobile software, professional feedback is given, and the presentation format is displayed in the Instruction Manual.



LOW-FIDELITY

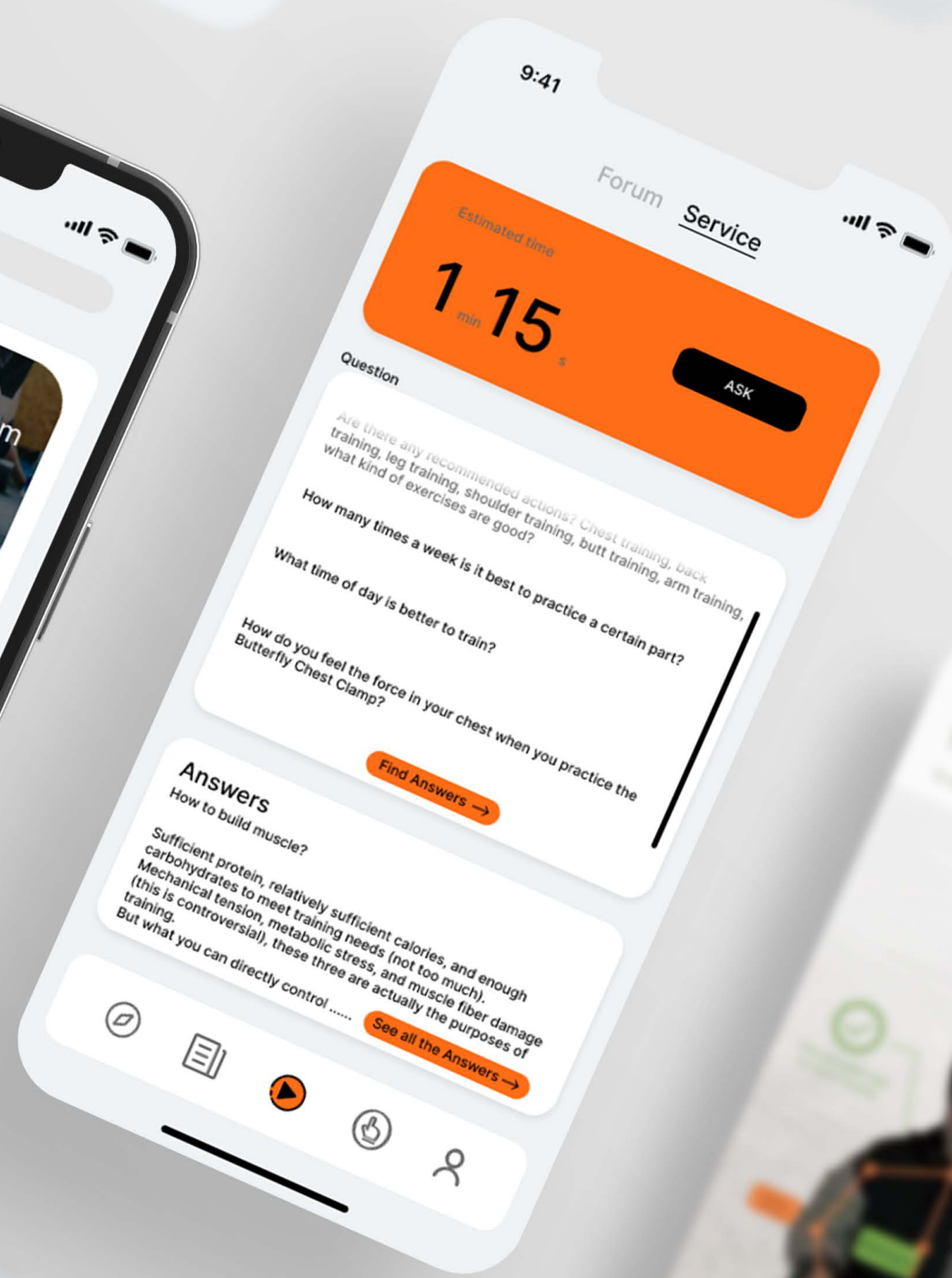
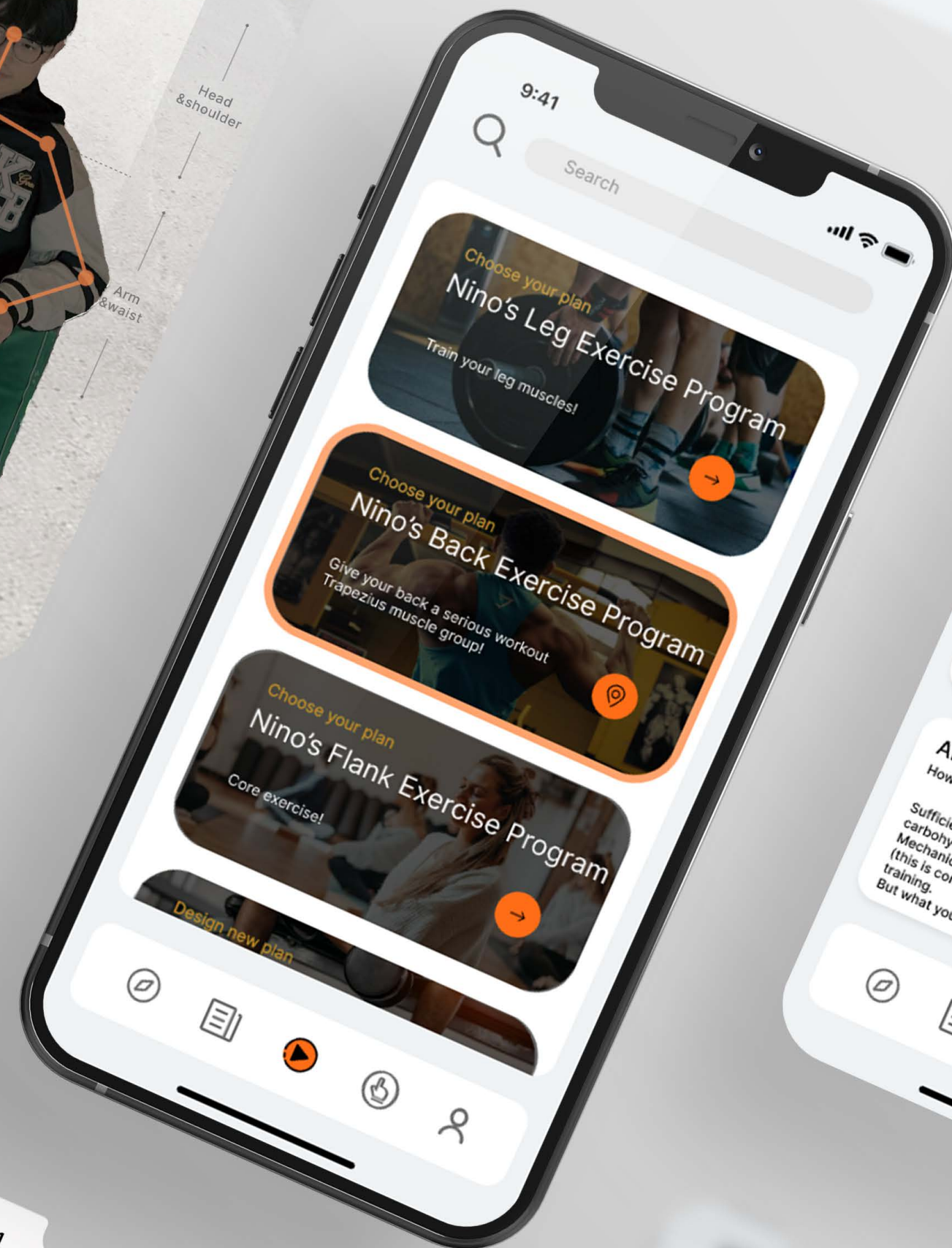
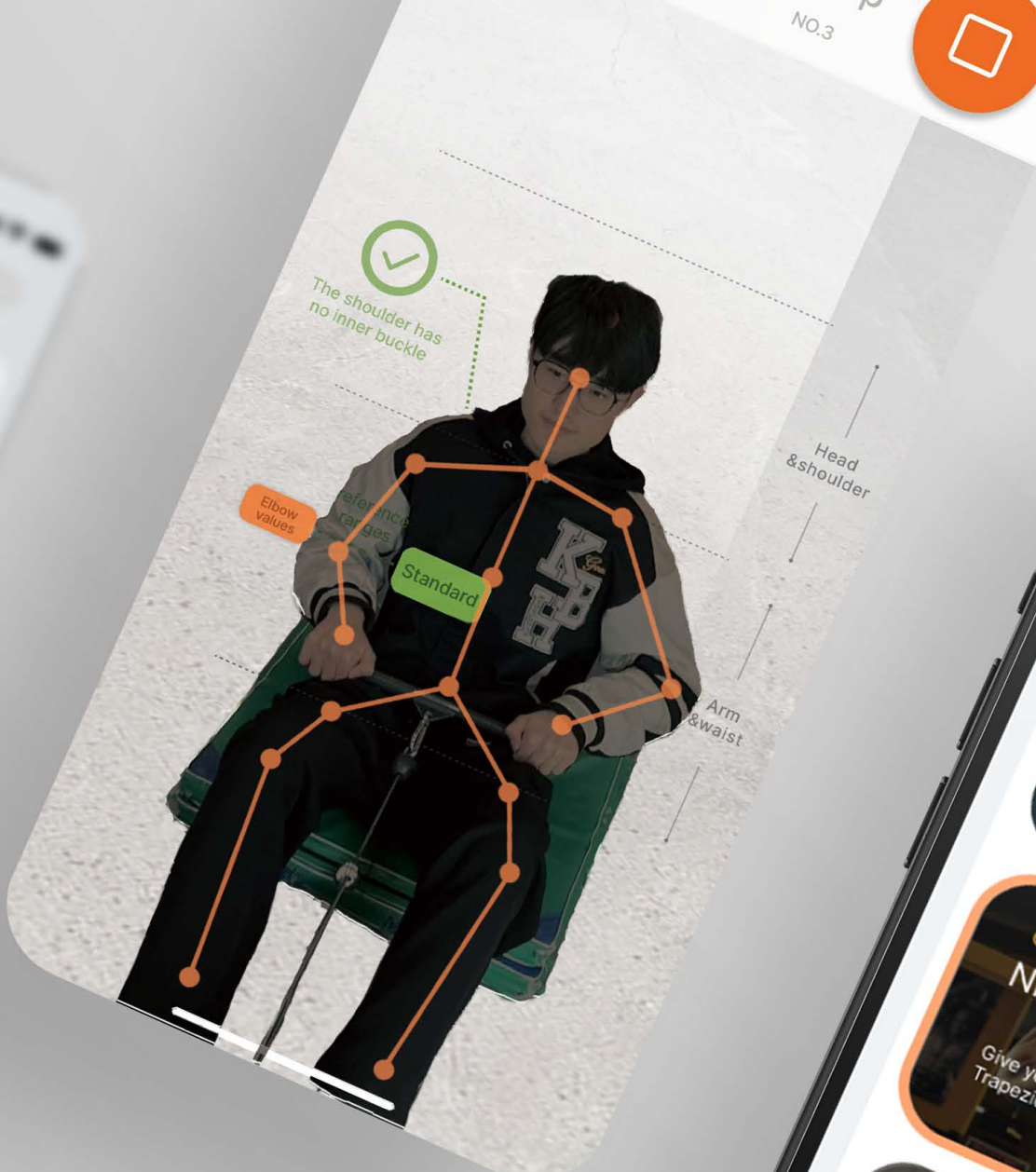
PROTOTYPE

As for home

Based on the user journey map, we can clearly analyze the current pain points of users. People often lack professional guidance and planning during warm-up activities and fitness, and the fitness apps currently on the market only provide some simple movement guidance and do not have real-time movement monitoring functions, which will greatly reduce the training effect or even cause damage. Risk of injury. In order to solve the current pain points, we designed a corresponding app: This app can monitor our actions in real time and correct them in time. It also provides a training planning function to facilitate our training. Efficiency gets twice the result with half the effort.Let's take a look at its interface. It is divided into several parts: main page, fitness weekly report and forum.

The main page contains all the training plans we have created. When we click to start training, we will enter the real-time monitoring interface of movements. This is also a feature of our app. When our movements are wrong, the screen will display the point where you made the mistake and allow you to correct it within the standard range. At the same time, your training duration and number of sets will be recorded. The fitness weekly report records your training times and results this week, and it will also make corresponding plans based on your current training situation. Next is our forum page. We can share our daily training on the forum, and at the same time we can find like-minded friends to make our training happier. The design of the forum page makes our products more social.





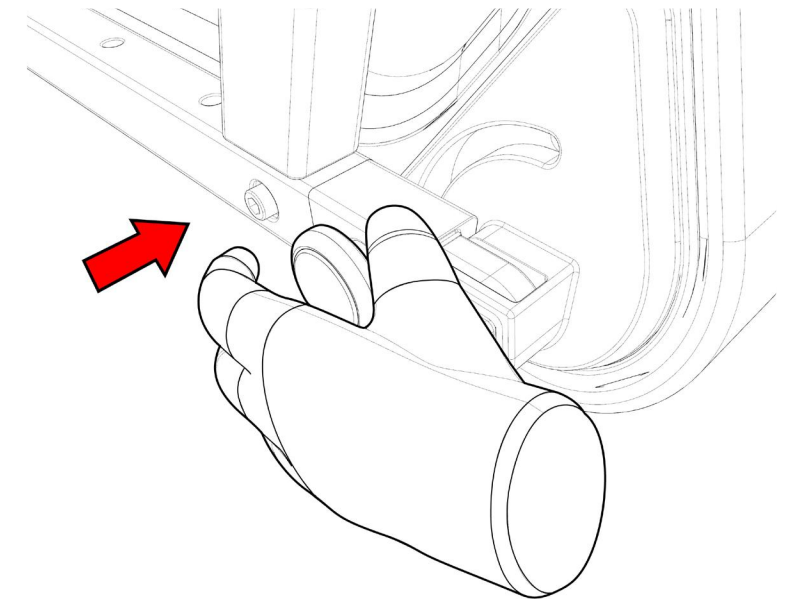
Instruction Mannual

OPERATION PROGRESS

ABOUT THE KNOB

Step 1

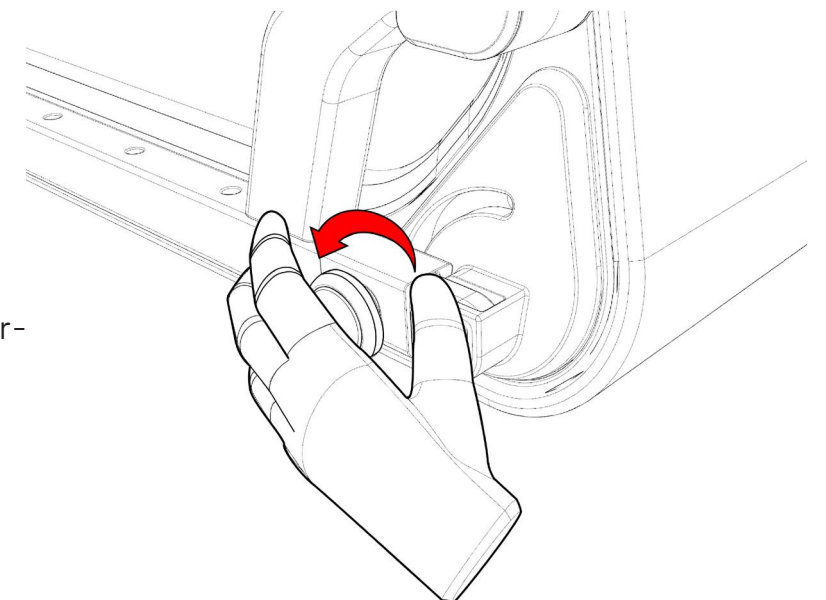
Press the knob to the bottom



ABOUT THE KNOB

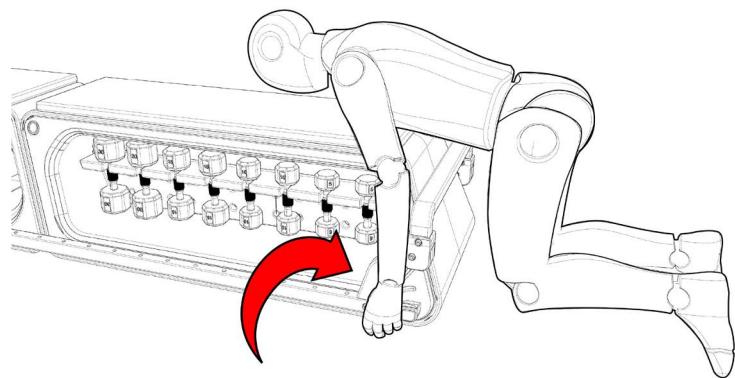
Step 2

Turn the knob counter-clockwise



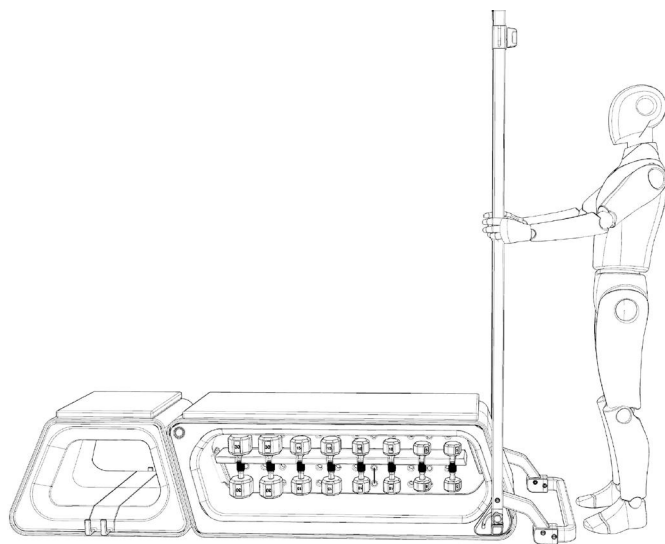
Step 3

Release the button to raise the pole



Step 4

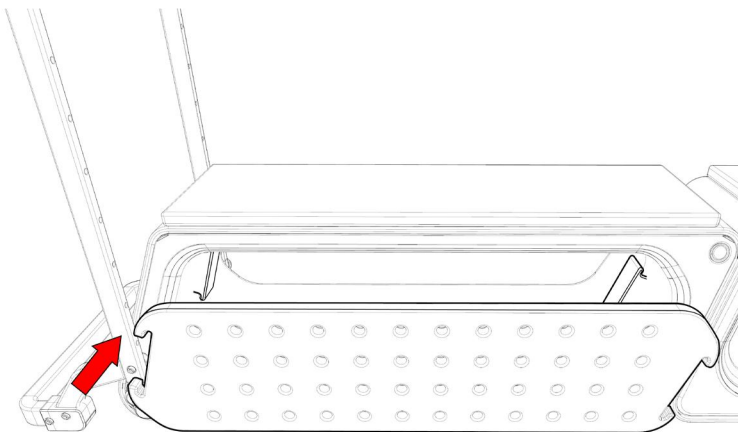
Raise to the relevant position, press the button and rotate the button clockwise to fix the fitness bar



OPERATION PROGRESS
ABOUT THE KNOB

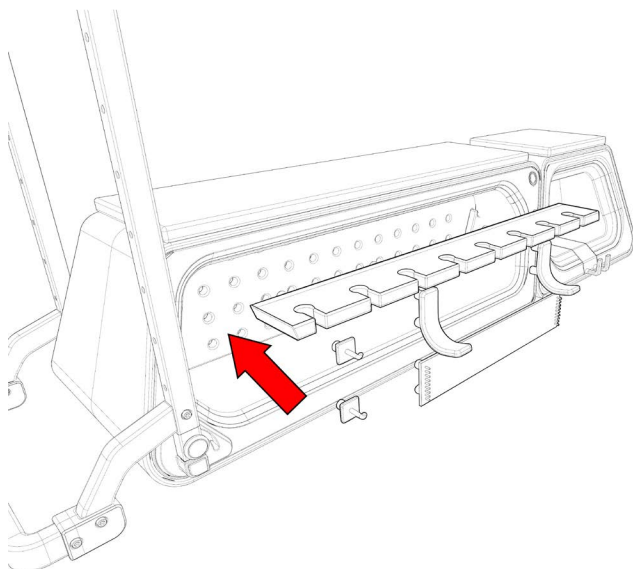
Step 1

Align the groove on the perforated plate with the slide rail in the cabin and insert



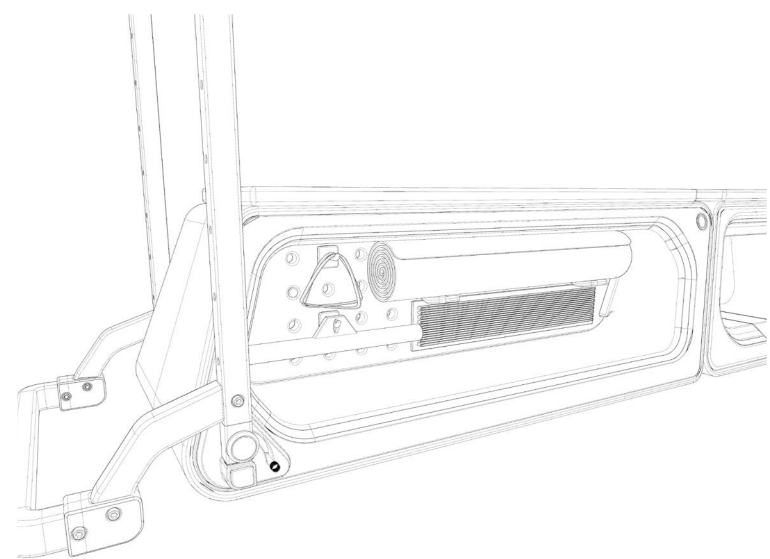
Step 2

Insert the corresponding required storage plug-ins into the corresponding holes as needed.



Step 3

Place appropriate fitness equipment

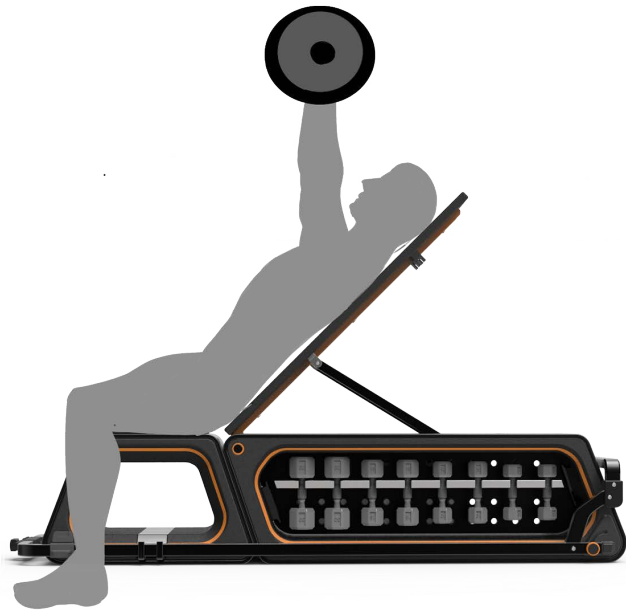


Let's get started!

1 Here's exercise

Incline bench press

When doing this action, you need to pay attention to the shoulder blades being close to the back of the seat, avoid shrugging, and lift the arms vertically.



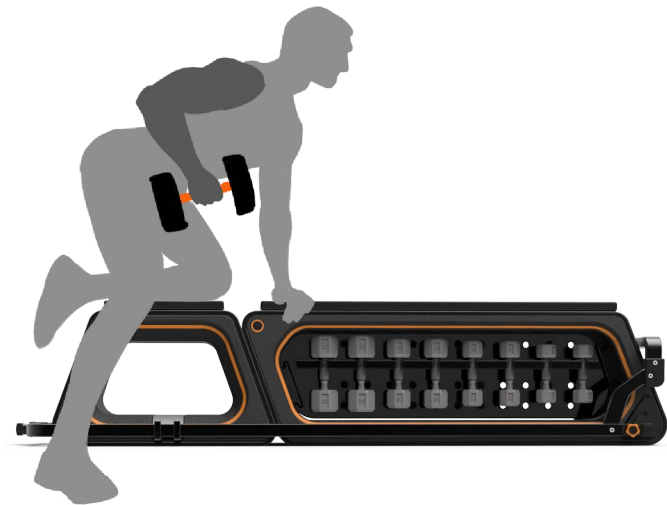
Flat bench press

Similar to incline bench press.



Kneeling row

Kneeling row: This action requires one of our legs to kneel on a stool while holding a dumbbell in hand.



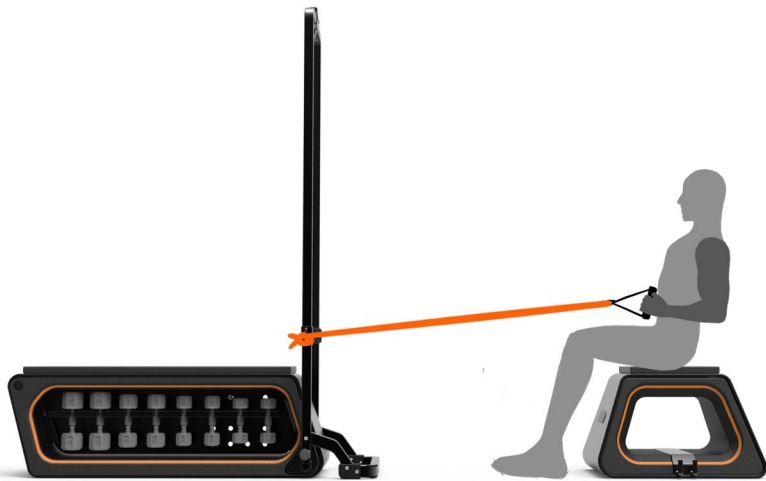
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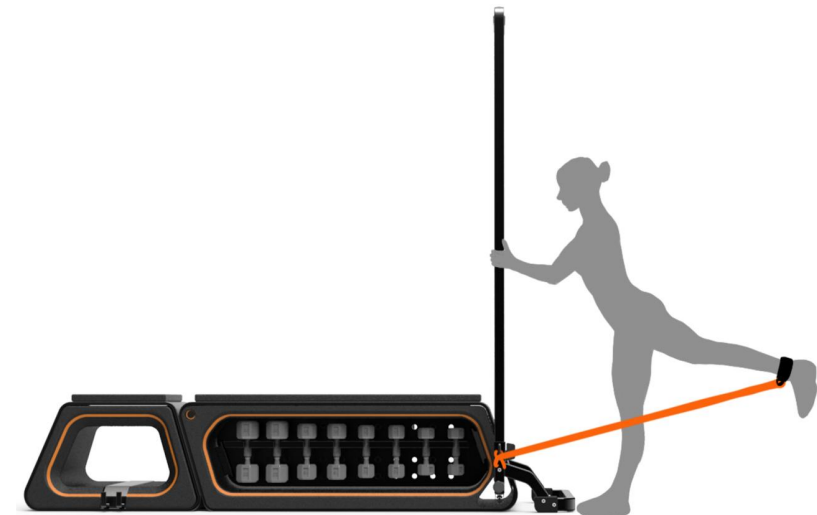
Seated Rowing

This action can effectively exercise our back muscles and prevent hunchback and rounded shoulders. When doing this action, be sure to keep your waist straight and don't shrug your shoulders.



Elastic band butt training

This action is more suitable for women and can better exercise the buttock muscles. When doing this action, you need to keep your body straight and lean forward slightly. Use one leg to push back and don't sway from side to side.



2 Combine with app!

