You thought you knew but didn't

Sumitomo Riko's Business

Episode 14. Smart Rubber (SR) Sensor

New technology research building, Technopia

Mr. Tsuchiya! Ms. Usami! Good morning!

Sumitomo Riko

Technology Laboratories

I'm looking forward to today!

Ooh. What a beautiful day!

I feel great!

Ms. Tomoi! Morning!

Research Management Dept.
Mr. Tsuchiya

Health and Nursing Care Products Business Unit
Ms. Usami

I understand that, here at Technopia, you conduct research into the health and nursing care sector and into new products…

That's right

In particular, we are working to deepen the technologies we have now in our core competence of polymer materials technologies,

and finding new ways to use those technologies

I heard that you can use rubber to measure pressure…

Pressure

Rubber

That's right
We can measure the "change in shape,"

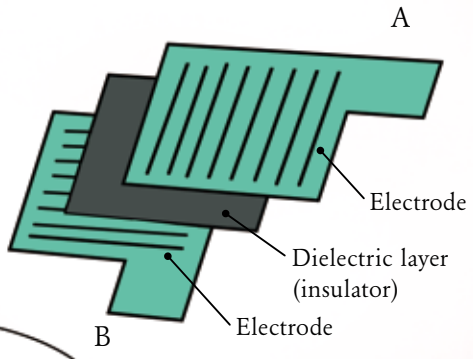
so we can also measure pressure and expansion
The point is to make these things "visible"

Oh! I also heard at the Fuji-Susuno Plant that you can conduct electricity through our rubber!

Does that have anything to do with it?

That's exactly right! Also, our SR Soft Vision made it possible to find out how pressure is distributed

This is what the mechanism inside the sheet looks like



Really? So it's in layers, like this

Mmm, but... How do you measure pressure with this?

It's based on the concept of electrostatic capacity
It's a bit difficult to understand, but basically, we are measuring the change in electric current in the distance between A and B

Whoosh

See?

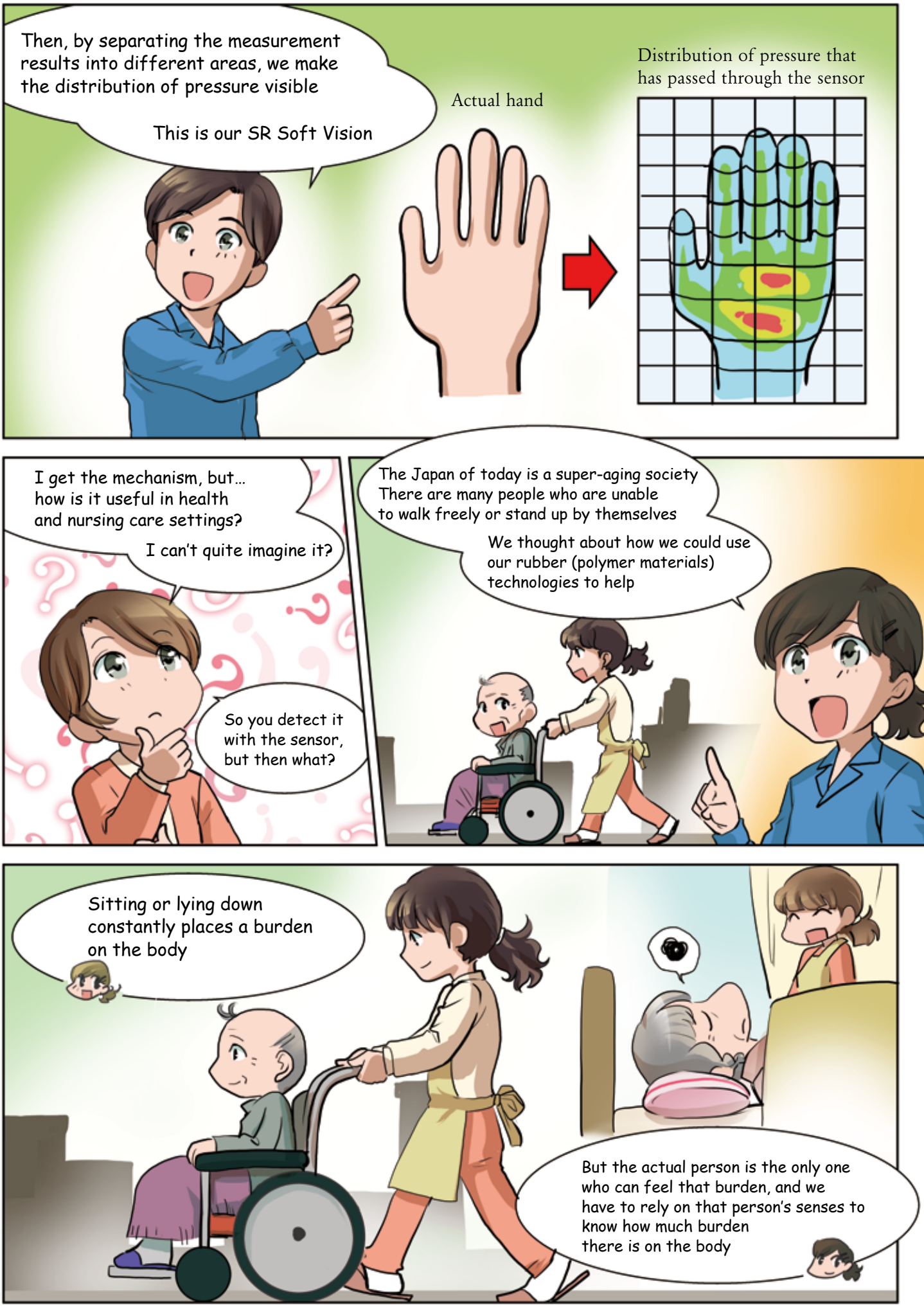
(Push)

When you push down like this, if you look at it from the side...

The distances of (1) and (2) are different, so we measure the difference between them

Actually, and this is a key point, getting electricity to pass through in the same way, even when the measured section and other sections are expanding and contracting like this, is quite a difficult technology

Oh, I see!


Then, by separating the measurement results into different areas, we make the distribution of pressure visible
This is our SR Soft Vision
Actual hand
Distribution of pressure that has passed through the sensor
I get the mechanism, but… how is it useful in health and nursing care settings?
I can't quite imagine it?
So you detect it with the sensor, but then what?
The Japan of today is a super-aging society There are many people who are unable to walk freely or stand up by themselves
We thought about how we could use our rubber (polymer materials) technologies to help
Sitting or lying down constantly places a burden on the body
But the actual person is the only one who can feel that burden, and we have to rely on that person's senses to know how much burden there is on the body

Oh, okay
So, by using this SR Soft Vision,
both the caregiver
and the care receiver can know
what the "correct pressure" is!

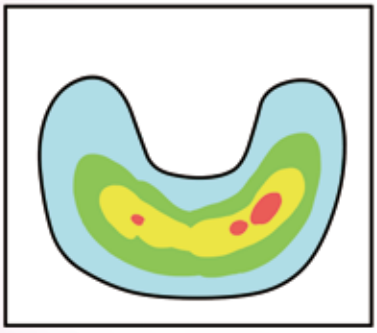
That's right

Oh! You're leaning a bit
to the right, so I'll adjust
your position

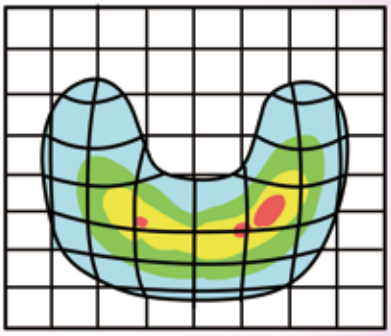
I adjusted it
to the left
for you!

Thank you
It feels much
better now!

This product, SR Soft Vision,
caters for a wide variety of scenarios

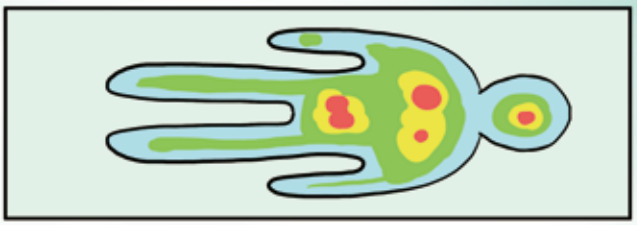


"Distribution Model," which shows only the distribution of body pressure

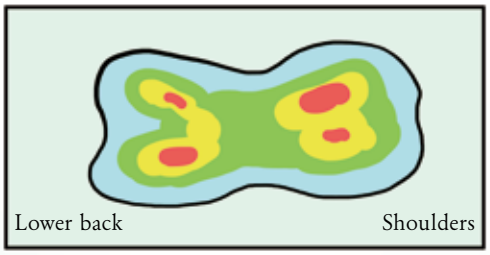


"Numerical Model," which shows not just the distribution, but the pressure values and the center of the surface pressure

As well as a "Wireless Model,"
which can be used on
a tablet or smartphone,
we also have large sizes
that can be used to measure
sleeping position

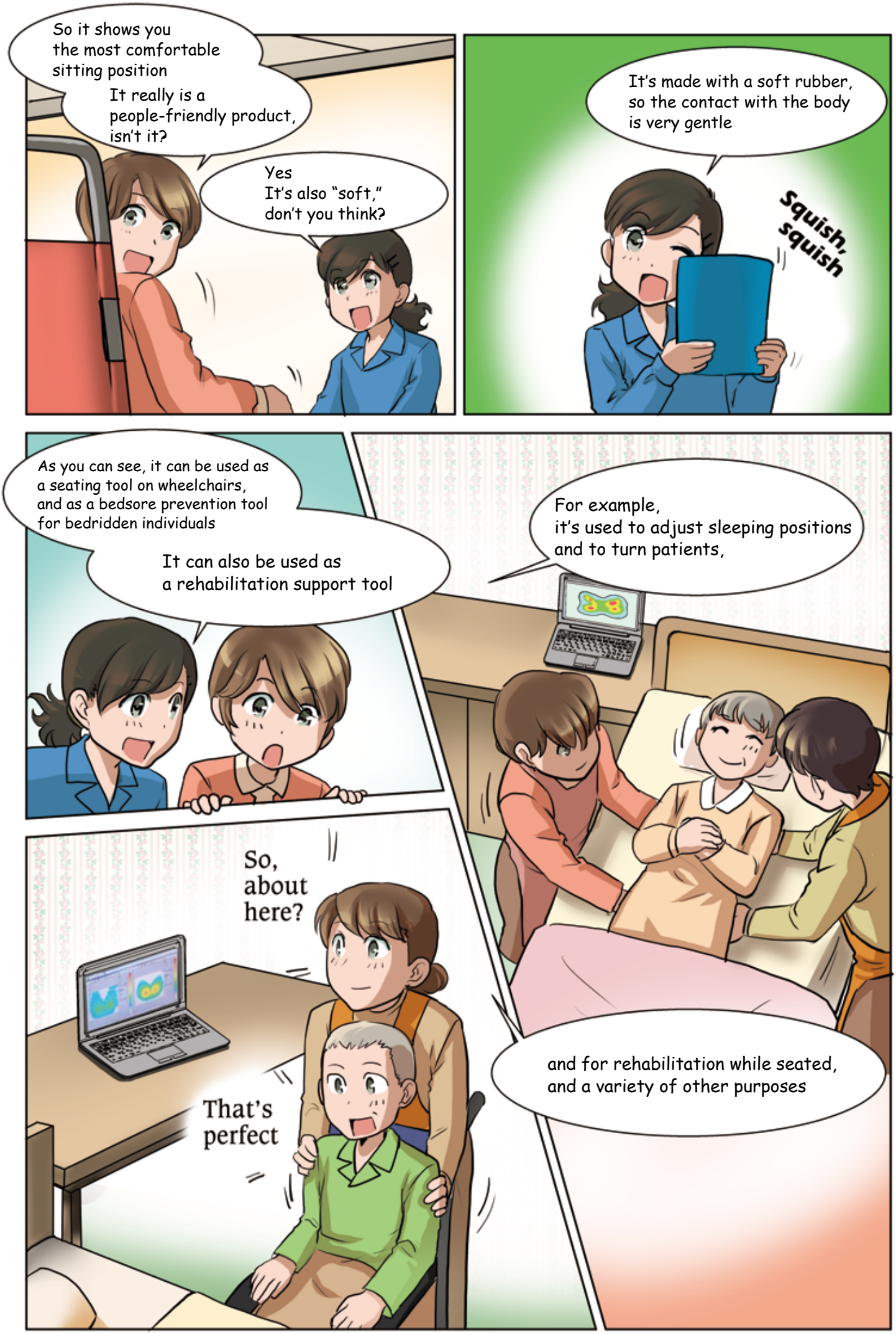


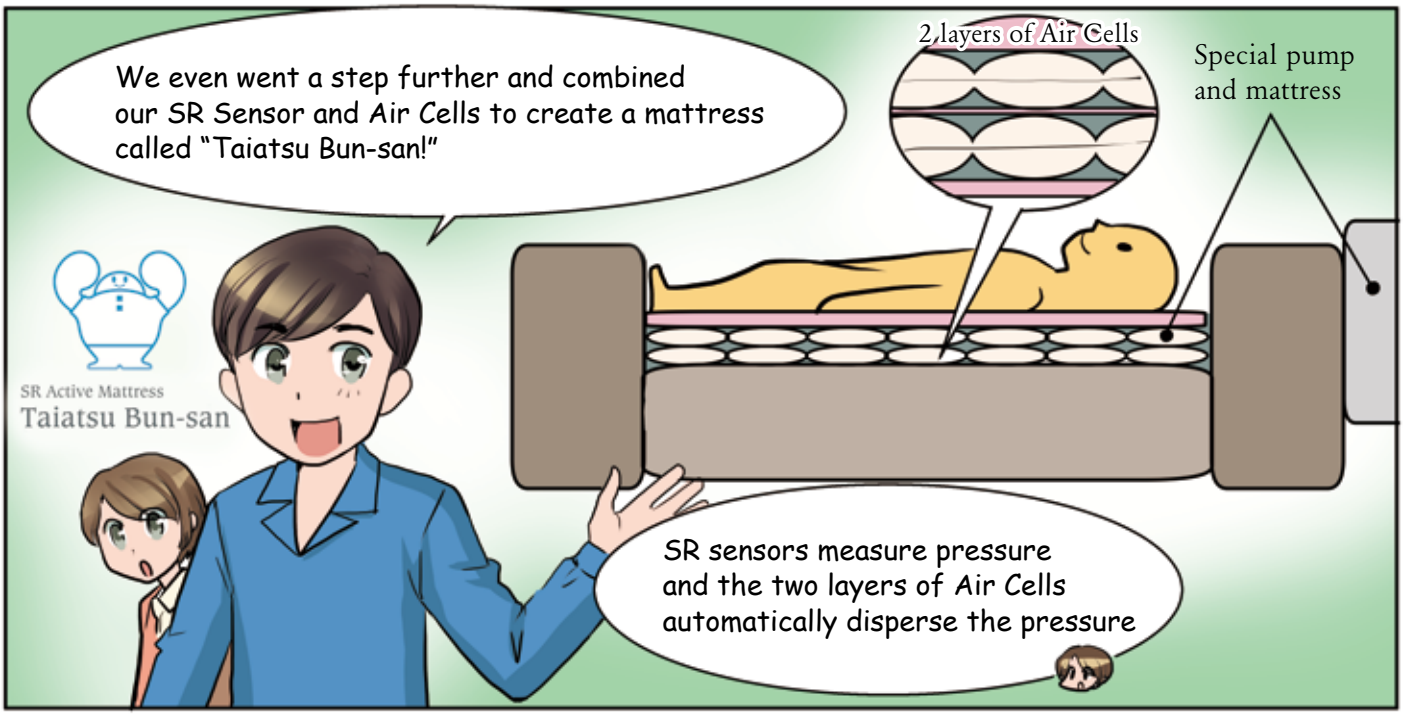
Whole-body model

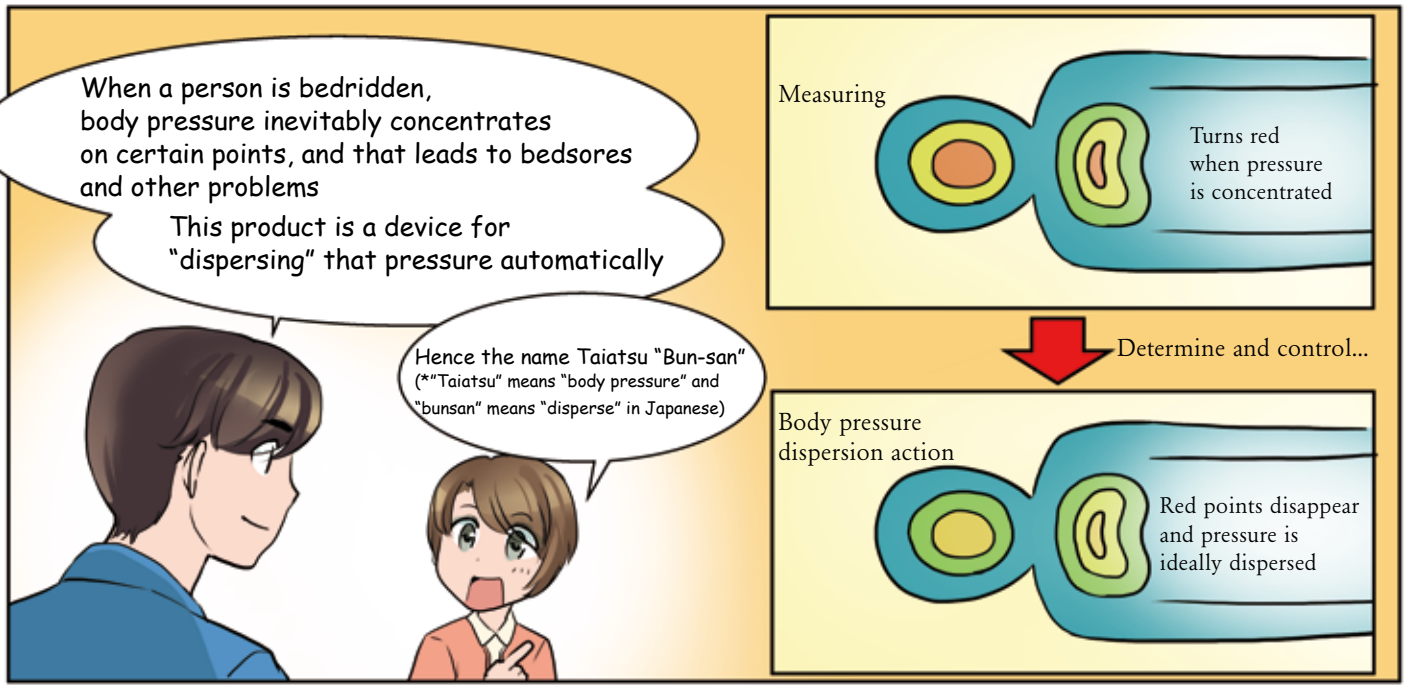


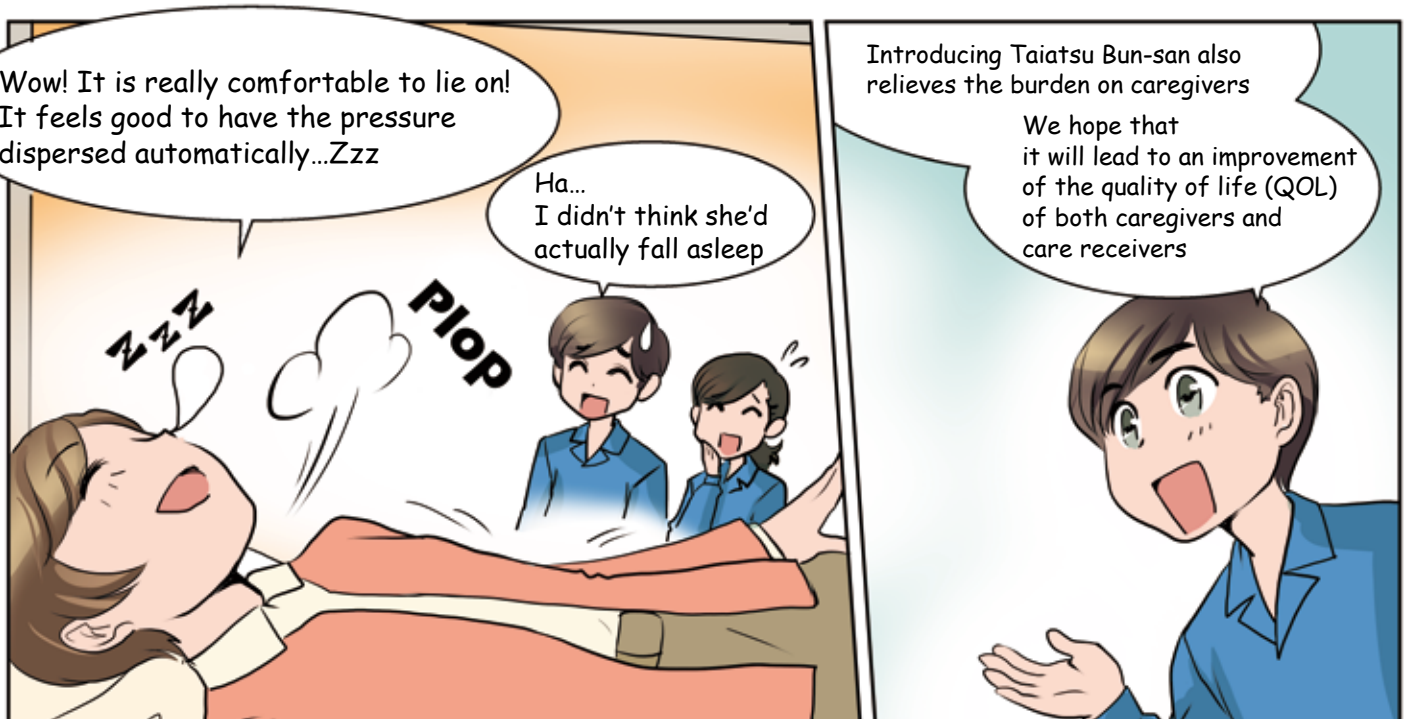
Half-body model

Tablet

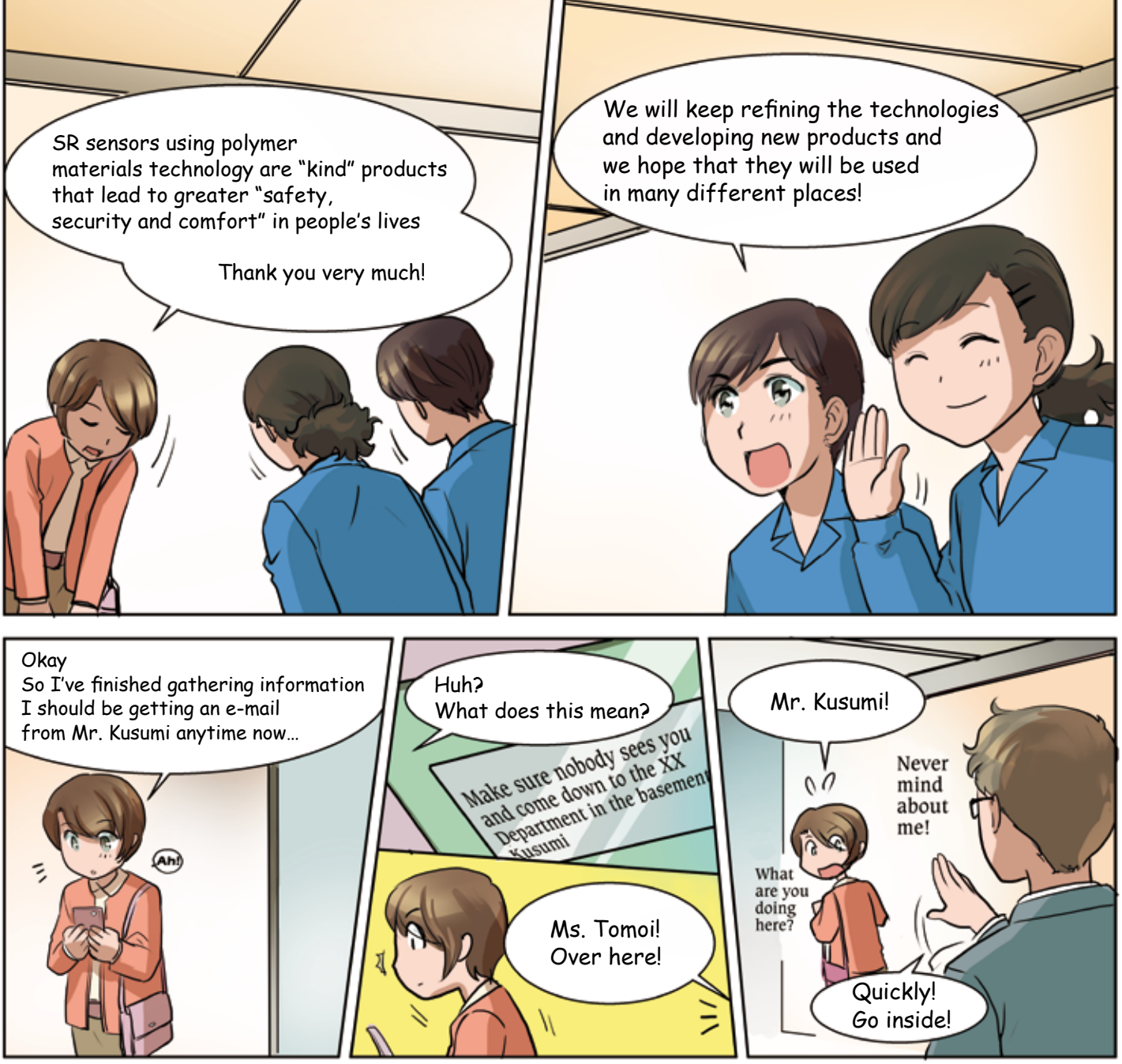

So it shows you the most comfortable sitting position
It really is a people-friendly product, isn't it?
Yes
It's also "soft," don't you think?
It's made with a soft rubber, so the contact with the body is very gentle
Squish, squish
As you can see, it can be used as a seating tool on wheelchairs, and as a bedsore prevention tool for bedridden individuals
It can also be used as a rehabilitation support tool
For example, it's used to adjust sleeping positions and to turn patients,
So, about here?
That's perfect
and for rehabilitation while seated, and a variety of other purposes

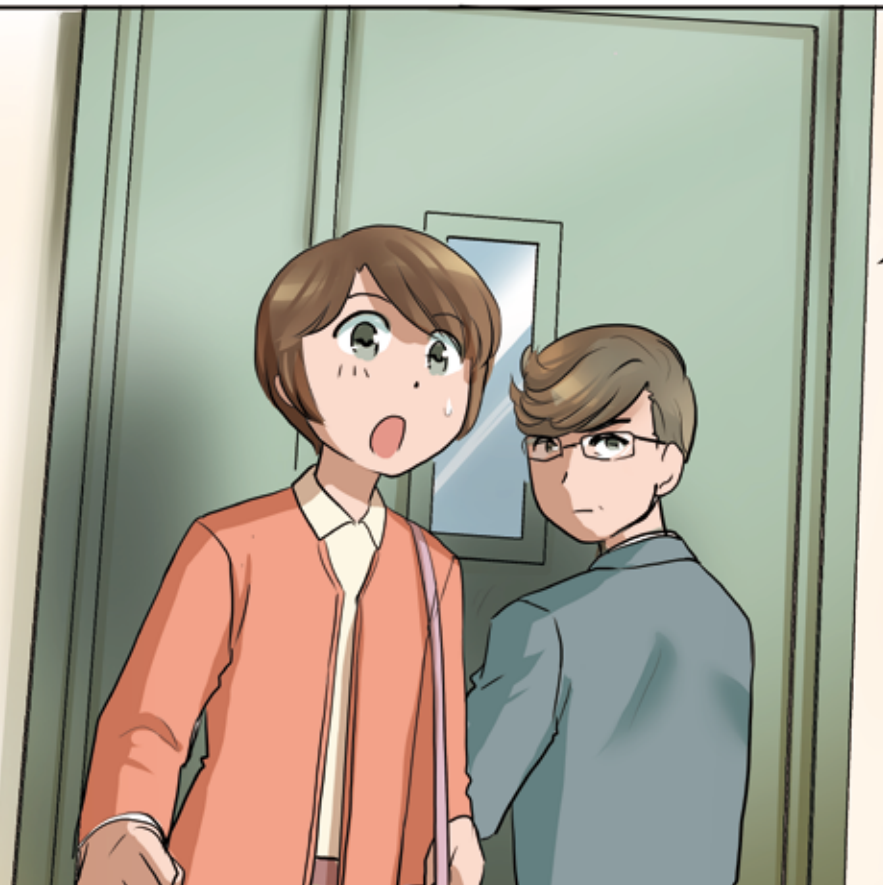

We even went a step further and combined our SR Sensor and Air Cells to create a mattress called "Taiatsu Bun-san!"
2 layers of Air Cells
Special pump and mattress
SR Active Mattress
Taiatsu Bun-san
SR sensors measure pressure and the two layers of Air Cells automatically disperse the pressure


When a person is bedridden, body pressure inevitably concentrates on certain points, and that leads to bedsores and other problems
This product is a device for "dispersing" that pressure automatically
Hence the name Taiatsu "Bun-san" (*"Taiatsu" means "body pressure" and "bunsan" means "disperse" in Japanese)
Measuring
Turns red when pressure is concentrated
Determine and control...
Body pressure dispersion action
Red points disappear and pressure is ideally dispersed


Wow! It is really comfortable to lie on! It feels good to have the pressure dispersed automatically...Zzz
Ha... I didn't think she'd actually fall asleep
ZZZ
Piop
Introducing Taiatsu Bun-san also relieves the burden on caregivers
We hope that it will lead to an improvement of the quality of life (QOL) of both caregivers and care receivers


Um…What's that doll over there?
Is it a CPR doll?
This is Shinnosuke-kun
This product is not a doll
It has SR sensors on the chest
Put your hands on the chest and try to give CPR
Okay!
I just took a course recently!
Show us what you've got!
Okay!
More to the right
Huh?
Deeper
Hold on
Beeeeep
Failure alert
Push
Beeeeep
Push
This is hard…
Your rhythm seems good
It looks like you just have to press down with your body weight a bit more
Applying CPR effectively actually takes quite a lot of strength
Until now, people have learned how to do CPR by feel alone
But with Shinnosuke-kun, the pressure can be visualized to help people learn
The addition of sounds has made it perfect for CPR training
Certainly, with feel alone, there may be some people who can't quite learn it properly, like me just now
If this product becomes widely available, more people might be saved!
If it's used for CPR practice and training classes, it will make it much easier to understand!





What did Ms. Tomoi see in this room?
What is the product that will lead to the future of Sumitomo Riko?...