archelis

# Removing strain from standing works


reddot winner 2020

DESIGN AWARD 2020

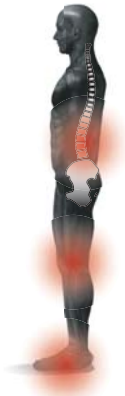
GOOD DESIGN AWARD 2018
BEST 100

Industrial

# Reduce the physical burden and improve work performance

Archelis can significantly reduce fatigue of workers caused
by standing for long periods of time by supporting their standing posture.
Also, it can stablize the trunk and maximize performance
by distributing body weight and supporting it with shins and thighs.

# Why is Archelis good for your legs and back?



In addition to fatigue from standing, the weight load is concentrated on the lower body, resulting in foot pain.

Sitting in a chair rounds the back, distorts the pelvis, strains the lower back, and causes neck and shoulder fatigue.

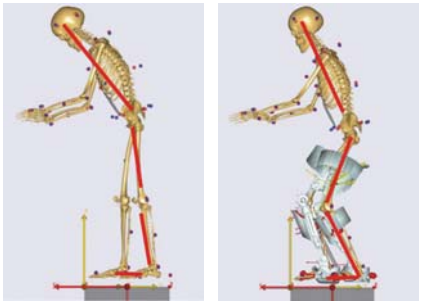
By wearing Archelis, the ideal standing posture is maintained, reducing strain on the lower back and feet.

## Distributes and supports body weight

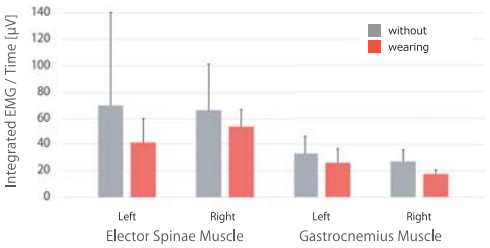
In the standing posture, weight load is concentrated on the soles of the feet, causing fatigue throughout the foot.
Archelis distributes the body weight to the thighs and shins for support, reducing the burden on the soles by up to 50%. Archelis relieves chronic pain and fatigue caused by prolonged standing works.


* Surface pressure dispersion (in-house study)

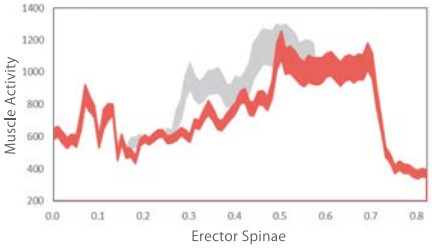
EMG measurement while standing works



without Archelis　　wearing Archelis




Demonstration Project for Safety and Health Equipment for Older Workers（2021, MHLW）




AnyBody Modeling System (Terrabyte Co., Ltd)

## Verification data of load reduction

According to joint research with Ministry of Health, Labor and Welfare(MHLW), Archelis can reduce waist load compared to without wearing Archelis.
Muscle activity in the erector spinae and gastrocnemius muscles during standing work was found to be reduced by up to 41%.

Musculoskeletal modeling of the living body also showed that Archelis reduces the load on the lower back.

Feature

# 1.

## Freely walk and sit anywhere you want

Thanks to a wearable form and its structure individually separated into right & left, it enables to repeat "walk" and "sit" freely with wearing it.

walk sit

Feature

# 2.

## No power supply needed

As no power supply is used, there is no radio wave interference with other medical devices and no need for charging. It can be used any time without any concern.

Feature

# 3.

## Easy to wear

It can be used immediately just by fastening three buckles each foot, shin and thigh leg by yourself. It takes only 30 seconds.


Adjust your heel to the device and fix your foot with a belt


Fix your shin with a belt


Fix your thigh with a belt

archelis

Archelis was born from the medical field.

In recent years, there has been remarkable evolution in medical technology. The laparoscopic surgery is also one of highly advanced medical technologies. While laparoscopic surgery significantly reduces physical burden on patients, surgeons and medical staff have to operate in standing posture for long hours, thus there are issues that the burden on their lower back and legs is increasing.

Under such circumstances, the actual reasons why they cannot operate with sitting on chairs are as follows.

The environment of operating room is designed to perform an operation in standing posture. The surgeons may change their positions depending on the areas and contents of treatment during the operation. Besides, many people work together on the operation - while various cables for medical devices lie on the floor, so no space can be secured for chairs.

Based on the actual situation of such surgical environment, the wearable chair "Archelis" was developed with completely new concepts, taking advantage of the strength of medical-engineering collaboration and the industry-academia partnership to solve issues about physical burden of surgeons and medical staff caused by the standing posture for long hours.

Co-development partner

Hiroshi Kawahira
MD, PhD, FACS
Professor & Direcor
Medical Simulation Center
Board Certified Surgeon
in Gastroenterology
School of Medicine
Jichi Medical University

The ergonomic design of Archelis

To achieve the ultimate goal of "walk and sit" which seems contradictory, Archelis takes a new design approach. A crustacean - like exoskeleton makes it possible to support the body without stressing the muscles. The basic skeleton of Archelis is composed of functional shapes that are necessary and sufficient for "walk" and "sit" by eliminating superfluous structure.

That concept and functional beauty have been highly acclaimed worldwide, winning numerous design awards, including the Good Design Award (2018), the Red Dot Award (2020), and the iF Design Award (2020).

Designer

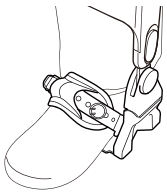
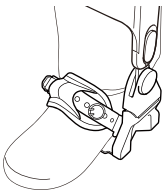
Hiroaki Nishimura
Hiroaki Nishimura Design Inc.

NEW


ArchelisFX Stick


ArchelisFX


Archelis

| | ArchelisFX Stick | ArchelisFX | Archelis |
|---|---|---|---|
| | The Lightest | Mobile & Stable | The Most Stable |
| Color | | | |
| Weight (size M - one leg) | 1.8 kg / 4.0 lb | 2.1 kg / 4.6 lb | 2.7 kg / 6.0 lb |
| Material (thign, shin) | Flexcarbon® | Flexcarbon® | Metal |
| Foot structure |  |  |  |
| Max. load wight | ~115 kg / 254 lb | ~115 kg / 254 lb | ~90 kg / 198 lb |
| Mobility |  |  |  |
| Wearability |  |  |  |

## Material (thign, shin)

FX

### Lighter by far

Flexcarbon® is strong and light fiber-reinforced plastic and enables 25% lighter compare to metal.

METAL

### Stable & secure

Metal structure makes you feel stable and secure. It enables a stable hands for precision work.

## Foot structure

STICK

### Evolved walkability

Redesigned stick structures free your ankles and enable you to walk smoothly and silently.

RATCHET BUCKLE

### Easy to wear

Same as ski boots, it is easy to put on and pull off. It fixes your shoes properly and is stable.

# Product Specification

NEW

| Product name | ArchelisFX stick | ArchelisFX | Archelis |
|---|---|---|---|
| Product code | arFXS001-S (Size S)<br>arFXS001-M (Size M)<br>arFXS001-L (Size L) | arFX001-S (Size S)<br>arFX001-M (Size M)<br>arFX001-L (Size L) | ar001-S (Size S)<br>ar001-M (Size M) |
| Material (thign, shin) | Flexcarbon® ※1 | | Metal |
| Wearable heigh | 1.45-1.65m (Size S)<br>4'9"- 5'5"ft (Size S)<br>1.60-1.85m (Size M)<br>5'3"- 6'1"ft (Size M)<br>1.70-1.95m (Size L)<br>5'7"- 6'5"ft (Size L) | | 1.45-1.65m (Size S)<br>4'9"- 5'5"ft (Size S)<br>1.60-1.85m (Size M)<br>5'3"- 6'1"ft (Size M) |
| Max. load weight | 65kg / 143lb (Size S)<br>90kg / 198lb (Size M)<br>115kg / 254lb (Size L) | | 65kg / 143lb (Size S)<br>90kg / 198lb (Size M) |
| Dimension (one leg) | 17.5 x 28.0 x 71.5 cm (Size S)<br>6.9 x 11.0 x 28.1inch (Size S)<br>17.5 x 28.0 x 78.5 cm (Size M)<br>6.9 x 11.0 x 30.9inch (Size M)<br>17.5 x 28.0 x 82.3 cm (Size L)<br>6.9 x 11.0 x 32.4inch (Size L) | | 17.5 x 28.0 x 71.5 cm (Size S)<br>6.9 x 11.0 x 28.1inch (Size S)<br>17.5 x 28.0 x 78.5 cm (Size M)<br>6.9 x 11.0 x 30.9inch (Size M) |
| Weight (one leg) | 1.7kg / 3.7lb (Size S)<br>1.8kg / 4.0lb (Size M)<br>1.9kg / 4.2lb (Size L) | 2.0kg / 4.4lb (Size S)<br>2.1kg / 4.6lb (Size M)<br>2.5kg / 5.5lb (Size L) | 2.3kg / 5.1lb (Size S)<br>2.7kg / 6.0lb (Size M) |
| Color | Carbon black | | Black / White ※2 |
| Accessory | Dedicated stand | | |

※1 Flexcarbon® is strong and light fiber rein-forced plastic developed by Suncorona Oda Co., Ltd.
※2 The color of the model shown in the picture is White.

https://www.archelis.com/en

Distributor (contact for inquiries)

Specifications and appearance are subject to change without notice for improvement.
Product colors may appear different from actual colors due to photography and printing inks.

Patented
Made in JAPAN

Archelis Inc.

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