

Technology That Saves Precious Lives

“QuanFoam Technology” – Speed-Responsive Shock Absorption Material

Quanfoam[®]

HIP SUPPORT

MADE

IN

Shock-absorbing
STF Material,
QuanFoam

KOREA

“Made in Korea” symbolizes
unparalleled quality.

Tannuscare prioritizes quality above all
and conducts its own research and development.

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Global Production Network

Aging Population

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Mortality After Hip Fractures

Hip Medical Devices

About TANNUSCARE

Tannuscare was founded in memory of the founder's grandmother, who tragically passed away due to a fall incident. Our ultimate goal is to prevent such tragedies and ensure the safety and well-being of everyone, particularly underprivileged and vulnerable elderly individuals, by promoting safe walking.

Technology That Saves Precious Lives



Corporate name	Tannuscare Co., Ltd.
CEO	Young-Dong KIM
Since	2023
Address	62, Bonsan-ro, 269beon-gil, Jinyeong-eup, Gimhae-si, Gyeongsangnam-do, Korea (50855)
Government Certifications	• Global Small and Strong Enterprise • Global IP Star Company • Innovative Growth Venture Company • Excellent Sporting Goods Manufacturer
Key Technologies	• Advanced polymer compound materials • Technical footwear • Airless tires • Medical devices • Robot parts
Affiliate Company	• Tannus Co., Ltd.

Since 2023 Medical device manufacturing license

A company that changes the world and contributes to human society through technology.

Since
1985

- Establishment of Fine Chemical Co., Ltd. (Parent Company of Tannus)
 - World's first manufacturer of foam injection molding
 - Joint development of midsole EVA foam injection molding technology with a global leading company of footwear industry
 - Development of EVA foam injection molding technology for sports shoe outsoles

2003

- Development of AITHER compound
 - Development of airless bicycle tires

2011

- Establishment of Tannus Co., Ltd. (Parent Company of Tannuscare)
- ODM Production of Oofos



2011

- Launch of Tannus Airless Tire

2019

- Launch of Tannus ARMOUR (Bicycle tire insert)

2020

- Launch of Tannus TUBELESS (Tubeless bicycle tire insert)

2022

- Development of **QUANFOAM** compound
 - Speed-responsive Impact Absorbing STF material

2023 **TANNUS**
CARE

- Establishment of Tannus care Co., Ltd.
 - Medical device manufacturing license

Now

2024

- Launch of MEDICAL DEVICE 'QUANFOAM HIP SUPPORT'

Manufacturing Global Network

Expanding global production bases for the development of healthcare, functional footwear, mobility, robotics, and marine products through continuous advanced material innovation.

- Domestic Network (Production)

- 3 Factories in Korea

- Overseas Network (Production)

- 2 Factories in Vietnam
- 2 Factories in China
- 1 Factory in Indonesia

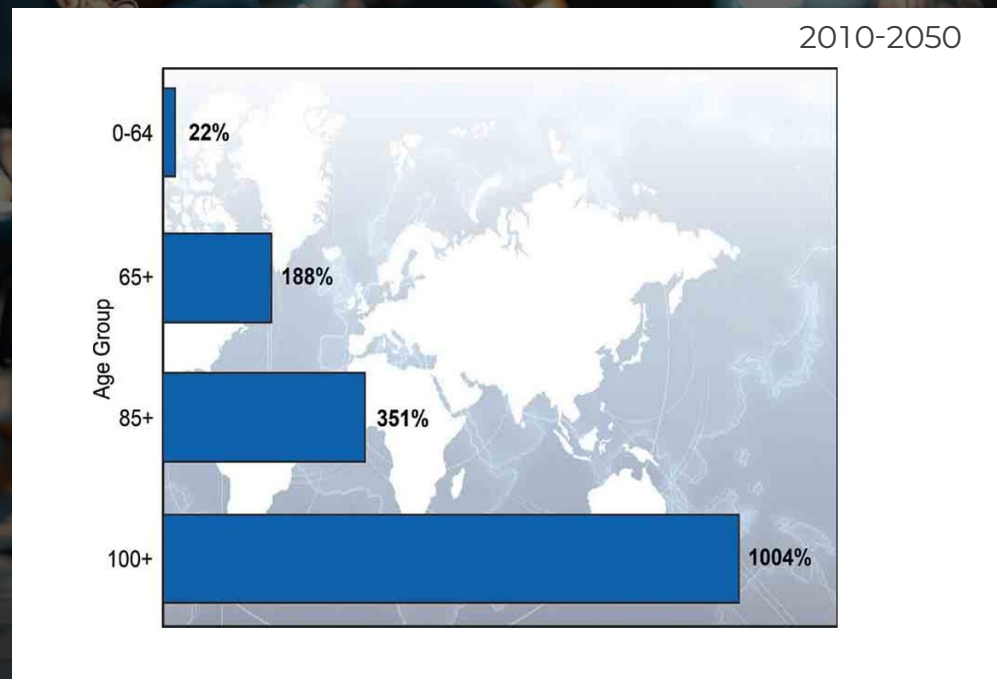


As of 2023, the global population is 8 billion, with **800 million** elderly people

*Source: UN, DESA, Population Division, World Population prospect 2024

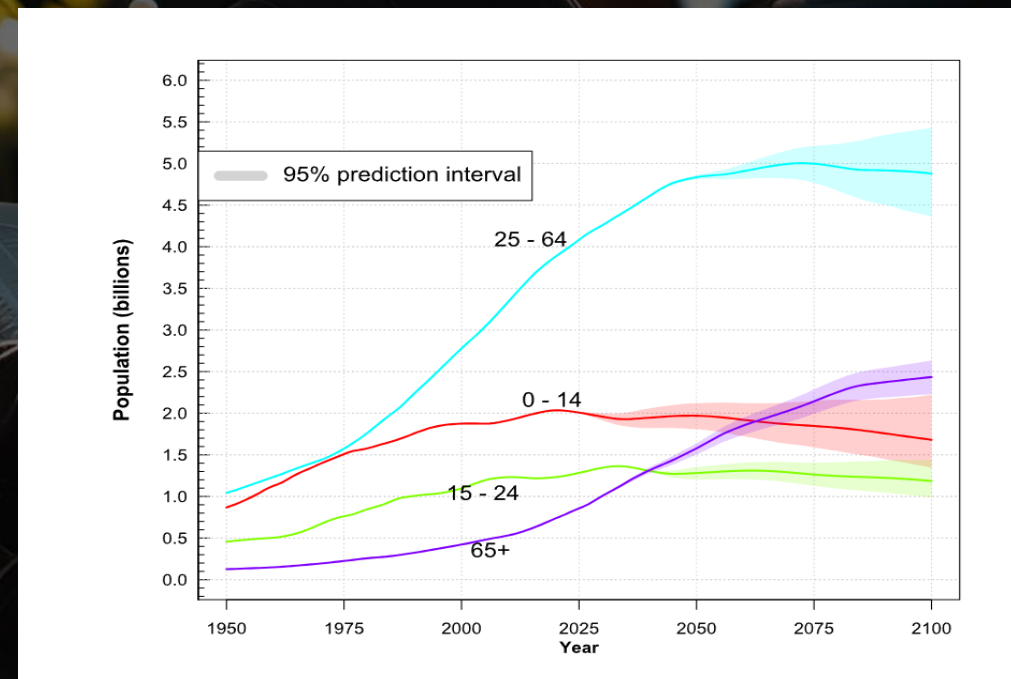
- By 2050, the population aged 65 and older is expected to **increase by 188%** (As of 2010)
- By 2050, the population aged 85 and older is expected to **increase by 351%** (As of 2010)

Percentage Changes in the World Population by Age Groups



*Source: WHO, Global Health and Aging, 2011

Population by Broad Age Groups



*Source: UN, DESA, Population Division, World Population prospect 2024

By 2050, the number of hip fracture is expected to double



*Source: JBMR, Vol.38, Global Epidemiology of Hip Fractures: Secular Trends in Incidence Rate, Post-Fracture Treatment, and All-Cause Mortality

Projection of Hip Fractures in 2050 in people Aged 50 years and Older

Site	2018 (or most recent year)			2050			Fold-change (2050/2018)		
	All	Female	Male	All	Female	Male	All	Female	Male
Oceania									
Australia	25,219	16,757	8462	108,260	35,585	72,675	4.29	2.12	8.59
New Zealand	4215	2870	1345	9304	5636	3669	2.21	1.96	2.73
Asia									
Hong Kong	6600	4398	2202	9820	6947	2873	1.49	1.58	1.30
Singapore	3146	2092	1054	8196	4911	3285	2.61	2.35	3.12
South Korea	38,679	27,971	10,708	102,257	83,843	18,414	2.64	3.00	1.72
Taiwan	20,629	13,176	7453	34,372	20,219	14,153	1.67	1.53	1.90
Thailand	21,478	14,055	6423	96,246	56,284	39,962	4.48	3.74	6.22
Northern and Western Europe									
Denmark	7800	5176	2624	3960	1695	2265	0.51	0.33	0.86
Finland	7083	4768	2315	7929	5069	2860	1.12	1.06	1.24
UK	45,781	32,011	13,780	54,147	35,010	19,137	1.18	1.09	1.39
France	97,377	72,187	25,190	119,702	87,985	31,717	1.23	1.22	1.26
Germany	126,329	85,896	40,433	222,708	115,523	107,185	1.76	1.34	2.65
Italy	93,636	69,566	24,070	97,710	71,679	26,031	1.04	1.03	1.08
The Netherlands	17,177	11,739	5438	67,346	35,096	32,250	3.92	2.99	5.93
Spain	51,936	37,529	14,407	78,520	49,983	28,537	1.51	1.33	1.98
North and South America									
Canada	28,030	19,350	8680	47,486	31,431	16,055	1.69	1.62	1.85
US (Optum)	337,348	232,635	104,713	605,966	370,679	235,287	1.80	1.59	2.25
Brazil	50,593	32,903	17,690	199,148	131,386	67,762	3.94	3.99	3.83
All sites	983,056	686,069	296,987	1,873,078	1,148,961	724,117	1.91	1.67	2.44

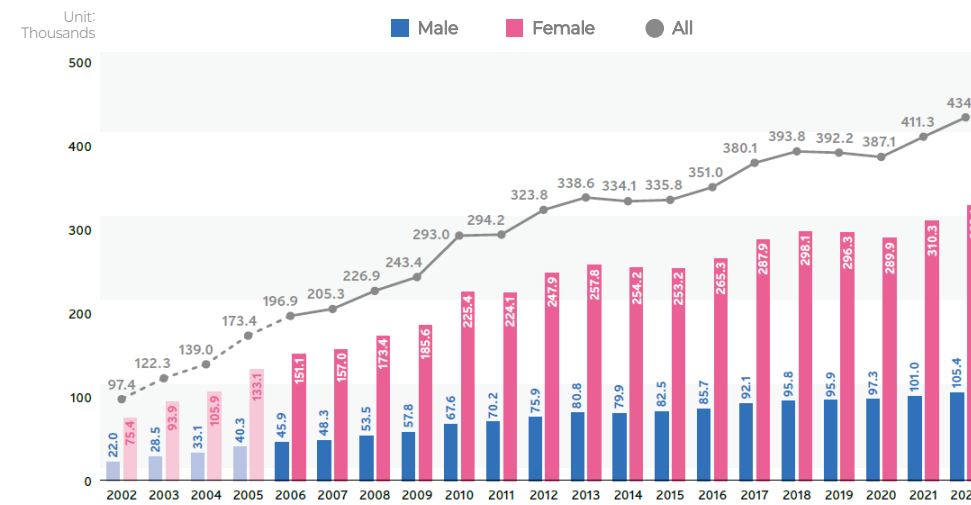
*Source: JBMR, Vol.38, Global Epidemiology of Hip Fractures: Secular Trends in Incidence Rate, Post-Fracture Treatment, and All-Cause Mortality

Major causes are Osteoporosis & Sarcopenia

40%

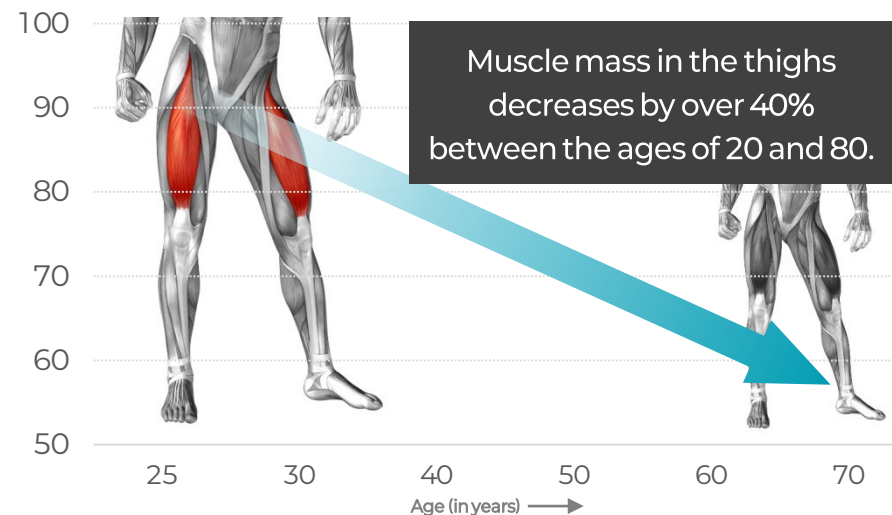
Muscle mass loss between
the ages of 20 and 80

Rise in Osteoporotic Fracture Incidence (Aged 50 and Above)



*Source: KSBMR, Osteoporosis and osteoporosis fractures FACT SHEET 2023

Muscle Mass Comparison by Age Group



*Source: THE LANCET (International Journal of Medicine), Oct 2014

Mortality rate of 24.3% within one year after a hip fracture

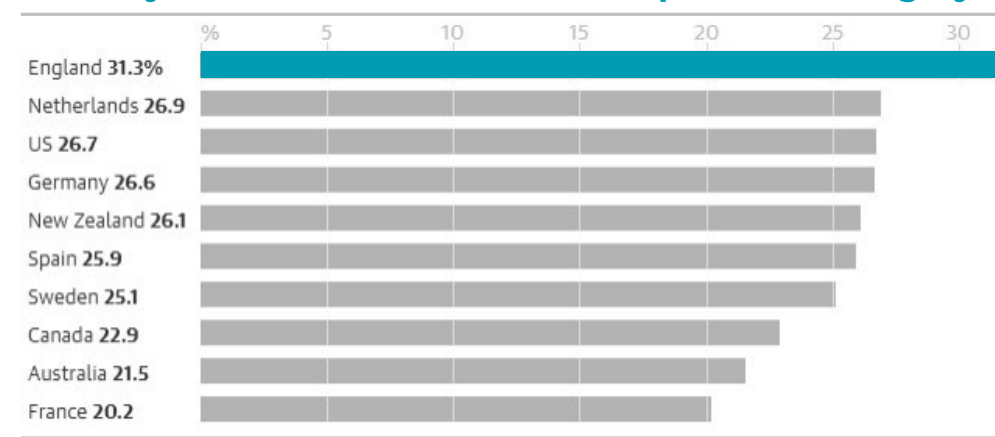
Source: Holvik, K., Ellingsen, C.L., Solbakken, S.M. et al. Correction to: Cause-specific excess mortality after hip fracture: the Norwegian Epidemiologic Osteoporosis Studies (NOREPOS). BMC Geriatrics 23, 300 (2023).

Complication rate of 75% after hip surgery

- Delirium 20%, Pneumonia 10%, Congestive Heart Failure 5%

1/3 of patients die within one year after hip fracture surgery

Mortality Rate within One Year After Hip Fracture Surgery



*Source: Harvard University, LSE, The Health Foundation

Incidence of complications during 6 months of follow-up after surgery for hip fracture

	N(%)
Number of complications	
None	119(25)
One	150(31)
Multiple	210(44)
Specific complications	
Delirium	98(20)
Pneumonia	47(10)
Heart failure	25(5)
Pressure ulcer	5(1)
Wound problems	43(9)
Surgical or implant – related	20(4)
Only during follow-up (outpatient clinic)	80(16)
Reoperation	52(11)
Mortality (1 year)	129(27)

*Source: Flikweert, E.R., Wendt, K.W., Diercks, R.L. et al. Complications after hip fracture surgery: are they preventable?. Eur J Trauma Emerg Surg 44, 573–580 (2018).



Technology That Saves Precious Lives

“QuanFoam Technology” – Speed-Responsive Shock Absorption Material

QuanFoam
HIP SUPPORT

Product Descriptions

QuanFoam[®]

HIP SUPPORT

Impact-Absorbing Guard for Hip Fracture Prevention with Speed-Responsive Shock Absorption 'QuanFoam' Technology

Key Features

- Optimized STF material for shock absorption
- Ergonomically designed pads
- Lightweight with excellent flexibility achieved through high-foam injection molding
- MADE IN KOREA
- Trademark Registration Number: 40-2177995, 40-2177996
- PCT Application Number: PCT/KR2022/021426

MEDICAL DEVICE

KFDA
CLASS 1

FDA
CLASS 1



Maximum
Thickness **10mm**

Weight **20g**

Streamlining Shape

Helps ensure a close fit between the joint area and the pad

Hexagonal-Shaped Carved Pattern

Provides flexibility to the pad, enhancing comfort and ensuring mobility

Thickness Variation

The thickness tapers towards the outer section, preventing the pad from showing through outerwear

Breathability

49 holes enhance breathability between the product and the wearer

Small Spherical Protrusions On Rear

Provide secure support for the pad during wear and create space between the wearer and the pad to enhance breathability

Non-Slip Texture

Keeps the pad securely in place and prevents it from shifting



Hip Medical Devices

Who Uses It?



Individuals at high risk of fractures due to conditions such as osteoporosis or sarcopenia



Individuals needing additional protection after hip surgery



Individuals with high risk-fall requiring hip protection in daily life



Individuals with weakened hips experiencing unstable walking

Components

QuanFoam[®]
HIP SUPPORT



- 2 x QuanFoam protective pads
- 1 pair of underwear for inserting the protective pads

Size/Color

For Women (Pink, Violet, Beige)



Size	Waist Measurement	Side Length	Leg Opening Size
90	27	33	19
95	29	35	20
100	31	37	21
105	33	39	22
110	35	41	23
115	37	43	24

For Men (Blue, Navy)



Size	Waist Measurement	Side Length	Leg Opening Size
95	32.5	34.5	29.5
100	35	36	30.5
105	37.5	37.5	31.5
110	40	39	32.5
115	42.5	40.5	33.5
120	45	42	34.5

World's First Speed-Responsive Shock
Absorbing STF Material with Foam
Molding Capability,

QuanFoam

A cutting-edge shock-absorbing material created through high-foam injection molding technology using a polymer material that increases in viscosity with shear speed



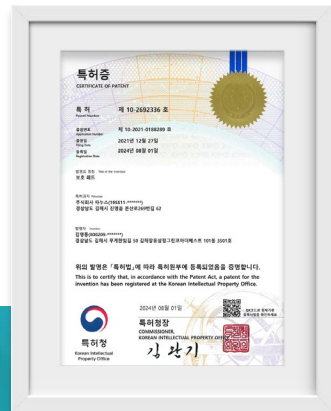
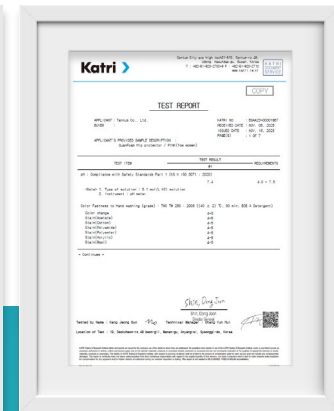
Speed-Responsive Impact Absorber(STF) Ball Drop Test (*STF = Shear Thickening Fluid)

Testing Equipment:
Steel Ball Drop Tester
Steel Ball (Diameter 4cm, Weight 303g)

Dropped height Impact velocity		Drop height 30cm, Impact speed 2.43m/s	Drop height 50cm, Impact speed 3.13m/s	Drop height 80cm, Impact speed 3.96m/s	Drop height 100cm, Impact speed 4.43m/s	Drop height 150cm, Impact speed 5.42m/s	Drop height 180cm, Impact speed 5.94m/s
QuanFoam Hip support	Rebound Elasticity	1cm	2cm	3cm	4cm	8cm	9cm
	Rebound Ratio	3.33%	4%	3.75%	4%	5.33%	5%
Competitive Product (*** Hip)	Rebound Elasticity	12cm	22cm	36cm	45cm	53cm	54cm
	Rebound Ratio	40%	44%	45%	45%	35.33%	30%

- QuanFoam exhibits excellent shock absorption performance: Low Rebound Ratios indicate the product absorbs impact energy without bouncing back
- QuanFoam Hip Support reacts to the speed of impact: lower viscosity at low impact speeds and higher viscosity at high impact speeds, maintaining a consistent rebound ratio of 3.33 – 5.33%
- Competitive product (*** Hip) do not respond to impact speed, leading to inconsistent rebound ratios.
- * Increased rebound ratios with impact speed up to 80cm, after which the products get damaged, reducing rebound ratios.
- * This reduction is not due to impact absorption but rather product damage, passing the energy to the ground.
- Thus, QuanFoam Hip Support proves to be a ‘speed-responsive shock absorber’ that changes viscosity according to impact speed and absorbs impact energy.

Patent Rights

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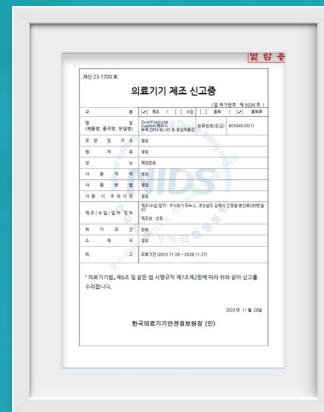
Katri 
Testing & Research Institute

Trademark Registration Number:
40-2177995, 40-2177996

Medical Device Manufacturing License

Preparing for ISO13485 Certification

Preparing for CE Certification



Donation Campaign / Care for Elderly – In Memory of Boksoon Song

Donation of 1 unit of ‘QuanFoam Hip Support’ for every 100 units sold:

Target of donating 1 million products

This campaign aims to prevent tragic incidents like the fall that led to the unfortunate passing of the founder's grandmother, Boksoon Song, back in the late fall of 2019, by providing hip protection to underprivileged and vulnerable elderly individuals for safe walking.

As of 2022, the hip fracture rate for those over 80 is known to be over 1%.

For every 100 units of ‘QuanFoam Hip Support’ sold, Tannuscare will donate 1 unit of the product to elderly individuals with visual or hearing impairments, ensuring such unfortunate events do not recur.

CONTACT US

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