

What's next for textiles in the healthcare industry?

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Advanced Textiles
EXPO

AGENDA



Textiles in Healthcare Overview



Future Outlook



Function of Medical Textiles Today



Essential to Serve this Market

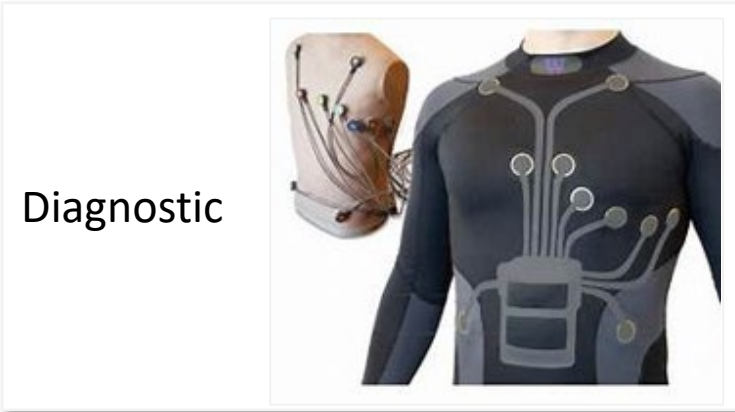
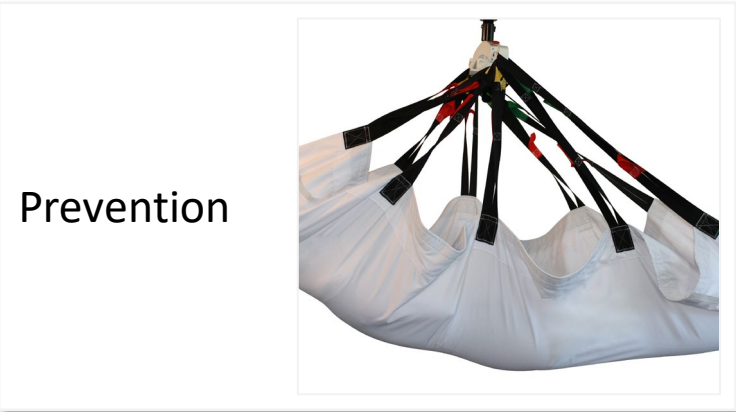
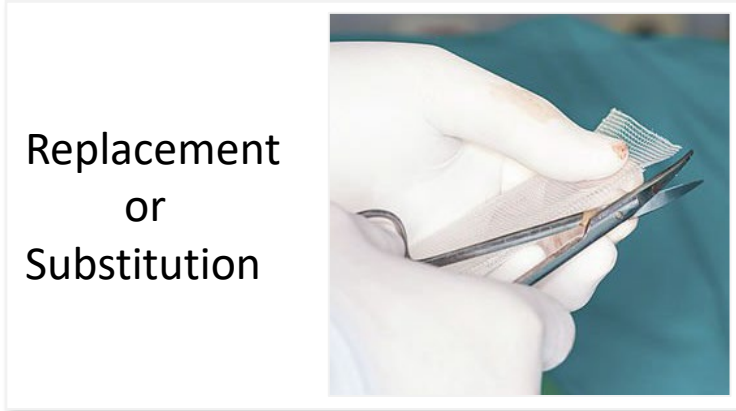


Multi-organizational Approach

Current uses of textiles in healthcare

Medical textiles play an important role in healthcare, from prevention and diagnosis to treatment, and even act as skin substitutes.

Infection Control



Performance attributes of medical textiles

Provide long lasting antimicrobial performance

Regulate moisture & temperature

Increase lymphatic fluid flow

Promote recovery

Create optimum conditions for skin-soothing

“
...unique technology embeds active zinc ions into the matrix of a premium nylon polymer. Unlike topical finishes or coatings, the zinc ions do not wash away or flake off, providing long-lasting functionality.”

“
Specialized channels encourage airflow, helping to reduce heat retention and provide a soothing touch; especially great for women experiencing symptoms associated with Lymphedema.”

”
Micro Massage 3D wave knit technology and lighter compression to encourage microcirculation and enhance the body's natural ability to uptake and transport excess fluid.”

“
The pressure difference created between the blocks on the skin and the surrounding area stimulates the flow of lymphatic fluid, optimizing drainage efficacy.”

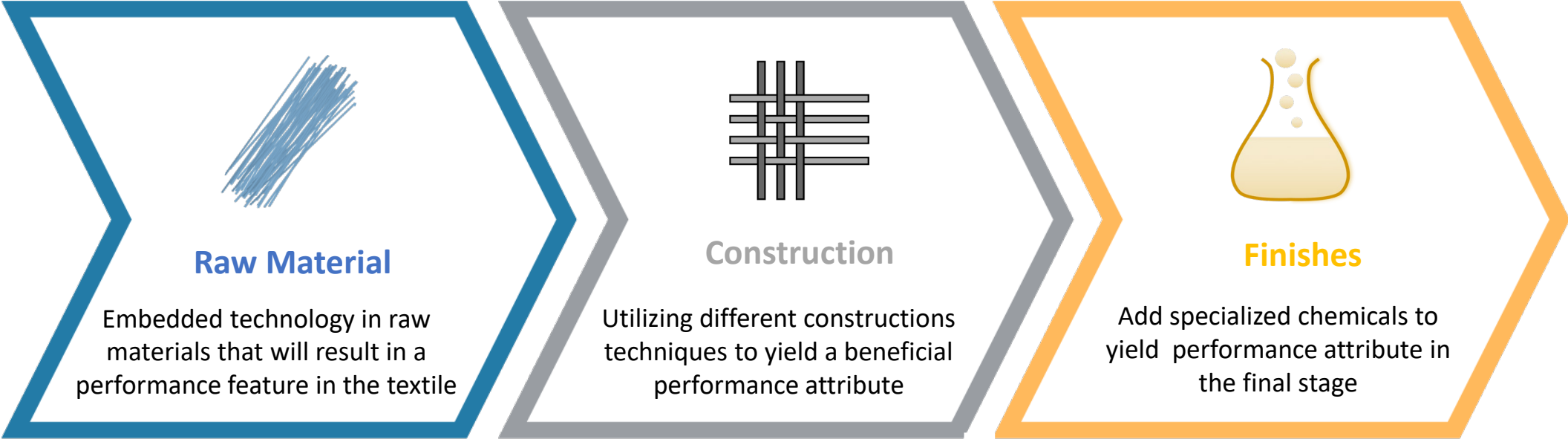
”
Textured material on the skin side provides a light massaging effect and relaxation of fibrotic tissue, plus light massaging of the scar.”

“
...stimulates the wound bed by means of micro-bleeding, whereupon vascular-rich connective tissue is formed by the granulation of the wound bed.”

”
Draining Lymph fluid towards the axillary nodes is essential for breast health.”

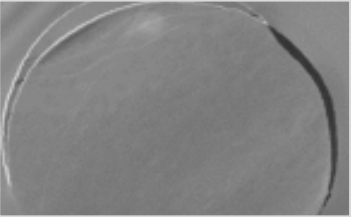
”
...creates downward pressure along multiple linear “furrows” in the subcutaneous tissue. Increasing the interstitial tissue pressure assists in transferring interstitial fluid into the adjacent tissues which are non-compressed.”

Current solutions: raw material, construction and finishes




Examples

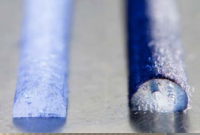
Zinc embedded PA 66




Seaweed Zinc fibers



Textured fabric stimulate lymph flow



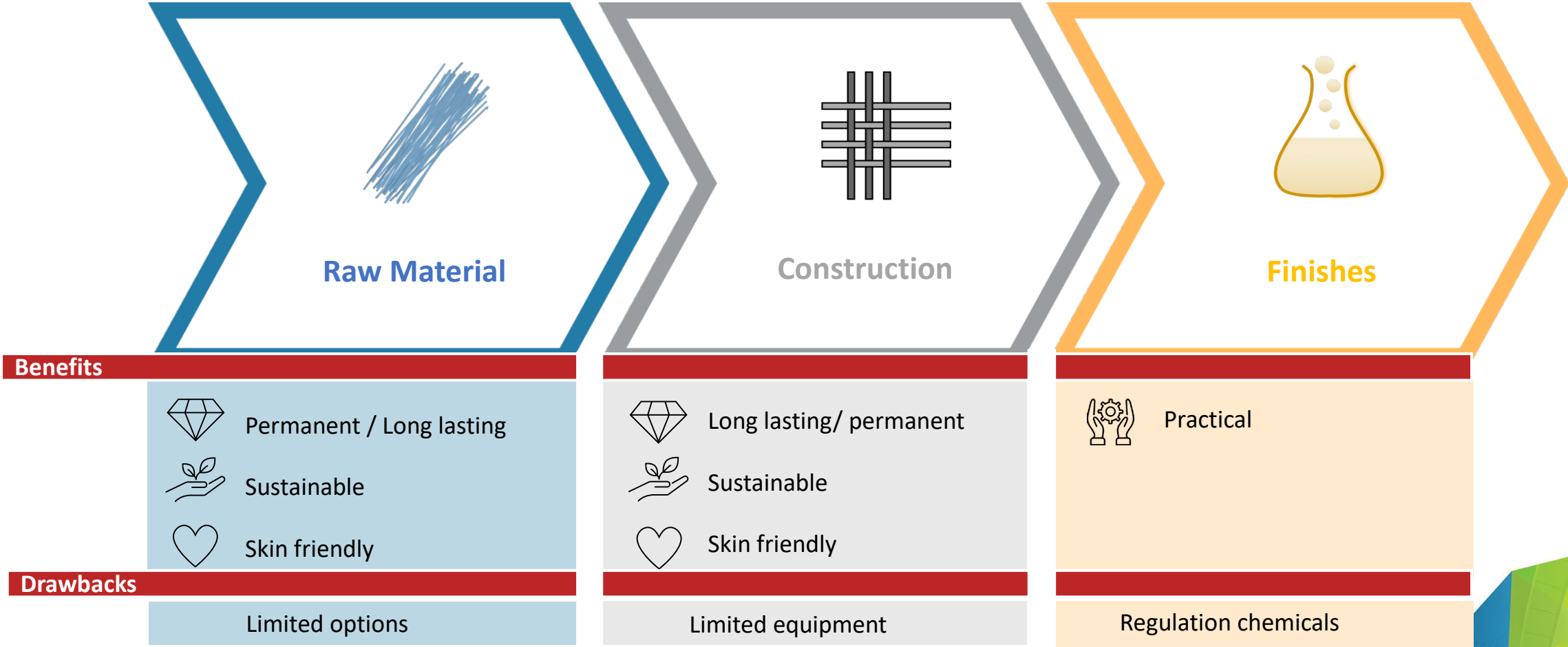
3D pore promotes the growth of cells



Textile-embedded microcapsules



Current solutions: benefits and drawbacks



Industry outlook: health industry continues to grow

The healthcare sector is poised for continued growth, propelled by an aging population, and escalating rates of obesity and diabetes, all of which contribute to health expenditures.

US Adult Population

Age Group	2018-2020 CAGR
75+ years	3.9%
65-74 years	2.1%
55-64 years	-0.6%
45-54 years	0.2%
18-44 years	0.6%

US Diabetes prevalence

From 2001 to 2020, it significantly increased among US adults 18 or older. 37.3 million people have diabetes—that's 11.3% of the US population.

US Personal Health Expenditure

	2010-2015 CAGR	2015-2025 CAGR
Durable medical equipment	4.7%	5.5%
Home health	2.3%	5.2%
Nursing care facilities	5.1%	6.3%
Physician and clinical	4.7%	5.5%
Hospital	3.2%	5.4%

US Hospital Acquired Infections

687,000 HAI's in United States acute care hospitals in 2015.

Future of healthcare textiles: navigating supply chains

Lessons learned & outcomes from recent supply chain transformations



GPO's invested to secure supply chain :

GPOs actively involved in secure and reliable supply chains to mitigate risk and ensure consistent supply.



Production shift to the western hemisphere:

The Western Hemisphere capitalizes on opportunities to attract healthcare textile and medical device production, reducing dependency on Asian markets.



Balancing act: labor vs. product cost:

The equilibrium between labor expenses and product costs will be pivotal, influencing the decision on production locales for cost-effective manufacturing.



Future outlook: Reimbursement will foster innovation

The Lymphedema Treatment Act (LTA), passed on 12/23/22 and effective 1/1/24, improves insurance coverage for essential doctor-prescribed compression supplies used in lymphedema treatments.

New entrants

- As reimbursements become favorable, will become attractive to new manufacturers.

Competitive Landscape

- The industry might see a more competitive landscape with companies striving to develop superior products to capture a larger share of the growing market.

Increased innovation

- Increased competition will foster the thriving of superior products and the emergence of new innovations.



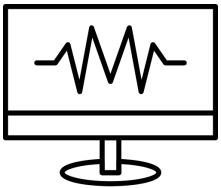
Future outlook: post-pandemic healthcare landscape

COVID-induced delays in medical care and socioeconomic disruptions have adversely impacted global health. We observe these changes reflected in emerging telemedicine trends.



Emergence of telemedicine:

- Previously limited to in-person visits in 9 countries, teleconsultations have expanded to various health workers in 23 out of 31 countries.



Technological Support:

- Telemedicine is poised for significant growth with the support of **Smart Textiles**, which efficiently monitor patients' vital signs remotely.



Future outlook: addressing nurse fatigue through innovative materials

The 2022 American Nurses Foundation study found 57% of nurses exhausted, 43% burned out, and only 20% feeling valued. Efficient tools to reduce fatigue and infection are crucial to support these healthcare workers.

Disposable Devices:

Minimize the risk of cross-contamination.



Single Patient Use:

With the right technology and materials, disposable and reusable devices can be effectively replaced by single-patient-use items, streamlining patient care.



Reusable Devices:

Offers durable and reliable solutions.



Future outlook: needs from the healthcare industry

Protection



Prevention



Diagnostic



MATERIAL NEEDS:

- Improved moisture and temperature control
- Antibacterial properties and biofilm prevention
- Skin-friendly materials
- Non-cytotoxic materials
- Environmentally friendly
- Cost-effective

Replacement
or
Substitution

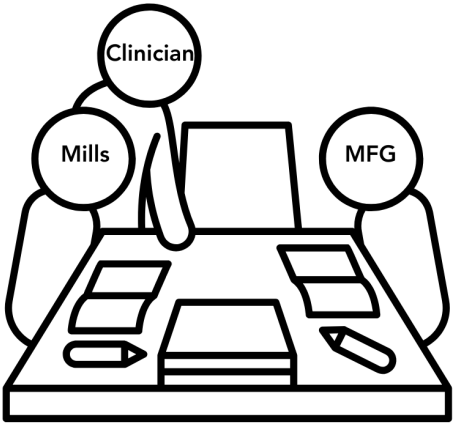
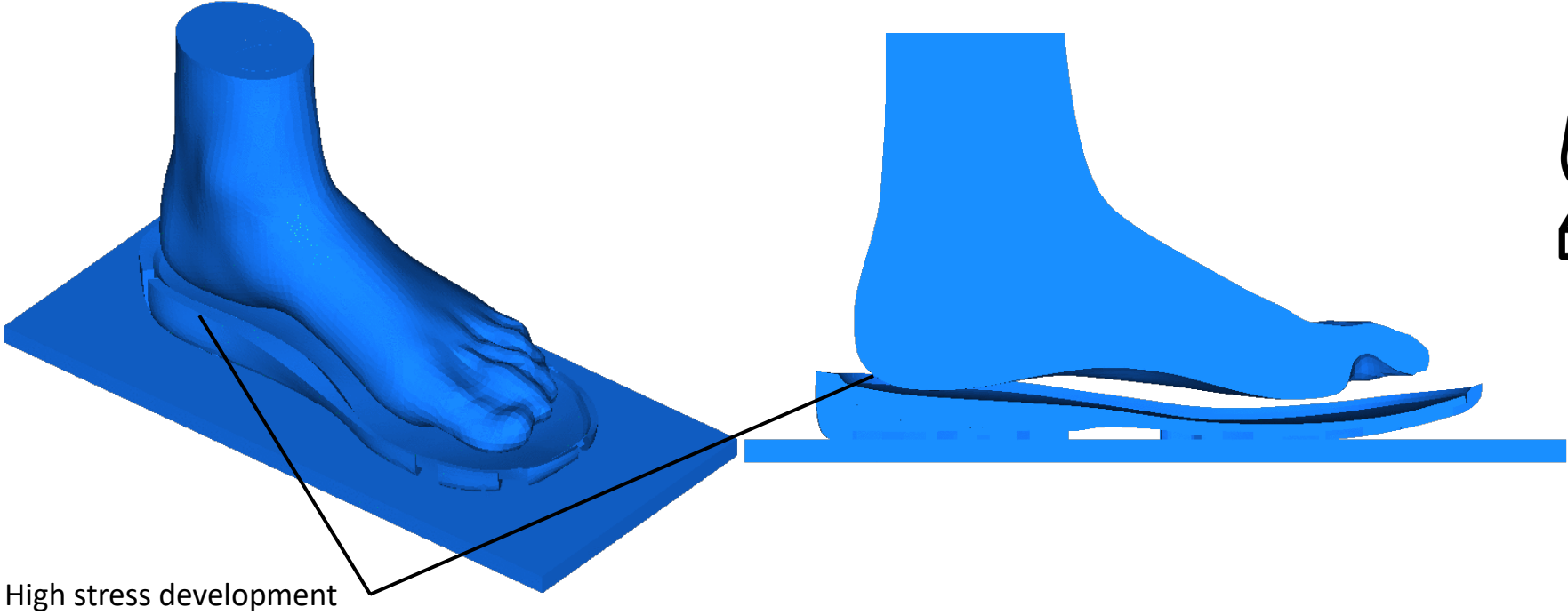


Treatment



Call to action: collaboration as the sole way forward

Future healthcare textiles require collaboration among raw material suppliers, manufacturers, and clinicians to develop innovative, cost-effective solutions meeting patient and clinician needs, effectively addressing healthcare challenges.





“The best way
to predict the future
is to create it”

Abraham Lincoln

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