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Study of the Market of Compression Products for Sports Purpose

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ABSTRACT:This article discusses the world's largest sports compression clothing companies. Assortment of compression sportswear from leading companies in the world, as well as analysis of materials. The most popular brands of compression sportswear are Nike, Adidas, Reebok and Puma. Based on the results of the study, the following quality indicators were determined, which should be paid special attention to when designing compression sportswear: tight fit of the product to the athlete's body, the degree of compression of the product and support of the musculoskeletal system, hygienic properties, and preservation of elastic properties during prolonged use.

I. INTRODUCTION

Tasks at all stages of designing sportswear are subordinated to one goal - to create such clothes that can provide comfortable conditions for a person to play sports, taking into account his specifics. Compression products are among the products that create high comfort when playing sports.

Sports compression clothing is designed to affect muscle tissue and can be combined (full-height with or without sleeves, to ankle level, to knee level, to the upper thigh or as a closed leotard); separate (leggings, shorts, swimming trunks, jumper, T-shirt, cropped bodice). Compression is called elastic clothing, which, due to a tight fit, provides compression of individual parts of the body and their support.

This type of clothing can be of different degrees of compression. To date, the assortment of compression clothing covering areas of the figure with different plastics includes over 30 items. The design methods for such products differ and are influenced by many factors. Let us consider the types, main characteristics of the properties of the compression sportswear market of famous sports brands [1].

II. THE MAIN ADVANTAGES OF COMPRESSION GARMENTS

- Reduced fatigue due to less secretion of lactic acid in the muscles and improved blood circulation.
- Improves blood circulation and stimulates the outflow of venous blood.
- Rapid recovery after training due to greater blood flow through the vessels to the muscles. The swelling of the legs and the appearance of calluses reduces.
- Reduced energy expenditure during workouts due to the support of muscle groups. Working capacity and endurance increase.
- Improves performance and strength of movement by maximizing oxygen delivery to the muscles. Movement coordination improves.
- By maintaining a constant temperature of the muscles, they are always warmed up and the risk of injury and seizures is minimized.
- It turns out to be prevention of thrombosis and problems in the cardiovascular system at increased stress.
- Feeling comfortable during workouts - underwear wicks moisture away, keeps you warm in winter and protects from the sun in summer[2].

Many foreign and domestic firms produce sportswear for extreme sports (volleyball, handball, football, etc.). Moreover, they offer clothing for professionals, amateur athletes, as well as for outdoor activities. Marketing research of the compression sportswear market revealed that such brands as Nike (USA), Adidas (Germany), Reebok (China),

Puma (Germany), Fila (Korea) and others specialize in its production. This clothing is designed for extreme conditions in any weather and mud, and snow, and at very low temperatures [3].

Compression sportswear on the world market is presented in a wide variety: pants of different lengths, tights or leggings, T-shirts, undershirts with sleeves and without sleeves, shorts, knee-highs, socks, gloves, compression sleeve on the arm, elbow pads and knee pads (for fans of basketball, volleyball and handball), underwear and one-piece suits. The analysis of the assortment of products and materials of well-known brands on the example of their collection, presented in the Internet sites of companies. In total, more than 100 models of compression products have been analyzed. The top 10 best brands in the global compression sportswear market are shown in Table 1.

Table 1. Leading manufacturers in the global market for compression sportswear

No	Brand name	The country of manufacture	Type of material, fibrous composition, %	Dimensions	Assortment group
1	2	3	4	5	6
1	Nike	USA	Polyester Nylon Spandex	XS, S, M, L, XL, XXL	Compression jersey, shorts, pants, cut protection socks, socks, hockey socks, shell shorts, sink with suspenders, belt with suspenders, hoodie.
2	Adidas	Germany	Polyester	XS, S, M, L, XL, XXL	Compression T-shirt, Shorts, Rashguards, Hoodies, Sweatpants, Hoodies, Leggings
3	Reebok	China	Polyester Nylon Spandex	XS, S, M, L, XL, XXL	Compression T-shirt, Pants, Shorts, Leggings, Sleeveless T-shirt, Bodysuits, Leggings.
4	Puma	Germany	Polyester Nylon Spandex	XS, S, M, L, XL, XXL	Compression T-shirt, shorts, pants, cut protection socks, socks, knee pad, shell shorts, sink with suspenders, belt with suspenders.
5	Fila	South Korea	Polyester Nylon Spandex	XS, S, M, L,	Compression jersey, sweatpants, shorts, leggings, sleeveless jersey, sleeveless
6	Sigvaris	Switzerland	Polyamide, Polyester Spandex cotton	XS, S, M, L, XL, XXL	Knee-highs, stockings, knee-highs, socks with a fastener at the waist, socks, leggings, socks, tights.
7	2XU	Australia	Polyester Spandex	XS, S, M, L, XL, XXL	Compression tights, shorts, leggings, sleeves, T-shirt, T-shirts, trousers, trousers.
8	Venum	Brazil	Polyester Nylon Spandex	XS, S, M, L, XL, XXL	Compression T-shirt, Pants, Shorts, Leggings, Sleeveless T-shirt, Bodysuit, Sleeveless
9	Under Armour	USA	Polyester Spandex	XS, S, M, L, XL, XXL	Anti-cut compression socks, socks, knee pad, sink shorts, sink with suspenders.
10	BadBoy	USA	Polyester Nylon Spandex	XS, S, M, L, XL, XXL	Compression T-shirt, Pants, Shorts, Leggings, Sleeveless T-shirt, Bodys, Leggings, Tops, Loincloths.

The analysis showed that such well-known global manufacturers of sports goods as Adidas, Nike, 2XU, Venum, Under Armor, Bad Boy and others have in their arsenal a large selection of clothing for sportsfig.1.



Fig. 1.Compression sportswear brand is Adidas, Nike, 2XU, Venum, Under Armor, Bad Boy.

In 2018-2019 the Nike brand is represented in the compression clothing market with highly effective shorts and high compression bandages designed for tennis players, handball players and volleyball players. The company is actively developing a strategy in which sport is the main driver of social change. Nike is currently partnering with the Novo Foundation to support The Girl Effect and SACAI. Nike Lab and SACAI brings a new look that fuses sporty classics with a bold expression of style for summer. Each piece is a creative mix of technical, lightweight materials that explore and reimagine silhouettes from Nike's archive. The collection adds a whimsical color palette as well as new style insights for a new summer debut.

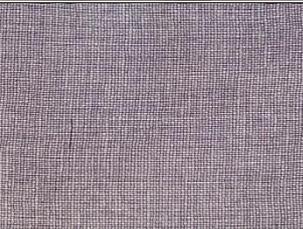
Adidas offers compression T-shirts, shorts, rash guards, sweatshirts, sweatpants, leggings and has been able to attract a lot of attention in just a few years. The Adidas brand offers a sought-after sportswear that has a great look and an affordable cost.

The Reebok brand has created versatile sportswear compression garments that improve circulation, wick moisture away and retain heat. Moreover, it is stylish and comfortable to wear.

Compression sportswear must meet all the requirements that the consumer makes for it, and most importantly, it must correspond to the anthropometric characteristics of the human body. Indeed, depending on the extent to which compression sportswear corresponds to the physiological and hygienic indicators of textile materials, to such an extent it will correspond to the comfort and service life of the product. Table 2 lists the top most compression materials.

Table 2. List of compression sports materials

No	View	Material	Characteristic	Fibrous composition
1		Honiara - modern, stretch and lightweight fabric	It has good insulating qualities and regulates body temperature by removing excess moisture outside.	Polyamide-96% , Elastane-4% .
2		Alaska - this is Synthetic "wool" from micro-fiber polyester.	Products made from this canvas are very durable, comfortable and keep warm well. The fabric is very lightweight, elastic and does not require any special maintenance.	Polyester-100% .

3		Dakota - soft, velvety micro-fiber fabric.	Clothes made from Dakota fabric are very warm and comfortable to wear.	Polyamide-84%, Elastane-16%.
4		Jersey - fabric with a special weave of threads	This innovative jersey fabric has excellent breathability, super durability and silkiness	Polyamide-41%, Polyester- 31% Elastane-28%,
5		Coyote - breathable fabric with significant elasticity	This fabric has high strength and density, but it does not impede movement. The fabric is absolutely harmless and suitable for people with sensitive skin.	Polyamide- 48%, Polyester-44%, Elastane-8%

Based on the studies of the compression clothing market of famous brands, namely Nike Lab and SACAI, a collection of sportswear has been developed, consisting of dresses, skirts and blouses. A characteristic feature of the collection are bright juicy colors, pleating, laser embroidery, sensational pleated cloak, a combination of mesh and satin, lace. "I was inspired by the palette I saw in the Nike archives and looked at its expression in a new way," says Chitose Abe, founder and designer of SACAI. A boldness for a color that's very true to the sportswear world, but it's a feminine, playful palette that feels authentic to sakami.

Conclusion:The market for compression sportswear is considered one of the largest in the world. In recent years, the demand for compression sportswear has increased several times due to the popularization of an active lifestyle and sports. More and more people began to monitor the physical condition of their bodies and thereby increase the profits of organizations involved in the sale of sportswear. In the world market, most of the compression sportswear is made in China. The most popular brands of compression sportswear are Nike, Adidas, Reebok and Puma. Based on the results of the study, the following quality indicators were determined, which should be paid special attention to when designing compression sportswear: tight fit of the product to the athlete's body, the degree of compression of the product and support of the musculoskeletal system, hygienic properties, and preservation of elastic properties during prolonged use.

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