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REVIEW ON KNITTED FABRIC IN SPORTS TEXTILE

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ABSRACT

In recent years, there has been an increase in the revolution of sportswear to provide maximum comfort and the ideal fit. When creating fabric for sportswear, factors including fabric type, yarn technology, and methods for achieving great performance and comfort are taken into account. Textile science and technology have been used in the production of leisure and sportswear to meet the demands of athletic activities and improve performance. Sports fabrics are technically advanced materials that are designed to improve the wearer's comfort during physical activity. These materials are chosen for their high heat and moisture management capabilities, which include excellent elasticity, rapid drying, and extreme breathability

KEYWORDS: *Knitted fabrics, Sportswear, Ommc, Comfort property*

1. INTRODUCTION

Sportswear is a category of practical clothing that individuals wear when they work out, run, or do other physical activities. Clothing style worn during physical activities. Those who want to work out in comfort choose to wear clothes that allow them to move rapidly and absorb perspiration. Consequently, important sorts of material were used to develop sportswear. The revolution of sportswear to obtain the ideal fit and maximum comfort has accelerated in recent years. When creating fabric for sportswear, factors including fabric type, yarn technology, and methods for achieving great performance and comfort are taken into account. Textile science and technology have been used in the production of leisure and sportswear to meet the demands of athletic activities and improve performance. Sports fabrics are technically advanced materials designed to improve the wearer's comfort during physical activity. These materials are chosen for their exceptional elasticity, quick drying time, high heat and moisture management, and high breathability. Creating fabrics with multiple layers is crucial to achieving the desired level of comfort when wearing clothing. The usage of microfibre yarn results in improved thermo-physiological regulation. A tri-layer fabric's multi-layered composition also makes it very functionally supportive. (Philip A Bishop et.al, 2013)

The usage of microfiber yarn results in improved thermo-physiological regulation. A tri-layer fabric's multi-layered composition also makes it very functionally supportive. It is made up of three layers: the top or outer layer for evaporation, the middle layer for liquid transmission, and the base or inner layer for liquid absorption. (Shishoo R ,2005)

2. MATERIALS AND METHODS

2.1 KNITTED FABRIC

A textile called knitted fabric is produced by knitting, which is the interlacing of yarn loops for loop intermeshing. Its characteristics set it apart from woven fabric since it is more pliable and easily formed into smaller pieces, which makes it perfect for headwear and socks. Knitwear has the advantage of being able to stretch to your desired length and shape thanks to the loops.

2.1.1 Polyester

Sportswear designers particularly value polyester knits because of their remarkable moisture-wicking properties and exceptional durability. Even during the most strenuous workouts, athletes remain dry and comfortable because to these textiles' ability to drain sweat away from the body. Due to their durability and capacity to withstand wear and tear, they are a popular option for athletes who want clothes that will last and function well during high-intensity activities.

2.1.2 Spandex

The elastic material found in sportswear is called spandex, sometimes referred to as elastane. The exceptional flexibility of this synthetic material permits a complete range of motion without sacrificing the integrity of the garment. Compression garments made of spandex are especially well-suited for sportswear since they promote blood circulation, lessen muscular soreness, and expedite healing. Stretching, lifting, or sprinting—spandex gives you the support and flexibility you need to perform at your best.

2.1.3 Nylon

Another popular synthetic material for sportswear is nylon, which is renowned for its strength and longevity. Nylon is used extensively in sports bras, cycling shorts, and compression

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clothing because it offers superior support. Because of its strength, these clothes stay functional and in shape even after strenuous physical activity. Moreover, sportswear usually includes nylon as an additional layer of reinforcement to increase its durability.

2.1.4 Merino Wool

Merino wool is a natural material that is highly valued for its distinct characteristics, setting it apart from synthetic alternatives. This wool is very soft and has great moisture-wicking qualities. It comes from merino sheep. Sportswear made of merino wool is a great option for activities in cold weather since it efficiently controls body temperature and minimizes discomfort from perspiration. Although it is cozy and warm, its durability might not be as good as that of synthetics.

2.2 OVERALL MOISTURE MANAGEMENT PROPERTY

The findings suggest that the bi-layer knitted fabric composed of modal (outer layer) and micro-fibre polyester (inner layer) has superior moisture management properties due to its higher wetting radius, better absorption rate, and better sweat spreading speed. As a result, it offers superior comfort and is therefore a good choice for active sportswear.

2.3 COMFORT PROPERTY

Since knitted materials can stretch, breathe, and mould to the shape of the body, they are comfortable to wear.

Breathability

Knitted fabrics are more breathable than woven fabrics because of their open design that promotes ventilation.

Stretchability

Knitted fabrics can stretch in all four directions, making them easy to move around in.

Conforms to body contours

Knitted fabrics can mould according to the body's shape.

Temperature regulation

Knitted fabrics can keep you warm in cold weather and allow your body to breathe in hot weather.

Wrinkle resistance

As the knitted fabrics has looped structure they are resistant to wrinkles.

3. RESULT AND DISCUSSIONS

The below table explains the ommc property and comfort property of the knitted fabric used in sports textile.

Table -1

FABRICS	OMMC	COMFORT PROPERTY
Polyester	0.6	Uncomfortable
Spandex	0.8	Comfortable
Nylon	0.6	Uncomfortable
Merino wool	0.7	Exceptional Comfortable

Knitted fabrics are very desirable for sports textiles because of their many beneficial qualities Their breathability, stretchability, moisture management, and comfort significantly enhance athletic performance and overall user experience. As technology advances, innovations in knitted fabric construction and material science will likely lead to even more specialized applications in sports apparel. Continued research and development in this field will further optimize these properties, addressing the evolving needs of athletes and outdoor enthusiasts.

4. CONCLUSION

In conclusion, the features of knitted fabrics play a vital part in the performance and comfort of sports textiles. They are perfect for athletic wear because of their special structure, which offers flexibility, breathability, and moisture-wicking qualities. The elasticity of knitted materials provides for ease of movement, while its capacity to regulate temperature promotes overall athlete comfort during diverse sports. Additionally, improvements in knitting methods and yarn technology keep these textiles more functional and long-lasting. Innovative knitted materials will surely be utilized in sports as the industry develops, improving performance and providing a better experience for athletes of all levels. To satisfy the needs of contemporary sportswear, sports textile designers and manufacturers have to focus on these qualities in their product designs.

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