



Carbon fiber protector sleeve

Flexible carbon fiber high tech sleeves to protect your body during high impacts



Universidad Tecnológica de Pereira

Target Markets / Potential Applications

- High impact or high-risk athletes.
- Bicycle and motorcycle users.
- Physical high-risk working labors.

IP Status

Patent: [NC2018/0004655](#)

Offer: A worldwide exclusive license in each potential application or product category

Carbon fiber elastic sock protector 360° of the lower leg.

Innovators from *The Universidad Tecnológica de Pereira*, developed a device for body protection using a sleeve made of carbon fiber and selected cotton fibers; providing characteristics such as impact resistance, but also flexibility and ergonomics for the user.

The sleeve was designed to have a 360°-degree leg protection in soccer practice because the lower leg protectors only prevent injuries to the front of the leg and are rigid and not very ergonomic.

However, this technology can be adapted to different parts of the body. In this way, the person be able to avoid injuries in sports or during risk or high contact activities, with protective elements that allow you to have flexibility and ergonomics and at the same time, protection

Benefits



Complete protection



Ergonomic



High impact resistance



Flexible design



The need

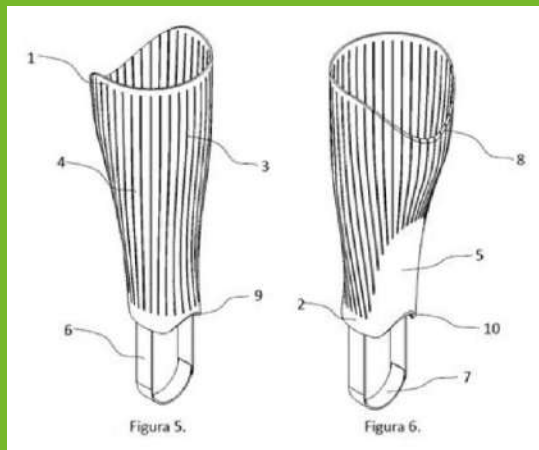
It is a need for the development of body protection accessories in high-contact sports or high-risk jobs body, which are comfortable and ergonomic, but at the same time protect users from impacts.

In **collision and contact sports** (e.g., soccer, hockey, rugby, or football), injuries are common between players. Protection elements are usually very rigid or non-flexible, making it difficult to adapt to the shape of the body and do not protect the whole member –e.g., the jamb in football soccer protect only the anterior section, exposing the calf and muscles of the lateral body part.

In case of **football soccer practitioners client segment**, It is essential to develop a protection solution that is adaptable to different parts of the body, that is easy to use and at the same time has the optimal level of security that **allow the practitioner to compete with confidence and obtain better performance in collision and contact sports.**

The solution

The novel **protective sleeve** is composed of a semi-elastic and resistant fabric coating manufactured through **cotton textile** and **carbon fiber plates**. This permits the protector to be ergonomic and flexible, which makes it fit completely to the body while being resistant to impacts. **The protective sleeve will enable the impact energy to spread throughout the hole area of the body member covered by the sleeve; in this way, the impact is not focused on the affected point, avoiding injuries.**



Preferred embodiment of the inventive concept from CO patent.

Innovators

Main innovator



Adonai Zapata Gordon

Master Eng. Mechanical Professor and Researcher of Mechanical Department. Engineer Faculty. *Universidad Tecnológica de Pereira*

Innovation Maturity

TRL3 – Proof of concept stage (applied research):

- Cotton and carbon fiber plates fabric is developed and tested.

CRL1 – First business model hypotheses identified stage:

- Football soccer practitioner segment client archetype was described.

What are the TRL & CRL?

Other relevant information

Concept developed

Nowadays, the technology application is a football soccer sock allowing the protection of areas such as the shin, calf, ankle, and related fields.

Technology field:-Materials, metallurgy, Mechanical elements, Other consumer goods



For more information on the technology:
David L. Hurtado Martínez, MA
david.hurtado@licenciarte.tech



Universidad Tecnológica de Pereira Vicerrectoría de Investigación y Extensión
Gestión Tecnológica, Innovación y Emprendimiento.

<https://www.utp.edu.co>
viceiie@utp.edu.co
(+57) 036 313 71 14