

Lower limb orthosis

Assistive device attached to the body for supporting the neuro-muscular-skeletal systems or movement functions related to the functioning of the lower extremities. Orthoses are designed to modify or support the structural and functional characteristics of the neuromuscular system of the lower limb; the devices may be custom fabricated or prefabricated devices that may be adjustable or ready to use. The orthosis may be made of various materials, such as thermoplastic, polypropylene, subortholene, composite carbon fibers, cork, leather, polyethylene foams, Ethyl Vinyl Cetates (EVA), neoprene, silicone. Occasionally, various padding materials are used as cover foams, gels, cushions.

- **Product Classification**

- APL (WHO Assistive Product Priority List): 23 (Orthoses, lower limb)
- ISO 9999:2022: 0612 (Lower limb orthoses)

- **Possible configuration variants**

- Foot orthosis (Iso 061203) (including insoles, shoe inserts, pads, arch supports, heel cushions and heel cups).
- Ankle foot orthoses (Iso 061206).
- Knee orthosis (Iso 061209).
- Knee-ankle-foot orthosis (Iso 061209).
- Lower leg orthosis (Iso 061213).
- Hip orthosis (Iso 061215).
- Hip-knee orthosis (Iso 061216).
- Thigh orthosis (Iso 061217).
- Hip-knee-ankle-foot orthosis (Iso 061218).
- Lumbo-sacral-hip-knee-ankle-foot orthosis (Iso 061219).

- **Possible accessories or optional components**

None specified.

- **Product goals**

Activities or functions the product is mainly intended to support, according to WHO ICF Classification:

- Maintaining body position [\[d415\]](#) (stability of lower limbs).
- Caring for body parts [\[d520\]](#).
- Walking [\[d450\]](#).

- **Indicated impairments**

Difficulties the product is mainly intended to address, according to the WHO ICF Classification:

- Mobility of joint functions [\[b710\]](#) (lower limbs).
- Stability of joint functions [\[b715\]](#) (lower limbs).
- Muscle tone functions [\[b735\]](#) (lower limbs).
- Muscle power functions [\[b730\]](#) (lower limbs).
- Motor reflex functions [\[b750\]](#).
- Involuntary movement reaction functions [\[b755\]](#).

- **Contraindicated impairments**

Difficulties for which the product may be inappropriate:

None specified.

- **Indicated environments**

Specific environments in which the product should be used:

None specified.

- **Contraindicated environments**

Environments in which the product may be inappropriate:

- High temperature or humidity.

- **Other indicated factors**

Other factors or situations the product is intended to address:

- Helping maintain the best alignment of the different segments of the lower extremities.
- Protecting, accommodating, avoiding secondary complications of the lower limbs.
- Protecting the lower limbs from further injuries.

- **Other contraindicated factors**

Other factors or situations in which the product may be inappropriate:

None specified.

- **Points to be considered in product selection**

- List the physical and environmental need of the user in relation to the lack of lower extremities stability,
- Find out if the product will be custom made or prefabricated: will it be rigid or dynamic? will it be for providing stability for function? will it be supportive for protecting and avoiding secondary complications?
- Provide the proper measures or mold (in case of custom made).

- **Points to be considered in product fitting**

- It is an important step to avoid secondary damage, you must be sure the orthosis is not providing pain, or extra forces that will cause skin injury.
- Check that the orthosis is providing appropriate stability or correction.

- **Points to be considered in product use**

- Training may be needed for the user to ensure that he or she is able to fit in the product with or without help as expected.
- Dosage use program.
- Have a plan of what to do if there is discomfort or injury.

- **Points to be considered in product maintenance / follow-up**

- Check the tolerance.
- Carry out follow-up checks about every six months if there is no other sign of concern about the correct use of the orthoses

- **Examples of products available on the market**

- Live product search in the EASTIN website <https://www.eastin.eu/en/searches/products/list?iso=0612>

Source

This Fact Sheet was compiled in 2021 by an international team of experts, to provide the initial knowledge base for a project ("An online system to assist the selection of assistive product") supported by the World Health Organization in 2020-2021 within the GATE Initiative (Global collaboration on Assistive Product). Fact Sheets were compiled for each of the 50 types of products included in the WHO APL (Assistive Product Priority List).

The team was composed of Renzo Andrich (Italy, group leader), Natasha Layton (Australia), Stefan von Prondzinski (Italy), Jerry Weisman (USA), Silvana Contepomi (Argentina) and Hasan Minto (Pakistan).

The project led to a prototype online tool called ASPREX (ASsistive PProduct EXplorer). At the end of the project, it was transferred to a WHO collaborating center (the Global Disability Hub in the UK), in view of possible future developments.