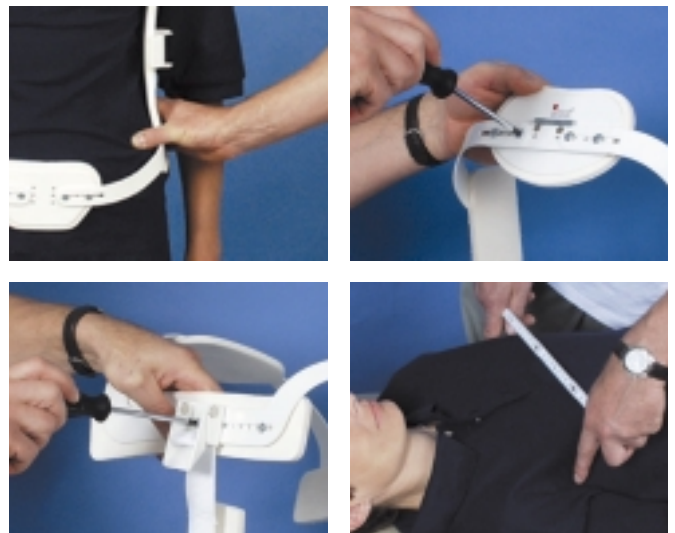


TECHNICAL INFORMATION

2.1.2.



SpinePOINT Modular Hyperextension Orthosis

T E C H N I C A L D E S C R I P T I O N A N D I N S T R U C T I O N

1. MODULAR ORTHOSIS FOR SPINAL CONTROL

SpinePOINT Modular Orthoses for Spinal Control are designed for a treatment of patients with spinal injuries of traumatic and non-traumatic etiology.

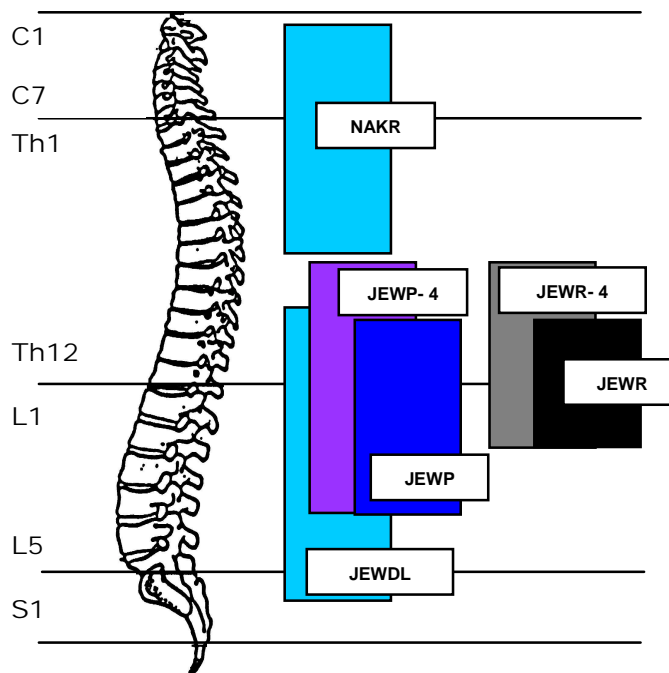
1.1. RANGE OF APPLICATION

Modular Orthosis for Spinal Control are provided as an assembly set for an individual treatment. The orthosis is to be prescribed by a medical doctor, fabrication and fitting are performed by an orthotist.

Modular Orthoses for Spinal Control are used for the treatment of compressive fractures and damages of discs, they enable reduction of load on the spine and ensure long-term stabilization and fixation. Hyperextension Orthosis restricts motion in a sagittal plane, it is not recommended for the treatment of scoliosis.

Advantages of the orthosis are adjustability at any time and improved wearing comfort (minimal weight, hygienic qualities, mobility of a patient).

The proposed utilization for each model is shown bellow.

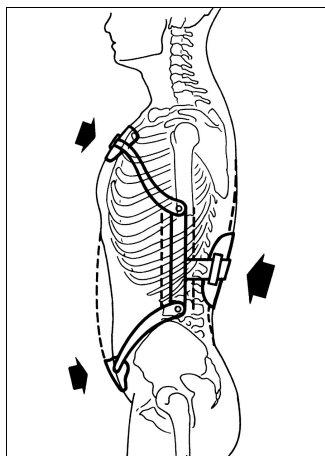


Legend:

- NAKR Cervical Orthosis
- JEWR SpinePOINT Hyperextension Orthosis with Pelvic Bar
- JEWP SpinePOINT Hyperextension Orthosis with Pubic Pad
- JEVDL SpinePOINT Hyperextension Orthosis with Pelvic Assembly
- JEWR-4 SpinePOINT Hyperextension Orthosis with Deltpectoral Pads and Pelvic Bar
- JEWP-4 SpinePOINT Hyperextension Orthosis with Deltpectoral Pads and Pubic Pad

ING Cervical Orthosis is described in Technical Information 2.2.2.

1.2. HYPEREXTENSION ORTHOSIS - BIOMECHANICAL PRINCIPLE



SpinePOINT Hyperextension Orthosis controls flexion via a **three point force system** consisting of an anteriorly directed force from the thoraco-lumbar pad and posteriorly directed forces from the sternal and pubic pads. The degree of hyperextension is to be set by tightening the thoracolumbar pad.

1.3. HYPEREXTENSION ORTHOSIS - TECHNICAL DESCRIPTION

SpinePOINT Hyperextension Orthoses represent a modular orthotic system manufactured from high-strength alluminium and padded with PE-lite. The orthosis consists of an anterior and a posterior part. The anterior part with sternal and pelvic supports are length- and width- adjustable. The posterior part consists of the thoracolumbar pad with the traction band.

The following models of SpinePOINT Modular Hyperextension Orthoses are available:



Product name

JEWR SpinePOINT Hyperextension Orthosis with Pelvic Bar

Range of application

- Relief and stabilization of the spine from Th10 to L2
- Lower hyperextension
- 3 sizes

Description

- | | |
|-----------------------|---------------------|
| 1 swivel sternal pad | 5 thoracolumbar pad |
| 2 pelvic bar | 6 locking mechanism |
| 3 upper extension arm | 7 hinge |
| 4 lower extension arm | |



Product name

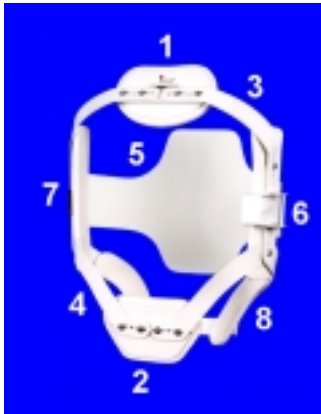
JEWP SpinePOINT Hyperextension Orthosis with Pubic Pad

Range of application

- Relief and stabilization of the spine from Th10 to L3
- Higher hyperextension
- 3 sizes

Description

- | | |
|-----------------------|---------------------|
| 1 swivel sternal pad | 5 thoracolumbar pad |
| 2 pubic pad | 6 locking mechanism |
| 3 upper extension arm | 7 hinge |
| 4 lower extension arm | |



Product name

JEVDL SpinePOINT Hyperextension Orthosis with Pelvic Assembly

Range of application

- Relief and stabilization of the spine from Th10 to L4
- Higher hyperextension
- Cumulative spine injuries
- 2 sizes

Description

- | | |
|-----------------------|---------------------------|
| 1 swivel sternal pad | 5 thoracolumbar pad |
| 2 pubic pad | 6 locking mechanism |
| 3 upper extension arm | 7 hinge |
| 4 lower extension arm | 8 posterior extension arm |



Product name

JEWR-4 SpinePOINT Hyperextension Orthosis with Deltopectoral Pads and Pelvic Bar

Range of application

- Relief and stabilization of the spine from Th8 to L2
- Lower hyperextension, firm rotational control

- 3 sizes

Description

- | | |
|----------------------|-------------------------------------|
| 1 swivel sternal pad | 3 upper arm with deltopectoral pads |
| 2 pelvic bar | 4 lower extension arm |
| | 5 thoracolumbar pad |



Product name

JEWP-4 SpinePOINT Hyperextension Orthosis with Deltopectoral Pads and Pubic Pad

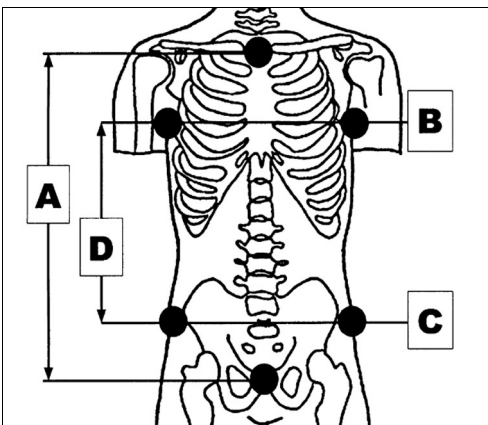
Range of application

- Relief and stabilization of the spine from Th8 to L3
- Higher hyperextension, firm rotational control

- 3 sizes

Description

- | | |
|----------------------|-------------------------------------|
| 1 swivel sternal pad | 3 upper arm with deltopectoral pads |
| 2 pubic pad | 4 lower extension arm |
| | 5 thoracolumbar pad |



2. MEASUREMENT

2.1. MEASUREMENTS

The orthosis is assembled and adjusted according to the following measurements

- A vertical length from sternal notch to symphysis pubis
- B horizontal width from axilla to axilla
- C horizontal width of hips (at the vertical level of A.S.I.S)
- D vertical length from axilla to hip (at the vertical level of A.S.I.S.)



2.2. MEASURING PROCEDURE

The measurements represent the straight lengths.

Patient is laying during measuring on his/her back.

Measure the length from the sternal notch to the symphysis pubis - measurement A.



Measure the width from the left axilla to the right axilla - measurement B.



Measure the width of hips (at the vertical level of A.S.I.S.) - measurement C.



Measure the length from the axilla to the hip (at the vertical level of A.S.I.S.) - measurement D.



3. FITTING OF THE ORTHOSIS

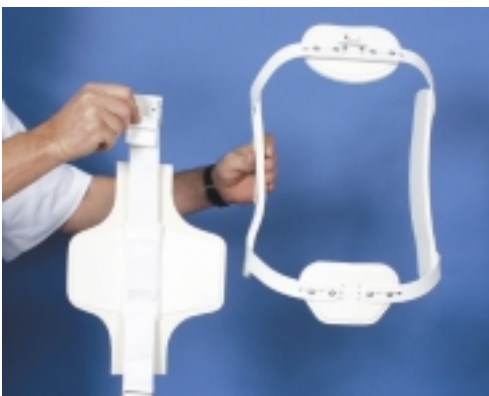
Remove the screws from the lock (located on the left side).

Take off the posterior part of the orthosis.



Remove the screws from the hinge (located on the right side).

Take off the hinge.



We obtain the separate anterior and posterior parts of the orthosis.



3.1. ADJUSTMENT OF ANTERIOR PART

Release softly the screws fixing the upper and lower extension arms.

The orthosis is ready for the vertical length adjustment .



The vertical length of the Hyperextension Orthosis with Pubic Pad is equal the measurement A minus 8 - 10 cm.

The vertical length is measured between the outer edges of the sternal and pubic pads.

Tighten the screws reliably.



The vertical length of the Hyperextension Orthosis with Pelvic Bar is equal the measurement A minus 12 - 14 cm.

The vertical length is measured between the outer edges of the sternal pad and pelvic bar.

Tighten the screws reliably.



The vertical length of the Hyperextension Orthosis with Deltopectoral Pads and Pubic Pad is equal the measurement A minus 4- 6 cm.

The vertical length is measured between the vertical level of outer edges of the deltopectoral pads and the lower edge of the pubic pad.

Tighten the screws reliably.



The vertical length of the Hyperextension Orthosis with Deltopectoral Pads and Pelvic Bar is equal the measurement A minus 8 - 12 cm.

The vertical length is measured between the vertical level of outer edges of the deltopectoral pads and the lower edge of the pelvic bar.

Tighten the screws reliably.



Release softly the screws fixing the upper extension arms and the swivel sternal pad.

The orthosis is ready for the upper width adjustment.



The upper width of the orthosis is equal the measurement B minus 4 cm.

The upper width is measured between the inner surfaces of the upper extension arms.

Tighten the screws reliably.



Release softly the screws fixing the lower extension arms and the pubic pad (or pelvic bar).

The orthosis is ready for the lower width adjustment.



The lower width of the orthosis is equal the measurement C minus 2 cm.

The lower width is measured between the inner surfaces of the lower extension arms.

Tighten the screws reliably.



Fit the assembled anterior part of the orthosis to patient.

The lower lateral part of the orthosis should be preshaped to the hips.



The upper edge of the upper vertical arm should be approximately 5 cm below the axilla.



The upper edge of the swivel sternal pad should be approximately 6 - 8 cm below the sternal notch.



The lower edge of the pubic pad should be approximately 3 - 5 cm above the symphysis pubis.



3.2. ADJUSTMENT OF THE POSTERIOR PART

Locate the position of the locking mechanism and the hinge.



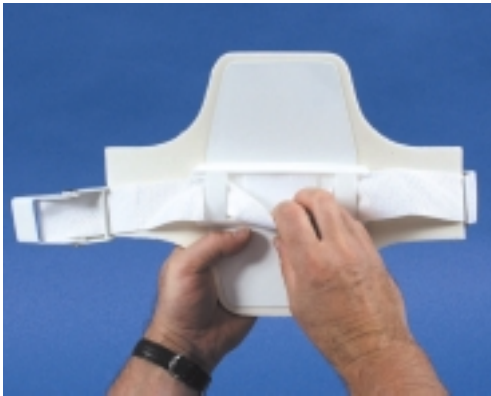
Measure the length of the traction band between the lock mechanism and the iron eye.



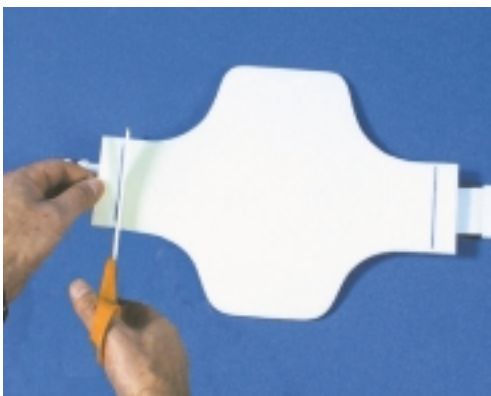
Measure the length of the traction band between the lock mechanism and the iron eye.



Adjust the length of the traction belt—place the iron eye to the desired position on the belt and secure it with the iron clip.



Release the velcro closure of the traction belt and centre the thoracolumbar pad on the belt.



Cut the lateral parts of the soft PE-lite padding not to overlap the vertical lateral parts of the orthosis.



Attach the locking mechanism to the right place on the left side of the orthosis.

Tighten the screws reliably.



Attach the hinge to the right place on the right side of the orthosis.

Tighten the screws reliably.



3.3. APPLICATION OF THE ORTHOSIS

Fit the assembled orthosis to the patient.

Check the position on the hips.



Lift the trunk of the patient and place the thoracolumbar pad under his/her back or



.. turn the patient on the right hip and place the thoracolumbar pad under his/her back ...



.. and then turn the patient on the left hip and pull out the traction belt with the thoracolumbar pad.



Check that the locking mechanism is open.

Place the iron eye in the hinge.



Pushing the orthosis to the patient and pulling out the belt - place the iron eye in the hinge.



Fasten the traction belt of the thoracolumbar pad by closing the arm of the locking mechanism upwards.



Check the fastening of the belt.



4. VERTICALIZATION

Firstly check that the locking mechanism is closed.



Turn the patient on his/her hip.



Help the patient to change his/her position from laying ...



... to "semi-sitting". Assist the patient in this position.



Check the position of the lower and upper extremities during the “semi-sitting”.



Help the patient to stay and assist him/her in this position.



5. CHECK-OUT

The following check-out is recommended:

- positioning and fitting of the swivel sternal pad and pubic pad (or sternal bar)



- vertical positioning of the traction belt and the thoracolumbar pad



- fastening of the traction belt



- centre positioning of the thoracolumbar pad



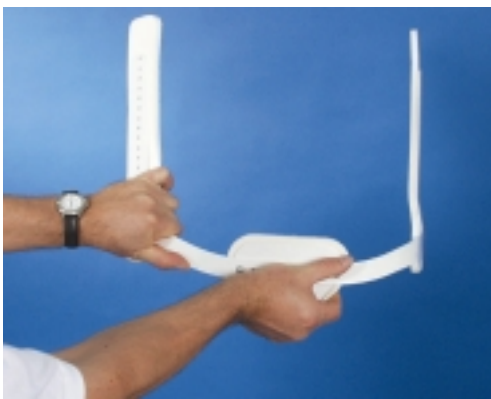
- positioning and fitting of the lower part of the orthosis on the hips



- positioning below the axilla



- clearance between the lower extremity arm and the anterior superior iliac spine (A.S.I.S.)



6. ADJUSTMENTS

The orthosis may be manually shaped.



Protect the surface of metal parts (e.g. by neoprene, leather) if using bending irons.



Recommendation:

Fix the screws with Loctite 243.



7. FUNCTIONAL INSPECTION

Important:

Consider the health state of the patient during the functional inspection.

The inspection is focused on the following activities:

- walking

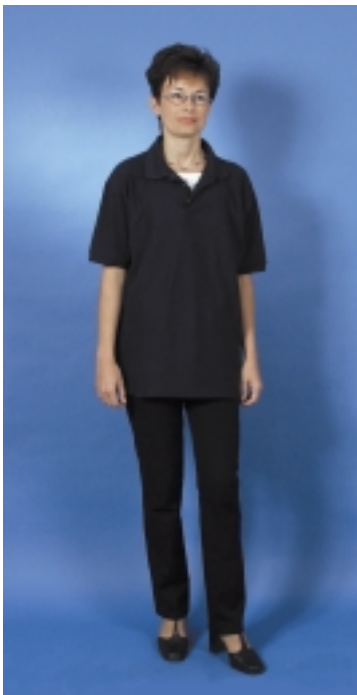


- forward bend



- declination

The orthosis should provide immobilization and stabilization of the spine during inspection.



8. LIFE IN THE HYPEREXTENSION ORTHOSIS

Meeting the following principles the hyperextension orthosis enables the performance of routine daily activities, independence and mobility for the patient.

Some recommendations for hyperextension orthosis user:

- Avoid handling with the locking mechanism of the traction belt, especially during the walking, standing, sitting, etc.
- Avoid any modifications at set up hyperextension orthosis – eg. releasing of the screws, readjustment of the traction belt length, reshaping the hyperextension orthosis, etc.
- In case of any trouble regarding the hyperextension orthosis visit and/or inform the working place fabricating your hyperextension orthosis.
- The orthosis may be worn over the underclothes – we recommend especially cotton T-shirts of sweat suction type
- We recommend to install the orthosis in a laying position
- After coming into standing position check up the positioning of the hyperextension orthosis over your body
- Prevent a deep sitting position when the hyperextension orthosis may move upstairs over the patient body
- In case of a long-term sitting (driving a car, working on the computer, etc.) we recommend a moderate pelvis lean back – a “semi-sitting” position
- You may wear standard dresses over the hyperextension orthosis



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