Over 20 years of know how in effective osteoporosis therapy with Spinomed orthoses

Information for healthcare professionals.

medi. I feel better.

4
General Information

4 Osteoporosis - a widespread disease
5 Effective therapy for osteoporotic vertebral fractures
5 Five reasons to choose Spinomed or Spinomed active
5 The principle of Biofeedback
5 Effective treatment with medi

6
Studies

6 Study on osteoporosis: spinal orthoses Spinomed and Spinomed active improve posture and muscle strength
7 Two orthoses – one effect
8 Stronger back muscles support a decrease of vertebral fractures
9 Management of osteoporotic vertebral fractures
10 Spinomed versus three-point brace in the treatment of osteoporotic compression fractures

12
Further findings

14 Conservative treatment of osteoporotic vertebral body fractures
16 Fastest donning time of 27 seconds

19
More information about Spinomed

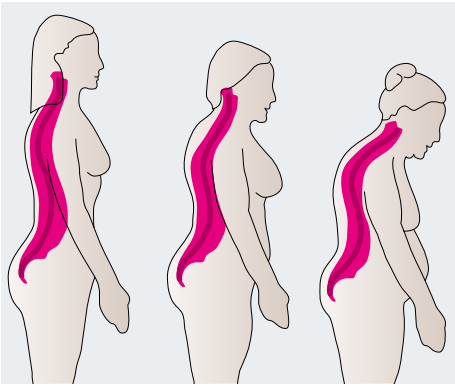
19 Convincing arguments for doctors and patients

Osteoporosis – a widespread disease

Osteoporosis is a major public health problem, but it is still underrated. According to estimates, worldwide 1 in 3 women and 1 in 5 men over the age of 50 years will suffer from osteoporotic fractures. Worldwide, an osteoporotic fracture is estimated to occur every 3 seconds.[1]

The diagnosis of osteoporosis is often made too late. Many patients suffer from intense back pain, without knowing that this is due to vertebral fractures from osteoporosis. The patient's quality of life is severely impaired as it leads also to immobility and restrictions to daily life.[1] It is also linked to increased needs for nursing care and mortality.

The risk of sustaining a fracture increases exponentially with age due not only to the decrease in bone mass, but also due to the increased rate of falls among the elderly. The elderly represent the fastest growing segment of the population and as life expectancy increases for the majority of the world's population, the financial and human costs associated with osteoporotic fractures will increase dramatically unless preventive action is taken.[1]



A humpback (or dowager's hump) is a visible sign of osteoporosis

Scientifically proven: men are also affected

Men suffer from osteoporosis, too. Even though men naturally have a higher bone density, it would be a mistake to assume that osteoporosis does not affect men. In fact they are affected, but this often goes unrecognised.
About half of the osteoporosis diseases observed in men are the result of other diseases or disorders (secondary osteoporosis) such as COPD, long term cortisone therapy, low calcium diets or chronic inflammatory intestinal disorders.[2]

Osteoporosis can be treated

Proper therapy can decrease the risk of further fractures and considerably improve the patient's quality of life – the sooner, the better.
Long term medication can slow down the bone loss and even stimulate bone growth.
Furthermore, an adequate supply of calcium and vitamin D3 can help to rebuild bone mass.
Due to the close anatomical connection between muscle and bone, losses in muscle mass are always accompanied by losses in bone mass.
Especially after fractures of the spinal column, it is essential that drug therapy should be accompanied by treatment with orthoses.

Fractures cause pain. This limits mobility and leads to increased muscle breakdown. The recoomendations in the German guideline for the treatment of osteoporosis are based on a combination of pharmacotherapy and the active concept for strengthening trunk musculature.[3]

For greater mobility and safety

Spinal orthoses belong to the class of orthopaedic aids. They used to have the reputation of causing immobility. But an innovative approach has demonstrated that the opposite can be true.
Previous orthoses immobilised the spinal column causing more muscle breakdown.
The Spinomed orthosis is different: it activates the back musculature. This helps the patient to keep the upper part of the body upright and reduces kyphosis (humpback).
This so called Biofeedback mechanism initiates unconscious muscle training, leading to continuous strengthening of the trunk muscles. Thus, Spinomed can stimulate the body's own resources.
After optimal fitting by the orthopaedic technician the patient suffers less pain and becomes more mobile. In the long term the increase in trunk muscle strength can be expected to reduce the risk of falls and the morbidity and mortality in osteoporosis patients.

[1] **International Osteoporosis Foundation: Gaps and solutions in bone health. Available at: https://www.iofbonehealth.org/thematic-report-2016 (last accessed 02/02/2018).**
[2] **Carter JD et al. The recognition and treatment of vertebral fractures in males with chronic obstructive pulmonary disease. Respir Med 2008;102(8):1165-1172.**
[3] **DVO Guideline Osteoporosis 2017. Available at: www.dv-osteologie.org (last accessed 30/08/2018).**

Effective therapy for osteoporotic vertebral fractures with Spinomed and Spinomed active

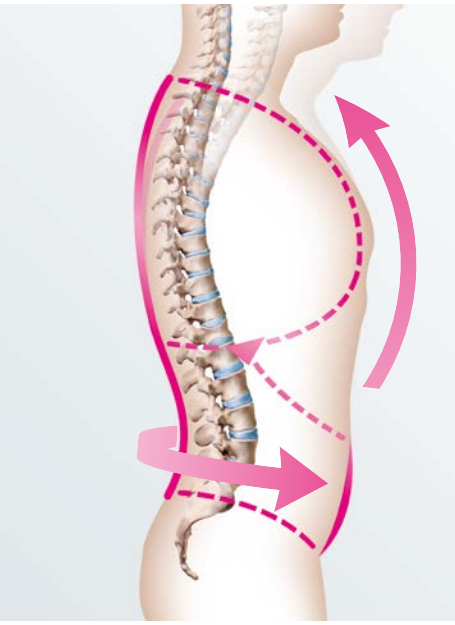
Medical devices are an essential part in the treatment of osteoporotic vertebral fractures. The spinal orthoses Spinomed and Spinomed active have scientifically been proved to activate and strengthen abdominal and back muscles, to increase vital capacity and to improve posture.

The combination of elastic materials and the back brace exert tangible tension on the pelvic and shoulder areas. As a sort of reflex response to this, the trunk muscles tense up automatically and hold the patient in a more upright position.

Five reasons to choose Spinomed or Spinomed active

- The patient's vicious circle of loss of mobility and strength due to pain is broken.
- The musculature is trained, thus stabilising the back and enhancing mobility.
- The patient's upper body is raised and the risk of falls is reduced.
- The patient's quality of life is improved.
- Spinomed is developed in cooperation with doctors for doctors – scientifically tested and proven.

The Principle of Biofeedback



The Spinomed orthosis consists of a back brace and a system of belts which work on the upper body much like a backpack. The brace is precisely fitted and cannot slip out of its position. This facilitates "permanent Biofeedback".

Every time the patient lapses into poor posture when wearing the Spinomed orthosis, the soft pressure of the belts reminds him to correct his posture. As a kind of reflex it will tighten the torso muscles and straighten the upper body. The big advantage: The principle works almost subconsciously.

DVO

To date, Spinomed and Spinomed active are the only orthoses mentioned and recommended by the German DVO Guideline.[1] DVO stands for "Dachverband Osteologie e.V., an Umbrella Organisation of German Scientific Osteology-related Societies". The guideline refers to the two randomized controlled trials performed with Spinomed and Spinomed active in women with postmenopausal osteoporosis. The demonstration of efficacy for the Spinomed orthoses is contained in the literature citations. No other back orthosis is considered there.[1]

[1] **DVO Guideline Osteoporosis 2017, p. 196 – 200. Available at: www.dv-osteologie.org (last accessed 30/08/2018).**

Effective treatment with medi

When bone loss begins and the back hurts – medi is your reliable and competent partner.

medi offers the optimal treatment solution for all requirements:
- developed by doctors
- scientifically proven
- for high treatment compliance.

Spinomed and Spinomed active – for an active relief and correction of the lumbar and dorsal spine in the sagittal plane thanks to the Biofeedback principle.

Study on osteoporosis: spinal orthoses Spinomed and Spinomed active improve posture and muscle strength

A prospective, randomized study by Pfeifer, M. et al. (2011)[1]

The spinal orthoses Spinomed and Spinomed active can improve important clinical parameters in osteoporosis. This has been proven by a prospective, randomized study.

Study Design

The scientists conducted a prospective, randomized, cross-over study to evaluate the efficacy of two newly developed spinal orthoses in patients with osteoporotic vertebral fractures.
108 subjects were included and evaluated. Measurements included trunk muscle strength, angle of kyphosis, body height, body sway and parameters of quality of life such as pain, well being and limitations of daily living using standard biometric instruments.

Outcome

The study results showed significant effects for osteoporotic patients who were treated with Spinomed orthoses.

- Wearing the orthosis Spinomed during a 6-months period was associated with a 72 % increase in back extensor strength ($p < 0.01$).
- The patients who wore the corselette variant Spinomed active experienced a 56 % increase in abdominal muscle strength ($p < 0.01$).
- The patients have benefited from a more erect posture – the angle of kyphosis decreased significantly by 11 % ($p < 0.01$). This may allow better breathing.
- Also the quality of life increases: users with Spinomed reported a pain reduction of over 47 % ($p < 0.01$), while their general well being increased by 18 % ($p < 0.01$).
- No adverse effects were reported and the dropout rate with 7 % was rather low.

A very positive result: after completion of the first six months, group C should be provided with the orthosis, whereas patients of group A and B should serve as a control group. The beneficial course of the first intervention phase, however, led to the fact, that the participants of group A and B refused to stop wearing the orthosis.

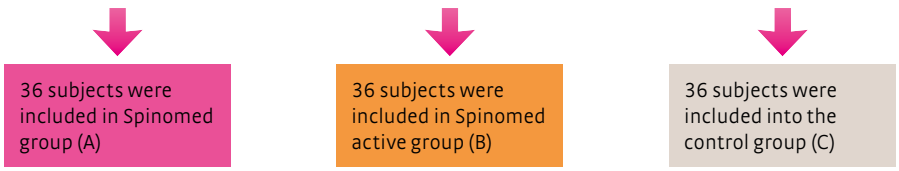
Conclusion: high compliance factor

The overall compliance of the study participants was excellent (over 92 %). The use of an orthosis increases trunk muscle strength and therefore improves posture in patients with vertebral fractures caused by osteoporosis. In addition, a better quality of life is achieved by pain reduction, decreased limitations of daily living and improved well being.

Thereby, the use of an orthosis may represent an efficacious nonpharmacologic treatment option for spinal osteoporosis.

[1] **Pfeifer M et al. Effects of two newly developed spinal orthoses on trunk muscle strength, posture, and quality-of-life in women with postmenopausal osteoporosis: a randomized trial. Am J Phys Med Rehabil 2011;90(10):805-815.**

108 subjects were included and randomized into three groups: Intention to treat sample

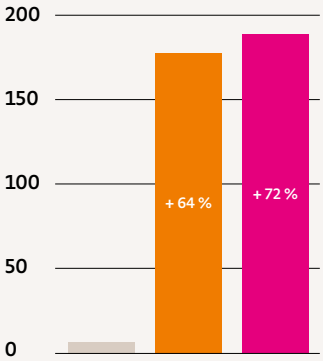


Group A started wearing Spinomed from baseline until month 12. Group B also began wearing Spinomed active from baseline until month 12. Group C served as the control group from baseline to month 6 and started wearing Spinomed thereafter.

Two orthoses – one effect:

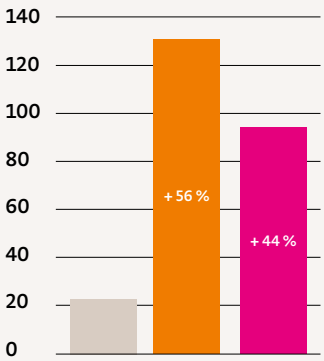
The results of the study at a glance[1]:

Back muscle strength



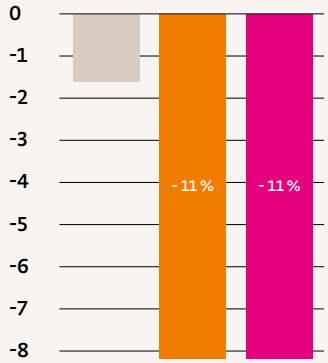
Increase of back muscle strength (in Newton)

Abdominal muscle strength



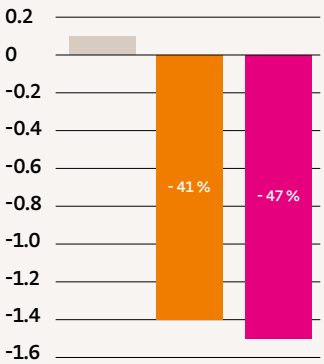
Increase of abdominal muscle strength (in Newton)

Kyphosis angle



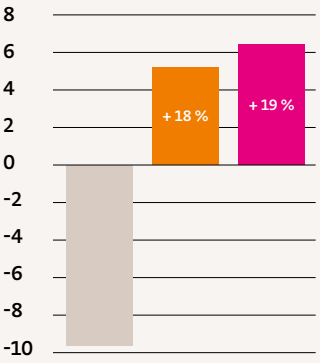
Decrease of kyphosis angle (in degrees)

Pain score



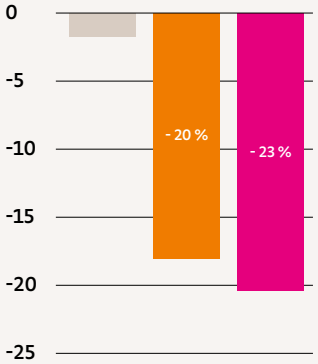
Change of pain score

Vital capacity



Change of vital capacity in %

Body sway



Decrease of body sway (in mm)

Spinomed active **Spinomed** **control group**

What the experts say

"Thoracolumbar orthoses need to find a balance between the often conflicting requirements of function, cosmetics and acceptability.
We conclude that the orthoses (Spinomed and Spinomed active) used in our study increase trunk muscle strength and thus improve posture and body height in patients with vertebral fractures caused by osteoporosis. In addition, a better quality of life is achieved by pain reduction, decreased limitations of daily living and augmented well being."

Dr. Michael Pfeifer, Study Director, Fürstenhof Clinic, Bad Pyrmont (Germany)

"The most intriguing finding of our study is the significant increase in trunk muscle strength, which is most likely related to an increased muscular activity while wearing the orthoses. [...] This observation supports the notion that the so called biofeedback may be an underlying principle of efficacy. Stronger back muscles may be the reason for the decreased angle of kyphosis and the increased body height."

Prof. Helmut W. Minne, Internal Physician, Bad Pyrmont (Germany)

Stronger back muscles support a decrease of vertebral fractures

A prospective 10 year Follow-up study by Sinaki, M. et al. (2002)[1]

Reduction in the biomechanical competence of the axial skeleton can result from the parallel decline in bone and muscle mass with ageing.
In this study, the scientists evaluated the long-term effect of stronger back muscles on the spine in estrogen deficient women. They hypothesised that this could reduce the risk of vertebral compression fractures and that some of the muscle strength achieved through strengthening exercises may persist even several years after cessation.

Study Design

The long term protective effect of stronger back muscles on the spine was determined in 50 healthy white, postmenopausal, non smoking women, aged 58-75 years, 8 years after they had completed a 2 year randomised, controlled trial.
Twenty-seven subjects had performed progressive, resistive back strengthening exercises (BE) for 2 years using a backpack that contained weights equivalent to 30 % of the maximal isometric back extensor strength. Each patient had been instructed to lift the backpack ten times in the prone position. As their back strength increased, the amount of weight lifted was increased with limits of 22.7 kg. The exercises were performed at home once a day, 5 days a week.
Twenty-three patients had served as controls (C).
Bone mineral density (BMD), spine radiographs, back extensor strength, biochemical marker values, and level of physical activity were obtained for all subjects at baseline, 2 years, and 10 years.

Outcome

Mean back extensor strength (BES, Fig. 1) in the back-exercise (BE) group was 39.4 kg at baseline, 66.8 kg at 2 years (after 2 years of prescribed exercises) and 32.9 kg at 10 years (8 years after cessation of the prescribed exercises).
Mean BES in the control (C) group was 36.9 kg at baseline, 49.0 kg at 2 years and 26.9 kg at 10 years. The difference between the two groups was still statistically significant at 10 year follow-up ($p = 0.001$).
The difference in BMD, which was not significant between the two groups at baseline and 2 year follow-up, was significant at 10 year follow-up ($p = 0.0004$).
The incidence of vertebral compression fracture was 14 fractures in 322 vertebral bodies examined (4.3%) in the C group and 6 fractures in 378 vertebral bodies examined (1.6%) in the BE group (Fig. 2, chi-square test, $p = 0.0290$).

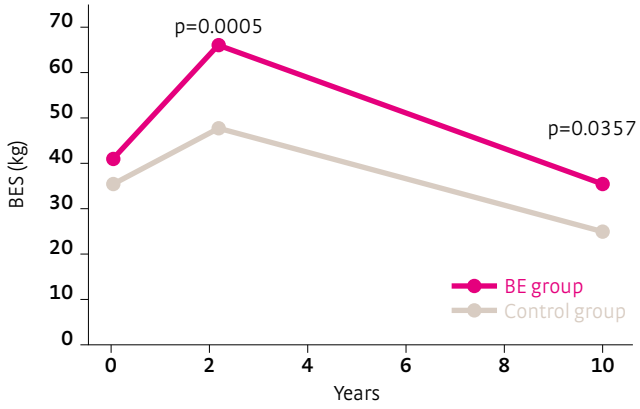


Fig. 1: Back extensor strength (BES) in the two study groups: back exercise (BE) and control (C). The BES of the BE group was significantly greater than that of the C group at both 2 years (p=0.0005) and 10 years (p=0.0357).

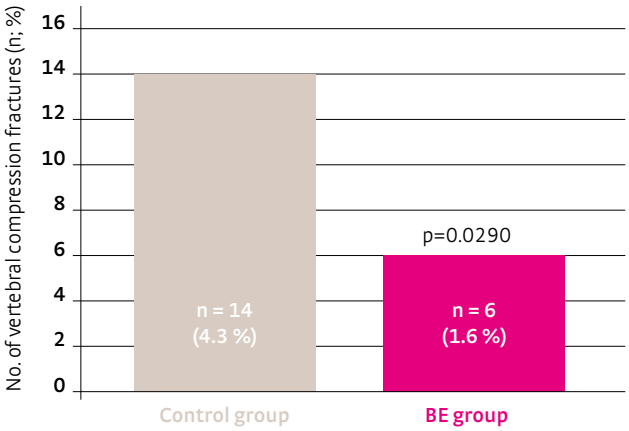


Fig. 2: Number of vertebral compression fractures in the two study groups: back exercise (BE) and control (C). The incidence of vertebral compression fracture was 14 fractures in 322 vertebral bodies examined (4.3%) in the C group and 6 fractures in 378 vertebral bodies examined (1.6%) in the BE group (chi-square test, p = 0.0290).

The relative risk for compression fracture was 2.7 times greater in the C group than in the BE group.

Conclusion

This study supports the positive long-term effect of strong back muscles on the reduction of vertebral fractures in estrogen-deficient women.
The data showed that although vertebral bone loss was comparable in both groups, the BE group had fewer than half as many vertebral fractures as the control group, even 8 years after ending of the back strengthening exercises.
Higher Physical Activity Scores and BES may not be the sole contributors to BMD, but they may be factors that affected the BMD in the BE group at 10 year follow-up.
Building muscle strength has been shown to be beneficial not only for increasing bone mass or slowing bone loss but also for reducing falls and trauma as causes of bone fracture.

[1] **Sinaki M et al. Stronger back muscles reduce the incidence of vertebral fractures: a prospective 10 year follow-up of postmenopausal women. Bone 2002;30(6):836-841.**

Management of osteoporotic vertebral fractures

A field report from Greece (2010 & 2015)[1,3]

The most important target for the treatment of osteoporosis is to prevent osteoporotic fractures, but if a fracture already exists the focus shifts on rehabilitation and prevention of the next fracture.

Targeted osteoporotic drug treatment

According to the author, pharmacologic treatment should be prescribed for those who have sustained vertebral fractures, e.g. bisphosphonates.
Evidence has shown that the application of vitamin D alone, compared with placebo or no treatment, showed no statistically significant effect on vertebral fracture or deformity. There was also no evidence of a statistically significant preventive effect on fractures from the administration of vitamin D and calcium and vitamin D plus calcium versus placebo or no treatment.

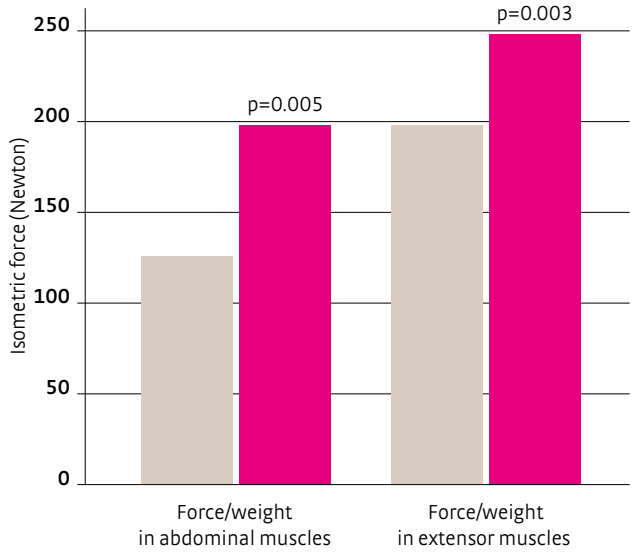
Other interventions*

Most of osteoporotic patients with back pain are treated with prolonged bed rest, local and systemic analgesia and bracing. Thereby, the incidence of a vertebral fracture should be followed by a limited period of bed rest, to avoid the hazards of deconditioning, accelerated bone loss, pneumonia, deep venous thrombosis, decubitus ulcers and depression. An extension of bed rest would increase bone loss and muscle weakness.
It is also interesting that most osteoporotic vertebral fractures happen in high bone turnover patients. In these patients post-fracture immobilization is an additional risk factor of increased bone loss.

*** Detailed descriptions of surgical procedures such as vertebroplasty are not given here.**

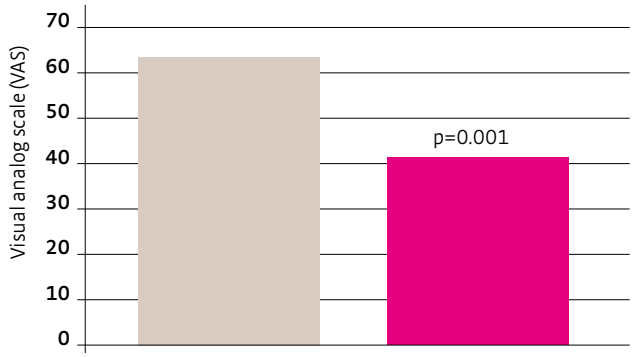
The use of spinal orthoses

Bracing is used in acute non-surgical management, whereas spinal orthoses relieve the pain and promote the healing process by stabilizing the spine. There is still a lack of specific studies comparing various types of orthoses. But it is widely accepted that all spine orthoses use a three point pressure system, whether they are made of cloth, plastic or metal and whether they are rigid or flexible.
Kaplan et al. pointed out that stable orthotic devices impose a risk of reduction in muscular strength.[2] On the contrary scientists from Greece have recently published results of women with osteoporosis and/or an angle of kyphosis more than 55 degrees wearing Spinomed orthosis showing that Spinomed significantly increased muscular strength (Fig. 1) and significantly decreased back pain (p = 0.001, Fig. 2).[3]



Patients at the beginning of the study
Patients wearing Spinomed for 6 month

Fig. 1: Values in personal isometric force in Newton (N): Force/ Weight in abdominals and extensor muscles after 6 months wearing Spinomed orthosis



Patients at the beginning of the study
Patients wearing Spinomed for 6 months

Fig. 2: Values of visual analog scale (VAS) after 6 months wearing Spinomed orthosis

Conclusion

According to the author, a program of physical therapy is necessary and helps prevent deformity by strengthening antigravity muscles and promoting postural retraining. Breathing exercises promote thoracic expansion and improve the heavily degraded pulmonary function found in patients with spinal osteoporotic fractures. An instruction on the proper method of lifting things is highly recommended. As the acute fracture pain subsides, a carefully supervised rehabilitation program should be started after 3 to 4 months to strengthen the spinal extensor and abdominal muscles substantially.

[1] **Dionyssiotis Y. Management of osteoporotic vertebral fractures. Int J Gen Med 2010;3:167-171.**
[2] **Kaplan RS et al. Effect of back supports on back strength in patients with osteoporosis: a pilot study. Mayo Clin Proc 1996;71(3):235-241.**
[3] **Dionyssiotis Y et al. Prospective study of spinal orthoses in women. Prosthet Orthot Int 2015;39(6):487-495.**

Spinomed® versus three-point brace in the treatment of osteoporotic compression fractures

A prospective, comparative study by Meccariello L et al. (2017)[1]

The incidence of vertebral fractures caused by osteoporosis is rapidly rising with aging in both sexes. Kyphotic postural change is the most physically disfiguring and psychologically damaging effect of osteoporosis, and it is related to an increased risk of falls and vertebral fractures. Moreover, osteoporotic compression fractures can result in progressive kyphosis, reduced pulmonary function, chronic pain, and limitation of patient's activity of daily living. Traditional treatment for these patients includes bed rest, analgesics, and bracing.

Three-point orthoses (3PO) are commonly used in the treatment of vertebral fractures in thoracic or lumbar spine. However, the benefit of the use of rigid thoracolumbar braces in osteoporosis is limited by factors such as trunk muscles atrophy and restricted respiration leading to low compliance. The Spinomed dynamic orthosis has been used as an alternative since 1991 based on the principle of biofeedback activation of the dorsal-lumbar musculature.

Study Design

The aim of this prospective, comparative study was to determine the clinical, functional, and radiological results of 3-point orthosis (3PO) and the dynamic Spinomed orthosis in the treatment of osteoporotic vertebral fractures (OVF).
One hundred forty patients, aged 65–93 years, sustaining osteoporotic vertebral fracture were recruited and divided into two groups: patients in the 3PO group wore a standard 3-point corset, and patients in the second group wore the Spinomed orthosis. Follow-up intervals were 1, 3, and 6 months after trauma.
Patients were evaluated among others with Visual Analogue Scale and measurement of the lung function (FEV1).

Outcome

3PO group consisted of 72 patients (21 males and 51 females), the Spinomed group consisted of 68 patients (19 males and 49 females).

After 3 and 6 months, VAS was, respectively, 5.6 (range 4–8) and 5.6 (range 3–8) in 3PO group, and 4.3 (range 3–6) and 3.9 (range 1–4) in the Spinomed group with statistically significant difference (Fig. 1; p=0.05).

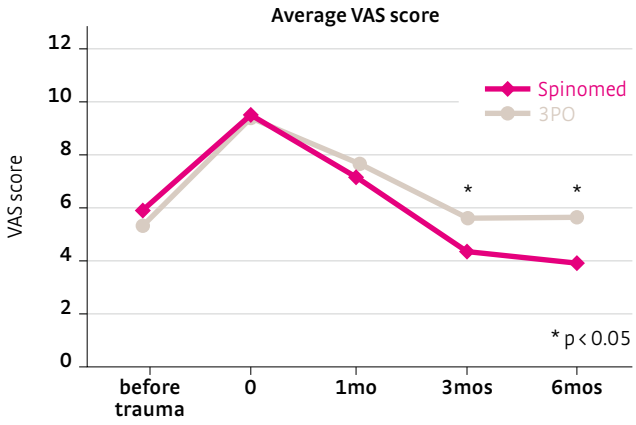


Fig. 1: VAS trend in 6 months of follow-up. There was a statistically significant difference in favor of the Spiniomed group after 3 and 6 months (p=0.05).

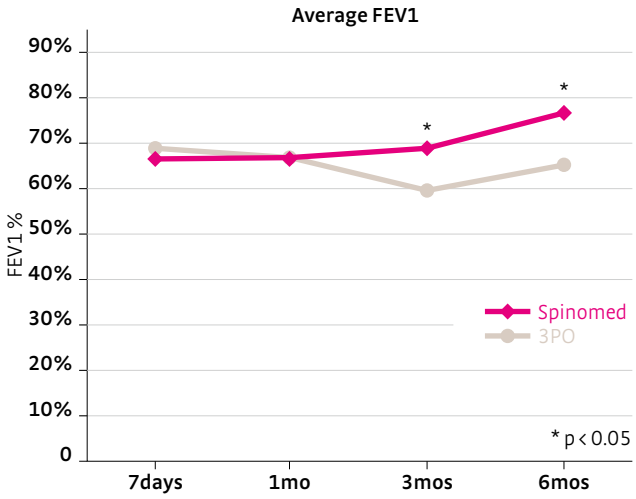


Fig. 2: FEV1 trend in 6 months of follow-up. There was a statistically significant difference in favor of the Spinomed group after 3 and 6 months (p=0.05).

Moreover, at the 3- and 6-month follow-ups, there was also a significant difference (p=0.05) in respiration (Fig. 2) in favor of the Spinomed orthosis group.

Complications were reported for 28 patients in the 3-point orthosis group, and for eight patients in the Spinomed group (p=0.05).

[1] **Meccariello L et al. Dynamic corset versus three-point brace in the treatment of osteoporotic compression fractures of the thoracic and lumbar spine: a prospective, comparative study. Aging Clin Exp Res 2017;29(3):443-449.**

Conclusion:
For decades, 3-point braces have been the most used orthoses in the treatment of osteoporotic vertebral fractures in thoracic and lumbar spine, although their efficacy is rather certified by its widespread use than proven by evidence. However, rigid thoracolumbar braces have some drawbacks limiting their use, especially when osteoporosis is concerned. In fact, muscle breakdown due to rigid immobilization may be deleterious for osteoporotic patients, because it can favor progression of kyphosis once the brace is removed.

More recently, the Spinomed orthosis has been developed as an alternative to the standard 3-point brace, aiming to overcome the disadvantages of a rigid brace.
It shares the biomechanical principle of the three-point support, with a less rigid immobilization and a dynamic behavior allowing biofeedback activation of the dorsal-lumbar musculature. That is, when the patient tends to bend forward, the cushion-belt system exerts a gentle pressure causing the patient to extend their back by using dorsal muscles. Biofeedback activation of back muscles is probably a key factor in improving functional outcome with dynamic orthosis.
Compared to three-point orthosis, patients treated with Spinomed orthoses had a greater reduction in pain and a greater improvement in quality of life and respiratory function, with equal effectiveness in stabilizing the fracture, and fewer complications.[1]

[1] **Meccariello L et al. Dynamic corset versus three-point brace in the treatment of osteoporotic compression fractures of the thoracic and lumbar spine: a prospective, comparative study. Aging Clin Exp Res 2017;29(3):443-449.**

Further findings of Spinomed orthoses

Conservative treatment of osteoporotic vertebral body fractures

A diagnostic and therapy concept in osteological orthopaedic practice (2011)[1]

Osteoporotic vertebral body fractures often take completely different courses and cause different impairments for the patients. They require intensive, patient-individualized diagnosis and therapy that not only considers the type and cause of the fracture, but also any underlying systemic illnesses.

Evaluating the risk of the fracture

A consultation is usually prompted by long-term back pain, patients occasionally say "I pulled my back". Those patients must be distinguished from patients with an acute pain event which occurred spontaneously or after a trauma.
The diagnostic algorithm corresponds to that used for diagnosing conditions of the spinal column. The typical spontaneous osteoporotic fracture is characterised by an impact on the surface of the vertebral body due to axial flexing force.
If a preceding fall cannot be excluded, the fracture must first be assessed by traumatological criteria.
Classification according to Magerl must be used for the assessment and for the decision concerning the treatment (Fig. 1): A typical osteoporotic fracture, which can be treated conservatively, corresponds to Type A1.
Patients with existing osteoporosis and trauma require further diagnosis, e.g. by means of computer tomography (CT). The type of fracture must be included in the risk evaluation, because the course and prognosis of these fractures depend on the classification. Patients with a marked low bone mineral density (BMD, measured by dual-energy X-ray absorptiometry) such as patients with secondary osteoporosis due to corticoid medication, require particularly close checks and consistent care.

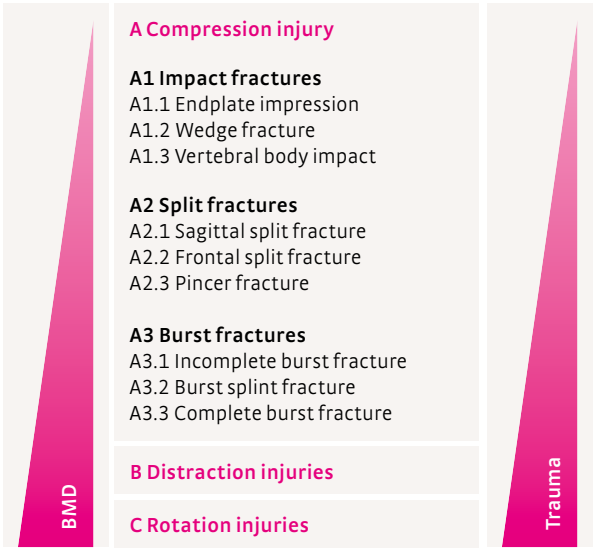


Fig. 1: Fracture classification according to Magerl (BMD: bone mineral density)

Evaluating the risk of the underlying disease

A spontaneous vertebral body fracture is a symptom of an underlying systemic disease. This can be osteoporosis, but it can equally be any other primary or secondary bone disease or a malignancy. Therefore, it is advisable to perform differential diagnosis parallel to the fracture evaluation and, if necessary, initiate further specialist clarification after caring for the fracture. The clinical examination must consider coordinative performance, the neuromuscular situation, the overall postural situation, segmental irritation and additional disorders of the locomotor system. After radiological diagnosis of the fracture, it must be decided whether it is a recent event or a secondary, musculoligamentous pain syndrome due to incorrect posture, loading and function of the spinal column after an old fracture.
This question usually requires further evaluation, such as CT or magnetic resonance imaging (MRI), and serves to complete the history and to provide a reliable estimation of the patient's current ability to withstand loading and the risk of further deformation of the vertebral bodies.

Conservative therapy

In general, the primary pain event in an osteoporotic fracture can be treated conservatively in an outpatient setting (see Fig. 2, p. 11: therapeutic options). The patient is instructed to take analgesic medication consistently according to the WHO's analgesic ladder.
The patient is mobilised according to his/her individual level of pain using forearm crutches and a spinal orthosis (e.g. Spinomed). Within the first 6 weeks the orthosis is recommended to be worn all day long; afterwards on an hourly basis and in special loading situations, such as for housework.

The advantage of these ready-for-use orthoses is their rapid adaptability, the fact that they do not impair respiration and that they can be used for patients up to moderate obesity.
The orthosis should be fitted by an orthopaedic technician and extend from the spinous process of C7 to the proximal site of to the anal fold.

Medication
• Analgesia according to the WHO guidelines on the treatment of pain • Medication that acts on bone metabolism
Physiotherapy
• Pain-adapted mobilisation, e.g. with crutches • Spinomed orthosis • Muscle activation • Brunkow, isometrics, training therapy
Operative measures
• Percutaneous kyphoplasty (vertebroplasty)

Fig. 2: Therapeutic options

The orthosis is particularly recommended for patients at a high risk of secondary fractures due to severe osteoporosis.
In contrast to trauma patients, the care of patients with osteoporosis does not end with treatment of the fracture - that is when treatment starts.
After the risk assessment and the ruling out of secondary changes, specific bone metabolism treatment is initiated with the additional administration of 500mg calcium and 1,000 to 2,000 IU vitamin D3.
As soon as the acute symptoms have regressed, physiotherapy is started in order to strengthen the muscles and stabilise the musculoskeletal system respectivley posture.
In the following months, the patient should learn better co-ordination and how to prevent falls.

Summary

The decision to treat conservatively or operatively depends on a strict assessment of the indications including the type of fracture, the course and the patient's overall situation.
The treatment of osteoporotic vertebral body fractures first focuses on the risk assessment with regard to the stability of the fracture, the differential diagnosis and the exclusion of a secondary aetiology of the vertebral deformity.
The patient needs adequate analgesia to permit pain adapted mobilisation while using a dorsal back orthosis.
After the acute phase, the patient undergoes physiotherapy, focussing on co-ordination training, how to prevent falls and activate the muscles. Regular clinical and radiological monitoring of the progress enables a critical evaluation of the treatment plan and rules out any risks to the patient.

[1] **Clarenz P. Die konservative Behandlung der ‚osteoporotischen' Wirbelkörperfraktur. Diagnose- und Therapiekonzept einer osteologisch-orthopädischen Praxis. Osteoporose & Rheuma aktuell 2011;No. 1.**

Osteoporosis orthoses **application test**

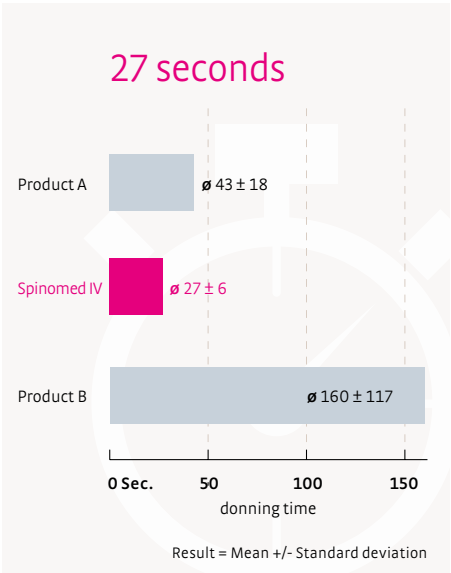
Spinomed® test winner

Fastest donning time of 27 seconds

An application test has proved: the Spinomed orthosis enables your patients to put it on in by far the shortest time. This easy handling promotes compliance, boosts the success of your treatment, and makes your patients feel confident when wearing it.

Fastest donning time with Spinomed®

The Spinomed orthosis from medi enables your patients to put it on in the shortest time.



The trial showed significant differences in the so-called „donning time" – the time it takes to put on the orthosis properly ($p = 0.001$). The female subjects (average age 78.6 years) managed to put on the Spinomed orthosis completely and correctly after an average of 27 seconds. This gave the Spinomed orthosis by far the shortest donning time in the test.
Particularly notable: even the longest Spinomed set-up time (29.6 seconds) was shorter than the time it took to put on any of the other products tested. In fact, four of the volunteers abandoned the test with rival products after six minutes without managing to put the orthoses on completely or properly within this time. In these cases, a time of 360 seconds was entered in the analysis for these orthoses.
Conclusion: trust in the test winner – Spinomed.
Simple, tried-and-tested handling for successful treatment.

Pre-formed shoulder straps

Abdominal panel with hand loop

Simple handling

Safe and simple handling of the orthosis is a decisive criterion for acceptance of the medical device. With its ingenious design, the Spinomed orthosis is easier for your patients to use and promotes compliance.

Pre-formed shoulder straps

A special feature of the Spinomed orthosis are the pre-formed shoulder straps. These can be adjusted individually to the patients' needs and make the orthosis easier to put on and remove.

Optimum fit

The hand loop makes the abdominal panel simple to fasten under tension. The flexible material ensures the orthosis fits exactly, and the silicone dots guarantee a perfect fit when wearing it.

Information about the study

Friedrich-Alexander University, Erlangen-Nuremberg, conducted a randomised, controlled study (Kemmler, W.: „Study on the Spinomed Orthosis with regard to Swaying and Compliance compared with Competitors", 2014, unpublished). One of the primary endpoints was individual handling of the orthoses (n=19).

Inclusion criteria:
- Living independently, female, age over 70 years
- ≥ 1 vertebral fracture (manifest osteoporosis)
- Kyphotic angle according to Debrunner > 25°

Convincing arguments for doctors and patients

Spinomed®

The Original

Indications
- osteoporotic bone fracture in the thoracic and lumbar spine
- Scheuermann's disease
- hyperkyphosis with chronic back pain

Product benefits

Ergonomically pre-formed shoulder straps make it easy to put on and increase wering comfort.

The aluminium back support is mouldable and can be easily adapted to meet individual patient needs.

The strap loops help prevent twisting of the straps.

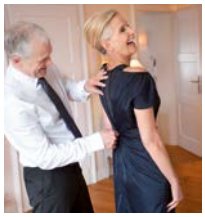
The soft material with inset holes increases air circulation and is comfortable to wear.

Spinomed® active

The effective body garment in two practical colours

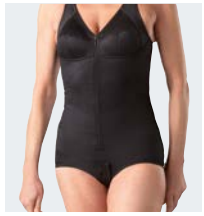
Indications
- osteoporotic bone fracture in the thoracic and lumbar spine
- Scheuermann's disease
- hyperkyphosis with chronic back pain

Product benefits



Orthosis is almost invisible under clothing.

The aluminium back support is mouldable and can be easily adapted to meet individual patient needs.



Also available in black.

Numerous variants for individual patient needs with cup, hooks (gusset), velcro (gusset), colours (black / champagne).

Spinomed® active men

The garment especially for men

Indications
- osteoporotic bone fracture in the thoracic and lumbar spine
- Scheuermann's disease
- hyperkyphosis with chronic back pain

Product benefits

Orthosis is almost invisible under clothing.

The aluminium back support is mouldable and can be easily adapted to meet individual patient needs.

Very comfortable to wear – adjustable straps ensure a perfect fit.

Simple handling – practical 2-way front zip is simple to operate.

Headquarter
medi GmbH & Co. KG
Medicusstraße 1
D - 95448 Bayreuth
Germany
P +49 921 912 - 0
F +49 921 912 -783
export@medi.de
www.medi.de/en

4 051526 179660
0099E62 / 09.2018