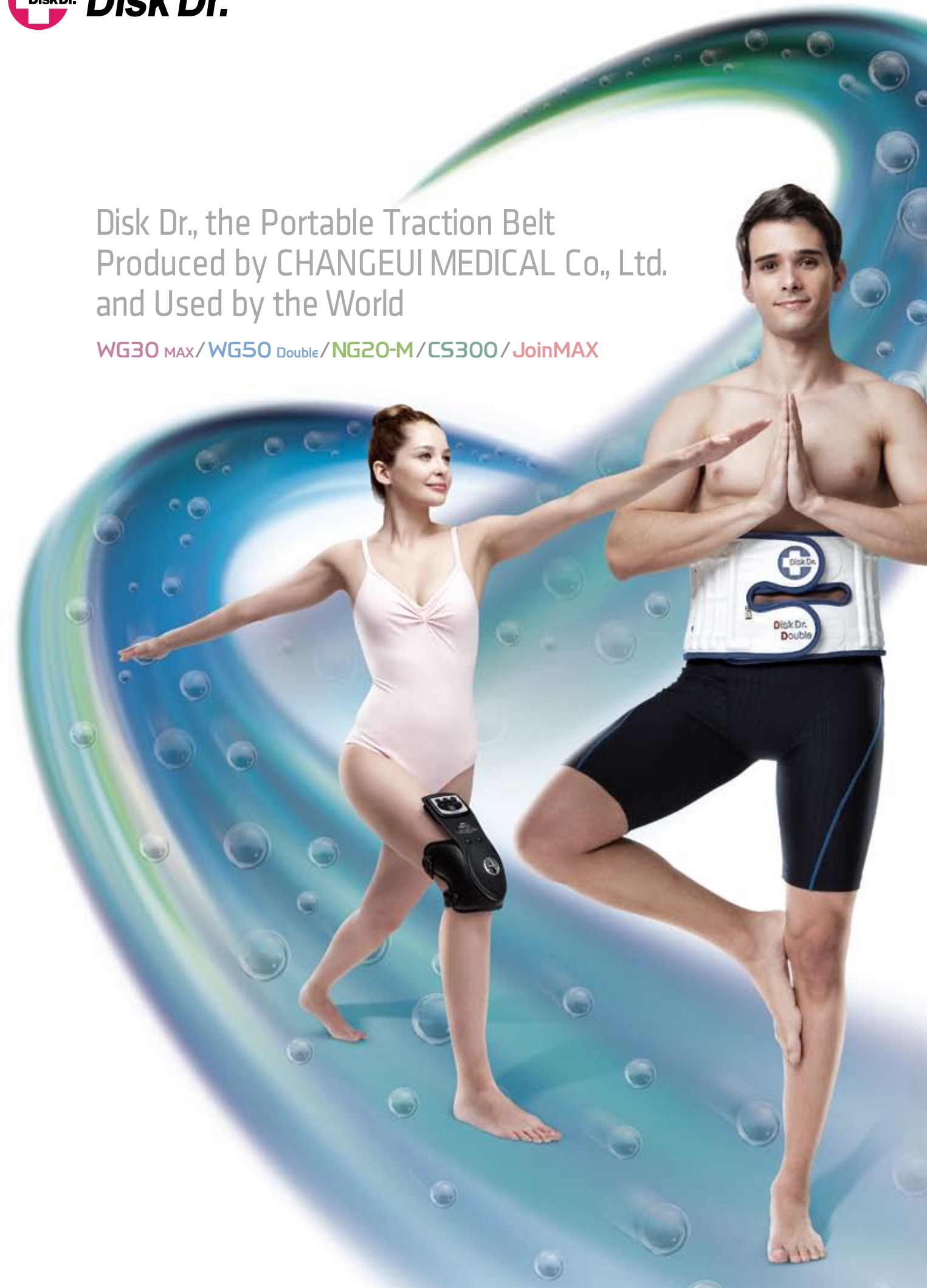




Disk Dr., the Portable Traction Belt
Produced by CHANGEUI MEDICAL Co., Ltd.
and Used by the World

WG30 MAX / WG50 Double / NG20-M / CS300 / JoinMAX



www.diskdr.co.kr

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CMF-07-736-00



Changeui Medical is one of the representative medical equipment developers and manufacturers of Korea, competing in the global market.

From the No. 1 supplier of traction unit in Korea to No. 1 in the world.

Here is the reason why it is called the Disk Dr.

Since its establishment in 1997, Changeui Medical has been expanding its operating field from Korea to the global medical device market under the management philosophy of Health Care & Human Care.

As a medium-sized but specialized enterprise, we are competing with international companies through dealers in 31 countries, representing the advanced medical technology of Korea.

In addition to the Disk Dr., a portable traction belt applied with VAP™ technology for the first time in the world, we are dedicated to the healthier life of human beings by preventing life-style related diseases, as well as pain treatments. Our traction units for spinal traction and cervical traction, along with knee-joint muscles developed with our expertise and technical power are highly recognized in the global market.

On the basis of ceaseless R&D and virtuous management, we, at CHANGEUI MEDICAL Co., Ltd., will grow up to be a general manufacturer of medical devices and equipment to contribute to a healthier life of human beings.

Your care and encouragement on our development would be highly appreciated.

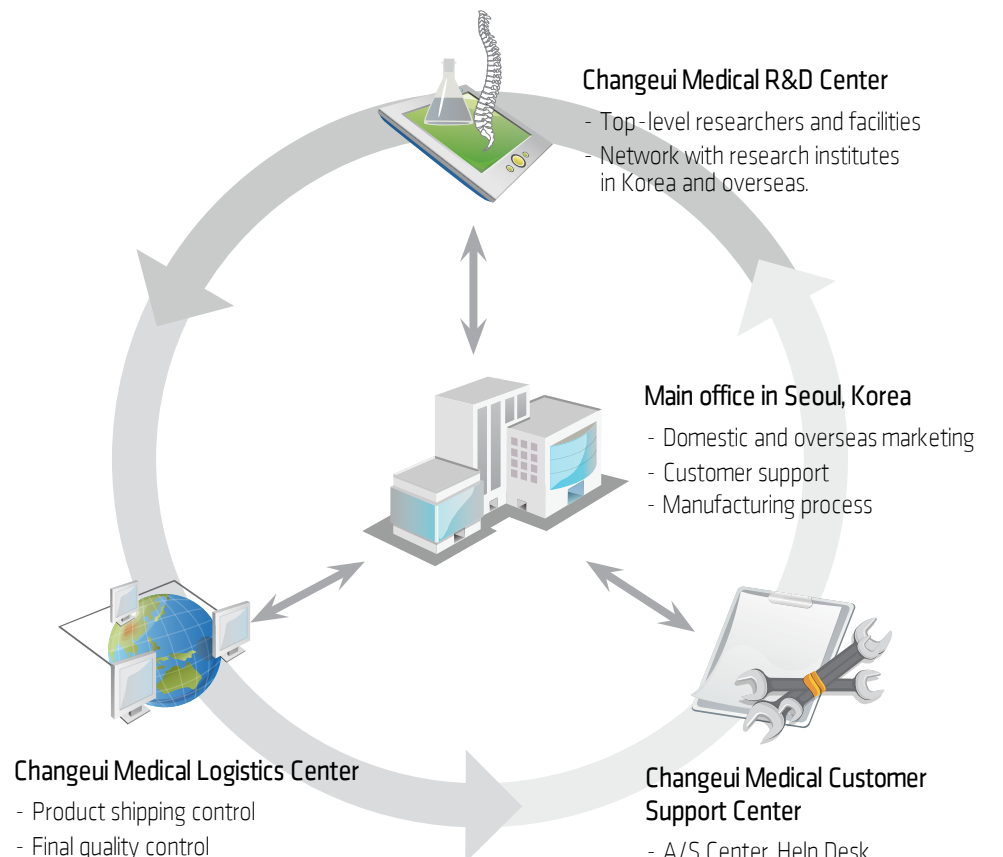
Best Regards,

CHANGEUI MEDICAL Co., Ltd.

Kim, Dong -Youn, Representative & CEO

CHANGEUI
MEDICAL
Co., Ltd.

Changeui Medical satisfies our customers with its advanced technology and best services. It is operating the quality assurance system, which complies with the GMP regulation of KFDA, in the areas ranging from its production to marketing to customer services.



CERTIFICATES

Developed and manufactured with our own technology and expertise, Disk Dr. is highly regarded throughout the world. Disk Dr. has obtained an international patent, contributing to the improvement of the life of human beings.



ISO 9001



ISO 13485



KGMP



TECHNOLOGY
INNOVATION
(INNO-BIZ)



CE



FDA



JFDA



SFDA

TECHNOLOGY

Eight of ten persons suffer from back pain at least once in their lifetime!!

Due to bipedalism, where the spine bears the weight of the upper body, human beings suffer from various spinal diseases. Furthermore, it has been known that aging can cause lumbar disc herniation. Recently, many young people are also suffering from back pain.

Lumbar disc herniation can be treated both surgically and nonsurgically. However, most patients can overcome back pain by conservative treatments only.

Recommended Users.

- Patients who suffer from an acute/chronic sprain of the lumbar vertebrae.
- Patients with a herniated intervertebral disc, Scoliosis, Spinal stenosis or Spondylolysis.
- Herniated disc patients before/after operation.
- Mothers who suffer from back pain due to childbirth and nursing.
- Students and office workers who need to correct their posture.
- Patients who suffer from back pain due to a weak waist.
- Those who are engaged in sports or occupations that require extensive use of the waist.

Treating Back Pain without Surgery !!

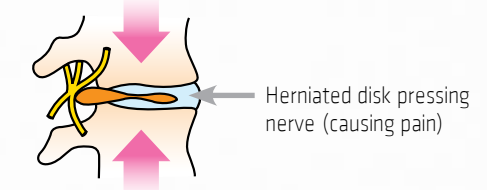
[Working Principle of the Product]

The principle of the product is spinal traction, which is one of the major therapies for the lumbar disc herniation. With the pelvis as the support, the traction belt stretches the spine by inflating pressure of the air inside.

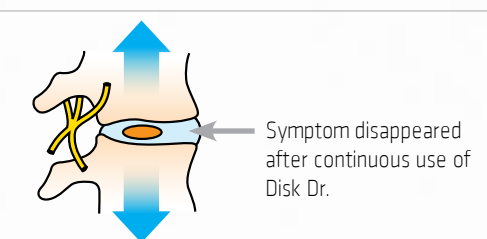
[What is Traction Therapy?]

The air column formed along the lower back line lift the vertebra instantly, producing space between the intervertebral discs from #1 to #5, by about 3mm per disc. By increasing this space, the intervertebral disc or nucleus pulposus resumes the appropriate position and patients experience a reduction in discomfort.

Before wearing Disk Dr.
(before air injection)



After wearing Disk Dr.
(air injected)



[Disk Dr.]

Disk Dr. is a portable, air-inflation traction belt that provides the patients with traction treatment which has been available in hospitals and clinics. Powerful air pillars stretch the spinal disks from No. 1 to No. 5 in the vertical direction, widening the gap so that the disc(s) can return to its(their) original position in the spine, thus relieving the pain. According to the clinical test conducted at the Inje University Hospital, Seoul, 90.5% of the patients reported relief of pain, and the inter-vertebral disc interval at the 4th and 5th segment of the lumbar vertebrae widened by an average of 3mm.

TECHNOLOGY



VAP™ Technology (Vertical Air Pressure Technology)



What is VAP™ Technology?

- The exclusive VAP™ technology of Changeui Medical stretches the spine, treating disk hernia, degenerative stenosis, and lumbar muscle pain.
- VAP™ technology is the unique technology of Changeui Medical that applies high air pressure in the vertical direction to stretch the spine against gravity.
- With the resistance in the air tube reduced greatly, the VAP™ technology provides sufficient traction force at relatively lower air pressure to lift the weight of the upper body (approx. 50kg) of an adult person.



RMS™ System (Reinforcing Muscular Strengthening System)

What is RMS™ System?

- It is a system that reinforces the muscles around the spine and allows the muscles to have longer-lasting mobility.
- The Disk Dr's RMS™ System effectively gives the muscles around the spine traction and pressure. When wearing the Disk Dr., the muscles around the spine are continually supported which helps to reinforce the back muscles.
- The Disk Dr. is not a product that limits back exercise. Unlike a cast or a hard brace that prevents movement and weakens the back muscles, the Disk Dr's RMS™ System not only helps reinforce the muscles but helps patients with back pain get the exercise their back muscles need.



Airtouch™ System (Customized traction system for specific shape of cervical vertebra)

What is the Airtouch™ System?

- When the patient puts on the Disk Dr. and injects air, the Airtouch™ System generates air holes along the profile of the cervical vertebra, dispersing the supportive pressure to stretch the cervical vertebra softly and evenly.
- Just like a tailor customizes clothes to the body configuration of a customer, the Airtouch™ System adapts to the physical profile of each patient's cervical vertebra to provide the patient with soft but firm traction.
- The ergonomically -designed air hole of the Disk Dr. fills the empty space between the neck and the traction belt, which feels like part of the body of the patient.



CLINICAL TEST



The convenience and scientific effect of Disk Dr. proved by **the Orthopedic Surgery Team, Seoul Paik Hospital, College of Medicine, Inje University.**

From the beginning of the development project of the Disk Dr., many specialists and doctors had provided us with consultation and valuable advice. On the basis of the data collected over time from a number of patients suffering from back pain, intensive clinical tests have been conducted to improve the performance and reliability of the Disk Dr. Disk Dr. is an authorized medical device for traction treatment of the vertebra, the world's first air inflation type device.

Period of Back Pain



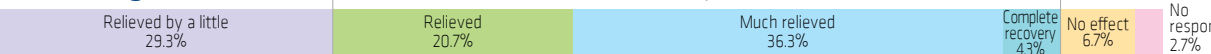
The characteristics of pain include: 44.5% back pain and radiating pain, 19.8% pain down to the legs and heels, 17.7% back pain only, and 8.5% pain in the lower limbs including the legs. Radiating pain cases are the most. (Pain from the lumbar disc herniation (disk hernia)) In diagnosis and past history, 87.5% had ever received diagnosis and examination, of which, 76.2% received special, intensive examinations including a CT scan. This shows that many back pain patients received special examinations.

Pain Relieving Effect of the Traditional Therapies (Physical, Medication, Oriental Medicine, etc.)



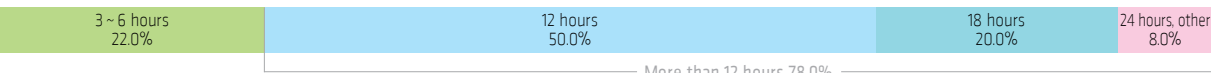
Most patients of back pain begin treatment with complete rest, administration of antiphlogistic and muscle relaxants, wearing of orthosis, physical therapy, or surgical operation. Waist corsets are used to relieve pain in many spinal diseases such as disk hernias, spondylolisthesis, spinal caries, and ankylosing spondylitis. 63.4% of patients answered that these treatments were of help, but most of them said the effect was not significant. On the contrary, 90.5% of the patients treated with the Disk Dr. reported distinctive effect of pain relief, and of which, 61.3% reported satisfactory effect or even complete recovery, proving the superiority of Disk Dr.

Pain Relieving Effect of Disk Dr.



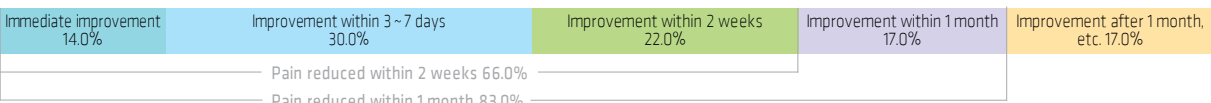
The pain-relieving effect of Disk Dr. was proved by 62% of the patients who reported definitive effect or complete recovery, which is significantly superior to other types of physical therapies or medication. It was noteworthy that older patients reported better results. This shows that the Disk Dr. can provide the patients suffering from degenerative diseases with a very positive effect. No significant difference could be identified by sex or body mass index (BMI). Consequently, Disk Dr. is judged to be applicable to a wide variety of the patients suffering from back pain.

Time of Disk Dr. Application (Daily)



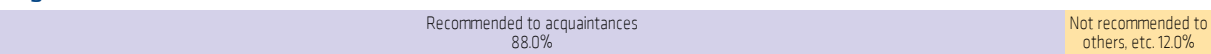
Most of patients (78%) wear Disk Dr. about 12 hours a day. 25% of them wear it 18 hours or longer, including work hours and rest time. Some reported discomfort because of tightness. However, most patients said it becomes comfortable after daily use. It was judged that wearing the Disk Dr. relieves pain significantly, without giving much inconvenience in daily life.

Recognizable Effect after Wearing Disk Dr.



Clinical tests of the Disk Dr. with patients suffering from chronic or acute back pain by lumbar sprain have proved faster pain relief than traditional orthotics. Ahlgren reported 30 ~ 80% of pain relief in the case of foreign patients, whereas the Disk Dr. showed 90.5% of pain relief. In the survey of the time period when the patients could first recognize the effect, 66% of the patients reported they could feel effects within the first 14 days, and most of them could feel the effect within 1 month. 14% of them could recognize the effect as soon as wearing it. The degree of pain relief was reported to be higher as the pain was more severe. It was judged that the Disk Dr. can be a very effective pain reliever for both chronic and acute cases.

Degree of Satisfaction of Disk Dr.



As the above result of clinical test shows, the pain relieving effect of the Disk Dr. is very unusual and much superior to any other conservative therapies due to its convenience, safety, and duration of the effect. The patients can decide application of the Disk Dr. regardless of the time and place and can control the time of force of traction, which can eliminate the restrictions cast by daily life. 9 out of 10 patients who experienced the Disk Dr. said they did or want to recommend it to other patients suffering from back pain.

Disk Dr. Waist : Clinical Trial Results.

These studies have been carried out at the Department of Orthopaedic Surgery, College of Medicine, Inje University Seoul Paik Hospital by Professors Byungjik Kim and Shinwoo Park and their teams.

[Introduction]

This study into the performance of the efficacy of Disk Dr. after use by patients with low back pain has evaluated pain levels, radiographic changes and strength of both flexor and extensor muscles at the lumbar vertebrae by using an isokinetic evaluation device.

[Subject of the Study]

22 patients with acute or chronic lumbago; age ranging from 19 to 58 with average age of 44, 8 patients in the age range of 50 to 59 years, 9 men and 13 women, 9 patients with herniated disc, 9 patients with acute lumbago and 4 patients with chronic lumbago.

Table 1. Age & Sex distribution

Age	Male	Female	Total
20 ~ 29	2	1	3
30 ~ 39	1	3	4
40 ~ 49	2	4	6
50 ~ 59	3	5	8
60 ~ 69	1	0	1
Total	9	13	22

[Methods of the Study]

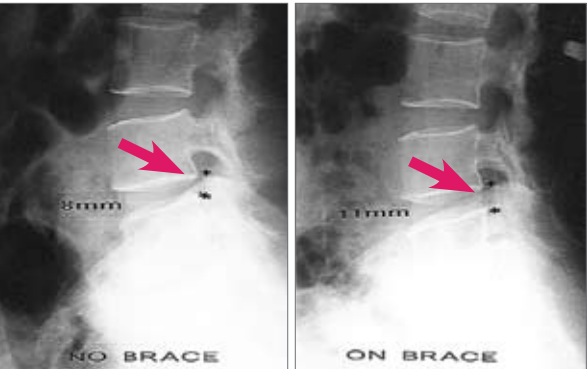
Firstly, Macnab's criteria were used to examine changes of the pain.

Secondly, radiographic imaging was used to analyze side views of the lumbar and sacral vertebrae, comparing with those photographed before wearing Disk Dr. and thirdly, a Cybex 6000 Trunk Extension Flexion (TEF) Unit was used to measure and analyze muscular strength of the flexor and the extensor at the lumbar vertebrae.

[Results of the Study]

1) Changes in Pain States.

Macnab's criteria were measured as follows : Excellent is a state without pain, without restriction of movement and which would allow the patient to work normally. Good is a state with occasional pain, but which would allow the subject to work normally. Fair indicates slight progress and Poor reflects no progress. The results in Table 2. show that approximately 85% reported favourable results with 3 subjects reporting Excellent relief of pain and 15 reporting Good relief of pain (out of 22 patients).



(X-ray before the application) The interval between lumbar vertebrae : 8mm
(X-ray after the application) The interval between lumbar vertebrae : 11mm (Increased by 3mm)

Table 2. Pain relief before and after application of Air corset (Disk Dr.)

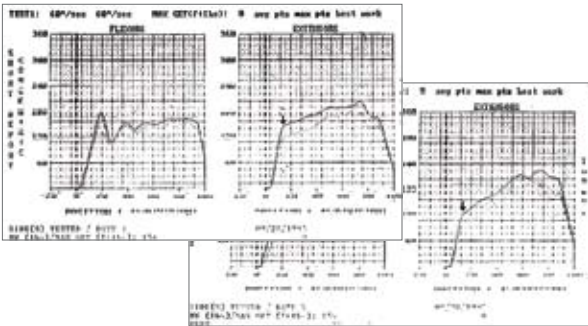
	Pre - Disk Dr.	Post - Disk Dr.
Excellent	-	3
Good	1	15
Fair	17	3
Poor	4	1

2) Radiographic Changes

Results from comparing X-rays of side views of lumbar and sacral vertebrae before and after the application of Disk Dr. in 12 inpatients, showed the anterior curvature of lumbar vertebrae had increased and the inter-vertebra disk interval at the 4th and 5th segment of lumbar vertebrae had broadened by an average of 3mm.

3) Isokinetic evaluation

Out of twelve inpatients, three were randomly selected for evaluation using the Cybex 6000 - Trunk Extension Flex (TEF) unit. According to the results from comparing the total joule at 60 angular velocity, peak torque, the ratio of peak torque to weight and average muscle power measured before and after the application of the Disk Dr., the following graphs demonstrate that extensor muscle power was sustained longer after the use of the Disk Dr.. Therefore, we decided that the Disk Dr. was useful in reinforcing muscular strength. From the results obtained, the increased anterior lumbar curve, as shown radiographically, can be said to be caused not only by physical distraction, but also by increased muscle strength.



4) Conclusion

It was shown that approximately 82% of subjects reported either Excellent or Good results after 3 days of using the Disk Dr. (3 Excellent, 15 Good, out of total 22 patients.) In the radiographic test and isokinetic evaluation, increase in the anterior curvature of the lumbar vertebrae and increased distraction between the fourth and fifth lumbar vertebrae were found. Also, the mobility of extensor muscles were improved. These results were obtained from both the subjective and objective examination of the patients and lead us to believe that use of Disk Dr. can play an important and effective role in the treatment of both acute & chronic low back pain patients.

5) Efficacy and Effect of Disk Dr.

The Disk Dr. is judged to have effects on both acute and chronic low back pain caused by the following factors

- The acute & Chronic sprain of lumbar vertebrae
- Spinal stenosis
- Spondylolysis and Spondylolisthesis
- Herniated intervertebral disc.

WG30 MAX

Anytime, Anyone, Always

Disk Dr. is Applicable Anytime, Anywhere!

It's so comfortable and causes no restriction in movement over a long time of application. You can wear it in your office, work shop, travel, sports activities, dilettante life, etc.



• VAP™ Technology (Vertical Air Pressure Technology)

The VAP™ technology is a unique technology of Changeui Medical that applies high air pressure in the vertical direction to stretch the spine against gravity.

• RMS™ System (Reinforcing Muscular Strengthening System)

Disk Dr. reinforces lumbar muscles by effectively stretching and compressing the muscles around the spine.



[CHARACTERISTICS]

- **Lightweight and Slim!**
Lightweight and slim design enables application anytime, anywhere.
- **Comfortableness without Restriction!**
Wide - back and narrow - front design provides more freedom of motion. You can even wear it during sports activities.

[FEATURES]



- **Pressure regulator valve (at the pump)**
The pump is provided with an over - pressure preventing valve, so you can safely use the pump without checking the air pressure.
- **Air inlet**
A check valve is provided to prevent air from back - flowing or leaking.
- **Portable hand pump**
A reciprocating pump is supplied to inject air easily. (Portable for outing or travel)
- **1600 Gauss medical grade magnet**
Four medical grade magnets embedded inside the belt promote relief of lumbar muscle pain. .
- **Excellent adhesiveness**
Wider back - support line supports the back firmly and a slimmer front line provides comfort of application.
- **Auxiliary fastening belt**
The auxiliary belt maintains the Disk Dr. at the correct position even during excessive movement.

WG50 Double

125% Stronger traction power!!
For Intensive Care with the Powerful Traction of Disk Dr.

This model is designed to apply intensive care with more powerful traction force. Wider contact surface provides a firm traction effect.



[CHARACTERISTICS]

- **More Powerful Traction**
Compared with the WG30 MAX, WG50 Double provides higher traction force and support area by 32% and 20%, respectively.
- **Double Belt Design**
The double belt design of the WG50 Double disperses the abdominal weight effectively to allow more comfortable and reliable support of the spine.

[FEATURES]



- **Pressure regulator valve (at the pump)**
The pump is provided with an over - pressure preventing valve, so you can safely use the pump without checking the air pressure.
- **Air inlet**
A check valve is provided to prevent air from back - flowing or leaking.
- **Portable hand pump**
A reciprocating pump is supplied to inject air easily. (Portable for outing or travel)
- **1800 Gauss medical grade magnet**
Four medical grade magnets embedded inside the belt promote relief of lumbar muscle pain.
- **Excellent adhesiveness**
Wider back - support line supports the back firmly and a slimmer front line provides comfort of application.
- **Double Belt System**
Wider and higher traction belt provides your back with stable and firm traction.

• **VAP™ Technology (Vertical Air Pressure Technology)**
The VAP™ echnology is a unique technology of Changeui Medical that applies high air pressure in the vertical direction to stretch the spine against gravity.

• **RMS™ System (Reinforcing Muscular Strengthening System)**
Disk Dr. reinforces lumbar muscles by effectively stretching and compressing the muscles around the spine.



NG20-M

For your healthy lifestyle

A best choice for your healthy life style!

Long-time computing work causes neck pain.
Now, you can relieve the pain at your home conveniently.



- **VAP™ Technology (Vertical Air Pressure Technology)**
The VAP™ technology is a unique technology of Changeui Medical that applies high air pressure in the vertical direction to stretch the spine against gravity.
- **Airtouch™ System (Customized traction system for specific shape of cervical vertebra)**
The unique Airtouch™ system of Changeui Medical provides customized, soft, and stable traction with the air pillars formed in accordance with the shape of the cervical vertebra.

[CHARACTERISTICS]

- **Excellent adhesiveness**
Slim, diamond - shape traction belt line holds the cervical vertebra comfortably. Now, you can relieve pain at the comforts of your own home.
- **Easy and Fast Traction Treatment**
Application of 20 ~ 30 minutes, twice a day, will recover pain in your neck and shoulder as the air pillars form along the cervical vertebra.

[FEATURES]



- **Excellent adhesiveness**
Slim, diamond - shape traction belt line holds the cervical vertebra comfortably.
- **Air inlet**
A check valve is provided to prevent air from back - flowing or leaking.
- **Pressure regulator valve (at the pump)**
The pump is provided with an over - pressure preventing valve, so you can safely use the pump without checking the air pressure.
- **1600 Gauss medical grade magnet**
Four medical grade magnets embedded inside the belt promote relief of muscle pain.
- **Ergonomic Support**
The ergonomic design considering the configuration and motion of the neck covers and protects the neck.
- **Portable hand pump**
A reciprocating pump is supplied to inject air easily. (Portable for outing or travel)

CS300

I've got the Power

The premium Disk Dr., CS300 is for patients with severe neck pain accompanied with numbness in arms!

The wide traction belt with 8 air pillars and the bracket holding the body stable treat the pain in the neck without surgical operation.



- VAP™ Technology (Vertical Air Pressure Technology)
The VAP™ technology is a unique technology of Changeui Medical that applies high air pressure in the vertical direction to stretch the spine against gravity.
- Airtouch™ System (Customized traction system for specific shape of cervical vertebra)
The unique Airtouch™ system of Changeui Medical provides customized, soft, and stable traction with the air pillars formed in accordance with the shape of the cervical vertebra.

[CHARACTERISTICS]

- More Powerful Traction
CS300 is designed to cover the entire cervical vertebra and stretch the cervical spine stably with an auxiliary frame.
- Comfortable Traction Treatment
Soft support frame is designed not to press the carotid and the main nerve system provides comfort during a long period of use.

[FEATURES]

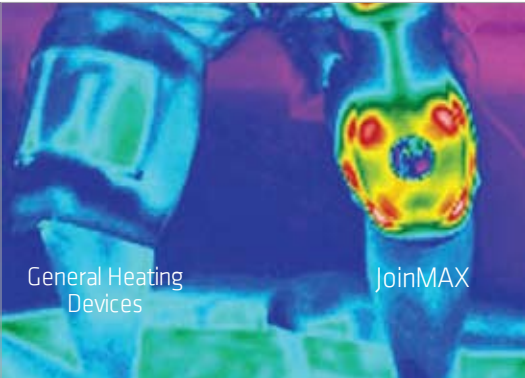


- Pressure regulator valve (at the pump)
The pump is provided with an over - pressure preventing valve, so you can safely use the pump without checking the air pressure.
- Air inlet
A check valve is provided to prevent air from back - flowing or leaking.
- Traction Belt
The belt is ergonomically designed by considering the shape and movement of the neck, so it protects the neck more stably.
- More Powerful Traction Force
Wider belt than the previous model (NG20 - M) provides higher traction force to stretch the cervical vertebra more stably.
- Support Frame
Soft frame absorbing pressure prevents excessive pressing on the chest and neck, resulting in a comfortable traction treatment.
- Portable hand pump
A reciprocating pump is supplied to inject air easily. (Portable for outing or travel)

JoinMAX

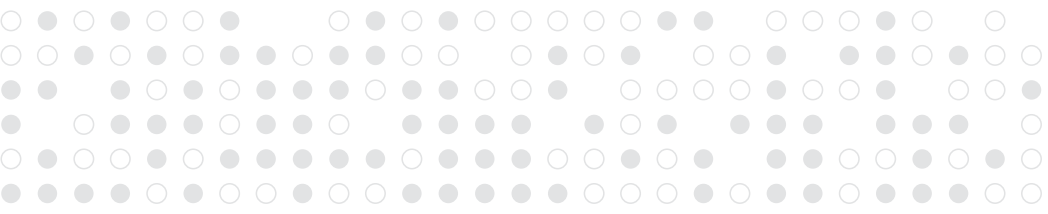
Bio Heating System for Knee joint treatment JoinMAX

Jointly developed with the Bioengineering Research Institute of Korea University.



[General Heating Devices vs JoinMAX]

- **General Heating Devices**
Heat energy can only penetrate into the epidermal tissue, giving temporary relief of pain.
- **JoinMAX**
The infrared (IR) wave radiated from the IR Lamp penetrates into the deeper body tissue, rapidly improving and curing joint pains and similar symptoms.



[Effect of JoinMAX]

- Relieves pain by relaxing strained muscles and related joints, and prevents secondary damage. Applying for about 30 minutes before sports activities or outing will relax the knee muscles and joints. This will prevent development of symptoms and relieve pain, promoting better performance during the activity.
- JoinMAX has been authorized by KFDA as a medical device for knee joint muscle pain treatment, and registered with the FDA.

[FEATURES]



- **IR Lamp**
Four IR lamps (700 ~ 5000nm) deliver heat energy deep into your knees.
- **Halogen Lamp**
A portion of the light generated from six halogen lamps is converted into thermal energy in the silver plate.
- **High Purity Silver Plate**
The high thermal conductivity, antibiosis of high purity silver delivers heat energy deeper into your knees.
- **Controller**
Maintains appropriate level of temperature according to user set up. (Adjustable between 45 ~ 65°C).
- **Fixing Belt**
A fastening belt with adjustable length fixes the JoinMAX at the appropriate position for user comfort.