

## A Comparative Study of Pelvic Traction and Bilateral Leg Traction in the Conservative Management of Low Backache

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### Abstract

**Background:** Low backache is the commonest complaint with which the patient presents to an Orthopaedic Surgeon. Nearly 80% of the population suffer from low backache at one or the other stage in their lifetime. The management of these patients includes bed rest, analgesics, back exercises, traction and at times even surgery. Dillane, Fry and Kalton reported that nearly 79% of men and 89% of women suffered from low backache at some point of time in their life. The exact cause of which was unknown. This amounts to significant loss of income for the nation because the productivity is lost due to absenteeism. **Aim:** The purpose of this study is to evaluate whether Pelvic traction or Bilateral leg traction is superior in the conservative management of low backache. **Materials and Methods:** We evaluated 93 patients with low backache due to various causes. Out of these, 44 patients were put on bilateral leg traction and the other 49 patients on pelvic traction. Patients between 20 to 70 years of age were included in the study. Their foot end was elevated while they were on traction. Pain severity was assessed based on the following pain severity scales: Body diagrams, Thermometer pain rating scale, Visual analogue scale (VAS), Mc Gill Pain questionnaire method, Numeric rating scale, Wong Baker faces pain rating scale. **Results:** The analysis of the data has showed that bilateral leg traction has got significant better pain relief as compared to pelvic traction, but there is no difference between bilateral leg traction and pelvic traction in regards to time duration taken for the pain relief. **Conclusion:** Bilateral leg traction provides significant pain relief as compared to pelvic traction.

**Keywords:** Pelvic traction, Bilateral Leg traction, analgesics, Physiotherapy

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### Introduction

The estimated yearly prevalence of Low Backache is 5-20% in US and 25-45% in Europe. 76% of all claims of back strain. Sprain injuries to back were highest among truck drivers, operators of heavy instruments, and construction workers. The incidence of Low backache is on a rise. A few of the causes are

- 1) Faulty posture adopted by the younger generation while sitting or studying.
- 2) Working on computers for hours together by sitting in a defective posture
- 3) Driving vehicles, especially two wheelers, on faulty roads which are uneven, especially in our country.
- 4) Increase in geriatric population due to increased life span of an individual. This is secondary to improved quality of health care in our country. Hence degenerative disorders of spine, leading to low backache has increased.

Low backache is the commonest complaint with which the patients present to an Orthopaedic Surgeon. Nearly 80% of the population suffer from low backache at one or the other stage in their lifetime. The management of these patients includes bed rest, analgesics, back exercises, traction and at times even surgery. Dillane, Fry and Kalton reported that nearly 79% of men and 89% of women suffered from low backache at some point of time in their life. The exact cause of which was unknown. This amounts to significant loss of income for the nation because the productivity is lost due to absenteeism. The management of these patients include Bed rest, Analgesics, Back

exercises, Traction and at times even Surgery. Therefore this study was conducted to evaluate whether Pelvic traction or Bilateral leg traction is superior in the conservative management of low backache.

#### Materials and Method

This prospective study was conducted at Nalanda Medical College and Hospital, Patna. The study was approved by institutional research and ethical committee. An informed and written consent was taken from all the participating subjects before the commencement of the study. The study was conducted over a period of one year from January 2019 to December 2019. The study sample included 93 patients with low backache due to various causes attending the Orthopedics outdoor department of our institution. Out of these, 44 patients were put on bilateral leg traction and the other 49 patients on pelvic traction. Patients between 20 to 70 years of age were included in the study. Their foot end was elevated while they were on traction. Pain severity was assessed based on the following pain severity scales: Body diagrams, Thermometer pain rating scale, Visual analogue scale (VAS), Mc Gill Pain questionnaire method, Numeric rating scale, Wong Baker faces pain rating scale.

**Inclusion Criteria:** Patients included in this study suffered from low backache due to either one of the causes mentioned below:

- Acute Lumbosacral strain.
  - Acute on Chronic Lumbosacral strain.
  - Intervertebral Disc Prolapse without significant Neurological deficits.
  - Pyriiformis Syndrome.
  - Grade I to Grade II Spondylolisthesis.
  - Lumbar Spondylosis.
  - Low backache due to Degenerative Disc Prolapse.
- The number of patients were categorised based on the age group affected as follows.

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**Table 1:Age groups**

11-20 years	(n=5)
21-30 years	(n=14)
31-40 years	(n=20)
41-50 years	(n=33)
51-60 years	(n=11)
61-70 years	(n=7)
71-80 years	(n=3)

**Exclusion Criteria**

Patients suffering from low backache, who were medically unfit for surgery, Extended/Sequestered disc prolapse.

Extremely obese patients who had difficulty in applying pelvic traction belts.

Patients with low backache who had associated co-morbid conditions like Hypertension or past history of Ischaemic Heart Disease, in whom foot-end elevation could not be given along with traction.

Patients with Prolapsed Intervertebral Disc with SLRT less than 45° with associated Neurological Deficits, in whom surgery was indicated.

Grade III to Grade IV Spondylolisthesis in whom Surgery was indicated. Any illness leading to Low backache where in there was a primary pathology in the lower lumbar spine which required other

modalities of treatment. For eg: unstable lumbosacral spine, tuberculous spondylitis. The data was tabulated and was subjected to statistical analysis using SPSS Software Version 11.0.

**Results**

All patients with Bilateral leg traction were put on a traction weight of 3kg on each leg, which was gradually increased to 4 ½ kg weight in each leg where well tolerated. All patients on pelvic traction were initially put on a traction weight of 5kgs, which was gradually increased to 1/4<sup>th</sup> of the body weight. If the patient could tolerate the traction well, the traction weight was gradually increased daily to even 1/3<sup>rd</sup> of the body weight. Patients were on analgesics, muscle relaxants and either sedatives, anxiolytics or anti-depressants. Physiotherapy was also given. Statistics below shows the results of treatment with Bilateral leg traction and Pelvic traction:

**Table 2:Statistics**

	Slight Pain	Moderate Pain	Quite Bad Pain	Very Bad Pain	Unbearable Pain
Bilateral Leg Traction	0	17(38%)	15(35%)	12(27%)	0
Pelvic Traction	2(0.04%)	14(28.92%)	25(51%)	6(12%)	2(0.04%)

Chi Square Test = 8.546 P = 0.073

Visual Analogue Score Pain Scale

**Table 3:Traction and parameters**

	Mean	Standard Deviation	P
Bilateral Leg Traction	4.8	1.32	0.005
Pelvic Traction	6.08	1.39	

Wong Baker Faces Scale

**Table 4:Traction and median**

	Median	p
Bilateral Leg Traction	3	0.046
Pelvic Traction	3.6	

So by Visual analogue score Pain scale and Wong baker faces scale it is evident that bilateral leg traction has got better pain relief than pelvic traction.

**Discussion**

Although the results have shown that Bilateral leg tractions is superior to Pelvic traction, Pelvic traction has certain advantages over Bilateral leg traction, those being: More traction weight could be applied through pelvic traction in contrast to Bilateral leg traction. Pelvic traction is in close proximity to the site of lesion in contrast to Bilateral leg traction. Hence, traction acts almost directly over the site of lesion, hip joint being the only joint coming in the way of traction. In contrast to this leg traction has to surpass 2 joints before reaching the site of lesion, that is the Hip joint and the Knee joint. Hence effect of traction could possibly be reduced. The complications of Bilateral leg traction like peeling of skin, allergy to the adhesive plaster used for traction, Lateral Popliteal Nerve palsy can be avoided with Pelvic traction.

**Conclusion**

The analysis of the data has showed that bilateral leg traction has got significant pain relief as compared to pelvic traction, but there is no difference between bilateral leg traction and pelvic traction in regards to time duration taken for the pain relief.

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