

Postural Backache and Its Prevention

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This Prospective study was conducted at physiotherapy and outdoor clinic of Orthopaedics department, LGH, Lahore from April 1998 to October 1998 on 76 patients. Objective of the study was to identify the role of posture and measures to prevent recurrence of backache in daily life and at work place. The development of Low Back Pain is closely related with individual's posture, load to the back, causative factors and individual's endurance. Bad posture was the commonest predisposing factor of backache, recognized in this study (34.2%). Load to the back includes lifting of heavy objects, twisting of the waist and prolonged standing. The most common pain relieving posture identified in this study, is Lying Supine (42.10%), also postural alterations brought immediate relief in 18.42%. Long Standing and walking for a long period of time were the major pain aggravating factors (78.94%). Correction of posture brings significant relief. Socio-economic status of patients was affected in 85% cases as low back pain causes absence from work and low work performance. It is therefore concluded that posture has a vital role in the development of low back pain. Thus it is very important to prevent a worker from further episodes of Low Back Pain. Preventive measures of work related Low Back Pain should be designed according to his/her work environment. Patient should strictly follow precautions against Low Back Pain, avoid further exposure to the causative factor or postures. They should do specific Physical Exercises to increase strength and endurance of back muscles and flexibility of the back.

Key Words: Low back pain, Low Back Pain Prevention, Causes of backache, Back Care, Low back pain at work place, Back School.

Up to 80% of population is expected to experience Low Back Pain at least once in their lifetime¹. It is one of the commonest complaint among general population. At most orthopaedics and physiotherapy clinics, this complaint accounts for 20% to 30% of outpatient clinic visitors². Mostly, it is triggered by adopting bad posture for a long period of time or when back of the person hit by trauma, certain physical actions etc. People know little about how to protect their back in daily life and at work place. Even they do not know about consequent losses in their life caused by backache until they experience this trouble. This paper deals with recognition of the role of posture and predisposing factors causing Low back Pain, with particular emphasis on precautions against Backache in daily life and at work place in order to prevent recurrence of this trouble.

Material and Method

Prospective study was conducted at Physiotherapy department and outdoor clinic of orthopaedic department, Lahore General Hospital Lahore on 76 patients from April 1998 to October 1998. We made a Proforma for evaluation of patients which was filled at first visit of patient. Patients were advised to follow precautions against backache.

Age wise distribution of respondents by sex is given below in table-1. Degrees of illness in this study is indicated in table-2

Work efficiency was moderately affected in 34.21%, severely in 39.47% and moderate to severe in 10.52%. While it remained unaffected in 15.78% (Table-2).

Predisposing factors/ postures as shown in table-3

Table 1

Age (Years)	Sex		n=
	Male	Female	
Below 35	12	24	36
From 35-45	18	10	28
Above 45	2	10	12
Total	32	44	76

Table 2

Degree	n=	% age
Minor	12	15.78
Moderate	26	34.21
Moderate to severe	8	10.52
Severe	30	39.47

*Scale: Minor: Patient able to do normal routine work.

Moderate: Patient does normal routine work with difficulty.

Moderate to Severe: Patient does normal routine work with great difficulty.

Severe: Patient unable to do normal routine work.

Table 3

Factors/postures	n=	%age
Poor posture	26	34.2
History of fall/trauma	12	15.7
Long standing and walking for a long period of time	8	10.5
Lifting of heavy objects	8	10.5
Unrecognized	8	10.5
Jerky movements	6	7.8
Sudden postural change	4	5.2
Prolonged sitting	2	2.6
Sports injury	2	2.6

Table 3 illustrates that bad posture was found to be the leading cause and was found in 34.2% patients.

Table-4 Pain aggravating factors/postures.

Factors/postures	n=	% age
Long standing and walking for along period of time.	60	78.94
Long sitting and suddenly rising from sitting position.	14	18.42
Lying supine.	2	2.63
Fatigue.	2	2.63

certain physical actions or when load placed on the back of the individual exceeds individual's threshold level. However, this threshold varies from individual to individual. Constant strain on back muscles by assuming poor posture for a long period of time trigger low back pain. Once a patient develops backache, he losses some endurance and no longer able to work in the same capacity. So due considerations should be given to one's work-environment that requires certain modifications in order to prevent further episodes of backache. Poor posture constitutes 34.2% cases of back pain (commonest) but Doi.T in 1993, reported lifting of heavy weight as the main cause of backache and unusual posture as least common, in Japanese population⁸ Another report of the same country, showed standing as the chief cause of this problem.²

These variations are probably because people are not well aware about the back care and safety precautions are not usually followed in our setup as compared to that in Japan or any other advanced country e.g., use of safety belts in lifting weight etc. When a person changes his/her posture, his/her center of gravity alters accordingly with subsequent reduction of weight on the back. Altering the pelvic tilt significantly changes the angle of lumbar lordosis.⁷ Therefore; people should interrupt their posture at regular intervals prior to fatigue arises. So posture has a definite role in backache. It also affects on working capacity of the patients. Missing work means loss of income for the worker². Hence patients also suffer socio-economically. The direct cost of medical care and the indirect costs to society of absenteeism are huge^{4,5}. Once a patient develops backache, appropriate steps should be taken to prevent further episodes of this complaint along with its proper treatment. Therefore, preventive measures should be based on the analysis of causative factor and appropriate modifications in work environment and daily life.

Low Back Pain was increased by long standing and walking for a long period of time in 78.94% patients, by long sitting and suddenly rising from sitting position in 18.42% and by Lying supine in 2.63% patients. In two patients, fatigue and long standing were together pain aggravating factors (table 4).

Table 5 Pain Relieving Factors/Postures

Factors/postures	n=	%age
Lying Supine.	54	71.54
Alteration in postures i.e.,	14	18.42
Lying supine if pain in standing and sitting up if pain in lying supine.	2	
Stop walking if pain occurs during walking.	2	
Tailor sitting from standing position.	2	
Side Lying.	2	
Sitting up from lying supine.	2	
Sitting from standing position.	2	
Sitting if pain occurs during walking.	2	
Anti-inflammatory drugs.	6	7.89
Manual pressure at painful site and exercises.	4	2.15

Back pain was relieved in 71.54% patients by simply lying supine.

Results

Study shows that, it is more common in females as compared to males, incidence is higher below 35 years of age group in both sexes. Bad posture as the most common cause of back pain, identified (34.2%patients), then trauma (15.7%), lifting of heavy objects (10.5%) and long standing (10.5%). It is aggravated by long standing and walking for a long period of time (78.94%), then prolonged sitting (18.42%). However, simply lying Supine (71.54%) relieved it. But in 2.63% patients, Lying Supine increased pain. Postural alterations significantly relieved pain (18.42%). In 7.89% patients, only anti-inflammatory drugs relieved pain. So posture has a definite role in backache. Work efficiency was affected in 85% patients from moderate to severe degree. They were unable to do their normal work and have to be absent from their work due to backache. Hence patients also suffer socio-economically. Patients should follow back school in daily life and at work place.

Discussion

Backache develops when a person assumes bad posture,

Preventive Measures³

Proper standing position

Stand in a proper way when ever required, with your feet apart so that your weight evenly distributed on both feet, shoulders braced and back straight.

Techniques of improving standing tolerance.

Increase standing tolerance by; maintain your pelvic square, now alternately raise one foot 2to 3"from the floor while resting on the other foot. Then shift weight from side to side. Stand against a wall with back straight and feet apart. Wear shoes with minimal heels. Heels should neither be too high or too low.

Proper sitting position

For correct sitting position, Use a firm (not soft) chairs that sufficiently support your vertebral column. Sit with back straight, maintaining a relaxed posture, feet firmly touching the floor. Weight should be evenly distributed on both feet. Knees should be at the same level as hips. Use

arms for balance only but neither lean on arms of chair nor twist into it. First sit at the edge of the table then scoot back into it. Reverse technique will be used for rising from the chair. This will keep center of gravity over base of support. But never use slouch position for sitting, as it will put strain on back muscles.

Techniques of Improving Sitting Tolerance

For increasing sitting tolerance, Sit on a chair of correct height, back of which provide support to your vertebral column. If chair is too high then foot stool must be used. Maintain pelvic square. Now scoot your buttock 1" to 2" from the back of chair and then do a pelvic tilt. It will allow greater stretch of back musculature. First rest on one foot and lift other 2" to 3". Repeat it with other foot, alternately. Place a cushion or rolled magazine under thighs to raise your knees slightly. Cross your legs for short period of time. Interrupt your long sitting at regular intervals.

Lifting an object

Back school is an effective tool for influencing lifting posture and conveying information regarding spinal mechanics and lifting technique.⁹

Face object, never twist. Stand with feet apart (wide base of support) so that body weight evenly distributed over both feet. Now bend knees maintaining Straight back and pelvic square. Grasp object with one hand placed at the top and other at the bottom of the object. Pull it into your center of gravity. Now lift object with your legs, maintaining your back straight and pelvic square. Assess weight of the object if it is heavy, then two or more people should lift it. If object is placed on a table, slide it close to the edge of the table. Grasp object with both hands and pull it towards your center of gravity. Stand with bend knees now lift object by straightening knees. Reverse technique will be used for Unlifting.

Carrying an object

For carrying an object, your visual field must be clear. Hold object with both hands close to your center of gravity, maintaining back straight.

Reaching an object

When reaching to an object, Ideally it should be close to you. If it is too far never try to reach it by jumping etc. Instead use a stool or chair. Stand on it with wide base of support and body fully balanced. Now stand on your "tip toes" and Reach to object with entire body. Both hands should be used.

Pushing an object

Stand with one foot in front of the other with weight evenly distributed on both feet. Keep your back straight. Maintain your pelvic square. Now push from legs and arms using both hands. But never lean into object. Always prefer to Push instead of Pull if there is option.

Pulling an object

Stand with one foot behind the other with weight evenly distributed over both feet. Keep your back straight. Maintain pelvic tilt. Now pull object with legs and arms using both hands. Neither lean back nor use your back to pull object. Pulling an object should be avoided if there is option of Pushing. If weight of the object is more, then two or more persons should pull instead of one.

Sleeping positions

For sleeping, following positions should be used,

- 1) Preferably lie on side in fetal position with knees and hips slightly bent
- 2) Lying Supine with one pillow placed under knees. Lumber roll or a small cushion can be placed under the back
- 3) Lying prone with a pillow placed under hips. A firm mattress should be used instead of a soft, in order to support the normal curves of your spine. Avoid extremes i.e., too soft beds and hard floor etc.

Modifications at work place.

When a worker with a history of low back pain returns to work, it is necessary to give due consideration to the load he/she would perform on the job. Sit rather than stand whenever possible. Prolonged sitting should be interrupted before fatigue arises e.g., if 30 minutes sitting initiate backache or fatigue, person should interrupt his sitting after 25 minutes by just going to wash room, stand to receive a telephone call, to receive or hand over official documents or to say see off to your guests etc. This will change listing angles of pelvis and spinal curvatures³. Thus significantly relieving load on the back. Similarly, prolonged standing should be interrupted at regular intervals prior to fatigue arises e.g., by sitting on a chair or walking few steps etc. Schedule all heavy and light tasks throughout each day and each week². If the worker must bend backward to perform his work, he should be provided with work bench to lie on or change the angle of the object, he works on. Proper work height improves posture reduces fatigue. Ideal height for a work place is that which locates the work below the point of elbow when an

Individual sit erect with elbows close to the body. Avoid all those postures and factors that has caused low back pain. Exercise good posture and body mechanics frequently in order to relieve load on the back and to save energy consumption. Do not work quickly rather work in a moderate pace. Keep balance between rest periods and working hours. Whenever possible Push rather than pull an object. Avoid lifting or carrying object if there is option to "slide" etc. Also avoid unnecessary bending, reaching to an object. Work surfaces, storage etc, areas should be located between waist and shoulder heights. If object is of heavy weight don't try to push, pull or lift alone. A worker should do regular physical exercises for low back pain i.e., back extension, muscle strengthening and relaxation exercises to increase strength and endurance of back and abdominal muscles and to keep their back flexible. We are agreed with these precautionary measures and recommend patients to follow these.

Conclusions

Posture has a vital role and main cause in the development of low back pain. Correction of posture significantly relieved backache. So people should be conscious of keeping their posture good at each instant. Good posture exerts little or no pressure on their back. People should avoid lifting of heavy objects, long standing, excessive walking, bending, prolonged sitting and should do various physical actions smoothly and gently e.g., rising from bed early in the morning or from chair etc. People should regularly interrupt their long sitting and standing. They should do specific physical exercises for low back pain. They should learn and use correct techniques of lifting heavy objects, pushing, pulling, carrying and reaching to an object whenever required. When a worker has to go back to the same work environment, certain modifications are essential at his work place consistent with causative factor. Therefore, people should be conscious and strict about their postures at each moment and at every place. A few days regular practice will enable them to assume good posture everywhere and to follow precautions against low back pain.

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