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The Effectiveness of Back School

Suzanne R. Sandsmark

*University of North Dakota*

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THE EFFECTIVENESS OF BACK SCHOOL

by

Suzanne R. Sandstrom
Bachelor of Science in Physical Therapy
University of North Dakota, 1982

An Independent Study

Submitted to the Graduate Faculty of the

Department of Physical Therapy

School of Medicine

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Physical Therapy

Grand Forks, North Dakota
May
1993
APPROVAL

This independent study report, submitted by Suzanne R. Sandsmark in partial fulfillment of the requirements for the Degree of Master of Physical Therapy from the University of North Dakota, has been read by the Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

(Chairperson)
PERMISSION

Title The Effectiveness of Back School

Department Physical Therapy

Degree Master of Physical Therapy

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Date 5-1-93
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ABSTRACT

Four of five people suffer from low-back pain sometime during their lifetime. The number of people with disabling back pain in the United States has increased by 168% from 1971 to 1981. The purpose of this independent study report is to determine whether back school is as effective means of educating patients about proper back care; and whether back school helps prevent further back injury.

Back school clients at the Broadway Health Centre from July 15, 1992 to October 1, 1992 were invited to participate in this study. In addition, patients with back injuries referred to the Broadway Health Centre who did not participate in back school were also invited to participate. Eight people participated in the study. Five back school participants and three non-back school participants completed questionnaires. Four to eight weeks after completing back school or physical therapy, the participants were contacted by phone to fill out a follow-up questionnaire.

The results showed that back school participants improved their body mechanics. Four of the back school participants returned to work. Two of four back school participants reinjured themselves. The non-back school participants showed
no change in their body mechanics. One of two non-back school participants returned to work. The non-back school participants had no reinjuries.
I. INTRODUCTION

Four of five people suffer from low-back pain sometime during their lifetime, while 80-95% of them recover within three months.\(^1\) The actual number of those who do not recover quickly is rapidly increasing. The number of people with disabling back pain in the United States has increased by 168% from 1971 to 1981.\(^1\)

Kelsey\(^2\) and Wadell\(^3\) report that chronic back and spine conditions are the most frequent cause of disability in people less than 45 years of age in the United States. These conditions are the third greatest cause of disability in people over 45.

Mayer\(^4\) states that low back pain is the most pervasive benign condition in America. Most patients with chronic low back pain lack a structural diagnosis. The first step in solving the problem of chronic low back pain is a team approach.\(^4\)\(^5\) A comprehensive program of work conditioning includes occupational(OT) and physical therapy(PT), functional capacity evaluation, vocational rehabilitation, social services, and psychology. A center must address the patients physical conditioning and help the individual to deal with fear. The comprehensive work hardening facilities operate on
the concept that the client is responsible for managing his/her injuries.\textsuperscript{4,5}

The purpose of this independent study project is to determine whether back school is an effective means of educating patients about proper back care; and whether back school helps prevent further back injury.

This is a pilot study involving the participation of both acute and chronic patients. Chronic patients are defined as those off work from 3 months to 2 years. These are the patients that require extended rehabilitation and the team approach. All patients included in the study are patients with low back injuries treated at the Broadway Health Centre in Fargo. They may participate in strengthening and conditioning, functional capacity testing, work hardening, and Isotechnologies, Inc. Isostation B-200 testing\textsuperscript{6}. Some or all of these approaches may be appropriate with various patients.

The back school involves 6 two-hour classes held 2 days a week for 3 weeks. Part of the class is held in P.T. and part in O.T. There are from 4 to 6 people in a class. A slide presentation is given showing anatomy of the spine, pictures of proper and improper lifting techniques, and proper and improper sitting, standing and lying positions.

Patients are shown proper sitting position. They are instructed in finding their neutral pelvic position (pain free position) and shown how to do back and lower extremity
stretching and strengthening exercise on a mat and on an exercise ball while maintaining a neutral pelvic position. A pre-test is given to the back school patients where the patient shows how he/she completes lifting, static standing, static sitting, pushing, pulling, unilateral carrying, bilateral carrying, making a bed, and loading and unloading a washer and dryer. These same activities are taught and practiced as a class during back school. Body mechanics are assessed, and corrections made as necessary during class. A post test is given during the last class.

Some of the people participating in back school are referred to back school only, and are not seen for strengthening or conditioning prior to participation. Some participants have recovered from a recent acute episode and because of personal interest or because of the physical demands of their job, back school is recommended. These people may or may not be currently working. Some participants have been off work due to a back injury for several weeks or months and are participating in a strengthening and conditioning program in addition to back school.

The conditioning program includes exercises for 15-30 minutes, 3 times a week in a target heart range. The conditioning program uses a combination of a treadmill, stationary bike, upper body ergometer, and a NordicTrack (TM). The stretching exercises include trunk rotation, hamstring and
piriformis stretching, hip flexor stretching, and gastroc/soleus stretching. Trunk strengthening exercises include weight lifting for extension, flexion, and rotation. Upper extremity weight training includes chest press, lateral pull down, incline press, rowing. Lower extremity weight training includes the leg press and multi-hip machines. Other strengthening activities, such as trunk stabilization exercises using an exercise mat or a physioball may be added as appropriate.

The functional capacity testing is via the standardized Key Functional Assessment\(^7\). The patient fills out a written questionnaire at the same time his/her tolerance for sitting is assessed. Grip strength and heart rate are measured periodically throughout the test. Tolerance for static standing, sitting, and kneeling is measured. Tolerance for unilateral carrying, tolerance for lifting various amounts of weight to low, middle, and high platforms, and the amount of weight that can be pushed and pulled are all assessed. Body mechanics are assessed during these procedures.

Work conditioning is done 3-5 days a week for 4 hour periods. Clients are expected to be on time and attendance is mandatory. Work simulation is done at various stations with activities done at various heights. Carts and a sled can be used to push and pull; the LIDO (TM)\(^8\) work set can be used to simulate specific activities such as using a steering
wheel, braking, or tool simulation. Sessions are started with light warm-up activities and general stretching. Sessions end with a cool down phase and a 15 minute break is given during the session.

The Isotechnologies, Inc. Isostation B-200 test is an isoinertial exercise test. A patient may be given a test to objectively determine his range of motion, isometric strength, and dynamic strength. The results of the test are correlated with normative age, height and weight data. The B-200 also measures the speed at which a patient is able to move through trunk rotation, flexion, extension and sidebending.

This pilot study will attempt to answer the following questions: Do patients with back injuries who participate in back school return to work faster? Do they use good body mechanics when sitting, lifting, pushing or pulling? Are they able to avoid reinjuring their back? The hypothesis is that the answer to these questions is yes, when compared to a group of patients with back injuries who did not participate in back school.
II. LITERATURE REVIEW

Forssell, Spitzer, and Linton define back school as a structured intervention program targeted at a group of individuals. The participants in back school get general information on the spine, recommended posture and physical activities, prevention of back injuries, and exercises for the back. The objective of the lectures pertaining to the back are to give the patient information on the anatomy and disorders of the spine and to teach the principles of underlying healthy posture, daily activities, and sports. The curricula of back school varies considerably from place to place.

Kohles, Hazard, Sachs, Thomas, and Mayer report on studies designed to identify objective changes in the aerobic work capacity, gait characteristics, and functional level of patients after treatment in a low-back program. Results show that chronic pain and adjustments in lifestyle can cause a measurable reduction in physical fitness. This finding may be reversed in a relatively short time with a simple activity program. Such an activity program may be useful in restoring function and allowing patients to return to work. All the authors showed improvement in return to work rates.
Mitchel\textsuperscript{16} and Mayer\textsuperscript{17} demonstrated substantial savings when back and soft tissue injuries were treated via an intensive time-limited program of active exercises aimed at mobility, muscle strengthening, and work conditioning as compared to conventional methods of treatment. Linton\textsuperscript{11} and Lankhorst\textsuperscript{18} attempted to determine the effect of back school on chronic low back pain. The study showed that back school is of little value in the chronic phase of low back pain. All efforts should be directed toward the prevention of the chronicity of low back pain. Back school is likely to give the greatest benefit in the early phase of idiopathic low back pain.\textsuperscript{18}

There are both positive and negative reports on the efficacy of back school and functional restoration; further study, and research is needed\textsuperscript{11}, hence the reason for pursuing this study on the effectiveness of back school at the Broadway Health Centre in Fargo.
III. METHODOLOGY

Back school clients at the Broadway Health Centre from July 15, 1992 to October 31, 1992 were invited to participate in this study. In addition, patients with back injuries referred to the Broadway Health Centre who did not participate in back school were also invited, at random, to participate. Participants were given verbal information regarding the study. If they were willing to participate, they were given a consent form explaining the length of the questionnaire and the time involved for the follow-up questionnaire. After the consent form (Appendix A) was signed and witnessed, the participant was given a questionnaire comprised of 22 questions. (Appendix B) The questionnaire identified:

1. Type of lifting
2. Whether the person used good body mechanics before or after injuring their back.
3. What type of treatment they had received since injuring their back.
4. What types of exercise they had used since injuring their back.
5. What types of exercise they had been shown.
6. Special testing, such as a functional capacity test or an Isotechnologies, Inc. Isostation B-200 test.

Four to eight weeks after the initial questionnaire, the subjects were contacted by phone and asked to answer questions on a follow-up questionnaire. (Appendix B) The follow-up questionnaire asked the participant to answer 8 questions since completing back school or physical therapy, and again were asked questions regarding the type of lifting they did and whether they used good body mechanics when lifting. It also asked whether they had reinjured themselves since completing back school or physical therapy.

This pilot study included a total of eight participants, five women and three men, ranging in age from 20-55, with the average age being 38. Five people who completed the questionnaires participated in back school, and three did not. Three women and two men were back school participants. The back school participants ranged in age from 20-46, with the average age being 35. The three non-back school participants consisted of two women and one man. The non-back school participants ranged in age from 35-55, with the average age being 42.

Six of eight people were contacted for the follow-up questions. One person from each group was not contacted because the phone number they gave had been disconnected or was no longer in service when the follow-up call was made.
Hand tabulation and a computer software package called the StatPac (TM) Gold were used to determine statistical information. The sample size was too small to show statistical significance, but trends became evident.
IV. RESULTS

Eight people participated in the study. Five people participated in back school. Four back school participants were working before they injured their back. Two were working in professional positions, one in a technical position, and two were working as laborers. Three people did not participate in back school. Three were working prior to their injury. One was working in a professional position, one was in a clerical position, and one worked as a laborer. Four of the back school participants classified their work as moderate to heavy lifting, one had sedentary work. Two of the non-back school participants classified their work as moderate to heavy lifting, one had light work.

Prior to injury, three back school participants reported they sometimes used good body mechanics when lifting. One back school participant reported they seldom used good body mechanics when lifting. One back school participant reported never using good body mechanics when lifting. Four participants reported they sometimes used good body mechanics when pushing or pulling. One participant reported he seldom used good body mechanics when pushing or pulling. Three participants reported sometimes using good posture when
sitting. Two participants reported seldom using good posture when sitting. (Table 1)

**TABLE 1**  
Body Mechanics of Back School Participants Prior to Injury

<table>
<thead>
<tr>
<th>Number of people using good body Mechanics</th>
<th>Always</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lifting</th>
<th>Pushing/Pulling</th>
<th>Sitting</th>
</tr>
</thead>
</table>

**ACTIVITIES**

Prior to injury, two non-back school participants reported they always used good body mechanics when lifting. One non-back school participant reported he sometimes used good body mechanics when lifting. Two participants reported they always used good body mechanics when pushing or pulling. One participant reported he seldom used good body mechanics when pushing or pulling. One participant reported always using good body mechanics when sitting. Two participants reported sometimes using good posture when sitting. (Table 2)
Since their back injury, two back school participants reported they were working. Three participants reported doing sedentary to light work. Two participants reported doing moderate work. One participant reported always using good body mechanics when lifting. Four participants reported sometimes using good body mechanics when lifting. Two participants reported always using good body mechanics when pushing or pulling. Three participants reported sometimes using good body mechanics when pushing or pulling. Two participants reported always using good sitting posture. Three participants reported sometimes using good sitting posture. (Table 3)
Since their back injury, three non-back school participants weren't working. Two non-back school participants reported doing sedentary activity. One non-back school participant reported doing moderate activity. Two participants reported always using good body mechanics when lifting. One participant reported sometimes using good body mechanics when lifting. Two reported always using good body mechanics when pushing or pulling. One participant reported sometimes using good body mechanics when pushing or pulling. One participants reported always using good posture when sitting. Two participants reported sometimes using good posture when sitting. (Table 4)
All the participants were shown strengthening and stretching exercises. Six of eight were shown conditioning exercises. Three of eight received a B-200 test\(^6\). Two of eight had a Key Functional Assessment test\(^7\). Three of the participants had seen a chiropractor or massage therapist for their back. One participant had surgery in 1980. Back school participants had injured themselves one to three months prior to participating in this study. Non-back school participants had injured themselves three weeks to four years prior to participating in this study.

Four of five back school participants and two of three non-back school participants were contacted for follow-up information. Four back school participants were working. Two back school participants did sedentary work. Two back school
participants did light to moderate work. Three participants reported always using good body mechanics when lifting. One participant reported sometimes using good body mechanics when lifting. Two participants reported always using good body mechanics when pushing or pulling. Two participants reported sometimes using good body mechanics when pushing or pulling. Three participants reported always using good posture when sitting. One participant reported sometimes using good posture when sitting. Lifting principles improved very much for three participants. Lifting principles improved somewhat for one participant. Two participants had reinjured their back since completing back school or physical therapy. (Table 5)

**TABLE 5**

Body Mechanics of Back School Participants After Completing Back School

<table>
<thead>
<tr>
<th>Number of people using good body Mechanics</th>
<th>Always</th>
<th>Sometimes</th>
<th>Seldom</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pushing/Pulling</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sitting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ACTIVITIES
One non-back school participant was working. One non-back school participant did sedentary activity. One non-back school participant did moderate activity. One participant reported always using good body mechanics when lifting. One participant reported sometimes using good body mechanics when pushing or pulling. One participant doesn’t push or pull. One participant reported always using good posture when sitting. One participant reported sometimes using good posture when sitting. Two participants reported no change in their lifting principles since completing physical therapy. There were no reinjuries since completing physical therapy. (Table 6).

**TABLE 6**

<table>
<thead>
<tr>
<th>Number of people using good body mechanics</th>
<th>Lifting</th>
<th>Pushing/Pulling</th>
<th>Sitting</th>
</tr>
</thead>
<tbody>
<tr>
<td>n=2</td>
<td>Always</td>
<td>Sometimes</td>
<td>Seldom</td>
</tr>
</tbody>
</table>

**ACTIVITIES**
V. DISCUSSION AND CONCLUSION

This pilot study compared two groups of people with back injuries. It compared those who participated in back school and those who did not participate in back school. The total sample size is small with only eight participants. Nothing of statistical significance is shown, but trends are shown.

Prior to their back injury the back school participants rated their body mechanics during lifting, pushing and pulling, and sitting poor compared to the non-back school participants. The back school participants stated they used good body mechanics sometimes to seldom. The non-back school participants stated they used good body mechanics always to sometimes.

Since injuring their back, back school participants showed improvement in their body mechanics. They stated they always or sometimes used good body mechanics for lifting, pushing or pulling, and sitting compared to sometimes or seldom using good body mechanics. Since injuring their back the non-back school participants continued to use good body mechanics always or sometimes just like they stated prior to injury.
After completing back school, the back school participants showed good improvement in the use of body mechanics. Most of the participants always used good mechanics when lifting, pushing or pulling, and sitting. (Table 5) The non-back school participants continued to always or sometimes use good mechanics. (Table 6)

The first research question was to determine if people who participate in back school return to work faster. After injuring their back, three of five back school participants did not work. Two months after completing back school, four of four back school participants had returned to work. After injuring their back, three of three non-back school participants did not work. Two months after completing physical therapy, one of two non-back school participants had returned to work. The answer to the first research question is "yes" according to the responses. All the back school participants returned to work in two months and one-half of the non-back school participants returned to work. It is difficult to transfer this information to the population with back injuries as a whole because the sample size for both groups is small. The groups vary considerably in the amount of time they were off work prior to participating in back school or physical therapy. The back school group was off work one to three months. The non-back school group was off work three weeks to four years.
The second research question was to determine if back school participants use good body mechanics when lifting, sitting, pushing or pulling. The results indicate that the back school participants made gradual improvements in their body mechanics when comparing responses given prior to their injury, since their injury and after completing back school. Body mechanics while lifting improved the most. (Table 1, Table 3, Table 5). The non-back school group also showed some improvement. They tended to have a better opinion of their body mechanics throughout the questionnaire. (Table 2, Table 4, Table 6) The answer to the question is yes. Improvements in body mechanics were obtained after participating in back school with slightly more favorable results for back school than non-back school participants.

There was not a lot of difference between the two groups. The non-back school participants had a good opinion of their body mechanics throughout the questionnaire. Some of these people had been injured for a long period of time. They may have had previous courses of physical therapy and gotten instruction in posture and body mechanics prior to participating in this study.

The third research question was whether participants in back school would avoid reinjuring themselves. The answer based on this pilot study was mixed. Two of four back school participants reinjured their back. None of the non-back
school participants reinjured their back. No information was gathered on how or where the reinjuries occurred.

Four of four back school participants stated they had improved their lifting principles somewhat or very much since completing back school. Two of two non-back school participants stated their lifting principles had not improved significantly since completing physical therapy. This seems to indicate there was some educational value to back school for teaching body mechanics.

There are several shortcomings in this pilot study. The sample size was too small. The two groups of people being compared differed greatly as to the lapse of time from initial injury to participation in this study. The types of treatment and instruction in physical therapy varied from person to person. The types of other intervention such as chiropractics and massage therapy varied. The amount of lifting required at work varied. There were no objective measurements of the participants' abilities in using good body mechanics.

In conclusion, this pilot study showed that there was value in the education back school participants received. They all returned to work and showed improvement in body mechanics and sitting posture. Two of four back school participants reinjured their back. The non-back school participants showed no change in their body mechanics. One of two non-back school participants returned to work. None
of the non-back school participants reinjured themselves. More study, with larger numbers of people and better control of variables such as time lapse from injury to program initiation, would be beneficial.
CONSENT FORM FOR BACK INJURY STUDY

The purpose of this study is to determine whether participation in physical therapy allows people to return to work more quickly and with a reduced chance of re-injury than people who injure their back without receiving education on how to prevent further injury through physical therapy.

As a patient with a low back injury being seen at the Broadway Health Centre Meritcare, you are invited to take part in this study. You will be asked to fill out a 2 page questionnaire which should take no longer than 15 minutes. Following completion of your therapy sessions, you will be contacted by phone to determine if you were able to return to work, whether the work was modified due to the back injury, how long you were off work, whether you are currently working. The follow-up phone call should take no longer than 15 minutes. Follow-up will be made 2-4 weeks after completing therapy and again in 4-6 months. You may be at minimal psychological risks in completing the questionnaire as it asks for information about the date of injury, your ability to work and whether you’ve had to modify your work responsibilities due to your back injury. This may bring back unpleasant memories or feelings.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission.

Your decision whether or not to participate in this study will not prejudice your future relationship with this department or your therapist. If you decide to participate, you are free to discontinue participation at any time without prejudice.

The investigator involved is available to answer any questions you have concerning this study. In addition, you are encouraged to ask any questions concerning this program that you may have in the future. Questions may be asked by calling Suzy Sandmark at the Broadway Health Centre, 234-6735 or 1-800-821-2232.

No individual will be able to be identified since all data will be reported in aggregate format (all data will be
reported in a group format, no individual names or data will be used).

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM

ALL OF MY QUESTIONS HAVE BEEN ANSWERED AND I AM ENCOURAGED TO ASK ANY QUESTIONS THAT I MAY HAVE CONCERNING THIS STUDY IN THE FUTURE.

I have read all of the above and willingly agree to participate in this study explained to me by __________.

Patient's Signature ______________________ Date ___________

Witness ______________________ Date ___________

Researcher ______________________ Date ___________
APPENDIX B

QUESTIONNAIRE AND RESULTS
QUESTIONNAIRE FOR BACK INJURY STUDY

PLEASE ANSWER ALL QUESTIONS IN EACH SECTION WHICH APPLY TO YOU

Name: ________________________________ Sex: M F
(For follow-up purposes only)

Weight: _______ Height: _______

Date-of-Birth: ________________ Today’s Date: __________

Date of injury: __________ Date you stopped working: _______

Education level: A. Completed less than 12th grade
(optional)
B. Graduated high school or GED
C. Attended college or technical school
D. Graduated college or technical school
E. Post-graduate degree

Annual income: A. 0-10,000
(optional) B. 10,001-20,000
C. 20,001-30,000
D. 30,001-40,000
E. Over 40,000

Home phone number: __________ Daytime Phone number: __________
(For follow-up purposes only) (For follow-up purposes only)

BEFORE YOU INJURED YOUR BACK (THIS PARTICULAR TIME):
(circle appropriate answer)

1. Were you working? A. Yes B. No

2. If yes, what type of work were you doing?
   A. Professional
   B. Technical
   C. Clerical
   D. Laborer
   E. Other
3. How would you classify the type of work/activity you were doing?
   A. Sedentary (lifting less than 10 pounds)
   B. Light (lifting 10-20 pounds)
   C. Moderate (lifting 20-50 pounds)
   D. Heavy (lifting over 50 pounds)

4. Were you ever treated in Physical Therapy prior to injuring your back?  
   A. Yes  B. No

5. Do you think you were using good body mechanics when lifting?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

6. Do you think you were using good body mechanics when pulling or pushing?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

7. Do you think you used good posture when sitting?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

SINCE YOUR BACK INJURY: (circle all appropriate answers)

8. Are you working?  
   A. Yes  B. No

9. If yes, what type of work are you doing?
   A. Professional
   B. Technical
   C. Clerical
   D. Laborer
   E. Other

10. How would you classify the type of work/activity you are doing?
    A. Sedentary (lifting less than 10 pounds)
    B. Light (lifting 10-20 pounds)
    C. Moderate (lifting 20-50 pounds)
    D. Heavy (lifting over 50 pounds)
11. Have you been treated in Physical Therapy?
   A. Yes   B. No

12. Have you received exercise instruction?
   A. Yes   B. No

If you answered Yes to Question 12, please proceed to Question 13

If you answered No to Question 12, please proceed to Question 15

13. Did the exercises include strengthening and stretching?
   A. Yes   B. No

14. Did the exercises include conditioning, i.e. treadmill, stationary bike, etc...?
   A. Yes   B. No

15. Have you had a B-200 test for your low back?
   A. Yes   B. No   C. Not sure

16. Have you ever had a functional capacity assessment done in occupational therapy?
   A. Yes   B. No   C. Not sure

17. Have you had other treatment for your back?
   A. Chiropractor
   B. Massage therapist
   C. Other
   D. None

18. Do you think you use good body mechanics when lifting?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

19. Do you think you use good body mechanics when pulling or pushing?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never
20. Do you think you use good posture when sitting?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

21. Did you participate in Back School?    A. Yes    B. No

22. Where can you be contacted for a 15 minute follow-up telephone call?
   A. Home
   B. Work
   C. Either
RESULTS OF QUESTIONNAIRE FOR BACK INJURY STUDY

BS = BACKSCHOOL
NBS = NON-BACKSCHOOL

Sex:  M  F
BS  2  3
NBS  1  2

Date you stopped working:  BS: 1 month to 3 months
                          NBS: 3 weeks to 4 years

Education level:

BS | NBS
---|---
A. Completed less than 12th grade | 1
B. Graduated high school or GED | 1
C. Attended college or technical school | 2
D. Graduated college or technical school | 2
E. Post-graduate degree | |

BEFORE YOU INJURED YOUR BACK (THIS PARTICULAR TIME):
(circle appropriate answer)

1. Were you working?  A. Yes  BS | NBS
                           B. No  4 | 3
                           1 | 0

2. If yes, what type of work were you doing?
   BS | NBS
   ---|---
   A. Professional | 2 | 1
   B. Technical | 1 | |
   C. Clerical | 1 | |
   D. Laborer | 2 | 1
   E. Other | |

3. How would you classify the type of work/activity you were doing?
   BS | NBS
   ---|---
   A. Sedentary (lifting less than 10 pounds) | 1 | 1
   B. Light (lifting 10-20 pounds) | 2 | 1
   C. Moderate (lifting 20-50 pounds) | 2 | 1
4. Were you ever treated in Physical Therapy prior to injuring your back?
<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>2</td>
</tr>
<tr>
<td>B. No</td>
<td>3</td>
</tr>
</tbody>
</table>

5. Do you think you were using good body mechanics when lifting?
<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>2</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>3</td>
</tr>
<tr>
<td>C. Seldom</td>
<td>1</td>
</tr>
<tr>
<td>D. Never</td>
<td>1</td>
</tr>
</tbody>
</table>

6. Do you think you were using good body mechanics when pulling or pushing?
<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>2</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>4</td>
</tr>
<tr>
<td>C. Seldom</td>
<td>1</td>
</tr>
<tr>
<td>D. Never</td>
<td></td>
</tr>
</tbody>
</table>

7. Do you think you used good posture when sitting?
<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>1</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>2</td>
</tr>
<tr>
<td>C. Seldom</td>
<td>2</td>
</tr>
<tr>
<td>D. Never</td>
<td></td>
</tr>
</tbody>
</table>

SINCE YOUR BACK INJURY:
(circle all appropriate answers)

8. Are you working?
<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>2</td>
</tr>
<tr>
<td>B. No</td>
<td>3</td>
</tr>
</tbody>
</table>

9. If yes, what type of work are you doing?
<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Professional</td>
<td>1</td>
</tr>
<tr>
<td>B. Technical</td>
<td></td>
</tr>
<tr>
<td>C. Clerical</td>
<td></td>
</tr>
<tr>
<td>D. Laborer</td>
<td>1</td>
</tr>
<tr>
<td>E. Other</td>
<td></td>
</tr>
</tbody>
</table>

10. How would you classify the type of work/activity you are doing?
    | BS | NBS |
    |-----|------|
    | A. Sedentary (lifting less than 10 pounds) | 2 | 2 |
    | B. Light (lifting 10-20 pounds) | 1 |
    | C. Moderate (lifting 20-50 pounds) | 2 | 1 |
    | D. Heavy (lifting over 50 pounds) | |
11. Have you been treated in Physical Therapy?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>B. No</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

12. Have you received exercise instruction?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>B. No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**IF YOU ANSWERED YES TO QUESTION 12, PLEASE PROCEED TO QUESTION 13**

**IF YOU ANSWERED NO TO QUESTION 12, PLEASE PROCEED TO QUESTION 15**

13. Did the exercises include strengthening and stretching?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>B. No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

14. Did the exercises include conditioning, i.e. treadmill, stationary bike, etc...?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>B. No</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

15. Have you had a B-200 test for your low back?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>B. No</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>C. Not sure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

16. Have you ever had a functional capacity assessment done in occupational therapy?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>B. No</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C. Not sure</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. Have you had other treatment for your back?

<table>
<thead>
<tr>
<th></th>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Chiropractor</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>B. Massage therapist</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>C. Other</td>
<td></td>
<td>1 (SURGERY)</td>
</tr>
<tr>
<td>D. None</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>
18. Do you think you use good body mechanics when lifting?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>1</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>4</td>
</tr>
<tr>
<td>C. Seldom</td>
<td></td>
</tr>
<tr>
<td>D. Never</td>
<td></td>
</tr>
</tbody>
</table>

19. Do you think you use good body mechanics when pulling or pushing?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>2</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>3</td>
</tr>
<tr>
<td>C. Seldom</td>
<td></td>
</tr>
<tr>
<td>D. Never</td>
<td></td>
</tr>
</tbody>
</table>

20. Do you think you use good posture when sitting?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>2</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>3</td>
</tr>
<tr>
<td>C. Seldom</td>
<td></td>
</tr>
<tr>
<td>D. Never</td>
<td></td>
</tr>
</tbody>
</table>

21. Did you participate in Back School?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>5</td>
</tr>
<tr>
<td>B. No</td>
<td></td>
</tr>
</tbody>
</table>

22. Where can you be contacted for a 15 minute follow-up telephone call?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Home</td>
<td>4</td>
</tr>
<tr>
<td>B. Work</td>
<td></td>
</tr>
<tr>
<td>C. Either</td>
<td>1</td>
</tr>
</tbody>
</table>
APPENDIX C

FOLLOW-UP QUESTIONNAIRE AND RESULTS
FOLLOW-UP QUESTIONNAIRE FOR BACK INJURY STUDY

Name: ___________________________ Sex: M  F

Weight: _______ Height: _______

Date-of-Birth: _______________ Today's Date: __________

Date of injury: _______________ Date you stopped working: ______

Education level: A. Completed less than 12th grade
B. Graduated high school or GED
C. Attended college or technical school
D. Graduated college or technical school
E. Post-graduate degree

Annual income: (optional)
A. 0-10,000
B. 10,001-20,000
C. 20,001-30,000
D. 30,001-40,000
E. Over 40,000

SINCE COMPLETING PHYSICAL THERAPY AND/OR BACK SCHOOL:

1. Are you working? A. Yes B. No

2. If yes, what type of work are you doing?
   A. Professional
   B. Technical
   C. Clerical
   D. Laborer
   E. Other

3. How would you classify the type of work/activity are you doing?
   A. Sedentary (lifting less than 10 pounds)
   B. Light (lifting 10-20 pounds)
   C. Moderate (lifting 20-50 pounds)
   D. Heavy (lifting over 50 pounds)
4. Do you use good body mechanics when lifting?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

5. Do you use good body mechanics when pulling or pushing?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

6. Do you use good posture when sitting?
   A. Always
   B. Sometimes
   C. Seldom
   D. Never

7. Do you think your lifting principles have improved since completing physical therapy and/or Back School?
   A. Very much
   B. Somewhat
   C. Not significantly

8. Have you re-injured your back since completing physical therapy and/or Back School?
   A. Yes   B. No
RESULTS OF FOLLOW-UP QUESTIONNAIRE FOR BACK INJURY STUDY

BS = BACKSCHOOL  
NBS = NON-BACKSCHOOL

SINCE COMPLETING PHYSICAL THERAPY AND/OR BACK SCHOOL:

1. Are you working?
   A. Yes  BS  |  NBS  
   4  |  1
   B. No

2. If yes, what type of work are you doing?
   A. Professional  BS  |  NBS  
   2
   B. Technical
   C. Clerical  BS  |  NBS  
   1  |  1
   D. Laborer
   E. Other

3. How would you classify the type of work/activity are you doing?
   A. Sedentary (lifting less than 10 pounds)  BS  |  NBS  
   2  |  1
   B. Light (lifting 10-20 pounds)  BS  |  NBS  
   2
   C. Moderate (lifting 20-50 pounds)  BS  |  NBS  
   1  |  1
   D. Heavy (lifting over 50 pounds)

4. Do you use good body mechanics when lifting?
   A. Always  BS  |  NBS  
   3  |  1
   B. Sometimes  BS  |  NBS  
   1  |  1
   C. Seldom
   D. Never

5. Do you use good body mechanics when pulling or pushing?
   A. Always  BS  |  NBS  
   2
   B. Sometimes  BS  |  NBS  
   2  |  1
   C. Seldom
   D. Never

38
6. Do you use good posture when sitting?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Always</td>
<td>3</td>
</tr>
<tr>
<td>B. Sometimes</td>
<td>1</td>
</tr>
<tr>
<td>C. Seldom</td>
<td></td>
</tr>
<tr>
<td>D. Never</td>
<td></td>
</tr>
</tbody>
</table>

7. Do you think your lifting principles have improved since completing physical therapy and/or Back School?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Very much</td>
<td>3</td>
</tr>
<tr>
<td>B. Somewhat</td>
<td>1</td>
</tr>
<tr>
<td>C. Not significantly</td>
<td>2</td>
</tr>
</tbody>
</table>

8. Have you re-injured your back since completing physical therapy and/or Back School?

<table>
<thead>
<tr>
<th>BS</th>
<th>NBS</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Yes</td>
<td>2</td>
</tr>
<tr>
<td>B. No</td>
<td>2</td>
</tr>
</tbody>
</table>
REFERENCES


6. Isotechnologies, Inc. Elizabeth Brady Road Hillsborough, NC 27278 919-732-2100

7. Key Functional Assessments, Inc. International Headquarters 1010 Park Avenue, Minneapolis, MN 55404 800-333-3539; 612-333-1191

8. Loredan Biomedical, Inc. 3650 Industrial Boulevard West Sacramento, CA 95691 800-873-3800


19. Walonick Associates, Inc. 3814 Lyndale Avenue South Minneapolis, MN 55409 612-822-8252