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Educating Patients about Behavioral Interventions and Exercises for Musculoskeletal Lower Back Pain

Alex Jacobson

February-March 2017

Milton, VT

Project Mentors:

Kimberly Hageman MD, Martha Seagrave PA-C

Community Partners:

Dr. Paul Samuel of Elevate Chiropractic, Meghan Yandow Athletic Trainer at PT 360, Rose Bernier at UVM Physical Therapy at Tilley Drive, Dr. David Lisle MD Sports Medicine

Problem Identification

- Low back pain (LBP) is a common problem which affects all genders and most ages. It results in considerable direct and indirect costs, and these costs are financial, workforce and social. LBP prevalence in America at any given time has been reported to be 6.8% [1]. Most cases of low back pain are musculoskeletal in etiology. Most acute cases of LBP decrease in severity, yet only 33% resolve completely within a 12 month period. [1]
- Some people with chronic pain are afraid that movement and exercise will increase their pain or lead to further damage – however research shows that the opposite is generally true, and that physical therapy and individual exercises are often their best treatment. [2]
- Cochrane Review states that – **“For patients with acute or subacute LBP, intensive patient education seems to be effective.”**[8]. Furthermore, Cochrane review of chiropractic care for back pain stated that “Combined chiropractic interventions slightly improved pain and disability in the short-term and pain in the medium-term for acute and subacute LBP. “[6,7,8,10]
- Milton Family Practice is one of the largest primary care offices in the state of Vermont, sees many patients with acute LBP annually.

Public Health Cost

- A recent review estimated that the annual financial cost of back pain is 0.42% of GDP or 3.22% of total healthcare expenditures in the United States. [1]
- These estimates also state that the approximate range of cost (both direct medical costs and the costs of decreased productivity) of lower back pain in America have been reported to be between \$50 billion per year and \$100 billion per year. [2]
- Of these costs - 75% or more are noted to be due to the 5% of people who become disabled temporarily or permanently from back pain. [4]
- The costs of care for lower back pain are driven by office visits with providers, prescriptions, medications, and sometimes surgical or pain management procedures in addition to hospital stays. A different study reported that an average first case of low back pain (which was defined as a single “episode of care” or EOC) necessitated 2.5 office visits with primary care physicians. In the cases where patients initially presented to an orthopedist, a single case of back pain was associated with 3.5 office visits. [3] Furthermore, an average case of lower back pain has also been associated with 4.6 separate medication prescriptions. [3]
- Another study concluded that in the care of lower back pain, the interventions associated with positive patient outcomes were muscle relaxants, opioids, and interventions provided by multidisciplinary teams (such as physical treatments including acupuncture, exercise, laser, orthoses, spinal manipulation, TENS, traction). [1]

Community Perspective

- As part of my project in educating patients about behavioral and chiropractic interventions for musculoskeletal back pain, I met with chiropractors and physicians, and physical therapists/athletic trainers to assess their perspectives towards this problem.

Dr. David Lisle MD Primary Care Sports Medicine

- Lower back pain is extremely common, however aside from seeing me many patients are managed by their primary care doctors so it is extremely important that there are good resources for the doctors and patients readily available

“The first line therapy for a majority of causes of low back pain and many musculoskeletal conditions is physical therapy as you saw in my clinic”

Dr. Paul Samuel Elevate Chiropractic, Burlington, VT

“Posture is an extremely important contributor to lower back pain but interestingly new research shows that posture is also linked to mental health and depression”

“My recommendations for patients at home are a mix of stretching and strengthening exercises.”

“If I had to choose two exercises for patients to do at home – erector spinae stretches and hip flexor stretch. The Cobra pose is also a great exercise”

Community Perspective

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Meghan Yandow, Athletic Trainer
PT 360, Burlington, VT

“In an acute lower back sprain, the first thing I would tell patients to avoid is heat and instead use ice only for the first few days”

“I really recommend the child's pose and the bridge position. I also recommend stretches using a stretching strap, rope, or belt”

“I recommend performing these exercises 2-3 times per day. If patients stick to this, many can see improvement in the first week.”

Rose Bernier, Physical Therapist
Tilley Drive Physical Therapy, UVM

“I am a physical therapist at UVM and I treat many patients with lower back pain. I find that my philosophy of care changes somewhat depending on a patients diagnosis and their functional status”

“One thing that I recommend that you may not have heard from others is that patients with lower back pain very often have tight hamstring muscles and benefit greatly from hamstring stretches”

“This is simple but I also recommend walking to many patients. It sounds simple, but for some patients who are sedentary, walking for 20 minutes a few times a day helps”

Intervention and Methodology

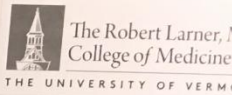
- Musculoskeletal back pain is an extremely common problem seen in the primary care office. Oftentimes, the pain is chronic and represents an issue that patients struggle with but choose to not discuss with their primary care physician.
- The intervention was to work with the health care practitioners from multiple disciplines in the area to develop an understanding of the problem of lower back pain and create an informational resource which could hopefully decrease the incidence of lower back pain and decrease its burden on patients lives and healthcare costs.
- First, I conducted a literature review to learn about the things that can exacerbate lower back pain and behaviors that patients should do and what they should avoid.
- Second, I met with and interviewed a local chiropractor, sports medicine physician, and physical therapy athletic trainer to ask them questions about lower back pain and ask for them to weigh in on developing a list of exercises for patients to perform and behaviors to avoid.
- Third, to create an intervention, I compiled the information I gathered into a poster highlighting the “DOs and DON’Ts for Lower Back Pain” which can be displayed in a primary care practice.

Results

- The community response has been very supportive of this project's goal. Many providers from multiple disciplines have supported the idea of providing information to patients on options for managing their musculoskeletal back pain. Furthermore, doctors at the Milton Family Practice were very interested in the research on the different modalities of care for musculoskeletal low back pain problems. There was special interest in learning the differences between how MDs, physical therapists, and chiropractors approach low back pain, the different recommendations from the specialties, and suggested exercises that patients can do to relieve low back strain.
- Milton Family Practice, one of the largest primary care office settings in the state of Vermont agreed to display my poster in one of their patient rooms and agrees that this will allow patients to passively learn about ways to avoid back pain without having to make separate appointments for this issue or without having to bring it up in their likely already rushed visit. Similar educational posters on other topics are seen in many other patient rooms in the practice.
- **“We love posters and patient education!!” – Milton Family Practice, Practice Manager**

Results


Poster, currently in the waiting room at Milton Family Practice



DOs and DON'Ts for Low Back Pain


RANGE OF MOTION • Lumbar Extension

- Stand with feet shoulder-width apart. Bend the knees and lean forward. Hold for 15 seconds.
- Repeat 10 times.



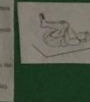
RANGE OF MOTION • Lumbar Flexion

- Stand with feet shoulder-width apart. Bend the knees and lean backward. Hold for 15 seconds.
- Repeat 10 times.



RANGE OF MOTION • Lumbar Rotation

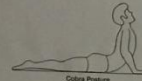
- Stand with feet shoulder-width apart. Bend the knees and lean to the right. Hold for 15 seconds.
- Repeat 10 times.



STRENGTHENING


STRENGTH • Core Posture

Helps with neck extension
Strengthens your spine



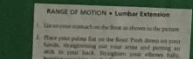
STRENGTH • Neck Flexion

Helps with neck extension
Strengthens your spine




STRENGTH • Neck Extension

Helps with neck extension
Strengthens your spine




RANGE OF MOTION • Lumbar Flexion

- Stand with feet shoulder-width apart. Bend the knees and lean backward. Hold for 15 seconds.
- Repeat 10 times.




RANGE OF MOTION • Lumbar Extension

- Stand with feet shoulder-width apart. Bend the knees and lean forward. Hold for 15 seconds.
- Repeat 10 times.



RANGE OF MOTION • Lumbar Rotation


- Stand with feet shoulder-width apart. Bend the knees and lean to the right. Hold for 15 seconds.
- Repeat 10 times.



STRENGTHENING EXERCISES


STRENGTH • Quadruped Lift

- Start on hands and knees. Lift one leg. Hold for 15 seconds.
- Repeat 10 times.




STRENGTH • Partial Sit-ups

- Lie on your back with knees bent. Lift your head and shoulders. Hold for 15 seconds.
- Repeat 10 times.



STRENGTH • Pelvic Tilt and Stationary Leg Lifts

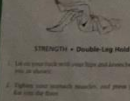
- Lie on your back with knees bent. Lift your head and shoulders. Hold for 15 seconds.
- Repeat 10 times.



STRENGTHENING


STRENGTH • Double Leg Lift

- Lie on your back with knees bent. Lift both legs. Hold for 15 seconds.
- Repeat 10 times.



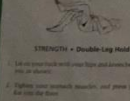
STRENGTH • Pelvic Tilt and Stationary Leg Lifts

- Lie on your back with knees bent. Lift your head and shoulders. Hold for 15 seconds.
- Repeat 10 times.



STRENGTH • Double Leg Lift

- Lie on your back with knees bent. Lift both legs. Hold for 15 seconds.
- Repeat 10 times.





Alex Jacobson, Class of 2018

POSTURE

CORRECT STANDING POSTURES



CORRECT SITTING POSTURES



PROPER SITTING POSTURE



7 Key Points For Office Workers



POSTURE AND BODY MECHANICS CONSIDERATIONS FOR LOW BACK PAIN

Improving the most common posture and sitting body mechanics can have a significant effect on low back pain. The following are key considerations for the health of all workers with low back pain.

- Avoid posture variations that stress the spine in any portion of your spine.
- Incorporate these posture principles into all of your daily and recreational activities.

INCORRECT LIFTING TECHNIQUES

DO NOT

- Do not lift with one leg straight and one back bent.
- Do not lift objects that are too heavy or over your head.
- Do not lift and twist at the same time.
- Do not lift an object that is too heavy or awkwardly shaped without help.



DO NOT

- Do not lift with one leg straight and one back bent.
- Do not lift objects that are too heavy or over your head.
- Do not lift and twist at the same time.
- Do not lift an object that is too heavy or awkwardly shaped without help.



LIFTING

Do not stand on your back when lifting any object. The correct posture is to use your feet and knees, and always maintain a neutral curve in your spine.



INCORRECT SITTING POSTURES

Do not slouch or slump. Maintain a proper position in the chair.



SEATING POSTURES

Do not sit with one leg straight and one back bent.



PROLONGED STANDING IN SLIGHT FLEXION

When you have to stand in a position that requires a prolonged period of slight flexion, consider taking steps to enter the load in your back.



INCORRECT STANDING POSTURES

Do not stand with one leg straight and one back bent.



SLOUCHING

Do not slouch when you walk or stand. Stand up straight and make sure you sit.



PROLONGED ACTIVITY IN A FLEXED POSITION

Do not stand during any activity in a flexed position for a prolonged period. Do not sit up if possible, which will reduce the stress on your back.



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Evaluation of Effectiveness/Limitations

- There are clearly limitations to this project's effectiveness due to the way the educational 'modality' is set up. A single poster in a patient room is just unable to reach a very wide audience. There are over 20 patient exam rooms in the Milton Family Practice office and thus the poster at best would be able to cover 5% of the patient load of the practice. Fortunately, the practice manager at Milton Family Practice agreed to display the poster in the waiting room – potentially reaching more patients.
- Furthermore, patients can simply choose to ignore the informational poster because they are currently not suffering from back pain, because they are busy on their phone, or because they are not waiting very long in the examination room. Patients may also choose to not perform the lower back exercises at home for a variety of reasons such as work, other commitments, laziness, lack of mobility, or simply lack of resources for the exercises.
- Evaluation of this project's effectiveness should involve further work with Milton Family Practice, the local chiropractors, physicians, and physical therapists to develop additional educational interventions that can reach patients currently suffering from back pain and patients who do not have back pain but who can benefit from the exercises prophylactically.
- The best evaluation of the effectiveness of this project would probably be by looking at concrete data – does providing information to patients and encouraging the exercises decrease the number of office visits for back pain? Does it decrease healthcare costs? Does it improve patients quality of life (QOL)? Does it improve patient satisfaction?

Recommendations for future Projects

- There are several possibilities for further work in improving behavioral management of back pain, patient education, and increasing awareness of alternative providers who can assist patients. One idea would be to actively survey patients in the primary care clinic for symptoms of back pain regardless of their chief complaint for their visit and to learn about their knowledge of the resources that are available to them, provide patients with an informational pamphlet, and conduct follow-up surveys to determine the effectiveness of behavioral interventions. Follow-up surveys can also assess whether patients who read the information followed through with trying these exercises at home, how often they did so, and whether they tried seeking care from chiropractors, physical therapists, or athletic trainers.
- Another project could be to expand the amount of patients that are reached by this informational poster – this can be done by replicating the poster and distributing it to other practices in the area. In addition, creating a pamphlet which can be accessible to patients to take home can also be extremely beneficial in addressing the issue of lower back pain.
- Another quantitative project can be to develop a prospective database which keeps track of the incidence of primary care office visits for musculoskeletal back pain and seeing whether preemptive interventions in the form of posters or pamphlets and patient education decrease the number of patients presenting with complaints of back pain.

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