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FOCUS ON REMEDIAL EXERCISE

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Registered Massage Therapists' Association of Ontario

Registered Massage Therapists'
Association of Ontario
1243 Islington Ave., Suite 704
Toronto, ON, M8X 1Y9
Tel: 416.979.2010 Toll Free: 1.800.668.2022
Fax: 416.979.1144
www.rmtao.com
Email: info@rmtao.com

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Publication Management

BCS Group,
255 Duncan Mill Road, Suite 803,
Toronto, ON, M3B 3H9
Tel: 416.421.7997
Fax: 416.421.8418
www.bcsgroup.com

Publication and Production Manager

Helmut Dostal

Managing Editor

Caroline Tapp-McDougall

Art Director

Joseph Finbow

Advertising

Michael Murton
Tel: 416.970.5123; Fax: 416.421.8418
E-mail: murton@bcsgroup.com

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Message from the Editor

Remedial exercise: Helping your patients to help themselves

When the average member of the public thinks of massage therapy, they might only picture traditional, hands-on Swedish massage techniques. However, we know a massage therapy treatment plan typically involves some type of remedial exercise. The stretches, strengthening exercises and self-care techniques that a patient can complete at home are often an essential part of an RMT's toolkit and a patient's rehabilitation journey.

You might have shown a patient a set of exercises and eagerly let them know of all the benefits they can hope for. But how can you make sure patients complete the prescribed exercises? A lot of it comes down to communication, and we are pleased that Micaela Quibell has given us a helpful piece on strategies to effectively communicate with patients. She tells us how to better explain why an exercise may be helpful, how it has been helpful to others and how to perform it. Another key to effective communication is to make sure you, the therapist, understand why you are suggesting a certain exercise. With that in mind, Chris Semenuk shares an outline of how stretching works and why it is assigned.

Of course, the particular stretching or self-care that is prescribed will depend on the patient's particular condition or complaint. Chronic low back pain is a very common issue, and Alex Kidd and Andrew Clapperton aim to provide you with a more complete understanding of the rehabilitative process for individuals with chronic back pain using Dr. Stuart McGill's research.

There is conflicting advice out there on how to care for an acute injury. We have all heard of the acronym RICE (rest, ice, compress and elevate), and now the newer acronym METH (movement, elevation, traction and heat) is rising to the top of our minds. Gord Hughes breaks down these two acronyms to hopefully clarify the course of action for a patient with an acute injury.

Like many areas of massage therapy practice, the research is continuously emerging. Stacey Shipwright provides a review of the evidence supporting exercise as an integral part of a patient's treatment plan for improving physical function and mental/emotional well-being.

Remedial exercise is a valuable part of the rehabilitative process. By keeping up to date on the latest research and taking the time to effectively communicate that information with your patients, you will be more effective. Keep it simple, listen to your patients, and be ready and willing to explain the "how" of what you are suggesting. By making this information specific to each patient's needs, you will be more likely to encourage adherence and ensure that remedial exercise remains a part of your patients' recovery and treatment plans.

Laura Fixman,

Communication and Member Services Coordinator, RMTAO

Beyond the Table:

The Importance of Remedial Exercise in Non-Specific Low Back Pain



Alex Kidd, HBKin, RMT, is a graduate of Humber College who practices in Toronto. He is a faculty member at Humber College, focusing on therapeutic exercise, research concepts and entry to practice.



Andrew Clapperton, RMT, has 27 years of experience in private clinical practice. A graduate of Sutherland-Chan, his patient care philosophy combines assessment-based treatment planning with a rehabilitative approach to functional movement. In addition to his private practice, Andrew has 17 years' experience teaching in community college massage therapy programs. He was recognized as the RMTAO Educator of the Year for 2017.

By Alex Kidd, HBKin, RMT, and Andrew Clapperton, RMT

Low back pain continues to put a strain on the health care system. It is the leading cause of disability worldwide, with 75–85% of the world's population experiencing at least one occurrence in their life.^{1,2} In Canada, it is estimated that low back pain accounts for \$6–12 billion annually in medical expenditures, without taking into consideration the cost associated with time away from the workplace.³

While there are many potential etiologies associated with low back pain, about 90% of cases are considered non-specific.² Non-specific low back pain describes clinical presentations in which there are no identifiable pathologies present.⁴

Massage therapists should utilize remedial exercise as an essential component in every treatment plan. This article outlines concepts from the research of Dr. Stuart McGill, who is an expert in spine function, injury prevention and rehabilitation.⁵ The goal is to provide a deeper understanding of one approach to the rehabilitation process for individuals struggling with chronic back issues.

Where do we start?

An accurate assessment of the patient's health history is paramount in establishing an in-depth preliminary clinical picture, followed by the therapist's objective orthopedic observations. This should, at

the very least, include a postural and kinetic chain assessment, movement analysis and evaluation of any muscular imbalances. During this time, it is important to identify any specific causes of low back pain (e.g., disc herniation, stenosis, zygapophyseal joint irritation) in order to differentiate the approach of the rehabilitation process.

The impairments and functional limitations that are identified through the objective findings of the orthopedic assessment should form the basis of an effective, guided therapeutic exercise program that is carried out in both the clinical and home environments.

Exercise considerations

The most important consideration when designing a remedial exercise program for the patient with non-specific low back pain is to avoid movements that exacerbate the symptoms of the complaint. In many training programs that address the lumbar region, the mechanism of injury is unknowingly incorporated into some of the prescribed exercises.⁶ For this reason, it is important to identify painful movement patterns during the objective assessment.

Tolerance vs capacity

Exercise tolerance is the level at which a patient can perform a prescribed exercise without causing pain. It is important to

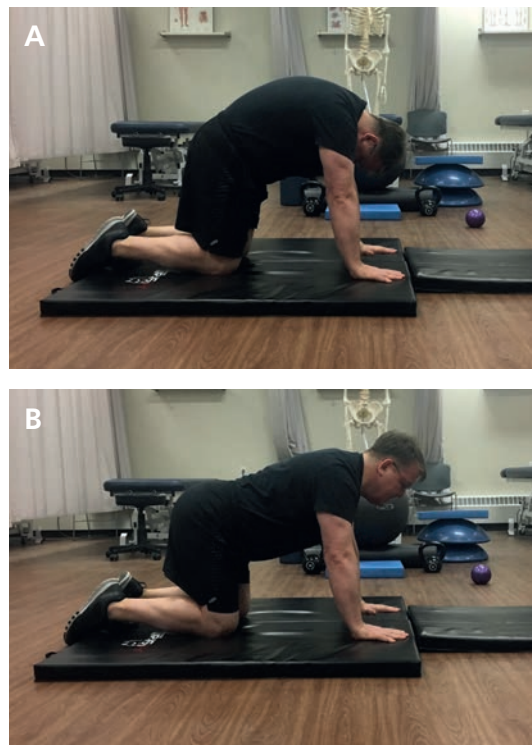
identify a patient's tolerance, as progressing an exercise beyond this point can cause not only pain, but also tissue damage.⁶ Exercise capacity is the maximum amount of physical exertion that a person can sustain.⁶ These two factors should weigh in heavily when scrutinizing the selection of exercises for a specific individual.

The primary goal of a remedial exercise program is to improve physical function. Keeping the individual's exercise tolerance in mind will allow them to perform the exercise efficiently, thus leading to a greater functional improvement.

Abdominal bracing vs hollowing

The role of abdominal bracing in spinal stability exercises is to activate the different layers of the abdominal wall without drawing the wall in.⁵ The action of drawing the abdominal wall in is known as abdominal hollowing. Hollowing has been shown to be less effective at enhancing spinal stability compared with abdominal bracing.⁵

FIGURE 1



Warm up:
Cat posture (A). Camel posture (B).

To provide sufficient spine stability, the patient only needs to sustain a mild contraction of the abdominal wall, which, when performed correctly, results in “no geometric change.”⁵

To effectively demonstrate abdominal bracing, McGill suggests contracting both the flexors and extensors of a different joint (e.g., the elbow) and allowing the patient to palpate the area. Follow this by having them replicate the action themselves, before repeating the process with the muscles of the abdominal wall.⁵ In addition, patients can obtain feedback on their own performance by placing their fingers five to 12 cm lateral to the navel and feeling the tension build underneath them.⁷

Parameters

Exercise parameters should be treated similarly to treatment parameters: They should be individualized to the needs of the patient. Exercises should be performed in three sets of declining repetitions (e.g., five, four, three) of 10-second isometric contractions.⁸ There should be one or two seconds rest between repetitions, and one minute of rest between sets. Exercises should be performed once or twice per day and a minimum of three or four times per week. However, as long as pain is absent, daily completion is also encouraged.⁸

Warm-up

A recommended starting point for all low back rehabilitation programs is the cat/camel warm-up, which targets the flexion–extension cycle (Figure 1). The goal here is to reduce spinal viscosity, improve segmental spinal control and reduce any potential nerve-root irritability in the area.^{5,9} The goal with this exercise is not to stretch but, instead, to emphasize the motion of flexion and extension. Ten cycles of this exercises should be performed to achieve the intended results.^{5,9}

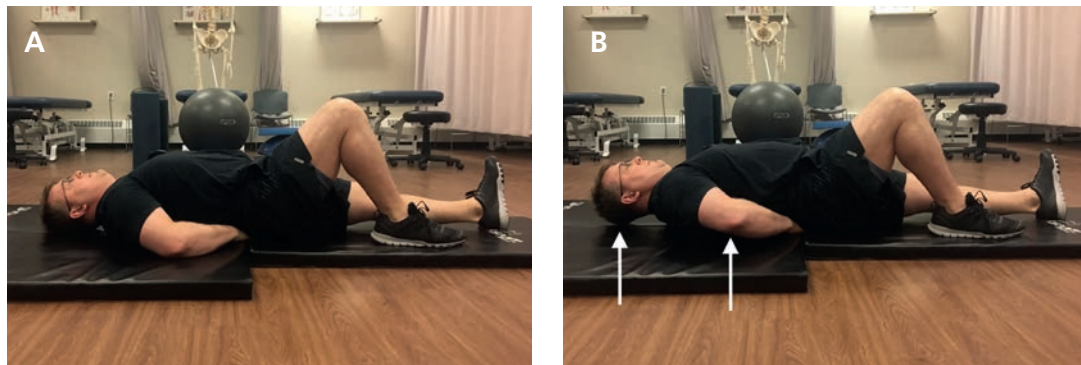
“The big three”

McGill commonly refers to a set of exercises that he terms “The big three.” These exercises produce a stabilizing pattern while

“A starting point for all low back rehabilitation programs is the cat/camel warm-up, which targets the flexion–extension cycle.”

“ In patients with low back pain, the goals should be to reduce the compressive force placed on the spine and to maintain a neutral lumbar spine position ”

FIGURE 2



McGill curl-up: Starting position (A). Finishing position (B).

maintaining lower spine loads and avoiding placing the back in a compromised position. They are the curl-up, the side plank and the bird dog. The parameters suggested by Lee and McGill⁸ can be applied here. However, adaptations should be made depending on the patient's presentation.

Curl-up

The concept of sit-ups, curl-ups or crunches is not new to any health care provider. Many variations have been used in fitness for years. Ostensibly, all of these exercises aim to develop strength in the abdominal muscles and improve stabilization of the spine. There are many modifications to the traditional sit-up, such as fixing the feet, changing the knee position and altering the distance travelled by the torso during contraction.¹⁰ Depending on the literature, arguments can be made as to the merits of most of the modifications and the targeted structures involved. However, in patients with low back pain, the goals should be to reduce the compressive force placed on the spine and to maintain a neutral lumbar spine position, both of which are achieved by following the procedure described below.⁵

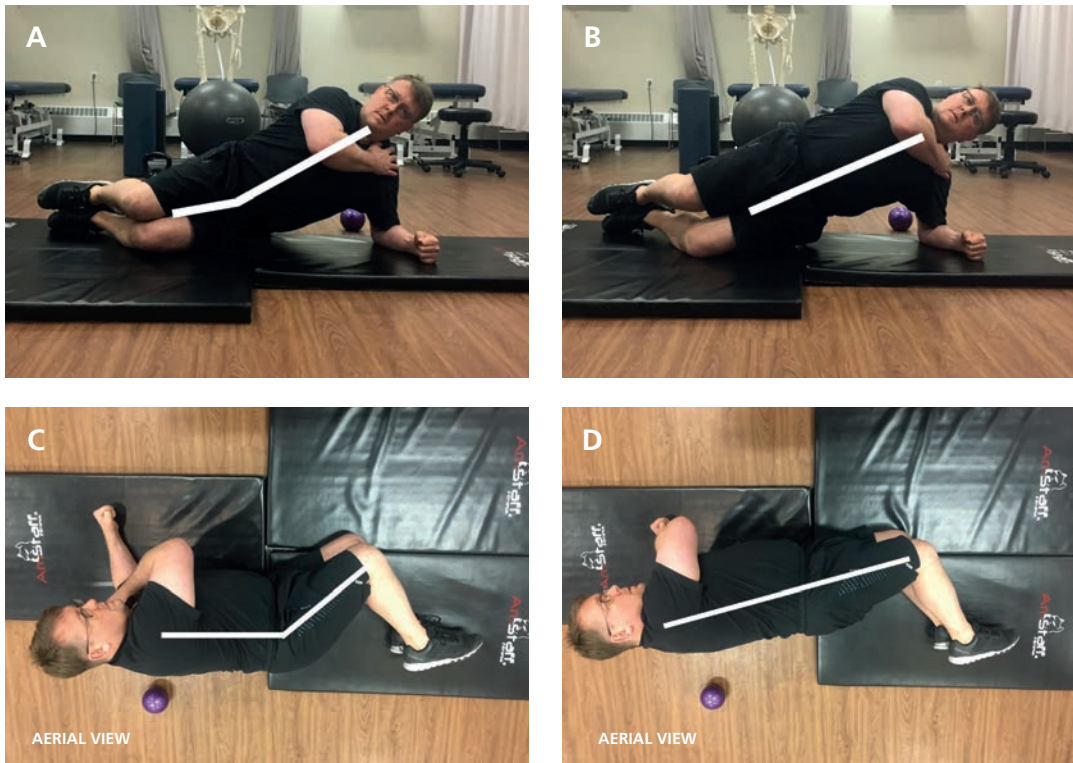
Start by positioning your patient in supine with their hands placed (palms down) under the lumbar spine, as depicted in Figure 2A. This position helps guarantee that the back does not flatten to the floor. The location of the patient's hands can be altered slightly to ensure the least amount of pain or

discomfort.⁵ The patient flexes one knee to 90 degrees and places their foot flat on the floor, while the other leg remains extended and relaxed on the floor. The purpose of this is to further prevent flattening of the lumbar spine. While lifting their elbows off the ground, have the patient perform a chin tuck so that the ears are in line with the shoulders, as depicted in Figure 2B. This will create a neutral cervical spine position.⁵ In doing so, the patient has created a movement complex that promotes rigidity of these areas when abdominal contraction occurs. Finally, have the patient brace their abdominal muscles to create the appropriate resistance and perform a slight movement that lifts the head, neck and shoulder complex off the ground. The patient should hold the position for 10 seconds before returning to the ground. There should be no cervical motion while performing this movement.⁵

Side plank

Start by positioning your patient in side-lying. The bottom elbow should be flexed to 90 degrees under the shoulder, with the forearm placed flat on the floor, perpendicular to the body (Fig. 3A). The knees should be bent to 90 degrees and the nose in line with the belly button to ensure the spine is central (Fig. 3C).⁹ The hips begin in a slightly flexed position (approximately 30 degrees) that allows the hip hinge to be accomplished during the activation period. This hip hinge acts to spare the spine by preventing lateral

FIGURE 3



Side plank: Starting position (A,C). Finishing position (B,D).

“As the therapist, your main goal should be to correct or provide cues when twisting occurs between the ribcage and pelvis.”

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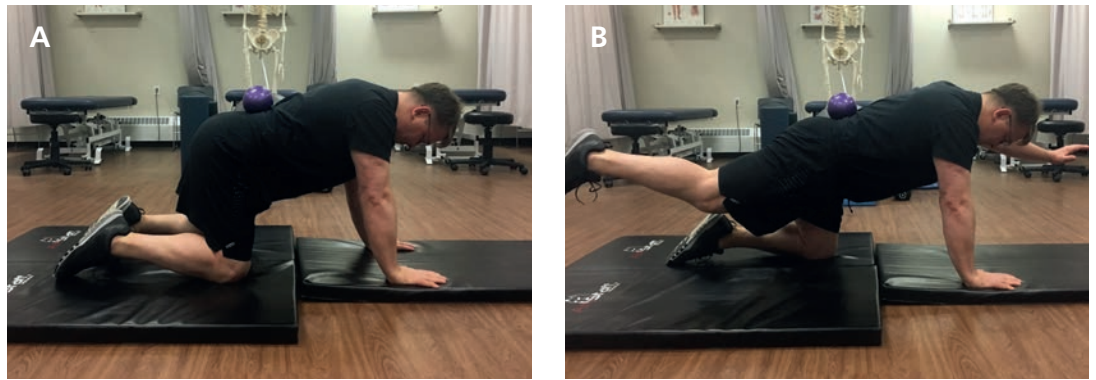
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“Massage therapists should utilize remedial exercise as an essential component in every treatment plan.”

FIGURE 4



Bird dog: Starting position (A). Finishing position (B).

bending of the torso. Have the patient brace their abdominals, challenging their quadratus lumborum, latissimus dorsi and the obliques, and extend their hips to bring the bottom hip off the floor to start the exercise (Fig. 3B/D).⁹ As the therapist, your main goal should be to correct or provide cues when twisting occurs between the ribcage and pelvis.⁹

Bird dog

Start by positioning your patient in a quadrupedal position, with their hands under the shoulders and knees under the hips, shoulder-width apart (Fig. 4A). Place a weighted object on the small of the back to ensure neutral lumbar spine positioning and provide proprioceptive feedback to the patient.⁵ Instruct your patient to brace their abdominals and perform a single leg extension with a contralateral arm extension to create counter-balance and avoid rotation of the spine (Fig. 4B). This engages the transverse plane, which leads to stability during rotational activity. The moving limbs are brought parallel to the floor, with the arm not moving higher than the shoulder and the leg not moving higher than the hip.⁵

Conclusion

Research on the topic of spinal stability when prescribing exercises for patients with non-specific low back pain remains required, as concepts are still debated by many practitioners. However, the exercises

demonstrated are a great starting point in introducing spinal stabilization to the patient with non-specific low back pain, although they may need to be modified to adapt to the competency and fitness of the individual. Progressions to these stabilization exercises are available in many of McGill’s publications. ■

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Remedial Exercise: Encouraging Adherence

By **Micaela Quibell, RMT**



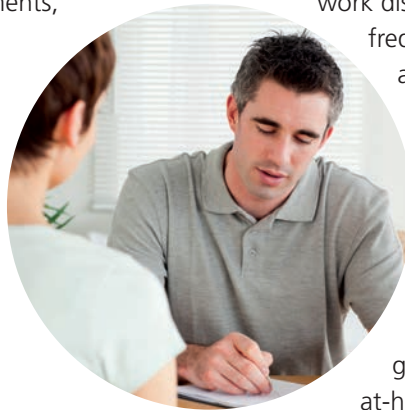
Micaela Quibell, RMT, practices in the tiny village of Warkworth, Ontario. She graduated in 2015 from the D'Arcy Lane Institute in London, Ontario. As is typical for a newly minted practitioner, she splits her work hours between three clinics: Sharpe Physiotherapy in Trent River, Ontario; her own clinic in Warkworth; and The Bridge Hospice in Warkworth, where she has set up a massage program on a volunteer basis for the residents, caregivers, staff and volunteers of the hospice.

One of the greatest tools in an RMT's toolbox is the ability to prescribe remedial exercise. Whether it's recommending a gentle stretch as a follow-up to treating a particular area or creating a daily exercise regime that will take a client from little or no mobility to a return to work or their favourite activity, remedial exercise augments and maintains the hard work we put into our manual therapy. This is, in fact, part of the definition of therapeutic exercise: The systemic, planned performance of bodily movements, postures or physical activities intending to:

- remediate or prevent impairments
- improve, restore or enhance physical function
- prevent or reduce health-related risk factors
- optimize overall health status, fitness or sense of well-being

This closely follows the definition and goals of massage therapy, which makes therapeutic exercise the perfect partner to manual therapy.

There have been endless studies on how and why exercise has such a positive effect on our health and well-being. Exercise can relieve pain and increase strength in those who have had an injury or recent surgery, and prolong function and mobility for someone struggling with multiple sclerosis, muscular dystrophy or different types of ataxia, among many other varied benefits.



Last year, the American College of Physicians issued guidelines for the treatment of low back pain, which suggest using various forms of exercise, manual and alternative therapies, and stress management instead of or before prescribing pharmaceuticals, particularly opioids¹. This was a progressive move away from simply prescribing drugs for all manners of low back pain, and was based on intensive research and data. The goal was not only to find a solution to back pain, but also to decrease work disability and time off, reduce the frequency of back pain episodes and improve the overall health and quality of life of individuals.

While exercise and movement are known to be some of the best ways of improving overall health, it can still be a challenge to get clients to comply with an at-home exercise treatment plan.

Pain and dysfunction may not provide the necessary drive to move, especially if the individual is not convinced it will help. An RMT quickly takes on the role of educator, motivator and cheerleader, while applying the occasional touch of firmness, to encourage clients to keep up with their remedial exercises. This also requires a great deal of reassurance, as clients can fear that increasing movement will also increase pain.

The most important motivator is education. This includes education of the therapist as well as of the client, as someone who is not up



“One set of exercises might work wonderfully for ten clients and not at all for another.”

to date and fluent in the latest research and language of movement will not be able to fully educate their clients. Therapists who acquire more knowledge are able to expand their own potential and that of their treatments and, by sharing this information, can also empower their clients. Knowing how exercises are going to affect their rehabilitation, and giving examples to back this up, will give clients the confidence and drive to engage with the prescribed regime.

Supported by research

Showing a client research and pointing out the differences between the test group and the control group can also be helpful. For example, an excellent clinical trial by a PhD student from the University of Toronto was published in 2000². Michele Preyde and her team of two RMTs, three physiotherapists and a certified personal trainer aimed to determine the effectiveness of massage therapy on low back pain. The study was performed at the Health & Performance Centre at the University of Guelph. The researchers recruited participants between the ages of 18 and 81 years with subacute low back pain that had been present for one week to eight months. Exclusion criteria included significant pathology (e.g., bone fracture, nerve damage or a severe psychiatric condition) and pregnancy, and participants were required to be in stable health.

Those selected for the study were randomly placed into four groups.

- The first group received comprehensive massage therapy, which combined

soft tissue manipulation, remedial exercise and posture education.

- The second group received soft tissue manipulation only.
- The third group received remedial exercise and posture education only.
- The fourth group received a placebo of sham laser therapy, which was set up to look functional but was not.

Each group was given six treatments over the course of a month, and measurements of functionality on the performance of daily tasks, pain relief, lumbar range of motion and anxiety levels were taken immediately after the treatment course and one month later. A total of 91 people participated in the study from start to finish.

While the groups that received soft tissue manipulation only and exercise only showed significant improvements over the sham laser group in functionality, pain relief and anxiety, both at the immediate post-treatment and the one month mark, the comprehensive massage therapy group either matched or surpassed the improvements of all three groups. There was no statistically significant difference in lumbar range of motion among any of the groups.

Overall, this study indicates that while manual therapy alone or exercise alone will help a client to decrease their pain and anxiety and increase their ability to perform activities of daily living, both therapies together will result in better outcomes.

Clients who are dealing with their own low back pain can feel confident knowing their hard work will pay off in some form or another when they are shown evidence that it happened for other people. This builds confidence, hope, and perhaps reduces some of the fear associated with starting a new rehabilitation program.

Starting out

Keep it simple

Simplicity, especially at the beginning of a treatment plan, is a good idea. Overloading a client with too many or too complicated exercises will only frustrate them and lead to

non-adherence. Start out slowly and efficiently. If you work in a team environment with a physiotherapist, collaborate to come up with a single simple exercise regime, rather than sending the client home with two different sets of prescribed exercises. Clients are often inundated with pieces of advice and lists of instructions from health care professionals—the overwhelming nature of rehabilitation can be exhausting. Keeping it simple wherever possible will be greatly appreciated by your clients.

Think about function

Functional exercise is exercise that mimics functional activities while being performed in a controlled manner or environment.

These types of exercises aim to get clients performing their desired activities in a manner that is healthy, safe and pain free.

For example, if a person has a job that requires repetitive reaching then it can be effective to prescribe exercises that will allow them to find a comfortable stance and stride, and to practise shifting their weight forward and backward in this position using the lower extremities, instead of bending at the waist. This can be intensified by adding weights similar to those they would be reaching for at work. Doing this in a controlled environment will help the therapist to evaluate any changes that might be needed to the client's stance, posture and action, while the repetitive movement will create the necessary neuroplastic pathways in the brain to ensure these adjustments are replicated in the workplace.

Be patient

Another important factor is patience—both with yourself and with your client. Positive outcomes are not always quick or easy to achieve. One set of exercises might work wonderfully for 10 clients and not at all for another. The exercises can be too painful, or

there might be other factors in the client's health that restricts them. Furthermore, clients can have an unrealistic vision of their recovery, and feelings of depression, anxiety, hopelessness or anger can put a halt to the whole treatment plan.

Patience is necessary to keep a client on track, and to keep the therapist from giving up. Imagination and the ability to think critically are essential to get over any bumps in the road. Allowing clients the space to be frustrated, while also being a positive presence for them, will be very helpful. Continuous reminders of their progression will re-inspire and re-energize, as it is easy to forget that the pain used to be a 10 while still living with pain that is at a constant six. Remembering the impact of words is so important—words can tear down as easily as they can build up, so use them with care.

Communicate

Ultimately, communication is key. Tell your clients why the exercises are important, describe how they have been helpful to others and illustrate how they are to be done properly.

Ask your clients about their specific barriers to adherence and work on these challenges together in a positive, empowering way. It is important to their success that you go the extra mile, use your imagination and creativity, and provide the best treatment possible. ■

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“Clients who are dealing with their own low back pain can feel confident knowing their hard work will pay off in some form or another.”

A Move Towards Evidence-Based Stretching

By Chris Semenuk, RMT

Our understanding of “what we do” and “how it works” is constantly changing as new research comes forward. As a profession, it is one of our goals to remain “in the loop” with what has been happening and how it applies to RMTs. One of these areas is our understanding of how stretching works and why we prescribe it for our patients.

We will all have been educated about stretching in school as part of becoming an RMT, and learned a few different reasons for using stretches and how to apply them. However, the current research would appear to somewhat conflict with what many RMTs have been told. It shows that many of the traditionally held goals of stretching have little or no evidence to back them up. As a result, many health care professionals are re-thinking the “why” behind assigning stretches to patients, and we are now seeing a move towards more evidence-based stretches.

Flexibility vs muscle lengthening

It is popular to say that someone needs to “lengthen their muscle.” This is not a good goal to create for patients and is bad language for them to attach to. A muscle cannot lengthen—it simply has an end length that it can attain, and that is it. What we should be saying is that we want to increase flexibility. Flexibility is the ability of a person to access the full range of motion (ROM) of a specific muscle.

Studies have shown that static stretching applied for 15–30 seconds is effective at increasing ROM. They also suggest that no

Static Stretching

is where one moves a joint to a range where a “pull” can be felt on a muscle, and is held in place for a set time, usually between 15 and 30 seconds.

Dynamic Stretching is where joints are moved through a full range, repeatedly. These are controlled and deliberate to specifically mimic the movements that will be required.



Chris Semenuk, RMT, has been treating patients since 2001 in the St. Thomas and London area. As well as teaching massage therapy, he has certifications in laser therapy, SpiderTech Kinesio-tape, TENS, ultrasound and ETFS.

significant changes in muscle elongation are achieved beyond two to four repetitions. This is useful for creating a home care plan for patients so that we do not over-prescribe stretches. Patients will also be more likely to stay interested and to do the stretches if the prescribed regime does not entail a great deal of commitment on their part. The take-home message: A simple two reps of 15 seconds per application to a muscle (or muscle group) can have as good an effect as four reps of 30 seconds each.

The warm up

Many practitioners like to prescribe static stretches for their patients as part of a pre-workout or pre-activity routine. However, studies show that static stretching can

actually be detrimental to performance when performed immediately prior to the activity. This has been coined “stretch-induced strength loss.” This is the opposite of what we are trying to do for our patients, so it is an application that needs to be re-thought in this day and age.

Dynamic stretching is achieving greater momentum as a pre-activity tool. The basic concept is to take baby-steps before running. Doing smaller, less involved versions of the activity one is about to embark on is a better way of preparing for that activity than static stretching. Building the dynamic involvement over a period of time before activity may be the preferred prescription for our patients.

A simple example for a long-distance run might look something like the following.

- 15 minutes prior: Slow walking.
- 10 minutes prior: Advance to a brisk walk.
- 5 minutes prior: Advance to a jog.
- Training session: Full intended speed for running.

It is likely that you will find studies that support no difference between the overall ROM attained after either static or dynamic stretching. This means that your patients, especially the “weekend warrior class,” will be able to find these studies as well. This can lead to them questioning what I have stated above. Be ready for it and agree with them, because it is true. The difference is that dynamic stretching is not linked to the strength deficiencies that have been shown with static stretching.

So, if the goal is to simply increase ROM, either style will do. But if the goal is to prepare for activity, why would you want to risk loss of strength during that activity? Explain this to your client without creating confrontation by disagreeing with what they, and the community at large, have held on to for so long as “the way it is done.” Instead, positively reinforce with agreement and a reasoned argument for why one is better than the other for their overall goals. Studies working with various age groups have found that younger people realize an increase in flexibility much quicker than older

individuals. This information can be used to help encourage younger clients, but to also reassure older clients that it is normal for changes to take a while. This is especially significant if, for example, you are working with several members of a family who have been involved in the same motor vehicle accident, but whose recovery progresses at different rates.

Injury prevention

Many studies over the years have suggested that stretching does not have any affect on the incidence of injuries (falling down is falling down, no matter how much you stretch). These studies usually focus on distance running as the event of choice. They do, however, show that muscle sprains/strains appear to be reduced by pre-activity training. The toss-up, for professionals, is whether to focus on sprain/strain reduction by stretching or to maintain full(er) strength by not stretching.

A 2010 paper in the *Scandinavian Journal of Medicine & Science in Sports* describes the findings from a few studies that support stretching being associated with no significant reduction in the incidence of injury: “With respect to the effect of pre-participation stretching on injury risk, the epidemiological studies show that pre-participation stretching in addition to warm-up will have no impact on injury risk during activities where there is a preponderance of overuse injuries.”¹ The same paper also states: “Considering the widespread practice of pre-participation stretching in sports there is limited research assessing the efficacy of such practices...there is some evidence that stretching does not reduce the risk of sustaining overuse injuries but does reduce the risk of sustaining muscle strain injuries. Clearly further research is needed in the area.”¹

Prescribing stretching with the aim of avoiding sprain/strains seems to be realistic, but prescribing it with the aim of decreasing the chances of injury does not appear to be supported by studies to date. As a result, it may be better to discuss increasing mobility instead of flexibility with your patients. This

continued on page 16

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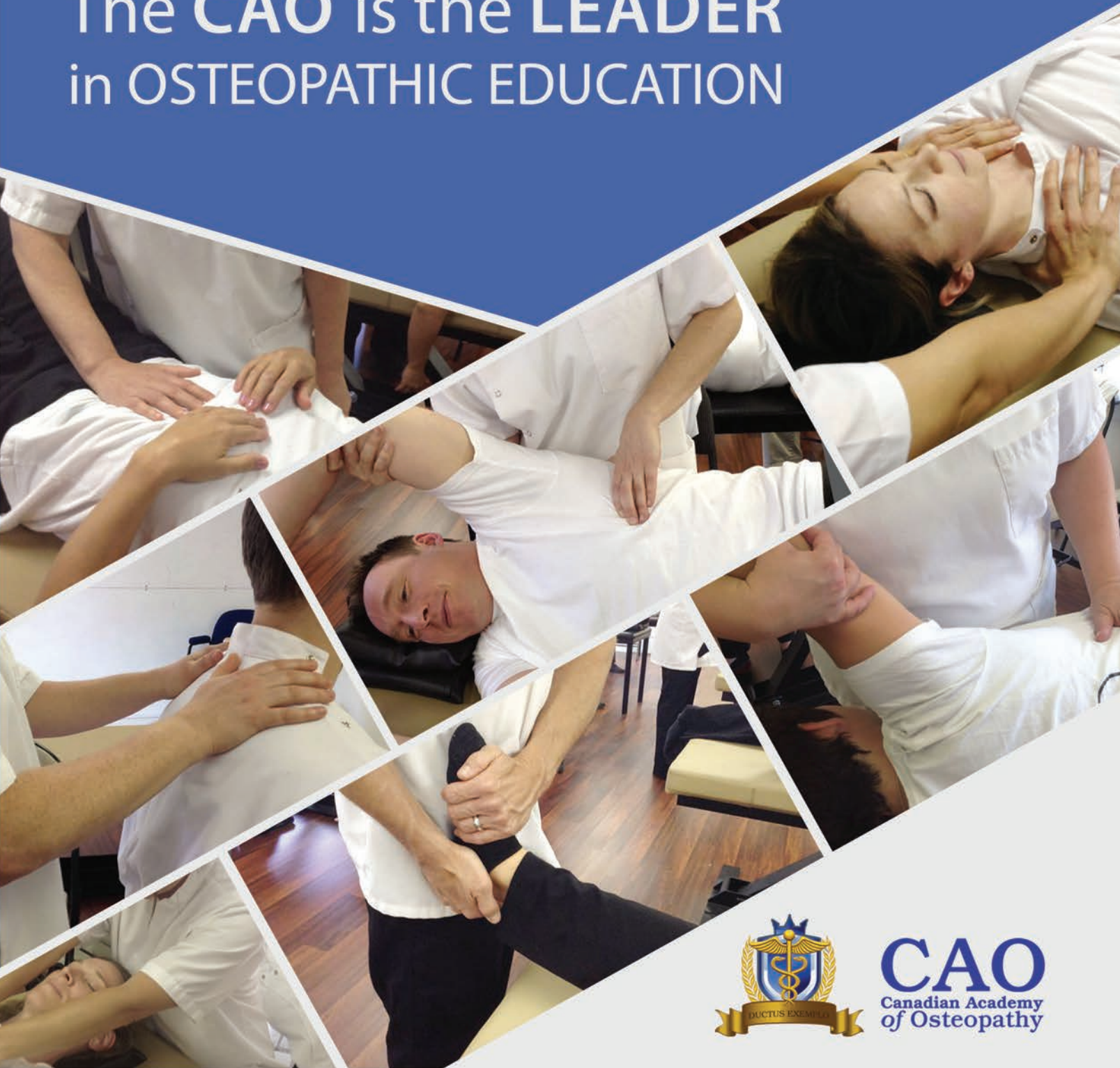
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“The most effective warm-up, while avoiding strength loss, is likely task-mimicking dynamic stretches prior to work or play.”

word change will let them understand that moving better overall is of most importance, which means that movement-based dynamic stretches make more sense in the long term.

The most effective warm-up, while avoiding strength loss, is therefore likely to be task-mimicking dynamic stretches prior to work or play. For example, a machine operator might need to use the strength of the full arm from the upper back and neck to the fingers. The prescription will be dynamic, non-resistance movements of the spine and shoulder girdle, all the way to the phalanges. All of these movements can be done at the same time, and the client can progress to actually engaging with the equipment to end the warm-up.

Rehabilitation stretches

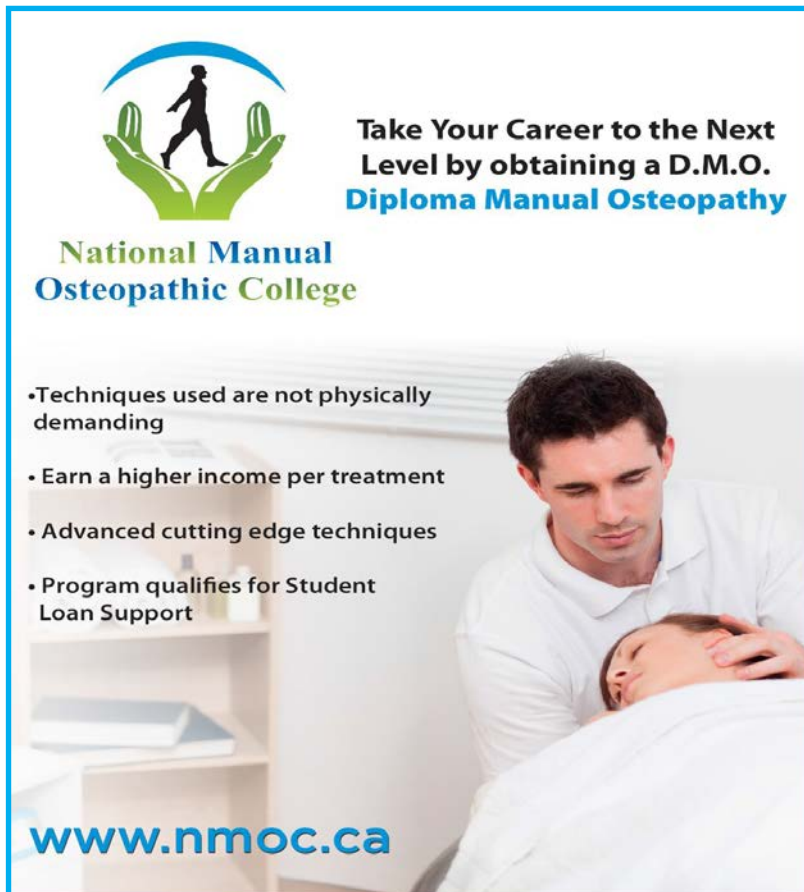
The most common reason for an RMT to prescribe stretches will be rehabilitation. When a client visits us with a complaint of “tight” muscles then we are likely to send them home with stretches to help them reduce said tightness.

If the goal is to simply increase ROM without worrying about strength loss (e.g., when a person is taking time away from work or training) then either static or dynamic stretching will suffice. As stated above, both have been shown to acutely increase the ROM of a patient, so these stretches can be prescribed according to the patient’s preference. Remember that our main goal is to ensure that the patient actually completes the stretches, so if they like one style better than the other, that will be the one to use.

In two studies^{2,3} specifically geared towards the hamstring group, six to eight weeks of participating in a stretching routine was found to be all that was required to achieve an increase in overall flexibility to a degree that was considered sufficient for the average person. If the goal is to create a Cirque Du Soleil performer, then a more involved approach will be needed (12 months of stretching was suggested for such significant changes). But for the average patient who seeks the aid of an RMT, six to eight weeks should be the target for seeing changes. Bear in mind that the type of injury, condition or ailment will have an impact on this timing.

Proprioceptive neuromuscular facilitation did stand out in a 2009 study of different stretching techniques as holding promise for being slightly superior to other techniques in achieving the desired changes in ROM.⁴ This, of course, works well when the patient has access to a partner. Thus, it is a great technique to use in person at scheduled appointments.

Another 2009 study aimed to determine the ability to increase flexibility of the hamstring muscles in people with chronic (longer than three months) pain.⁵ Participants had one leg stretched over a two-week period, while the opposite leg was left alone as a control. Flexibility was measured in a “blind” format (i.e., the tester did not know which leg had been subjected to the stretch therapy). This study found that participants had increased stretch tolerance in the leg that had received the stretching intervention—in other words, the discomfort felt with stretching became more tolerable. Therefore, even though there



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was no difference in flexibility between the bilateral legs after two weeks, the hamstring that received the therapeutic intervention could go through the ROM with less leg discomfort.

In practice, this will allow an RMT to cite evidence suggesting that clients will experience improved tolerance of stretching over a short period, prior to seeing increases in flexibility over the longer term.

Where to go


Even though the evidence does not seem to support some of the traditionally held concepts of when and why to stretch, it does not appear that we should entirely let go of stretches as a part of home care. However, we may need to adjust our “why” for assigning stretches to our patients. In addition, by keeping current with the research, we can show our patients real evidence for why they should stick to their prescribed home care plans. ^{1,2,3}

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Treatment Protocols for Injury: Ice and Rest or Heat and Movement?

By Gord Hughes, RMT

Growing up, everyone knew that if you hurt yourself, you iced the injury. When there was a strained muscle, sprained ligament or any undiagnosed mishap involving sudden pain and swelling, we knew to apply RICE: Rest, ice, compress and elevate. The RICE acronym was drilled into our heads in massage therapy school and has persisted for generations.

More recently, however, a new challenger has entered the arena to claim the throne of first medical-response acronyms, and this one is called METH: Movement, elevation, traction and heat. Other than the “E” for elevation, METH is seemingly diametrically opposed to RICE. As massage therapists, we occasionally have the opportunity to treat clients who have recently injured themselves, so it is important that we understand what is the most sound and scientific medical advice to apply.

History of RICE

In 1978, sports medicine doctor Gabe Mirkin coined the phrase RICE¹. RICE was the acute sprain and strain ruler of every sporting event and gym in North America. Lately, the wisdom of this has been questioned by many trainers, therapists and physiologists, including Dr. Mirkin himself, who has declared that icing in fact delays recovery².

History of METH

The credit for METH, the up-and-coming challenger to RICE, belongs to John Paul

Catanzaro, BSc. Kin, CSEP-CEP, who is a public figure in the personal training industry across North America.

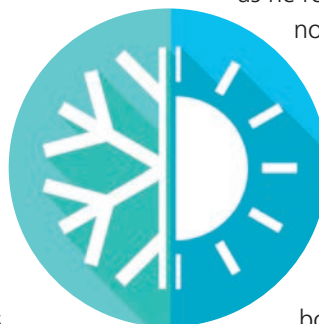
He tells the story of how he was at home in the summer of 2011 when he jumped off of his shed and rolled his ankle. Two hours later he was in severe pain, but instead of doing the RICE protocol he did “METH,” as he refers to it. The next day he had no pain and full movement, and the day after that he was doing a full leg work out³.

As health care professionals we should be looking at the evidence. Before we discount either injury protocol option, we should look at the science of both, comparing each individual component.

Heat vs ice

Why ice?

When Dr. Mirkin popularized ice as a sideline remedy, anyone who applied it seemed to benefit from it, although they probably did not enjoy it. The idea behind ice was to drive swelling away from the site of injury. Swelling was the enemy—it would cause pain and loss of range of motion, and prevent healing. Science has had a lot to say about this, and the reality is that ice does *not* decrease the healing time of any sprain or strain. In fact, the argument is being put forth that it may in fact prevent the inflammatory process from happening and thereby slow the healing process. Dr. Mirkin mentions the evidence for this



Gord Hughes, RMT, BA, BEd, has been a massage therapist for more than 20 years. He previously taught for six years in the massage program at Lambton College, and has been enjoying teaching at Fanshawe College in London, Ontario, for the last two years. Originally from Vancouver Island, he was on the Canadian national rowing team a lifetime ago.

in an article², and no longer recommends ice as a way to promote healing. So it would seem that icing is out. But wait. At the very end of the same article he mentions that applying ice to the injury site has an analgesic effect and that ice certainly can be applied for pain relief! He is not anti-ice when it comes to applying it for the purposes of pain control, which is a very important component when you're on the receiving end of the injury.

Inflammation and swelling are not the same thing. It is very easy to think that swelling equals inflammation, or inflammation equals swelling. The inflammatory process is reasonably well understood and, in the case of an acute injury, swelling is a sign that an inflammatory process has occurred or is occurring. Inflammation is a necessary part of healing and it should not be slowed down, but rather encouraged. However, the by-products of swelling can compress nervous tissue, create pain, reduce mobility

and be a general downer for anyone who has joint effusion.

The goal then is to reduce swelling without interfering with the inflammatory process. And in fact, most of the interventions mentioned in these acronyms are trying to reduce either pain or swelling, and not inflammation.

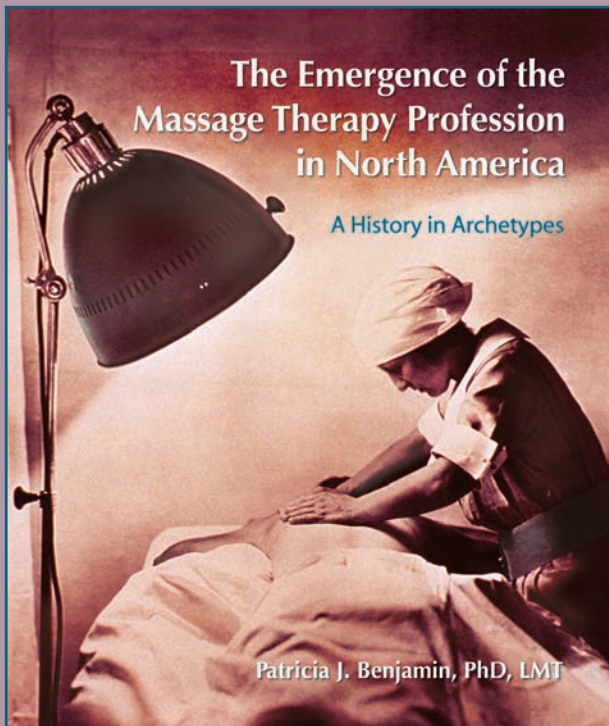
Why heat?

One could reason that if the inflammatory process is an integral part of healing then why not increase inflammation to speed healing? Applying heat would seem a reasonable way to do this. However, the science is as shaky here as it is for ice.

As the vast majority of hydrotherapy resources state, heating an area is ideal for injuries that have become chronic and are no longer going through inflammation. We are trying to make mature scar tissue more malleable, so the person is less aware that it is there. Of course, you can never get

continued on page 22

“Before we discount either injury protocol option, we should look at the science of both and compare each individual component.”



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“Heating an area is ideal for injuries that have become chronic and are no longer going through inflammation.”

rid of scar tissue once it is there.

Heat seems to be another good way to temporarily reduce pain, and that is reason enough to use it, just as for ice. However, applying heat to an area filled with swelling may promote more swelling. This can compress the tissues in the area and cause more pain, so over-heating an area may not be of benefit.

Compression vs traction

Why compression?

For the same reason that ice was used to prevent an area from becoming swollen, it was also common practice to wrap up a recent sprain or strain in order to prevent swelling. Anyone who has sprained an ankle and later taken off their shoe will notice that the ankle then swells up as the compression force of the shoe previously prevented it from doing so. Using the same reasoning that inflammation is a necessary part of healing, this sort of compression is

ill-advised. However, our bodies will often overreact to an injury, and there is definitely cause for concern for a joint that becomes so infused with swelling that it presses on the nerves and arteries and generally causes pain.

Why traction?

Catanzano states in his article that “movement with traction reduces pain, enhances lymphatic removal of inflammation, improves flexibility, and restores normal joint alignment.”³

It is, however, unclear whether traction is being applied at the same time as movement, or if it is just traction applied by itself. “Mobilization with Movement” treatment, a theory first explained by Mulligan⁴ and primarily used to create movement in a chronic joint, is generally not advised to be used in acute injuries.

If, however, Catanzano meant a sustained traction mobilization to reduce pain, that will usually be low-grade traction to reduce



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pain and not to challenge the joint structures. This might help with pain and possibly with tissue movement, but any higher grade traction could challenge the injured structure.

Movement vs rest

These two are the most difficult concepts to research. Rest and movement seem polar opposites, but could they be interpreted as being the same thing? Absolutely! Consider a recent ankle sprain—rest could be putting no weight on the ankle, but instead lying with the leg elevated and wiggling the toes and possibly moving the ankle about. Could this not be considered a rest from weight bearing—or could the movement of the toes and ankles be what is meant by the “M” in METH? Likewise, the “M” of METH does not necessarily mean “just keep on running around as usual” after rolling an ankle. It could very well mean to stop weight bearing and do active free ranges of movement within pain limits, which could also be a definition of rest.

When it comes to complete immobilization of a joint or injury, the evidence is clear that this does not promote healing at all, and Mirkin has said that this is the incorrect course of action².


Elevation and elevation

Since both acronyms have elevation as part of them, there is no real argument between the two here. But does that mean we should not question the validity? Simply because the majority of people agree on a course of action does not make it right. It is always important to critically evaluate protocols. Since elevation seems to promote drainage of swelling without preventing the healthy process of inflammation, then it seems for now we have consensus that elevating a limb in order to promote drainage of swelling is a good thing.

Conclusion

A decrease in pain does not mean that healing has been completed. It is important to understand that pain is an output of the brain that can be controlled by many factors. A decrease in pain to zero does not mean that

the tissue has fully healed, just as persistent chronic pain does not indicate that the body still needs to be healed via the inflammatory response. The pain relief components of either the RICE or METH protocols, however, should not be discounted.

The differences between RICE and METH are not as great as they seem when we break down the parts and evaluate the individual components. When it comes to decreasing pain and promoting healing, ice, heat, traction, compression, rest, movement and elevation can all play a role. 

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Stacey Shipwright, BA (Hons), RMT, has a degree in philosophy with an emphasis on applied ethics from Trent University. She graduated from the massage therapy program at Centennial College in 2008, and now teaches part-time at the same institution. She also has a practice in Whitby.

Review of Evidence: Exercise

The Canadian Society for Exercise Physiology (www.csep.ca) recommends that adults should engage in 150 minutes of moderate to vigorous exercise each week in order to achieve health benefits. Achieving this goal becomes difficult when a person has an impairment, injury or chronic condition; however, all individuals can engage in exercise to improve physical function and mental/emotional well-being. Exercise should be an important part of treatment planning to ensure that patients are able to meet their goals.

Effect of stabilization exercise on pain and disability in patients with chronic low back pain

Akoku AK, Akinbo SRA, Odebiyi DO. *Indian J Physiother Occup Ther* 2015;9(2):170–175

Researchers in this study sought to investigate the effect of stabilization exercise on chronic pain and disability in participants with chronic low back pain. A total of 128 participants were randomly assigned to four groups. Group one received stabilization exercise only; group two received stabilization exercise and transcutaneous electrical nerve stimulation (TENS); group three received stabilization exercise, TENS and massage; and group four received drug therapy only. Overall, 122 participants completed the study.

Participants went through their specific group's protocol twice weekly for eight consecutive weeks. Post-intervention assessments of pain severity and functional disability were performed at the end of weeks four and eight.

The results of the study indicate that the use of stabilization exercise reduced pain intensity and functional disability: There were marked improvements in clinical outcomes in groups one, two and three.

To note: the article did not provide a description of the stabilization protocol used, the exercises included,

the treatment duration for TENS and massage therapy or the massage protocol.

Effectiveness of therapeutic exercise in fibromyalgia syndrome: A systematic review and meta-analysis of randomized clinical trials

Sosa-Reina MD, Nunez-Nagy S, Gallego-Izquierdo T, et al. *Biomed Res Int* 2017;2017:2356346

The aim of this meta-analysis was to summarize evidence on the effectiveness of therapeutic exercise in people with fibromyalgia syndrome (FMS). Researchers reviewed publications retrieved from the PEDro, PubMed and Cochrane Plus databases. The search terms used were "fibromyalgia," "physical activity," "exercise" and "exercise therapy." Articles were included if they described randomized clinical trials that compared different types of therapeutic exercise, included adults with FMS, used aerobic, strengthening or stretching exercises, compared the effects of at least one type of exercise with a control treatment and assessed at least one domain of FMS symptoms (pain, depression, global well-being or health-related quality of life). After examining and reading full-text articles, 14 were included

in quantitative analyses and 16 in qualitative analyses.

In total, 715 participants were studied before and after treatment. Almost all participants were women. Interventions included aerobic exercise, muscle strengthening and a combination of types of exercise. Control groups performed relaxation, balance or low-intensity aerobic exercises, or received standard care. Pain, FMS severity, depression and health-related quality of life were measured.

The results of the meta-analysis indicate that aerobic exercise for 30–60 minutes two to three times per week for a period of four to six months and muscle-strengthening exercises seem to be the most effective in decreasing the pain and severity of FMS. Stretching and aerobic exercise can improve the physical and mental components of health-related quality of life. Combined exercise programs (aerobic exercise, muscle strengthening and stretching) performed for 45–60 minutes two or three times per week for three to six months seem to be the most effective in reducing symptoms of depression.

The researchers concluded that exercise is beneficial for people with FMS, but were unable to draw conclusions about what type of exercise is most effective.

Comparison of manual therapy and exercise therapy for postural hyperkyphosis:

**A randomized clinical trial
Kamali F, Shirazi SA, Ebrahimi S, et al. *Physiother Theory Pract* 2016;32(2):92–97**

The aim of this randomized clinical trial was to compare the efficacy of a manual therapy with that of an exercise therapy program in improving postural hyperkyphosis in young women aged 18–30 years. The participants were randomly assigned to exercise or manual therapy after a baseline assessment. A total of 46 women were recruited into the study.

The angle of kyphosis was measured using a six-camera motion-analysis system with reflective markers at four anatomical locations. A therapist who was blinded to the treatment groups recorded the posture (relaxed and upright) of each participant. Back extensor muscle strength was measured using a digital dynamometer and a custom-built device connected to the dynamometer belt.

The participants in the exercise therapy group performed 25 sessions of stretching and strengthening exercises during a five-week period. Each exercise session lasted 20–30 minutes. The exercise therapy protocol consisted of stretching the pectoralis major, extensor muscles and latissimus dorsi, and strengthening the anterior neck flexors and back extensor muscles.

The manual therapy group received 15 sessions of manual techniques including massage, mobilizations, muscle energy and myofascial release. The manual therapy sessions also lasted 20–30 minutes. The manual therapy protocol consisted of massage (wringing and skin rolling to the back extensor muscles for 10 minutes), mobilization of the spinous process of the thoracic vertebrae using grade four mobilization with 10 repetitions

on all thoracic vertebrae and 40 repetitions on the middle thoracic spine, muscle energy with resisted effort for five to seven seconds performed five times per session, and myofascial release on the paravertebral area.

Of the 46 women in the study, 39 completed the treatments. After the treatments, the kyphosis angle in the relaxed and upright sitting positions was reduced and back extensor muscle strength was significantly increased in both the manual therapy and exercise groups.

The researchers highlighted several limitations, including the participation of young women only. The results cannot be generalized to men or older populations. There was also no follow-up assessment to determine medium- or long-term changes.

Comparative effects of proprioceptive and isometric exercises on pain intensity and difficulty in patients with knee osteoarthritis:


**A randomised control study
Ojoawo AO, Olaogun M, Hassan MA. *Technol Health Care* 2016;24(6):853–863**

Researchers in this study examined the efficacy of proprioceptive and strengthening exercises on pain and physical difficulties among patients with knee osteoarthritis. After screening, 50 participants were recruited to the study. Inclusion criteria included men and women with a diagnosis of knee osteoarthritis with symptoms of pain, stiffness and functional difficulty of not less than six weeks' duration. Individuals with osteoporosis, acute inflammation with a history of traumatic injury or surgery of the knee joint were excluded. Each participant was randomized to one of two groups: Group A engaged in proprioceptive exercises and group B

conducted isometric exercises.

Tools used in the study included an overhead infrared lamp, standard weights ranging from two to five kilograms and the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) questionnaire. Each patient was treated twice weekly for six weeks. The WOMAC questionnaire was used to assess the pain intensity, joint stiffness and physical difficulty of patients pre-treatment and after each treatment session. Patients in group A received infrared radiation and proprioceptive exercises, while those in group B received infrared radiation and isometric exercises.

Group A exercises included a one-leg balance, which was held for one minute followed by rest for 10–20 seconds and was repeated twice for the affected and unaffected legs. A blind advanced one-leg balance was also used, in which the eyes were closed during the exercise. This exercise was again repeated twice for the affected and unaffected legs. Group B exercises included isometric quadriceps strengthening with the ankle in dorsiflexion and standard weights hung with a bag on the ankle joint. Subjects were asked to sustain knee-joint extension with the ankle in dorsiflexion. Participants were allowed to rest for six seconds, and repeated the same procedure 10 times.

The results indicated that there were no significant differences in pre-intervention physical characteristics, pain intensity, joint stiffness or physical difficulties between the two groups. However, the researchers observed significantly greater decreases in pain intensity and physical difficulties in group A compared with group B after six weeks. This could indicate that proprioceptive exercise reduces pain intensity and physical difficulties faster than isometric exercise. 

Tracy Lovitt, RMT, is based in a Toronto chiropractic clinic where the team's focus is on chronic pain, injury prevention and rehabilitation. She has practised in various clinic settings for more than ten years and has been a long-standing member of the RMTAO. In addition, Tracy has served on the Board of Directors for the RMTAO as a Director and Board Secretary between 2013-2016.



Member Spotlight

Tracy Lovitt

By **Laura Fixman**

Tracy Lovitt has been a Registered Massage Therapist since 2007 but she never misses an opportunity to learn. She recognizes the healing value and comfort that her skills bring to patients each and every day.

Why did I choose to become an RMT?

I chose to become an RMT at a time in my life that was a transitional point. The career path I had built straight out of university had evolved into a work-life schedule that was quite hectic and very demanding. It was after having a young family, that I decided to take a look at my career and revisit what I felt was important.

Becoming an RMT was a natural choice for me as I had lead quite an active life growing up through sport and dance. As well, I had always been a bit of a science nerd who was fascinated by the human body.

Was there a specific event or time in your life that influenced your decision?

When I got bodywork after having my first child, I realized the power and efficacy of what can be achieved to resolve injury and chronic pain.

In retrospect, making the choice to become an RMT was very clear, and it continues to crystalize and evolve as I gain more experience working both in the treatment room and in the healthcare field.

Any regrets?

None. I have never mourned my old career or thought it was the wrong path. If anything, I look back with gratitude and thanks, realizing that sometimes simply taking a chance and making the leap leads you in the right direction.

What do you like best about your job?

I enjoy many aspects of being an RMT but for me the diversity and flexibility it offers is key. I can comfortably separate my work and family life. Now I have no trouble switching gears when I walk in the door to greet the kids.

As therapists, we can take on new challenges, continuously learn and develop our own approaches to treatment.

Mostly though, as cliché as it sounds, I love playing a valuable role in people's lives. It's the impetus for me to go to work everyday.

Do you feel a responsibility to help your patients with their overall well-being?

Absolutely. We have a duty to our patients to bring a balanced approach of knowledge, professionalism and

empathy into the treatment room. This I find appealing not only as a therapist, but as a human.

What do you do in your spare time?

I've built my career around time with kids, family and friends, laughing, living in the moment and letting it all go. I love yoga, music, big walks, working out and bustin' disco moves at kitchen dance parties.

What would you say to new RMT's?

Stay open and curious. Ask questions. Be aware that your real learning has just begun. We've all been there. Know that you will gradually gain the confidence and success that goes with it.

Why did you choose to join the RMTAO?

I became a member straight out of the OSCE exams in the lobby of the CMTO building. I was a keener and wanted to make a difference. Membership helped me stay current, connected and act as a strong advocate for my patients. It also set me on the right path straight out of the gate. Being a member has only enriched and benefited my RMT experience. ■

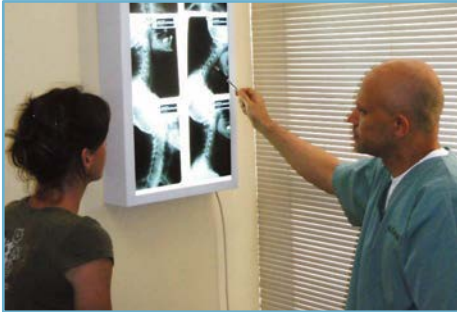


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- This intensive and comprehensive program consists of three-day thematic modules conveniently held on weekends, seven times per year, allowing students to maintain their current work schedules while obtaining an osteopathic education.
- The SOCO program has formatted modules into specific topics which cover osteopathic theory and practice, with an additional focus on hands-on training. Students leave each module with an additional skill set that can be directly integrated into their current practice. SOCO also allows students to attend individual modules on their topic of choice for continuing education.
- At SOCO, by emphasizing the appropriate clinical application of techniques, we aim to develop exceptional clinicians above theorists. Students participate in 320 hours of clinical training, including clinical sessions with public clients in preparation for a successful osteopathic practice.
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- Graduates will become members of the Ontario Federation of Osteopathic Professionals or the National Manual Osteopathic Society, allowing insurance billing and reimbursement for clients.

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- Lymphatic System – **September 14-16, 2018**
- Understanding the Principles of Osteopathy – **September 28-30, 2018**
- Central and Peripheral Nervous System – **October 12-14, 2018**
- Lumbar Region – **October 19-21, 2018**
- Advanced Cranial Therapy (Part 3) – **November 9-11, 2018**
- Pelvic Region – **November 16-18, 2018**

For a full list of the courses or additional information please visit:

www.clinicalosteopathy.com. For registration or any inquiries please contact **905-916-SOCO (7626)** or **info@clinicalosteopathy.com**

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The scope of the Program is beyond simple needle insertion; it provides the practitioner with a unique framework for assessment and treatment. The Neurofunctional Operating System has been shown to consistently generate clinical results above and beyond traditional treatment models.

This course exceeded my expectations. I believe that I received the most advanced acupuncture training being offered today, provided by a team of instructors that bring a wealth of technical and practical knowledge to the program. I also appreciate feeling that I am part of a broader community of practitioners that continues to provide support, education, and advocacy.

Given G. Cortes, RMT, Little Current, ON

This course was exactly what I had been looking for – it was challenging, motivating and interactive. I was able to implement new skills and concepts learned immediately after the first unit and two years later I am still evolving and expanding my treatments combining acupuncture and massage therapy. Best of all, graduates have access to ongoing support and feedback from clinical instructors and staff, which I have found to be priceless.

Tonia Nisbet, RMT, Sarnia, ON

The McMaster Contemporary Medical Acupuncture program provides a modern medical interpretation of an age old treatment modality, helping to explain some of the mysticism associated with traditional acupuncture. The integration of acupuncture with modern neurophysiological concepts, neuroanatomy, functional assessment and evidence based protocols provided me with a wealth of practical knowledge that could be immediately integrated into my practice with astonishing results. The clarity, content and presentation of the curriculum, as well as the faculty, are second to none. Classroom lectures, practical workshops with countless supervised needle insertions and invaluable hands-on anatomy lab instruction created a well-rounded educational experience that left me feeling completely confident in my abilities. I can't say enough about your program! I will definitely be back for your advanced courses.

Ken Ansell, RMT, Regina, SK

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UNIT 2 - September 28-29-30, 2018

Upper Extremity Problems - Acute Pain

UNIT 3 - October 19-20-21, 2018

Axial Skeletal Problems - Visceral Regulation

UNIT 4 - November 9-10-11, 2018

Head & Face Problems - Chronic Pain Syndromes

UNIT 5 - Nov 30, Dec 1-2, 2018

Lower Extremity Problems - Integrated Mgmt.

Registration Deadline Aug 10, 2018

The McMaster Contemporary Acupuncture Program meets the requirements of the College of Massage Therapists of Ontario



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