

Functional Fascial Taping® Research

By Ron Alexander

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Distract Tissue and Apply Load.

FFT® is a rapid and effective way to decrease pain, assist function and allow rehabilitation to commence in a pain free environment. Clinically, FFT can be used to determine Soft Tissue Dysfunction in the musculoskeletal conditions with a high degree of accuracy. This article will discuss the overview and results of a research project on the effects of FFT on non-specific low back pain which was the subject of Shu-Mei Chen's PhD at Deakin University and was supervised by Professors Jill Cook and Sing Ky Lo. Shu-Mei Chen and Ron Alexander were the clinical investigators and the outcome assessor was Shu-Mei. This study was published in the Journal of Clinical Rehabilitation October 2012⁽¹⁾.

Background

Non-specific Low Back Pain (NSLBP) is a common musculoskeletal disorder with a high lifetime prevalence and high rate of recurrence.⁽²⁾ Pain can hinder movement and disturb neuromuscular activity and motor control and thus affect function.⁽³⁾ Individuals with chronic pain can experience further disability due to psycho-social problems that result in personal and societal economic burdens.⁽⁴⁾ Limiting pain in magnitude and time is therefore likely to minimize or reverse the negative consequences of NSLBP. After an acute low back episode 90% of people will get better after 6 weeks regardless of treatment, 10% will go on to have pain for 12 months. Patients cannot be given a clear diagnosis and do not present with signs on imaging. Eighty-five percent of back pain patients fall within this group.

How is FFT different to other taping techniques?

The taping has 2 components - Assessment and Application⁽⁵⁾. The assessment procedure follows the standard clinical processes of test, intervene and re-test. This procedure is guided by the patient's symptoms and allows for continual reassessment as symptoms decrease. This test has pain specific direction variability. The assessment intervention is performed in the pain provocative position and is determined by the optimal direction of ease. It is a systematic process distracting the skin and underlying tissue, with a graded tangential force directly over the pain. This is similar to the approach of Andrew Taylor Still (1828-1917), the founder of Osteopathy. Then whilst still in that range and with positive change, we observe if an increase in range is possible. The right direction takes in a number of factors and multiple vectors can be used.

Tape application aims to create a graded load (tension) to tissues and employs a gathering technique to directly tighten the skin and the tissue below to change the tissue slack and to possibly affect the deeper structures. The rigid tape width is half the standard size of 38mm, halving it makes the tape tighter. This comes about by decreasing area, which increases force and creates more pressure, in this case the pressure is tension. Resulting in greater load on the tissues, this aims to offer a specific vector force away from the pain, in the direction predetermined by the assessment. The application may sound like it may decrease range of motion, however it does not, and it actually has a fascilitory effect on range in most cases. After these 2 stages are performed patients/athletes have pain relief and tension/load to tissues during daily activities or exercise for an extended and predetermined period of time.

Research Methods

This pilot study design was a randomised, placebo-controlled trial comparing the effect of FFT with Sham Taping or Control Group during a 2-week intervention with 2, 6, and 12 week follow-up.

Forty three participants were recruited from the general population, with a flexion deficit. All baseline characteristics were similar within and between the groups FFT (n = 21) and Sham/Control (n = 22). We used what is considered to be the best prognostic measures for investigating Low Back Pain (LBP) which was the result of a systematic review conducted by Shu-Mei and later confirmed from a presentation by LBP expert Professor Bogduk at a Melbourne Conference. The study had 2 people in both groups drop out in the first 2 weeks and a further 2 in the FFT group within 6 weeks.

The treatment procedure was standard between the 2 groups except for how the rigid tape was applied. Lumbar flexion exercises were given in the 2nd week and a manual for skin care was provided to all participants. Both groups were treated 4 times over a 2 week period. Patients were to keep the tape on and was tightened daily. After 2 weeks the tape was removed.

In treatment sessions 2, 3 and 4, the patients in both groups went into trunk flexion, in the pain provocative position and the same tape procedures as in session 1 were applied. The results from the study are far too detailed for this article, so an overview will be provided.

Results

We used a statistical analysis called ANOVA (Analysis of Variance), to observe the results of a number of the prognostic indicators for LBP. The analysis looked at 5 repeated measures to detect change in pain and func-

tion, within and between the treatment groups, over the duration of the study, expressed as an effect size and compared with baseline (start of the project). The measures were used so we can confirm our findings/data a number of times. The results from the study showed the FFT group demonstrated significantly greater reduction in worst pain compared to the control group after the 2 week intervention. The study was set so that the *p*-value had to show less than a 0.05 for clinical significance (meaning that there is less than 5% probability of getting a no effect). At the end of the trial the *p*-value result was 0.02. This number indicates that 2% of the time change may have occurred through chance with a 98% certainty that it was the intervention (FFT) that had created change. The study was also set to show a greater than 0.5 *effect size* (a measure of the strength of the treatment) for clinical significance. The result was 0.74 which means that the effect from FFT is very large and a powerful treatment. There were an additional 2 measures to test our findings, both of which confirmed that FFT was clinically significant for reducing worst pain.

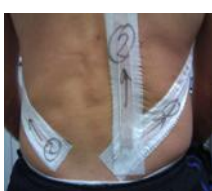
The same ANOVA analysis was applied to the *modified Oswestery disability index questionnaire* [mODI] to observe change in function. Although the data showed higher numbers in the FFT group, it was not clinically significant. The results from this data may have been underpowered at this stage due to the dropouts. If we had better adherence to treatment or if we had higher number of participants, we believe that greater change would have occurred and been detected. There were no significant differences between the 2 groups in relation to average pain at any time periods.

The study also looked at pain intensity, function and used a calculation called *Minimal Clinical Important Difference* (MCID). Although the name uses the word 'minimal', it's actually an important calculation and used in various research projects. For example, if a patient presents with 7/10 pain and after treatment the symptoms are reduced by more than 2, so less than 5/10, this means that they have attained MCID, i.e. intense pain reduced to comfortable pain. In order to confirm clinical relevance the study had to show less than 0.05 *p*-value. The data showed that in the FFT Group, 17 people attained and 4 did not attain MCID. Within the control group, 9 attained and 11 did not. Therefore a higher proportion of patients in FFT group attained MCID in worst pain [0.007 *p*-value] and function [0.007 *p*-value] than did those in the control group after the 2-week intervention.



Sham/Control, Session 1

- Sit, pain provocative position.
- Measure pain region, sham calculations performed, patients potentially thought the procedure looked technical.
- Apply white and rigid tape, by placing tape over the measured area.
- Rigid Tape 1/2 width wide.



FFT Group, Session 1

- Sit, pain provocative position.
- Assessed tissue directionally specific.
- Apply white and rigid tape 1/2 width wide, FFT gathering technique.
- 2nd week flexion exercises.



FFT treatment group in session 2.



Sham treatment group in session 2.

Why did the 4 dropouts occur in the FFT Group? One patient had soft tissue pain reduction which revealed an underlying osseous pathology which required surgery. One person thought they were in the placebo/sham group and dropped out and 2 patients got better. These 2 learnt how to apply FFT and dropped out. The Principal Supervisor Jill Cook, explained that their data was to be recorded as a nil result and had to stay in the data. This was because the intention to treat analysis had been used, which meant that anyone who enters the study and drops out for any reason must be recorded as nil or no result from either taping group. On the day that the 4th person, dropped out (2nd pain free patient), I went for a nice long walk.

Taking the focus away from patient compliance for a moment and looking at those who remained in the study, we can look at what was truly happening. Of the people who stayed in the study, we had in the FFT group 17 people out of 17, or 100% who attained positive MCID. The result for the control group was 50%. Even with the dropouts we have still shown an amazing result at 0.007 *p*-values for both pain intensity and function. This score means that if the project was repeated 1000 times then a similar result would be achieved for 993 times. Clinically for practitioners this indicates that by decreasing pain we increase function. We can confidently state that this was a real effect and not simply a matter of chance. Over the following weeks the patients within the FFT Group continued to show the same consistent results, however the control group started to show improvement. This can be the natural occurring effect due to patient expectation to treatment. Even with the tape being placed on the body we would have proprioceptive input and subtle load, especially when they moved into trunk flexion. (For

more information about the role of placebos in research, see an article by Bianca Nogrady, Placebos more effective than mere sugar pills. www.abc.net.au/health/features/stories/2013/11/11/3888346.htm)

Discussion

In clinical practice we know that NSLBP is a complex musculoskeletal condition and that it can be multifactorial in nature. As clinicians we need to know if individual treatments are effective as well as when to use these. In this study, we looked at FFT and trunk flexion, in a normal practice, of course, you would be using other treatments and thus potentially achieve better results. Numerous reasons can contribute to NSLBP such as computer set up, smoking and psychosocial factors etc. Whilst NSLBP evidence based treatments are lacking⁽⁶⁾, massage^(7,8) has been shown to be effective however this is limited to the hands on session. FFT allows the treatment to work for a longer period of time. I am definitely not saying that we don't ever need to do massage/soft tissue work, however clinicians can be more effective by incorporating FFT as it can be left on for hours and reapplied for days or weeks if need be. The data from this study demonstrates that a window of opportunity is created by the use of FFT. The patient experiences a rapid decrease in pain and an increase in function, the patient is encouraged to go back into the previous pain range and this potentially creates decreased apprehension of pain. This elevates the patient's mood and speeds recovery because you can start rehabilitation earlier than is usually the case. An additional benefit is that the rehabilitation is being performed in a pain free environment. It may also now provide an opportunity to refer patients who have other contributing factors that are out of the scope of Manual

Therapists, as the patient may be more receptive to change.

What could be happening to the body?

It is still not a thorough understanding of the mechanism by which any taping technique creates change⁽⁹⁾. Our hypothesis for this study was limited to what could be taking place physiologically. The FFT assessment procedure has pain specific direction variability, which may indicate the Neuro-Fascial Interface. This may stimulate large-diameter afferent fibres and then modulate nociceptor input (Gate control mechanism). The load from tape could potentially change the sliding of fascial tissues relative to tissues next to them. The load from the tape may also potentially affect the skin and/or remodel the internal architecture of connective tissue^(9,10), this may include changing mechanoreceptor activation⁽¹¹⁾. This hypothesis was supported by a paper on Motor Synchronisation that investigated the knee⁽¹²⁾, the same principles can be translated to the back. Further research to investigate the potential mechanisms of how FFT could affect pain perception is required.

We conducted an interesting experiment this year at the AAMT conference. Let me explain as some of you may have taken part and not realized it. I presented FFT at the AAMT conference in Adelaide, May 2013. I also presented twice a 3 hr workshop at the Conference and we had 60 people in each. I presented a lecture, followed by a demonstration and then taught everyone the elementary steps of the technique. I then had participants do an unbiased neural tension test in the arm, because not everyone is going to have a positive neural tension test and I wanted them perform an objective exercise. Most therapists are Neuro-Fascially tight in the arms because of the way they work. From experience I know that this test produces some pretty obvious Neural-Fascial Symptoms, in asymptomatic people and we can observe a decrease in pain and an increase in range. If anyone didn't have discomfort doing this they were to choose an area in their hypermobile body (one or two in every crowd) that either produced pain or was uncomfortable. Each person had 20 minutes to perform the assessment and tape application. After the second workshop, 120 people had performed the exercise. Of these 120 people, 100% had experienced a decrease in symptoms and an increase range of motion. This exercise was repeated at the World Congress on Low Back and Pelvic Pain, in Dubai October 2013, on 48 people with 100% result. Our data from our RCT on FFT for NSLBP supports what we had observed at the 2 Conferences and is confirmed at almost all FFT work-

shops. These consistent results indicate that the effect from FFT is predictable, in that you can have an effect in a large number of cases. Although there are situations where it doesn't work, it is evidence-based, it is a relatively simple technique and it provides immediate results.

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Ron Alexander is the Director/Founder of the Functional Fascial Taping Institute. FFT was refined over eight years service as the Principal Soft Tissue Therapist [Musculoskeletal] for The Australian Ballet. During this time he was awarded the Lady Southey Scholarship for Excellence from the Australian Ballet Foundation. More recently he was a co-investigator of Randomised Double Blind Placebo Controlled Trial of FFT for Non-Specific Low Back Pain (PhD) Deakin University, Melbourne, Australia. Ron has an interest in chronic pathologies, continues to research the effects of FFT.

Read 6 Questions to Ron on page 50.