END RANGE LOADING: FORENSICS
David De Camillis

In this paper, I will narrow the definition of forensics to the writing and the defending of a medical legal report. I feel it germane to write such a paper for two reasons. Many of you are familiar with my previous articles in 'Massage Matters' and so apply some of the procedures. You may be asked to write a report on a patient or you may be asked to assess and write a report on a non-patient.

I do not claim to be an expert in the law. The material presented here is common sense and is simple.

The main idea of medical reports is too help either the courts or the third party payers in understanding the cause of the injury, how much disability and discomfort the patient has gone through, is going through and will be going through. How heavily third parties depend on your report is largely determined by how valid it is.

Generally speaking, we really are not considered as classic expert witnesses. Third party payers and the courts are not apt to rely heavily on what we write. There are two circumstances, however, that are the exception: if you have known the patient for a long period of time prior to the injury and can instinctively see a change in that person after the trauma, if the patient improves under your therapy and you can state why in an evidenced-based manner.

The following is an example of such a report. The names and addresses have been changed. The diagnosis is unique and evidence-based. The patient's changes are objective. The diagnosis and treatment were based on the fundamentals of end-range loading and the lack of blood flow to involved structures.

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January 8, 2011

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Attention: Stephen C. M. Kang

Dear Mr. Kang:

RE: Smithed, Arron
DOB – June 4, 1975
MVA Date: June 10, 2007

I THE REPORT

The following is a medical-legal report prepared at your request with respect to Mr. Arron Smithed. He was seen in my office on the following dates:

Office Visits (massage therapy):
May 12, 13, 14, 18, 25, December 3, 6, 8, 10, 13, 15, 24, 31, 2010

The nature of this report is a history, examination and treatment, and an opinion. The opinion will include a diagnosis and will conform to the instructions given in section IV of this report. The history relies on the interviews with Mr. Smithed. The examination and trial of therapy will include a mechanical assessment of him and will comprise of spinal loading strategies and muscle stretching. Any documentation reviewed will be named in the body of this report. This report is based on the history, my examinations, and his response to my treatments.

II CERTIFICATION

I am aware that I have a duty to assist the court and not be an advocate for any party. I have prepared this report in conformity with my duty to the court. If I am called upon to give oral or written testimony in relation to this matter, I will give that testimony in conformity with my duty to the court.

I certify that I am the sole author of this report and the opinion contained herein. I have copied parts of the instructing letter that I received from the instructing lawyer into this report.

III QUALIFICATIONS

I am Dr. David Jones, RMT. I maintain an office at Suite 111 – 222 Sixth Street New Westminster, B.C. I am a registered massage therapist. I graduated from the West Coast College of Massage Therapy in 1977. I am in good standing in both the Massage Therapy Association of BC and the British Columbia College of Massage Therapists. I've been full time practicing in New Westminster over thirty-two years. My updated Curriculum Vitae is attached as Appendix "B" to this report.

IV INSTRUCTIONS

You have instructed me as follows:

Opinion Requested

Please provide us with your professional opinion regarding the following issues:

1. What are the nature and extent of the patient's injuries and/or conditions?

2. What is the likelihood that the above-noted accident caused or materially contributed to the patient's injuries and/or conditions?

3. Did the patient have pre-existing injuries and/or medical conditions that were aggravated or made symptomatic by the accident? If so, please consider the following questions:
   - Would the pre-existing injuries or conditions have produced the effects the patient has experienced since the accident even if the accident had not occurred?
   - Is there a measurable risk that the pre-existing injuries or conditions would have detrimentally affected the patient in the future even if the accident had not occurred?

4. What is your prognosis with respect to the patient's full recovery from the injuries and/or conditions sustained as a result of the accident?
   - If your prognosis is guarded, kindly explain why.
   - If a follow up assessments is required in order to clarify the patient's prognosis, kindly indicate so in your report.
   - If the patient is likely to recover within a certain period of time, kindly delineate the period and describe any factors that may inhibit or prolong the patient's recovery.

5. Kindly comment on any period of functional and vocational disability arising from the injuries sustained as a result of the accident.

6. What is the likelihood of the patient being impaired and/or disabled as a result of the injuries sustained in the accident? To what extent is the patient likely to be disabled?

7. What is the likelihood of the patient requiring surgery, additional treatments, therapies, medication, equipment or devices to address the accident-related injuries and/or condition?
   - If applicable, kindly set out the kind and anticipated duration of the recommended treatments.
   - Kindly explain the anticipated benefits of the recommended treatments, the cost of same and whether the treatments are covered by the Medical Services Plan.

8. What is the likelihood of other medical conditions or health problems arising in the future as a result of the injuries sustained as a result of the incident?

9. Kindly advise if further medical imaging would assist in providing a diagnosis or prognosis for this patient. Kindly provide your recommendations for same.

For greater clarity and transparency, I attach a copy of your instructing letter as Appendix “A” to this report.

V RESEARCH

I engaged in the following research for the purposes of this report:

I searched the literature and reviewed articles regarding the hypothesis of lack of oxygen resulting in chronic degenerative conditions. The citations of these articles are,

1) Abele H., Pieper K.S., Herrmann M. Morphological investigations of connective tissue structures in the region of the nervus occipitalis major, Funct Neurol. 1999 Jul-Sept;14(3): 167-170.

2) Blunden A., Dyson S., Murray R., Schramme M. Histopathology in horses with chronic palmar foot pain and age-matched controls. Part 2: The deep digital flexor tendon, Equine Vet J. 2006 Jan;38(1): 23-7.

3) Bowker R.M., Atkinson P.J., Atkinson T.S., Haut R.C. Effect of contact stress in bones of the distal interphalangeal joint on microscopic changes in articular cartilage and ligaments, Am J Vet Res. 2001 Jun; 62(6): 827.

4) Corps A.N., Jones G.C., et. al. The regulation of aggrecanase ADAMTS-4 expression in human Achilles tendon and tendon-derived cells, Matrix Biol. 2008 June; 27(5):393-401. Epub 2008 Apr 2.

5) Corps A.N., Robinson A.H., Movin T., Costa M.L., Hazleman B.L., Riley G.P. Increased expression of aggrecan and biglycan mRNA in Achilles tendinopathy, Rheumatology (Oxford). 2006 Mar; 45(3): 291-4. Epub 2005 Oct 11.

6) Freemont A.J., Jeziorska M., Hoyland J.A., Rooney P., Kumar S. Mast cells in the pathogenesis of chronic back pain: a hypothesis, The Journal of Pathology, July 2002; Vol 197(3):281-285(5).

7) Fu S.C., Chan K.M., Rolf C.G. Increased deposition of sulfated glycosaminoglycans in human patellar tendinopathy. Clin J Sport Med. 2007 Mar;17(2):129-34.

8) Kirpatrick N.D., Andreou S., Hoying J.B., Utzinger U. Live imaging of collagen remodeling during angiogenesis, Am J Physiol Heart Circ Physiol. 2007 Jun; 292(6):H3198-206. Epub 2007 Feb 16.

9) Koike Y., Uzuki M., Kokubun S., Sawai T. Angiogenesis and inflammatory cell infiltration in lumbar disc herniation, Spine, 2003 Sep 1; 28(17):1928-33.

10) Krishnan L., Underwood C.J., Maas S., Ellis B.J., Kode T.C., Hoying J.B., Weiss J.A. Effect of mechanical boundary conditions on orientation of angiogenic microvessels, Cardiovasc Res. 2008 May 1; 78(2):324-32. Epub 2008 Feb 28.

11) Kuslich S., Ulstrom C., Michael C. The tissue origin of low back pain and sciatica: Orthopedic clinics of North America 1991 Apr. Vol. 22, No. 2:181-187.

12) Mammoto T., Seerattan R.A., Paulson K.D., Leonard C.A., Bray R.C., Salo P.T. Nerve growth factor improves ligament healing, J Orthop Res. 2008 Jul; 26(7): 957-64.

13) Millesi H., Zoch G., Reihsner R. Mechanical properties of peripheral nerves, Clin Orthop.1995 May;(314):76-83.

14) Mooney V. Overuse syndromes of the upper extremity: Rational and effective treatment, The Journal of Musculoskeletal Medicine, August 1998; 11-15.

15) Palmgren T., Gronblad M., et. al. An immunohistochemical study of nerve structures in the annulus fibrosis of human normal lumbar intervertebral discs, Spine 1999: Vol.24, No. 20. 2075-2079.

16) Reina M.A., Lopez A., Villanueva M.C., de Andres J.A., Leon G.I. Morphology of peripheral nerves, their sheaths, and their vascularization, Rev Esp Anestesiol Reanim. 2000 Dec;47(10): 464-75.

17) Roberts S., Evans H., Trivedi J., Menage J. Histology and pathology of the human intervertebral disc, Bone Joint Surg Am. 2006 Apr; 88 Suppl 2:10-4.

18) Scott A., Lian O., Roberts C.R., Cook J.L., Handley C.J., Bahr R., Samiric T., Ilic M.Z., Parkinson J., Hart D.A., Duronio V., Khan K.M. Increased versican content is associated with tendinosis pathology in the patellar tendon of athletes with jumper's knee, Scand J Med Sci Sports. 2007 Dec 7.

19) Simon B.R., Wu J.S., Carlton M.W., Evans J.H., Kazarian L.E. Structural models for human spinal motion segments based on a poroelastic view of the intervertebral disc, J Biomech Eng 1985 Nov; 107(4):327-35.

20) Tonnesen M.G., Feng X., Clark R.A. Angiogenesis in wound healing, J Investig Dermatol Symp Proc. 2000 Dec;5(1): 40-6.

21) Yeung A.T., Yeung C.A. In-vivo endoscopic visualization of patho-anatomy in painful degenerative conditions of the lumbar spine, Surg Technol Int. 2006; 15:243-56.

I've written several case studies regarding this phenomenon and also lecture on the subject. I refer you to the curriculum vitae and also to my web site www.drdavedecamillis.com.

VI ASSUMED FACTS AND ASSUMPTIONS

I have assumed the following facts and assumptions to be true: This 35 year-old male was involved in a motor vehicle accident on June 10, 2007. I understand this to be a significant collision in which he was the driver of a mid-sized car. The vehicle he was driving eastbound on Highway #1 in Burnaby at approximately eighty to eighty-five kilometers per hour rear-ended a vehicle that had cut into his

lane. Approximately $8,000-$10,000 damage was done to his car. I accept the description of events provided.

VII THE HISTORY

Mr. Smithed's history was taken over several visits. He was in a motor vehicle accident in June 2007, which caused his symptoms. Shortly after the accident he suffered from lower back pain and stiffness as well as left sided shoulder, neck and head pain and stiffness. He reported having no injuries or medical conditions prior to this MVA.

At the time of the accident he was a stockbroker for Adanakes Securities. Since then he reported the following. He had to take time off work for health care appointments. He had to take time off work for rest. The symptoms were causing him emotional stress. His activities of daily living were limited. This included sporting, lifestyle and sexual activities. He experienced weight gain, anxiety, marital stress, loss of income, troublesome memories about the accident, sleep problems, difficulty concentrating, irritability, anger, difficulty remembering and generally more 'stressed' than he was before. Any exercise he tried to do seemed to aggravate his condition. His general energy level had seemed to drop and this in turn affected his overall lifestyle.

After the MVA and prior to Mr. Smithed's first visit with me he experienced no significant improvement of his lower back symptoms. After the various treatments he had undergone and prescribed home exercises he performed, every time he attempted to get back into his pre accident routines he would become injured again. In the spring of 2010 he joined a 'slow pitch' beer league softball team. On one occasion he hit the ball and ran to first base. On so doing his entire lower left side 'lit-up'. It was as if he just had the accident. For the following two weeks he was hardly able to walk, had difficulty focusing, couldn't work properly and couldn't sleep. He was depressed due to the fact he was still disabled three years after the accident. At this time he felt it necessary to undergo therapy with me as he'd seen me five years prior and trusted my professional abilities.

After four sessions at this office he felt a 70% abatement of his symptoms and temporarily discontinued care here. He continued to recover but was afraid to engage in any vigorous activity in case if a relapse.

In September, 2010 due to a slow economy he had to work part time delivering newspapers in the early morning. He was pleased to find he didn't experience any flare-ups and was now above the 75% level with symptom abatement. Even with this split shift type of work he was sleeping well.

Feeling more confident now, he wanted to pursue his dream of joining the Canadian Forces Reserves as an officer. He felt now the physical requirements

were within his limits. After starting a training program to prepare for application to the Forces, his lower back again relapsed and dropped him to a 40% improvement since the MVA. At this point he returned to my office for eight more visits and once more he improved.

The following is a more specific account of his historical progress with my treatment: On May 13, he reported being better for a few hours after the last treatment. On May 14, he was feeling better. On May 25, he reported a 75% abatement of symptoms. On Dec. 3, he reported being improved until one week previous when his left lower back and leg flared up again. On Dec. 10, he said he was 75% improved. On Dec. 15, he report only temporary results as more vigorous exercise tends to make the symptoms come back. On Dec. 24 he claims he is now better tolerating the more vigorous exercising.

VIII EXAMINATION AND TREATMENT

The examination and treatment of Mr. Smithed are as follows.

May 12, 2010, a case history was taken, examination and treatment including an orthopedic/neurological/massage therapy exam and a trial of therapy including muscle stretching, and mechanical disc loading was performed. Try spinal stenosis procedures soon.

May 13, 2010, patient felt only temporarily improved. Treatment (Tx): Mechanical lumbar central spinal stenosis procedure.

May 14, 2010, center of gravity (COG) Left 20 pounds, feels better. Tx: upper cervical loading, stenosis procedure.

May 18, 2010, left lower back pain. Tx: home low back extension exercises.

May 25, 2010, COG good. 75% abatement of Sx.Tx: lumbar disc loading.

December 3, 2010, helped him last time, he had improved to the 85% level, he was fine until one week ago after a work out, left lower back and leg pain and stiffness. Tx: upper cervical and lower back spinal stretching, mechanical disc loading, lateral spinal stenosis procedure.

December 6, 2010, good. Tx: disc loading.

December 8, 2010, a little stiff today. Tx: lumbar spinal loading, lateral stenosis procedure. Plan: dismiss in 2 visits.

December 10, 2010, not bad, improving (75% since last one week ago). Tx: upper cervical stretching, lateral stenosis procedure.

December 13, 2010, not bad, COG L18. Tx: mechanical disc loading and also in extension.

December 15, 2010, good since last treatment, he only has temporary improvement, jogging and running is OK but anything causing strain in the low back tends to aggravate it, for example, going to the gym. Tx: lumbar disc loading.

December 24, 2010, trying more vigorous exercises…not bad, going to try regular sit-ups soon, overall an 80% improvement since the MVA with occasional relapses. Tx: suggest plyometric and hyperextension exercises at the gym, COG L 12 Tx: lumbar spinal manipulation and disc loading.

December 31, 2010, patient says doing traditional sit-up exercises is his biggest problem. He reports a 75% improvement in doing these since May, 2010. Tx: lumbar vertebral manipulation, upper cervical adjustment.

IX BASIS FOR THIS OPINION

The following are the bases of my opinion:

My experience, training and knowledge (expertise) in my field,

My examinations of the patient and the subjective reports of the patient (as set out above in Part VI and VII),

My research investigations.

X OPINION

Based on the history, examination, and treatment, I have formed the following opinions.

The diagnosis of Arron Smithed is as follows. He was suffering soft tissue injury, lower lumbar disc injury, and a lack of oxygen to various soft tissues of the lumbar spine area, particularly the nerves.

The disc injury was corroborated by MRI in September, 2008.

The lack of oxygen is due to poor arterial circulation resulting from an increased hydrostatic pressure in areas of the low back. The increased pressure is from

edema caused by physical trauma. The tissues specifically involved are those within the central canal, lateral canals and the discs of the lower lumbar spine. This condition of relative avascularity and edema is often chronic and can lead to continuing tissue degeneration. Unless the extra fluid is removed from the affected tissues, the patient will not respond in a satisfactory way.

In my opinion, the motor vehicle accident of June 2007 caused his injuries.

Prior to his accident, Mr. Smithed had an active lifestyle. He was working long hours on a regular basis. A typical work week at Wolverton Securities would be fifty-five to sixty hours in five and a half days. He had been with the same company for seven years (prior to the MVA). He was walking the dogs on a regular basis, going to the gym and doing heavy ninety minute workouts four days a week, and running forty-five minutes two to three times a week. Other activities included recreational horseback riding, swing and jive dance instruction, daily housework such as vacuuming, cleaning, etc. Mr. Smithed had an active social life. He would go out to clubs and restaurants twice weekly and would host gatherings at his house one to two times monthly. He also had a healthy personal life. As a rule, he slept well.

The accident had an impact on his general day-to-day health. He suffered from lower back and leg pains. He couldn't go to the gym and do proper workouts for at least two years and after that only light cardio and circuit training for no more than forty-five minutes. He gained fifteen pounds. He couldn't run, dance, or horseback ride. The amount of housework he did was cut back 50% and he would always be sore afterwards. Socially, he only went out once a month and only entertained once a month. His personal life abated substantially. Mr. Smithed could only work forty hours per week. His productivity dropped and his relations with his clients suffered. His type of employment calls for high levels of personal energy and communication skills. He was suffering from mood swings, depression and couldn't sleep well.

Dr. Baker prescribed pain and anti-inflammatory medications, sleeping pills and antidepressants. He also prescribed attention deficit disorder drugs to improve Mr. Smithed's concentration.

His treatments and therapies with other practitioners are as follows:

Dr. Marcus Welby, MD: Regular visits since June 12, 2007.

Western Physiotherapy Clinic: Seen 12 times for the first three months after the MVA.

Chiropractic: Approximately six visits in the late fall of 2007.

Limitations of his lifestyle and employability are reported to have been greater from the time of the accident until now. His activities of daily living were curtailed. He was much less physically and socially active. There is a possibility that future employment opportunities will be restricted. For example, it is his heartfelt desire to join the Canadian Forces Reserves as an officer. As of December 31, 2010, even though he has improved these by 75% he still has difficulty performing traditional sit-ups. Proficiency in this exercise is an ongoing requirement for the Forces. Until recently, he could only work forty hours per week. Sitting for long periods of time aggravated his lower back. His energy level and interpersonal skills with the clients had diminished. The increased stress he felt from disability, interpersonal relationships and low productivity added to an already high stress job. His career was already at risk and this unnecessary stress only made things worse. I'm not an expert in disability or employability, but this may be significant.

In my opinion, Mr. Smithed's future risks are increased. The involved tissues are now sensitized and more prone to injury. Even with performing maintenance exercises and taking preventative treatments, a similar trauma in the future would more likely than not cause even more injury than this accident and a lesser trauma not causing symptoms prior to this MVA could do so now.

The overall effect of Mr. Smithed's injury is ongoing. I'm not an expert in psychology, but Mr. Smithed must have been under mental stress having to be constantly dealing with his disability. Not being able to have an active lifestyle over the last three years and not being able to enjoy everyday things he did in the past must have had an emotional impact. He doesn't have the tolerance for pain that he used to. Things that he could handle before he can't now. He suffered from depression and mood swings, his earning capacity decreased and his personal stress increased. His family doctor, psychiatrist or psychologist would be more qualified to comment on the emotional and mental stresses that have arisen from the injuries sustained from his MVA. As mentioned earlier, he was experiencing significant overall improvement since the onset of care with me, but is left with residual lower back and occasional leg pains. He still hasn't returned fully to his previous physical and social lifestyle. He doesn't partake in any activity that he perceives as too strenuous. I think he will continue to improve. Mr. Smithed does display a healthy attitude towards recovery. He will experience periods of exacerbation and remission in the foreseeable future and will need future massage therapy.

XI DOCUMENTS REVIEWED

Clinical records of Dr. William Kildaire, M.B., B.S., F.R.C.S.(C)

MRI report from CMI September 3, 2008.

Police report of June 10, 2007.

Yours truly,

David Jones, RMT.

I have found forensics to be most rewarding in the following scenario. The new client has had long standing disability form an injury. He/She has gone through many regimes of care with little results. The third party payers now say the client is faking it and/ or is non-complaint with therapy. The patient starts treatment with you and in a week or two is experiencing a 75% abatement of symptoms and disabilities. Because you helped this patient using a rational therapy you can state the following: what the *correct* diagnosis is, and, what was the cause of the problem. You see, it is all common sense.

A medical report like that is worth its weight in gold.