



Soft Tissue Therapy Magazine

A close-up portrait of Thomas Myers, a middle-aged man with short, graying hair, smiling warmly at the camera. He is wearing a light-colored blazer over a dark shirt.

## Thomas Myers

discusses his motivations, his passions, and his hopes for our future

### **What employees want**

Your views on what employers should provide

### **Choosing a chiropractor**

Key considerations when referring

### **Treatment methods explained**

Myofascial dry needling and prolotherapy



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# Editor's note



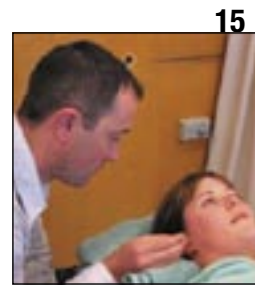
**I**nterpretation – the word that allows an individual or a group of people to form any opinion they like on Australia's National Competency Standard and teach whatever they, as individuals, feel necessary or are capable of. Is that word, interpretation, the downfall of Australia's Competency Standard? Many argue that it is. They argue that education institutions, large and small, are interpreting the competency standards so differently, that the eventual curriculum is varied beyond recognition. Some believing 30 hours of anatomy is adequate and some 300. Some teach extensive orthopedic tests and some teach none. The examples are numerous and often bewildering. Considering one of the main purposes of Australia implementing a competency standard was to standardise education, is it failing, and has that word 'interpretation' been the main culprit?

Whatever the case, education standards in Australia, and I would guess in the rest of the world, remain a limiting factor in our progression as a profession. While there are week-long courses claiming Diploma status, not even attempting to reach competency standards, as there is no legislation or regulation policing them to do so, then we will stagnate. While those that do actually suggest they are teaching to the Competency Standard, but curricula are so incredibly different that they suggest different vocations, we will remain ambiguous to those who attempt to define us.

Let's debate that word interpretation. Lets push harder for education minimums and standardisation. Our progression needs it.

*Yours in Soft Tissue Therapy,  
Brad Hiskins*

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#### Soft Tissue Therapy eMag

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# Interview with Thomas Myers

Thomas Myers is arguably the most influential and pioneering body worker of our age. In this fascinating interview, he discusses his motivations, his passions, and his hopes for our future. Sit back, relax, listen, and enjoy!

In part 1 of 4, Thomas Myers speaks about his most recent tour; one of his favourite anatomy lessons; his love of other cultures; the pressures of finishing the 2nd edition of *Anatomy Trains*; a new handbook to help parents with their children's movement; Body Reading; Posture versus Acture; the art of using fewer techniques for best results; and more...

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Thomas Myers in action in the classroom

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**James Barker** - Medial tibial stress syndrome: Find out why James is so successful at treating 'shin splints'.

**Geoff Walker** - Is our industry progressive or are we in a free-fall from which we can not recover?

**Tricia Jenkins** - 'The pain is all in your head' or is it?

**Peter Garbutt** - When do we need to refer to a chiropractor?

**Andrew Curry** - Andrew's approach condenses clinical experience, observation skills, and advanced anatomy skills to guide you through assessment, treatment and strengthening for optimal pelvic stability.

**Kelly Townsend** - Would you like to turn over \$1,000,000 in your massage clinic? Kelly explains how.

**Jo Smith** - Step one in our industry; find out why people come to our clinics. If we know why, we can work to those strengths.

**Stewart Condie** - Specificity and sensitivity of orthopedic testing. Are we really relying on some of these tests that are just plain wrong?

**Note:** While every effort has been made to faithfully record the entire proceedings of the 2008 Soft Tissue Therapy Conference, portions of the DVD have been affected by poor lighting and/or poor sound quality. Where sound quality has been preserved, but some of the video quality has been compromised, those portions remain in the presentation, as the information is of value from an auditory perspective.



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# What **employees** really want

Thank you for the considerable amount of feedback that we received from readers out there on the article 'What employers want'. It was a difficult task compiling the information into a readable format as there were quite a few who used the opportunity to vent rather than describe what they would like to see from their employers. We have tried to include all points of view while keeping the information constructive for prospective or current employers.

**By Brad Hiskins**

## **Employment structure**

There was quite contrasting feedback in relation to this issue – so the different opinions are set out below.

- Many preferred employee-only status at when they began service provision. This suggests the employer pays an hourly rate for every hour the employee is at the clinic, plus the employer pays their Workcover, superannuation and their tax for them. The employee also gets public holidays paid, 20 days paid leave, sick leave and other forms of leave such as parental and grievance. The suggested rates of pay for employee status ranged from \$25 per hour to \$50 per hour – quite a vast range. Considering the amount of benefits an employee gets in this arrangement, receiving \$50 per hour would leave the employer with just about no profit at all from this employee – not quite a sustainable situation for any clinic.
- Some preferred commission only. This is termed a 'piece-meal' rate which gives the worker a percentage of every client they see. The rates are generally higher for these workers, ranging from 42.5 per cent to a large 70 per cent of the no-GST total. Superannuation and Workcover are not paid by the employer. There is no holiday pay, public holidays or sick leave. But this method gives the worker more freedom in the amount of time they spend at clinic each week – more or less depending on their circumstances. This is a preferred pay system by some

employers as well, as they believe this encourages the staff to do the best job they can. If they don't, the client will not return and the staff member won't get another commission from that person. Good therapists make more money as they tend to rise to the top by keeping their clients.

- Contracts were mentioned numerous times and there were more than 20 different versions of what the employee wanted. Most were a combination of both the above. Some wanted incredibly good deals that included high pay rates (up to \$50 per hour), with holidays, super and Workcover paid, public holidays and other holidays all included, plus the ability to make up their own hours per week and their own weeks worked per year. Mmm, that's the one I might push for! Others were quite happy with a basic contract including a reasonable rate of pay (\$27.50 to \$43 per hour) and Workcover. With this they wanted varying hours of their own description.
- Most wanted a written contract but one that was quite dynamic – 12 months but short notice on termination. Sounds very Gen Y!

## **Clinic set-up**

Many commented on the basic clinical set-up, and some were very aggressive towards their current employers. The general views are listed below:

- Lots of people commented on basic linen. There were quite a

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few complaints current or past employers asking staff to limit the use of new towels. Feedback suggested that staff want to abide by OH&S standards.

- Employers should supply all lubricants, beds, linen, and do all the washing.
- An admin officer should be at the desk at all times someone is working. The admin officer should write all receipts and process invoices and files. This all sounds great, but admin officers cost a lot of dollars, limiting the amount of dollars available for paying therapists (and keeping the clinic afloat). Of course, any employer wants a full-time admin officer or three, but it's all about turnover.
- The employer should pay for cleaning on a regular basis.
- It would be handy if files could be collected and left in the therapists' pigeon hole on the treatment day.
- Uniforms should be supplied by the employer.

#### Career development

There were a healthy number of comments on what an employer should supply with regard to development:

- Each employee should get one trip and conference per year for career development.
- Books and DVDs should be ordered regularly and guest speakers should be brought in on a regular basis – at the employer's expense.
- A mentor should be given to all new therapists within a clinic.
- Clients should be transferred to new therapists to kickstart their career. This one will cause some interesting comments, as many who have been in clinics will know that many clients simply won't change who they are seeing – just like we don't want a baby dentist, we like our old one.

#### Employer behaviour

Many suggestions were commenting on employer behaviour. The summary:

- Employers should be seen on a regular basis at the clinic. Seems fundamental? But many suggested their current employers weren't anywhere to be seen and hence the clinic was a ship without a rudder. Maybe a clinic manager wouldn't go astray?
- Employers should take a major mentor role. Simply being a boss isn't good enough. Employers are looking for guidance in both the practical and administration roles.
- Employers need to make hard decisions with regard to 'rogue' employees. That is, if particular employees are troublesome and detrimental to the overall clinic environment, then they should be asked to leave. Quite a few people suggested that employers are weak when it comes to weeding these people out of clinics.

So these are the basics 'wants and needs' from an employee's point of view. The above is the summary of 37 replies to the editor, with 26 comments from Australia and the rest from NZ, the UK and the USA. If you would like to provide further comment, please don't hesitate to contact us at [admin@softtissuetherapy.com.au](mailto:admin@softtissuetherapy.com.au).



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# Where are we going?

This is the next instalment in our series of interviews with people in the industry about where soft tissue therapy is going – this time we speak to Rob di Leva, a member of the Sports Therapy faculty at University College Birmingham.

## Where do you see our education in 10 years' time?

Sport therapy as a study program has changed rapidly over the years, from diploma level education to predominantly graduate and postgraduate degree education. Compared to other established healthcare professions such as 'athletic trainers' in USA and 'physiotherapists' in the UK, sport therapy has developed at a rapid rate.

The majority of education for sport therapy today is via an undergraduate honours program, and more recently, there are a handful of universities offering postgraduate programmes in sport therapy. The way it has progressed, it would be feasible that specific extended scope educational opportunities within sport therapy would develop.

## Where do you see our research in 10 years' time?

Sport therapy-specific research to date is relatively underrepresented. The future of our industry is to constantly seek validation and accreditation for any treatment we carry out. This is not to say there is a lack of research in similar modalities. In fact, there is ample quality research for physiotherapy and athletic training professions which, as a sport therapist, I would lend myself to basing an educated decision on. But unlike physiotherapy and athletic training professions, there is a no provision to promote scholarly activity in sports therapy. A key aspect for any industry to be regarded as 'professional' would be to criticise the quality and quantity of research it is producing.

Last year, *The Journal of Sports Therapy* was launched. This online, peer-reviewed journal is one vehicle to promote sport therapy research.

Although this a good start for the industry, we now need to promote research and development. Within 10 years I would like to see research and academic journals searchable through creditable databases, which will expose our research to the wider communities and to those who seek to find information which lies within the remit of a sports therapist.

In relation to who funds this research, this may be another discussion entirely. All parties involved in development, support and representing the industry should contribute to funding research. Educational institutions would be the obvious first port of call. We may also want to look to our member associations for research grants, who could ensure a forecast budget could be allocated to research projects. This, however, may not be on the agenda for all associations. There may be scope to apply for research funding via sports governing bodies.

I would like to see more formalised discussions and forums such as this emag to express and challenge ideas. These forums and committees provide an avenue for individuals who are actively committed to moving the industry forward. Recently, a Sport Therapy Research Committee was established, which comprises representatives from each teaching institution from the UK and Australia. Its aim is to develop a research agenda to support, explain, and enhance clinical practice research that is useful to

practitioners as well as educationalists. I see this positive step in turning the old oil tanker in the right direction. It might seem idealistic to suggest we all form discussion committees while there are patients to be treated, but I would be the first to admit, there are limitations with most scenarios. What is most important is that there are people in the right places, making the right decisions with the right information. There should be focused committees and research groups asking pertinent questions about what we do and WHY we do it. An issue which seems to be emerging is the definition and remit of a sports therapist, which seems to draw both confusion and ambiguity amongst its stakeholders. This ambiguity should surely be addressed if we, as an industry, are going to promote ourselves as therapists who focus on examination, assessment and treatment of sportspeople. There are always going to be decisions that need to be made, and either we represent ourselves or we have decisions made on our behalf.

## What areas do we need to collect data on within the next 10 years to objectively form our future?

I alluded to this earlier in that sport therapy is a vast topic area, incorporating many aspects of existing modalities. The first major hurdle is to define specifically the remit of a sports therapist. We need to identify important areas to ensure that the whole spectrum of sports therapy is advanced. Trying to find a concrete definition is sometimes as difficult as knocking a brick wall down with a handful of peas.

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However, sports therapists can collect data which is relatively low cost and functional for its purpose.

We also need specific reliable, valid trials that can be published and presented to the industry. I see the spectrum ranging from (but not limited to) professional and educational competencies, mechanism of injury, health screening and risk management, immediate care, therapeutic modalities and clinical practice, rehabilitation, injury prevention, performance enhancement and finally, special populations such as the elderly and groups with special needs.

#### Where do you see our job growth in 10 years' time?

I honestly believe we still haven't realised our true worth in providing healthcare to our patients. I would like to see the industry grow, so that it can sustain its demand. To do that, the national government needs to show an interest in what we do. It would be great to see sports therapists working with university sports teams like they do in the USA as 'athletic trainers'. There are obvious cultural,

financial and logistical barriers to achieving this in the UK, but there is no reason why a similar model cannot be implemented.

A formalised apprentice system is by no means a new idea for the industry, but there is simply not enough support for our new graduates. Mentorship is one way of developing our new practitioners and as well as developing the industry further. I know change occurs like a slow turning tanker, but we have to start somewhere.

#### What association format would you like to see in 10 years' time?

This is a tough one to answer. There are currently several organisations that represent sport therapy. The relatively small sport therapy industry is reported to be moving in a very fast direction, and depending on what you read and who you talk with, there is a movement towards state registration in the near future. However not every association is working towards regulation. I think there is ample scope for several associations, as long as there is consistency and harmony in terms of the direction of the profession. One association is applying for government accreditation through the Health Professions Council (HPC), which will regulate

and protect the title of 'sports therapist'. Although there are various reasons why being regulated by an umbrella association is positive, there are still arguments to maintain an independent governing body. Again, the remit of sports therapists essentially should be brought forward and promoted by the member associations.

#### Our greatest hurdles to achieve these goals?

Each working environment has its hurdles to achieving goals, from lack of staff, equipment, facilities, patient load, to an inability to give up revenue-producing time. A major hurdle to any process is the quality and commitment of the stakeholders. It is not worth having the vision without the right people making the decisions with you. Failing to plan or have a clear method of measuring the effectiveness (or lack) of what we have been doing is of major concern. Clear direction and remit is a major hurdle for the sports therapist. Time will tell, and I can't wait until it does!

I would like to extend my gratitude to colleagues and students who play a fundamental role in the development of sport therapy.

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# Choosing a Chiropractor

By Pete Garbutt

Choosing the right mechanic for your car, the right hairdresser for your hair and the right restaurant for your dinner are all decisions we have to make in day-to-day life. We generally make these decisions based on personal experience, recommendations, luck and locality. Some of these services are the right ones for our needs, tastes and situation, others are not as well suited to our specific requirements. Choosing healthcare practitioners is no different, and quite often more difficult.

We've all seen practitioners that are great for certain injuries or conditions, but not as well equipped for others. Choosing the right person to see or refer to is important to get the best outcome for the athlete that you are treating.

The strength of diversity which drives change, development and scientific advancement has proven a double-edged sword for the chiropractic profession. This has seen the modern day chiropractor develop into a valued and integral part of the sports medicine landscape<sup>(1,2)</sup>. There remains much confusion though within other professions as to which part of this diverse spectrum they should refer patients to for care which is best aligned with that given by the referring practitioner.

Given this confusion, it is appropriate to try to establish some simple guidelines for finding those that are best suited for treating sporting conditions. There are two broad types of treatment in chiropractic that have been defined in the literature that are also applicable to this discussion<sup>(3)</sup>. These are the modern multi-modal chiropractor (MMM) and the 'classical' chiropractor. The classical style of chiropractic is that which many of the older generation associate with chiropractic. This is often manipulation only and sometimes spine only. The MMM chiropractor tends to utilise, as the name suggests, a

multi-modal approach, incorporating active and passive care, rehabilitative techniques and a conscious appreciation for psychosocial factors. This MMM approach is consistent with the training of all current day Australian chiropractic universities<sup>(4,5)</sup> and has a strong grounding in evidence-based healthcare. These practitioners have previously been identified as being best suited for treatment of athletic conditions<sup>(6)</sup>, and therefore tend to commonly fulfil the criteria set here below.

When choosing an appropriate chiropractor to refer to for the management of athletic conditions, there are five simple criteria that will help you find one that works cohesively within the best practice guidelines of modern evidence informed sports medicine:

1. Doesn't utilise mandatory x-rays<sup>(7)</sup>;
2. Doesn't enforce prepaid or predetermined treatment plans<sup>(8)</sup>;
3. Treatment is multi-modal<sup>(3)</sup>;
4. Treatment time is at least 15-20 minutes<sup>(9)</sup>

**This MMM approach has a strong grounding in evidence-based healthcare.**

5. Is able to converse in common language about injuries.<sup>(10)</sup>

These guidelines allow for a diverse range of treatment techniques, but at the same time, an evidence-based structure for helping to narrow down the field. An expanded discussion on these criteria and the importance of each is available at [www.chiroandosteo.com/content/17/1/3](http://www.chiroandosteo.com/content/17/1/3)<sup>(11)</sup>.

Interprofessional collaboration and learning are at the heart of best practice and best outcomes for patients seeking care. It is only with a greater understanding of other professions and how to work with them appropriately can we expect to get the best possible care for every patient that walks through our doors.

*Pete Garbutt, B.Sc., M.Chiro., M.Chiro.Sports Science, is a chiropractor in private practice in Canberra. He is the chairman of Sports Chiropractic Australia, chiropractic representative to the ACT Academy of Sport, on the SMA ACT branch board, ACT Chiropractors and Osteopaths Registration Board and the national board of the Chiropractic and Osteopathic College of Australasia. Pete has worked with a wide variety of sporting teams and events from local to international. He presents seminars throughout Australia on topics of chiropractic in sports medicine and chiropractic treatment and rehabilitation techniques. Pete is actively involved in research into chiropractic scope of practice and injury surveillance.*

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## Questions and myths

If our industry is split into two vocations defined by our two competency standards, Cert IV in Massage Therapy (Relaxation Massage) and Diploma in Remedial Massage (Pain and injury management), then why do we only have associations that represent 'massage therapy'? If it has been decided that we have two vocations that are so different that they need two separate competency standards, shouldn't we also be represented by two associations? Or at least two sections within an umbrella association? What message does this send to our consumers, our members, insurance companies, governments? I'm confused... what about them?

*Did you know that physiotherapists can claim per area treated when billing Comcare. Why can't other health practitioners do the same?*

If the purpose of a friction is to mobilise the underlying connective tissue, why do some place ice on the area after treatment, causing the connective tissue to become immobile?

*If the Diploma level education has been designed to meet our competency necessity in Australia, then why do we have private degrees popping up? Who ratifies their quality control, their levels of education? Are they necessary? If so, why haven't our associations made the move to increase our education levels?*

Did you know that in Australia, the remedial massage industry is defined as 'luxury' along with wine, and therefore must charge a Goods and Services Tax? It is also suggested that we don't treat pain. Wow, what have we been doing?

### X-rays

Should we be able to order x-rays? The current poll suggests that at least half who have been polled believe we should in some way be able to order x-rays without going through a GP.

This concept certainly alters our existing paradigm of everything going through GPs as the gate-keepers of health. But is this paradigm still warranted? Should the system evolve and keep pace with the ever-progressing educational standards of all physical therapists?

Chiropractors, physiotherapists, osteopaths and podiatrists can already order certain scans for particular conditions without a GP referral. They often cost the patient more to do so, but they bypass the time and money spent on seeing a GP, providing a probable net gain.

Furthermore, these professions have expertise in musculoskeletal conditions whereas GPs in general do not, hence the argument that it is more reasonable for them to order the scans instead of the GP. Plus, the GP has little treatment protocol once the scan has delivered its verdict. The GP usually refers for treatment, so why not bypass the middle man? Moreover, this keeps the GPs free for more pressing medical issues – time that they are so desperately seeking. If the report suggests something more sinister than initially thought, then a referral to a GP can be made. The radiologist report will allude to such a necessity.

The argument will remain that there is not enough known by these professions (including RMTs) to accurately order scans. I'm sure this was the case 30 years ago but I challenge that now. These therapists, and our profession, spend entire weeks, months, and years dealing with nothing but musculoskeletal issues. Therefore our knowledge is therefore expert in this area, well beyond the average GP whose knowledge is spread across an incredibly broad area.

So with this in mind, should RMTs join the other health professions in ordering scans for particular conditions?

# Research – what is it and what's in it for me?

As outlined in the CEO's Report of the Autumn 2008 edition of the *AAMT Journal*, the Association recently initiated the Australian Massage Research Foundation. It is early days but it is a move that is pivotal in establishing continued credibility for the practice of massage and enriching the knowledge available to therapists.

By Harvey Griggs PhD

**B**ut how will this credibility be established and how will knowledge be made available to therapists, I hear you ask? And what's in it for me anyway?

Why should I do 'research'? The answer to the first question is straightforward – by massage therapists firstly conducting credible research, and to the second question the answer is by writing up the results of that research for dissemination to their colleagues and the wider allied health services field. But, I hear you say, I don't know how to do 'research'. The purpose of this article is to provide some background to this question of what is research, and how might you best go about doing some.

It's not that difficult. Every day, in many ways, all of us do 'research'. For example, if we are planning a holiday, we will find out where we would like to go, how to get there and back, what we will do when we get there, how much it will cost, and so on... We will probably develop a number of alternatives for some of these aspects before we make some decisions. If it's an overseas trip, we might even make some notes. The same kind of process would be conducted if we were going to buy a house, or a car, or perhaps even consider enrolling in a massage course. We all do it, and we don't even think of it as research.

## Research defined

In a formal sense, Wikipedia advises us that research is defined as "human activity based on intellectual application in the investigation of matter. The primary aim for applied research is discovering, interpreting, and the development of methods and systems for the advancement of human knowledge on a wide variety of scientific matters of our world and the universe".

Such a description is particularly relevant for us as massage therapists in two ways. Firstly, we are using our intellect to investigate matters. And secondly, we should be aiming to discover, interpret, develop and disseminate our knowledge about ways that we have discovered to better serve our clients and ultimately the massage profession.

Why can't we just be satisfied if something works for us and one of our clients? Can we broadcast this 'method' to others in our field? Certainly we can! But will it work for a majority of people? Is it safe? Is it ethical? Will it work for a cross-section of our clients? Are there any side effects? All such questions can be answered by research. Imagine for a moment a drug company which has discovered a new drug. Just because this new drug works for one person, should it be delivered to the market at large? Or should considerable testing be done to answer the above questions? The answer is clear. We need to test our new idea or theory, or hypothesis before we can say "it works".

So, how do we get started on this research? There are many ways. Here are some which are particularly suited to massage...

## Action research

A multi-stage type of research, in which a problem is researched, changes are made, the problem is researched again, more changes are made, and so on through a number of cycles, until the problem is solved.

## Brainstorming

A not very successful method for generating ideas, in which a small group of people come up with ideas as fast as they can. Participants may build on each others' ideas, but not criticise them. Nominal groups work better. See also enabling techniques.

## Case study

A type of qualitative (based on words rather

than numbers) research which studies one or a few cases (people or organisations) in great detail.

## Customer satisfaction measurement

A rapidly growing branch of market research: assessing the satisfaction level of an organisation's customers. See also mystery shopping.

## Desk research

Research done by summarising published sources – a form of secondary research.

## Focus group

A common type of group discussion, in which a moderator encourages a small group of people (usually 8 to 10) to gradually focus on a topic.

## Mystery shopping

A systematic way of assessing customer satisfaction, by having research staff pretend to be potential customers, and noting how frontline staff respond to their demands. Sometimes called shadow shopping. After the encounter, the interviewer fills in a questionnaire, so mystery shopping is a type of survey.

## Observation

A research technique in which no direct questions are asked, but people in a public place (e.g. shoppers and drivers) are watched and their behaviour recorded.

## Qualitative research

Research in which questions are open-ended and results are expressed in non-numerical terms. Contrasts with quantitative research and is used extensively in social studies.

## Quantitative research

Methods of research can be broadly divided

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into qualitative and quantitative. The basic difference is that quantitative research reports findings as numbers, while qualitative research reports them as words. The main quantitative research technique is the survey, with all its variants. There's a much wider variety of qualitative techniques – see the separate glossary for qualitative research.

#### **Semi-structured interview**

An interview (usually by a highly skilled interviewer) that doesn't use a fixed questionnaire, just a list of topics to cover. Much the same as a depth interview.

#### **Unstructured interview**

An interview done without using a questionnaire, or even a semi-structured list of topics. Normally used when respondents are asked to describe an important or recent event in their life.

#### **Survey**

A whole exercise of measuring public opinion. Don't confuse a survey with a questionnaire: some people say "The interviewer did 50 surveys" when they mean 50 interviews, for one survey. As a verb, 'to

survey' is used much more loosely, and often means the same as 'to interview.'

In our research as massage therapists, we will most likely use a combination of qualitative and quantitative research. For example, many therapists I know conduct customer satisfaction measurement research as an aide to continuous improvement in their practices. Such research might incorporate asking clients to 'measure' our service on a number of criteria such as price, comfort, friendliness of staff and so on. Quite often we ask our clients to 'measure' our service in a quantitative fashion by selecting a number from 1 to 5 where 1 is poor and 5 is very good.

On the same questionnaire, we might also ask our clients to tell us what they liked most about the service they received, or what they think needed changing about the service they received. Their answers to such questions are typical of qualitative research.

#### **What's in it for me anyway? Why should I do 'research'?**

The benefits of undertaking research to the individual are:

- A better understanding of clients and their needs and wants;
- A better understanding of what works for a

practitioner and what doesn't;

- A better understanding of how a practitioner can improve their customer service and ultimately their productivity and bottom line;
- Greater job satisfaction through a greater understanding of massage therapies and their effects on clients;
- Enhanced credibility in the industry; and
- An increased likelihood of referrals from other allied health professionals and the wider medical profession.

So, in this article we have looked at the nature of research as it applies to massage therapists, and familiarised ourselves with some basic research terminology. Finally, the benefits of undertaking massage were outlined.

Should you have any questions or queries at all in relation to this or any related research issue, please don't hesitate to get in touch with me. An email discussion is a great way to start. Until next time, happy researching!

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Visit [www.aamt.org.au](http://www.aamt.org.au) for more  
information about the Australian  
Massage Research Foundation.*

## AAMT towel policy

#### **Dear AAMT,**

I am currently employed as a part-time contractor in a clinic where the owner is insisting that towels be changed after four clients. This is contrary to the infection control guidelines of the ACT Infection Control Department. I am wondering if AAMT has a policy regarding the frequency that towels should be changed. The ACT Infection Control guidelines stipulate that they be changed after every client. The owner of the clinic is a massage therapist, but not a member of AAMT. She is a member of another professional association.

I would appreciate the AAMT thoughts on this and copy of any policy document regarding the frequency of changing towels in professional massage clinics.

I thank you in anticipation of your assistance with this issue.

Warm regards,

AAMT member (name deleted for privacy)

#### **Response:**

#### **Hi Member,**

Again thank you for your email. You are right regarding the use of towels as equipment and under the ACT Health Guidelines. The

Guidelines are implemented under the *Public Health Act 1977*, therefore AAMT would not develop policy as the matter is covered by law.

Under the law, towels should be changed after every client. This is also basic hygiene that is taught to any qualified person. In effect the owner is breaking the law by reusing towels and instructing you not to change them. You are therefore liable vicariously through the owner for infection control.

I would assume that the owner is unaware of the law. You will have to consider your options carefully.

You could bring the attached document to the owners attention, change towels regardless, or advise ACT Health under Clause 7.1.

It is your decision to maintain your professional integrity and determine what action to take, even though this may affect your employment status with the owner.

Sincerely

Tricia Hughes

Chief Executive Officer, AAMT

The ACT Infection Control guidelines can be accessed by clicking [here](#)



# Myofascial dry needling: what is it?

By Stewart A. Condie

**M**yofascial dry needling (MDN) is a modality used in the treatment of musculoskeletal pain and injuries and especially in the treatment of chronic pain syndromes such as fibromyalgia and chronic back pain. Some authors are of the opinion that MDN is more effective than commonly employed manual therapies in the treatment of chronic back pain. It is my opinion that often, but not always, dramatic results can be seen clinically when other manual methods have failed.

MDN has a primary aim of deactivating trigger points within the musculoskeletal system, however I believe trigger points is an overused term. If we apply the classical definition, then we would limit the amount of occasions that MDN could be employed clinically. Classical trigger points are rarely identified, yet tender points or areas are always encountered and it these tender areas that respond well to MDN, as do trigger points.

MDN is categorised into two types:

**Superficial:** Where needle exploration is into the dermal layer and never enters the muscular level; and,

**Deep:** Where needle exploration enters the muscle.

As yet, there is conflicting research regarding whether the therapeutic outcome is enhanced by deep or superficial dry needling. Many believe that you must achieve a twitch response for MDN to be effective, and this could only be achieved in deep MDN. Others believe that MDN can be just as effective by placing the needle in the skin over the trigger point. More research and clarification on this point is needed.

There is also another less employed form of MDN called segmental dry needling. This form of MDN uses the principles used in segmental acupuncture or what some term medical acupuncture. Basically this form of acupuncture adheres itself to the laws of neurophysiology rather than meridians often utilised in TCM diagnosis and treatment. Segmental MDN, while implementing the principles of neurophysiology as seen in medical acupuncture, is by no means a replacement for medical acupuncture which, while dealing with the musculoskeletal system, is more often employed in the treatment of other systemic diseases outside the scope of training that can be given in an Advanced Diploma or in a MDN workshop. It therefore remains the property of the acupuncturist as primary health care practitioner.

Segmental dry needling can be utilised clinically, for example, when a condition shows high irritability. So by having an understanding of the dermatomes and myotomes of



the effected area, one can treat the area (neural input) without specifically focussing on the area itself. This can also have great benefits from a pain management perspective for your client.

MDN employs the tools utilised in acupuncture practice – that is, acupuncture needles. However the two practices are conducted under an entirely different paradigm. As mentioned above, MDN is primarily focused on musculoskeletal injuries and as such, is utilised as a specialist tool to accompany your soft tissue skills in the treatment of common musculoskeletal-based injuries. Acupuncturists (depending on state of qualification) generally have undergone Bachelor training at a university and may be a member of a state registration board (Victoria only at this stage). Once completed, they can use the title of Doctor (of Traditional Chinese Medicine) and this reflects the extra training that they have completed.

Their paradigm is based on thousands of years of clinical observation and they utilise this framework to diagnose and treat disharmonies within the body. Their extra training allows them to treat systemic issues within the body and help people with drug withdrawal (commonly smoking), which are all areas that are out of the scope of training for a MDN practitioner.

Historically many terms have been utilised to describe the practice of what is now commonly termed myofascial dry needling. Many institutions within Victoria used to refer to MDN as ‘myofascial acupuncture’. This derogatory

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term, from an acupuncturist's point of view, led to many practitioners of TCM to actively seek to have the term amended, and indeed there was thought of having the practice of MDN disbanded altogether. With the advent of the Victorian Chinese Medicine Registration Board in December 2000, there was now a voice from a registered profession with the desire to protect themselves from perceptions within the community about what 'Myotherapists' were practising with this myofascial acupuncture. Hence the term was changed to the more appropriate myofascial dry needling, which I believe is a more accurate depiction of how the modality is utilised from a soft tissue perspective.

Why is this the case? Why do therapists seek to guard their modality from others? Surely we are all trying to achieve the same overall outcome for our patients? Surely if we can spread knowledge, then client satisfaction will be greater? Basically, as it stands, most acupuncturists are happy for soft tissue therapy practitioners to utilise the skills of MDN for the primary intent of working within the musculoskeletal system and its many ailments, as long as the practice of MDN is not misrepresented as being anything other than MDN and certainly not acupuncture. A standard acupuncture

degree in Victoria is in the region of 4500-5550 hours in duration; most colleges that deliver training in MDN will spend 30-70 nominal hours on MDN training! In my training I completed 900 clinical hours, ? on observation, then ? on practice before graduating – you do the maths.

That being said, for soft tissue

***As yet, there  
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superficial dry  
needling***

therapists that have a grasp of anatomical knowledge, the practice of MDN is relatively safe, with as yet no serious cases reported in medical literature. While not adhering to the principles of Traditional Chinese Medical acupuncture practice, one must still adhere to their thousands of years of clinical observations and have respect for this knowledge, especially when it comes to the treatment of the pregnant patient which should be referred to a TCM practitioner during this period for the needling component at the very least.

It is important for the practitioner of MDN to not misrepresent what they are trying to achieve with the employment of MDN technique and to have an understanding of acupuncture principles and practice so they can accurately describe the differences between the two. Being trained in MDN should not preclude you from referring to an acupuncturist when there are musculoskeletal presentations combined with systemic issues. In explaining to your client what you are doing, you should never misrepresent to the general public with comments such as "basically it is acupuncture". I have heard this too many times from misguided therapists that have no understanding of the differences between primary health care practitioners (Dr) and primary contact practitioners (STT), but we all share a common goal.

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# Peripheral neuropathies of the upper extremities in sport: **A soft tissue perspective**

By **Stuart Hinds**

Nerve entrapments of the upper extremity are common in sports related to excessive traction around a joint, as in throwing, which in turn leads to compression, inflammation, and adhesions from repetitive stress. The nerve may also become subluxed due to laxity from repetitive stress or trauma to the region. Athletes that commonly develop peripheral neuropathies include:

- Baseball pitchers (cubital tunnel);
- Tennis players (radial tunnel – backhand, pronator teres syndrome – forehand);
- Golf (pronator teres – overgrip);
- Rowing (pronator teres/flexor digitorum);
- Javelin (cubital tunnel); and
- Weight training (all of the above).

The main nerve entrapments in the upper extremity involve the median nerve, ulnar nerve, or radial nerve.

## **NEUROANATOMY OF THE PERIPHERAL NERVES**

### ***The median nerve***

The median nerve forms the junction of the lateral medial cords. It travels laterally to the brachial artery to approximately the mid humerus. At this level, the median nerve crosses over the brachial artery to lie in a more medial anatomic position.

The nerve is superficial to the brachialis muscle and usually lies in a groove with the brachial artery, between the brachialis and biceps muscle. It travels across the antecubital fossa, underneath the bicipital aponeurosis, and between the biceps tendon and the pronator teres. At this level, the median nerve is on the distal aspect of the brachialis muscle. The nerve then travels underneath the two heads of the flexor digitorum sublimis (FDS) muscle to lie between this muscle and the flexor digitorum profundus (FDP) muscle. The median nerve emerges between these two muscles in the distal forearm to then travel ulnar to the flexor carpi radialis and radial

to the sublimis tendons, usually directly underneath the palmaris longus tendon, and enters the carpal tunnel in a more superficial plane to the flexor tendons.

The motor branch emerges at variable sites but most frequently at the distal aspect of the carpal ligament to service the thenar musculature. Just beyond the end of the carpal ligament, the median nerve trifurcates to become the common digital sensory nerves to the fingers. The palmar cutaneous branch of the median nerve is a sensory branch that comes from the main body of the nerve approximately six inches above the rest of the nerves and services an elliptical area at the base of the thenar eminence. This superficial nerve does not lie within the carpal tunnel.

Just distal to the antecubital fossa, the median nerve branches into the anterior interosseous nerve, which travels on the interosseous membrane and innervates the flexor pollicis longus (FPL), the FDP to the radial two digits, and the pronator quadratus at its termination. The nerve innervates the pronator teres, flexor carpi radialis, the FDS, and the two radial FDP tendons. It also supplies the FPL and the pronator quadratus.

Within the hand, the motor branch of the median nerve supplies the opponens pollicis, the flexor pollicis brevis, and the abductor pollicis brevis musculature. It also supplies the two radial lumbrical muscles in the hand. The median nerve supplies sensation to the 3.5 digits on the radial aspect.

### ***The ulnar nerve***

The ulnar nerve arises from the medial cord of the brachial plexus. The ulnar nerve travels posterior to the brachial artery and remains within the flexor compartment of the upper extremity until it reaches the medial epicondyle. The nerve travels behind the medial epicondyle back into the flexor compartment underneath the flexor musculature. Above the elbow, the ulnar nerve lies on the long head and then the medial head of the

triceps muscle, directly posterior to the medial intermuscular septum between the brachialis and the triceps muscles.

The fascial bands over the median nerve constitute the Struthers arcade. The nerve passes within the cubital tunnel posterior to the medial epicondyle. It is directly underneath a tight fascial roof known as the Osborne band, which is contiguous with the leading fascial heads of the flexor carpi ulnaris (FCU) muscle. Just above the elbow branches, the nerve branches to the superficial head of the FCU. The nerve lies directly over the top of the FDS muscle and beside the FDP muscle at the elbow.

As the ulnar nerve travels down the forearm, it is wedged between the FDS and the FDP muscle bellies to exit in the distal forearm just ulnar to the ulnar artery and the FDP tendons. The FCU tendon protects the nerve on its ulnar aspect. The ulnar nerve travels within the Guyon canal at the wrist to supply the hypothenar muscles, including the opponens digiti quinti and the abductor digiti quinti. It also supplies the two ulnar lumbrical muscles and the interossei to the hand and the deep branch to the flexor pollicis brevis muscle. The ulnar nerve supplies sensation to the 1.5 digits of the ulnar aspect. The dorsal cutaneous branch of the ulnar nerve supplies sensation to the dorsal ulnar half of the hand and fingers. This nerve arises from the main ulnar nerve approximately 6cm proximal to the wrist.

### ***The radial nerve***

The radial nerve emerges from the posterior aspect of the humerus in the spiral groove between the brachialis and brachioradialis muscles above the elbow. It leaves the extensor compartment to travel in front of the elbow underneath the brachioradialis muscle, sending branches of innervation to it just above the elbow. The radial nerve divides at the level of the radial capitellar joint into the posterior interosseous nerve and the superficial

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radial nerve. At this point, it branches to the extensor carpi radialis brevis.

The superficial radial nerve continues to travel underneath the brachioradialis muscle to ultimately emerge between that muscle and the extensor carpi radialis longus tendon. The superficial radial nerve supplies sensation to the radial half of the dorsum of the hand. The posterior interosseous nerve travels within the fat pad and runs below the supinator muscle to emerge in the distal dorsal aspect of the forearm. The posterior interosseous nerve travels at the level of the interosseous membrane to ultimately provide sensation to the posterior aspect of the wrist. This nerve innervates the extensor indicis proprius, extensor digiti quinti, extensor carpi ulnaris, abductor pollicis longus, extensor pollicis brevis, and extensor digitorum communis muscles.

### ENTRAPMENT

The phrase 'compressive neuropathy' implies that the peripheral nerves are being impinged upon by adjacent anatomical structures. The resultant injury is assumed to be related to reduced epineural blood flow. The relative ischemia decreases axonal transport and, in turn, the nerve's ability to conduct impulses

### DOUBLE CRUSH THEORY

The double-crush theory predicts that a compressive lesion at one point along a peripheral nerve lowers the threshold for occurrence of compression at another site secondary to internal derangement of nerve cell metabolism.

### ASSESSMENT

#### Neurodynamic testing

Median nerve bias  
Ulnar nerve bias  
Radial nerve bias

#### Median nerve

- Pronator teres syndrome
- Anterior interosseous syndrome
- Carpal tunnel syndrome

#### Ulnar nerve

- Cubital tunnel syndrome

- Ulnar tunnel syndrome

### Radial nerve

- Radial tunnel syndrome
- Posterior interosseous syndrome

### Median nerve entrapments

#### Pronator teres syndrome

Signs and symptoms: The athlete complains of pain in the anterior aspect of the forearm that is exacerbated with activity and relieved by rest; decreased sensation in the thumb, index finger, long finger, and radial side of the ring finger; weakness of thenar muscles; and a positive Tinel or Phalen sign in the proximal forearm.

#### Sites of compression

These include the:

1. Lacertus fibrosus (bicipital aponeurosis, superficial forearm fascia).
2. Struthers ligament (thickened or aberrant origin of pronator teres from distal humerus).
3. Pronator teres (musculofascial band or compression between two muscular heads).
4. FDS proximal arch or the flexor digitorum superficialis.

#### Testing

- Bicipital aponeurosis compression – resisted elbow flexion and forearm supination.
- Pronator teres compression – resisted forearm pronation and flexion.
- Flexor digitorum superficialis compression – resisted flexion of the interphalangeal joint of the middle finger.

#### Soft tissue treatment

Clear CERVICAL/SHOULDER soft tissue restriction

Myofascial tension techniques applied to MEDIAN NERVE NEURODYNAMIC testing restrictions.

#### Active or latent trigger point activity

Pronator teres  
Flexor digitorum superficialis

#### Anterior interosseous syndrome

Symptoms: These include vague pain in the proximal forearm which mimics

pronator syndrome and weakness of the Flexor Pollicis Longus and Flexor Digitorum Profundus to the index finger. The anterior interosseous nerve is purely motor there is no sensory change. Affected persons cannot form a circle by pinching their thumb and index finger (i.e., hyperextension of index distal interphalangeal joint and thumb interphalangeal joint).

- Nerve anatomy: The anatomy includes the branch of the median nerve arising approximately 6 cm below the elbow and supplying motor function from the FPL, pronator quadratus, and FDP to the index finger.
- Etiology: Causative factors include tendinous bands, a deep head of the pronator teres, accessory muscles (including the Gantzer muscle, which is the accessory head of the FPL), aberrant radial artery branches, and fractures.

#### Testing

- Resisted muscle tests of the flexor pollicis longus and flexor digitorum profundus to the index finger.
- Resisted forearm pronation with the elbow in complete flexion.

#### Soft tissue treatment

Clear CERVICAL/SHOULDER soft tissue restrictions

Myofascial tension techniques applied to MEDIAN NERVE NEURODYNAMIC testing restrictions.

Trigger point therapy:

Flexor pollicis longus  
Pronator teres  
Flexor digitorum profundus

#### Ulnar nerve entrapment

##### Cubital tunnel syndrome

Signs and symptoms: These include pain in the forearm, which radiates in the distribution of the ulnar nerve; numbness; tingling in the 1.5 fingers of the ulnar aspect; wasting or weakness of intrinsic hand muscles; a positive compression test result at the elbow; recurrent subluxation of the nerve over the epicondyle; and the reproduction of symptoms with elbow flexion, with or without wrist extension.

- Anatomy: The ulnar nerve runs adjacent to the medial head of the triceps into the groove behind the medial epicondyle of

the humerus. It passes beneath the fascia joining the two heads of the FCU and lies on the superficial surface of the FDP.

### Sites of compression

These include the:

- 1) Struthers arcade.
- 2) Anconeus epitrochlearis.
- 3) Intermuscular septum.
- 4) The Osborne band.
- 5) The aponeurosis of the Flexor Carpi Ulnaris.

### Testing

- Palpation of the cubital tunnel and flexor carpi ulnaris reproduces tenderness.
- Elbow flexion test: Elbows fully flexed and wrists fully extended for 3 minutes. Positive sign is pain or paraesthesia.
- Tinel's sign over the cubital tunnel will be positive.

### Soft tissue treatment

Clear CERVICAL/SHOULDER Soft tissue restrictions

Myofascial tension techniques applied to ULNAR NERVE NEURODYNAMIC testing restrictions

### Trigger point therapy

Flexor Carpi Ulnaris

Flexor digitorum superficialis  
Triceps medial head

### Radial nerve entrapment

#### Radial tunnel syndrome

Symptoms: These may include pain in the upper extensor forearm; dysesthesia in a superficial radial nerve distribution; and weakening of the extension of the fingers, thumb, or wrist.

- Anatomy: Compression neuropathy of the radial nerve is considered somewhat more rare than the other compression neuropathies of the upper extremity. The radial tunnel proper is somewhat ill defined, but it is usually considered the area where the radial nerve exits between the brachioradialis and the brachialis muscles to where it derives below the supinator muscle (Frohse arcade).
- Etiology: The deep branch of the radial nerve can be compressed by five structures within the radial tunnel.

### Sites of compression

1. The proximal fibrous edge of the supinator muscle, known as the arcade of Frohse.
2. The most proximal structure that can compress the deep branch of the radial nerve is the fibrous fascia over the

radiocapitellar joint.

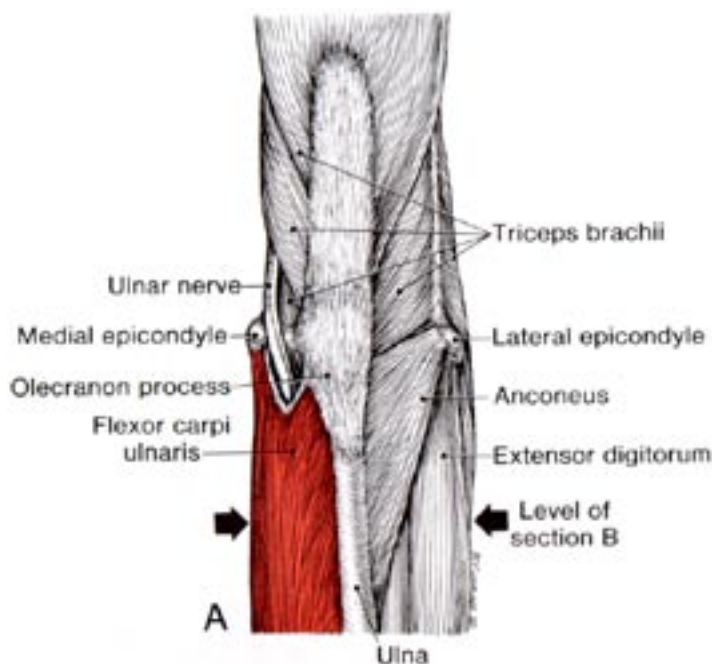
3. The next structures that can compress the deep branch of the radial nerve are the radial recurrent artery and the venae comitantes, known as the leash of Henry, although this is uncommon.
4. Lastly, the deep branch of the radial nerve can also be compressed by the distal edge of the supinator muscle, which is known to be fibrous in 50-70 per cent of patients.

### Testing

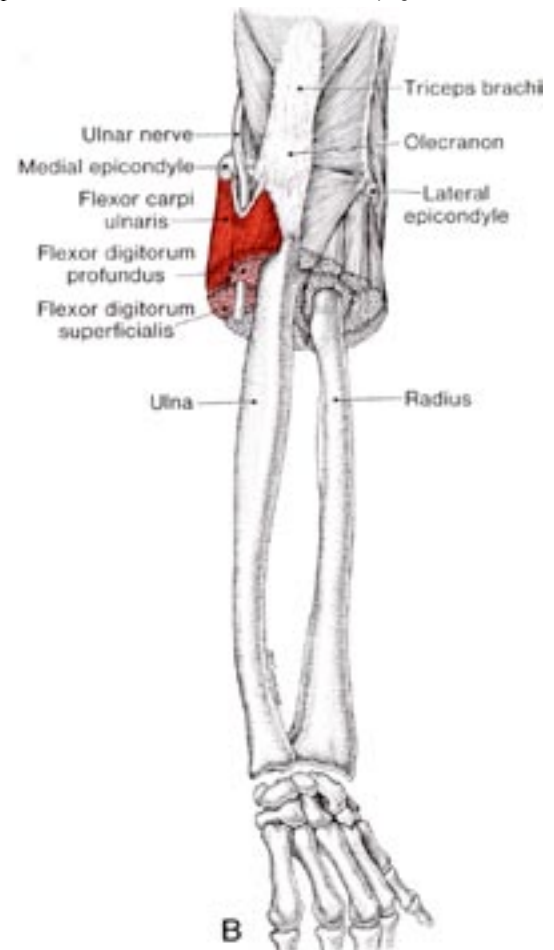
- Tenderness on palpation along the radial nerve, anterior to the radial head, distinguishes it from an extensor tendonosis (tennis elbow).
- Pain on stretching the extensor muscles and resisted finger extension.
- Resisted middle finger extension.

### Posterior interosseous syndrome

Symptoms: Like radial tunnel syndrome, posterior interosseous syndrome can also often mimic lateral epicondylitis.



**Figure 38.4.** Dorsal view of the normal relation between the right ulnar nerve and the flexor carpi ulnaris muscle (dark red) A, tendinous arch between the muscle's humeral and ulnar heads, through which the ulnar nerve passes. B, cross section showing the relation of the ulnar nerve to the flexor carpi ulnaris (dark red), flexores digitorum superficialis and profundus muscles (light red), several centimeters below the elbow in the region of the trigger points that may cause the nerve entrapment.



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Patients may report proximal forearm pain. No sensory deficit is described, because the posterior interosseous nerve but partial-to-complete motor paralysis of the extensors is reported. Often, the brachioradialis and extensor carpi radialis brevis/extensor carpi radialis longus, which are innervated by more proximal branches, are spared. Therefore, any remaining wrist extension also displays radial deviation.

- Etiology: Causes may include entrapment of the nerve in a supinator, fracture or dislocation of the radial head, tumors (e.g. ganglion, lipoma), and iatrogenic causes resulting from open reduction/internal fixation of proximal radius fractures.

#### Soft tissue treatment

Clear CERVICAL /SHOULDER Soft tissue restrictions

Myofascial tension technique applied to NEURODYNAMIC TESTING restrictions.

#### Trigger point therapy

Supinator

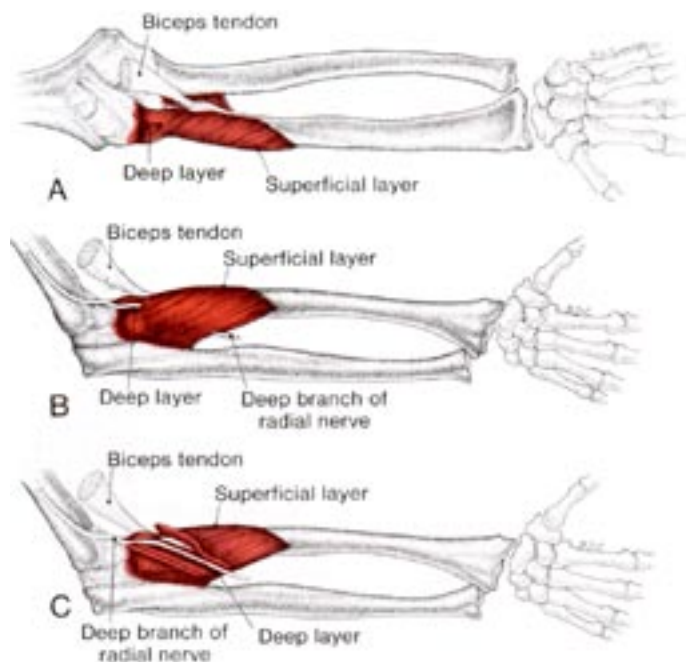
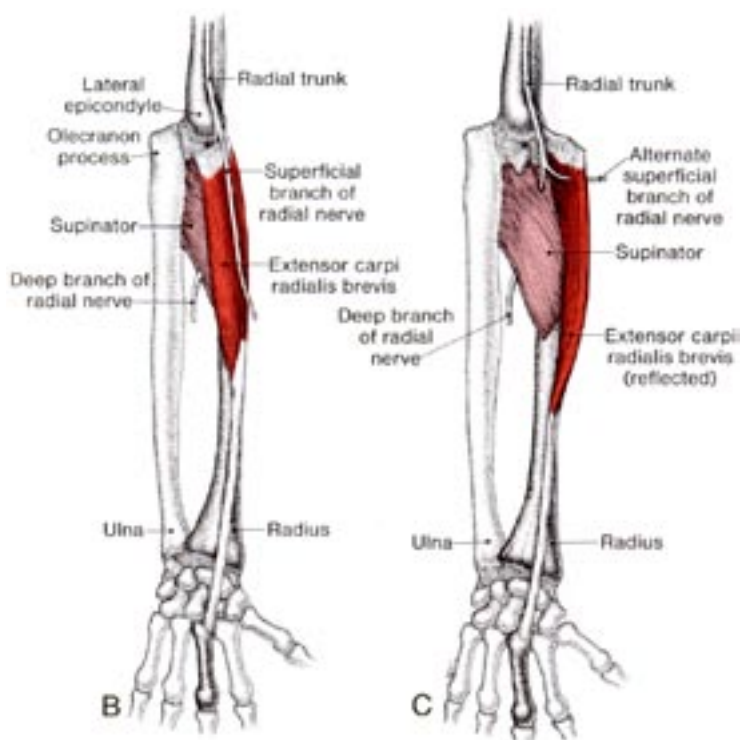
Extensor carpi radialis brevis  
Biceps brachii  
Brachoradialis

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**Figure 36.2.** Attachments of the right supinator muscle (Drd3), and its relation to the deep radial nerve. A, ventral view of the forearm, hand supinated. In the foreground, the muscle attaches to the volar surface of the radius. In the background, it crosses the interosseous space to its dorsal ulnar attachment. A small part of the deep layer is seen through the arched opening in the superficial layer. B, lateral view of the forearm, hand in neutral position. The deep radial nerve enters the arched opening in the superficial layer and continues between the two layers of the muscle. C, same view as Part B, with the superficial layer of the muscle reflected to show the deep layer and the nerve. The area of the radius that is free of muscle fiber attachments is seen just above the nerve. This bare bone separates the two layers. The division of the muscle into two layers ceases in its distal half, where the nerve tunnels through the undivided muscle belly.



# Prolotherapy explained

By Brad Hiskins

**P**rolotherapy is a treatment technique that is indicated when a portion of connective tissue is deemed lax (weakened) or damaged.

'Prolo' is short for the word proliferation and is suggestive of the possible proliferation of connective tissue when this form of treatment is utilised.

The basic mechanism of prolotherapy is to initiate a local inflammatory response in the apparent lax ligament, tendon or similar connective tissue. Inflammation is encouraged by injecting a proliferant into the local tissue. The inflammation begins with the introduction of granulocytes and macrophages. Eventually fibroblasts begin their portion of the inflammatory cascade by depositing new collagen into the site. New collagen tends to be collagen III, a weak and elastic collagen type. As the forming scar matures, the collagen transforms to collagen I, a tough less mobile form of collagen which contracts and loses volume. This supposedly strengthens the lax/weakened or damaged connective tissue (ligament, tendon or other) and the local tissue is then strong enough to bear load and hence decrease pain.

## What is a proliferant or irritant?

A proliferant is a solution that in various ways causes a localised trauma or irritation that initiates an inflammatory response and hence an influx of inflammatory cells. This wound healing cascade leads to fibroplasia and consequential connective tissue thickening and tightening.

## Why would you need to use a proliferant or irritant?

Why would you need to use an irritant when the process of trauma and then inflammation should heal the damaged tissue in the first place? There are a number of possibilities that are put forward.

It is proposed that some repair process may not go to completion for numerous physiological reasons leaving an immature, incomplete or weakened scar. Furthermore some scars may not have been loaded during the remodelling phase, decreasing the load-bearing qualities of the scar, leaving the area vulnerable to further stress and pain.

Secondly, modern medical intervention that advises anti-inflammatories for recent trauma, general pain or joint pain, may be depreciating scar formation. Further research is necessary but theory suggests that by blocking the inflammatory cascade (usually at the prostaglandin level) reducing the mediators necessary to eventually produce fibrosis will inhibit full scar formation.

Trauma to particular connective tissues may unavoidably result in lax connective tissue. For instance, a damaged medial collateral knee ligament that initially loses its rigidity to trauma may not regain its rigidity through scar formation. This area is difficult to apply load to while a young scar is maturing, and in a badly 'stretched' ligament this may result in a lengthened and weakened scar that doesn't perform the job it is meant to do.

## What type of proliferants do we have?

### *Irritants*

The first class of proliferant solutions are called irritants or haptens. These compounds have phenolic hydroxyl groups which are readily oxidized to produce reactive quinone like compounds. These compounds are known to damage the proteins on the surface of cells or attach themselves to the surface of cell and hence causing an inflammatory response.

### *Particulates*

Particulates are noted for their ability to attract macrophages. Substances such as pumice flour which are about the same

size as bacteria and are injected into the focal site. Macrophages are attracted to the pumice flour arrive at the site, ingest the pumice flour and are then believed to secrete polypeptide growth factors resulting in fibrosis and collagen deposition.

### *Osmotics*

This type of proliferant causes osmotic shock. Simple water soluble compounds including concentrated glucose, glycerin or zinc sulfate are injected into the focal site. These agents dehydrate cells by causing an osmotic gradient out of the cell. Dehydration causes cell morbidity or death, releasing proteins that attract macrophages and granulocytes. The inflammatory process begins and eventual fibrosis occurs.

### *Chemotactics*

Sodium morrhuate is the sodium salt of the fatty acid components derived from cod liver oil. This chemotactic agent is a direct precursor for mediators of inflammation such as prostaglandins, leukocytines and thromboxanes. Once injected it is believed that the arachidonic acid component of sodium morrhuate is converted directly into these prostaglandins and an inflammatory response follows.

## What not to do when using prolotherapy

The concept of prolotherapy is to produce an inflammatory response which eventually results in the production of fibrosis and tissue tightening. Anything interfering with the inflammatory response inhibits the eventual tissue tightening, hence the use of anti-inflammatories during this process is contraindicated. Although pain may result with prolotherapy, this is what is expected. Rather than using anti-inflammatory agents to reduce this pain, there are analgesics that don't affect the inflammatory cascade that can be used.

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### Who performs prolotherapy?

Sports physicians, radiologists and general practitioners can all perform this technique – basically anyone who has the education and license necessary to inject substances. Although this is the case, not many clinicians utilise this technique. Finding someone to refer to may be difficult.

### How is it relevant to our industry?

Soft tissue therapy focuses predominantly on techniques that mobilise connective tissues. Prolotherapy does the complete opposite, hence our knowledge of the inflammatory response and collagen

deposition is vital to understand when this technique is indicated. Areas of the body that rely on rigid connective tissues such as ligaments would be the obvious consideration. Those clients that present with long-term instabilities due to trauma or repetitive strain to particular connective tissue may be indicated.

### Do we have an option within soft tissue therapy for weak or degenerative connective tissues?

One of the necessities for our industry is to research what our techniques actually achieve physiologically. By identifying a technique that can cause local inflammation to a target tissue, we may have a manual therapy alternative

to prolotherapy.

Aggressive frictions over a focal site may be a technique that causes local inflammation. If this is the case, then the possibility is that we can apply this technique to achieve similar goals to prolotherapy.

Some common examples of degenerative connective tissues are patella and achillis tendinosis. These conditions both show degeneration of the tendon and a lack of inflammatory cells to promote healing. Both these tendons are superficial, hence easy to palpate and therefore friction. Frictioning these tendons with a similar treatment philosophy to prolotherapy may be our alternative.

## Treat the symptom and the **cause**

**J**anet Travell's lifelong work resulted in the text *Myofascial Trigger Points*. Over 40 years of research, mapping the referral patterns of muscular trigger points, and still the search for what a trigger point actually is remains unknown. Theories are rife, opinions are strong but there is still no histological evidence.

Importantly, these muscle pain patterns are repeatable and therefore an important assessment tool for accurate diagnosis. Treatment options to alleviate trigger point activity are many. Ice, stretching, digital pressure, coolants, dry needling, saline injections and many more. All will have an affect on trigger point activity, some working better than the next depending on the clients response to treatment, the clinician's skill and the irritability of the trigger point.

The above points are obvious and well practised. What is often overlooked with myofascial trigger points is why they developed in the first place. Why trigger points develop is still a mystery, although there are many unproven theories. The basic histology of a trigger point is unknown, as is the physiological mechanism that causes the histological change.

Trigger points can be palpated and the pain pattern predicted without any client feedback. Treatment will alleviate the pain they refer in most cases. But do we treat the causative factors that initiated the development of the trigger point? If we don't treat the cause, will the trigger point return?

There are many causative factors for the development of trigger points. Alleviating the pain referral is only half our job. We must also identify this causative factor and modify the clients behaviour to limit the chance of the trigger point returning. This may include thermal considerations, postural adjustments, workstation changes and many other daily possibilities. You may have to implement stretching or strength regimes to remedy clinical findings that suggest they are necessary.

Next time you treat a trigger point, try to ascertain why it exists. Try to understand its aetiology and the protocol you need to administer to alleviate the possibility of its return.



# Law changes and injuries in Rugby Union

As therapists working with sporting teams, knowing the rules and how they may impact on injuries is paramount to best practice. The hot topic in the UK is the rules within Rugby. Richard Morgan discusses.

By Richard Morgan

Rugby union is a vigorous contact sport, which has one of the highest risk sports for injuries due to the high frequency of contact events (Bottini, 2000). A number of rule changes were imposed by the International rugby board in 1986 relating to the areas identified as those with highest risk of significant injury (Haylen, 2004). Many of the law changes made since the introduction of professionalism have also been made to present the game as a fast, attractive spectacle, with improved continuity and competitiveness. Whilst aiming to determine the mechanism, site, severity and frequency of injury within the game, many of the studies conducted have raised the question of the effect the law changes may have on the spectrum of injury within the game (Edgar, 1995; Garraway, 1995; Garraway, 2000; Quarrie, 2001). As a consequence, attention has been directed toward the elements carrying the most risk of this type of injury. It is worth noting though, that in terms of time off through injury, it is the less severe, but more common types of injury, such as sprains, strains and dislocations, which cause the most time away from the game. The experimental law variations have the potential to have a massive effect on the very make-up of the game and the appearance to the public.

## Literature review

Professionalism was adopted within rugby union by the International Rugby Board (IRB) following the second World Cup in South Africa in 1995 (Garraway et al, 2005). The inception of professionalism has coincided with an increase in the injury rates in the elite level of the game and a changing tactical approach to the game (Garraway et al, 2000; Silver, 2001).

Anecdotal evidence would suggest that the game has become faster and more physical in nature, particularly in the contact phases of the game. There have also been a number of amendments to the laws of the game, both from a safety aspect and also an entertainment value perspective, as the sport's governing body attempts to make the game an attractive a spectacle as possible. What is unclear is the effect these law changes and the professional approach teams are taking in preparation and analysis are

having on the potential for injury in the game.

Injury is defined as "any injury that prevents a player from taking a full part in all training and match play activities typically planned for that day for a period of greater than 24 hours from midnight at the end of the day the injury was sustained" (Brooks et al, 2005a, p.757). This definition is succinct in nature which allows for the physical nature of the game, whilst giving a basis to compare inter-study outcomes.

## Impact of professionalism on injuries in rugby union

The proportion of players sustaining an injury in rugby union has almost doubled in the professional era, with an injury event every 3.4



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matches in the 1993-1994 seasons and a rise to every 2 matches in the 1997-1998 seasons. Brooks et al (2005a) undertook a two season-long study involving 12 professional clubs in the English premiership. The results indicated that during a match, contact mechanisms were responsible for 72% of injuries. The ruck and maul elements of the game produced the most injuries for forwards, whilst the tackle resulted in the most injuries for backs.

The tackle is highlighted as an area where many injuries occur in both rugby union and rugby league (Garraway et al, 2000; Brooks et al, 2005; Gabbett and Domrow, 2005). There is support to suggest that rugby union is unique in terms of the

frequency of injury compared to rugby league. A significant contributing factor has been shown to be the ruck and maul element, which is not present in other codes of football, such as rugby league. Gabbett and Domrow (2005) identified that within sub-elite rugby league players, injuries were most commonly sustained while being tackled (16.5 injuries per 1000 hours) and tackling (13.2:1000 hours). The study also finds that forwards are at a greater risk of contact injury, which is probably due to their increased rate of involvement in tackling and physical collisions.

In relation to contact events in rugby union, Fuller et al (2007) indicated a high contact event (tackle, ruck, and collision) average of 456.8 per game. Tackles caused five times more injuries than any other type of contact event (33.9:1000 player-hours); in addition collisions had a greater propensity to cause injury than other contact events.

#### **Law changes and patterns of play**

In comparison to other sports the laws of rugby union have seen the most changes (Thomas, 2005). What the reports suggest is that since the introduction of professionalism, evidence would indicate that the game has become faster and more physical (Eaves and Hughes, 2003). This theory is supported in part by IRB findings in 2007 that the average 'ball in play time' has risen steadily from 31% to 42% during each World Cup between 1991 and 2003. With this increase there has consequently been a rise in game related activity (i.e., rucks, mauls, kicking, tackling and passing).

Eaves and Hughes (2003) also support the IRB findings of an increase in game activity. In addition they look a little deeper into the patterns of play. They have established that the professional game has seen an increase in the number of rucks which would point toward, in a post-professional era, a phase-dominated, faster game. The most notable increases were in the number of tackles and rucks per game. From their research the number of rucks quadrupled since the introduction of professionalism, and though showing an increasing trend already, the number of tackles per game displayed a sharp rise

following the inception of professionalism. The marked increase in rucks is consistent with the findings by Eaves and Hughes (2003) and reflects the change in the laws regarding the 'use it or lose it' decree in relation to mauls, which a number of authors found had decreased in number (Eaves and Hughes, 2003; Eaves et al, 2005; Quarrie and Hopkins, 2007).

#### **Experimental Law Variations (ELVs)**

Initial law experimentation took place at Stellenbosch University in South Africa in February 2006. The major law changes from a player's perspective cover the following elements: downgrading most penalty offences to free-kicks, allowing handling in the ruck, requiring backs to be at least five metres behind the rear foot at a scrum and permitting defending teams to collapse a rolling maul (Griffiths and Harrington, 2008). Once adopted at a global level the ELVs will remain under review pending a final decision in November 2009. In the meantime, what is the most radical and potentially significant changes to the ethos of the game will continue to undergo significant analysis, including injury surveillance. What is not clear is what the actual effect of these law changes will be on the fabric of the game. There is a clear intention to make the game as attractive as possible with the instigation of these amendments.

#### **Methodology**

An exploratory qualitative approach in the form of a focus group was chosen to identify areas of concern within rugby union in relation to law changes. Participants were selected from the fields of coaching, both management level and director of rugby level, medical, which included a rugby football union community doctor and also a current player. Delegates had been involved at a professional level of the game, or from the higher echelons of the amateur status for at least five years.

Key topics based on the literature review, such as 'The effect of law changes on the patterns of play' (Eaves and Hughes, 2003) and 'Injuries in the post-professional era' (Garraway and McLeod, 1995; Brooks et al, 2005a), were explored using open-ended questions. For example, 'How have the law





changes impacted on the patterns of play?’ Further discussion was encouraged with the use of more directed questions such as ‘Which phase of play now dominates game strategy?’

The data in this study were analysed manually using a categorisation method described by Birley and Moreland (1998) as open coding. The categories used were based on the key topics of discussion, for example, ‘changes in patterns of play’, ‘phases of play responsible for catastrophic injury’ and ‘changes in player physique’. These categories were then used as a basis of a framework for the discussion.

### Findings and discussion

Many of the authors cite the forceful collision aspects of the game as being responsible for the high frequency of injury to the participants (Garraway and McLeod, 1995; Silver, 2001; Brooks et al, 2005a; Fuller et al, 2007). The tackle is the contact event most responsible for time away from the game through injury (Fuller et al, 2007). This overwhelming contribution of these phases of play to the mechanism of injury could be as a result of law changes, implemented to encourage more open play, which is conducted at higher speeds. The acknowledgement of degree of force as a risk factor is evident in the amendments made to the scrum phase of the game and more specifically the engagement process. The ‘crouch-touch-pause-engage’ sequence was introduced to reduce the distance between the players and thereby prevent the front rows ‘charging in’ to disrupt the opposition. The study by Gianotti et al (2008) suggests that this latest amendment is having a beneficial effect, though further work is needed and attention needs to be paid to the other contact elements of the game.

The focus group’s opinion was that because of the low frequency of event, it is not possible to be definitive about the reasons for this apparent reduction of catastrophic injury in the scrum. It could be due to the greater control in the engagement phase, but other contributing factors may exist such as a reduction in the number of scrums per game (Quarrie and Hopkins, 2008). This reduction in the number of scrums could be attributed to changes made relating to retaining possession, where a team taking the ball into a maul and being

unable to release it, lost possession. This is one of the factors cited in the changes in patterns of play the game is seeing (Williams et al, 2005; Eaves et al, 2005).

Law changes within the game have coincided with changes in the patterns of play. The changes were introduced to improve safety and increase the continuity of the game in response to criticism from the media, spectators and players. Rule changes have resulted in an increase in the overall match time and also the amount of time the ball is in play (Williams et al, 2005), which has raised the demands on the players. One participant backed up the study by Eaves et al (2005) stating: “The ball prior to the ELVs was in play for about 40 minutes, which is a 30% increase from 10 years ago.”

It would also appear that there has been a further increase in the southern hemisphere who are trialling the experimental laws, bringing the total time the ball is in play up to 50 minutes (Quarrie and Hopkins, 2007).

In addition to time, the nature of match activity that a player can expect to be involved in has also changed. Because the game is now more phase dominated (Eaves et al, 2005) as teams focus on keeping possession, the total game activity for a player has increased.

As stated in the focus group by a coach involved in the game currently: “Attacking wide became a bigger thing.”

As a result of this changing approach, there has been an increase in the number of rucks coinciding with a decline in the number of mauls and scrums (Eaves and Hughes, 2003). Both of these changes are likely to be related to the introduction of the ‘use it or lose it’ law, introduced in 1994. The increasing risk of losing possession in the mauls made the option of a ruck more preferable and players being more willing to accept the tackle. This could be one reason for the increasing tackle count in the games along with the increasing amount of time the ball is in play. The development of phase related play, with moves based on repeated rucks places a requirement on the players to engage repeatedly in power-based contact phases. As a consequence, the stature of the players has increased considerably since 1995 (Quarrie and Hopkins, 2007). As stated in the focus group: “If you look at the current under-18s’ (national side), they are about the same size as the England players

in the 1991 World Cup.”

There are also added factors of improving player conditioning, with decreasing body fat percentage and increasing muscle mass. Players can run faster and in combination with larger mass, create greater momentum to take into the contact situations. This greater body mass confers an advantage in the contact situations this group of players are now finding themselves increasingly involved in, due to the greater momentum generated. With the experimental law of offside from the scrum being five metres back, it will increase the distance between the players and has the potential to result in higher velocity in the collisions. Other influences around this area are the tactical approaches from the coaching departments. One participant relayed that due to the law changes, he felt that teams would just employ what’s called a ‘drift defence’ and attempt to push teams toward the touchline. To counter this, the attacking team in his view: “...would just look to throw a big player straight at their (oppositions) number 10 or 12 either using our 12, or even a flanker and just smash them through.”

This may not just be down to the law changes however. As part of a professional approach in the game, teams now analyse virtually every aspect and look at how to beat defences. The variability in a player’s role is illustrated by the comment: “The game I played years ago, you would never see a back row out in the backs deliberately to punch holes in the defence.”

Now it is common practice for a number eight to be used to run at the opposition centre, setting up a mismatch in size with the intent to punch a hole through the defence. The combination of velocity and mass leads to high impact contact events placing a large load on the athletes’ bodies.

The group took this on further, with a consensus that there has also been a change in emphasis from attack to defence.

“You didn’t previously practice defence, whereas coaches now spend a lot of time working on this element.”

A number of delegates felt certain that a critical element is the changing attitude in the tackle. The opinion of the group was that there has been a shift to a more ‘offensive tackle’ aimed at disrupting the ball carrier. This more aggressive approach

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would again increase the forces present in this phase of play. This is even more applicable in the higher grades of the game where there are the added factors of increasing player mass and athletic ability, resulting in impacts of a greater force (Silver, 2001).

The deep uncertainty amongst some members of the group is the ability of teams at the lower ends of the game to adapt to this new, phase-dominated faster style of play. A current player pointed out: “As these (law changes) trickle down from the top level, we all try and do it at the lower levels.”

What troubled these delegates was that at the lower levels of the game the players may not have the conditioning levels and the skill level necessary to adopt this approach to the game. This doesn't just relate to the players, but it also encompasses the coaching levels as this influences the quality of preparation players receive. For such a technically demanding sport, coaching quality is important, this is highlighted by the scrum in particular and the number of specialist coaches now in the game (Gianotti et al, 2008). There was an equally enthusiastic level of disagreement around the effect law changes will have at the amateur level, with the view that: “Don't you think that regardless of level, you will play at the pace which you can cope with for your level?”

This is probably a reasonable assumption and will apply to leagues where teams are all of a similar quality and adopt the same level of commitment to training and tactical analysis. What created a great deal of concern in the focus group and led to enthusiastic debate is where there are different strengths of teams within a league, with some teams adopting this ‘dominance’ in the contact phases and others not doing so. The degree of officiating is also at a different standard in comparison to the professional level of the game. In the professional game there are video cameras, which can be used to cite players for foul play, and referees' assistants who are there to support the pitch side official. At this level you have three officials watching the game, whereas at the lower, amateur level there is one official who already has to monitor a large number of events. One of the proposed law variations is to allow teams to pull down

a maul. The group agreed with the early indications from the southern hemisphere (Quarrie and Hopkins, 2008) that allowing this has not caused more injuries, as one delegate pointed out: “...players are fit enough, they are coached well enough, they know exactly what they are doing and also what the opposition will try and do.”

The fear from all of the group was at the lower levels, where because of the deficit in skill and conditioning levels, the maul would ‘collapse’ rather than be pulled down in a controlled fashion. To counter this varying level of ability, one participant suggested: “In relation to law makers, they need to recognise that we have two if not three sorts of game. You basically have the upper and lower level and you have rules applying to each level.”

This illustrates the problem that the data currently collected is all from the professional level of the game and to extrapolate across to the amateur game that changes made in the elite level will have a similar effect on the amateur level is flawed. Players at the lower end of the game have a different, more social/ recreational based reason for playing the game. Their level and depth of analysis, along with motivation to training, skill level and quality of coaching and officiating will be totally different to that of the elite level.

### Conclusions and recommendations

The patterns of play for rugby union have become faster, with more emphasis on ball retention through a phase-dominated playing approach. The studies by Eaves and Hughes (2003), Eaves et al (2005) and Williams et al (2005) and views of coaches, doctors and players are in agreement that the game at the elite level has become more of a phase-dominated, faster game. The inception of the ‘use-it or-lose-it’ law has been the major factor behind the more continuous play and the increase in the number of contact events such as the tackle and ruck. The physical stature of the players has developed to reflect the importance of dominating this contact area, further reinforcing the importance of these aspects of the game. The attitude to the tackle and adoption of a more aggressive/dominating presence in all phases of play has led to an increase in the force magnitudes in the collision elements of the game.

There is varying opinion as to the effects the experimental law changes will have on injuries. The consensus is that increasing the distance between the players by moving the off-side line at the scrum and the nature of the tactics employed to counteract defences has the potential to further increase the velocity in the collision events. It is not clear to what extent these law changes will impact on the amateur levels of the game, but there was concern within the focus group about the transitional levels of the game, which contain teams of varying ability levels.

The difficulty at present is that data is obtained from the elite level of the game and this does not necessarily translate to the amateur level, or from one hemisphere to another. It is not possible to ascertain whether law changes have impacted on injury, because at this time no study has been completed over a long enough period and encompassing all levels which looks at post change results. Further research needs to be conducted into not just the catastrophic injuries, but also the injuries that are the most frequent. With the changing tactical approach and patterns of play the tackle and ruck area will be of particular interest. The frequency of these events and any correlation between a change in the occurrence of these phases and the implementation of the laws need to be investigated. The amateur level has its difficulties as not many teams are prepared to undertake more paperwork or have the financial stability to video games. In the long-term interests of the game, video analysis may prove more expensive but more reliable in collating data than questionnaires at the amateur level.

It is not appropriate to assume the effects at the elite level will translate down to the amateur level. Studies need to be in place with sufficient time to gain data on injuries prior to law changes and then run over a period of eight to ten years with analysis conducted at the completion of each season for all levels of the game. Because of the complex, multifactorial nature of the game, this is necessary if it is going to be possible to establish if the outcome of the law change matches its intended purpose.

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