

# **An Athletic Tragedy**

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The tragedy - one of your best athlete just went down and will be out for some time, all this from a seemingly minor mishap.

For years, this challenge has baffled the sports community. How could as so-called "fit" athlete suffer such a debilitating injury from just a small impact or injury? And why did this same athlete get re-injured so quickly (often with a much worse injury or even season ending or worse career ending injury) when he/she had been released as "healthy" to compete again at full power?

Until now, the only tools to gauge an athlete's musculoskeletal fitness and ability to return to competition were:

- 1) Healing Time**
- 2) Flexibility**
- 3) Range of Motion**
- 4) Strength/Power Testing**
- 5) Physical & Cardiovascular Fitness**
- 6) A Timed Rehabilitation Program**
- 7) Lack of Physical Complaints**
- 8) Proper Protective and Preventative Equipment**
- 9) Resumption of the Activity or Sport Without Pain or Symptoms**

Unfortunately, most of these criteria's are filled with uncertainty as to whether it is too soon or not.

However, there is something even more crucial than any one of these factors which is left out by most sports specialist in the medical community and even in the chiropractic setting for lack of knowledge of:

- 1) the existence of the entity
- 2) experience and or training in isolating the entity
- 3) understanding of the pattern of behavior of the entity
- 4) or the inability to isolate and differentiate normal from abnormal function in the individual patient being cared for.

The entity which must be present and evaluated in all athletes and non athletes, which, often, has not been incorporated to complete this picture is "JOINT PLAY".

## **JOINT FUNCTION**

Integrity and balance of the muscle, fascia, ligament, tendon and joint complex are key to proper healthy biomechanical joint function and locomotion. But, disorders of movement and

interactions among functioning parts can occur, and their recognition is basic to diagnosis and treatment. These may include muscle spasms, muscle tears, tendon rupture or strains, and anything else that directly or indirectly prevents the normal movement of the joint.

Often, the surgical/pathologic approach to pain may identify one or even several of these factors in a given patient. However, intervention to correct that specific problem may or may not lead to relief of pain and restoration of function, depending on whether the isolated pathology was evaluated in terms of its actual effect on the mechanical operation of the joint.

It is with this in mind that this paper will make the attempt to identify other entities responsible for pain and injury production, thereby allowing a more precise treatment care plan to be administered to the athlete. We will reintroduce the terms "Joint Play" and "Joint Dysfunction" as the basic language tools to be used to describe improper joint function giving rise to pain production.

With the further purpose in mind to give doctors a common ground in which to be able to communicate to one another with complete clarity as to the exact findings and their meaning from a functional biomechanical basis.

## **JOINT PLAY**

Joint play is the protective safety barrier mechanism of a joint and also acts as a protective barrier to muscles, bones, and ligaments and is not under the control of the voluntary muscles and is demonstrable at every normal synovial joint in both the spine and the extremities.

The movements at each joints are specific to each joint.

Joint play is the 3rd and seldom checked component of a moveable joint past that of ordinary measurable ranges of motion defined as:

- 1) active
- 2) passive ranges
- 3) paraphysiological space or joint play

It is that which exists within the "paraphysiological space" of each joint. Going beyond this protective barrier causes the onset of pain and structural damage to that joint and surrounding tissues locally. This now leads the way for further structural and functional changes throughout the global system as described in my previous articles, i.e. the Dispersive Factor, Torsion/Countertorsion Principle, Patterns of Injuries, The law of Compensatory Mechanisms.

If there is a lack of joint play, then an injury occurs more easily in the involved joint and surrounding tissues. But, may also result in additional areas of dysfunction through other mechanisms mentioned later in this article.

Testing for joint play can be used as a diagnostic monitoring tool in two ways:

- 1) to locate a problem joint
- 2) to maintain a healthy joint and prevent further deterioration of that joint.

This actually gives us information on the condition of a joint and allows us to manually track changes in that or other joints, even without the use of x-rays. This is extremely valuable to determine to functional joint ability and condition of any patient and especially any athlete that must maintain extreme joint efficiency in order to perform at their best at all times. This paves the way for a trained chiropractor to of tremendous value to any aspiring athlete and other team. Because with the ability to determine joint play presence or absence prior to an injury - the injury to that joint and then other joints can be avoided and prevented!

Joint play movements are specific movements that occur in a joint, not in the normal active or passive range, but in the paraphysiological range of motion of the joint. It is also useful to look at the science of mechanics, because everything that is made to move has a built-in factor of play to promote efficient functional movement.

Because of this, joint play saves us a thousand times a day from joint, and muscle injury: it allows the tissues around the joints to act as shock absorbers before the full brunt of the force of lifting or other force is transmitted to the ligaments and joint capsule.

John McM. Mennell, M.D., was the first to describe this entity and also stated "Lack of joint play is usually the culprit of the cause of pain in a joint as the joint is being pushed beyond its normal physiological range of motion".

It may be best understood by this example - "If a joint is not free to move, the muscles which move it, will not be free to move either and if forced will create a cycle of pain, spasm, fatigue, more spasm and more pain which will result in the locking of the joint or joints and their surrounding musculature giving rise to compensatory changes and eventual myological spasm, atrophy and joint(s) dysfunction".

It can thus be clinically inferred that normal joint play is the prerequisite of normal joint movement; its disturbance can be likened to a drawer that has stuck, and needs to be eased out.

The overall effect of loss of joint play is -

- 1) Decrease function and range(s) of motion
- 2) Muscular spasm
- 3) Pain
- 4) Decreased performance
- 5) Increased fatigue
- 6) Increased rate of occurrence or recurrence of injuries
- 7) Additional unexplained injuries at a site(s) often totally distant from the original point of dysfunction (as explained in the Dispersive Factor, Patterns of Injuries, Torsion/Countertorsion, Law of Compensatory Mechanisms).

Mennell, also stated that these "Joint play movements are very specific in their range of motion, minute and require less than 1/8th of inch of movement in which to be found and interpreted, therefore they must be carefully evaluated, tested and assessed clinically".

## **ADAPTATION OR COMPENSATION**

"The body or site of injury may be made to overcome this, but that really relies upon luck, and is usually at the expense of the joint in the future (Degenerative Arthritis) and possibly the recurrences of the injury in the present; which may be many. Even though, it was thought that the injury had healed completely. But, the body adapts very well because of its living musculoskeletal system in search for functional biomechanical stability", Mennell further states.

Because of this, there is no doubt that the body will assume adaptative and/or compensatory changes to try to lessen the injury site by dispersal mechanisms (Dispersive Factor and Patterns of Injuries), altered biomechanics (Torsion/Countertorsion) and muscular changes (Law of Compensatory Mechanisms).

As I write/edit this article, which was originally written almost 10 years ago and never taken out of my computer, I am in awe that what I have been writing about for the last few years were seeds planted by my mentor and good friend Dr. John McM. Mennell, and wonder if he bequeathed these for me to investigate and develop into practical use?

Although, he mentioned, dispersal mechanisms, altered biomechanics and muscular changes, he never described these mechanisms in detail. It is as if he knew they existed, but didn't have the total picture of how and why they manifested. This is what I have developing over the last 17 years, a clearer picture of how and why these entities exist and their destructive hold on our patients and athletes alike.

If we understand that this is a normally occurring response of the system, then we can also predict with almost 100 percent accuracy the changes that will take place and develop an examination technique to verify or nullify this, before and after the adjustment, which now exists as a total technique.

It is the opinion of this author that this is actually the way that the body responds and that certain patterns correspond with certain injuries and if you only look at the point of pain you will be missing the boat and the injury will respond slowly, if at all.

## **JOINT DYSFUNCTION**

When loss of joint play causes the joint not to move the diagnosis of "JOINT DYSFUNCTION" is given and is a totally objective finding.

What happens if by stress or strain or wear and tear the play is lost in anything that is made to move? The function of that moving part is impaired or lost, and impairment is associated with a squeak or some other abnormal noise.

The same thing happens in a human joint when any joint-play movement is lost, an impairment is associated with the sensation of pain. The cause in this instance is mechanical, and it is logical that its treatment should be mechanical. The cause is a lost joint-play movement. The treatment is to restore the lost movement. By definition the muscles cannot restore it, so restoration must be done for the patient. This and this alone is joint manipulation and its performance has no relation in technique to the passive performance of any voluntary movement.

"Joint dysfunction is perhaps the most commonest cause of residual symptoms following severe bone and joint injury and occurs in joints that have been immobilized in the treatment of fractures, or immobilized for the treatment of mild to severe soft tissue injury around the joint or by treatment following surgery" stated Mennell.

What must be understood is that muscle spasm and atrophy can follow and are usually secondary to primary joint dysfunction.

Therefore, the primary cause must be eradicated, before attempting to attack the secondary factors, or the result will be a failed procedure.

This is why placing a patient on rehab or therapy only without searching, finding and removing joint dysfunction doesn't solve your patient's problem in the long term!

This statement also agrees completely with Henri Gillet, D.C., who often stated "Never re-adjust subluxations which have been already corrected without searching for the causes of their recurrence."

Mennell, also stated that recurrent dysfunction, however, is also an invaluable sign of some serious pathological process or joint disease. Especially if an expected response is not produced.

It is now my belief after all these years that joint dysfunction is the precursor to the subluxation complex and chronic subluxation complexes, which take time to correct versus the short term joint dysfunction pattern(s), which can be relatively simple to correct and short lived in existence, unless misdiagnosed, which will lead to chronic alteration of function and development of long term subluxation patterns.

Therefore, I am also convinced that manipulation is beneficial for short term pain relief of joint dysfunction and that chiropractic adjustments are the more desirable tool for the longer term improved function, retraining and performance of the joint complex and body as a whole. This has been shown again and again consistently with patients under long term care, in athletes and non-athletes alike.

Previously, this has been a center of confusion, for most of us in chiropractic. We were taught to find the primary and to adjust it, so, that the problem would disappear. This does happen, when you're dealing with the simple problem of joint dysfunction, because it is of sudden onset and can be reproduced by the offensive motion, which leads to the isolation of the primary joint problem to be manipulated. This is also quickly handled because the patient or athlete comes in right away with a specific complaint.

However, when the problem has existed for some time, it can now involve the total body, which then manifests throughout the system as altered structural and functional changes. This is why it takes time to handle, so that a more complete correction can be achieved over time, in order to allow bone and tissue cell changes to readapt to a more natural innate function and structure. As function is restored to the joint, this allows the rest of the involved tissues to regain their functional balance also.

Joint dysfunction can be caused by postural defects, trauma, disuse, preexisting disease and congenital anomalies. It is also associated with bone and joint disease.

Joint dysfunction can also be a post-traumatic secondary residual effect following a mild to severe injury, often remaining for many years. When having recognized this as a pain producing entity that causes loss of movement - the only logical and reasonable course of treatment to relieve pain and restore normal joint play and normal voluntary and involuntary movement is through the treatment of manipulation.

## **REVIEW AND RECOMMENDATIONS**

Joint play is essential for normal joint function. Related to this is the fact that if normal joint distraction (one form of joint play) is lost, then joint surfaces will become prematurely approximated when moving toward the close-packed position, and movement in this direction will, therefore, be restricted. This will in turn begin a degenerative process with associated restrictions, loss of strength, agility, movement, decreased performance and loss of function, all leading to greater chances of injury and/or re-injuries.

This leads to the reasoning of why joint dysfunction is a causative factor in many injuries and it is always present even when it is not the primary etiological causative factor.

Lack of joint play is by no means of academic interest only; its practical clinical importance lies in that it shows blockage at a stage when functional mobility is still normal and as soon as this is detected, treatment should be initiated to restore the joint(s) back to normal function.

Unfortunately, joint play is rarely considered and often remains abnormal. The athlete with joint dysfunction symptoms will experience severe pain only after a certain length of time of performing a certain movement and he/she has to stop and rest to relieve the pain.

In the last 14 years, my work with thousands of Olympic, Professional, College, High School, and Amateur athletes of different sports has provided conclusive evidence that joint dysfunction is prevalent in 95-98 percent of all minor and major injuries.

My training and that of many of my peers in Functional Biomechanics and Joint Dysfunction analysis has made this a relatively easy task to diagnose and correct when present, because of our extensive training in joint diagnosis and extremity adjusting.

We also realize that proper Biomechanics and the presence of joint play is indispensable to an athlete's peak performance, which will only be enhanced when they are present.

All elite athletes and those aspiring to be so, should, as normal procedure, have post-traumatic examinations by a chiropractor trained in this work to ensure that joint play is present.

This would eliminate lost time and effort, as well as, poor performances caused by post-traumatic joint dysfunction, because, if joint function is not normal, common sense tells us that its full potential cannot be attained.

It is important to understand that muscles move joints and that if joints are not free to move, the muscles that move them cannot move.

It is a vicious cycle of joint dysfunction, muscle contraction, joint dysfunction and pain. But, with proper chiropractic diagnosis and care, athletes could reap potential benefits which would appear to include improved range of motion, normal muscle function, increase joint stability, improve joint coordination, better balance and fewer performance injuries.

This, therefore, opens the concept of the qualified Chiropractic Sports Physician as a member of the health care and sports health care team for the benefit of the athletes and their performance.

As a final review, when joint dysfunction is the primary cause of joint pain, the clues from the patient history are that the symptoms of pain were:

- 1) Sudden onset
- 2) Occurred following joint movement
- 3) Was unassociated with marked swelling or warmth
- 4) Limited to one joint
- 5) Pain is relieved by rest and does not produce stiffness
- 6) Aggravated by activity and worsens towards the end of the day
- 7) Dysfunction causing pain may be present without any subjective complaint of impairment of voluntary movement (adaptive response)
- 8) The presenting symptoms of dysfunction is pain either locally in a joint or a some place distant from the joint but sharing a common nerve supply
- 9) Dysfunction will usually follow
  - a) immobilization of joint in plaster as part of a fracture treatment
  - b) immobilization of a joint as the after treatment of a simple dislocation,
  - c) the presence of intra-articular adhesions following the resolution of hemarthrosis or, if the joint has been infected, pyarthrosis,
- 10) The pain of joint dysfunction is invariably sharp; and ceases when immediately when the stressful action that produces it ceases
- 11) Using voluntary muscles prevents restoration of joint play and therefore prolongs joint dysfunction and will promulgate secondary degenerative changes to proliferate
- 12) The prescription of exercise alone without joint manipulation can only delay

the restoration of normal joint function leading to eventual degenerative changes.

## CONCLUSION

All that was reviewed in this article, leads to reiteration of the basic truisms:

- 1) when a joint is not free to move, the muscles that move it cannot be free to move it.
- 2) muscles cannot be restored to normal if the joints which they move are not free to move.
- 3) normal muscle function is dependent on normal joint movement.
- 4) impaired muscle function perpetuates and may cause deterioration in abnormal joints.

There can be no doubt that there is a vicious circle of cause and effect in any musculoskeletal problem, but usually the primary fault lies in the synovial joint and when properly identified and corrected, the secondary abnormalities resulting from it can readily be corrected, too.

As a result of this, there must be two more tools added to the nine tools listed in the beginning of the article used to gauge an athlete's ability to return to competition safely:

- 1) the search for joint dysfunction, and
- 2) the correction of loss of joint leading to normal joint function which would restore the impaired muscle function which created the overall weakened condition in the athlete to begin with. Having the thought in mind that pain causes loss of joint movement, but loss of joint movement also causes pain and that it is a fact that good manipulative therapy relieves pain more expeditiously and with more certainty, than other therapies. This would finally allow the other 9 tools to be more effective as a result.

It should come as no surprise then, that a stiff joint, which has been treated for many months by various surgeons, orthopedists and other practitioners without effect, rapidly regains mobility and function at the hands of an irregular practitioner ... the chiropractor. And that the athlete can get back to competition feeling as if he/she finally has everything handled for his or her benefit.

**About the Author** - William R. Moyal, D.C., C.C.S.P., is 1985 Graduate of Life College and has treated over 4,401 Professional, Olympic and Amateur Athletes, Models and Celebrities. He is an authority in the Art of Advanced Motion Palpation and Extremity Adjusting, and the developer of the "Dispersive Factor" as well as, Patterns of Injuries and the Law of Compensatory Mechanisms. He lives in South Florida, where he maintains his practice. Dr. Moyal can be reached at 1741 Alton Road, Miami Beach, Florida 33139 and/or (305) 531-2933 or Email at [DrMKiro4u2@aol.com](mailto:DrMKiro4u2@aol.com) and is available to lecture and teach seminars.