EXAMINATION THESIS FOR VIII DEGREE

Master Janitzio Moreno VII Degree

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Title

TAEKWON-DO AND ITS IMPACT ON THE HIPS - PROBLEMS AND SOLUTIONS A PARTICIPANTS JOURNEY OVER 50 YEARS

1. INTRODUCTION

Far from being a hobby, pastime or just a keep fit routine, Taekwon-Do is our way of life from which we do not want to retire. We live for it and by it.

But our art does not come easy. It is well known that the stress levels acting upon our joints can reach critical levels if we take into account the increased longevity of the average human being and the time we wish to remain active as practitioners.

Therefore, throughout our careers we face a scenario of strong physical demands which carry aches, pains and injuries to our bodies, most of them temporary but others more permanent.

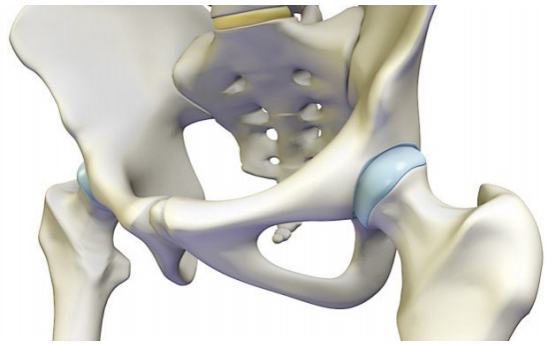
As Taekwon-Do keeps evolving, so does science, and the study and research of the functioning of the body is far more advanced now than what it was let's say 10 or 15 years ago. Due to this it is important as instructors to become familiar and stay up to date with some of the latest advances on musculoskeletal studies and research.

In this case I'm going to focus on a crucial area of the body which is very complex but often misunderstood and is primordial to Taekwon-Do: The hips.

Experiencing osteoarthritis in the hips was an eye opener for me into the different forms of treatment and remedies available today, so I would like to share this knowledge with the Taekwon-Do community in order to help some potential sufferers and assure them that if treated correctly and in time, there will always be Taekwon-Do in our lives.

2. STRESS ON HIPS DURING TAEKWON-DO TRAINING

In brief, the hip is a ball (femoral head) and socket (acetabulum) structure at the juncture of the top of the leg and pelvis. It is one of the most important joints in the human body. It allows us to walk, run, kick and jump. It bears our body's weight and the force of the strong muscles of the hip and leg. After the knee, the hip is the body's second largest weight-bearing joint.



This articulation is very powerful because of the supporting structure of tendons, strong ligaments and muscles around it and the way they interact and function together.

At the same time the hip is also one of our most flexible joints and allows a greater range of motion than all other articulations in the body except for the shoulder, and this is a key element in the constant evolution of ITF Taekwon-Do from it's origins to what it is today (sine-wave, increased power, elaborate kicking techniques, leg control, etc).

All of the various components of the hip mechanism assist in the mobility of the joint. When we kick, one of the ways to execute strong, powerful and controlled techniques is to do it from a stable position, hence the importance of practising proper stances throughout our training.

But kicking comes at a cost: If we assume that our body is comprised of different segments, the ideal way to maintain equilibrium would be to keep those segments aligned in a single vertical line, but when we kick and move, such segments move out of line Therefore another segment must compensate for it. It is at this moment that we exert extra stress on our hips.

Every kick that we execute in Taekwon-Do has a direct impact on our lower joints, especially if the kick is above our waist (so basically 100% of the kicks during sparring, and probably 98% of the kicks during patterns, special technique and power tests).

If on top of that we look at the fact that we need to kick in all directions while maintaining good balance, executing many of the techniques with full power without a real, tangible target (kicking to the air), be able to hold positions for long spells of time, kick in slow motion, etc, we then present our hips with an enormous challenge if we want to execute such movements correctly.

So we need to realise that damage to any single component of the hip can negatively affect the range of motion and ability to bear weight on the joint. Such damage can be to the bone, tendons, ligaments or muscles, or a combination of the above, therefore it is imperative that we understand the mechanics of the hips in order to exercise and strengthen the muscles interacting with this area and minimise the damage.

Dr Robert Klapper (the clinical chief of orthopaedic surgery at Cedars-Sinai in Los Angeles) states: "The martial arts are the No. 1 cause of injuries to the knee and hip, particularly amongst older athletes such as those in their 30s and 40s. I am seeing an epidemic of hip replacements, especially in those over 50." He identifies the turning kick as the most common culprit.

But what are the signals that tell us that we've gone too far or that we're not moving and exercising in the correct way? In the next chapter I will try to briefly tackle some crucial points and symptoms so we have a clearer picture of what might happen to our hips when we expose them to a life of constant pressure and hard demands.

3. NEVER IGNORE PAIN

As instructors we have to do everything within our reach to guide our students through a safe and injury-free atmosphere as much as we can. But in my experience even medically trained staff might lack the expertise to recognise at an early stage the source of hip complaints.

I was wrongly diagnosed with a "groin pull" and sent to physiotherapy sessions on and off for a whole year before a specialist orthopaedic surgeon spotted the core of my problem. If we add to this the fact that I come from an old school system of training in which the phrase "no pain no gain" was the norm of the day, seeking medical help was something you normally didn't do. You had to be tough and act tough.

The result in my case was a scenario in which acknowledging the problem, getting an accurate diagnosis and finding an appropriate treatment for the condition was unnecessarily delayed. This could well have resulted in me having to give up my active career in Taekwon-Do altogether.

As Dr. Robert Klapper quite rightly points out: "Athletes wait too long to seek help for a potential injury because of the no-pain-no-gain ethic of some martial arts. Successfully treating your body is about listening to it on a daily basis, not waiting for it to shout." (1)

Pain is a great communicator and it's the best signal we might have when something goes wrong in our bodies. But a crucial element is that pain will not necessarily pinpoint the exact location of the problem (referred pain), so sometimes pain from other areas of the body, such as the back or knee, can radiate to the hip, or there is an injury to the hip and the pain is felt in the thigh or in the lower back. In other words the source of the problem could lie somewhere else.

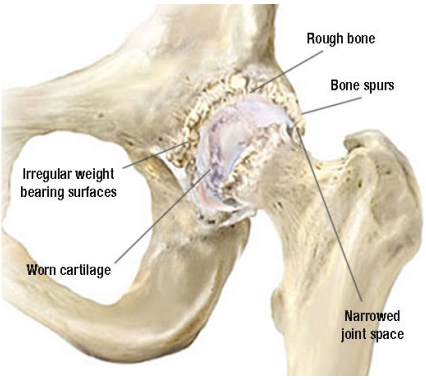
As in the case of hip injuries, referred pain is quite common and it could be the first step to misdiagnosing a serious injury.

Of course it is normal that hips get sore sometimes and even inflamed after repetitive use and arduous training, but how can we be sure that the situation is not a serious one?

Thankfully medical science in this field has evolved considerably in the last 20-25 years, so it is my opinion that as a professional association of Taekwon-Do practitioners and instructors, we should be aware of such advances.

In the next chapter I will list a number of painful signs to watch, some of which could be related to potential serious hip injuries and very common amongst Taekwon-Do practitioners.

4. DIFFERENT MANIFESTATIONS OF HIP INJURIES AND DISEASE



I will only concentrate on those injuries causing pain and discomfort by no apparent external reason, in other words injuries outside of the field of direct trauma. So lesions caused by let's say a fall, a kick to the hip area, overstretching or other instances in which there is a clear connection between pain and an external cause, will not be covered.

Still, we have to consider each individual separately and take into account gender, age, weight, medical history, type of pain, etc.

I will narrow it down to three main areas around the hip where pain is present and can be an indication to seek medical attention immediately: pain in the front of the hip, pain on the side of the hip, and pain in the groin region.

PAIN IN THE FRONT OF THE HIP: (where the thigh muscle meets the hip):

This could be an injury to the Hip Flexors, which are the muscles that allow you to bend your knee and flex your hip. You will experience mild to severe pain when executing mainly Apcha Busigi, Apcha Olligi, Naeryo Chagi, Yobapcha Busigi and Gokaeng-i-chagi.

Lack of proper warm-up or sudden movements, such as sprinting, kicking, and changing direction while moving, can stretch and tear the hip flexors. If this is the cause of the problem there is no long term damage and generally there is no need to seek specialist medical help. Rest and cold compressions should heal the damaged muscles, then you should pay a visit to the physiotherapist in order to work on a recovery program.

PAIN IN THE SIDE OF THE HIP:

One of the causes could be a condition known as Trochanteric Bursitis. The trochanter is a bony prominence toward the near end of the femur. There are two trochanters: The greater and the lesser trochanter. Bursitis is the inflammation of a sac in the joint that contains synovial fluid, and the term trochanteric bursitis denotes pain and irritation generally over the greater trochanter on the outside of the hip.

Pain is felt when side stretching the leg and when lifting it up to the side as to execute Yopcha-Olligi and Yop Chagi, or any movement or exercise that requires the leg to move to the side outwards.

If ignored and as symptoms progress, the pain may radiate down the outside of the thigh and occasionally to the buttock, groin and lower back. Bursitis could also be caused by a tear in

the Gluteus Medius muscle, which will be felt in the buttock and outer hip areas, making it painful with virtually every kick.

Trochanteric bursitis generally responds well to non-surgical treatment, which focuses on a therapy of rest and ice and later mild stretches to the Iliotibial Band ligament (which runs down the thigh from the hip to the knee) and sometimes supported with anti-inflammatories.

If severe, an MRI scan (magnetic resonance imaging) might be necessary in order to establish the extent of the internal damage.

Other than that and once the root of the problem has been specified, a sports medicine practitioner can help you develop an individualised program based on specific symptoms in order to come back to full training at the appropriate time.

PAIN IN THE GROIN AREA:

This can be a very common occurrence among Taekwon-Do practitioners mainly due to the nature of the techniques and stretches that we have to execute, regularly attributed to 'trying too hard to do the side splits'. If this is the case, a few days rest, ice and anti inflammatory gel should solve the problem.

But if the pain is present even when we haven't stretched fully in the last few days, we need to be very cautious as it can also be an early sign of osteoarthritis, or more commonly known as 'wear and tear' arthritis.

Wear and tear arthritis is the wearing out of the cartilage that protects the bones in the joints. As we age, this protective cartilage slowly erodes until the underlying bone is exposed, resulting in pain when the joint moves and bears weight.

Osteoarthritis is one of the most common causes of chronic hip pain for older athletes. In Taekwon-Do this degeneration is caused by the constant and repetitive kicking actions executed as part of our regular training, and it often occurs faster than in the general population, so we are talking about a problem affecting Taekwon-Do practitioners who are still in their 30's.

This will also depend on other factors ranging from genetic pre-disposition to the condition, improper formation of the hip joint at birth (a condition known as developmental dysplasia of the hip), previous injury to the area, and life style factors such as types of food consumed, the weather conditions where we live (humidity) etc.

With osteoarthritis we will notice a steady decrease in flexibility from month to month accompanied by pain in the groin when doing certain kicks that need rotation of the hip joint, such as Dollyo Chagi, Yop Chagi, Naeryo Chagi, Bandae Dollyo-goro Chagi and Bandae Dollyo Chagi, although it can also be present when doing Ap-cha-Busigi and Dwit-Chagi. All jumping techniques will be affected.

As the disease advances (it never gets better by the way), the bones start rubbing against each other, growing abnormally or causing bone spurs. At this stage we do not need to execute the full kick to experience pain, just the preparation for the kick will be enough to cause mild to severe discomfort or even acute pain.

If symptoms appear, a specialist in this area should be consulted as a matter of urgency (an orthopaedic surgeon rather than a physiotherapist) as the problem will only get worse the longer you leave it.

Todays technology can accurately tell us what is going on inside our bodies, so ideally have an MRI done or at least have some X-rays taken in order to establish the root of the problem and start planning a solution.

Solutions can range from pain management to surgery. Pain management will not attack the root of the problem, it will only make it more bearable using different methods such as anti-inflammatory agents, pain relief medication, shock wave therapy, corticosteroids injections

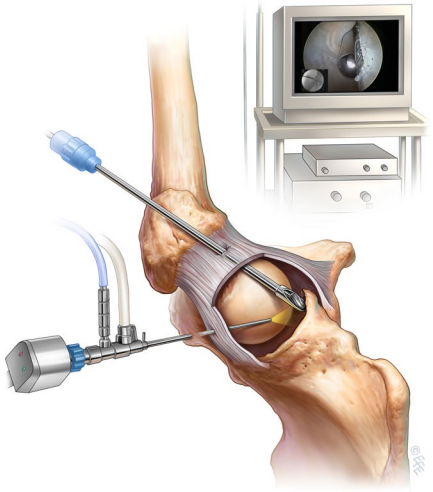
(cortisone) etc, so in the long run this is not an ideal choice for a person who wishes to carry on with an active way of life. On top of that, some types of medication can trigger-off negative side effects.

Surgery will offer a more radical solution as it will aim to remove the problem altogether. In order to tackle this condition there are mainly four different ways.

Which one to choose depends on each particular case and of course on the doctor's advice. These are:

1-Arthroscopy.

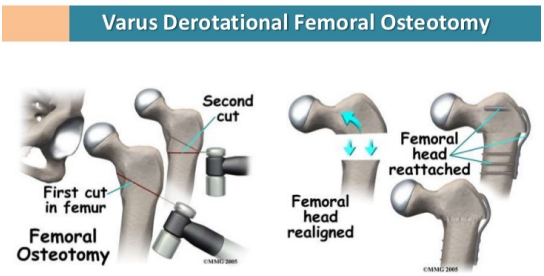
Also referred to as 'key hole' surgery. Useful to inspect and sometimes remove bone spurs with minimal invasion. Due to the depth and complexity of the hip structure some doctors are quite reluctant to use this technique for intricate procedures.



2-Osteotomy.

Either the head of the thighbone or the socket is cut and realigned to take pressure off of the hip joint. This procedure is used only rarely to treat osteoarthritis of the hip, more commonly used if there has been severe trauma.

Not recommended for active individuals who want to come back to full training.



3-Hip resurfacing.

In this procedure, the damaged bone and cartilage in the acetabulum (hip socket) is removed and replaced with a metal shell. The head of the femur, however, is not removed, but instead capped with a smooth metal covering. This is a fairly recent technique which was first carried out in 1997.

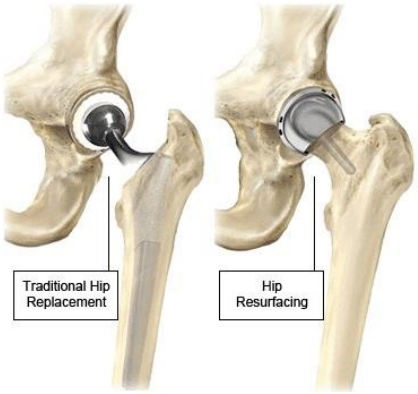
There is an ongoing debate about the side effects as certain patients have experienced an absorption of metal ions.

It needs to be said that studies carried out since 2010 have showed that this risk responds primarily on the quality of the materials used to carry out the procedure: lower quality metals will potentially release more ions as the time passes by. If this is the case, the metal components would have to be removed as soon as possible as this carries a risk of metal poisoning, also known as metallosis.

This is why hip resurfacing patients need to have yearly blood checks to ensure that the level of metal ions is safe.

An important fact is that in the past 10 to 15 years, this technique was declared not apt for women -more on this subject on chapter 5-

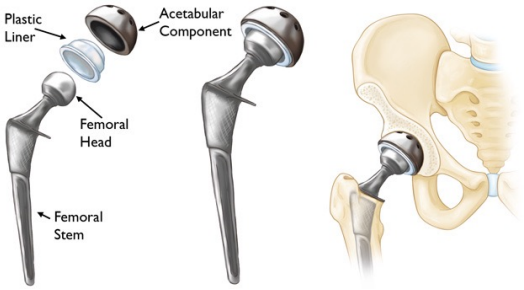
Longevity of hip resurfacing procedures has not been established yet due to its recent development, but it is thought that it should outlast a total hip replacement.



4-Total hip replacement.

The surgeon will remove both the damaged acetabulum and femoral head, and then position new metal, plastic or ceramic joint surfaces to restore the function of your hip.

Around 80% of cemented hips should last between 15-20 years, but younger, more active patients often get cementless hip replacements and these may last longer, although this isn't yet confirmed in long-term studies.



COMMON TYPES OF REFERRED PAIN RELATED TO THE HIP:

PAIN IN THE KNEE CAUSED BY A PROBLEM IN THE HIP: Depending on their placement, bone spurs can make it painful to move your hip, although you might feel the pain in your knee. The doctor would confirm by taking X-Rays to make sure there's no injury to the knee

PAIN AROUND THE HIP CAUSED BY A PROBLEM IN THE BACK: This is a referred pain and it usually doesn't involve damage to the hip structure. . Common causes of lower back pain include strain injury from athletics or overuse, disc herniation, kidney infection and pregnancy.

5. DIFFERENCES IN TREATMENT FOR HIP DISEASE BETWEEN MEN AND WOMEN

There are several explanations about the differences between men and women when it comes to the treatment of hip injuries.

Generally, women tend to have a wider pelvis than men and female hips are more prone to have problems with the socket -or acetabulum- that is either too shallow or too deep. Men usually have more issues with the femoral side of the joint (thigh bone), usually with a femoral head and neck that is too large or oddly shaped.

According to orthopaedic surgeon Dr G. Klingestein of Virtua Voorhees general medical and surgical hospital in New Jersey, men and women experience hip pain in very different ways.
Most men experience pain in front of the hip or groin. Women, on the other hand, may also have more deep pelvic pain, or pain that radiates to the pelvic floor.

So in short, there are definitely distinct bone structure patterns that can be labeled 'female' or 'male.

Another factor that research has recently found, is that women are more vulnerable to the effects of osteoporosis, or weakening of the bones due to menopausal effects.
This is a major point when it comes to assess and treat bone related injuries to women over the age of 40, and is one of the main reasons why nowadays hip resurfacing should not be recommended for women, as statistics show that 1 in 10 procedures in women failed after only 7 years.

Also, the use of metal-on-metal hip bearings is controversial in women of childbearing age and in patients with metal sensitivities regardless of gender.

We can conclude this chapter pointing out that men and women who suffer the same type of hip injuries as a direct result of Taekwon-Do training have a very good chance to recover and carry on at fairly the same level as before, but differences in anatomical and biomechanical factors such as pelvic structure, muscular strength and hormonal variations are important points when it comes to treatment.

As of 2023, research has advanced in the developement of ceramic-on-ceramic and metal-on-polyethylene hip resurfacing techniques which offer a strong and flexible combination without the metal residues risks, although more tests need to be carried out before being offered as an alternative to the methods explained in this thesis.

6.CONCLUSION

As we have seen in this brief study, hip problems are a result of a combination of diverse factors some of which are of our own making and others which are completely out of our control.

Taekwon-Do practice has a direct impact on hip injuries, but it needn't be the main cause, so rather than even considering giving in to the idea that training is damaging us, we need to understand how this part of the body works and what we can do in order to keep healthy, strong joints in order to withstand the effects of regular training.

There are many helpful and simple things under our control that we can include in our daily routine, like eating healthy food (a good balanced diet that includes rich in oily fish, vegetables, fruit, nuts and antioxidants such as vitamins C is said to be a great contributor to fight joint inflammation).

Proper warm-ups and cool-down exercises in the Do-jang will minimise muscle and ligament damage around the hips, keeping a strong structure around area.

Stretching and loosening up the hips in water is also useful as your back muscles and spine will not have to deal with the effects of gravity.

Hot and cold treatments on training injuries are recommended to ease pain and inflammation. But most importantly is the fact that we need to listen more to our body and what our body is trying to tell us.

This study is not intended to diagnose, treat, cure, or manage an illness. It is intended only as a body of general information on a specific problem that is common among our martial arts community. Pay a visit to your doctor or physiotherapist as soon as you notice an abnormality.

Finally, remember that pain is there for a reason, pain is uncomfortable but ultimately this is good as it is a manifestation of the body trying to say something to you. Treat pain like a friend and ally, fight with pain on your side, not against it.

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