Malaysian Arthroscopy Society Newsletter

SCOPE Insight

AUGUST 2022

Message From The President

Being a relatively young society, MAS has been growing slowly but steadily since its formation in 2013. We endeavour to establish mechanisms to accomplish our missions and objectives. We are striving to constantly provide our members with the latest updates in our field on various accessible platforms; to enhance the relationship between senior and junior surgeons and other health care providers, and also to provide opportunities for our members to elevate and improve their careers.

MAS has set up social media accounts on Facebook, Instagram, Twitter, Linked-In and WhatsApp members group, which facilitate us to reach out to members, and now we have our FIRST ever MAS very own newsletter! This milestone could not be achieved without the tireless efforts from the Editorial Board, helmed by the Chief Editor, (Associate) Professor Dr Teo Seow Hui and the editorial team with the support from our beloved members. Congratulations and well done!

On behalf of the 5th MAS Council, we wish to convey our huge appreciation to the previous council led by the very experienced and capable Col. Dr. Azmi Abdul Latifi. It is our honour to continue the legacy and excellent work of the previous councils. With the aim to serve our members and in achieving our goals as a Society, four focused MAS working committees have been formed. The committees are:

5th Malaysian Arthroscopy Society Council Members 2021/2023

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- MAS Fee Arbitration Committee – to represent the society and fraternity in collaborating with the Kementerian Kesihatan Malaysia on matters pertaining to fee schedule and conflict resolutions, headed by myself.

- MAS Accreditation and Endorsement Committee – to represent the society and fraternity in liaising with the National Specialist Registry (NSR), headed by Col. Dr. Azmi Abd Latiff.

- MAS Fellowship and Training Committee (MFTEC) – to focus on enhancing and streamlining the National Arthroscopy and Orthopaedic Sports Medicine training Curriculum and Skills training, headed by Maj. Gen. Dato' Dr. Mohamad Amirrudin Hamdan

- MAS Education Committee – to oversee grant application and approvals, research grants, headed by Dato' Dr. Badrul Akmal Hisham Md Yusoff

We wish we would be able to share more updates and progress of the works through the newsletters. The essence and heart of a society are the members. If you have any ideas, suggestions and insights for our Society, do forward them to us at secretariat@my-arthroscopy.com. We look forward to hearing from you and collaborate towards the betterment of MAS.

Last but not least, I would like to invite all of you to join the 9th MAS Annual Scientific Meeting which will be held on 13th – 15th October 2022 in Nexus Connexion Bangsar South. The Annual Scientific Meeting has always been the flagship event of the society. This year, in conjunction with the FIFA World Cup 2022 to be held in Qatar, we would love to have you exploring a 3-day "Football Mania" with us. With Prof. Dr. Mohamad Khairuddin Abdul Wahab helming the Organising Committee together with Dr. Harjeet Singh Puran and Prof Dr Teo Seow Hui as the Co-Scientific Chairs, I am confident and excited that this year's MAS Annual Scientific Meeting will be an educational event to remember. So, get ready your football gear and I hope all of us will benefit tremendously from this wonderful meeting!

Warm regards,
Datuk Dr. Mohd. Asri Abd. Ghapar
President (2021-2023),
Malaysian Arthroscopy Society

Chief Editor's Message

After months of planning and as the time of intense effort are now at ease, with great pleasure, we are proud to present to you the product we are thrilled about – our First issue of "Scope Insight"– the Malaysian Arthroscopy Society newsletter. This newsletter is intended to encourage interactions between MAS members to share updates, their insights and concerns.

With the endemic transition of COVID-19 pandemic in force, the world is going borderless again (with precaution). We foresee limitless chances for us to seize the opportunity to learn and share our knowledge and passion through educational events. Hence, let this newsletter be our platform to showcase the unforgettable moments and achievements we experienced during these events, such as the 40th Arthroscopy Association of North America (AANA) meeting attended by Dr Kok in San Francisco. The engaging article on sports injury among football legends by Dr Robin could also give everyone a glimpse on our upcoming 9th MAS Annual Scientific Meeting.

Apart from that, how about some history lesson? Join Dr Sharifah Amirah back in time to recapitulate the development of arthroscopy. Then, let us read what Dr Raymond would like to put rhabdomyolysis into words.

The release of this newsletter is a great start. I would like to express my sincerest gratitude to the members of the editorial board – Dr Raymond Yeak Dieu Kiat, Dr Robin Low Chin Aun, Dr Sugesh Raghavan, Dr Siva Thangaraju, Dr Ahmad Farihan Mohd Don and Dr Sharifah Nor Amirah Syed Abdul Latiff Alsagoff – for their concerted effort to make this newsletter a reality. At the same time, we would also love to hear your thoughts about this newsletter, along with more inspiring news, opinions, suggestions and achievements that we can cover in the future issues.

Lastly, I sincerely hope everyone will find this newsletter aspiring and informative. Let us sit back, unwind and enjoy this first MAS newsletter - Scope Insight.

Assoc. Prof. Dr. Teo Seow Hui
Secretary (2021-2023),
Malaysian Arthroscopy Society
MAS Newsletter Chief Editor (2021-2023)

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Dr. Sharifah Nor Amirah bt Syed Abdul Latiff Alsagoff
Universiti Teknologi Mara

Arthroscopy: The Past, The Present and The Future

Prepared by **Dr. Sharifah Nor Amirah bt Syed Abdul Latiff Alsagoff**

When one thinks of an arthroscopic surgery, a camera assisted surgery, and a whole lot of water comes to mind, for the majority. For me, it's the experience of peering into the insides of a joint and being able to do multiple procedures with just a couple of small incisions, is what I find so fascinating. Deemed one of the greatest developments in the diagnosis and treatment of the musculoskeletal system, arthroscopy has revolutionized orthopaedic surgery. Now, it has become an indispensable procedure and regarded as the standard surgical treatment.

Marcel Proust, in his book In Search Of Lost Time wrote, "The real voyage of discovery consist not in seeking new landscapes but in having new eyes." Professor Kenji Takagi opened new eyes when he devised an endoscopic instrument to explore the knee joint. For the first time, joint surgery could be minimally invasive and doesn't require big debilitating scars. Takagi's tutelage, Dr. Masaki Watanabe later developed the popular No.21 Watanabe arthroscope which became the basis for modern arthroscopes.

The evolution of the arthroscopic device is a story of determination, dedication, mentorship and passion. If it were not for these great inquisitive and innovative minds, joint surgery could possibly be a lot different than what it is today.

The Beginning

"The process of scientific discovery is in fact a continual flight from wonder," Albert Einstein. Mankind has always been curious and riveted by the idea of exploring and examining body cavities. However, for centuries the struggle was always finding ways of illumination into these cavities to allow for better vision. The history of endoscopy, surprisingly dates all the way back to 1806, with the invention of the "Lichtleiter" or the light conductor, devised by Phillip Bonzini. This crude instrument was invented to inspect the insides of a bladder. A candle was the source of light with reflective mirrors directing light to the eye of the observer. Dr. Antoin J.Desormeaux refined it by improving its light source. In 1853, he created an instrument with a combustion chamber and reconfigured the lens system for a more accurate light focus, naming it "l'endoscopie", heralding the beginning of the era of endoscopy.

The Era of The Incandescent Arthroscope

The limitations with illumination was resolved when Thomas Edison invented the incandescent lightbulb. This light source was incorporated in cystoscopes, paving the way for further expansions of endoscopic exploration. Japanese surgeon, Professor Kenji Takagi was determined to detect early cases of tuberculosis (TB) of the joint as TB was prevalent at the time. This motivated him to visualize the inside of the knee and so in 1918 he began exploring the inside of cadaveric knees using a 7.3mm cystoscope, which is huge by todays' standards. In his quest to develop a more functional cystoscope, by 1931 he devised a scope small enough for rudimentary surgery within the knee, known as the No.1 arthroscope, a 3.5mm arthroscope. The prototypes that followed suit were numbered up to 12 (No.1-No.12) with varying degree of angles and instruments suitable for assistance. Takagi's work came to a grinding halt upon the onset of World War II, however he remained committed to arthroscopy and whole heartedly believed in the contributions and its far reaching applications to modern day surgery. His protégé, Masaki Watanabe shared that belief and vision.

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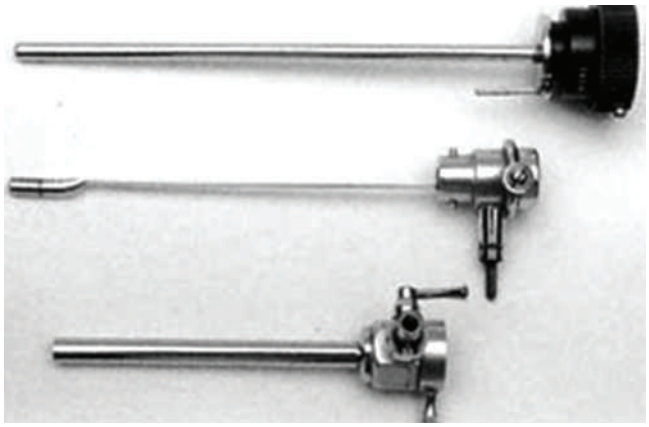
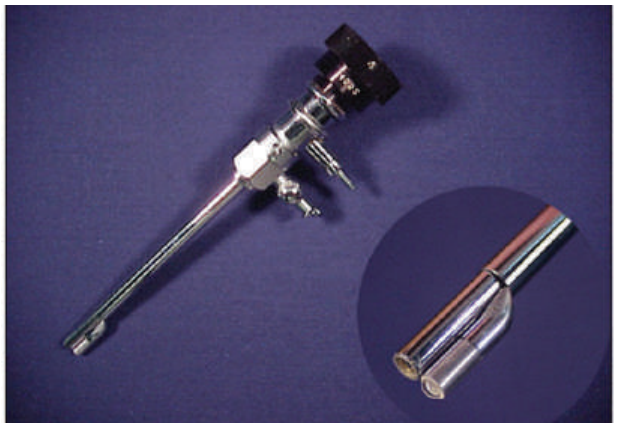
Prof Dr.Kenji Takagi "Father of Arthroscopy" (left)
Dr.Masaki Watanabe "Father of Modern Arthroscopy" (right)
From Passler and Yang 2012 – Section 'The Past and The Future of Arthroscopy' in book 'Sports Injuries: Prevention, Diagnosis, Treatment and Rehabilitation' ISBN 978-3-642-15629-8





Watanabe No.21 Arthroscope
From Passler and Yang 2012 & Baker A,Whipple, T.L. Poehling, G.G. and Bain, G.I 2022. History of wrist arthroscopy. In Arthroscopy and Endoscopy of the Elbow, Wrist and Hand.

Masaki Watanabe was a modest surgeon yet his inventions and research far exceeds his predecessor. After World War II, Watanabe resumed his study of the arthroscope and took on the task to perfect and expand the work of his mentor. He continued efforts to refine the arthroscope and in 1951, developed his first arthroscope, the No.13 Watanabe arthroscope, a modified 4mm paediatric cystoscope. In 1958, he developed the No. 21 arthroscope which had a 6mm sheath encompassing the scope, a lens of 102 degrees (equal to the human eye) and a focal length of 1mm to infinity. It allowed for consistent successful observation of the meniscus and for coloured photographic recording. The No.21 became a model for production globally. Later by way of adversity, he discovered that the arthroscopic device could also be a therapeutic tool. Thereafter, Watanabe performed multiple therapeutic procedures, which includes the first arthroscopic partial menisectomy on a 17-year-old basketball player in 1962. In 6 weeks, patient was able to go back to playing basketball.

While Watanabe continued to share his knowledge via publication and presentations, it took international collaborations for arthroscopic surgery to gain acceptance and popularity outside of Japan. In 1964, Dr. Robert W. Jackson from Canada flew to Japan to study tissue culture techniques and had observed Watanabe's arthroscopic procedures. Inspired, he requested a fellowship under Watanabe. "We struck a bargain. He taught me arthroscopy and I taught him English." A year later, Jackson brought the knowledge and expertise back home and began his own arthroscopic practice, presenting his experience at multiple national conferences. In 1969, Dr. Richard O' Conor also sought out Watanabe to learn from him. He eventually went on to perform the first partial menisectomy in North America and subsequently popularised meniscal repairs.

Although Watanabe's No.21 was the go-to arthroscopic device, it had its drawbacks. Due to its heat emitting nature, it constantly required cooling and would occasionally shatter in the joint. The bulb could also dislodge from the tip and sometimes cause an electrical short circuit. The No.21 was the last arthroscope to be produced with an incandescent bulb.

The Era of Fibre Optics

The next advancement in arthroscopy came with the advent of cold light or fibre optics, which enabled devices to move away from incandescent lightbulbs. In 1967,Tsunekichi Fukuyo, an arthroscope manufacturer built the No.22 Watanabe arthroscope, the first cold light arthroscope. However Watanabe wasn't too fond of this new scope due to the end on direct view and the slightly narrow field of vision. He preferred the offset from the bulb of the No.21 to push aside synovium. In 1970,he developed the first ultrathin 2mm fibre optic arthroscope, No.24 designed to visualise small joints which later formed the basis of the "Needlescope".

The 70's and 80's saw a boom in the arthroscopic landscape. In 1963, only 13 surgeons in US and Canada owned an arthroscope but by the early 1980's almost 98% of orthopaedic surgeons used an arthroscope. The development of fibreoptics basically made the incandescent bulb obsolete. The fibre optic offered a much safer and dependable light source. The instrument did not heat up, illumination was better, light source was outside of the surgical field and it was less fragile. From then onwards arthroscopic surgery grew in leaps and bounds. Education and awareness regarding arthroscopic procedures expanded via educational talks and courses held by various associations. Not long after, the volume and complexity of arthroscopic procedures increased, different techniques emerged, and better equipment and instruments followed suit.

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The Wireless Era

Despite the many advancements and sophistication of the arthroscopic device in the last 50 years, the technology required to cut loose from being tethered has long been prohibitive. We have never been able to free ourselves from the cables attached to the arthroscope, until now.

In 2007, Dr. Pedro Guillen innovated the Wireless Arthroscopic Device (WAD), a highly portable wireless device which even allows for usage in the office. It uses a rechargeable power capsule, a conventional lens and a mini video camera. On 17th of September 2013, Dr. Guillen performed an arthroscopic autologous chondrocyte implantation using the WAD and broadcasted the whole surgery via his point of view using the Google Glasses. The first Google Glass masterclass surgery was broadcasted live to 300 universities over 5 continents.

In the United States, Lazurite Holdings, a medical device and technology company has just launched (2022) the ArthroFree camera, a device which utilizes a novel low heat, laser based light source that consumes less than 1% of the energy required to power the conventional LED system. It also has a highly efficient, lightweight battery has wireless connection.

A wireless system, as we can imagine offers a plethora of benefits. We would no longer have to deal with trying to untangle cables, pulling of potentially unsterile cables or the risk of staff tripping over the cables. Assembly and take down of the device also takes a lot less time. Patients would also benefit greatly as operative time would be shorter and in turn anaesthesia duration and its complications. It would also reduce risk of infection from contamination of cables and risk of burns occurring from the light source would be eliminated. The wireless era is in the horizon and is likely to usher a new paradigm shift in arthroscopic surgery. Therefore, we'll just have to wait till it reaches our shores.

Lazurite's ArthroFree Wireless Arthroscopic Device
From Williams J.S. and Gupta A 2022. The Wireless Arthroscopic Era Begins: Arthroscopy's Evolution from the Incandescent Era to the Fiber-Optic Era to the Wireless Era. Journal of Orthopaedic Experience & Innovation.

References

1. DeMaio, M. (2013). Giants of orthopaedic surgery: Masaki Watanabe MD. *Clinical Orthopaedics and Related Research®*, 471(8), 2443-2448.
2. Pässler, H. H., & Yang, Y. (2012). The past and the future of arthroscopy. *In Sports injuries* (pp. 5-13). Springer, Berlin, Heidelberg.
3. Jackson, R. W. (1996, October). From the scalpel to the scope: the history of arthroscopy. *In Baylor University Medical Center Proceedings* (Vol. 9, No. 4, pp. 77-79). Taylor & Francis.
4. Kieser, C. W., & Jackson, R. W. (2006). How cold light was introduced to arthroscopy. Arthroscopy: The *Journal of Arthroscopic & Related Surgery*, 22(4), 345-350.
5. Williams, J. S., & Gupta, A. (2022). The Wireless Arthroscopic Era Begins: Arthroscopy's Evolution from the Incandescent Era to the Fiber-Optic Era to the Wireless Era. *Journal of Orthopaedic Experience & Innovation*, 34670.
6. Bigony, L. (2008). Arthroscopic surgery: a historical perspective. *Orthopaedic Nursing*, 27(6), 349-354.

MEET OUR SUPERSTAR SPEAKERS BEHIND YOUR FOOTBALL STARS

9th MAS ASM 2022 Introduces our Keynote Speaker, Associate Professor Dr Ramon Cugat "The Messi of Medicine, Knee Surgeon to the World's Greatest Footballers".

Associate Professor Dr Ramon Cugat started with a dream: to become one of the greats of football. Today, he is the magic behind stars such as Pep Guardiola, Mikel Arteta, Thibaud Courtois and even singer Shakira. Born to a family of agriculturists in La Aldea, Tarragona, in 1950, Dr Cugat moved to Barcelona in 1965. There, he tried out for the junior division of Futbol Club Barcelona and played until 1971, after which he left to pursue medicine.

He enrolled in the Univeristy of Barcelona in 1969, and under the mentorship of Dr. Jose Garcia Cugat, studied sports medicine. Within the span of 10 years, Dr. Cugat obtained his degree in Medicine and Surgery as well as his doctorate. His specialisation in arthroscopy began in England in 1979, and in 1980, evolved into collaborating with Dr. Bertram Zarins, then Chief of the Sports Medicine Department of Massachusetts General Hospital in Boston, USA. Dr. Cugat cites his time in Boston as the reason for his specilisation on knee injuries.

Over the years in the field, Dr. Cugat has seen the ACL injury evolve. His secret to being the best? He was a footballer too. Dr. Cugat is aware of the factors behind knee injuries in footballers–from the type of boots and height of grass to the difference between natural and artificial grass. As the number of football players grow worldwide, so does the need for the evolution in the treatment of injuries.

This year, in conjunction with World Cup 2022, the theme for Malaysian Arthroscopy Society Annual Scientific Meeting is Football Mania!

Our Scientific Committee promises everyone a special meeting. There will be surprises in store for our delegates and World Cup merchandize for lucky delegates.

SCAN ME

Sign Up Early by scanning the QR code and we'll see you there! Ole! Ole! Ole!

9th MAS ASM

MALAYSIAN ARTHROSCOPY SOCIETY
ANNUAL SCIENTIFIC MEETING 2022

Triumphant Comebacks After Anterior Cruciate Ligament Injury Among Football Legends

Prepared by **Dr. Robin Low Chin Aun**

Too many football players have received the awful news after hearing that 'pop' sound in their knee, "Your ACL has been torn. It's possible that your career is coming to an end."

For those athletes, after surgery and months of rehab, the million-dollar question which arises is: Will I ever be able to play the same again?

Thirty years ago, an ACL injury was career-ending, but today, thanks to arthroscopy and refined surgical techniques, most athletes are able to return to sports at a pre-injury level.

In this article, we present the biggest names in professional football who had made a career comeback from ACL injuries.

Left: Ibrahimovic with a hyperextended knee upon landing.
Prenderville L. Zlatan Ibrahimovic suffers knee injury against Anderlecht in latest Manchester United blow. 2017 Apr [cited 2022 May 18]. *Available from: https://www.mirror.co.uk/sport/football/news/zlatan-ibrahimovic-suffers-knee-injury-10265606.*

Right: Dr. Freddie Fu, the surgeon who operated on Ibrahimovic's knee.
Ryding P. Dr Freddie Fu, the Hong Kong surgeon who saved Zlatan Ibrahimovic's career, dies aged 71. 2021 Sept [cited 2022 May 18]. *Available from: https://www.scmp.com/sport/hong-kong/article/3150166/dr-freddie-fu-hong-kong-surgeon-who-saved-zlatan-ibrahimovics.*

Zlatan Ibrahimovic

"Zlatan needs no introduction. Ibra is one of the best strikers in the world." Those were the words from Jose Mourinho when he signed the Swedish superstar to Manchester United in 2016.

In the 90th minute of Manchester United's Europa League quarter-final triumph against Anderlecht in April 2017, the Swedish striker landed awkwardly while attempting to control a ball in the air. As he landed, Ibrahimovic's knee appeared to be hyperextended, and the striker was seen to be holding his right knee in excruciating pain.

Zlatan Ibrahimovic, then 35, suffered a career-threatening anterior cruciate ligament injury and was expected to be out for a full year. He was treated by the world-renowned Hong Kong surgeon Dr Freddie Fu Ho-Keung in Pittsburgh Medical Center. Ibrahimovic published a tribute on Instagram after hearing the passing of the orthopaedic surgeon on September 24, 2021: "Freddie Fu gave me a second chance in my career. I'm still on top just because of him. I owe him everything. Thank you, Freddie Fu. Rest in peace."

At the age of 39, Ibrahimovic is still going strong and helped AC Milan win their first Serie A title in 11 years in 2022.

Virgil van Djik

On October 17th, Liverpool star centre-back Virgil van Dijk was challenged recklessly by Everton's goalkeeper. Jordan Pickford collided into van Dijk with a two-footed charge, twisting the Liverpool defender's knee inwards with his foot planted on the ground. The game ended in a 2-2 draw at Goodison Park.

The £75 million star central defender was diagnosed with ACL injury and surgery was subsequently performed in London. He was then sent to the Nad Al Sheba Sports Complex in Dubai which boasts some of the finest fitness and training equipment in the world for rehabilitation. The complex is only available to elite sporting athletes and had been previously visited by the likes of Cristiano Ronaldo, Novak Djokovic and Mohamed Salah.

The rehab regime consists of knee-specific metrics such as sprinting speed, change of direction speed and side-to-side strength assessment. Another component

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Van Djik performing rehabilitative drills during his recovery.
Ellis M. Virgil van Dijk resumes rehabilitation at Kirkby training base. 2021 Feb [cited 2022 May 18]. *Available from: https://tribuna.com/en/news/liverpoolfc-2021-02-25-virgil-van-dijk-resumes-rehabilitation-at-kirkby-training-base/.*

The clash between Virgil can Djik and Everton's goalkeeper Jordan Pickford. Hunter A. Liverpool's Virgil van Dijk facing surgery and long absence with cruciate injury.
2020 Oct [cited 2022 May 18]. *Available from: https://www.theguardian.com/football/2020/oct/18/liverpool-virgil-van-dijk-cruciate-injury-facing-surgery-and-long-absence-knee.*

consists of movement-specific metrics which assessed how Van Dijk was moving during his drills. These drills emphasized on the neuromuscular connection between the brain and body to create stability around the knee and coordination globally for the entire body. And prior to returning to the competitive pitch, he had to regain his previous cardiovascular fitness and psychological readiness.

The Netherlands captain has made his return for Liverpool in a friendly match against Hertha Berlin after being sidelined for 9 months after injury with Klopp describing the 30-year-old as "the best centre-half in the world".

Alan Shearer

In the summer of 1992, when Alan Shearer was just 21 years of age, he moved to Blackburn for a transfer fee of £3.2million — a Premier League record back then. His first season started splendidly, but it came to a premature end when he snapped his right ACL in a match against Leeds United on Boxing Day. He scored two goals in that match and continued playing up to the 83rd minute.

The diagnosis of ACL injury was made by Dr. David Dandy in

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A medical personnel attending to Shearer's injured knee.
Shearer A. Alan Shearer: How you come back from an ACL injury. 2020 Oct [cited 2022 May 18]. *Available from: https://theathletic.com/2147288/2020/10/20/alan-shearer-virgil-van-dijk/.*

Alan Shearer with his signature celebratory pose.
Innes R. 25 pictures which demonstrate the magnificence of the Alan Shearer goal celebration, 25 years after he joined Blackburn. 2017 Jul [cited 2022 May 18]. Available from: *https://www.mirror.co.uk/sport/row-zed/25-pictures-demonstrate-magnificence-alan-10880747*.

Cambridge and the surgery was performed a few days later. When asked about his rehabilitation process after surgery, Shearer replied, "It was long, lonely and hard work."

Shearer bounced back in style, scoring 31 goals in 40 games the following season. He continued to score consistently at Newcastle United and finished his career as the Premier League's all-time leading goalscorer with 260 goals, which still stands as a record.

In an interview, Shearer was asked: "What is the most important thing to make sure you can come back?" He replied, "Be patient. Don't cut corners. And do everything the physio tells you."

And that was the piece of advice he gave to Virgil van Djik during his injury.

A study published in Orthopaedic Journal of Sports Medicine in 2022 reported a mean annual ACL injury incidence of 1.42% among elite UEFA league soccer players. The return to play (RTP) rate was 95% with average RTP time of 248 days after ACL reconstruction. Athletes played significantly fewer games and minutes per season after injury. By the third postoperative season, 36% competed in a lower-level national league, and 13.6% ended their careers.

Apart from the three players mentioned above, legendary figures such as Roberto Baggio, Ruud van Nistelrooy, Roy Keane, Xavi and others have ruptured their ACL and returned to playing football at a professional level thanks to the advancement in the arthroscopic field.

Reference

Mazza D, Viglietta E, Monaco E, Iorio R, Marzilli F, Princi G, Massafra C, Ferretti A. Impact of Anterior Cruciate Ligament Injury on European Professional Soccer Players. Orthop J Sports Med. 2022 Feb 22;10(2):23259671221076865.

What Is Exercise Induced Rhabdomyolysis?

Prepared by **Dr. Raymond Yeak Dieu Kiat**

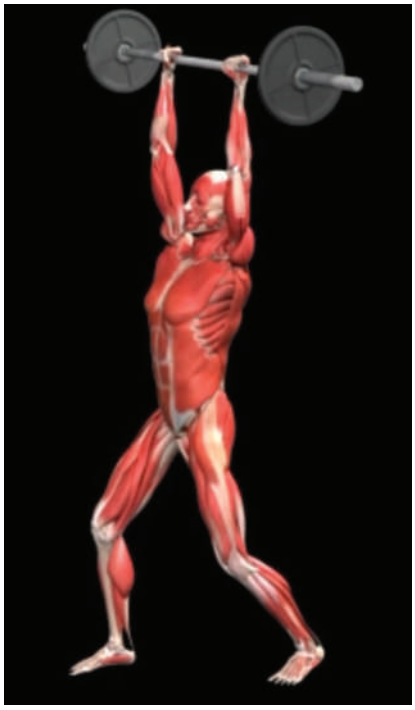
Rhabdomyolysis was first discovered in ancient times when the plaque struck the Israelites during their exodus from Egypt after the Israelites' abundant consumption of quail, which was recorded in the Old Testament. Ever since then, there have been numerous reports of rhabdomyolysis occurrences which stems from various causes in modern times. Rhabdomyolysis (rhabdo, striated; mayo, muscle; lysis, breakdown) is a medical condition characterized by the disintegration of skeletal muscle resulting from the release of muscle cell elements such as myoglobin and creatine kinase (CK) into the blood stream and urine. [1]

Swelling is observed in the left leg

CDC, NIOSH (Rhabdomyolysis)

CDC, NIOSH (Rhabdomyolysis)

Now, one may wonder why is there a need to pay special interest in this medical condition during these times? As the gyms reopen amid the relaxation on the standard operating procedures (SOPs) and adaptation to the new normal as we move on to endemic phase, we ponder on the possibility of increased cases of exertional or exercise-induced rhabdomyolysis. With the new found freedom and the people's confidence in revisiting gyms, gym goers may push their boundaries and overdo their work-out, thereby resulting in exertional or exercise induced rhabdomyolysis medical condition which is rare, but nevertheless dangerous.



Elsevier (Complete Anatomy)

"What is exercise induced rhabdomyolysis?" This would be the first question that pops up in everyone's mind when they first hear about this medical condition. The next question that would be on everyone's mind is, "I did not know it can be caused by exercise", Exercise-induced rhabdomyolysis is rare and yes, it can due to excessive exercise. There is very little understanding on this medical condition and what better time other than now to shed some light on this unappreciated and neglected condition given how prone it is for the public to succumb to such injuries without proper information on the medical condition.

What is exercise-induced rhabdomyolysis?

First of all, rhabdomyolysis occurs when there is excessive increase in calcium, resulting in the death and breakdown of damaged muscle. This in turn causes the release of muscle cell contents such as intracellular components and protein such as myoglobin and creatine kinase into the blood stream. The proteins and electrolytes released into the blood stream may lead to organ damage.

What are the symptoms of exercise induced-rhabdomyolysis?

The common symptoms diagnosed are muscle stiffness, soreness, swelling and loss of strength.

How do you diagnose rhabdomyolysis?

You can test your blood for creatine kinase (CK) presence, perform a urine dipstick for myoglobinuria presence, undergo an ultrasound, magnetic resonance imaging (MRI), or biopsy and histopathology examination (HPE), which is rarely performed for detection of rhabdomyolysis medical condition.

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Rhabdomyolysis can be diagnosed through the following test:

- Blood test for presence of creatine kinase (CK)
- Urine dipstick for presence of myoglobinuria
- Ultrasound
- Magnetic resonance (MRI) or biopsy
- Biopsy and histopathology examination (HPE) – Note: this test is rarely performed for detection of rhabdomyolysis)

When should you see a doctor?

If you develop extreme muscle pain, muscle weakness or excrete dark urine after intense exercise, you should see a doctor. Excretion of dark urine can happen immediately or after a few days following an intense workout.

You can undergo a blood test and if the presence of creatine kinase (CK) is more than 5000 IU/L, it may indicate muscle damage.

How common is exercise-induced rhabdomyolysis?

It is rare and usually the arms are more affected than legs as legs are more used to eccentric movements such walking up and down the stairs, running and jumping.

What is the sequelae and what are the possible complications?

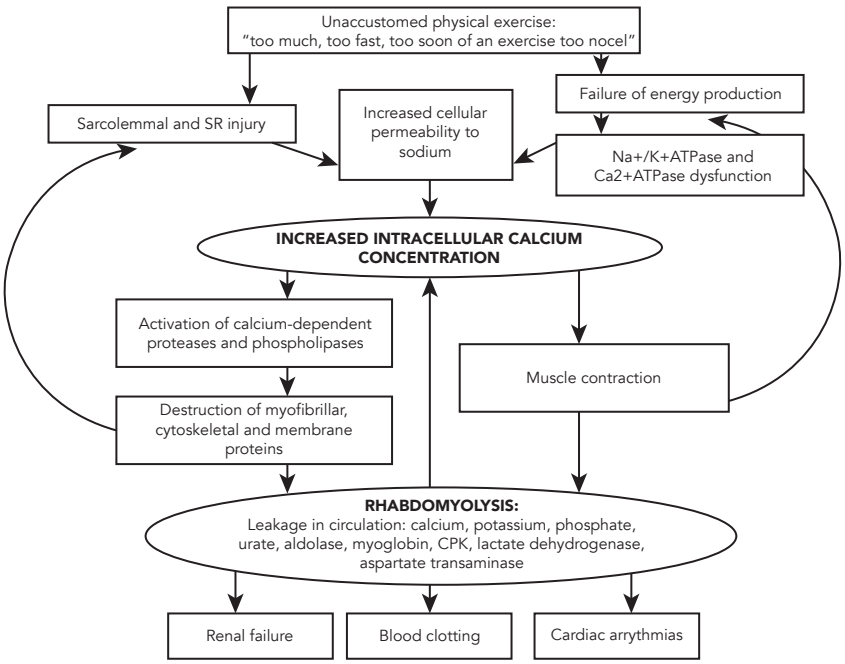
Myoglobin is usually filtered by the kidneys but excessive accumulation of myoglobin in the blood stream can exceed the binding capacity of the plasma protein. Myoglobin is then filtered by the glomeruli where it reaches the tubules, with possible obstruction to renal tubules and possible chances of acute renal failure occurrence. [1] Acute renal failure may lead to temporary or permanent dialysis in the future. Other complications include irregular heartbeat, heart failure, cardiac arrest, hepatic dysfunction, electrolyte imbalance, compartment syndrome and disseminated intravascular coagulation. Mortality for rhabdomyolysis varies according to the population, setting and comorbidity. Mortality has been reported to be of 22%. However, this figure increased to 59% when the patient is also suffering from acute renal failure. [2]

How do you treat rhabdomyolysis?

You have to keep yourself well hydrated as hydration helps to maintain renal perfusion as it helps to correct the electrolyte imbalance in the body. Rest is the best medicine as recovery may take a week or more. Ice therapy may help. You may take some painkillers for the soreness. In cases whereby patients develop severe acute renal failure, a dialysis will be required. Acute renal failure conditions typically has a good prognosis and patients usually recover from the acute renal failure. However, the recovery period varies based on severity, ranging from a few days to a few months.

Can you take any precautions and do you have any recommended diet?

It is recommended to consume healthy diet with enough protein, carbohydrate and fat with adequate hydration as a precaution to prevent rhabdomyolysis. Avoid alcohol and medications such as statins and antipsychotics before exercise. Research has shown that by incorporating warm-up strategies prior to exercising and a training programme that has a gradual increment in the exercise intensity will also help to avert exercise-induced rhabdomyolysis condition. It is strongly advocated to wear proper exercise clothing and work out in a well-ventilated environment, avoiding high humidity and temperature environment.



Pathophysiology of rhabdomyolysis (Scalco et al, 2016, BMJ Journals)

How do you prevent exercise induced rhabdomyolysis?

It is important for gym goers to follow a standard training regime, starting with isometric exercises to eccentric exercises, small to large repetitive exercises, slow to fast velocity exercises and exercises ranging from small to large range of motion to ensure that exercise-induced rhabdomyolysis does not occur. Exertional or exercise induced rhabdomyolysis can recur if the proper training regime is not adhered to.

What is the recommended duration and intensity of exercise?

Effective implementation of exercise regime that starts from low to high intensity programme can help to reduce the incidence of exercise-induced rhabdomyolysis

Unilateral swelling in the right forearm of a young adult after two sessions of resistance training
(Khalil et al, 2016, The Royal Australian College of General Practitioners)

from occurring. The duration of exercise varies in a child, elderly and an athlete. Children and the elderly are less prone to rhabdomyolysis as children cannot activate their fast twitch muscle fibres (type-II) whereas the elderly has less fast twitch muscle fibres. Children's relative inability to recruit or lower utilization of their type-II motor units results in lower power and lactate production and thus, lowering the risk of exercise-induced rhabdomyolysis. They have more slow twitch muscle fibres (type-I). This is why children are always full of energy and never seem to run out of energy despite running around for hours. Elderly, on the other hand has less type-II motor units. For adults or athletes who experiences symptoms of muscle damage after participating in a marathon, a complete rest is usually prescribed and depending on the severity of the injuries, patients are required to rest from a few days to a week.

What should do when you stop exercising?

When you feel especially sore and tired, you have to listen to your body. The proverb, "no pain, no gain" does not hold true in this situation. You can build muscle without damaging it. Do not push too hard from the very beginning as you need to let your body or fitness get back to how it was before the lockdown. Each and everyone of us should be aware of our own body's limitations and exercising capacity. By not heeding your own body's response capacity to strenuous exercises, it can lead to a disastrous or deleterious effect.

Exercise induced rhabdomyolysis can occasionally be seen after strenuous exercise

References

1. Zager RA. Rhabdomyolysis and myoglobinuric acute renal failure. Kidney Int. 1996;49:314–26. [PubMed] [Google Scholar]
2. Knochel JP. Catastrophic medical events with exhaustive exercise: "White collar rhabdomyolysis." Kidney Int. 1990;38:709–19. [PubMed] [Google Scholar]
3. Khalil Maysaa A, Saab Basem R. (2016). Resistance exercise-induced rhabdomyolysis: Need for immediate intervention and proper counselling. https://www.racgp.org.au/afp/2016/december/resistance-exercise-induced-rhabdomyolysis-need-fo
4. Centre for Disease Control and Prevention, National Institute for Occupational Safety and Health. Rhabdomyolysis. (2021). https://www.cdc.gov/niosh/topics/rhabdo/symptoms.html
5. Scalco RS, Snoeck M, Quinlivan R, et al. Exertional rhabdomyolysis: physiological response or manifestation of an underlying myopathy?. BMJ Open Sport Exerc Med. 2016;2(1):e000151. Published 2016 Sep 7. [PubMed]
6. Complete Anatomy. Elsevier. (2022) https://www.elsevier.com/solutions/complete-anatomy

Report On The 40th Arthroscopy Association Of North America Annual Scientific Meeting

40th ANNIVERSARY
AANA22
Annual Meeting
San Francisco
May 19-21, 2022

Prepared by **Dr Kok Choong Seng**

I would like to thank the Malaysian Arthroscopy Society for awarding me this education grant to attend this scientific meeting. I was supposed to attend the 2020 AAOS meeting which was cancelled at the last minute due to the pandemic.

It is surreal to be travelling again after more than 2 years of lockdown. In this new normal, Covid testing has become routine. Luckily Malaysia has abolished testing for fully vaccinated people after 1 May 2022. United States still require testing one day before departure so it was rather nerve wracking waiting for the result. Anyway, it turned out negative and I was on my way.

The scientific meeting is held in a hotel near the Moscone convention center where the AAOS is usually held. AANA just celebrated its 40th anniversary this year and has about 6000 members. I don't know the number of attendees but definitely a lot fewer than AAOS. Held over 3 days, as usual it starts very early at 7.00 am every day. The first half is a single session in the main ballroom. Every day there are various lunch symposiums sponsored by companies. Lunch is provided in each room. Usually, it is cold sandwiches and salad. In the afternoons, there are 3-4 parallel sessions. The main focus is on the hip, knee and shoulder with other topics like ankle/foot and biologics being slotted in between. The free papers are placed together with lectures on the same topic. There are no posters and no awards for papers presented.

The exhibit hall is next to the main ballroom. There is a reception on the first evening with drinks and finger food in the exhibit hall. Main sponsors are Smith & Nephew, Arthrex, DePuy Synthes, Stryker, DJO and Zimmer Biomet. There are many small booths taken up by smaller companies which I have never heard of. Arthrex also sponsored the free Wifi. Synthes has an advertisement along the escalator leading to the ballroom. Perhaps we can think of selling this type of sponsorship for our future annual meetings.

Main learning points:

1. Very little indication for sub-acromial decompression alone.
2. Be more mindful of bony alignment when doing knee ligament reconstructions and don't hesitate to do osteotomies when indicated.
3. More surgeons are doing cartilage resurfacing. So many products on the market now. Difficult to compare results due to different techniques and products used.
4. We were missing many ramp lesions in the past. Many specific instruments and implants are now available.
5. Many new all-inside meniscus repair devices are available. Main improvement is the curvature so easier to access all parts of the meniscus and less prominent implants.
6. Many PRP products available. Studies difficult to interpret due to the varying products used. Also not covered by insurance in USA.
7. HA is approved by FDA for knee OA only. AAOS latest guidelines: "Hyaluronic acid intra-articular injection(s) is not recommended for routine use in the treatment of symptomatic osteoarthritis of the knee."
8. Therefore, one must show that other forms of treatment be it activity modification, physiotherapy and other medications have been tried first. Most insurance companies do cover for it provided these criteria are met.

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