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Hak Cipta Terpelihara. Tidak dibenarkan mengeluarkan mana-mana bahagian, artikel, ilustrasi dan isi kandungan buletin ini dalam apa jua bentuk dan dengan apa cara jua sama ada secara elektronik, fotokopi, mekanik, rakaman atau cara lain sebelum mendapat izin bertulis daripada penerbit.

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## EDISI JUN 2023

Fokus utama majalah ini adalah untuk menyokong usaha SIG Conditioning dalam memberikan pengetahuan asas dan promosi berkaitan kecergasan fizikal kepada masyarakat. Bermula bulan Jun 2023 juga SIG Conditioning telah memulakan beberapa program kecergasan komuniti, dengan yang pertama adalah penyertaan dalam *Wellness Expo* sempena *Proton Games 2023*. Laporan berkaitan di sediakan dalam keluaran kali ini. Keluaran kali ini turut memberikan pendedahan ringkas berkaitan keperluan air dalam senaman, kaedah mudah menggunakan kadar nadi untuk latihan, dan juga konsep minimalisma dalam senaman. Semoga keluaran kali ini sedikit sebanyak membantu proses celik fizikal anggota masyarakat kita.

Terima kasih,

Editorial

# FIZIKAL

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# KONSEP CELIK FIZIKAL KANAK-KANAK DAN DEWASA

Oleh: Nur Ikhwan Mohamad



Celik fizikal merujuk kepada keupayaan, keyakinan, dan motivasi seseorang individu untuk mengambil bahagian dalam aktiviti fizikal dan bergerak dengan kecekapan dan keyakinan dalam pelbagai persekitaran fizikal. Ia melangkaui kemahiran pergerakan asas dan merangkumi pendekatan holistik kepada pembangunan fizikal.

Sama seperti kaedah membaca dan menulis yang membolehkan individu berkomunikasi dengan berkesan, celik fizikal melengkapkan seseorang individu dengan kemahiran, pengetahuan dan pemahaman yang diperlukan untuk melibatkan diri dalam aktiviti fizikal sepanjang hayat mereka. Ia melibatkan pembinaan kemahiran pergerakan asas (contohnya berlari, melompat, dan melontar) serta pemerolehan kemahiran pergerakan yang lebih khusus yang berkaitan dengan sukan, permainan dan aktiviti tertentu.

Celik fizikal juga merangkumi pemahaman konsep seperti kesedaran badan, kesedaran ruang, koordinasi, keseimbangan, dan kebolehan membuat keputusan dan menyelesaikan masalah berkaitan pergerakan. Ia bukan semata-mata mengenai kecergasan fizikal atau mencapai tahap prestasi olahraga yang tinggi, tetapi lebih kepada memupuk keseronokan sepanjang hayat dan penyertaan dalam aktiviti fizikal.

Dengan menggalakkan celik fizikal, individu lebih cenderung untuk menjalani gaya hidup aktif dan sihat, mengalami peningkatan kesejahteraan fizikal dan mental, dan mempunyai kemahiran yang diperlukan untuk menyertai pelbagai aktiviti fizikal dan sukan. Celik fizikal sering ditekankan dalam proses pendidikan, program sukan belia, dan inisiatif komuniti untuk menggalakkan aktiviti fizikal dan menggalakkan kesihatan dan kesejahteraan keseluruhan.



## **KONSEP CELIK FIZIKAL KANAK-KANAK DAN DEWASA**

Celik fizikal tidak terhad kepada kanak-kanak dan belia. Ia terpakai kepada individu dari semua peringkat umur, termasuk orang dewasa. Walaupun celik fizikal sering ditekankan semasa zaman kanak-kanak dan remaja, namun ianya tetap penting bagi orang dewasa untuk mengembangkan dan mengekalkan tahap celik fizikal sepanjang hayat mereka.

Bagi orang dewasa, celik fizikal boleh menyumbang kepada kesihatan dan kesejahteraan keseluruhan, membantu mencegah penyakit kronik dan meningkatkan kualiti hidup. Ia membolehkan individu dewasa melibatkan diri dalam pelbagai aktiviti fizikal, daripada sukan rekreasi dan kelas kecergasan kepada aktiviti luar dan pergerakan harian.

Celik fizikal untuk individu dewasa mungkin melibatkan proses memperhalusi dan mengembangkan kemahiran pergerakan asas yang dipelajari semasa zaman kanak-kanak, serta memperoleh kemahiran dan kecekapan baharu khusus untuk aktiviti atau sukan yang diminati. Ia juga merangkumi pembangunan kesedaran fizikal dan ruang, koordinasi, keseimbangan, dan keupayaan untuk menyesuaikan diri dengan pelbagai persekitaran dan cabaran fizikal.

Dengan memberi tumpuan kepada celik fizikal, orang dewasa boleh meningkatkan keyakinan dan kecekapan mereka dalam pergerakan, yang boleh membawa kepada peningkatan penyertaan dalam aktiviti fizikal, mengurangkan risiko kecederaan dan meningkatkan kesejahteraan fizikal dan mental secara keseluruhan. Masih belum terlambat untuk seseorang individu dewasa untuk mengembangkan dan meningkatkan kemahiran celik fizikal mereka, tanpa mengira pengalaman atau kebolehan mereka yang terdahulu.

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# WATER LOSS DURING FOOTBALL MATCH: EFFECTS ON PERFORMANCE AND HEALTH

By: Shohaili Mansor, Sports Physiotherapist, Football Association of Malaysia (FAM)



## Introduction

Football requires physical fitness, technical skill, and tactical knowledge. A 90-minute football game exposes players to heat, humidity, and wind, which might affect their performance and health. Water loss might affect football performance. Dehydration occurs when the body loses more water than it takes, which can diminish endurance, cognition, heat exhaustion and stroke risk. When water loss exceeds intake, dehydration occurs. This article discusses the latest research on how water loss during football matches affects performance and health.

## Water Loss During Football Matches

Football players might sweat a lot throughout a game. The amount of water lost depends on several factors, including ambient conditions, competition intensity and length, and player physiology. Recent research suggests that football players may lose 2.3 – 2.7 litres of water every game, depending on circumstances. Even minor dehydration might hinder football performance. Dehydration reduces endurance, cognition, and skill performance. Dehydration causes headaches. Dehydration, equivalent to a 2% weight loss, can negatively affect football play. Dehydration can also cause heat exhaustion and heat stroke, which can be deadly in high temperatures. Losing water during football matches may affect performance, health, and the team's chequebook. Heat illness and dehydration may cost football clubs money and output. This emphasises the need to keep players hydrated and prevent dehydration.

### Preventing Dehydration During Football Matches

Hydrate before, during, and after matches to avoid dehydration. Avoid alcohol and caffeine and consume water and electrolyte-rich beverages like sports drinks to avoid dehydration. Dehydration might cause dark urine, therefore, players should watch it. Coaches and trainers can help athletes stay hydrated. They can educate players on hydration, check fluid intake during matches, and urge players to drink during breaks. Coaches and trainers can also provide players with water and sports drinks. Nutritional supplements have also been studied for football players' hydration and performance. For instance, analysis of the latest nutritional guidelines for professional football players, including macro and micronutrients, hydration, and chosen supplements, demonstrate that carbohydrate-electrolyte mixtures may improve football players' hydration and performance.

### Conclusion

Football players' water loss during games might affect their performance and health. Dehydration reduces endurance, cognitive function, heat exhaustion and heat stroke risk. Coaches and trainers should emphasis hydration before, during, and after contests. This reduces dehydration and its adverse effects. Nutritional supplements have also been demonstrated to improve football players' performance and hydration. Follow these steps to avoid dehydration and maximize performance.

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# ADVANCED SHOE TECHNOLOGY IN COMPETITIVE RUNNING

By: Haashwein Moganan



In 2016, Nike revealed that it was marshalling its considerable resources for an assault on breaking the two-hour barrier on a full marathon. I thought that it was an extremely ambitious and farcical effort as no man has ever before ran a full marathon below 2 hours in history. What really struck me in awe was the impressive technological advancements that Nike's scientists integrated within the project towards the selected trio of runners.

Furthermore, what fascinated me was that, apart from analyzing and ensuring each runner's physiological capabilities in a laboratory to allow them to perform at the peak efficiency, Nike and their team of scientists had invented a ground breaking shoe that was specifically designed to aid the athletes in breaking through the 2-hour barrier mark which was the Nike Zoom Vaporfly 4%. The streamlined shoes possessed the capability to revolutionize each of their strides as it provides with an energy return of 4%. It was deemed as Nike's fastest, most efficient marathon shoe as it boasts ultralight, uber-responsive ZoomX foam and a carbonfibre plate which stiffens the strides and provides maximum propulsion to endure the distance of a marathon.

As an individual who has previously participated in athletics at both the state and university levels, I held the belief that my determination and grit would serve as the driving force behind my success in crossing the finish line. However, unbeknownst to me at the time, on top of running biomechanics, the selection of footwear I made would prove to be a crucial factor in unleashing my full capabilities. Adding on, since the introduction of the new carbon fibre plate shoes in 2016, numerous world records in the categories of 5 km to the marathon have been broken for both men and women. There has been some dispute around the recent spate of record breaking. In addition to being highly skilled and trained runners, one thing that all the aforementioned athletes have in common is the shoes they wore while competing.



## ADVANCED SHOE TECHNOLOGY IN COMPETITIVE RUNNING

Moreover, research has proved that the latest carbon fibre plate shoes acknowledged to increase running economy by more than 4%, corresponding to a greater than 2% improvement in performance/run time. (Muniz-Pardos et.al, 2021) Another similar research, observed in 578 elite marathoners (308 males, 270 females) that switching to carbon fibre plate running shoes resulted in 75% of men running 1.5–2.9% faster (from 2 to 4 min) and 71% of women running 0.8–2.4% faster (from 1 to 4 min) during a marathon. (Guinness et.al, 2020)

Thus, it is inevitable that in the world of running, the right pair of shoes could mean the difference between winning or losing. As technology advances with huge leaps and new innovations, there will always be improvements and enhancements done to aid with an athlete's performance. Technology is shaping the very essence of the sport as records are shattered, boundaries are pushed, and new frontiers are explored, all thanks to the relentless pursuit of innovation. The shoes on our feet had become a catalyst for change, inspiring a generation of runners to dream bigger, run faster, and achieve the seemingly impossible. In the realm of running, the importance of shoe technology was undeniable. It is not just about the latest trend or the flashiest design anymore—it is about unlocking human potential, harnessing the power of innovation, and redefining what it means to push the human limits.

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# MINIMALISM AND EXERCISE

By: Endurolift



Minimalism is a lifestyle and design movement that emphasizes living with only the essentials and eliminating excess. At its core, minimalism is about simplifying our life and focusing on what truly matters to us.

In art and design, minimalism often involves the use of simple, clean lines and a limited color palette. Minimalist artists and designers strive to create works that are uncluttered and visually balanced.

In terms of lifestyle, minimalism can take many forms, but it generally involves reducing the amount of physical possessions and commitments in our life. This can include decluttering our home, simplifying our wardrobe, and prioritizing experiences over material goods.

Minimalism is not necessarily about living with nothing or depriving oneself of things we enjoy. Rather, it's about consciously choosing what we bring into our life and making sure that everything we own and do aligns with our values and goals.

By simplifying our life and focusing on what's truly important, minimalism can help us reduce stress, increase happiness, and create a more meaningful and intentional life.

The minimalist concept can certainly be applied to exercise. In fact, many people find that simplifying their workouts can be more effective and enjoyable than complicated routines.

The minimalist approach to exercise involves focusing on the most essential movements and exercises, and eliminating unnecessary equipment, accessories, and workouts. This allows us to streamline our fitness routine and make the most of our time and energy. The key to a minimalist workout is focusing on the most essential exercises and movements that will provide the most benefit in the shortest amount of time.

Remember, the most important thing is to find a workout routine that we enjoy and that works for our goals and lifestyle. The minimalist approach to exercise can be a great way to simplify our fitness routine and make exercise a sustainable habit.

## MINIMALISM AND EXERCISE

Here are some ways that the minimalist concept can be applied into our exercise routine:

- **Focus on compound exercises:** Compound exercises are movements that work multiple muscle groups at once. These include exercises like squats, deadlifts, bench presses, and pull-ups. By focusing on these foundational movements, we can get a full-body workout with fewer exercises.
- **Use minimal equipment:** We don't need a lot of fancy equipment to get a good workout. In fact, many effective exercises can be done with just our bodyweight or a few simple tools like dumbbells, resistance bands, or a jump rope.
- **Keep it simple:** Don't overcomplicate our workouts with too many exercises or sets. Focus on doing a few key movements with good form and intensity, and aim for quality over quantity.
- **Be consistent:** Consistency is key to making progress in our fitness journey. By keeping our workouts simple and manageable, we'll be more likely to stick with them over the long term and see real results.

The length of a minimalist workout can vary depending on our fitness level, goals, and available time. However, a minimalist workout can typically be completed in 15-30 minutes. If performed daily with a day or two of rest, then the overall volume may still be within the recommended volume of exercise duration per week.

# QUESTION MARK

For those that embrace the minimalist concept in life, it may also involve their physical fitness routine. Thus, the question is, can those minimalist approaches also be used in physical fitness or physical conditioning programs? Can they produce similar effects as traditionally used fitness programs?

# MINIMAL YET SIGNIFICANT?

# BASIC OUTPUT FROM GPS FOR MATCH PERFORMANCE ASSESSMENT IN SOCCER

By: Nor Ikhmar Madarsa, M.Ed



Global Positioning System (GPS) has been widely used in many areas including sports. Soccer is one of the sports that seems to utilize the usage of GPS for physical conditioning programming and tactical analysis purposes. GPS tracking systems enable the players to track their speed, distance, and position during competition and training. Coaches and athletes may analyze performance and identify development opportunities with data produced by the GPS tracking instrument.

This article will in the issue introduce several metrics that may be able to be measured using GPS instrument and terminologies related to it (depending on brand and made).

Several metrics may be utilized to elaborate on the intensity and load of the match when each player employs a GPS tracker. The following are some of the key performance indicators that may be produced and can be utilized:

**1. Total distance covered:** Each team's travel distance throughout the contest may be roughly estimated using this statistic. It may be used to see who ran the farthest during the match and get a sense of the intensity of the competition.



## BASIC OUTPUT FROM GPS FOR MATCH PERFORMANCE ASSESSMENT IN SOCCER

**2. High-intensity running distance:** This metric measures how far players go at high speeds, often more than 14 km per hour. You may use it to see who was running the fastest and get an idea of how intense the competition was during the game.

**3. Sprint distance:** This metric measures the distance players cover at a sprint speed, typically above 23 km/hour. It can be used to evaluate players' explosiveness and identify those who performed the most sprints.

**4. Player load:** This metric provides an overall measure of the physical load placed on each player during the match, considering factors such as distance covered, speed, and acceleration. It can be used to identify players who experienced the most physical load during the match.

**5. Distance covered in different speed zones:** This metric breaks down the total distance players cover into different speed zones, such as walking, jogging, running, and sprinting. It can be used to identify the specific speed zones in which players spend the most time and evaluate their performance in these zones.

**6. Acceleration and deceleration:** This metric measures the number of times players accelerate and decelerate during the match. It can be used to evaluate the explosive power of players and identify those who performed the most accelerations and decelerations.

**7. Heart rate:** This metric measures the players' heart rate during the match. It can be used to evaluate the overall intensity of the match and identify players who experienced the highest heart rates. **8. Recovery time** This metric measures the time it takes for players to recover after the match. It can be used to evaluate the physical demands of the match and identify players who require more extended recovery periods.

In conclusion, these metrics may help coaches and trainers optimize training programmes, reduce injury risk, and improve player performance by revealing the physical demands of football matches. Coaches can detect athletes in danger of injury or weariness by assessing these metrics and adjusting their training and playing time. They may also assess athletes' strengths and weaknesses and develop training programmes to meet them. Finally, GPS-tracking technology can help teams improve player performance and win games

## **BASIC OUTPUT FROM GPS FOR MATCH PERFORMANCE ASSESSMENT IN SOCCER**

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# SENAMAN BERDASARKAN ZON KADAR NADI

Oleh: Nur Ikhwan Mohamad



Jam pintar kini menggunakan antara lainnya teknologi photoplethysmography, yang mengukur perubahan pada kepekatan sel darah merah, sewaktu salur darah mengembang bagi sirkulasi darah dalam tubuh. Alat pengesan yang digunakan mengukur kadar cahaya yang diserap oleh oleh penguncupan dan pengembangan darah, dan memberikan anggaran kadar nadi melalui algoritmanya.

Dengan harga jam pintar dengan fungsi pengukur kadar nadi yang semakin mampu milik, penggunaannya dalam senaman dan latihan juga meningkat.

Salah satu kaedah penggunaan pengukur kadar nadi melalui jam pintar adalah dengan menggunakannya sebagai penentu tahap kesukaran latihan (intensiti) secara terus sewaktu latihan. Tidak semua jam pintar menyediakan program automatik mengikut matlamat latihan yang diperlukan (penurunan lemak badan, *toning* dan lain-lain). Namun, asalkan jam pintar tersebut mampu memberikan bacaan kadar nadi terkini sepanjang masa, ianya sudah mencukupi. Sebagai contoh, bagi memenuhi matlamat latihan untuk kawalan berat badan atau pemanasan badan, kadar nadi yang diinginkan mungkin 117 bpm hingga 120 bpm. Maka, tugas kita untuk sepanjang sesi senaman memastikan kadar nadi kekal pada sekitar jumlah tersebut.

Antara faedah penggunaan kawalan kadar nadi ini sewaktu senaman adalah bagi memastikan impak yang diinginkan dapat diperolehi. Setiap lingkungan kadar nadi tertentu mempunyai kesan yang lebih baik terhadap komponen tertentu kecergasan.

## SENAMAN BERDASARKAN ZON KADAR NADI

Untuk mengetahui anggaran kadar nadi yang diperlukan ada pengiraan yang boleh di lakukan. Namun untuk keperluan artikel ini, di sediakan kaedah lebih mudah, iaitu melalui penggunaan carta kadar nadi berdasarkan formula Fox & Haskel (1970). Formula Fox & Haskel ini bukanlah yang paling tepat dan terbaik, namun digunakan secara meluas dan popular, termasuk oleh jam-jam kadar nadi yang popular.

Berikut adalah carta Fox & Haskell tersebut:

		EXERCISE ZONES											
		AGE											
		20	25	30	35	40	45	50	55	65	70		
BEATS PER MINUTE	100%	200	195	190	185	180	175	170	165	155	150	<b>VO<sub>2</sub> Max (Maximum effort)</b>	
	90%	180	176	171	167	162	158	153	149	140	135	<b>Anaerobic (Hardcore training)</b>	
	80%	160	156	152	148	144	140	136	132	124	126	<b>Aerobic (Cardio / endurance training)</b>	
	70%	140	137	133	130	126	123	119	116	109	105	<b>Weight Control (Fitness training / fat burning)</b>	
	60%	120	117	114	111	108	105	102	99	93	90	<b>Moderate Activity (Maintenance / warm up)</b>	
	50%	100	98	95	93	90	88	85	83	78	75		

Oleh: Morgoth666, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=35605547>

Berdasarkan zon kadar nadi disediakan di atas, sebagai contoh jika matlamat anda adalah untuk kawalan berat badan atau pembakaran lemak, maka bagi anda yang berusia lingkungan 25 tahun, kadar nadi latihan dicadangkan adalah pada 60% kadar nadi maksima iaitu sekitar 117bpm.

Kesimpulannya, ini hanyalah panduan umum, dengan latihan adalah dicadangkan dirancang dengan nasihat dan panduan jurulatih kecergasan berkelayakan.

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# SIG CONDITIONING ACTIVITY REPORT

By: Ahmad AlHussin AlAli



## Wellness Wellbeing Day@ Proton Games 2023

Saturday, 24 June 2023 PROTON Sports Complex, Tanjung Malim, Perak Darul Ridzuan

After the Covid-19 epidemic, PROTON GAMES set sail again. The SIG Conditioning team was invited to participate in the wellness expo organized in conjunction with the Games. SIG Conditioning team participation in the expo was part of community service by the team, in promoting proper practice of fitness among community. During the exhibition, the SIG Conditioning team actively demonstrated the relevant exercises and lifting techniques for safe and effective exercise program.

Fitness needs to be developed systematically, for both safety reasons and effectiveness. In order to stimulate participants' interest and enthusiasm for proper exercise method, our team designed two interesting fitness challenges for visitors of the expo on that day.

**The first challenge: 30kg/40kg barbell press for 1 minute (maximum number of barbell presses in one minute).**

The challenge sparked the interest of a large number of participants, each of whom wanted to know the limits of their individual body's strength. Through the challenge, it can be seen that the vast majority of adult men, aged (20-50) years old, did not perform well in the 1-minute low-weight 30kg barbell press challenge, and a small number could not even complete it once. In the 1-minute 30kg barbell press challenge, there were more than 20 adult male challengers on that day, the average number of times was less than 7, and the best record was 28. Adult women's interest in this challenge was not so high compared to men. Only 3 women participated in the challenge, and their scores ranged (3 – 5) times.

## SIG CONDITIONING ACTIVITY REPORT

### Second Challenge: Battle Rope (maximum performance duration for each participant).

Whether it is men, women, or children, all showed a great interest in this challenge. Possibly because this fitness challenge is better viewed and entertained. More than 20 adult men participated, with an average score of 20 seconds, and the best score was 1 minute and 6 seconds. more than 10 adult women participated, with an average score of 10 seconds, and the best score was 20 seconds. and we had more than 15 children participate as well, the average score is about 5 seconds, and the best score is 12 seconds (the best score 12 years old male child). During the challenge process, the participants were not familiar with the movements at first, but under the patient and professional guidance of our team members, they quickly mastered the essential movements and were able to complete the challenge relatively and accurately.



In order to allow participants to feel a sense of accomplishment in the fitness challenge experienced that day, participants were given some token of appreciation for their participation in the form bike helmet or water bottle, courtesy of Everlyfit Studio Proton City. Hopefully exposure such as this will helps to encourage more people attending the event to be motivated to kick start their exercise and engage in strength training for their lifelong health benefits.



# 'WEIGHTLIFTING NICHE' DI SIGCONDITIONING

Oleh: sigconditioning.com

Bermula Jun 2023 sigconditioning.com mewujudkan kumpulan berfokus khusus bagi aktiviti berteraskan angkatan Olimpik (*Snatch dan Clean & Jerk*) iaitu 'Weightlifting Niche'.

Maklumat lanjut berkaitan aktiviti dan penyertaan dalam 'Weightlifting Niche' adalah melalui [www.sigconditioning.com/weightlifting](http://www.sigconditioning.com/weightlifting)



**Gambar:** sigconditioning dan demo teknik angkatan Olimpik

# HANTAR ARTIKEL

Hantar artikel / infografik / ringkasan penyelidikan / ulasan / laporan aktiviti atau apa sahaja hasil penulisan asli anda yang berkaitan kecergasan, prestasi dan kesihatan untuk pertimbangan penerbitan. Tiada format khusus. Had maksima penulisan adalah tidak lebih 2 muka surat. Artikel panjang berkualiti melebihi 2 muka surat tetap boleh di pertimbangkan, bergantung pada keperluan edisi dan editorial.

Penulisan diterima samada dalam Bahasa Malaysia atau Bahasa Inggeris.

Penghantaran boleh di lakukan dengan menghantar hasil nukilan asli anda ke [sigconditioning@gmail.com](mailto:sigconditioning@gmail.com)

Sila sertakan biodata ringkas penulis bersama gambar dalam penghantaran artikel yang di buat.

Maklumbalas akan diberikan dalam tempoh 7 hari bekerja.





# SIGCONDITIONING

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