

## **“CYCLIC” ON SELF - HEALTH PROFILING DURING COVID 19 – CASE STUDY**

Tan Chee Hian  
Raja Mohammed Firhad Raja Azidin

*PASSPE - SEA-FSR-UiTM*  
*Faculty of Sports Science and Recreation. Shah Alam, Selangor.*

Lee Jung Young

*SUWON University, South Korea.*

Walter King Yan Ho

*Faculty of Education, University of Macau, Macau*

Tetsu Moriguchi

*Fukuoka University, Japan.*

**Received: 13 April, 2022**

**Accepted: 22 June, 2022**

**Published: 15 Sept, 2022**

### **Corresponding Author**

***Dr. Tan Chee Hian***

*Email: [tanchee@uitm.edu.my](mailto:tanchee@uitm.edu.my)*

*PASSPE - SEA-FSR-UiTM*

*Faculty of Sports Science and Recreation*

*UiTM Shah Alam*

## “CYCLIC” ON SELF - HEALTH PROFILING DURING COVID 19 – CASE STUDY

Tan Chee Hian<sup>1</sup>, Lee Jung Young<sup>2</sup>, Raja Mohammed Firhad Raja Azidin<sup>3</sup>, Walter King Yan Ho<sup>4</sup>, & Tetsu Moriguchi<sup>5</sup>

<sup>1,3</sup>Faculty of Sports Science and Recreation. Shah Alam, Selangor.

<sup>2</sup>SUWON University, South Korea.

<sup>4</sup>Faculty of Education, University of Macau, Macau.

<sup>5</sup>Fukuoka University, Japan.

### ABSTRACT

*Introduction: Self – health profiling approach during MCO, CMCO and RMCO with cycling liked actions and physical activities on training equipment to name as “Cyclic” method in order to figured out psychomotor and psychological aspects of one’s lifestyle. Method – Indoor self- record and descriptive study with the justification outcomes of “Cyclic” as profiling tool in order to be widely used in the critical COVID lifestyle. Participants: 10 participants with aged 50’s voluntarily involved with all records and results were justify by external 2 observers as far as reliability and validity results were concerned from March to October, 2020 (8 months) duration. Food intake recorded, Distance, Blood pressure, Pulse rate and Time recorded as well steps performed daily with self- record participants’ log books by external observers. Results: Sleeping pattern showed on bed time was better from 7 hours 16 second (March 2020) to 7 hours and 36 minutes (October 2020). Weight Lose from March with 81.5Kg to 79Kg (Oct), BP reading Excel = 120/80 – 57.01%, Normal = 130/85- 33.82%, Normal Systolic = 140/90- 9.08% and mild hyper (1.2%). An hourly “Cyclic” every time performed came to average of 42,000 steps per session with 80.6% average performed by all participants, this was considered 83% in 8 months’ time recorded. The enjoyment and relaxing feelings of respondents and sweating among all respondents with training heart rate 70% of HR Max. Significance: Findings were contributed to practices, profiling knowledge method and maintenance of one’s self- health to keep fit for single daily functional throughout 8 months. Implication: the 50’s aged adults’ self- health profiling considered “Cyclic” as another approach of physical activities in enhancing psychological and psychomotor domains.*

**Keywords:** Self-Health profiling, “Cyclic”, Effectiveness, Sleeping pattern, Training heart rate

## INTRODUCTION

COVID 19 - the Corona Virus that spread out since December 2019 and became the world's pandemic without any vaccines (at this moment) but the scientist all over the world were seriously went through laboratory experimental to come out one most effective vaccines.

However, the COVID 19 since then was seriously spread speedily throughout from West to East and North to South without considered colour skin, religion or belief and whoever you are either rich or poor and this scenario became worse still with the world's climate changes, global warming or even borderless spread out of it.

According to statistically data showed by the latest record of COVID 19 cases around the world seem to be liked below:

Overall results said around 40 million positive COVID 19 cases in 24 hours and this data were regarding to the report of World Health Organization (WHO) on 17/10/2020 and the break down figure liked (in cases counted):

USA hits 8, 027,000 cases., India – 7.371,000 cases., Brazil – 5,169,000 cases and followed by Peru – 1,361,000 cases. Where else in Malaysia with the same day was recorded 871 cases per day and 187 death tolls called.

In reality, there were plenty of mechanism or preventive measures which were effective to cut off the virus chain so that reducing the death tolls or cases increasing tremendously and could be drag out the world highest “silent killer” if COVID 19 still be the “Champion Virus”.

As far as precaution and preventive measure concerned especially in Malaysia, it was practiced several Standard Operational Procedures liked:

3 W – Wash hands, Wear Masks and Warning, 3 C – avoid crowded places, confirm temperature and avoid close conversation as well as practices of Stay home, wear masks when go somewhere else, wash hands and keep distancing each other.

As the results, most of civilians or people of one country would encourage able stay at home and work from home (WFH) or even restriction of recreational activities as long as outdoor or crowd places mention in the Movement Control Order (MCO) and Conditional Movement Control Order (CMCO) since March 2020 and Rehabilitation Movement Control Order (RMCO).

Related to the implementation of MCO, CMCO, RMCO and again the CMCO applied in certain states and federal territories in Malaysia became the increasing of obesity rates, high risk groups increased especially the young, the elderly groups, and that adultery with chronological health risks' group and adults with non-communicative diseases group (NCD).

A person who had gone through stages adultery with aged of 40's and 50's would consider as golden age to most individuals and this time frame was really needed healthy process and healthy concerned seriously in order to sustain the person career as well as their family bonding. Perhaps the family ware fare sustainability in one society specifically and the whole nation as generally.

## METHOD USED

As far as scientific and systematic research was concerned, it was descriptive designed with Case study concerned and there were few simple electronic gadgets, one Compact Air Elliptical Cardio Workout (CAECW) measurement tools used which the participants' self- records were observed and justified by two external observers whom did not involve in this study where else both of them more on external observers' roles throughout this data collection process and both observers had read through all documents or log books of all participants of this study.

There was descriptive statistic performed with tables presented which to clarify the study's findings. However, there was some verbal interviewing recorded at the end of October but it did not present it for time being.

Fully corporation gained from the 10 participants whom came from various walks of life and consent with agreed gained from all participants because of COVID 19 situations which make all participants' curiosity as well as eager to take part in the study and sharing results when findings were reported.

### *Intervention of the Study*

#### **“Cyclic”**

Mechanically the participants' body slanting forward, eyes look far ahead with neck tilted, shoulder relax and abdomen or whole body perpetually with horizontal plant.

Participants' lower extremities with two legs with rotatory action with the firm ankle context on the pedals of Compact Air Elliptical Cardio Workout (CAECW) equipment which was similar as cycling like actions and hence as “Cyclic” in this study.

Both hands of participants with elbow flexion about 45 degrees and relax swinging alternatively as far as jogging style and when participants tired, participants could hold on to the handle of the CAECW equipment.

### *Anatomy of the “Cyclic”*

There were many components that were working whilst “Cyclic” was not just a sport of the lower limbs. Below, the areas of anatomy have been broken down to provide more detail on what was happening.

#### *Lower Limb and Role in “Cyclic”*

The pelvis was the start of the lower limb complex, and was comprised of the ilium, ischium, and pubis, coccyx, and sacrum bones. The ischial tuberosities were located here and play an important role for the hamstrings, as this was where all three originate.

The hip was also an important anatomical feature as this was a large 'ball and socket' type joint, which allowed for a large degree of multi-directional movement. During cycling liked activity also, the hip allowed for and guides hip flexion, extension and small degree of rotation. This 'hinge' joint acts as a lever to the femur, as the femur was the

longest bone in the body this could create large amounts of torque. This was where the patella played a vital role, as it acted as a fulcrum and enables the force from the upper leg to be transferred to the lower leg. The patella was a sesamoid bone that sits within the patella tendon and connects the quadriceps to the tibial tuberosity. The patella glides in the intercondylar fossa of the femur.

Lower limb of complex the next joint of relevance was the ankle. This joint allowed for dorsiflexion and plantarflexion in cycling like activity or “cyclic”, which allowed for a term known as 'ankleing' where the foot moves from a dorsiflexed position to a plantarflexed position through the bottom of the pedal stroke before returning back to a dorsiflexed position.

### *Trunk, Back and Arm*

Abdominal muscles such as the rectus abdominus help to maintain stability as does the obliques. The obliques similarly to the back muscles will help stabilise a contralateral limb movement.

As doer move up the spine toward the shoulders, the latissimus dorsi and trapezius muscles enable the rider to fix their upper body onto the handlebars. The upper body had a role in stabilising contralateral torque.

Similarly with the feet, the hands could undergo sustained amount of pressure so vascularity and nerves became injured, most commonly the ulna nerve (cyclist's palsy) followed by the median nerve.

*Case Study* – “Cyclic” session across 8 continuous months (March – October 2020)

### *Samplings of the Study*

Total of 10 participants with 50's aged male adults with normal lifestyle and the qualification of various walk of life and voluntarily basis. Participants were aged 50 to 56 years old. Duration of 60 minutes for one session and performed “Cyclic” for 5 times a week across 8 months. Duration time was the main parameter and “Cyclic” plus variety warm up and warm down been performed for before and after the “Cyclic”.

### *Protocol and Procedures of the Study*

Dynamic warm up and warm down was performed at the beginning and the end of one “Cyclic” session.

Daily food intake in Kilocalories recorded which according and referred in order to be able for measurement as outcomes of the study with refer to the *Food Habits Research and Development, Malaysia. (1988). Nutrient composition of Malaysian foods. ISBN 987-99909-4.*

Kilocalories burning of “Cyclic” (160 to 168 Calories) as daily were recoded and it was referred throughout regarding the guidance from *Egger, G., Champion, N. (1993). The fitness leader's handbook. (3<sup>rd</sup> edit) Kangaroo Press.*

## ***Basic Equipment Used***

### *Fitness Gadget*

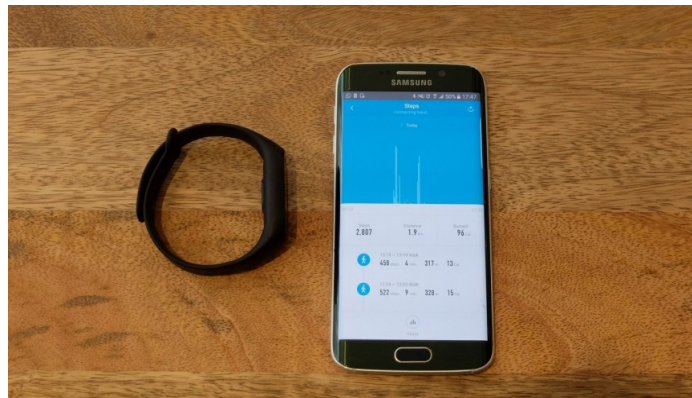


The Xiaomi Mi Band had been an international fitness trackers hits. To some extent the device does the job of helping the one to realise of how active (or sedentary) a person was, the device was comfortable and the sleep tracking works even at the night time.

### *Design of the Screen*

The 0.42-inch OLED screen is pretty fuzzy, especially if one compared it to something like the Alta's display. Still, it does the job displaying the time, steps, calories burned and heart rate. It comes as no surprise that the auto screen turn on works only sporadically. This was a quick, reliable way to interact with the Mi Band 2 and much more preferable to double and single taps on the Alta or a push of the Misfit Flash Link.

### *Tracking*



In terms of tracking, keep this simple and start with the positives. The Mi Band's sleep tracking was good and accurate - the module automatically detected that the person had gone to sleep, or woken up, and was a useful guide to how the person actually sleeping. (As for the deep sleep metrics, that's hard to tell if it's accurate so let's leave it that for a scientific test).

As the Mi Band struggles to auto detect when a person starts workout but the app was designed to break activities up into 'walk' or 'activity' in a timeline under the graphs. A person can view the times, steps, minutes, distance and calories though that couldn't find a way to edit or group these as you get on other apps.

### *Water Bottle Used among Participants*



The International Bottled Water Association (IBWA) states that Americans are increasingly relying on water bottles for convenience and portability.

### *Running Shoes Used or Bare Foot among Participants (Indoor)*



### *Proper Attire for “Cyclic” - Benefits of Proper Attire*

It seems that in “Cyclic” thought running shoes were the only equipment needed for it. What exactly was this stuff, and do a person really need it?

Technical apparel may seem extravagant, but as studies have already found, once a person goes technical, don't go back. Technical apparel was made from fabrics that offer performance features and benefits that one's old cotton T - shirt doesn't.

### *Attire Used*



### *Blood Pressure Concerned*

*Instrument Used in the Study* - Hospital Comfort Upper Arm Blood Pressure Monitor Digital



1000 Pieces (Min. Order); Type: Blood Pressure Monitor; Model Number: BP311A  
Application: arm; Certificate: ROHS, ISO, CE; Place of Origin: CN; SHG  
Brand Name: Karemax or OEM

### *Most Accurate Blood Pressure Monitor – Factors that Alter One’s Pressure*

Did a person know that the most accurate home blood pressure monitor might gave different readings at different times? That’s right, and it’s not the fault of the monitor.

One thing that might cause different higher readings was lifestyle. If one drinking coffee or smoking before the person took a blood pressure reading, it could influence the results. The same thing happens when one’s take a reading after you finished exercising.

“White Coat Syndrome”. That was what happens when one’s blood pressure rises when one visit doctor or nurse. Many people have this kind of anxiety when see doctors, police officers, and other authority figures.

Another problem that causes inaccuracy was a cuff that did not fit properly. It is possible for a cuff to be too loose, too tight, too narrow or too wide. Each can cause a bad reading.

### *Mechanical Equipment Used*



Compact Air Elliptical Cardio Workout Exercise Equipment (CAECW)

### *Venue of “Cyclic” Session*

Indoor or at Home with duration of

9.10am to 9.25am - Stretching activities as warm up or dynamic – walking a distance.

9.25am to 10.25am – Workout time (One hour).

10.25am to 10.35am – Push up, crunches as warm dawn activities.



(Time was up to the participants' suitability – flexible hours)

Speed of "Cyclic" was around 13.5 to 14.5 Km/h as "Cyclic" for an hour and burned about 167.5 CAL per session.

Breathing was nature or common breathing while performing "Cyclic".

Music played according to the favourite of participants.

Environment as home surrounding or as far as indoor concerned.

Average time of session performed among participants: 75% in the morning, 20% in the afternoon and 5% at night time perform "Cyclic".

### *The Steps*

One hour of "Cyclic" was around 42,000 Steps per session which calculated mechanically – the CAECW equipment.

### *Choices of Percentage in Training HR:*

60% of Max THR is 100.8bpm

70% of Max THR is 117.6bpm

80% of Max THR is 134.4bpm

### *Personal Record*

Started with mean of the body weight 81.5Kg.

End up heart bit was 180bpm and recovery was after 2 minutes was 160bpm.

Optimum working heart rate should be  $220\text{bpm} - 52 = 168\text{bpm}$ .

180bpm heart bit was actually more than 80% of 220bpm workout rate and at the end of the day backed to 120bpm. This was considered participants' daily morning workout indoor or at own home sweet home.

Ended mean of body weight reached 79 Kg.

### *Target Body Weight of Participants*

76 Kg according to height and weight. Means that there was 3Kg to reduce until time of achievement hit. Optimum health related heart rate as well as recovery rate increased.

On diet throughout the program (recorded) along the time concerned and setting the time to achieve a person target body weight

### **RECORDS – Log Book**

**Daily food intake in Kilocalories referred and recorded.**

*Food Habits Research and Development, Malaysia (1988). Nutrient composition of Malaysian foods. ISBN 987-99909-4.*

Kilocalories burning of the “Cyclic” daily were referred and recorded daily throughout.

*Table 1: Overall mean Food intake in Kcal by Participants (n = 10)*

---

Breakfast (Food intake)  
 One plate of noodle (347 Kcal) and one cup of Nescafe (317Kcal)

Lunch  
 One bowl of noodles (357 Kcal) and one glass of Nescafe (317 Kcal)

Dinner  
 One plate of rice with mix vegetables (480 Kcal) and one cup of Coffee (304 Kcal)

Cyclic performed by the 10 participants  
 60 minutes with the THR of 65% to 70% from the 140bpm. Distance of “Cyclic” covered around 13 KM to 14.4 KM.

*Total Intake = 211.3 CAL  
 Total Expenditure = 167.5 CAL*

*Two observers monitoring the progress and record throughout the program (8 months)*

---

Expenditure energy in Calories (CAL) was slightly lower than CAL intake daily throughout 8 months of “Cyclic” for the total of 10 participants. This study indicated the “Cyclic” session had significant impact on sleeping pattern, steps counts and heart rates for continuous 8 months as reducing average 2.5 Kg from of 81.5 Kg to 79 Kg among these 10 male adults at the end of 8 months,

**Empirical Support**

*How far the physical activities such as “Cyclic” on the adults’ Heart Rate, Sleeping Pattern and Weight Lose?*

Table 2 to 5 were described the activeness of participants in performing “Cyclic” which was monitored by Mi Fit band statistically and even in different mode of accumulated steps counted by CAECW that had done by all participants in this study concerned.

*Table 2: Results of the Overall “Cyclic” Performed (March – October 2020)’*

---

Mode	Percentage
Very Active (> 10,000 steps)	80.6%
Active (< 10,000 steps)	19.4%

---

*Justify by two external observers with the reference benchmarks by Ministry of Health Malaysia (MOH)*

*Table 3: Percentage of Yes or No “Cyclic” Performed by Participants (March - October 2020)*

---

Workout	Percent
Yes	83
No	17

---

*Justify by Two external observers from log book*

*Table 4: Sleeping Pattern among Participants (n = 10)*

Month	On Bed hours	Deep Sleep	Light Sleep	Time to bed	Awaked
March	7' 16"	2'53"	4'18"	11.00pm	0
October	7' 36"	3'28"	3'08"	11.06pm	0

Table 4, showed sleeping pattern of these participants concerned by record made in individual's log book and came to conclude that on bed time getting longer because of "Cyclic" make the participants tired and fall in sleep on bed as showed from 7 hours 16 minutes (March, 2020) and reached to 7 hours and 36 minutes by October 2020.

Deep sleep recorded getting better in hours considered which was 2 hours 53 minutes to 3 hours and 28 minutes when October 2020 record concerned. This went with light hours also showed similar longer hours where else time to bed was not a good indicator because most properly it was cause by busy night time activities at home and time to wake up was set by alarm clock per se.

*Table 5: Result of Weight Loss and Mean Blood Pressure among Participants (n = 10)*

Month	Weight (Kg)	Blood Pressure Reading	Percentage
March	81.5	Excel = 120/80	34%
		Normal = 130/85	45%
		Normal Systolic = 140/90	19%
		Mild = 160/100	2%
October	79	Excel	57.01%
		Normal	38.82%
		Normal Systolic	9.08%
		Mild	1.2%

Data of March, April, May, June, July, August, September and October 2020.

\*\* Justify by two external observers with the record of BP Monitor

Table 5 recorded the weight of those participants had been reduced from pretty good reading whereby it was from 81.5 Kg in the March and became 79Kg (October) at the results showed there was actual 2.5Kg lose weight for each respondent concerned.

Hence, the respondents' heart rate showed improvement as well by Excellence stage which was 120/80 from 34% in March to 57% in the October 2020, followed by normal stage of heart rate from 45% to 38.82% at the final.

Where else, in March there were 2% at the mild level and at the October result showed 1.2% only. Last but not least, Normal systolic stage also showed result of getting better from 19%, reduced to 9.08% October reading respectively. This could be concluded that the "Cyclic" during eight months' duration make sense in effective on the participants' heart rate.

As the result, it was confirmed the effectiveness of overload principle would gain weight lose result. Various intensity could improvise one's training program. Diet control was significance factor in weight lose but "Cyclic" could gave impact to sleeping pattern, heart rate as well as weight lose pretty good impact as the end results of the study concerned.

Duration of 60 minutes – one session of "Cyclic" for 5 to 6 times a week across eight months' time. Duration time was the main parameter and intensities with variety physical

activities. Consistent with “Cyclic” of participants were significant physical activity set would promise self- health profiling level of adult 50’s concerned as the end findings of research.

### *Significant of the “Cyclic” of The Study*

#### *Improve Health Profile*

“Cyclic” was actually a simple way to increase one’s overall level of health. “Cyclic” could raise your levels of good cholesterol while helping one increased lung function and used. In addition, it could also boost one’s immune system and lower one’s risk of developing blood clots. It was recommended especially during COVID 19.

#### *Lose Weight*

“Cyclic” was one of the best forms of exercise for losing or maintaining a consistent weight. A person felt a leading way to burn off extra calories and that it was the second most effective exercise in terms of calories burned per minute, following only after cross country which is outdoor and irrelevant for time being.

#### *Relieve Stress*

Stress could actually cause a number of health and mood problems. It could also diminish appetite and sleep quality. When a person performed “Cyclic”, it forced a person’s body to exert excess energy and hormones. “Cyclic” also helped to reduce chances of developing tension headaches. Participants felt “happy” after the research done.

#### *Boost Self - Confidence*

Not all of the benefits of “Cyclic” were physical. “Cyclic” could provide noticeable boost to a person confidence and self-esteem. By setting and achieving goals, a person could help give self a greater sense of empowerment that left a person feeling much happier. At the same time, during MCO, CMCO and RMCO still could make friends throughout the same target of exercise like “Cyclic” and communicative among all participants through electronic media from time to time.

#### *Eliminate Depression*

When a person was depressed, the last thing a person likely want to do was to get up and let’s go for an “Cyclic” session. Yet a person would find that after only a few minutes of “Cyclic” a person’s brain would start to secrete hormones that naturally improve a person’s mood. In fact, there were few things in the world that could better or more rapidly treat depression than exercise such as “Cyclic”.

It may seem surprising to learn all of the different ways that “Cyclic” could improve a person health, but the truth of the matter was that these were many benefits that it could offer to a person’s body.

*As an Alternative Approach for Self – Health Profiling*

In critical situation liked COVID 19 which force people to be stay home and tense to non - active out of home or outdoor activities and these make people became stress unnecessarily especially it could cause a rise of non - communicative sickness (NCD) throughout long duration of MCO, CMCO as well as RMCO which as one of the worth alternative self-health profiling method with “Cyclic” session for adults especially in 50’s concerned.

***Author’s Contribution***

Tan Chee Hian – Corresponding author and design, collect data and communicating with all participants.

Lee Jung Young – contribution to ideas and follow of thoughts.

Raja Mohammed Firhad Raja Azidin – Data interpretation, design and creative work in this study.

Walter King Yan Ho – Design and ideas of creation for the study

Tetsu Moriguchi – Data interpretation and ideas of research.

***Conflict of Interest***

Self- funded and there is no self- interest involved.

***Acknowledgement***

Acknowledge to all participants in Ethical consent and consideration of all individuals whom participated in this study. Support of Faculty of Sports Science and Recreation and Research collaboration from SUWON University of South Korea: Prof Dr Lee Jung Young and Associate Professor Dr Walter King Yan Ho from Macau University.

External observers – John Tan – undergraduate from UNISEL (20 years old)

Jane Tan – Secondary High School (16 years old)

**REFERENCES**

ACSM (2008). *ACSM’s health - related fitness measurement manual*. Wolters. Kluwer. Lippincott William & Wilkins.

Baumgartner, T.A., Strong, C.H. & Hensley, L.G. (2006). *Conducting and reading research on health and human performance*, 3rd Edition, p.137, McGraw Hill.

Chee Hian Tan., Jung Young Lee., & Raja Mohamed Firhad Raja Azidin. (2018). Self – Fitness Profiling among Age 50’s Individuals – Case Study. *Malaysian Journal of Sport Science and Recreation*. March, 2019, Volume 15 (1)., p42 – 56. University Teknologi MARA Publisher.

Egger, G., Champion, N. (1993). *The fitness leader’s handbook*. (3<sup>rd</sup> edit) Kangaroo Press.

- Elizabeth Hufton - *Running- how to get started*. Southwater published@ Anness Publishing Ltd, 2011.
- Food Habits Research and Development, Malaysia. (1988). Nutrient composition of Malaysian foods. ISBN 987-99909-4*
- Foremen, K. (1982). *Coaching track and Field techniques* (4<sup>th</sup> Edit). Brown Company Publishers.
- Jump up "IBWA Industry Reports".*
- Jump up^ Cooper, James E (2011). "Assessment of bisphenol A released from reusable plastic, aluminum and stainless steel water bottles". *Chemosphere*. 85 (4): 943.
- Jump up^ "Glass Water Bottles: BPA Free Water Bottles". Retrieved March 30, 2012.
- Jump up^ Hijnen, W.A.M. (2006). "Inactivation credit of UV radiation for viruses, bacteria and protozoan oocysts in water: A review". *Water research*. 40 (1):3–22. PMID 16386286. doi:10.1016/j.watres.2005.10.030.
- Jump up^ "Tap water, bottled water, filtered water, which to choose" (PDF). Retrieved March 29, 2012.
- Jump up↑ Cycling UK Statistics. (Accessed 24 May 2015) <http://www.cyclinguk.org/resources/cyclingukcyclingstatistics#Howmanypeoplecycleandhowoften?>
- Jump up↑ Cycle Season is Here in Vancouver, How is your Pedal Stroke? <http://www.mypersonaltrainervancouver.com/cycle-season-is-here-in-vancouver-how-is-your-pedal-stroke/> (accessed 27 May 2016)
- Jump up↑ Wozniak CA. Cycling Biomechanics: A literature Review. *Journal of Sports Physical Therapy*. 1991;14(3):106-113
- Jump up↑ CA Wilber, C1 Holland, RE Madison, 5F Loy. An Epidemiological Analysis of Overuse Injuries Among Recreational Cyclists. *Int. J. Sports Med*. 1995;16(3):201-206.
- Jump up↑ Burt P. *Bike Fit*. Bloomsbury: London. 2014
- Jump up↑ MC Ashe, GC Scroop, PI Frisken, CA Amery, MA Wilkins, KM Khan. Body position affects performance in untrained cyclists. *Br J Sports Med*. 2003;37:441-444.
- Jump up↑ *Global Cycle Network. How to perform a basic bike fit*. Available from: <https://www.youtube.com/watch?v=1VYhyppWTDc> [ last accessed 19.8.2019]
- Leonard, W.M. (1998). *A sociological perspective of sport*. (5th Edit). Allyn & Bacon Company.

- Lumpkin, A. (1998). *Introduction to physical education, exercise science and sport studies*. (5th Edit). McGraw Hill.
- Moran, G.T., McGlynn, G. (2001). *Dynamics of strength training and condition*. (3rd edit). McGraw Hill Publisher.
- O' Donoghue, P. (2012). *Statistic for sport and exercise studies- An introduction*. Routledge, London.
- Prentice, W.E. (2006). *Athletic training*. McGraw Hill Higher Education.
- Prentice, W.E. (2011). *Principles of athletic Training – A competency-based approach*. (4th Edit). McGraw-Hill International Edition.
- Sewell, D., Watkins, P. & Griffin, M. (2009). *Sport and exercise science – An introduction*. Hodder Arnold.
- Tan Chee Hian (2012). *The Effectiveness of Physical Activity (Long Slow Distance Run) in Weight Lose for Adults*. Presented in 9th International Sports Science Conference on 25th to 28th June 2012 in USM Kubang Kerian, Kelantan.
- Tan Chee Hian (2012). *The Effectiveness of Combination of LSD and Stepping Exercises in Weight Lose Training Programme Among Male Adults*. Presented in Asean University Sports Council - International Conference on 13-14/12-2012. In LAOS.
- Tan Chee Hian., & Tham Yin Choong (2015). *The Effectiveness of 14 Weeks Outdoor Recreation Activities on Adults' Fitness, Learning Process and Academic Achievement*. 18-20/11-2015. 2015 Asia Pacific Conference on Business & Social Sciences, Chiang Mai, Thailand.
- Vera, K. (2015). *What are the benefits of running shoes*. Last updated - Oct, 2015.
- Whitney, E., DeBruyne, L.K., Pinna, K., Rolfes, S.R. (2007). *Nutrition for health and health care*. (3rd Edit). Thomson Wadsworth.
- Whitting, W.C., & Zernicke, R.F. (1998). *Biomechanics of Musculoskeletal Injury*. Human Kinetics, UK.

[www.adidas.com/us/climalite](http://www.adidas.com/us/climalite)

[www.runnersworld.com/running-apparel/proper-running-attire](http://www.runnersworld.com/running-apparel/proper-running-attire)

[www.active.com/running/articles/6-benefits-of-running](http://www.active.com/running/articles/6-benefits-of-running)

[www.chainreactioncycles.com/my/en/adidas-supernova-glide-7-running-shoes-ss15/rp-prod130669](http://www.chainreactioncycles.com/my/en/adidas-supernova-glide-7-running-shoes-ss15/rp-prod130669)

[www.chainreactioncycles.com/my/en/adidas-supernova-glide-7-running-shoes-ss15/rp-prod130669](http://www.chainreactioncycles.com/my/en/adidas-supernova-glide-7-running-shoes-ss15/rp-prod130669).