



Diet Link

OFFICIAL NEWSLETTER OF THE MALAYSIAN DIETITIANS' ASSOCIATION

FROM THE

EDITORIAL DESK

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This is a special year for all of us. For the first time in our life (regardless of how old you are), we are to stay at home to win a war that we cannot afford to lose against an invisible enemy - the Coronavirus Disease 2019 (COVID-19). The severe acute respiratory syndrome caused by this virus is life-threatening. Many of these patients are critically ill and need to be admitted to the intensive care unit (ICU). In the ICU, the role of a dietitian as part of the multidisciplinary team cannot be overstated. In this issue of diet link, two elegant studies in critically ill patients (one international and one local) published this year are summarized with their implications for the practice of dietitians who care for critically ill patients. Besides caring for critical patients, the onus of serving therapeutic meals or providing an enteral nutritional formula to all hospitalized patients are also on the shoulder of dietitians in these trying times. We are glad to have the Head of Department of Dietetics and Foodservice from Hospital Melaka, Puan Lina Isnin, to share with us their food service experience. We also have a featured article and a healthy recipe from the Dietitian90 Consultancy group for us to share with our friends and family on "How to Eat Healthily during the Movement Control Order?". We are also happy to continue receiving articles from students who are willing to share their knowledge with all of us. We believe that this is an excellent platform for students to have an initial experience of writing scientific articles, which may pave the way for them to be professional writers in the future. The issue's research methodology corner discusses bias in research, and I encouraged everyone to try to apply the knowledge learned from this article when reading scientific papers. Lastly, the diet joke is still there to brighten your days!

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Effect of Intermittent or Continuous Feed on Muscle Wasting in Critical Illness

Summarized by: **Lee Zheng Yii**

This multicentre, single-blind RCT randomized 121 mechanically ventilated patients with multi-organ failure and likely to stay in the ICU for ≥ 7 days and survive ≥ 10 days to intermittent feeding (IF; administered by using a syringe over 3-5 minutes, every 4 hourly, 6X/day; n=62) and continuous feeding (CF) for 24 hours (n=59).

Results

1) Primary outcome

- No different in loss of quadriceps muscle (rectus femoris cross-sectional area) at day 10, assessed by bedside ultrasound (-1.1%, 95%CI -6.1, -4.0; p=0.676; n=63).

2) Secondary outcomes:

- IF delivered greater protein (80.3% vs 69.9%) and energy (82.4% vs 72.5%) than CF
- IF was less interrupted by airway management, or intolerance due to vomiting and diarrhea than CF. However, it was more likely to be interrupted due to abdominal distension.
- Plasma concentration of Leucine (the major stimulant of muscle protein synthesis) over time exhibited a sinusoid waveform in the IF arm (sufficient to stimulate protein synthesis). A flat curve was seen in the CF arm.
- IF arm had a higher coefficient variation for blood glucose level than CF (17.84 vs. 12.98)
- IF arm had more days with hyperglycaemia (≥ 10.1 mmol/L) than CF (50.0% vs. 33.3%).

Adverse event rate: 7 (IF) vs 3 (CF)

Authors Conclusion

Intermittent feeding in early critical illness is not shown to preserve muscle mass in this trial despite resulting in a greater achievement of nutritional targets than continuous feeding. However, it is feasible and safe.

Implication: If there is not enough pump in the ICU, based on this small RCT, it may be safe to deliver intermittent feeding (it seems more of like a bolus feeding in this study) to critically ill patients with close monitoring.

Reference

McNelly AS, Bear DE, Connolly BA, Arbane G, Allum L, Tarbhai A, Cooper JA, Hopkins PA, Wise MP, Brealey D, Rooney K, Cupitt J, Carr B, Koefat K, Damink SO, Atherton PJ, Hart N, Montgomery HE, Puthucherry ZA. Effect of Intermittent or Continuous Feed on Muscle Wasting in Critical Illness: A Phase 2 Clinical Trial. *Chest*. 2020; S0012-3692(20)30584-5. doi:10.1016/j.chest.2020.03.045

Local Study

A Single-Center Prospective Observational Study Comparing Resting Energy Expenditure in Different Phases of Critical Illness: Indirect Calorimetry Versus Predictive Equations

Summarized by: **Lee Zheng Yii**

This single-center study conducted in University Maya Medical Center measured Resting Energy Expenditure (REE) by Indirect Calorimetry during acute (≤ 5 days; n=305), late (6-10 day; n=180) & chronic (≥ 11 days; n=91) phases in ICU and compared the result with 15 published predictive equations (PE).

Results

It was found that PE tends to over- or underestimate REE at different phases of critical illness compared to IC. In fact, none of the PE had an agreement or accuracy of $>55\%$ across different phases. Of all the equations, Swinamer (1990) was ranked the highest for 3 phases.

Implication: From the current evidence, it seems that Swinamer (1990) is the most suitable predictive equation for our ICU population. The Swinamer (1990) equation is shown below:

$$EE \text{ (kcal/day)} = (BSA \times 945) - (age \times 6.4) + (Tx \times 108) + (RR \times 24.2) + (VT \times 817) - 4349$$

Where,

BSA: body surface area (m²) = $([Ht(cm) \times Wt(kg)] / 3600) / 1.2$

Age (years)

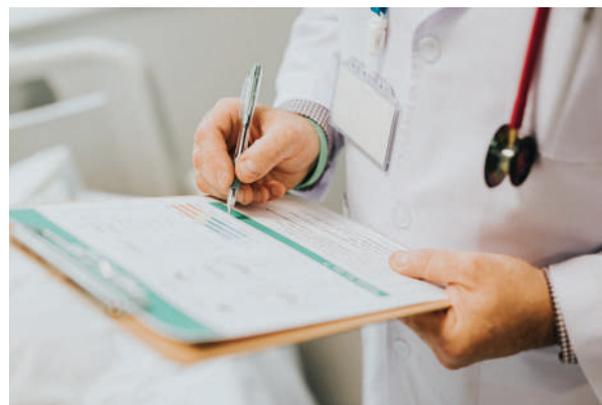
T: temperature (degree celcius)

RR: Respiratory rate (breath/min)

VT: tidal volume (liter/breath)

Reference

Tah PC, Lee ZY, Poh BK, Majid HA, Hakumat-Rai VR, Mat Nor MB, Kee CC, Zaman MK, Hasan MS. A Single-Center Prospective Observational Study Comparing Resting Energy Expenditure in Different Phases of Critical Illness: Indirect Calorimetry Versus Predictive Equations. *Crit Care Med*. 2020;48(5):e380-e390. doi:10.1097/CCM.0000000000004282



Wholemeal Sweet Potato Brownie



Total time (min): 60

No. of servings:
4 servings
(2 pieces / serving)

 Preparation time (min): 25

 • Cooking time (min): 35

Ingredients

Cake Mixture

Sweet Potato	600g	
Egg		1 medium
Oats	45g	4 tablespoons
Low-fat milk/soy milk	15ml	2 tablespoons
Cocoa Powder	20g	5 teaspoons
75% Dark Chocolate	30g	
Almond Nuts	30g	3 tablespoons
Raisin	15g	2 tablespoons



Coarsely Chopped



Dietitian's Recipe

Preparation steps:

1. Wash sweet potato and then cut into half. Steam the sweet potato with the skin for 25 mins or until tender when poked with a fork. Let it cool completely, remove the skin, and mash the flesh thoroughly. Set aside.
2. Heat the oven at 180oC
3. In a large bowl, mix mashed sweet potato, egg, and oats evenly. Add low-fat milk/soymilk in the mixture, followed by cocoa powder.
4. Melt the dark chocolate in the microwave for 30 seconds or until fully melted and add it to the mixture. Add the chopped almond nuts and raisins into the mixture and mix it well.
5. Brush the mold/bowl/baking dish with some vegetable oil and then scope the mixture into the mold/bowl/baking dish. Bake the mixture at 180oC in the middle rack for 25 minutes or until a toothpick inserted in the center, comes out clean. Let cool completely before cutting and serving.



Unique Selling Point:

We don't need to satisfy our sweet tooth by eating high fat and sugary food. Let's try out this Wholemeal Sweet Potato Brownie. It's guilt-free. Low in fat and sugar. High in fiber and wholesomely nutritious. It is made up of natural and minimally processed ingredients. It can be everyone's favourite!

Lucas Lim

Consultant Dietitian & Co-founder
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Nutrient Analysis	(Per serving)
Calorie (kcal)	265
Protein (g)	6.4
Fat (g)	8.0
Carbohydrate (g)	40.6
Dietary fiber (g)	5.1
Sodium (mg)	30

References for the above analysis:

1. Energy & Nutrient Composition of Food, Singapore
2. USDA National Nutrient Database for Standard Reference



COVID-19 FRONTLINER

Perkongsian Pengalaman Pengurusan Pemakanan Pesakit Covid-19 di Hospital Melaka

Covid-19 adalah satu situasi baru yang banyak memberikan pengalaman dan pembelajaran dari pelbagai aspek samada dari segi pengurusan kewangan, penyediaan diet, dietetik klinikal dan lain-lain lagi. Ia adalah satu situasi yang perlukan pembelajaran yang berterusan dan kerjasama dari pelbagai pihak bagi menangani isu yang mendatang.

Secara relatifnya tiada perbezaan yang ketara dalam penyediaan diet pesakit Covid-19 dan pesakit lain. Apa yang kami bekalkan adalah mengikut pesanan dari pihak wad samada diet normal, tinggi protein atau diet terapiutik. Diet terapiutik dibekalkan sekiranya pesakit mempunyai masalah sakit lain seperti diabetes, hipertensi, penyakit jantung, buah pinggang atau penyakit-penyakit lain yang berkaitan diet.

Pada peringkat awal bekalan diet pesakit Covid-19 ini kami samakan dengan pesakit yang lain. Namun begitu, setelah mendapat maklum balas dan menilai kepada simptom pesakit seperti kurang rasa dan bau, seorang Pembantu Penyediaan Makanan telah dikhususkan untuk menyediakan diet bagi pesakit ini.

Disamping itu, pesakit Covid -19 juga dibekalkan air mineral sebanyak 2 hingga 3 liter sehari. Air mineral ini dibekalkan bagi memastikan pesakit tidak mengalami dehidrasi dan menggantikan air yang hilang dari badan.

Makanan dibekalkan kepada pesakit Covid-19 diletakkan di dalam bekas pakai buang bagi memudahkan pengurusan penghidangan makanan kepada pesakit dan pembuangan / pelupusan sisa makanan. Bagi memastikan bekalan peralatan pakai buang ini dapat digunakan secara berterusan, tatacara kewangan perlu dipatuhi. Melalui kaedah ini kita akan fahami bahawa pembelian terus hanyalah dibawah RM20,000 dan sekiranya lebih perlu dibuat secara sebutharga. Kaedah lain yang jarang sangat digunakan adalah pembelian secara darurat.

Bagi kes-kes yang kritikal iaitu pesakit yang memerlukan pemakanan melalui tiub atau memerlukan pemakanan tambahan, rujukan kepada Pegawai Dietetik akan dibuat oleh Pegawai Perubatan. Pegawai Dietetik akan melihat kes tersebut dan membuat penilaian formula khusus yang akan diberikan kepada pesakit. Secara amnya, kebanyakan pesakit mempunyai bacaan pCO₂ yang tinggi dan mempunyai penyakit lain. Terdapat satu kes yang jarang berlaku iaitu kandungan Triglyceride (TG) yang tinggi, bagi kes ini perbincangan dengan Pakar / Pegawai Perubatan dan penilaian formula yang digunakan akan dilihat secara terperinci.

Di dalam pengurusan pesakit Covid-19 yang menggunakan tiub, kami menggunakan formula cecair yang sedia diminum (RTU) kerana ia boleh digunakan maksima 8 jam. Pemberian formula adalah menggunakan pump dengan regime pemakanan diberikan setiap 8 jam. Ini akan mengurangkan kontak dan memudahkan staf bertugas hanya akan menggantikan formula 3 kali dalam tempoh 24 jam.

Jenis formula yang digunakan untuk pesakit Covid-19 ini ialah antara formula diabetik atau formula renal. Formula renal akan digunakan jika pesakit mempunyai masalah buah pinggang atau limitasi air (fluid restriction).

Covid-19 ini juga telah melangkaui bulan ramadhan yang mana semua umat Islam akan berpuasa. Kebetulan pesakit yang berada di wad Covid-19 ketika ini ramai dikalangan pelajar tahfiz. Mereka membuat permintaan untuk berpuasa dan penyediaan diet sahur dari pihak Jabatan. Perbincangan dengan Pakar tidak semua pesakit boleh puasa tetapi tiada halangan untuk mereka berpuasa. Satu kajian ringkas telah dibuat berhubung keperluan penyediaan sahur kepada pesakit dan petugas di wad Covid-19 ini. Seramai 331 orang petugas dan pesakit yang terlibat dengan pengurusan Covid-19 telah menjawab kajian ini.

Hasil kajian menunjukkan 99.7% menyatakan wajar sahur diberikan dan hanya 0.3% tidak wajar sahur. 98.8% dari responden memerlukan sahur berbanding 1.2% yang tidak memerlukan sahur. Bagi pemilihan menu pula, hanya 3 pilihan diberi iaitu a) makanan bergoreng + protein, b) Makanan ringan seperti bun, biskut + buah dan c) lain-lain. Sebanyak 79.2% memilih a) makanan bergoreng + protein, b) makanan ringan, 12.1% dan c) lain-lain, 8.8%. Terdapat juga cadangan untuk membekalkan nasi berlauk semasa sahur.



Pengalaman Pengurusan Pemakanan Pesakit Covid-19 di Hospital Melaka

Hasil dari kajian ini dan pembekalan diet untuk sahur dibawa untuk perbincangan diperingkat pengurusan atasan kerana ia akan melibatkan urusan kewangan dan shif tugas staf dalam tempoh Perintah Kawalan Pergerakan (PKP). Pada peringkat awal diet dibekalkan oleh pihak Katerer. Perbincangan dari masa ke semasa mendapati penyediaan diet oleh Jabatan Dietetik & Sajian (JDS) secara shif adalah lebih menjimatkan. Bermula dari itu, pihak JDS membekalkan diet sahur dengan shif tambahan 12 malam – 7 pagi dengan hanya 3 orang staf yang bertugas. Penyediaan diet sahur adalah antara 120 ke 250 bungkus.

Selain itu, tugas yang diberikan kepada JDS juga adalah menerima dan mengagihkan sumbangan berbentuk makanan samada bermasak, kering atau air minuman kepada staf barisan hadapan, pesakit atau staf lain mengikut kelayakan. Secara kesimpulannya, banyak perkara yang dapat dipelajari dari pelbagai aspek sepanjang pengurusan Covid-19 ini. Kerjasama dari pelbagai pihak amat penting bagi memastikan pengurusan berjalan lancar.

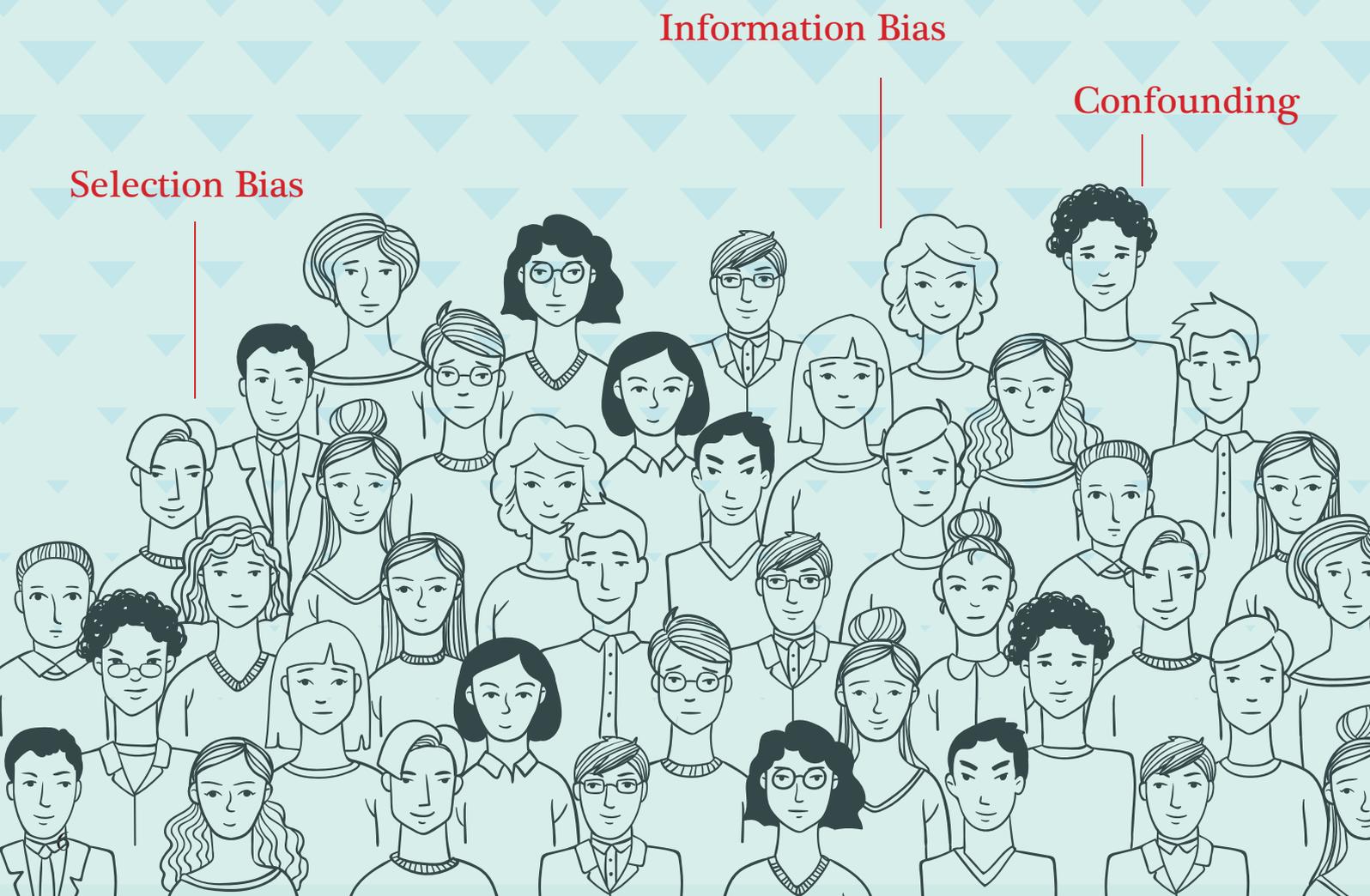


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Bias

Bias in research denotes deviation from the truth. It undermines the internal validity of the research. Internal validity is the ability to measure what it sets out to measure. In other words, the inference from participants in a study should be accurate. All observational studies have a built-in bias. Our challenge is to identify and judge how they might have affected results. Bias can be divided into 3 categories: Selection Bias, Information Bias, and Confounding.¹



1. Selection Bias (Sampling bias)¹

Are all the groups similar in all important aspects?

Selection bias is the absence of comparability between groups being studied.

a) Prevalence-Incidence Bias (Neyman Bias or survival bias)¹

Subjects who are very sick or very well (or both) are erroneously excluded from a study, skewing the results in either of the two directions: (i) excluding patients who have died will make conditions look less severe. (ii) excluding patients who have recovered will make conditions look more severe. This type of bias often happens when a significant amount of time has passed between exposure and investigation.

Example: Consider a cohort of 20 subjects with a follow-up from t_0 to t_2 . During this follow up, 4 subjects developed moderate disease, and four subjects got a severe form of the same disease. Therefore, the true risk ratio between the risk of severe to moderate disease is 1. However, subjects with severe disease have a higher risk of dying, and before the time t_1 , 2 of them died. If at time t_1 we perform a cross-sectional analysis, we get a prevalence ratio of severe versus moderate disease of 0.5 (at t_1 , we only see 1 case of severe disease and 2 cases of the moderate disease, the other 2 subjects with the severe disease already died before t_1). Hence, they are not included in the cross-sectional analysis at t_1 , a figure that does not reflect the true risk ratio of 1. Therefore, whenever possible we should estimate the occurrence of a disease in terms of incidence, that is by counting all cases that occurs in a sample in a given time interval rather than in a given time point.²

Effect on relative risk or odds ratio

Case-control study: ↑ or ↓

Cohort study: ↑ or ↓ (unlikely to occur)

b) Admission Rate Bias (Berkson Bias or Paradox)

The combination of exposure to risk and the occurrence of the disease makes it more likely that an individual will be admitted to the hospital. In a case-control study, this means the hospital cases could have higher risk exposures or disease than cases from the population at large. This can affect the estimates of the association between the exposure and the disease. The admission rate bias may have many causes (the burden of symptoms, access to care, the popularity of disorders and institutions, etc.) and is of at least potential importance in any hospital- or practice-based study of etiology. Because it is precisely these settings that makes possible the study of diseases that are rare or late, this bias is central to the execution of case-control studies.³

Example: In interviews of random samples of the general population to determine the association of respiratory disease and locomotor disease, no association between the two diseases were found (Odds ratio: 1.06) - the correct conclusion. However, when the subset of samples that were hospitalized in the previous 6 months was studied, people with respiratory disease are much more likely to suffer from the locomotor disease (Odds ratio: 4.06). We might conclude (incorrectly) there are associations between these two diseases if this study is only done in hospitalized patients.

Effect on relative risk or odds ratio

Case-control study: ↑ or ↓

Cohort study: Not applicable

c) Unmasking (Detection Signal) Bias

An innocent exposure may become suspect if, rather than causing disease, it creates a sign or symptom which precipitates a search for the disease.⁴

Example: Estrogen replacement therapy might cause symptomless endometrial cancer patients to bleed, resulting in the initiation of diagnostic tests. In this instance, the exposure unmasked subclinical cancer, leading to a spurious increase in the odds ratio between estrogen replacement therapy and endometrial cancer.¹

Effect on relative risk or odds ratio

Case-control study: ↑

Cohort study: ↑

d) Non-respondent bias

Non-participation (non-response) is related to the exposure and, independently of exposure, to the disease/outcome.

Example: in a study that investigates the relationship between smoking and 10-year risk of renal dysfunction, 20% of smokers with severe hypertension (i.e., with increased risk of renal dysfunction) do not accept to participate in the study.

The non-response rate is related to the smoking status and the risk of disease, and, independently of smoking, individuals with severe hypertension are more likely to have renal dysfunction. This will underestimate the true relative risk because the numerator does not include cases with renal dysfunction that could occur in non-participants.^{4,5}

Effect on relative risk or odds ratio

Case-control study: ↑ or ↓

Cohort study: ↑ or ↓

e) Membership bias

People who choose to be members of a group (e.g., joggers) might differ in important respects from others.

Example: both cohort and case-control studies initially suggested that jogging after myocardial infarction prevented repeat infarction. However, an RCT failed to confirm this benefit. Those who chose to exercise might have differed in other important ways from those who did not exercise, such as diet, smoking and presence of angina.¹

Selection Bias



Bias

2. Information Bias (Classification/Measurement/Observation bias):

Has the information been gathered in the same way?

Incorrect determination of exposure or outcome, or both. Some use the term ascertainment to describe gathering information in different ways. For example, an investigator might gather information about exposure at the bedside for a case but by telephone from community control.

a) Diagnostic Suspicion Bias

A knowledge of the subject's prior exposure to a putative cause (ethnicity, taking a certain drug, having a second disorder, being exposed in an epidemic) may influence both the intensity and the outcome of the diagnostic process.⁴

Example: The intensity of searching for infection by HIV is higher among intravenous drug users.

Effect on relative risk or odds ratio

Case-control study: ↑ (unlikely to occur)

Cohort study: ↑

b) Exposure Suspicion Bias

Knowledge of the patient's disease status may influence both the intensity and outcome of a search for exposure to the putative cause, especially when patients appear with disorders whose 'causes' are 'known'.

Example: intensity of the search for prior irradiation is higher for study of children with thyroid cancer.⁴

Effect on relative risk or odds ratio

Case-control study: ↑

Cohort study: ↓ (unlikely to occur) or not applicable

c) Family History Bias

Medical information flows differently to affected and unaffected family members.⁴

Example: when groups of individuals with and without rheumatoid arthritis were asked whether their parents had arthritis, the result suggested that the disorder did 'run in families'. However, when family histories on the same parents were compared, it was found that siblings with rheumatoid arthritis reported about two times more than their parent had arthritis than siblings free of the disorder.

Effect on relative risk or odds ratio

Case-control study: ↑

Cohort study: Not applicable

d) Recall bias/Observer bias

The recall of cases and controls may differ both in amount and inaccuracy.⁴ Questions about specific exposures may be asked several times of cases but only once of controls.

Example: in a study that investigates the relationship between child abuse (exposure) and major depression (cases), cases may be more likely to recall and report childhood abuse than controls with no history of mental health problems.

Alternatively, an investigator (observer) who believes that child sexual abuse does cause major depression in adulthood might put extra effort into obtaining disclosure of abuse from subjects whom they knew to be in the depression case group.

Effect on relative risk or odds ratio

Case-control study: ↑

Cohort study: Not applicable

Is the information bias random or in one direction?¹

The effect of information bias depends on its type. If information is gathered differentially for one group than for another, then bias results, raising or lowering the relative risk or odds ratio dependent on the direction of the bias.

By contrast, **non-differential misclassification**—ie, noise in the system—tends to obscure real differences. For example, an ambiguous questionnaire might lead to errors in data collection among cases and controls, shifting the odds ratio toward unity, meaning no association.

Prevention and Measurement of bias in analytical studies.⁴

Information bias are easier to prevent and measure than Selection bias.

Information bias can be mitigated by

- i. 'Blinding' interviewers to the subjects' diagnoses (or executing interviews about exposure prior to definitive diagnosis)
- ii. Use explicit, objective criteria for exposures and outcomes
- iii. Obtaining information about exposure from independent sources that are unaffected by memory or by the flow of family information

Selection bias can be mitigated by

- i. Non-respondent bias: aim to achieve a high response rate ($\geq 80\%$ by convention)
- ii. Admission rate bias: No solution. Although one could prevent the admission rate bias by conducting an analytic survey in the general population, the result is no longer a case-control study and loses its time-and-cost advantage.
- iii. Prevalence-incidence bias: No solution as the exact composition of the groups of exposed and unexposed individuals from which cases and controls are sampled is not known in the case-control study.

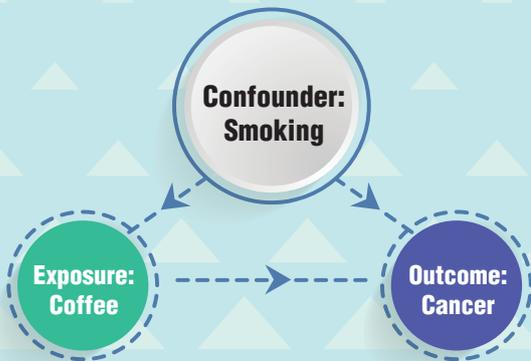
Information Bias



3. Confounding¹

Is an extraneous factor blurring the effect?

Confounding is mixing or blurring of effects. A researcher attempts to relate an exposure (A) to an outcome (B), but measures the impact of a third factor (C), termed a confounding variable. A confounding variable is associated with the exposure, and it affects the outcome, but it is not an intermediate link in the chain of causation between exposure and outcome. This is shown in the figure below.



When selection bias or information bias exists in a study, irreparable damage results, internal validity is doomed. Therefore, it is very important to anticipate and prevent such biases during the planning stage of a study. By contrast, when confounding is present, this bias can be corrected, provided that confounding was anticipated and measured. Confounding can be controlled for before or after a study is done. We will explore methods used to control for confounding in the next issue.

References (and Further Reading)

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Student Article

1. Complementary and Alternative Medicine (CAM) Use in Cancer

Have you ever heard that apricot seeds, moringa, and the royal pink porcupine bezoar can fight cancer? These are classified as some forms of complementary and alternative medicine (CAM).

What is CAM?

CAM are products or practices which are not part of the standard medical treatment.¹ When CAM replaces conventional medical treatment, it is known as **alternative medicine**.¹ However, when CAM is used together with regular medical treatment, it is known as **complementary medicine**.¹

What Are Some Examples of CAM?

According to the National Center for Complementary and Alternative Medicine (NCCAM), CAM can be divided into five main categories:¹⁻²

1. Alternative medical systems which includes traditional Chinese medicine, traditional Malay medicine (jamu), ayurvedic medicine, homeopathy, and naturopathy.
2. Mind-body therapies involve mind practices to influence body functioning and physical health such as meditation, prayer, guided imagery, and hypnosis.
3. Biologically-based therapies which are any forms of natural products or specific diet such as herbal products, vitamin and mineral supplements, functional foods, and hormones.

4. Manipulative and body-based methods which are movements or manipulations of the body like chiropractic treatments and body massages.
5. Energy therapies which use either external electromagnetic fields or our body's own energy fields, such as tai chi, qi gong, Reiki, and therapeutic touch.

Use of CAM Among Cancer Patients in Malaysia

The usage of CAM is much higher (50 – 90%) in long-term and painful disease conditions, in particular, cancer in Malaysia.³ Several Malaysian studies reported that approximately 50% of cancer patients are using CAM.³⁻⁵ Although most patients use CAM while receiving treatment, 14.5% stopped conventional treatment, which is very concerning.⁶ Moreover, current research shows that 16 – 57% of patients have been using CAM even before they are diagnosed with cancer.^{4,6} Besides that, 84.5% of children suffering from cancer are using CAM.⁷ In addition, 68.5% of patients use more than 1 CAM at a time which could be costly – about RM 100 to 500 per month.⁵⁻⁶

1. Types of CAM Use

The most commonly used CAM in Malaysia is biologically-based therapies, followed by mind-body therapies and alternative medical systems.⁴⁻⁵ Among the most typically used biological-based therapies are natural supplements, herbal products, and multivitamins. Some frequently used herbs and foods are Sabah snake grass, betel nuts or leaves, and sea cucumbers.⁵⁻⁶ Meanwhile, water therapy, spirulina, and vitamin C are more common among children.⁷ Prayer and consulting a spiritual or religious healer are also common.

2. Beliefs of CAM Use

The main reason to use CAM is to cure cancer according to 50% of patients.⁴ Other reasons for CAM use are such as to slow down cancer progression, prevent cancer recurrence, improve overall well-being, overcome symptoms of cancer and medical treatment, and as adjuvant therapy for cancer.³

The consequence of CAM Use in Cancer

The outcomes of CAM use are often overlooked. When CAM is used as a complementary medicine together with conventional treatments like chemotherapy, radiotherapy, and hormonal therapy, there is a high risk of treatment interactions between the two.^{4,8} For example, it can result in a low level of neutrophils (a type of white blood cells), leading to fever and infections.⁸ Consequently, a patient's chemotherapy dose may have to be reduced or the chemotherapy treatment may have to be postponed.⁸

Apart from that, an observational study shows that people who use CAM as an alternative therapy without receiving standard medical treatment have a 2.5 times higher risk of death than people on conventional treatment.⁹ On the other hand, in another observational study, people on complementary medicine tend to refuse additional medical treatment like surgery, chemotherapy, radiotherapy, and hormonal therapy even though they are already on their medical treatment. This leads to a twice higher risk of death among these individuals.¹⁰

In a nutshell, although these practices or products may be used as complementary medicine, patients would have to discern the appropriateness of CAM use without compromising conventional treatment. Besides, due to the boundless amount of inaccurate information on CAM available online and sometimes as part of marketing strategy, patients should exercise caution and consult credible health professional for evidenced-based information regarding CAM use.⁸

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Figure 1: Betel Nut



Figure 2: Sea Cucumber



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2. Know Your Bones, Love Your Bones!

Bones are the framework of our bodies that provide structural support and allow us to move around. They also protect our vital organs, including the brain and heart, from injury. In addition, our bones act as a storage bank for minerals, especially calcium, which is an essential building block of bone tissues.¹

Do you know that bones are living tissue that changes constantly? Why is it said so? You can picture your bone as a bank account where you can make money "withdrawals" and "deposits". The same goes for the bone metabolism in which bits of old bone is being removed and replaced by new bone tissues every day.² In younger days during the childhood and adolescence phase, more bone is deposited than withdrawn. In turn, bone mass increases, and that is when our bone skeleton becomes bigger in both size and density.

Peak bone mass refers to the point where the bones are at its maximum strength and density. Most people reach peak bone mass during their late 20s, and bone density tends to stay stable until the age of 40-50 years. After that, we will lose slightly more bone mass than we gain.³ Thus, depending on the rate of bone loss, everyone has the risk of developing osteoporosis. In this condition, the risk of bone fracture is increased due to reduced bone strength and density; in particular, it is more pronounced among women after menopause. Yet, individuals who reached higher peak bone mass when they are young are better protected against fractures and osteoporosis later in their life.⁴ Just like your "bank account", higher saving during younger days will protect you from being poor when you are old. The same concept applies to your bones!

Osteoporosis is often called as a "silent disease" since bone loss occurs without any symptoms, and many people are not even aware that they have weakened bones. For many people, the first sign of osteoporosis is fractured due to weakened bones. In the worst-case scenario, a sudden strain or bump can break a bone.⁵ Fractures result from osteoporosis can lead to long term pain and disability, subsequently reducing the quality of life.

These are some tips that we can do to improve and maintain our bone health:



Image source:
<https://www.algaecal.com/calcium/weight-loss/>

1. Consume Sufficient Calcium & Vitamin D^{6,7}

- Calcium and vitamin D work alongside together to better protect our bones; calcium helps to build and maintain bones, and it needs vitamin D for better and effective absorption into the body.
- Eat a well-balanced diet following the Malaysian Healthy Plate Model (#sukusukuseparuh) by incorporating good sources of calcium for protein such as low-fat dairy products (e.g., milk, yogurt, cheese), fish with edible bones (e.g. sardines, anchovies), beans and lentils. While good dietary sources of vitamin D include oily fish (e.g. salmon, mackerel), eggs, and fortified milk and cereal products. Alternatively, vitamin D can be synthesized by our skin through adequate sun exposure, and it's free!

2. Maintain appropriate body weight⁸

- Apart from eating a nutritious and balanced diet, maintaining a healthy body weight range helps to support good bone health status. Being too thin/skinny or too heavy/ obese can increase the risk of osteoporosis. Weight status can be assessed using body mass index (BMI) by dividing your body weight (in kilogram) to the square of height (meter²). One should aim to keep your BMI between 18.5 kg/m² and 24.9 kg/m² for a good bone health status.



3. Engage in Regular Weight-Bearing Exercise^{9,10}



- Bones are living tissue that can become stronger through exercise. The most effective way to strengthen your bones is through weight-bearing and resistance workouts.
 - Any activity that puts weight on the bones and muscles such as brisk walking, jogging, stairs climbing, dancing, and weight lifting is good for your bones. Try to get 30 minutes of exercise at least 5 days a week. If you have any medical conditions such as high blood pressure or diabetes, check with your doctor before beginning a regular exercise program.
- ### 4. Avoid Smoking^{11,12}
- Cigarette smoking reduces bone mineral density and, in turn, increases bone mineral loss and results in an increased risk of fractures. The chemicals found inside cigarettes (nicotine, cadmium) will reduce intestinal calcium and vitamin D absorption too.

5. Avoid Excessive Alcohol Intake^{13,14}



Image source: <http://www.cymruiacharwaith.cymru.nhs.uk/sitesplus/documents/1130/Alcohol-Toolkit-2017-Welsh.pdf>

- Alcohol can negatively affect our bone health by increasing the loss of essential nutrients for healthy bones including calcium and magnesium. In addition, fractures are common among chronic heavy drinkers because alcohol will affect balance and thus increase the risk of falls.
- Typically, the recommended amount of alcohol intake is up to 1 standard unit for women and not more than 2 standard units for men.

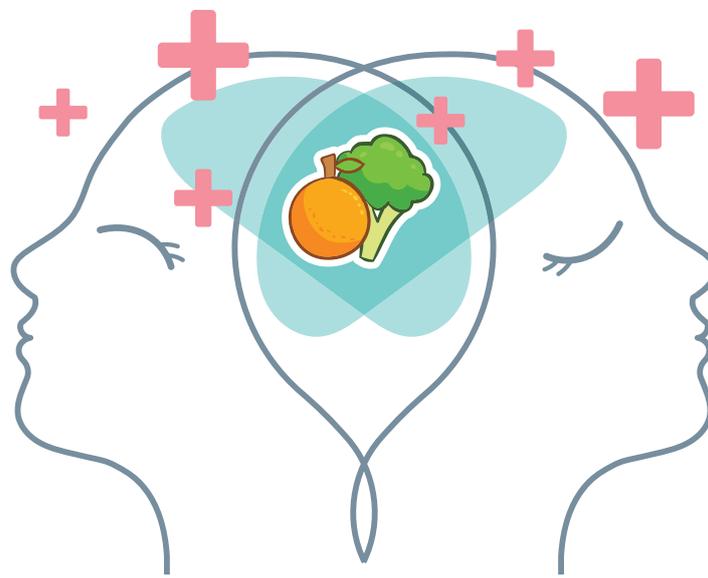
There are many things we can do to keep our bones healthy and strong. Consume a balanced diet by eating foods rich in calcium and vitamin D and having good lifestyle habits will essentially help to maintain bone health in a long run. Cheers to healthy bones!

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3. Nutritional Psychiatry: A Whole New World

A car needs fuel to move; the same goes for our body where it needs nutrients to function well. A right fuel will ensure the smoothness of the journey while good and enough food will maximize the capacity of our body function. However, we tend to choose food based on our mood. For example, "It is a stressful day. Maybe a sweet dessert can help to release my stress" or "I'm so sad, I need a bucket of ice cream and lots of chocolates to feel better". Such situations are common among us, isn't it? These situations are called as comfort eating were after eating; we feel calm and serene and might also feel sleepy. Other than that, some individuals tend to overeat when they feel stress or depressed, and this can be explained by the serotonin hypothesis where low serotonin is associated with feeling depressed.¹

American Psychiatric Association defines mental disorders/psychiatric disorders as a cluster of syndromes which disturb an individual's cognition, emotion regulation or behavior.² Several factors have been proven to affect the development of mental disorder such as genetic factors, diet, physical inactivity, stress, drugs, and other environmental factors. Based on the National Health and Morbidity Survey 2015,³ prevalence of mental health problems among Malaysian above 16 years old was 29.2%. By gender, the prevalence was higher among females (30.8%) compared to males (27.6%).

This brings us to a new emerging field called nutritional psychiatry.

Have you ever heard about "Nutritional Psychiatry"?

Nutritional psychiatry focuses on the use of food and supplements to provide the essential nutrients as an alternative treatment for mental health disorders. Based on National Institute for Care Excellence (NICE) guidelines, treatments options for mental disorders are usually limited to recommendations of talking therapies and psychotropic medications.⁴

The dietary factor is not a major etiologies of mental disorder. However, individuals with mental disorders might need a special kind of diet or supplements as it may affect the development of mental disorders such as it can aggravate or alleviate the symptoms and the progression of the disorders.⁵ For example, one of the common symptoms in individuals with depression is increasing or reducing food intake. When they reduced their intake, they are at risk of malnutrition or vitamin

and mineral deficiency. On the other hand, an increase in food intake might cause weight gain and lead to obesity. Both of these problems should be managed from the start to avoid more problems in the future.

A systematic review and meta-analysis show that people with a healthy diet have a lower risk of depression compared to those consuming "Western diet" which mostly consists of processed and refined foods.⁶ Depression has been known to be associated with deficiencies in neurotransmitter (serotonin, dopamine, and noradrenaline). In several studies, amino acid tryptophan, tyrosine, phenylalanine, and methionine are often helpful in treating many mood disorder including depression.⁷ Other than that, it is found that people suffering from mental disorders have exceptionally deficient in vitamins, minerals, and omega-3 fatty acids. Consuming omega-3 fatty acid supplements that contain 1.5 to 2 g of EPA per day has been shown to stimulate mood elevation in depressed patients.⁸ Studies have shown that daily supplements of vital nutrients often effectively reduce the symptoms.⁸

A deficiency of taurine (an amino acid made in the liver from cysteine) may increase manic episodes in bipolar patients. The combination of essential vitamin supplements with the natural supply of lithium from the body can reduce depressive and manic symptoms in individuals suffering from bipolar disorder.⁸

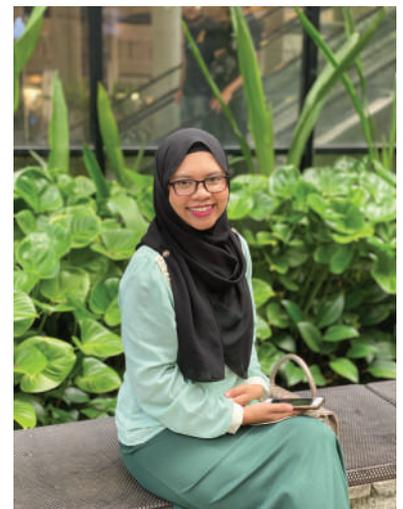
On the other hand, psychotropic drugs can cause unwanted side effects, which lead to non-compliant towards medications.⁸ For example, lithium is usually prescribed for bipolar disorder, but high-doses of this drug can cause a dulled personality, reduced emotions, memory loss, tremors, or weight gain.⁹ Insatiable hunger was commonly reported by the people who take antipsychotic medications, thus lead to weight gain. Therefore, a healthy and balanced diet should be emphasized along with the choices of healthy snacking to control hunger.

Based on emerging scientific evidence, this nutritional supplement treatment may help in controlling mental illness such as depression and bipolar disorder.⁸ This also may reduce the number of non-compliant patients towards prescribed drugs as they have another alternative to treat their mental illness. But bear in mind, in order to achieve optimal results, this treatment must be monitored and adjusted based on the patient's condition.

In the future, hopefully, with the help of nutritional psychiatry, these nutrition problems can be minimized among individuals with mental disorders and, eventually, reduce the prevalence of mental disorders.

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4. What are the benefits of drinking goat milk?



Milk plays an essential part in our life. It contains a high amount of nutrients such as calcium, protein, and, vitamin B12, which helps in the development of the human body, especially concerning bone and teeth. Other than that, it helps to boost metabolism and also the immune system.¹ Malaysian Dietary Guidelines (MDG) recommended that people should consume 2 to 3 servings of *milk and milk products every day*.¹ Goat milk is one of the common milk in the market, and it is getting popular all over the world. This is because more people are becoming more aware of the health benefits of goat milk. It contains lots of health benefits and also rich in nutrients. The comparison of certain nutrients of goat milk and cow milk as shown below.

Nutrients (per 100g)	Goat milk	Cow milk
Total Protein	3.6	3.2
Casein	2.9	2.5
Lactose	4.5	4.6
Calcium	21.14	17.47
Magnesium	1.72	1.44
Vitamin A (IU)	185	126
Vitamin D (IU)	2.3	2.0
Thiamine (mg)	0.068	0.045
Riboflavin (mg)	0.21	0.16
Niacin (mg)	0.27	0.08
Vitamin C (µg)	1.29	0.94

Table 1: Nutrient composition (100 g) of goat milk and cow milk.²

Higher amount of nutrients

Based on table 1, it showed that goat milk contains a higher amount on certain nutrients such as protein, calcium, magnesium, and others. Goat milk is a nutritious food, and there is an increase on the usage of goat milk in product manufacturing such as cheese and yogurt because of its health benefits and also excellent functional properties.² There are studies showed that goat milk contains more monounsaturated (MUFA), polyunsaturated fatty acids (PUFA), and medium-chain triglycerides (MCT), which are suitable for human health especially on cardiovascular conditions.^{2,3,4}

Better digestibility

The average size of fat globules is smaller in goat milk (0.73 to 8.58µm) compared to cow milk (0.92 and 15.75µm).⁵ The smaller fat globules size in goat milk leads to better digestion due to the greater surface area.⁶ Furthermore, the protein composition of goat milk is also different compared to other milk.^{2,5} The casein micelles in cow milk are smaller (60 to 80nm) when compared to goat milk casein micelles (100 to 200nm).⁷ It is widely known that the bigger casein micelles size can form a softer and more fragile curd during acidification, which mimics the conditions in the stomach. The softer curd formed during digestion can assist with better digestive health compared to densely packed casein curd.^{4,7} Besides, it contains more medium-chain fatty acids (MCFA).^{2,3,4} MCFA is easier to be digested and metabolized to produce energy compared to long-chain fatty acid.^{3,5}

Less allergenic

Goat milk is potentially less allergenic than cow milk.^{4,8} The study shows that up to 3% of young children develop milk allergy, and the protein that has been associated with allergic reactions to ruminant milk is α S1-casein.⁹ It was reported that there is a smaller proportion of alpha S1-casein in goat milk compared to cow's milk. The level of α S1-casein in goat milk may range from high (7 g/L), medium (3.2 g/L), low (1.2 g/L), or even absent, but cow milk only contains high amount of α S1-casein (~12 g/L).⁹

Furthermore, the lower amount of α -caseins in goat milk allows the better digestion of beta-lactoglobulin and also other allergens.⁸ Hence, goat milk causes less allergenic burden compared to cow milk due to the lesser amount of alpha S1-casein.⁹

A lower amount of lactose

The amount of lactose in goat milk is slightly lower compared to cow milk.^{2,3,5,7} Hence, Along with its better digestibility, it explains why some of the people who suffered from lactose intolerance patients can enjoy goat milk. However, goat milk cannot be recommended for patients who are suffering from lactose intolerance.²

In short, goat milk is unique due to its properties and nutritional values. It has some health benefits in human nutrition, which should not be underestimated, such as less allergenic, more comfortable to digest, contains higher nutrients, and a lower amount of lactose. However, goat milk cannot be a perfect alternative for the people who suffered from cow milk allergy and also lactose intolerance. Further studies are needed for the clarification if goat milk can be the alternative to cow milk.



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How to Eat Healthily during the Movement Control Order (MCO)?

"Let's try to make Dalgona Coffee!" "Let's bake the trendy Basque Burnt cheesecake!" "Let's call for food delivery!" Are you doing something similar during MCO?

Movement Control Order (MCO) has been implemented in Malaysia since March 18. Millions of people are being confined in their homes. Hence many have turned to eat, cooking, and baking as one of the many ways to cope with boredom. We know that we need to exercise but we probably end up spending more time in front of the fridge to look for food. Eating out of boredom happens typically when we're not in the physiological need for food. Instead, we eat for the sake of psychological pleasure.

So, is boredom the culprit? Studies have shown that boredom fosters the desire to snack, especially on less healthy food.¹ Dopamine is a neurotransmitter, one of the brain's chemical messengers, used to send signals of pleasure.² Dopamine makes us feel good, happy, satisfied and motivated. Ingestion of palatable food has been shown to release dopamine in the brain in proportion to the self-reported level of pleasure derived from eating the food.³ Therefore, other than alcohol and drugs, food is one way to obtain that dopamine surge that we have been hoping for.

Eating out of boredom during MCO often leads to overeating, especially on high-calorie foods. Working from home may cause us to lead a less active lifestyle. Higher calorie consumption with lesser physical activity can contribute to weight gain. Hence, be mindful of the food that you put in the mouth! I am happy to share some tips on how to eat healthily during MCO.

1. Don't skip breakfast

Studies have shown that skipping breakfast is associated with an overall less healthy diet characterized by higher daily intakes of soft drinks and salty snacks, and lower intakes of fruit, vegetables and dairy.⁴ Skipping breakfast may therefore potentially contribute to an unhealthy dietary pattern leading to overweight and obesity.

Eating breakfast helps to enhance satiety and reduce hunger throughout the morning. This may help to reduce food cravings and prevent overeating in the next meal.

- Keep breakfast in mind when doing grocery shopping. Stock up on fruits, muesli, oatmeal, yogurt, nuts, or low sugar soymilk or low-fat milk.
- Make simple and convenient breakfast such as overnight oats with soymilk, fruit and nuts; or sandwich with tofu/tempoh/egg/tuna/shredded chicken, lettuce and tomatoes

2. Go easy with sugar

Craving is not hunger. It's our brain calling for something that triggers the release of dopamine in the reward system of our brain. Highly palatable and sugary foods give us the sense of pleasure and make us going back for more even though we know they are not good for health.

A common nutrition trap that many may fall into during the MCO is indulging in less healthy homemade comfort foods, packed with calories but little nutrients, such as homemade Dalgona coffee, burnt cheesecake, pearl milk tea, and variety of local *kuih*s. In terms of sugar, a cup of Dalgona Coffee may have 4-5 teaspoons of sugar, and a slice of burnt cheesecake may contain 3-4 teaspoons of sugar. World Health Organisation recommends reducing our daily intake of free sugars to less than 10 teaspoons. A further reduction to less than 6 teaspoons per day would provide additional health benefits.⁵

- Sharing is caring! Share the portion of our food or drink with our family or friends
- Experiment our favourite recipes with a healthy twist to create a guilt-free healthy dessert recipe such as replacing sugar with mashed bananas, unsweetened applesauce, fig puree; or simply reducing the amount of sugar used in the recipe!

- Read nutritional information panel and ingredient list on packaged foods and look for those with a lower sugar content

3. Cut back on salt

Canned foods are very convenient, especially when everyone is stocking up food for MCO. Most canned foods contain high amounts of salt. In Malaysia, the National Health and Morbidity Survey (NHMS) 2015 concluded that the prevalence of hypertension in adults is 30.3% (about 1 in 3 adults). High salt intake has been associated with elevated blood pressure in the PURE and INTERSALT studies.^{6,7}

- If we choose to consume canned food, it is best to drain the liquid and rinse the content to get rid of excess salt
- Choose minimally processed food. For example, choose air-dried vegetable chips instead of potato chips, choose unsalted nuts instead of salted nuts, use fresh beans or peas instead of canned baked beans

4. A moderate amount of fat and oil

Roti canai is ranked No. 1 on the GrabFood and FoodPanda list during this MCO period. The next items on the list are *nasi goreng kampung* and *nasi goreng ayam*.⁸ These foods contain a high level of fat and calorie. Replacing high calorie or high-fat foods with lower fat and lower calorie alternatives is an effective way to prevent excessive energy intake, which may lead to weight gain. Use these smart substitutions to stay on our healthy eating track even when we eat out or call for food delivery.

- Choose roasted dishes instead of fried dishes
- Choose *capati* and *naan* instead of *roti canai*
- Choose steamed white rice (or even better, brown rice) instead of fried rice and fragrant oily rice

5. Stay hydrated

Thirst isn't the best indicator to probe us to drink water. When we get thirsty, we are already dehydrated. Few studies have examined how fluid reintroduction under conditions of mild dehydration may alleviate dehydration's harmful effects on cognitive performance and mood.⁹

- Water is the best drink to keep us hydrated. It has zero fat, zero sugar, and zero calories!
- Avoid high sugar fruit juice, soda, and caffeinated drinks. They tend to be high in added sugars and calories. Instead, go for low to no-calorie alternatives such as fruit-infused water, flower tea, herbal tea, sugarless sparkling water, low-fat milk, and soy milk with little or no added sugar.
- Remembering how much water to drink daily can be a challenge. Tips: Carrying a water bottle is probably the simplest reminder to make us drink more water
- Stay hydrated and simply, healthy!

In summary, it is crucial to eat mindfully during the Covid-19 pandemic. Great nutrition is fundamental to support immunity and overall health!

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BOOK YOUR CALENDAR - MDA UPCOMING WEBINARS

Month	Date	Time	Theme	Topic
June	6/13/2020 (Dietitians' Role in COVID-19 Management, and Beyond)	3.00 pm - 3.30 pm	Dietitians' Role in COVID-19 Management, and Beyond	Food and Nutrition Services during COVID-19 pandemic – experiences from KKM dietitians
		3.30 pm - 4.00 pm		Nutrition management among ICU COVID-19 patients; practical tips and challenges.
		4.00 pm - 4.30 pm		Energy requirement using indirect calorimetry among ICU patients in Malaysia.
	6/20/2020	3 - 4 pm	Weight Management with VLCD	Fight the obesity pandemic with Very Low Calorie Diet (VLCD)
	6/27/2020	3 - 5 pm	Frailty and Nutrition	Reducing the risk of falls in the elderly with the right nutrition
July	4 July 2020	3 - 4 pm		The roles of nuts in body weight regulation.
	11 July 2020	3 - 5 pm	TBC	TBC
August	15 August	3 - 5 pm	Sarcopenia	TBC
	29 August	3 - 5 pm	Obesity and Weight Management	TBC
September	12 Sept	3 - 5 pm	Renal Care/ Diabetes Care	TBC

The above events may be subject to change. Kindly refer to the latest news shared by email from the **Malaysian Dietitians' Association**. If you have any inquiries on the events, please email to the secretariat (admin@dietitians.org.my)

HAVE A LAUGH
- DIET JOKES

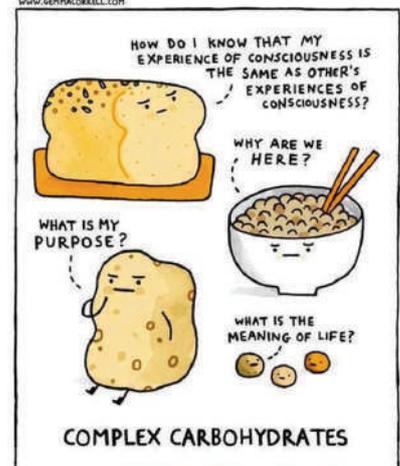


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MONDAY PUNDAY
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