AMDI
Magazine

e-issn 2735-041X

Volume 2, Issue 1 (2021)

PPV
SAINS@BERTAM

PPV sains@bertam merupakan PPV IPT yang ditubuhkan di bawah inisiatif Kementerian Pengajian Tinggi (KPT) dengan persetujuan Kementerian Sains, Teknologi dan Inovasi (MOSTI) dan juga Jawatankuasa Petugas Khas Imunisasi COVID-19 (CITF)

Prof. Dr. Syed Azhar Dilantik

Bantu Bangunkan Industri Halal di Malaysia.

Ke arah **translasi gaya hidup sihat bersama komuniti:** kolaborasi akademik dan industri bersama Kluster Sains Gaya Hidup, Institut Perubatan dan Pergigian Termaju.

Osteoporosis:
Why need to exercise?

Osteoporosis is a silent yet progressive non-communicable disease affecting the older generations specifically among the postmenopausal women.

2735-041X

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PREFACE

Professor Dr. Tunku Kamarul Zaman
Tunku Zainol Abidin
Editor-in-chief of AMDI Magazine

Assalamualaikum w.b.t and Greetings...

It is our great pleasure to publish the first issue of second volume for year 2021 of the AMDI Magazine. The articles and news in this issue is the result of the submission articles and news from AMDI Newsletter from January until June 2021.

We wanted to share with you the strategic progress we are making at AMDI. All the articles were written by AMDI staff personally. We are grateful that our staff are willing to share their expertise and stories in this way. It is intended to give you some insight into our developments and our activities that span research, academic and clinical services.

The secret of AMDI success is our focus on people and values. It is not the product that unites us in AMDI, but our love for innovative technology, creative pride and our dedication to all our customers, students, staff, lecturers and public.

I would like to thank all the news contributors as well as our editors and editorial secretariat for their contribution to AMDI Magazine.

I hope that you will all greatly enjoy reading this publication.

PPV SAINS@BERTAM

Kunjungan Menteri Belia dan Sukan ke PPV Sains@Bertam
(berdiri dari kanan): Puan Naseema, Dr Suria Emilia Suhana, Prof Dr. Syed Azhar, YB Dato' Sri Reezal Merican, Dr Noor Khairiah, Puan Law Kim Sooi, Encik Ikhwan Hashim (Duduk dari kanan): Encik Yusmadi Norashid, Encik Khairul Hafiz, Encik Mohammad Fauzi Yahaya, Encik Ahmad Rizwan.

Oleh: Suria Emilia Suhana Binti Othman Tan – 30 Jun 2021

KEPALA BATAS , June 30 2021 -

Tanggal 18 Jun 2021 merupakan tarikh yang amat bersejarah buat warga Universiti Sains Malaysia (USM) dan penduduk Kepala Batas kerana pada tarikh ini, dua buah pusat pemberian vaksin (PPV) di bawah kelolaan USM mula beroperasi. PPV@USM dan PPV Sains@Bertam merupakan PPV IPT yang ditubuhkan di bawah inisiatif Kementerian Pengajian Tinggi (KPT) dengan persetujuan Kementerian Sains, Teknologi dan Inovasi (MOSTI) dan juga Jawatankuasa Petugas Khas Imunisasi COVID-19 (CITF) pada 1 Jun 2021. Selaras dengan hasrat KPT bagi membantu Program Imunisasi COVID-19 Kebangsaan (PICK) dalam menyediakan akses yang lebih banyak kepada rakyat untuk divaksin, maka Institut Perubatan dan Pergigian Terma (IPPT) telah menyahut seruan itu deng pengoperasian PPV Sains@Bertam.

PPV Sains@Bertam terletak di Jalan Bertam 2, berhampiran dengan Dewan Millenium Kepala Batas, Pusat Jagaan Damai Permai dan Ibu Pejabat Polis Daerah (IPD) Bertam. PPV Sains@Berta merupakan PPV awam kategori 2 dan dijangka dapat memberikan vaksin kepada 400 orang sehari berdasarkan kapasiti dewan dan petugas yang ada.

Pengoperasian PPV Sains@Bertam di ketuai oleh Prof. Dr. Syed Azhar Syed Sulaiman selaku Penasihat merangkap Pengarah IPPT, Dr. Noor Khairiah A. Karim sebagai Ketua Operasi, Dr Suria Emilia Suhana Othman Tan sebagai Penyelaras PPV dengan dibantu oleh barisan sekretariat dan petugas-petugas serta sukarelawan dalam kalangan satf dan pelajar IPPT dan USM. Bilangan petugas dan sukarelawan di PPV Sains@Bertam adalah seramai 100 orang sehari. PPV Sains@Bertam beroperasi 6 hari seminggu iaitu pada hari Isnin sehingga Sabtu (kecuali cuti umum), bermula pada pukul 9 pagi hingga 5 petang kecuali hari Sabtu bermula pada pukul 9 pagi sehingga 1 tengahari. Penerima vaksin di PPV Sains@Bertam akan mendapat notifikasi tarikh dan masa temujanji melalui aplikasi MySejahtera selewat-lewatnya dua hari sebelum tarikh temujanji mereka di samping akan dihubungi oleh petugas PPV Sains@Bertam sebelum tarikh temujanji.

Kunjungan Naib Canselor USM ke PPV Sains@Bertam Gambar (dari kanan): Prof. Dr. Syed Azhar, Prof. Dr. Narazah, Prof. Dr. Faisal Rafiq dan Puan Lizawati.

Bagi memastikan keperluan di PPV Sains@Bertam mencukupi, beberapa badan kerajaan dan badan bukan kerajaan (NGO) serta tokoh-tokoh politik tempatan telah menyumbangkan beberapa peralatan perubatan serta keperluan lain PPV. Antaranya ialah organisasi Tzu Chi, CITF daerah, Dato' Sri Reezal Merican (Menteri Belia dan Sukan merangkap Ahli Parlimen Kepala Batas), YB Dato' IR Ahmad Zakiyuddin Abdul Rahman (Timbalan Ketua Menteri 1 Pulau Pinang) dan YB Mohd Yusni Bin Mat Piah (Adun Penaga Pulau Pinang). Pihak Pengurusan PPV Sains@Bertam mengucapkan jutaan terima kasih di atas semua sumbangan yang di terima sehingga ke hari ini.

Sehingga ke hari ini, PPV Sains@Bertam telah berjaya memberikan sebanyak 1,786 dos vaksin COVID-19 kepada orang awam di Kepala Batas dan kawasan sekitarnya. Dijangkakan menjelang penghujung bulan Julai 2021, sebanyak hampir 10,000 dos vaksin dapat diberikan kepada orang awam melalui PPV Sains@Bertam. Diharapkan agar pengoperasian PPV Sains@Bertam akan

dapat membantu kerajaan dalam mencapai matlamat mempercepatkan penduduk Malaysia memperoleh imuniti daripada COVID-19 ini.

Disediakan Oleh:

Dr. Suria Emilia Suhana Othman Tan

Penyelaras PPV Sains@Bertam

Gambar penerima vaksin di kaunter pendaftaran dan kebenaran/persetujuan.

Sumbangan makanan dan minuman buat petugas dan penerima vaksin PPV Sains@Bertam daripada Pejabat TKM 1 Pulau Pinang.

Kunjungan YB. Mohd Yusni Bin Mat Piah ke PPV Sains@Bertam

Tahniah!! Pembangunan Microcredential Course & MOOC IPPT USM

Oleh: Rafidah Binti Zainon – 1 Januari 2021

IPPT USM, January 1 2021 -

Kini, kemunculan Massive Open Online Course (MOOC) dan Microcredential Course (MC) pada Open Learning platform telah menjadi tren utama untuk kaedah pembelajaran sepanjang hayat.

Pandemik COVID19 tidak sesekali mematahkan semangat sekumpulan pensyarah IPPT USM untuk berkongsi ilmu dan pengalaman dalam bidang kepakaran masing-masing kepada pelajar dan komuniti.

MOOC dan MC dapat diakses dalam talian tanpa melibatkan pembelajaran dan pengajaran secara bersemuka. Ia boleh diakses pada bila-bila masa secara percuma.

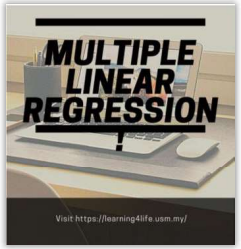
1) **Dr. Mohd Hafizuddin Mohamed Fauzi**
(Blood Cells Morphology)
https://www.openlearning.com/courses/blood-cells-morphology/?cl=1

2) **Prof. Madya Dr. Doblin Anak Sandai**
(Fungal Infections; Diagnosis Guides)
https://learning4life.usm.my/courses/fungal-infections-diagnosis-guides/?cl=1

3) **Dr. Nawal Radhiah Abdul Rahman**
(Non-Odontogenic Jaw Lesion)
https://learning4life.usm.my/courses/non-odontogenic-jaw-lesion/?cl=1

4) **Dr. Noor Ayuni Ahmad Shafai**
(Removable Appliance in Orthodontics)
https://learning4life.usm.my/courses/removable-appliance-in-orthodontics/?cl=1

5) **Prof. Madya Dr. Fatanah Mohamad Suhaimi**
(Laser Hazard & Safety)
https://learning4life.usm.my/courses/laser-hazards-and-safety/?cl=1&inCohort=learning4life%2Fcourses%2Flaser-hazards-and-safety%2Fcohorts%2Fclassof2020



6) **Dr. Noorsuzana Mohamad Shariff**
(Multivariable analysis: The Multiple Linear Regression)
https://learning4life.usm.my/courses/multivariable-analysis-the-linear-and-logistic-regression/homepage/?cl=1

Prof. Madya Dr. Rafidah Zainon
(Physics of Medical Imaging)
https://www.openlearning.com/courses/physics-of-medical-imaging/homepage/?cl=1

Dr. Anusha, Prof. Madya Dr Tan Mei Lan, Dr Noorfatimah, Dr Sharlina, Dr Siti Razila, Dr Noor Diyana, Dr Nurulisa.
(Scientific Writing & Communication)
https://www.openlearning.com/courses/scientific-writing-communication/homepage/?cl=1

Semoga lebih banyak kursus dalam talian dapat dibangunkan di IPPT untuk perkongsian sejagat.
Maklumat lanjut boleh didapati daripada laman web rasmi IPPT melalui https://www.amdi.usm.my/study

Disediakan oleh:
Jawatankuasa Pendidikan dipacu Teknologi (JKPdT), IPPT, USM

Prof. Dr. Syed Azhar Dilantik Bantu Bangunkan Industri Halal di Malaysia

Oleh: Mohd Faisal Bin Jamaludin – 20 Januari 2021

BERTAM, January 20 2021 -

Profesor Dr. Syed Azhar Syed Sulaiman telah dilantik sebagai Ahli Jawatankuasa Program Malaysian Collaborative Network Platform for Disruptive Innovation (i-Connect) - Halal Supply Chain oleh Halal Development Corporation Berhad (HDC), sebuah agensi di bawah Kementerian Perdagangan Antarabangsa dan Industri (MITI).

Syed Azhar, 59, yang kini merupakan Pengarah di Institut Perubatan dan Pergigian Termaju (IPPT), Universiti Sains Malaysia (USM) akan membantu dalam membangunkan industri halal di negara ini menerusi program i-Connect yang mengambil masa lebih kurang 5 tahun untuk dijayakan.

Beliau ketika ditemui melahirkan rasa syukur kerana diberikan peluang bersama-sama dengan pakar-pakar lain di Malaysia bagi menerajui jawatankuasa ini.

"Pelantikan ini memberikan pengiktirafan buat USM secara amnya dan Halal Studies in Services, Research and Training, USM (HASRAT@USM) khususnya yang turut sama berganding bahu dengan pemain industri bidang halal lain di Malaysia ba menjadikan USM sebagai wadah untuk kepelbagaian aspek perkhidmatan, penyelidikan serta latihan dalam bidan halal," ujar beliau.

Beliau dilantik menjadi ahli jawatankua kepada program i-Connect Halal Suppl Chain berdasarkan kepada pengalama beliau dalam melaksanakan R&D&C&I selama ini. Pelantikan itu membolehka beliau berkongsi pandangan, ilmu dan kepakaran dalam bidang sains, teknolo dan inovasi, serta dalam mengkomersilkan produk dan perkhidmatan.

Program i-Connect ini akan mewujudka platform jaringan kolaborasi bersama pemain industri, komuniti penyelidik, agensi kerajaan dan pertubuhan am untuk mengintensifkan "disruptive innovation" dengan membuka ruang d peluang ekonomi baharu bagi pemain-pemain industri untuk menerima manfaat.

Menerusi program ini, projek-projek penyelidikan, pembangunan, inovasi dan pengkomersilan serta perancangan rapi pelaksanaan projek-projek berimpak tinggi yang sesuai dengan keperluan rantaian bekalan Halal pada masa ini dapat dikenalpasti.

Sementara itu, USM serta warganya merakamkan setinggi-tinggi tahniah dan syabas di atas pelantikan ini.

Ditubuhkan pada 18 September 2006, HDC merupakan penyelaras utama bagi menggalakkan penyertaan dan memudahkan pertumbuhan pemain industri dalam pembangunan ekosistem Halal Malaysia. Ia juga adalah agensi pembangunan industri halal yang pertama disokong kerajaan di dunia.

Sekalung Tahniah diatas Kenaikan Pangkat!

1) STAF AKADEMIK

Bil	Nama	Jawatan Asal	Jawatan Baru	Tarikh Kuat Kuasa
1	Prof. Madya Dr. Fatanah binti Mohamad Suhaimi	Pensyarah Universiti DS51	Pensyarah Universiti DS54 - Profesor Madya	1 Mei 2021
2	Prof. Madya Dr. Rafidah binti Zainon	Pensyarah Universiti DS51	Pensyarah Universiti DS54 - Profesor Madya	1 Mei 2021
3	Prof. Madya Dr. Hasni bin Arsad	Pensyarah Universiti DS51	Pensyarah Universiti DS54 - Profesor Madya	1 Mei 2021
4	Prof. Madya Dr. Tan Jun Jie	Pensyarah Universiti DS51	Pensyarah Universiti DS54 - Profesor Madya	1 Mei 2021

2) KUMPULAN PENGURUSAN DAN PROFESIONAL

Bil	Nama	Jawatan Asal	Jawatan Baru	Tarikh Kuat Kuasa
1	Dr. Nor Azlina Binti Khalil	Pegawai Veterinar GV48	Pegawai Veterinar GV52	1 April 2021
2	Encik Yusmadi Bin Norashid	Pegawai Tadbir N44	Pegawai Tadbir N48	1 April 2021
3	Encik Mohd Amin Bin Zainol	Pegawai Teknologi Maklumat F41	Pegawai Teknologi Maklumat F44	1 April 2021
4	Encik Khairul Hafiz Bin Aziz	Jurutera J41	Jurutera J44	1 April 2021

3) KUMPULAN PELAKSANA

Bil	Nama	Jawatan Asal	Jawatan Baru	Tarikh Kuat Kuasa
1	Puan Noor Laili Binti Mat Isa	Pembantu Kewangan W22 KUP	Pembantu Kewangan W26	1 Disember 2020
2	Encik Azham bin Murat	Pembantu Tadbir (Perkeranian & Operasi) N22 KUP	Pembantu Tadbir (Perkeranian & Operasi) N26	1 Disember 2020
3	Encik Abd Aziz Bin K A Razak	Penolong Pegawai Tadbir N29	Penolong Pegawai Tadbir N32	1 Disember 2020
4	Puan Salmiah Binti Saad	Pembantu Tadbir (Perkeranian & Operasi) N26 KUP	Pembantu Tadbir (Perkeranian & Operasi) N28	1 Disember 2020

Syabas dan Tahniah kepada Semua Penerima Anugerah Perkhidmatan Cemerlang 2020!

Oleh: Zulfaizal Bin Abdul Majid – 21 Jun 2021

BIL	NAMA
1	Encik Abd Aziz Bin KA Razak
2	Dr. Abdul Rahim Bin Hussein
3	Encik Ahmad Rizwan Bin Zulkharnain
4	Dr. Anis Farhan Binti Kamaruddin
5	Puan Azizah Binti Abu Hasan
6	Puan Basyarini Binti Abdul Rahman
7	Puan Esner Anak Bakar
8	Dr. Gokula Kumar AIL Appalanaido
9	Puan Halianis Binti Yusoff
10	Dr. Hazwani Binti Ahmad Yusof@Hanafi
11	Dr. Husnaida Binti Abdul Manan @ Sulong
12	Puan Juriah Binti Mohammad
13	Dr. Kumitaa A/P Theva Das
14	Puan Lor Fei Ting
15	Puan Marlinawati Binti Ramli
16	Encik Masli Bin Abd Majid
17	Dr. Mastura Binti Mohd Sopian
18	Dr. Miqdad Bin Danial
19	Encik Mohamad Asyraf Bin Zulkifli
20	Encik Mohamad Azuwan Bin Abu Bakar
21	Encik Mohd Aiman Bin Mohd Nairn
22	Encik Mohd Hafiz Bin Ramlai
23	Encik Mohd Husnul Mubaraq Bin Mohd Sabri
24	Encik Mohd lkhwan Bin Hashim
25	Encik Mohd Zulkifli Bin Zahari
26	Encik Muhammad Azmi Bin Kamal Letchumanan
27	Encik Muhammad Hafiz Bin Hairuddin

BIL	NAMA
28	Puan Najwa Hazwani Binti Mazli
29	Dr. Noor Diyana Binti Osman
30	Puan Noor Hafizah Binti Idris
31	Puan Noorhidayu Binti Abdull Jalil
32	Cik Nor Sayidah Mafisah Binti Mohd Nasir
33	Puan Norakemar Binti Mohamad
34	Cik Norhaliza Binti Abd Hamid
35	Puan Norhasida Binti Hassim
36	Dr. Nozlena Binti Abdul Samad
37	Dr. Nur Arzuar Bin Abdul Rahim
38	Cik Nur Farahidayah Binti Husin
39	Cik Nuratika Binti Dzulkaflee
40	Puan Nurul Sharinie Binti Osman
41	Puan Rogayah Binti Khalid
42	Puan Ruzzieatul Akma Binti Razali
43	Puan Salmiah Binti Saad
44	Puan Sharaladevi A/P Supramaniam
45	Puan Waheda Binti Mat Nashir
46	Puan Zita Ruzia Binti Zulkifli
47	Encik Zulfaizal Bin Abdul Majid
48	Encik Ahmad Farid Bin Asmail@ Ismail
49	Encik Ishak Bin Hasan
50	Encik Mohammad Fairos Bin Yahya
51	Puan Nurfarhana Binti Basharudin
52	Dr. Tan Jun Jie
53	Puan Zuliza Binti Hussain

Recepients of Research Grants 2021

Oleh: Zulfaizal Bin Abdul Majid – 21 Jun 2021

Bil	Nama Pensyarah	Jenis Geran	Tempoh
1.	PM Dr. Badrul Hisham Yahaya	Projek Libatsama Komuniti	1/10/2020 – 30/9/2021
2.	Dr. Nurhuda Mohamad Ansor	Jangka Pendek	1/11/2020 – 31/10/2022
3.	Dr. Ahmed Suparno Bahar Moni	Jangka Pendek	1/11/2020 – 31/10/2022
4.	Dr. Ooi Jer Ping	FRGS	1/11/2020 – 31/10/2023
5.	Dr. Fatanah Mohamad Suhaimi	FRGS	1/11/2020 – 31/10/2023
6.	Dr. Nozlena Abdul Samad	FRGS	1/11/2020 – 31/10/2023
7.	Dr. Kumitaa a/p Theva Das	FRGS	1/11/2020 – 31/10/2023
8.	Dr. Anis Farhan Kamaruddin	FRGS	1/11/2020 – 31/10/2022
9.	PM Dr. Siti Noor Fazliah Mohd Noor	PRGS	1/12/2020 – 30/11/2022
10.	Dr. Ooi Cheong Hwa	RUI	1/1/2021 – 30/6/2024
11.	Dr. Norehan Mokhtar	Agensi Luar	1/1/2021 – 31/12/2022
12.	Dr. Ahmed Suparno Bahar Moni	Agensi Luar	1/1/2021 – 31/12/2022
13.	Dr. Norfarazieda Hassan	Jangka Pendek	1/2/2021 – 31/1/2023
14.	Dr. Salina Sany	Geran Antarabangsa	1/4/2021 – 31/3/2022
15.	Prof. Madya Dr. Ahmad Munir Che Muhamed	Geran Antarabangsa	1/5/2021 – 30/4/2022
16.	Dr. Fitreena Anis Amran	Jangka Pendek	1/6/2021 – 31/5/2023

Ke arah translasi gaya hidup sihat bersama komuniti: kolaborasi akademik dan industri bersama Kluster Sains Gaya Hidup, Institut Perubatan dan Pergigian Termaju

Oleh: Suria Emilia Suhana Binti Othman Tan – 30 Jun 2021

IPPT,BERTAM, June 18 2021 -

Kluster Sains Gaya Hidup, di bawah Institut Perubatan dan Pergigian Termaju Universiti Sains Malaysia berbesar hati mengalu-alukan kerjasama kolaborasi bersama dua pakar dalam bidang sains senaman dan kecergasan, Profesor Dr Kazunori Nosaka dan Encik Kevin Zahri untuk sama-sama mengorak langkah ke arah kecemerlangan penyelidikan berkaitan gaya hidup sihat. Kolaborasi ini telah dirasmikan pada 1 Jun 2021 dan perbincangan bersama para pensyarah dari Kluster Sains Gaya Hidup telah diaturkan bersama kedua-dua pakar melalui persidangan maya bagi menentukan hala tuju kolaborasi.

Profesor Ken Nosaka merupakan penyelidik tersohor dalam bidang sains sukan yang sekarang sedang menjawat jawatan sebagai pengarah Sains Sukan dan Senaman di Pusat Pengajian Perubatan dan Sains Kesihatan di Edith Cowan University, Australia. Beliau mempunyai latar penyelidikan dan penerbitan melebihi 280 artikel dalam jurnal berimpak tinggi yang mana banyak menekankan kepada kajian berkaitan senaman esentrik. Tidak hanya di arena penyelidikan, beliau turut terlibat dalam mentranslasikan kepakaran senaman dengan terlibat secara langsung dengan satu program komuniti yang diberi nama “Stay Sharp Program” sejak tahun 2016 yang telah memberi faedah kepada hampir 300 orang peserta sehingga kini.

Encik Kevin Zahri pula merupakan seorang ikon kecergasan dan gaya hidup sihat yang tidak perlu diperkenalkan lagi di Malaysia. Beliau amat dikenali melalui inisiatif membudayakan gaya hidup aktif dan pencegahan obesiti di media-media arus perdana dan media sosial tempatan. Bermula dengan program Jom Kurus yang telah mencatatkan kejayaan luar biasa dalam kalangan pesertanya, beliau terus mengorak langkah dengan mensasarkan program pembudayaan sukan dan kecergasan dalam komuniti dan generasi muda di Malaysia.

Halatuju dan visi kedua-dua pakar ini dilihat seiring dengan misi dan visi Kluster Sains Gaya Hidup di Institut Perubatan dan Pergigian Termaju, Universiti Sains Malaysia yang memfokuskan kepada pencegahan penyakit-penyakit tidak berjangkit yang banyak berpunca daripada gaya hidup sedentari dan tingkah laku boleh ubah yang lain. Oleh itu, kerjasama kolaborasi ini diharapkan dapat membawa manfaat kepada masyarakat setempat di Pulau Pinang khususnya dan masyarakat Malaysia amnya, serta seterusnya menyumbang kepada pengkayaan ilmu dalam bidang sains sukan dan gaya hidup sihat.

Persidangan maya bersama para pensyarah dari Kluster Sains Gaya Hidup dan dua rakan kolaborasi, Profesor Ken Nosaka dan Encik Kevin Zahri pada 18 Jun 2021.

'Pek Kasih MLC' Pengikat Kasih Rakyat Malaysia

Oleh: Nazlina Binti Mohamad Isa – 1 Jun 2021

ADL, June 1 2021 -

Kita semua menyedari bahawa ramai yang terkesan ketika dunia sedang bergelut dengan pandemik Covid-19. Ada yang mengalami kesulitan dalam kehidupan dan tidak kurang juga yang kehilangan pekerjaan. Ramai yang mengadu bahawa sukar untuk bekerja ketika Perintah Kawalan Pergerakan (PKP) dan tiada wang untuk membeli makanan. Keluh kesah mereka menggamit simpati. Sebagai manusia, kita berempati iaitu meletakkan diri kita di tempat orang lain dan turut merasakan emosi sebagaimana yang mereka rasakan. Perit rasanya apabila anak-anak menangis kelaparan dan kita tidak berdaya kerana tiada wang untuk membeli makanan. Pertolongan amat didambakan. Apakah yang boleh kita lakukan untuk membantu mereka walaupun sedikit?

Bertitik-tolak daripada persoalan itulah, tercetusnya satu idea oleh salah seorang ahli Medical Laboratory Club (MLC) iaitu staf di Makmal Diagnostik Termaju (ADL), Institut Perubatan dan Pergigian Termaju (IPPT).

Beliau mengutarakan ideanya kepada anggota kelab, maka Projek ‘Pek Kasih MLC’ pun dilancarkan. Ia bertujuan untuk membantu rakyat Malaysia yang terkesan dengan keadaan pandemik sekarang. Melalui aplikasi Facebook, keluarga yang memerlukan bantuan makanan dicari. Selain itu, ahli kelab juga mendapat maklumat daripada jiran-jiran dan ada juga yang memberi maklumat tentang saudara mara masing-masing yang terjejas akibat pandemik ini.Maklumat keluarga berkenaan beserta alamat tempat tinggal diambil.

Barangan Pek Kasih MLC

Bermula 1 Jun 2021, ahli-ahli kelab mula menyumbangkan wang untuk dikumpulkan. Hebahan juga diwar-warkan kepada sahabat handai ahli kelab di aplikasi Facebook untuk memberi peluang kepada orang lain untuk turut menyumbang wang bagi projek ini.

Sebanyak RM5658.20 berjaya dikumpulkan sehingga projek ini berakhir pada 27 Julai 2021.

Menggunakan wang ini, sejumlah 96 keluarga telah dapat dibantu iaitu 29 keluarga di negeri Kedah, 4 keluarga di Pulau Pinang, 3 keluarga di Perak, 8 keluarga di Selangor, 5 keluarga di Kuala Lumpur, 4 keluarga di Pahang, 2 keluarga di Negeri Sembilan, 2 keluarga di Johor, 18 keluarga di Kelantan, 6 keluarga di Terengganu dan 15 keluarga di Sabah.

Kaedah bantuan ialah dengan membeli barangan secara talian terus melalui Shopee dan dipos terus ke alamat keluarga penerima sumbangan berkenaan. Barangan yang dipos ialah barangan keperluan makanan rumah seperti beras, tepung, minyak dan sebagainya selain lampin pakai buang dan susu bayi mengikut keperluan penerima. Bagi penerima sumbangan yang tinggal berdekatan,barangan dihantar melalui perkhidmatan penghantar barang (runner). Manakala bagi penerima negeri Sabah, wang dimasukkan ke akaun penerima dan penerima akan mengambil gambar barangan yang mereka beli sendiri.

Besarlah harapan ahli-ahli Kelab MLC ini agar bantuan yang tidak seberapa ini dapat meringankan beban penerima sumbangan. Kerjasama daripada rakan-rakan ahli kelab juga sangat dihargai dan semoga mendapat ganjaran pahala yang tinggi di sisi Allah.

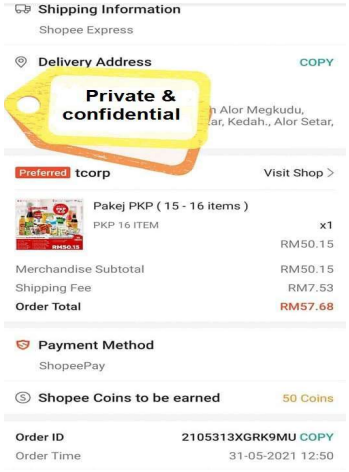
Kelab MLC dengan 36 ahli ini dianggotai oleh doktor pakar, pegawai sains, juruteknologi makmal perubatan dan pembantu perubatan kesihatan di ADL, IPPT, USM. Kelab ini telah ditubuhkan seawal kewujudan Seksyen ADL di IPPT dan telah terlibat dengan pelbagai aktiviti dan projek kemasyarakatan. Antaranya ialah projek 'Pek Kasih Ramadan' iaitu projek dengan kerjasama Unit Hal Ehwal Islam (UHEIS) IPPT, USM.

Projek ini dijalankan dengan membeli barangan keperluan makanan ketika bulan Ramadan dan dihantar kepada penerima-penerima yang memerlukan. Contohnya seperti golongan asnaf di sekitar penempatan masyarakat tempatan.

Kelab MLC yang kini diketuai oleh naib pengerusi iaitu Encik Mohd. Najwan bin Mohd. Nasir sentiasa mengalu-alukan sebarang kerjasama oleh pihak lain untuk menjalankan apa-apa aktiviti yang boleh menyumbang pertolongan kepada masyarakat umum selain tugas hakiki iaitu menjalankan kerja ujikaji makmal perubatan yang dilakukan sekarang.

Malah, sebilangan ahli kelab ini juga turut menyumbangkan tenaga untuk menjalankan ujian Covid-19 bagi membantu Kementerian Kesihatan Malaysia (KKM).

Moga komuniti masyarakat setempat dapat dibantu daripada pelbagai segi demi kehidupan bermasyarakat yang lebih harmoni. Ahli kelab MLC sentiasa positif untuk aktiviti-aktiviti yang menyusul selepas kejayaan Projek Pek Kasih MLC ini. Moga bermanfaat untuk rakyat Malaysia.



Pembelian online pek kasih MLC

Agihan fabrik dan kit jahitan

Pandu Lalu, Hasrat DiTuju

Oleh: Rafidah Binti Zainon – 13 Mac 2021

AUDITORIUM AL-AZHARI, March 13 2021 -

Pandemik yang sedang melanda seluruh dunia tidak menjadi penghalang untuk sekumpulan penyelidik IPPT meneruskan projek komuniti bersama komuniti B40 dan M40 bagi memperkasakan kemahiran dan pengetahuan peserta komuniti disamping menyumbang hasil jahitan kepada golongan yang memerlukan.

"Alhamdulillah semua peserta projek sangat memahami pertukaran kaedah pengendalian projek daripada bersemuka kepada virtual bagi memastikan pematuhan kepada SOP dapat dilaksanakan disamping memastikan projek ini berjalan lancar. Pengendalian fabrik dan kit jahitan juga turut dilakukan secara pandu lalu di SAINS@BERTAM bagi memudahkan peserta mendapatkan bahan jahitan masing-masing". kata ketua projek.

Disamping itu, salah seorang peserta projek, Pn. Nurul Hamizah Jamil, 30 tahun, seorang surirumah berkata pengagihan fabrik serta kit jahitan secara pandu lalu adalah cara yang sangat memudahkan peserta kerana peserta menerima makluman tarikh agihan lebih awal dan tempoh pengambilan fabrik dan kit jahitan sangat singkat. "Saya juga dapat menyusun masa saya dengan baik untuk mendapatkan kit jahitan di IPPT, disamping dapat mengendalikan urusan anak dan keluarga", ujar Pn Nurul Hamizah.

Pn Nurul Hamizah Jamil

Bagi Pn. Nurhidayah Sharif, 41 tahun, beliau sangat bersetuju dengan kaedah pengendalian pandu lalu ini kerana dapat mengelak perhimpunan peserta yang besar dan tempat sesak. "Saya sangat suka kaedah pandu lalu, sangat selesa dan tak perlu bersesak-sesak", tambah beliau lagi yang kini bertugas sebagai staf kontrak di IPPT.

Pn. Nurhidayah Sharif

"Pengambilan fabrik dan kit jahitan secara pandu lalu ini sangat menjimatkan masa peserta. Peserta sampai di IPPT, tandatangan borang penerimaan dan terus terima kit jahitan. Petugas juga sangat mesra", kata Pn. Normie Hana A Rahim, 36 tahun yang bertugas sebagai pembantu tadbir kampus Kejuruteraan USM.

Pn. Normie Hana A Rahim

Pandu lalu projek komuniti ini telah dilaksanakan sebanyak 3 kali sejak awal tahun untuk tujuan agihan dan kutipan semula hasil jahitan peserta komuniti. Semakan kualiti jahitan telah dilakukan oleh Pn Norjana Ismail dan Pn Zaleha Mat Toha untuk memastikan kualiti pakaian yang dihasilkan tercapai.

Disediakan oleh:

1Nurdianah Harif Fadzilah, 2Nizuwan Azman, 1Rafidah Zainon
1Kluster Sains Onkologi dan Radiologi, IPPT USM
2Unit Biostatistik dan Bioinfomatik, Bahagian Penyelidikan dan Jaringan, IPPT USM

Persiapan fabrik dan kit jahitan peserta

Semakan hasil jahitan peserta komuniti

UHEIS Sampaikan Sumbangan Ramadhan Untuk Warga Darul Hanan

Oleh: Husnaida Binti Abdul Manan@Sulong – 11 Mei 2021

KEPALA BATAS, May 11 2021 -

Biro Hal Ehwal Wanita, Unit Hal Ehwal Islam, (HELWANIS) IPPT bersama HELWA USM dan Biro Wanita Masjid Jamek Pongsu Seribu telah bersama-sama dengan pengurusan Darul Hanan, Pulau Pinang hari ini bagi menyerahkan sumbangan 3 kek buah dan 42 bekas biskut raya sempena Hari Raya Aidil Fitri.

Rombongan yang diwakili oleh lima orang diketuai oleh Ustazah Rohayati menyerahkan sumbangan tersebut kepada penyelia Darul Hanan, Puan Nur Aswani Aziz pada jam 11.00 pagi. Menurut Ustazah Rohayati selain menyampaikan sumbangan Hari Raya, program ini dapat mengeratkan silaturrahim antara ketiga-tiga pihak dan memupuk kerjasama yang lebih erat antara satu-sama lain.

“Walaupun kita tidak dapat bersama-sama dengan penghuni Darul Hanan hari ini, inshaAllah jika pandemik ini berakhir nanti kita akan dapat menjalinkan hubungan yang lebih erat melaui pelbagai program untuk manfaat warga emas yang berada di sini’, katanya.

Menurut Ketua Biro HELWANIS IPPT, Dr. Husnaida Abdul Manan yang ditemani Setiausaha Biro Puan Nor Hidayah Mhd Nasir dan Penyelaras Teknikal Biro Puan Azizah Noor, ini merupakan kunjungan pertama kali pihaknya kerana baru sahaja ditubuhkan pada tahun ini di bawah Unit Hal Ehwal Islam IPPT.

Selain berpeluang mengenali staf pengurusan Darul Hanan, pelbagai input dan maklumat dikongsikan oleh Puan Nur Aswani Aziz yang memberi peluang pihaknya untuk turun menabur bakti melaui pelbagai cara kepada warga emas di sini.

“Telah pun ada kerjasama sebelum ini dengan warga staf IPPT dan inshaAllah akan diteruskan lagi sebagai satu tanggungjawab kepada komuniti di sekitar IPPT”, jelasnya.

Turut hadir menyampaikan sumbangan ialah Puan Azizah Akob, Pengerusi Biro Wanita Masjid Jamek Pongsu Seribu.

IPPT Sumbang Pakaian Aidilfitri Kepada Anak Yatim Hasil Jahitan Kumpulan B40

Oleh: Mohd Faisal Bin Jamaludin – 29 April 2021

MENGKUANG, April 29 2021 -

Institut Perubatan dan Pergigian Termaju, Universiti Sains Malaysia telah menyampaikan sumbangan pakaian sempena Aidilfitri yang bakal menjelang tiba kepada Anak-anak Yatim dan Asnaf di Permata Al-Mahabbah Pulau Pinang. Sumbangan disampaikan oleh Y.Bhg Prof. Dr Syed Azhar Syed Sulaiman, Pengarah IPPT.

Beliau mengucapkan terima kasih kepada penjaga dan anak-anak di Permata Al-Mahabbah atas kesudian untuk menerima kunjungan kedua daripada pihak penyelidik kami dari IPPT USM bagi program ini.

"Saya amat berharap semoga sumbangan yang diberikan pada hari ini sedikit sebanyak dapat membantu dalam persediaan Aidilfitri anak-anak yatim dan asnaf di sini. Saya juga ingin mengucapkan syabas dan tahniah kepada pasukan penyelidik IPPT USM atas usaha murni ini yang sangat prihatin terhadap nasib anak-anak yatim ini," katanya.

Sumbangan pakaian ini adalah hasil tangan daripada peserta Projek 'Pemerkasaan Kumpulan B40 USM: Projek Sehari Selembar Benang, Lama-lama Menjadi Kain'. Projek komuniti ini melibatkan 75 peserta dari kumpulan B40 dan M40 yang berminat untuk mempelajari kaedah jahitan baju tradisional dan moden.

Tujuan utama projek komuniti USM ini adalah untuk memberi pendedahan kepada peserta B40 dan M40 terhadap kemahiran menjahit yang mana sekaligus dapat meningkatkan sosio ekonomi mereka di samping menambah pengetahuan dalam bidang jahitan.

Menurut ketua projek, Dr. Rafidah Zainon, projek ini memberi pendedahan kepada peserta berkaitan kemahiran menjahit baju tradisional dan moden serta seminar kemahiran digital dan seminar keusahawanan secara percuma.

"Alhamdulillah, fasa pertama projek komuniti ini telah berjaya menghasilkan 428 pasang pakaian untuk 428 anak yatim dan asnaf daripada 9 buah rumah anak yatim dan asnaf di sekitar Pulau Pinang dan Kedah. Sasaran projek ini adalah untuk menghasilkan 1000 pasang pakaian untuk anak yatim dan asnaf," katanya ketika ditemui dalam majlis tersebut.

Untuk rekod, projek ini telah bermula pada Julai 2020 dalam situasi norma baharu dengan pembelajaran secara atas talian dan penyerahan kit jahitan secara pandu lalu. Projek ini diadakan secara berfasa dan dijangka bakal berakhir pada Jun 2022.

Antara sumbangan kepada Pusat Pergigian Kanak-Kanak

Produk Dental Aerosol Containment Equipment (DACE) Antara Inisiatif Mengekang Covid-19 pada Pasukan Barisan Hadapan

Oleh: Fatanah Binti Mohamad Suhaimi – 22 Mac 2021

PUSAT PERGIGIAN KANAK- KANAK DAN KOLEJ LATIHAN PERGIGIAN MALAYSIA , March 22 2021 -

Institusi Perubatan dan Pergigian Termaju (IPPT) Universiti Sains Malaysia (USM) telah menyumbang Dental Aerosol Contaiment Equipment (DACE) kepada Pusat Pergigian Kanak-Kanak dan Kolej Latihan Pergigian Malaysia yang bertempat di Jalan Sepoy Lines, George Town, Pulau Pinang. Pada 16 Mac 2021 pihak IPPT telah menyumbang sebanyak 22 unit DACE dan seterusnya menambah bilangan sumbangan pada 22 Mac 2021, menjadikan jumlah keseluruhan sumbangan sebanyak 44 unit.

Produk ini dibangunkan menerusi projek di bawah peruntukan geran antarabangsa daripada IEEE Humanitarian Activities Committee (HAC) & IEEE Special Interest Group on Humanitarian Technology (SIGHT) yang diketuai oleh Dr. Fatanah Mohamad Suhaimi dan dibantu oleh Dr. Husniyati Roslan dari Kluster Sains Kraniofasial Dan Biobahan, IPPT. Penghasilan DACE ini turut melibatkan sukarelawan yang terdiri daripada staf makmal pergigian, jururawat pergigian, pegawai sains, pegawai penyelidik, pensyarah dan pelajar IPPT.

Menurut Dr Fatanah, selaku ketua projek bagi penghasilan DACE, inovasi ini bertujuan mengekang penularan wabak COVID-19 dalam kalangan kakitangan pusat pergigian tersebut. Alatan ini digunakan semasa prosedur pergigian dijalankan khususnya rawatan yang melibatkan AGP (aerosol generating procedure). DACE bertujuan menghalang percikan air liur pesakit dari terkena pada petugas pergigian ketika prosedur rawatan dijalankan.

Puan Naziah Jasin dan Puan Norayu Adin yang merupakan tenaga pengajar disitu menyambut baik penerimaan sumbangan ini kerana ia dapat membantu pelajar-pelajar serta kakitangan pergigian yang lain bagi mencegah penularan wabak Covid-19 berikutan jumlah pesakit yang hadir pada sesi rawatan yang tinggi. Dengan adanya DACE, ia sedikit sebanyak dapat mengurangkan risiko jangkitan. Selain itu, hasil sumbangan ini dapat membantu pihak kolej untuk mengurangkan kos pembuatan alatan PPE.

Pihak IPPT berharap semoga sumbangan ini dapat memberi manfaat kepada

Prof. Dr Syed Azhar Syed Sulaiman bersama fronliner yang sudah divaksin dos

IPPT Laksana Program Imunisasi Covid-19

Oleh: Mohamad Faisal Bin Jamaludin – 8 Mac 2021

BERTAM, March 8 2021 -

Institut Perubatan dan Pergigian Termaju, Universiti Sains Malaysia melaksanakan Program Imunisasi Covid-19, bertemakan "Lindung Diri, Lindung Semua" bermula hari ini. Program vaksinasi yang diadakan di Kompleks Klinikal ini adalah hasil kerjasama dengan Kementerian Kesihatan Malaysia (KKM) melalui Klinik Kesihatan Tasek Gelugor, Pulau Pinang.

Menurut Dr. Suria Emilia Suhana Othman Tan, Penyelaras Program Imunisasi Covid-19 IPPT, pemberian vaksin Covid-19 yang bermula hari ini hingga 16 Mac 2021 adalah bagi dos pertama vaksin Pfizer-BioNTech.

“IPPT akan melaksanakan pemberian vaksin ini kepada semua petugas barisan hadapan seramai 244 orang secara keseluruhannya. Sesi pada hari berjalan dengan lancar tanpa sebarang komplikasi yang dicatatkan dan seramai 30 org staf telah menerima dos pertama hari ini termasuk Pengarah IPPT,” katanya.

Untuk makluman, penerima dos pertama vaksin perlu membuat janji temu untuk menerima dos kedua. Kesemua mereka menerima vaksin jenis Pfizer-BioNTech yang perlu diambil dalam dua dos dalam tempoh 21 hari.

Pengarah IPPT, Profesor Dr. Syed Azhar Syed Sulaiman ketika ditemui memanjatkan kesyukuran kerana program vaksinasi hari ini berjalan dengan lancar.

“Saya amat berharap agar kesemua staf IPPT akan mengambil vaksinasi ini demi kebaikan bersama untuk mencegah penularan virus Covid-19. Semoga selepas ini kita akan dapat kembali bertugas seperti dalam keadaan normal. Saya juga berharap agar kefahaman tentang vaksin ini lebih memberikan manfaat untuk semua kita demi keselamatan masyarakat Malaysia,” katanya.

Syed Azhar menjadi orang pertama menerima vaksin menerusi Program Vaksinasi di IPPT yang dijalankan hari ini. Sebelum proses vaksinasi dilakukan, mereka yang berkenaan akan diberikan taklimat khusus untuk penerima vaksin serta perlu menandatangani borang persetujuan.

Menerusi Program Imunisasi COVID-19 Kebangsaan, fasa pertama dijadualkan bermula bulan Mac sehingga April untuk kumpulan barisan hadapan manakala fasa kedua dari April sehingga Ogos bagi warga emas berumur 60 tahun ke atas serta kumpulan rentan dengan masalah morbiditi, di samping orang kurang upaya (OKU). Fasa ketiga bermula Mei

Exercise for Chronic Obstructive Pulmonary Disease Patients

Oleh: Zephaniah Chong En Wei – 5 Julai 2021

With the current pandemic of Covid -19, we are all advised to put on our mask wherever we go, which make it uncomfortable for us to breathe. Imagine yourself exercising with your face mask on. This is the closest we can relate to the people diagnosed with chronic obstructive pulmonary disease (COPD). Breathing difficulties makes exercising tougher for them. Despite the difficulties, they are still encouraged to include physical activity and exercise in their life, as it can reduce breathing difficulties and other COPD symptoms. Bear in mind that, exercise can’t reverse lung damage, but it can improve their physical endurance and strengthen their respiratory muscles.

Before beginning an exercise program, the patient’s level of disease severity must be diagnosed. In addition to that, most patients who suffer from COPD usually also have one or more comorbidities. All that information is important to the clinical exercise physiologists, this is so that they can then design an exercise program that is safe and specifically catered to the patient’s health condition.

Aerobic, strength & flexibility exercise training are recommended for individuals with all stages of COPD.

These exercises are usually designed based on the application of FITT (Frequency, Intensity, Time, Type) principle.

Based on the guidelines from the American College of Sports Medicine (ACSM), aerobic exercises for COPD patients should be designed with the following principles; Frequency [F] of 3-5 days a week, Intensity [I] from moderate to vigorous (difficulty of 4-6 out of 10), Time [T] duration of exercise can range between 20-60 minutes (if this is not achievable, a mixture of intermittent exercise with periods or rest time and lower intensity exercises are recommended), Types [T] of exercises includes walking (indoor/outdoor), stationary cycling and upper limb cycling are all recommended in the guidelines.

As for strength training, frequency [F] of strength training is recommended to be around 2-3 days per week, the intensity [I] should be kept between the ranges of 60-70% of the estimated maximum the person can lift to improve muscular strength; whereas the intensity for muscular endurance training is lower at 50% of the estimated maximum weight the person can lift. As for time [T] the duration to improve muscle strength are between 2-4 sets of 8-12 repetitions, and muscular endurance 1-2 sets of 15-20 repetitions. Type [T] can be done on weight machines, free weights, or bodyweight exercises.

Lastly, for flexibility exercises such as static, dynamic or Proprioceptive Neuromuscular Facilitation (PNF) stretching can be comprehended daily for at least 2-3 times per week. The patient should stretch to the point of feeling tightness or slight discomfort. The duration of stretch is 10-30secs hold for static stretching with 2-4 reps repetitions of each exercise.

Above are the set guidelines recommended by ACSM for exercises that can be done for COPD patients. After the patient gain a basic level of exercise tolerance, he/she can add in other lower impact exercises such as jogging, rope skipping, cycling, swimming, or yoga so that they do not get bored with the same exercises.

Besides exercise, physical activity is also highly recommended to COPD patients. Physical activity is defined as any movement of the body caused by skeletal muscles that result in the expenditure of energy. So, any occupational movements, sports, household, and other activities can all be classified as physical activity in daily life. The right exercise can help greatly improve symptoms of COPD and the patient’s quality of life. Most importantly, if a person is new to exercises or newly diagnosed with COPD, they should seek professional advice from their doctors or trained exercise professionals before starting any new exercise routine, these individuals will provide specific information about how to exercise safely based on their individual health profile.

Waste management campaign in AMDI

Oleh: Ying Chee Kiat – 30 Jun 2021

Waste management always is a big challenge for many countries, recycling is a very practical way to cope with environmental issues. To segregate and recycle those recyclable wastes be able to reduce the burden of the landfills in our country, also easy to be practising in our daily life, including university students. The aims of the waste management campaign in AMDI are to increase the awareness among staff and students to protect our environment, particularly to reduce the single-use plastic in daily life, because plastic does not be decomposed for thousand years, millions of tone plastic is entering to oceans every year, endanger marine life and at the end, those microplastics are ingested back into human via eating fishes, threaten our health.

Few initiatives have been implemented to encourage AMDI's staff and students to practise recycling in Clinical Trials Centre (CTC) and Animal Research Centre (ARC). Pn Law Kim Sooi from clinical and her team started to set up several recycle corners in CTC since year 2018. The recycle corners have been setting up in all departments, CTC. Some staff in the department are assigned to monitor the recycling bins in their department, when the resources are full, they will keep the resources in a storeroom, and contact the recycle company to collect.

The initiative is getting a very good response from the CTC's staff, not only they recycle the recyclable items, but also decorated the recycle corners, to make them more attractive, look beautiful and tidy.

Dr Tan Mei Lan who was one of the pioneer staff of IPPT, realized that USM spent a lot to discard biohazard waste. She noticed that researchers and postgraduate students in most laboratories used a lot of single-use plastics in their daily experiments and discard them as biohazard waste.

Recycle corner in CTC

Bagi Pn. Nurhidayah Sharif, 41 tahun, beliau sangat bersetuju dengan kaedah pengendalian pandu lalu ini kerana dapat mengelak perhimpunan peserta yang besar dan tempat sesak. "Saya sangat suka kaedah pandu lalu, sangat selesa dan tak perlu bersesak-sesak", tambah beliau lagi yang kini bertugas sebagai staf kontrak di IPPT.

However, a lot of these single-use plastic wastes are non-hazardous, non-infectious and non-chemical in nature. These wastes can be cleaned and decontaminated before they can be recycled. Hence, she initiated the laboratory plastic recycle campaign 2019, with two other scientists, namely, Dr Shahrul and Dr Chee Keat. Prior to the campaign, the local recyclers were invited to the oncology laboratory to inspect and check on the recyclable potential of the laboratory plastics. The scientists involved also made a trip to the plastic recycler factory to evaluate and learn about the recycling processes. Upon confirmation that the plastics can be recycled, SOPs for decontamination was developed and the single-use laboratory plastic recycling campaign was mooted.

These plastic wastes were supposed to be dumped into the landfills, but we have successfully recycled them instead, endowed the second life of the plastics. Although the quantities of the plastics collected were small (because the wastes only came from a single laboratory in oncology cluster), but the initiative was a good start.

We have proven that non-hazardous, non-infectious and non-chemical single-use laboratory plastics can be recycled.

Main challenges and further plans

Although we are receiving quite a good start for both campaigns (recycle corners in CTC, recycle laboratory plastic in ARC) since the year 2018, but still lack support from IPPTs' staff and students. To extend the campaigns, we need more staff or students to join us so that we can go far, for the sake of our environments. To increase the awareness among AMDI staff and students, we had organised a seminar in August 2020, given a talk on the possibility to recycle laboratory plastic. In April this year, we had another online webinar with the title "Reduce single-use plastic in campus" in conjunction with USM sustainability month. We also created a Micro-Credential course, "Waste reduction and recycling in campus "under the Centre for Development of Academic Excellent (CDAE), so that USM students be able to enrol on the recycling course anytime, anywhere, for free.

We are also collaborating with the Centre for Global Sustainability Studies (CGSS), USM and non-governmental organization (NGO) to promote environmental awareness program in USM, including to establish first Environment Education Protection Hup, setting up few recycling corners in campus, and will be organising series of activities, seminars, campaigns to the staff and students in USM, we hope that we can also recruit more student volunteers and more staff to join us to promote the environmental awareness among USM staff and students. We can achieve our ultimate goals, a green campus! When students are completed their study at USM, they not only stepping out from USM with the degree scrolls, not only become more knowledgeable graduates, but also have the sense of connection to nature, to appreciate nature, and be able to protect our only planet, which is Earth!

Persiapan fabrik dan kit jahitan peserta

peserta komuniti

By:

1Ying Chee Keat, 1Tan Mei Lan, 1Shahrul Bariyah, 2Law Kim Sooi

1Kluster of Oncological and Radiological Sciences, Advanced Medical and Dental Institute

Exercising with Childhood Asthma

Oleh: Wan Nurul Islamiah Binti Wan Ahmad – 29 Jun 2021
Advanced Medical & Dental Institute

Asthma is a common condition among children, in which male children are more commonly affected as compared to female children. This disparity is seen in the gender comparison until the age of 20. In 2006, the prevalence of children with asthma below 18 years old in Malaysia is estimated at 7.1%, while in 2011, children aged 5 to 9 years old and teenagers aged 15 to 19 years old made up 8.5% and 8.1% of the total number of people reporting to have ever been told to have asthma (Ministry of Health Malaysia, 2008 and Ministry of Health Malaysia, 2011). While comparing between races, the prevalence of asthma is the highest in Malays, followed by Indians, Chinese and other Bumiputera ethnicities. Asthma control, on the other hand, was found to be in inverse relationship to the number of cases, while comparing between the three major races in Malaysia (Ahad & Ming Khoo, 2017).

Characterized by variable airflow limitation secondary to airway narrowing, airway wall thickening and increased mucus, an asthmatic episode could cause a child to experience breathing difficulty that is progressively worsening, cough, wheeze and chest tightness, or these symptoms combined (Boonpiyathad, et.al., 2017 and Dunican & Fahy, 2015). Children with asthma may have impaired airway development, leading to reduced maximal lung function which may persist into adulthood (Dharmage, Perret, & Custovic, 2019).

Physical activity in children is often short but frequent, intense, but commonly alternated with light or sedentary activity. Crediting to rapid heart rate recovery, children, in general, would be able to keep up with this pattern, but specifically for children with exercise-induced bronchoconstriction (EIB), which is common in asthma, the recovery could be compromised by the limitation of the pulmonary gas exchange due to the restriction of the airway (van der Kamp et al., 2019). EIB can lead to mild to moderate symptoms of chest tightness, wheezing, coughing, and dyspnea within 15 minutes after 5 to 8 minutes of high-intensity aerobic activity (Gerow & Bruner, 2020).

Van der Kamp et al., (2019) found that children with EIB, especially those that start during exercise, called breakthrough EIB (BT-EIB), tend to engage less in physical activity compared to children without EIB. Children with EIB, especially BT-EIB, take part in less activity, and the activity that they do engage in is shorter and less intense as compared to their peers who do not experience EIB.

Despite being a common trigger of asthma, exercise benefits asthmatic children by reducing airway inflammation and mediating the effect of asthma on obesity and quality of life. Wafa et al. (2016) highlighted that the promotion and monitoring of physical activity in children, especially those diagnosed with asthma, is paramount. The World Health Organization recommended that children should engage in a minimum of 60 minutes of moderate-to-vigorous physical activity daily. A study conducted by Santos et al., in 2019 had shown that the higher the level of physical activity a child with asthma engages in, and the better the asthma control in that child.

For children with asthma, the type of physical activities engaged is important. According to Hughes, (2014), the activities that provoke asthmatic symptoms are, those causing prolonged, rapid breathing, such as distance running and soccer, or figure skating, ice hockey, cross-country skiing, paddling, cycling and dancing for some. Volleyball, downhill skiing, softball, baseball and taekwondo are some examples of physical activity that does not lead to prolonged, rapid breathing, thus is deemed more suitable for these children.

Exercise participation in asthmatic children can be optimized by incorporating warm-ups before planned exercise (Hughes, 2014). This will induce a refractory period, a period of relaxation of the airway after an EIB episode that ranges between 1 to 3 hours. During this time frame, continuing to exercise would not trigger bronchoconstriction (Gerow & Bruner, 2020).

In conclusion, while preventing an asthmatic attack is important, the participation of children with asthma in physical activity should not be discouraged, in fact, it should be promoted. To balance both sides, the optimization of asthma control by medication is crucial, but should not be done excessively, and both parents and children should be adequately educated on EIB, its presentation and its management (Hughes, 2014). Physical activity should continue to be advocated, in normal and asthmatic children alike to promote healthy development of the cardiorespiratory and skeletal system, improve the child's social and psychological skills, and allow healthy participation of the child in society.

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Osteoporosis: Why need to exercise?

Oleh: Mohd Khairul Azizi Bin Mohd Zaki – 28 Jun 2021

Osteoporosis is a silent yet progressive non-communicable disease affecting the older generations specifically among the postmenopausal women. It is only diagnosed when having pathological fractures from minor fall/trauma. Worldwide, 1 in 3 women over age 50 will experience osteoporosis fractures, as will 1 in 5 men aged over 50. Despite the 'silver wave' in Malaysia, concern is raised due to increasing trend of fitness phenomena leading to risk of Low Energy Availability (LEA) among female exercise enthusiasts which subsequently ends up with low bone mineral density and osteoporosis. Bone remodeling is the central figure in the pathophysiology of osteoporosis. Osteoporosis is the results from imbalance of bone resorption and reformation processes. The pathological fracture happens once the skeletal fragility (due to impaired bone quality and low bone density) combined with excessive bone loading (from falls/trauma/certain activities). LEA, on the other hand, disturbed the homeostasis within the Hypothalamus-Pituitary Gland axis resulting hormonal disarray and finally, producing low bone mineral density which leads to osteopenia and osteoporosis.

Exercise forms the integral part of non-pharmacological treatment alongside nutritional intervention and others. Focus is mainly on weight-bearing and strengthening exercises which induced bone loading that activates bone cellular response, postural and balance control, and augmentation of estrogenic osteogenic effects enabling the bone loss process to be slowed down. Fatigue prevention is necessary to keep the patients motivated and produced significant exercise results. Aquatic exercise and low vibration modality are suggested as alternatives to the existing exercise regime based on ACSM (American College of Sports Medicine) guideline due to its inhibitory effect towards bone loss. Precaution is emphasized on footwear, warm-up and corticosteroid usage prior exercise. More disease awareness education should be included for osteoporosis prevention. Incorporation of low impact exercises catering for elderly and postmenopausal women is proposed at the national level alongside the current existing obesity program. RED-S CAT (Relative Energy Deficiency in Sports Clinical Assessment Tool) is recommended for sports medicine practitioners to screen for LEA among female athletes and exercise enthusiasts, as part of osteoporosis prevention strategy. The following FITT exercise guideline is based on the Exercise Is Medicine, ACSM initiative:

1. Aerobics training
F: 4-7 times per week
I: moderate to high intensity (>50% Heart Rate Reserve, depends on ability and bone/joints health)
T: 5 to 10 minutes, build up to 25-40 minutes per day
T: repetitive impact weight-bearing activities (walking, marching, dancing, etc.)

2. Strength training
F: 2-3 days per week with 1 day rest in between
I: hard effort for 8 reps, light effort for 10 reps
T: 8-10 repetitions for each major muscle groups for 1 set, increase to 2 sets after 2 weeks
T: free weights, resistance bands, weight machine or own body weight (calisthenics)

3. Flexibility training
F: 5-7 days per week
I: stretch to the point of tightness (slight discomfort)
T: hold for 10-30 seconds and progress to 30-60 seconds
T: Simple stretching, Yoga, Pilates, Tai Chi, Senaman Melayu Tua

***Precautions**
-start from low impact first for weight-bearing activities (ie. marching on the spot).
-begin gently to avoid injury, gradually build up to hopping/skipping once approved by healthcare provider.
-if poor balance, ensure hold onto stationary supports or try using walking poles.
-allow rest intervals between sessions for recovery (shorts bursts of challenging activity, followed by rest periods, are more effective than long slow sessions).
-work up to challenging loads for more benefits.
-when possible, do exercises standing instead of sitting.
-change your routine every couple of months, variation makes bone responds better.
-be cautious about exercises involving bending and twisting at the hips and trunk.
-talk to your healthcare provider right away if activities cause bone pain.

Here is a video compilation of practical-at-home workouts for osteoporosis made by the current Master of Science (Clinical Exercise Science) students. Hope you enjoy the demonstration!

https://drive.google.com/file/d/1As57DQwKGPe0K1oV4ZmcxatLgUckMemd/view

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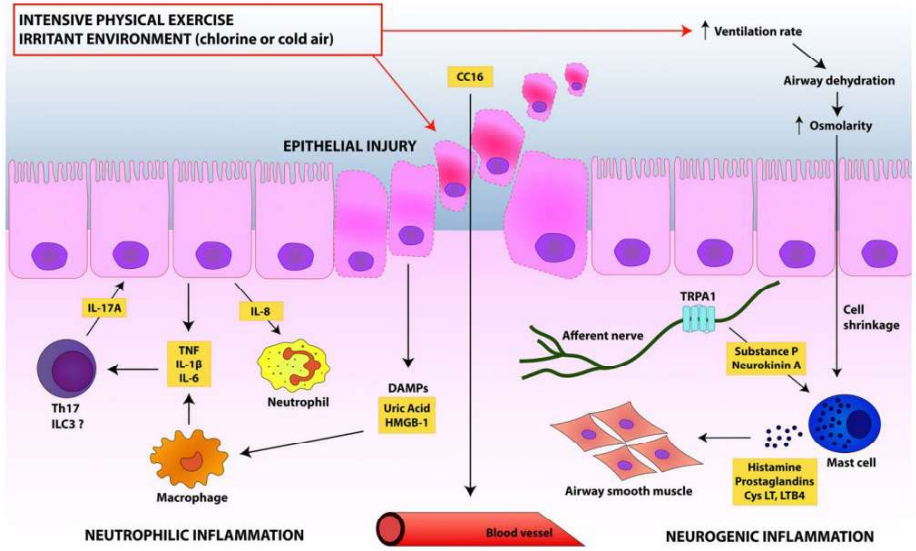

FIGURE 1 Emerging mechanisms of exercise-induced bronchoconstriction

Exercise-induced Asthma

Oleh: Michelle Thang Ru Wen – 28 June 2021

Exercise-induced asthma (EIA) is a condition that causing transient narrowing of respiratory airway after triggered by vigorous exercises that performed even with a minimum of 5-8 mins during continuous high-intensity effort. The person will present with asthmatic symptoms such as wheezing, shortness of breath or coughing. There is another terminology that often used interchangeably with EIA is exercise-induced bronchoconstriction (EIB). Many clinicians or sport experts might use EIB instead of EIA as it does not imply the person themselves having underlying chronic asthma or being triggered by the exercise and causing reduction in the lung function. EIB can occurs with or without asthma symptoms. "Sport asthma" is defined by the presence of exercise-induced respiratory symptoms and bronchial hyperresponsiveness in the absence of allergic features.

As compared to adults, children and adolescence are at higher risk of EIA and this may lead to poor participation in physical or sport activities. Other than that, elite athletes who participate in endurance sports such as running, cycling and in winter sports also at increased risk for EIA.

During normal breathing, nose functions to warm up and humidify the inspired air. The inhaled air has to achieve a certain moisture and heat level before the air reaches the alveoli for gases exchange. During exercise, breathing rate will increase as oxygen demand increase for the working muscles and also heat dissipation required to compensate the increase of the core temperature. Thus, vigorous exercise results in the inhalation of greater volumes of relatively cold and dry air, which will induce airway surface liquid becomes hyperosmolar and dehydration.

The osmotic gradient difference forced the water molecules from any cells nearby to move to the dehydrated cells and resulting in cell shrinkage and release of the inflammatory mediators. This will further lead to distal airway epithelium injury and causing the contractions of airway smooth muscle. The cooling of the airways will cause reflexes in parasympathetic nerve stimulation and lead to bronchoconstriction through the vagal nerve as well. When bronchoconstriction occurs, the airways resistance increased, which will lead to dyspnoea and affect the sport performance. When exercise ceases, a rewarming process begins and causing secondary hyperemia (rebound vasodilation of the peribronchial venules). The cooling-rewarming process might trigger inflammatory events by increasing the expression of the chemokines and cytokines.

Compellingly, some studies found out that the inflammatory markers noticed in athletes' airways are not necessarily related to lung function, bronchial hyperresponsiveness or triggered by other diseases. When bronchial biopsies were performed by the researcher for winter sport athletes to investigate the presence of inflammatory signs, they have found out that airway inflammatory cells have increased but remain latent in the athletes. From this findings, the researchers suggest that the increased in airway inflammatory cells could be due to physical injury after high ventilation during strenuous exercises, and it recover with rest.

FIGURE 1 Emerging mechanisms of exercise-induced bronchoconstriction. Couto et al. (2018). Mechanisms of exercise?induced bronchoconstriction in athletes: current perspectives and future challenges. Allergy, 73(1), 8-16.

Long duration, vigorous exercise and exercise at a cold environment had clearly seen to be the culprit for the "sport asthma" as it will increase the risk of osmolar and vascular modifications in the airways. For the past few decades, swimming always been considered as a very effective and healthy sport that improve asthmatic symptoms due to the humid air inhaled during swimming (only in chlorine-free swimming pool water).

The present of chlorine-based irritants in the swimming pool might induce childhood asthma and also airway inflammation with bronchial hyperresponsiveness in competitive swimming.

Besides swimming, there are a few ways to improve EIA and control asthmatic symptoms as well, which is through exercise modifications. In order to prevent coughing during running exercise, here some tips to take note of: avoid breathing using the mouth, wearing face mask, indoor running and avoid over exhaustion would help to reduce symptoms. Moreover, get a proper warm up before the sport event allow athletes to take advantage of the "refactory period", which is important in reducing the occurrence of bronchospasm. The rest interval during exercise is associated with the release of protective prostaglandins (PGE2), which aid in desensitize the crysteinyl leukotriene recpetors and thus prevent bronchoconstriction. In normal individulas, instead of performing vigorous exercise training, practicing moderate intensity aerobic exercise will be a better option. Otherwise, try out the sports that performs with <5-8 mins effort (i.e tennis, <400m sprint etc.) or team sports that last <5-8 mins effort (i.e rugby, basketball, volleyball) which are more beneficial for allergic inflammation and EIA.

In summary, "sport asthma" or EIA/EIB is a very common condition during sport activities, especially with those vigorous endurance sports. Together with exercise regimen modifications, warm up prior to the exercise training, adopt interval or intermittent training program and prepare rescue medications can help to reduce the occurrence of EIA. Most importantly, seeking for medical consultation to get a proper diagnosis if needed as sometimes the underlying symptoms might be hindered by other medical problems.

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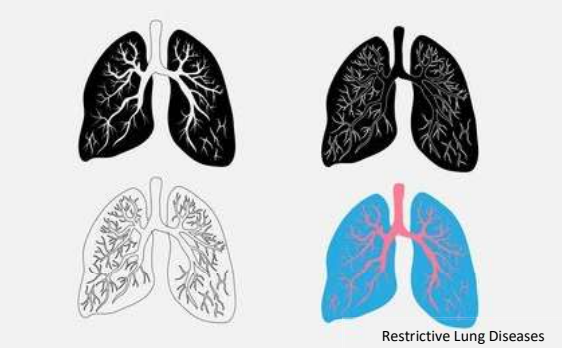

Exercise For Restrictive Pulmonary Diseases

Oleh: Mohd Khairul Azizi Bin Mohd Zaki – 24 Jun 2021

Chronic respiratory diseases (CRDs) are diseases of the airways and other structures of the lungs as defined by the World Health Organization (WHO). In addition to tobacco smoking as the commonest aetiology, other risk factors for CRDs include aerosol-based environmental origin irritants like air pollution, occupational chemicals and dust, and frequent childhood respiratory infections. CRDs can subsequently be grouped into 4 major categories (Prezant et al., 2008):

I. Upper respiratory tract disease: Chronic rhinosinusitis and reactive upper airways dysfunction syndrome

II. Lower respiratory tract diseases: Reactive lower airways dysfunction syndrome, irritant-induced asthma, and chronic obstructive airways diseases (COAD/COPD)

III. Parenchymal or interstitial lung diseases: Sarcoidosis, pulmonary fibrosis, and bronchiolitis obliterans

IV. Cancers of the lung and pleura

The commonly occurred interchangeably among all 4 are lower respiratory tract and parenchymal lung diseases, or better known as obstructive and restrictive lung disorders with regards to their pathogenesis nature despite their almost similarities in pathophysiology.

Hence, diagnosing them requires a lung function test to differentiate one another. Obstructive lung disorders are mainly bronchial asthma (BA) and chronic obstructive pulmonary disease (COPD), which later can be subdivided into chronic bronchitis "Blue Bloaters" and emphysema "Pink Puffers". Whereas, restrictive lung disorders are interstitial lung disease, pneumoconiosis and sarcoidosis. Lung cancer and tuberculosis can be considered as restrictive in nature albeit the mixed picture presentation in diagnostic laboratory findings.

Restrictive Lung Diseases

People with restrictive lung disease cannot fully fill their lungs with air. Their lungs are restricted from fully expanding. In contrast to obstructive lung disease which is characterized by swollen airway (thickening of the respiratory wall) leading to bronchoconstriction (narrowing of respiratory passage) with excessive production of mucus (stimulating chronic irritative bouts of coughing) due to ongoing prolonged inflammation process, restrictive lung disease is due to stiffening of chest wall tissue, weakened muscles or even damaged respiratory nerves resulting difficulty in fully expanding the lungs, thus more difficult to fill the lungs with enough air for respiration purpose as demanded by the body.

In short, obstructive lung disease is a "clogged/narrowed" condition, whilst the restrictive type is a "tight/stiffened" condition. Here are the examples of this type of respiratory illness (Isa, 2020);

a) Interstitial lung disease: Idiopathic Lung Fibrosis (scarring of alveolar tissue).

b) Pneumoconiosis: Occupational dust; asbestos (Asbestosis) and silica (Silicosis).

c) Sarcoidosis: Autoimmune granulomas altering multiple organs' structure and function.

d) Obesity: Obesity Hypoventilation Syndrome

e) Scoliosis: Abnormal "S"-shaped curvature of spine, resulting depressed chest wall shape.

f) Neuromuscular diseases:

g) Childhood muscular dystrophy (Duchenne and Becker)

h) Adulthood progressive motor neurons breakdown (Amyotrophic Lateral Sclerosis/ALS)

Lung function tests like spirometry and peak flow meter are the ones able to diagnose a patient with the symptom of exertional shortness of breath to be whether obstructive or restrictive in nature.

It is based on the parameters of Forced Vital Capacity/FVC (volume of air forcibly blown out after a full inspiration) and Forced Expiratory Volume/FEV1 (amount of air exhaled from the lungs in the first 1 second after full inspiration). A low FEV suggestive of obstructive lung disease, on the other hand, an addition of low FVC signifies restrictive lung disease.

Lung Cancer

Squamous Cell Carcinoma (SCC) is the commonest type of lung malignancy, however, Adenocarcinoma is trending in recent years. SCC is associated with male and smoking prevalence, while Adenocarcinoma type is linked to female and non-smoking populations. It is postulated that this fact is due to secondary smoking (passive smoker) 'culture' existing at large within our very own society. All together, any types of cancer are almost always in a linear relationship with aging as evidenced through a Malaysian study (Liam et al., 2006) stating the age of peak incidence of lung cancer is 7th decade of life.

At clinical stages I and II, patients are able to undergo curative surgical resection of the tumor site of the lungs. Inductive therapy, in the form of chemotherapy or in combination with radiotherapy, is applied to stages III and IV patients in order to downstage the lung malignancy prior to curative surgical resection if feasible based on the treating pulmonologist's (respiratory physician) judgment in agreement with cardiothoracic surgeon's further evaluation.

Tuberculosis

Tuberculosis is a chronic lung infection caused by Mycobacterium tuberculosis. The mode of spread among humans is via aerosol droplet transmission hence the lungs are often the focus of tuberculous disease although TB may present with the disease in any organ system (Chakrabarti et al., 2007). In Malaysia, it is more prevalent among the foreign labor workers and in deeply rural regions due to incomplete as well as inaccessibility to BCG (Bacillus Calmette–Guérin) vaccination program. Recent years of vaccine hesitancy movements worldwide might just hamper the efforts done to eradicate this once contagiously fatal illness. A cross-sectional study by Amaral et al. (2015) using data collected from across the globe, concluded that tuberculosis is associated with a mixed presentation of airflow obstruction and restrictive patterns on spirometry assessment.

Exercise Testing for Pulmonary Disease

Submaximal graded exercise test (GXT) is used to assess cardiopulmonary function and fitness by providing an objective measure of exercise capacity, mechanisms of exercise intolerance, prognosis, and disease progression and treatment response. Modifications of traditional protocols depend on functional limitations and the onset of dyspnea. Test duration of 8–12 min is optimal for those with mild-to-moderate illness (Buchfuhrer et al., 1983), whereas a test duration of 5–9 min is recommended for patients with severe and very severe disease (Benzo et al., 2007). SpO_2 monitoring must be done for these patients as they may exhibit oxyhemoglobin desaturation with exercise, with the maintenance of SpO_2 > 90% is recommended.

However, individuals with pulmonary disease may have ventilatory limitations to exercise. Thus, prediction of VO_2peak based on age-predicted HRmax may not be appropriate as criteria for terminating the submaximal GXT. The 6-minute walking test (6MWT) and shuttle walking test can assess functional exercise capacity in individuals with more severe pulmonary disease and in settings that lack exercise testing equipment.

The use of bronchodilator therapy as a standby emergency medication is beneficial for such individuals. Exertional dyspnea is a common symptom in people with any pulmonary disease.

The modified Borg Category-Ratio 0–10 (CR10) Scale (Figure 1) has been used extensively to measure dyspnea before, during, and after exercise (Ries, 2006). Patients should be given specific, standardized instructions on how to relate the wording on the scale to their level of breathlessness.

In addition to standard termination criteria, exercise testing may be terminated because of severe arterial oxyhemoglobin desaturation. The exercise testing mode is walking or stationary cycling. Walking protocols may be more suitable for individuals with severe diseases who lack the muscle strength to overcome the increasing resistance of cycle leg ergometers. Arm ergometry may result in increased dyspnea that may limit the intensity and duration of the activity.

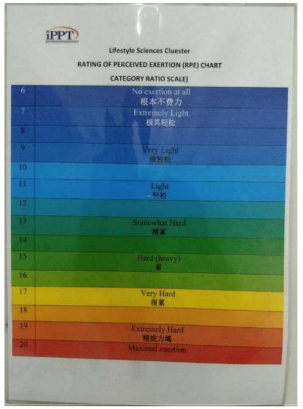

Figure 1: Modified Borg CR10 Scale for Dyspnea

Exercise Prescription

Despite substantially less investigation into the benefits of exercise training in non-obstructive chronic lung diseases, strong scientific evidence supports the inclusion of exercise training for many lung diseases other than Bronchial Asthma and COPD with demonstrated clinical and physiologic benefits (Rochester et al., 2014). However, the exercise programs should be modified to include disease-specific strategies. Methods for adapting exercise training in patients with restrictive chronic lung disease have been published (Holland et al., 2013). Exercise training recommendations have been specifically presented for patients with stable interstitial lung disease who are receiving optimal medical management. For these patients, the FITT guidelines as below:

F: 3-5 day/week
I: Moderate intensity. Intensities should be below those that would provoke severe dyspnea, oxygen desaturation, or in some cases, hypertensive episode due to chronic illness.

T: Morning
T: Aerobic exercise should comprise the core component of the exercise program. Resistance exercise training may be added after the aerobic training is established and well tolerated.

Precautions:
Arm ergometry, heavy resistance training, and pelvic floor exercise should be avoided to reduce the risk of a Valsalva maneuver.

Apart from the standard ACSM guideline meant for COPD, according to a local guideline by National Cancer Society Malaysia (NCSM) issued in 2019; seated exercises are the best form of training for lung cancer patient to build strength and endurance, eliminating the risk of difficulty in breathing; with inhalation during motion and exhalation when completing. This simple exercise steps can be used for other restrictive lung diseases and tuberculosis patients as well, due to its efficacy and safety with minimal effort without much exertion. The seated exercise consists of:

1. Leg lift (alternating lift legs up to shoulders while sitting on a chair for 10 times)

Figure 2: Leg Lifts

2. Seated kicks (kick foot off floor while sitting on a chair for 10 times)

Figure 3: Seated Kicks

3. Overhead arm lifts (lift arms towards ceiling while sitting on a chair for 10 times)

Figure 4: Overhead Arm Lifts

4. Windmills (circling arms while sitting on a chair for 10 times)

Figure 5: Windmills

5. Pursed lip breathing is a good method to 'retrain' breathing regulation for lung cancer patients, simply by breath in through nostrils and slowly breath out through mouth by pursing the lips (like "blowing the candle" or "pulling out a thread from mouth"). https://drive.google.com/file/d/1_dsNzcwU9kPWKJjcy_UZ86qpzyNHDFb-/view

6. Buteyko breathing technique; a nasal breathing (inhaling and exhaling via the nostrils) method; can be applied as the exercise progresses, to control and prevent hyperventilation episodes caused by the pulmonary diseases.

Special Considerations

Peripheral muscle dysfunction in the case of neuromuscular diseases (eg., Duchenne/Becker and ALS) contributes to exercise intolerance and is significantly and independently related to increased use of health care resources, poorer prognosis, and mortality. Maximizing pulmonary function using bronchodilators before exercise training in those with airflow limitation can reduce dyspnea and improve exercise tolerance (Spruit et al., 2013). Inspiratory muscle weakness is a contributor to exercise intolerance and dyspnea in those with chronic lung disease.

EXPERT COLUMN

In patients receiving optimal medical therapy who still present with inspiratory muscle weakness and breathlessness, Inspiratory muscle training (IMT) , despite no clear guidelines for it, may prove useful in those unable to participate in exercise training with an intensity of the training load of at least 30% of maximal inspiratory pressure has been recommended (Langer et al., 2009). IMT improves inspiratory muscle strength and endurance, functional capacity, dyspnea, and quality of life which may lead to improvements in exercise tolerance (Gosselink et al., 2011). Supplemental oxygen is indicated for patients with SpO2 < 88% while breathing room air (Qaseem et al., 2011). This recommendation applies when considering supplemental oxygen during exercise. In patients using ambulatory supplemental oxygen, flow rates will likely need to be increased during exercise to maintain SpO2 > 88%. Although inconclusive, there is evidence to suggest the administration of supplemental oxygen to those who do not experience exercise-induced hypoxemia may lead to greater gains in exercise endurance particularly during high intensity exercise (Nonoyama et al., 2007). Individuals suffering from acute exacerbations of their pulmonary disease should limit exercise until symptoms have subsided.

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Solat As Functional Exercise

Oleh: Mohd Khairul Azizi Bin Mohd Zaki – 24 Jun 2021

As any religions existed in this world, there are certain conduct of practices performed as described in their own holy scriptures in refence to the commandments from God. The act of worshiping to The Creator symbolized the uniqueness of every religions embraced by different people; be it in the prayer recitations or the physical actions undertaken, apart from its theological belief. Islam, for one, has its very own prayer which is part of the 5 Arkanul Islam (Pillars of Islam) that served as mandatory foundation of a Muslim's life; Shahada (Profession of Faith), Salah/Solat (Prayer), Zakat (Almsgiving), Sawm (Fasting during the month of Ramadan) and Hajj (Pilgrimage in Makkah al-Mukarramah, if able).

Solat is the daily obligatory prayers observed five times a day at prescribed times namely; Fajr (dawn), Zuhr (afternoon), Asr (evening), Maghrib (dusk) and Isya' (night). It composes of repetitive cycles (Raka'ah) of 5 differing main postures listed below;

Takbir: raising both hands, thumbs parallel to earlobes with God magnification chant.

Qiyam: standing with right hand on top of left hand, affixed at chest to below navel.

Ruku': bowing with hip flexion at 90o angle, head facing down.

Sujud: prostration in submissiveness with only face, hand palms and toes in contact with floor.

Julus: sitting/kneeling with buttocks rest on heels, plantar-flexed feet and hands on laps.

Given the different movements performed in Solat, it may imitate the functional exercise.

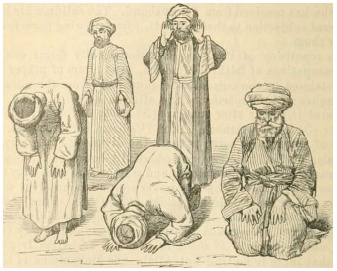

Figure 1: Postures in Solat

So, what is functional exercise? It can be defined as movements incorporated in exercise regime to improve an individual's ability to perform daily activities and achieve specific goals. The main goal is to enhance living function in normal daily life especially among clinical and physically-disabled populations.

The functional exercise training principles can be based on the 3-dimensional (3D) planes of motion; transverse, sagittal and frontal, involving series of muscular contractions (isometric and isotonic) and focuses on the 4 pillars of human movement;

I. Locomotion: linear displacement of body mass.

II. Level changes: non-locomotor up and down motion.

III. Pushing/pulling: daily eccentric/concentric motions.

IV. Rotation: truncal pivoting movement in changing direction.

Faith-Fitness Relationship

Taking the basic principles of functional exercise in mind, it is observed that performance of Solat utilizes numerous level changes and pushing/pulling motions with slight rotation at the end of the prayer via Taslim (a minor but important prayer movement of giving Salam by turning head to the right and then left). It can be said that Solat is inadvertently a form of functional exercise on its own, performed for five times on daily basis by Muslims worldwide.

Solat involves continuous gentle muscle contraction and relaxation with recurring range of motions (ROMs) involved in perfect harmony and balance, by employing different types of stretching and isometric contractions, and is generally suitable for all ages & conditions.

Surprisingly, a collaborative study between Departments of Cardiology and Biomedical Engineering, Universiti Malaya (UM) in 2008 which produced an enlightening book titled "Salat: Benefits from Science Perspective" found that 12 Raka'ah (combination of Zuhr, Asr, and Isya' prayers) is equal to 30 minutes of light exercises daily as recommended by the American College of Sports Medicine (ACSM) guideline used worldwide. Dr. Jaseem Ramadan Alkandari from Kuwait, in his remarkable 2007 study "Bioenergetics of Islamic Prayers"; concluded that Solat does have positive effect on metabolic function as well via the energy cost of about 80 calories a day from daily prayers for an 80 kg person, and it could be considered a form of physical activity that enhances fitness.

Specifically, Fatimah Ibrahim & Siti A. Ahmad (2012) investigated Takbir, Ruku' and Sujud postures via electromyography (EMG) output, comparing them to similar stretching exercises and suggested that Solat has musculoskeletal effect-like stretching. Takbir stretches the Pectoralis (chest) muscles and shoulder blades gently as a start-up motion signaling into next posture progression. Even weight distribution via both feet is observed throughout the practice of Qiyam posture, easing the balance of the body and lower back in a neutral position whilst activating the core muscles at the same time. This correct standing position aids to straighten the back and improves posture (Winter DA, 1995).

Ruku' is a form of loading exercise which strengthens the back, extends the spine and increases the flexibility of hips and hamstrings, thus relieving the stiffness at spine, neck, and back, and helps to improves posture as well as balance and co-ordination. This position stretches the para spinal muscles of lumbar spine, hamstrings, and calves (gastrocnemius & soleus) muscles. It is useful to treat backache for chronic back pain patients or even pregnant mothers (Aqlan F et al., 2017) and vertebral column related diseases, as well as enhancing bone health by minimizing the risk of Osteoporosis (weak, brittle bones).

Spinal stretch is maximized through Sujud posture as a person curls the torso over the legs creating a space between the dorsal surfaces of the vertebra of the spine and aids spinal distraction as well as allowing neural glides and the lengthening of the nerves (Shacklock M, 2005) which is important to treat spinal stenosis and other degenerative disc diseases (Ji B et al., 2003).

This movement also utilized the level changes as evidenced by the head is in the position lower than the heart, reducing the blood pressure and ultimately, chances of stroke in later time. Julus sitting in kneeling position strengthens the core muscles, hence maintaining good posture and improves the flexibility of knee joint ligaments as well as tibialis anterior (shin), extensor hallucis longus (toes), the quadriceps (thigh) and gluteus (buttocks) muscles. Rising up after Julus to proceed with another Raka'ah of prayer involves deep squat motion, which emphasized more on spinal stability. The head turning motion in Taslim stretches the trapezius muscles, mobilizes the upper back and thoracic muscles over the cervical vertebral column. These gentle neural stretches at cervical rotation are effective and may reduce the symptoms of cervicogenic headache, the likelihood to suffer from cervical spondylosis or myalgias (Al-Gazal et al., 2008).

Between ROM (Range of Motion) and RM (Ritual Movement)

A comparison being made between Yoga and Solat by Sayeed SA and Prakash A in a 2013 Indian study on the togetherness between these dominant practices of fitness and faith respectively in mental health. It is concluded that there are resemblances in Solat and Yoga postures which simultaneously can give similar benefits, thus, suggesting Solat as an alternative to the current existing flexibility-cum-core strengthening exercises like Yoga and Pilates. Ghazal Kamran; a senior physiotherapist in Rehabilitation and Physical Medicine Institute, Al Ain Hospital (UAE), elaborated concisely in 2018 about the similarities between Solat and Yoga along with their therapeutic effects. It is worth to note that the main 4 postures from Solat ritual (Qiyam, Ruku', Sujud and Julus) closely resembled that of some Yoga postures respectively;

Namaste ("Bowing to you"): standing, hands together at chest, bowing head with eyes closed.

Ardha Uttansana (standing half forward bend): fully stretches the muscles involved in Ruku'.

Balasana (Child pose): helps in releasing the tension in the lower back, shoulders and chest.

Vajrasana (Thunderbolt pose): gets rid of constipation and improves blood flow circulation.

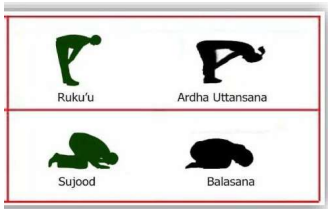

Figure 2: Similarities in Solat and Yoga Postures.

Bear in mind that any flexibility training involved stretching activities, hence, one must be able to relax or be in a 'state of calmness' first before being able to perform the stretches as it might lead to injury. This 'state of calmness' formed the basis of clear mind, inwardly focus and leaving out all worldly life distractions for both Yoga practice and Solat ritual. Based on the mechanical properties of connective tissues (muscle) in our body as a protective mechanism from the Stress-Strain component, it can be divided into elasticity (ability to return to normal), plasticity (permanent change after force is applied) and viscoelasticity (resisting changes but unable to return to normal). Solat falls within the elasticity phase in the Stress-Strain Curve which enabled our body components stretched return back to normal state. Most Solat postures lasted within 10-30 seconds (as per ACSM safe guideline in stretching activities), coinciding with the recitations and momentarily pauses specific to different ritual movements.

Prostration, by its sociocultural nature alone, is an act of submission to a higher-ranked person, victor of a battle or in the case of Solat, to the highest-being God the Almighty; in favor of mercy from Him. Sujud is the only Solat position in which the head is positioned lower than the heart and therefore, receives increased blood supply to the brain, stimulating the brain's prefrontal cortex which houses the higher thinking order (aql) enabling it to control emotions from the limbic system (nafs) spiritually.

This surge in blood flow has a positive effect on memory, concentration, psyche and other cognitive abilities. The prefrontal cortex is located in the frontal lobe which contains the most dopamine neurons. Dopaminergic pathway is exclusive in synthesizing and releasing the dopamine hormone which is essential in activating parasympathetic nervous system to conserve energy and stays in 'rest mode'. In other words, dopamine is a calming hormone which gives human the feel-good sensation physically and psychologically. It is stipulated through a study (Doufesh, 2012) investigating the increased amplitude of alpha brain activity during prostration in the parietal and occipital regions suggestive of parasympathetic elevation, thus indicating a state of relaxation.

Increment of dopamine increased the protective effect against anxiety disorders and Parkinson's Disease; which are caused by lack of dopamine presence due to multiple stressors and degenerative Lewis Bodies formation respectively. Dopamine also is found to stimulate BDNF (Brain-Derived Neurotrophic Factor) which plays the utmost important role in preventing Alzheimer's and other degenerative cognitive diseases among the elderly. With dopamine and its myriads of positive effects resulting the mind and body in a state of calm and relaxed manner, an individual is at peace with himself and surroundings in the Godly presence, ready for submission and acceptance no matter what the worldly conditions are, as evidenced in the Hadith and Quranic verses below:

أَقْرَبُ مَا يَكُونُ الْعَبْدُ مِنْ رَبِّهِ وَهُوَ سَاجِدٌ فَأَكْثِرُوا الدُّعَاءَ

The nearest a servant comes to his Lord is when he is prostrating himself, so make supplication (in this state). [Sahih Muslim, Book of Prayer, Hadith: 482]

يَا أَيَّتُهَا النَّفْسُ الْمُطْمَئِنَّةُ ﴿٢٧﴾ ارْجِعِي إِلَىٰ رَبِّكِ رَاضِيَةً مَّرْضِيَّةً ﴿٢٨﴾
فَادْخُلِي فِي عِبَادِي ﴿٢٩﴾ وَادْخُلِي جَنَّتِي ﴿٣٠﴾

[To the righteous it will be said], "O reassured soul! Return to your Lord, well-pleased and pleasing [to Him], and enter among My [righteous] servants and enter My Paradise."
{Al-Fajr (The Dawn); verses 27-30}

Aidun mubarak. Minnal Aidil wal Faizin. Taqabbalallahu minna wa minkum.

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Puasa: antara agama dan trend

Oleh: Mohd Khairul Azizi Bin Mohd Zaki – 23 April 2021

Bulan Ramadan yang mulia kini menjelang tiba pada tahun 2021 masihi bersamaan tahun 1442 hijriah. Umat Islam seluruh pelosok dunia bakal menjalani ibadah wajib berpuasa selama sebulan bagi memperoleh rahmat Allah secara spiritual serta meraih manfaat berpuasa dari sudut fisiologi dan psikologi secara tidak langsung.

Apakah itu puasa? Puasa secara amnya merupakan amalan seseorang individu untuk menahan diri dari makan dan minum selama tempoh yang ditetapkan ke atas dirinya sendiri. Amalan ini telah dicatatkan dalam sejarah dan seringkali berkait dengan pelbagai agama, terutama sekali Agama Samawi (Abrahamic Religions: Islam, Christianity, Judaism) serta perjalanan spiritual (spiritual journey) seseorang, melalui konsep merasai kepayahan dilalui oleh mereka yang terpaksa berlapar akibat kekurangan sumber makanan disebabkan kemiskinan atau bencana.

Berpuasa secara praktisnya dapat dibahagikan kepada dua; Puasa Kering dan Puasa Basah. Puasa Kering adalah berpuasa dari makan dan minum, manakala Puasa Basah pula minum dibenarkan. Sejak kebelakangan ini, satu konsep puasa untuk kesihatan tercetus hasil idea pakar kecergasan dan selebriti kesihatan Barat. Ia dinamakan Puasa Berkala (Intermittent Fasting; IF) dan merupakan sejenis Puasa Basah.

IF yang popular dapat dibezakan melalui kaedah secara tempoh (periodic) atau kekangan masa (time-restricted) berdasarkan masa makan seharian.

1. Periodic (hari): mengambil hanya satu sajian makanan (500-700 kalori) dalam satu hari.
2. Time-restricted (jam): makan selama beberapa jam sahaja dalam satu hari.

Gambarajah 1: contoh IF yang popular (16/8 Method)

Puasa Berkala (Intermittent Fasting / IF)

IF merupakan sebahagian daripada rangkaian Fad Diets (diet trend masa kini) yang juga merangkumi Atkins Diet dan Keto Diet. Fokus utama IF adalah pengurangan kadar pemakanan seharian yang diukur melalui kalori sajian makanan. Jenis IF yang menggunakan kaedah periodic dinamakan **5:2 Diet**. Kaedah ini membolehkan individu untuk berpuasa pada 1 atau 2 hari yang tidak berturutan dengan hanya memakan satu hidangan makanan sahaja dan kembali makan seperti biasa selama 5 hari dalam seminggu. Amalan IF dipopularkan oleh Michael Mosley; seorang wartawan veteran dan bekas doktor perubatan di UK, sejak tahun 2012 dan mendapat sambutan yang amat menggalakkan dalam kalangan pakar kecergasan dan kesihatan.

Selain itu, **16/8 Method** pula merupakan kaedah IF yang boleh dilakukan setiap hari. Kaedah ini dilaksanakan dengan 16 jam berpuasa dan 8 jam selebihnya untuk makan. Bilangan hidangan makanan boleh dilakukan sebanyak 3 ke 4 kali sepanjang tempoh 8 jam untuk makan itu. Pada kebiasaannya, waktu berpuasa dan makan ditentukan melalui pukul 12 tengah hari sehingga 8 malam untuk makan (8 jam) dan disambung dengan berpuasa dari pukul 8 malam sehingga 12 tengah hari (16 jam). Kaedah ini yang juga dikenali sebagai Leangains Protocol telah diperkenalkan oleh Martin Berkhan; seorang pakar nutrisi kecergasan dan atlet bina badan dari USA, dan ia didapati lebih senang diamalkan

oleh sesiapa sahaja khasnya mereka yang sibuk bekerja tanpa waktu rehat untuk makan secara teratur.

Puasa mengikut agama (Religious Fasting / RF)

Berbalik kepada bulan Ramadan yang disambut oleh seluruh umat Islam semenjak 1442 tahun lalu, amalan berpuasa amatlah bersangkut-paut dengan hampir kesemua agama (samada monoaethis; Islam, Kristian, Yahudi, atau poliaethis; Buddha, Hindu) yang dianuti sebagai pegangan hidup dan budaya dalam kalangan masyarakat majmuk sedunia. Rasional amalan ini adalah untuk merasai penderitaan mereka yang susah dan miskin tatkala kelaparan, dan untuk mencetuskan perasaan rendah diri serta kawalan emosi akibat keletihan fizikal dan mental yang terhasil dari kekurangan sumber tenaga melalui kaedah sekatan pemakanan ini. Puasa juga digunakan sebagai cara menentang tanpa keganasan seperti gerakan suffrage dalam kalangan wanita di USA dan UK sewaktu abad ke-20 bagi memperjuangkan hak samarata wanita, Revolusi Ireland 1916-1923 dan sewaktu pembebasan India 1947 oleh Mahatma Gandhi.

RF secara tidak langsung dapat dikategorikan mengikut peristiwa dan tujuan perlaksanaan puasa tersebut. Selain bulan Ramadan bagi umat Islam, terdapat juga peristiwa Lent (Kristian) yang disarankan puasa selama 40 hari (Black Fast) bagi memperingati Jesus Christ yang diuji ketika bersendirian selama 40 hari di padang pasir (Temptation of Christ), serta Yom Kippur (Yahudi) yang bermaksud "Hari Pengampunan" jatuh pada hari ke-10 dalam bulan ke-7 (Tishrei) mengikut Kalendar Hebrew.

Manakala, amalan berpuasa bagi agama-agama lain kebiasaannya adalah bagi tujuan nazar (perjanjian dengan tuhan untuk melaksanakan amalan ibadah jika menerima balasan yang baik terlebih dahulu) dan penyucian diri dari kesalahan-kesalahan yang telah dilakukan (pengampunan), tanpa mengikut waktu yang diarahkan atau memperingati sebarang peristiwa besar dalam agama. Unsur-unsur ini juga adalah latar belakang bagi puasa mengikut peristiwa. Berpuasa di bulan Ramadan seperti diriwayatkan dalam hadis;

من صام رمضان إيمانا واحتسابا ، غفر له ما تقدم من ذنبه

"Orang yang berpuasa Ramadhan kerana iman dan mengharap pahala, akan diampuni dosa-dosanya yang telah lalu." (HR. Bukhari no.38, Muslim, no.760)

Malah, terdapat juga hadis lemah yang memaparkan bulan Ramadan terbahagi kepada 3 fasa iaitu rahmat, maghfirah (pengampunan) dan itkun minan nar (pembebasan dari neraka);

أول شهر رمضان رحمة، وأوسطه مغفرة، وآخره عتق من النار

"Bulan Ramadhan, awalnya rahmah, tengahnya pengampunan dan akhirnya pembebasan dari api neraka."

Hadits ini diriwayatkan oleh Al-'Uqaili dalam kitab khusus tentang hadits dha'if yang berjudul Adh-Dhu'afa'.

Kesan puasa terhadap bio-psiko-spiritual

Berita gembira kepada semua terutamanya bagi pesakit kencing manis, hipertensi, hiperlipidemia dan obesiti. Menurut kajian semenjak 1980an sehingga kini, amalan berpuasa terbukti meningkatkan tahap sensitiviti hormon Insulin dan paras HGH (Human Growth Hormone) yang menghasilkan paras hormon Noradrenalin bagi membolehkan pembakaran lemak dalam badan dan penambahan jisim otot badan melalui proses glukoneogenesis (penghasilan tenaga dari sumber selain karbohidrat) dan peningkatan kadar metabolisma secara keseluruhan. Tekanan darah serta kadar denyutan nadi juga dapat dikawal melalui pengaruh hormon Noradrenalin yang dihasilkan. Di peringkat mikroskopik, sel-sel badan akan mengalami kadar autofagi yang tinggi; proses pembaikan yang mana sel-sel akan mencerna dan membuang komponen protein yang sudah lapuk dan rosak. Perubahan genetik juga dapat dilihat ketika berpuasa yang berfungsi sebagai perlindungan dari penyakit dan pemanjangan usia yang sihat.

Kajian oleh Mattson M dan Cabo R pada tahun 2019 membuktikan bahawa amalan berpuasa dapat meningkatkan daya tahan mental (mental endurance), fikiran dan memori seseorang individual. Selain itu, peningkatan hormon BDNF (Brain-Derived Neurotrophic Factor) hasil berpuasa membantu penumbuhan sel-sel saraf yang baru dan melindungi dari penyakit Alzheimer's (nyanyuk). Faktor-faktor ini juga secara tidak langsung mempengaruhi daya tahan spiritual seseorang bagi kelangsungan puasa sehingga tamat durasi yang ditetapkan.

Kesimpulannya, amalan berpuasa adalah amat baik untuk kesihatan sejagat dan amatlah digalakkan oleh pakar perubatan dan kecergasan. Puasa dapat dilaksanakan samada secara Kering seperti di bulan Ramadan bagi umat Islam atau Basah dengan hanya meminum air kosong tanpa mengikut peristiwa / waktu ditetapkan oleh agama. Puasa berkala (IF) boleh dilakukan setiap hari berdasarkan kaedah kekangan masa (16/8 Method) atau secara mingguan mengikut kaedah periodik (5:2 Diet), tanpa perlu merasai kelaparan yang teramat sangat. Amalan ini adalah satu budaya yang sihat bagi pengawalan serta penurunan berat badan yang penting dalam mencegah penyakit metabolik seperti Diabetes Mellitus, Hypertension dan Hyperlipidaemia (rangkaian Metabolic Syndrome).

Ketahanan mental serta spiritual dapat diperkukuhkan hasil 'latihan' diberikan kepada badan dan minda melalui amalan berpuasa.

Salam Ramadhan Al-Mubarak

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Perut Yang Besar Jangan Disangka Gemuk!

Oleh: Salina Binti Sany – 19 Januari 2021


Pembedahan Kanser Ovari

Kebanyakan wanita cenderung untuk melewatkan rawatan walaupun perubahan perut yang semakin membesar kerana pada sangkaan mereka mengalami kegemukan. Tahukah anda bahawa persepsi tersebut sebenarnya boleh memudaratkan kesihatan mereka sekiranya perut yang buncit tersebut disebabkan oleh kanser ovari.

Kanser ovari adalah kanser yang ketiga tertinggi dalam kalangan wanita selepas kanser serviks dan kanser rahim. Selain itu, kanser ini berkecenderungan untuk berulang walaupun rawatan telah diberikan.


Kanser Ovari

Apakah tanda-tanda kanser ovari?

Kebanyakan wanita didiagnos ketumbuhan ovari pada peringkat akhir di mana simptom yang ditunjukkan kadang kala tidak jelas. Sebanyak 23% wanita tidak mempunyai apa-apa simptom walaupun mereka sebenarnya mempunyai ketumbuhan di ovari.

Simptom yang boleh ditunjukkan ialah seperti:

1. sakit perut di bahagian pelvis;
2. perut membesar dan tegang;
3. kadang kala akan ada simptom susah utk kencing / buang air besar; dan
4. sesak nafas sekiranya ketumbuhan tersebut besar atau terdapat ascitis (air di dalam ruang peritoneum).

Terdapat pesakit yang menyangkakan mereka gemuk kerana perut membuncit.

Faktor-faktor yang meningkatkan risiko kanser ovari:

1) Wanita yang tidak pernah mengandung (nulliparous).

2) Faktor genetik - Wanita yang mempunyai sejarah kanser payudara, usus atau ovari di dalam keluarga mempunyai risiko untuk mendapat kanser lebih tinggi berbanding wanita yang tiada sejarah keluarga (5% berbanding 1.4%).

3) Menggunakan ubatan untuk merangsang proses ovulasi (bagi rawatan kesuburan menggunakan ubat kesuburan > 12 kitaran).

4) Obesiti.

Terdapat beberapa faktor yang mengurangkan risiko kanser ovari iaitu:

1) Penggunaan hormon pil perancang (oral contraceptive pill).

2) Telah menjalani proses pemandulan, iaitu kedua-dua tiub fallopian dibuang (tubal ligation).

3) Penyusuan susu ibu.

Adakah semua ketumbuhan ovari memerlukan pembedahan?

Ketumbuhan ovari boleh dikategorikan sebagai kanser dan bukan kanser. Terdapat ciri-ciri melalui pemeriksaan fizikal dan penyiasatan yang boleh mengesan ketumbuhan tersebut adalah kanser ataupun tidak.

Ketumbuhan yang besar dan mempunyai ciri-ciri yang mencurigakan melalui mesin ultra bunyi (ultrasound) serta ujian darah Ca125 yang tinggi menandakan bahawa pesakit mempunyai potensi mendapat kanser ovari. Pesakit ini memerlukan rawatan pembedahan segera. Keputusan melalui histopatologi akan mengesahkan jenis kanser ovari pesakit.

Bagi pesakit yang mempunyai ketumbuhan ovari bersaiz < 5cm dan bacaan Ca125 yang normal, mereka boleh dipantau melalui temujanji kerana golongan pesakit ini mempunyai potensi yang rendah untuk kanser ovari. Walaubagaimanapun,sekiranya pesakit mempunyai faktor genetik atau sejarah keluarga yang mempunyai kanser ovari, mereka disarankan untuk menjalani pembedahan membuang ketumbuhan tersebut.

Adakah kanser ovari mempunyai ujian saringan?

Tiada ujian saringan yang spesifik seperti ujian saringan kanser serviks untuk mengesan kanser ovari. Walaubagaimanapun, bagi wanita yang mempunyai faktor risiko, mereka digalakkan berjumpa pakar ginekologi untuk menjalani imbasan ultrabunyi bagi mengesan ketumbuhan ovari.

Sila datang berjumpa pakar sekiranya anda ingin mendapatkan pemeriksaan.

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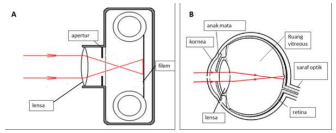
7 fakta retina koyak (retinal tears)

Oleh: Bakiah Binti Shaharuddin – 8 Januari 2021

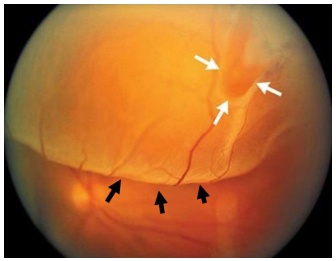
7 fakta retina koyak (retinal tears)

Jika anda pemakai cermin mata tebal kerana rabun jauh dan sering melakukan aktiviti lasak, anda perlu tahu tentang "retinal tear" atau retina koyak. Apabila retina koyak, ini menimbulkan risiko retina lekang dari kedudukan asalnya, yang dipanggil "retinal detachment". Hal ini boleh menyebabkan anda menjadi buta. Silakan baca sehingga penghujung artikel…

Ulangkaji struktur mata:



Struktur dan fungsi kamera (A) adalah lebih kurang seperti struktur dan fungsi pada mata manusia (B). Cahaya yang masuk melalui kamera akan membentuk imej pada filem. Manakala di dalam mata, imej akan terfokus ke atas retina. Retina akan memproses maklumat ini dan dihantar melalui saraf optik ke otak untuk ditafsir imej apa yang dilihat.



Koyakan pada retina (anak panah putih) dan komplikasi retina menjadi lekang (retinal detachment) – anak panah hitam

1 "Saya nampak bintik hitam terapung-apung dalam mata...."
Kemunculan bintik hitam kasar atau halus iaitu yang dipanggil "floaters" adalah salah satu gejala retina koyak. "Flash" atau kilatan cahaya dalam pandangan juga adalah salah satu gejala yang biasa diadu oleh pesakit.

2 "Penglihatan saya kabur seperti di tutup tirai..."
Ini adalah gejala apabila tempat retina koyak atau berlubang telah dimasuki cecair retina dan menyebabkan retina menjadi lekang atau "retinal detachment". Penglihatan mula kabur sedikit demi sedikit sehingga keseluruhannya menjadi gelap.

3 Apakah penyebab retina koyak?
"Vitreous" adalah gel pekat yang memenuhi rongga di depan retina (rujuk rajah mata). Semasa usia muda gel ini pekat dan melekat kuat pada retina, tetapi proses penuaan menyebabkan gel ini berpisah dari retina secara perlahan. Dalam kebanyakan kes, proses ini berlaku tanpa sebarang masalah. Walaubagaimanapun, pada orang yang mempunyai vitreous yang lebih "melekit", semasa proses pemisahan berlaku, vitreous menarik retina sehingga retina terkoyak. Ini adalah penyebab utama terjadinya koyakan pada retina secara spontan, terutamanya dalam kalangan mereka yang rabun jauh.

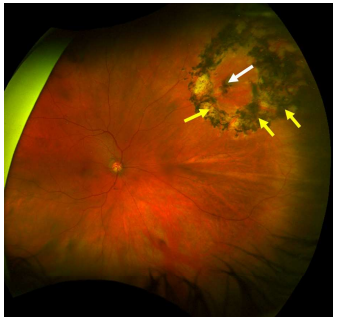
4 "Power spek saya hampir seribu, adakah retina saya mudah koyak?"
Ya, mereka yang mempunyai masalah rabun jauh yang tinggi, mempunyai saiz bola mata yang lebih panjang. Ini mengakibatkan retina menjadi sangat nipis dan kerapkali terjadi proses retina menjadi tua (retinal degeneration). Proses degenerasi pada retina meningkatkan risiko kecederaan atau koyakan kepada retina. Terutamanya apabila terdedah kepada trauma atau aktiviti yang lasak.

5 faktor-faktor lain yang boleh meningkatkan risiko retina koyak
Ada beberapa faktor yang dikenali boleh meningkatkan peluang seseorang mendapat masalah ini, di antaranya: usia yang lanjut, degenerasi retina, trauma, sejarah keluarga retina koyak, berlubang atau retina lekang, dan pernah menjalani pembedahan mata sebelumnya.

6 Bagaimana untuk mengelakkan retina koyak?
Tidak ada cara mutlak yang boleh meramalkan siapa yang akan mengalami masalah ini atau bila ia akan terjadi. Sekiranya anda mengalami gejala "floaters" dan "flashes" yang mula menyebabkan penglihatan menjadi kabur, anda perlu berjumpa doktor mata untuk pemeriksaan lanjut.

Sekiranya perlu, LASER akan diberikan sebagai langkah pencegahan.

7 Apakah rawatan bagi masalah ini dan adakah ia boleh disembuhkan?
Sekiranya retina koyak dan tidak menyebabkan komplikasi retina lekang dari kedudukan asalnya, maka peluang untuk sembuh sangat baik. Rawatan LASER atau dengan prosedur pembekuan (cryotherapy) akan diberikan bagi menghalang komplikasi lanjut. Rawatan ini bertujuan untuk menghasilkan parut di sekeliling tempat yang koyak. Setelah rawatan diberikan, masih ada risiko untuk masalah yang sama berulang, sama ada di lokasi yang sama atau pada tempat lain. Oleh itu, pemantauan berterusan adalah penting supaya pengesanan dan rawatan awal dapat dilakukan.



Rawatan LASER untuk retina koyak (anak panah putih) adalah bertujuan untuk menghasilkan parut (anak panah kuning)

CONGRATULATIONS!

List of Q1 & Q2 AMDI Publication in High Impact Journal 2021

Husnaida binti Abdul Manan @ Sulong	Anatomy Education Environment Measurement Inventory (AEEMI): a cross-validation study in Malaysian medical schools	Q2
Nur Nadhirah binti Mohamad Zain Nik Nur Syazni binti Nik Mohamed Kamal	Application of a new choline-imidazole based deep eutectic solvents in hybrid magnetic molecularly imprinted polymer for efficient and selective removal of naproxen from aqueous samples	Q2
Citartan a/l Marimuthu	Aptamers as the powerhouse of dot blot assays	Q1
Ahmad Naqib Bin Shuid	Association between viral infections and risk of autistic disorder: An overview	Q1
Lim Vuanghao Nur Nadhirah Binti Mohamad Zain Nik Nur Syazni Binti Nik Mohamed Kamal Noorfatimah binti Yahaya	Biogenic Silver Nanoparticles of Clinacanthus nutans as Antioxidant with Antimicrobial and Cytotoxic Effects	Q1
Siti Salmah Noordin	Blood transfusion services amidst the COVID-19 pandemic	Q1
Noorfatimah Yahaya	Characterisation techniques for analysis of imidazolium-based ionic liquids and application in polymer preparation: A review	Q1
Mohd Zahri bin Abdul Aziz	Characterization of Rhizophora SPP. particleboards with SOY protein isolate modified with NaOH/IA-PAE adhesive for use as phantom material at photon energies of 16.59–25.26 keV	Q1
Rabiatul Basria binti S.M.N.Mydin	Compositions and antimicrobial properties of binary ZnO–CuO nanocomposites encapsulated calcium and carbon from Calotropis gigantea targeted for skin pathogens	Q1
Md Azman Bin Pkm Seeni Mohamed	Cytotoxicity determination of nano-zinc oxide eugenol on human gingival fibroblast cells	Q2
Lim Vuanghou Nozlena Abdul Samad	Cytotoxicity of targeted PLGA nanoparticles: a systematic review	Q2
Noorfatimah Yahaya	Deep eutectic solvent-based emulsification liquid-liquid microextraction for the analysis of phenoxy acid herbicides in paddy field water samples	Q2
Mohammad Farris Iman Leong bin Abdullah Nor Shuhada Binti Murad@Mansor	Depression, anxiety, and the COVID-19 pandemic: Severity of symptoms and associated factors among university students after the end of the movement lockdown	Q2
Norehan binti Mokhtar	Effect of malocclusion severity on oral health related quality of life in Malay adolescents	Q2
Lim Vuanghou	Essential Oils Derived from Momordica charantia Seeds Exhibited Antiulcer Activity against Hydrogen Chloride/Ethanol and Indomethacin	Q2

Wan Adnan Wan Omar Eshaifol Azam Omar Rafeezul Mohamed	Ethanolic extract of propolis from the Malaysian stingless bee Geniotrigona thoracica inhibits formation of THP-1 derived macrophage foam cells	Q1
Noor Diyana binti Osman	Evaluation of age-based radiation dose in paediatric patients received from head CT examination at a tertiary hospital, Nigeria	Q1
Noorfatimah Yahaya Nur Nadhirah binti Mohamad Zain	Exploring magnetic particle surface embedded with imidazole-based deep eutectic solvent for diclofenac removal from pharmaceutical wastewater samples	Q1
Noor Diyana binti Osman	Fabricated germanium-doped optical fibres for computed tomography dosimetry: Glow curve characteristics	Q2
Noorfatimah Yahaya	Floating ZnO QDs-Modified TiO2/LLDPE Hybrid Polymer Film for the Effective Photodegradation of Tetracycline under Fluorescent Light Irradiation: Synthesis and Characterisation	Q2
Muhammad Amir bin Yunus	Genome-wide identification of aedes albopictus long noncoding rnas and their association with dengue and zika virus infection	Q1
Lim Vuanghou	Green synthesis of metallic nanoparticles using pectin as a reducing agent: a systematic review of the biological activities	Q2
Citartan a/l Marimuthu Hazrina binti Yusof Hamdani Tang Thean Hock	In silico molecular docking in DNA aptamer development	Q2
Nozlena binti Abdul Samad Lim Vuanghao Emmanuel Jairaj Moses Mohd Yusmaidie Bin Aziz	In vitro anticancer effects of vernonia amygdalina leaf extract and green-synthesised silver nanoparticles	Q1
Mohammad Farris Iman Leong bin Abdullah Tan Kok Leng	Is kratom (Mitragyna speciosa Korth.) use associated with ECG abnormalities? Electrocardiogram comparisons between regular kratom users and controls	Q2
Mohd Zahri bin Abdul Aziz	Low-energy X-ray attenuation characteristics of Rhizophora spp. composites	Q2
Ahmad Munir Che Muhamed	Menstrual phase and ambient temperature do not influence iron regulation in the acute exercise period	Q2
Ch'ng Ewe Seng	Mining The Cancer Genome Atlas gene expression data for lineage markers in distinguishing bladder urothelial carcinoma and prostate adenocarcinoma	Q1
Noorsuzana binti Mohd Shariff Noor Mastura Mohd Mujar Rohayu binti Hami Mohammad Farris Iman Leong bin Abdullah	Multicentre prospective cohort study of unmet supportive care needs among patients with breast cancer throughout their cancer treatment trajectory in Penang: A PenBCNeeds Study protocol	Q2
Mohd Yusmaidie Bin Aziz	Population data and genetic characteristics of 12 X-STR loci using the Investigator® Argus X-12 Quality Sensor kit for the Kedayan population of Borneo in Malaysia	Q1
Lim Vuanghou Nor Hazwani binti Ahmad Sharlina binti Mohamad	Potential antioxidant and anti-inflammatory effects of spilanthes acmella and its health beneficial effects: A review	Q1
Siti Noor Fazliah binti Mohd Noor	Potential of Lyophilized Platelet Concentrates for Craniofacial Tissue Regenerative Therapies	Q2

Mohammad Farris Iman Leong bin Abdullah Teoh Soo Huat Mohd Afifuddin Mohamad Nor Shuhada Binti Murad@Mansor	Quality of Life and Its Predictive Factors Among Healthcare Workers After the End of a Movement Lockdown: The Salient Roles of COVID-19 Stressors, Psychological Experience, and Social Support	Q2
Noorfatimah Yahaya	Recent Trends in Adsorbent-Based Microextraction of Micropollutants in Environmental Waters	Q1
Nur Nadhirah binti Mohamad Zain	Removal of bisphenol A from aqueous media using a highly selective adsorbent of hybridization cyclodextrin with magnetic molecularly imprinted polymer	Q2
Badrul Hisham bin Yahaya	Synergistic Roles of Curcumin in Sensitising the Cisplatin Effect on a Cancer Stem Cell-Like Population Derived from Non-Small Cell Lung Cancer Cell Lines	Q2
Noorfatimah Yahaya	Synthesis and optimization selective ion-imprinted polymer for the elimination of Ca II ions using Taguchi design	Q2
Teoh Soo Huat	Telemedicine to deliver diabetes care in low-and middle-income countries: A systematic review and meta-analysis	Q1
Doblin Anak Sandai	The assimilation of different carbon sources in Candida albicans: Fitness and pathogenicity	Q1
Badrul Hisham bin Yahaya	The effects of lentivirus-mediated gene silencing of rarβ on the stemness capability of non-small cell lung cancer	Q2
Ooi Cheong Hwa	The molecular mechanisms of probiotic strains in improving ageing bone and muscle of d-galactose-induced ageing rats	Q2
Ng Mei Li	The Role of Genetic Polymorphism and Other Factors on Clopidogrel Resistance (CR) in an Asian Population with Coronary Heart Disease (CHD)	Q2
Ilie Fadzilah Binti Hashim	The Role of RhoH in TCR Signalling and Its Involvement in Diseases	Q2
Ilie Fadzilah binti Hashim	The Role of RhoH in TCR Signalling and Its Involvement in Diseases	Q2
Ng Siew Kit	The Role of the Z-DNA Binding Domain in Innate Immunity and Stress Granules	Q1
Nurdiana binti Zainol Abidin	Total vs. Bioavailable: Determining a Better 25(OH)D Index in Association with Bone Density and Muscle Mass in Postmenopausal Women	Q2
Doblin anak Sandai	Transcriptomic and proteomic profiling revealed reprogramming of carbon metabolism in acetate-grown human pathogen Candida glabrata	Q1
Doblin anak Sandai	Transcriptomic and proteomic profling revealed reprogramming of carbon metabolism in acetate-grown human pathogen Candida glabrata	Q1
Lim Vuanghou	Wheat germ agglutinin-conjugated disulfide cross-linked alginate nanoparticles as a docetaxel carrier for colon cancer therapy	Q1

PUBLICATION

CONGRATULATIONS!

List of AMDI Publication In Citation Indexed Journal 2021

Nur Nadhirah binti Mohamad Zain Noorfatimah Yahaya Mohd Yusmaidie bin Aziz	A simple and efficient sequential electrokinetic and hydrodynamic injections in micellar electrokinetic chromatography method for quantification of anticancer drug 5-fluorouracil and its metabolite in human plasma
Mohd Yusmaidie bin Aziz Nur Nadhirah binti Mohamad Zain Nik Nur Syazni binti Nik Mohamed Kamal Noorfatimah Yahaya	Advanced adsorbents for the extraction and preconcentration of penicillin antibiotics: An updated review [Penjerap Lanjutan Bagi Pengekstrakan Dan Prapemekatan Antibiotik Penisilin: Satu Tinjauan Terkini]
Teoh Soo Huat	An uncommon case of gouty arthritis in a teenage boy
Hazwani binti Ahmad Yusof@Hanafi Ahmad Munir bin Che Muhamed	Angiotensin-converting enzyme (ACE) insertion/deletion gene polymorphism across ethnicity: a narrative review of performance gene
Shahrul Bariyah binti Sahul Hamid	Beetroot as a Potential Functional Food for Cancer Chemoprevention, a Narrative Review
Siti Noor Fazliah binti Mohd Noor Muhammad Azrul bin Zabidi	Bibliometric profiles of top 50 most cited articles on bioactive glass
Badrul Hisham bin Yahaya	Centella asiatica Extract Potentiates Anticancer Activity in an Improved 3-D PHBV-Composite-CMC A549 Lung Cancer Microenvironment Scaffold
Mohd Zahri bin Abdul Aziz	Characterization of soy-lignin bonded Rhizophora spp. particleboard as substitute phantom material for radiation dosimetric studies – Investigation of CT number, mass attenuation coefficient and effective atomic number
Intan Juliana binti Abd Hamid Zarina Thasneem bt Zainudeen Ilie Fadzilah binti Hashim Siti Mardhiana binti Mohamad	Clinical and demographic pattern of chronic granulomatous disease (CGD) from a multicenter perspective: Malaysia's experience over 26 years
Norehan binti Mokhtar	Comparison of soft tissue changes produced by two different appliances on mixed dentition children
Nor Adlin binti Md Yusoff Nozlena Abdul Samad	Comparison of α-amylase, α-glucosidase and lipase inhibitory activity of different types of vinegar
Muhamad Zabidi Bin Ahmad Suria Emilia Suhana Binti Othman Tan	Compensatory renal hypertrophy in reflux nephropathy presenting as hypertensive emergency
Teoh Soo Huat	Current practices of primary care doctors in managing adults with obesity: A narrative review
Nurdiana Zainol Abidin	Determination of Cutoff Values for the Screening of Osteosarcopenia in Obese Postmenopausal Women
Ch'ng Ewe Seng Tang Thean Hock	Development of cost-effective and accurate allele-specific pcr for determination of m2/anxa5 haplotype in recurrent pregnancy loss
Bakiah Binti Shaharuddin	Distance vision, near vision and quality of life between preferred emmetropia and residual myopia in monofocal intraocular lens implantation-a comparative study
Rafidah binti Zainon	Dosimetric study of custom-made pelvic perspex phantom using single-energy mode (SECT) and dual-energy mode (DECT) computed tomography
Rabiatul Basria binti S.M.N.Mydin	Effect of calcination temperature on physicochemical and antimicrobial properties of green synthesised ZnO/C/Ca nanocomposites using Calotropis gigantea leaves
Syed Azhar bin Syed Sulaiman	Effect of pharmacist-led intervention on predictors of diabetic neuropathy at two different hospitals of Malaysia [Efecto de la intervención dirigida por farmacéuticos sobre los predictores de neuropatía diabética en dos hospitales diferentes de Malasia]
Syed Azhar Bin Syed Sulaiman	Effect of pharmacist-led intervention on progression of diabetic complications at two tertiary care hospitals of Malaysia
Ida Shazrina binti Ismail Lim Vuanghou	Effects of clinacanthus nutans extracts on cytokine secretion in PMA-induced U937 macrophage cells
Noorfatimah Yahaya Nur Nadhirah binti Mohamad Zain	Enantioseparation of ketoconazole and miconazole by capillary electrophoresis and a study on their inclusion interactions with β-cyclodextrin and derivatives
Rohayu binti Hami Saadiah binti Shahabudin Hazwani binti Ahmad Yusof@Hanafi Noorsuzana binti Mohd Shariff Noor Mastura Mohd Mujar Salbiah binti Isa Husniyati binti Roslan Mohd Afifuddin bin Mohamad	Factors contributing to non-communicable diseases in a selected low socio-economic status community in Kedah, Malaysia
Badrul Hisham bin Yahaya	Human umbilical cord mesenchymal stem cell-derived extracellular vesicles ameliorate airway inflammation in a rat model of chronic obstructive pulmonary disease (COPD)
Doblin anak Sandai Siti Nurfatimah Mohd Shahpudin Ahmad Naqib Bin Shuid	Identification of Alkaloid Compounds Arborinine and Graveoline from Ruta angustifolia (L.) Pers for their Antifungal Potential against Isocitrate lyase (ICL1) gene of Candida albicans
Syed Azhar bin Syed Sulaiman	Impact of pharmacist educational intervention on predictors of diabetic retinopathy among diabetic patients at two tertiary care hospitals in Malaysia
Syed Azhar bin Syed Sulaiman	Impact of pharmacist-led educational intervention on predictors of diabetic foot at two different hospitals of Malaysia
Ch'ng Ewe Seng	Interplay of autophagy and cancer stem cells in hepatocellular carcinoma
Teoh Soo Huat	Ketogenesis and SIRT1 as a tool in managing obesity
Rohayu binti Hami	Knowledge, awareness, attitude and preventive behaviour on the transmission of the pandemic novel coronavirus among malaysians
Hasni bin Arsad Lim Vuanghou	Low cytotoxicity, and antiproliferative activity on cancer cells, of the plant senna alata (Fabaceae) [Baja citotoxicidad, y actividad antiproliferativa sobre las células cancerosas, de la planta senna alata (Fabaceae)]
Mohd Hafiz bin Mohd Zin	Medical Physics Contributes to The Advancement in Medicine
Tan Jun Jie	Metabolic maturation of differentiating cardiosphere-derived cells
Noorfatimah Yahaya	Micro-solid phase extraction of polycyclic aromatic hydrocarbons in water using either C18 or molecularly imprinted polymer membranes: Analytical merits and limitations [Pengekstrakan Fasa Mikro Pepejal bagi Hidrokarbon

	Aromatik Polisiklik dalam Air Menggunakan Sama Ada Membran C18 atau Polimer Molekul Teraan: Kebaikan dan Kelemahan Analisis]
Muhamad Yusri bin Musa	Nasal airflow of patient with septal deviation and allergy rhinitis
Syed Azhar Bin Syed Sulaiman	Pharmacist-led educational interventions on determinants of diabetic nephropathy among diabetic patients in malaysia
Syed Azhar bin Syed Sulaiman	Prevalence and predictors of potentially inappropriate medication use among ambulatory older adults in Northern Nigeria
Norehan binti Mokhtar	Relationship between the oral hygiene and the odontogenic infections of oral and maxillofacial region
Noorfatimah Yahaya Nur Nadhirah binti Mohamad Zain	Removal of 2,4-dichlorophenol from wastewater by an efficient adsorbent of magnetic activated carbon
Lim Vuanghou	Response surface methodology optimization of polyhydroxyalkanoate production by Burkholderia cepacia BPT1213 using waste glycerol from palm oil-based biodiesel production
Haslin Binti Hashim	Rhabdomyolysis following coronary angiography: an unexpected detection on 99mTc-methyl diphosphonate bone scintigraphy
Hazwani binti Ahmad Yusof@Hanafi	Self-Perceived Oral Health and Awareness on Replacement of Missing Teeth among Patients at a Public University
Ch'ng Ewe Seng	The journey of Malaysian external quality assurance program for general diagnostic histopathology
Mohammad Farris Iman Leong bin Abdullah	The Right to Use Kratom from the Psychiatric and Islamic Perspectives
Fatanah binti Mohamad Suhaimi	The technology of tongue and hard palate contact detection: a review
Sharifah Azdiana binti Tuan Din Mastura binti Mohd Sopian	Validation of questionnaire on motivating and hindering factors for blood donation

Jasamu Dikenang...Selamat Bersara

Sekalung Penghargaan Dan Terima Kasih Atas Jasa Dan Khidmat Bakti Yang Tidak Ternilai

SENARAI STAF IPPT YANG BERSARA WAJIB/PILIHAN PADA JANUARI HINGGA JUN 2021

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1	Amir Zaidi bin Abu Hassan	Jurufotografi B22 KUP	01 Januari 2021	Pilihan
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