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MASO

ALL for LESS

MALAYSIAN ASSOCIATION FOR THE STUDY OF OBESITY
Persatuan Kajian Obesiti Malaysia
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MASO 2011

SCIENTIFIC CONFERENCE ON OBESITY

'Towards Healthy Weight for Life'

Souvenir Programme & Abstracts

28 – 29 June 2011

Best Western Premier Seri Pacific Hotel

Kuala Lumpur

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Message from Director General of Health Malaysia

I am indeed honoured and privileged to extend a warm welcome to the participants of MASO 2011. I would also like to thank the Malaysian Association for the Study of Obesity (MASO) for inviting me to pen down this message.

On behalf of the Ministry of Health Malaysia, I wish to congratulate MASO and the Organising Committee for their fine effort in convening this biennial Scientific Conference. My special thanks go to the plenary speakers, Professor Khosla from USA and Professor Leeds from the UK. I strongly believe a conference of this nature will, undoubtedly, provide a platform for both speakers and participants to share experiences and to update their knowledge on obesity.

The theme of this year's conference " Towards Healthy Weight for Life" is not only timely but serves as a reminder to all of us the importance of a healthy lifestyle. Despite considerable advances in our knowledge in the aetiology of obesity and its management, the diseases associated with being obese are far too great a burden for researchers, health experts and policy makers to ignore and the challenges that lie ahead have never been greater.

It is my sincere hope that this Conference will highlight and discuss some of the current thoughts and issues and as to why we should treat obesity seriously and, more importantly, what the various sectors can do to curb this ever escalating epidemic.

I have been informed that MASO will host the International Congress of Obesity (ICO) 2014, a world congress on obesity that is held once every four years. The Ministry of Health Malaysia will collaborate to provide support to MASO to ensure its success.

May I wish all participants of MASO 2011 a fruitful meeting, and to our foreign participants, have an enjoyable stay in Malaysia.

DATO'DR HASAN BIN ABDUL RAHMAN
Director General of Health Malaysia

Message from President

On behalf of the Malaysian Association for the Study of Obesity, it gives me great pleasure to welcome you to Kuala Lumpur for MASO's biennial Conference. We are indeed honoured to have YBhg. Dato' Dr. Hasan bin Abdul Rahman, Director-General of Health Malaysia, to grace the official opening of MASO 2011.

We are pleased that despite several constraints due to the current economic downturn, and MASO have kept up with its tradition of hosting a meeting that have attracted not only local but also foreign participants to Kuala Lumpur. The theme of this year conference "Towards healthy weight for life" serves to remind us on the need to maintain a healthy weight and be physically active.

The 2-day programme features 2 plenary lectures by Prof Pramod Khosla (USA) and Prof Anthony Leeds (UK), 7 Symposia sessions with more than 30 oral papers and some 30 poster presentations that will allow presenters and participants to interact and update themselves on the current state of art and science of obesity.

MASO would like to express our sincere gratitude to YBhg. Dato' Dr. Hasan bin Abdul Rahman, Director General of Health Malaysia, for taking time off his hectic schedule to declare open MASO 2011. A special thanks to Prof. Norimah and her team for coming out with a busy but interesting programme and to all the speakers for accepting our invitation to participate in MASO 2011. We would also like to acknowledge the support of sponsors and other contributors and last but not least, members of the Organising Committee for their undivided support.

I would also like to take this opportunity to inform the participants that our next biennial conference MASO 2013 will be held on a modest scale, as we will all be geared up to host the 12th International Congress of Obesity (ICO) 2014 from 17-21 March 2014 in Kuala Lumpur, organised jointly with the International Association for the Study of Obesity (IASO) based in London (UK).

For now, please enjoy what promises to be a good meeting.

Professor Dr Mohd Ismail Noor *FASc, FIUNS*
Chairman, Organizing Committee

Organising Committee

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VICE CHAIRMAN
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Dr Hamid Jan bin Jan Mohamed
Dr Roslee Rajikan

Conference Information

Registration Desk

The registration desk will be located at the entrance to Pacific Ballroom, Level 2, Best Western Premier Seri Pacific Hotel, Kuala Lumpur. Registration will be open during the following hours:

Tuesday, 28 June 2011	0800-0900, 1000-1100
Wednesday, 29 June 2011	0800-0900

All delegates may collect their conference materials at the registration desk during the hours stated above. Participants are required to wear their badges throughout the conference for identification purposes and for admission to conference hall and dining room.

Lunch and Tea / Coffee Breaks

Tea/coffee breaks will be served at the Foyer of Pacific Ballroom, Level 2, while lunch will be served at Pacific Ballroom C, Level 2, Best Western Premier Seri Pacific Hotel, Kuala Lumpur.

Secretariat Room

The Secretariat Room is located at Bunga Lily, Level 3, Best Western Premier Seri Pacific Hotel, Kuala Lumpur. Oral presenters may preview their slides at the Secretariat Room from 0900 till 1700 hours on both conference days.

Poster Session

Posters will be displayed throughout the conference days at the back foyer of the Pacific Ballroom, Level 2, Best Western Premier Seri Pacific Hotel, Kuala Lumpur. Posters should be put up by 0830 hours on Tuesday, 28 June 2011, and should be taken down by 1730 hours on Wednesday, 29 June 2011. Poster presenters

should be in attendance next to their posters during the indicated Poster sessions for discussion and interaction with other participants. Three best posters by student presenters shall be awarded cash prizes.

Opening Ceremony

The Opening Ceremony of MASO 2011 will be held at 0900 hours on Tuesday, 28 June 2011, at Pacific Ballroom, Level 2, Best Western Premier Seri Pacific Hotel, Kuala Lumpur. Participants are requested to be seated inside the Ballroom by 0850 hours.

MASO 18th Annual General Meeting

The 18th Annual General Meeting of MASO will be held at 1730 hours on Tuesday, 28 June 2011, at Pacific Ballroom, Level 2, Best Western Premier Seri Pacific Hotel, Kuala Lumpur. All MASO members are requested to attend.

Trade exhibitions

Cambridge Weight Plan
GTG Wellness Sdn Bhd
Heinz - Malaysia Representative Office
Nestle Products Sdn Bhd
Tanita Health Equipment HK Ltd.
Yakult (M) Sdn Bhd

Display of products and services in the trade exhibition and advertisements in this Souvenir programme, do not necessarily imply endorsement of these products and services by the Malaysian Association for the Study of Obesity.

Opening Ceremony

Official opening by
Y.Bhg. Dato' Dr Hasan bin Abdul Rahman,
Director General of Health Malaysia

Tuesday 28th June 2011
0900 hours
Pacific Ballroom,
Best Western Premier Seri Pacific Hotel,
Kuala Lumpur

8.00 a.m.	Registration of delegates
8.45 a.m.	Arrival of Y.Bhg. Dato' Dr Hasan bin Abdul Rahman, Director General of Health Malaysia
9.00 a.m.	Welcome address by Y.Bhg. Professor Dr Mohd Ismail Noor, President MASO
9.10 a.m.	Speech and Official Opening of MASO 2011 by Y.Bhg. Dato' Dr Hasan bin Abdul Rahman, Director General of Health Malaysia
9.30 a.m.	Tour of exhibition/view posters

Scientific Programme

Day 1 (28 June 2011, Tuesday)

Time	Programme
8.00 – 9.00 a.m.	Registration
9.00 a.m.	OPENING CEREMONY
10.00 a.m.	Coffee break
10.30 a.m.	**PLENARY LECTURE 1** *Chair: Prof Dr Norimah A. Karim, Universiti Kebangsaan Malaysia* ***Dietary Fat in Relation to Dyslipidemia and Obesity – Is it the Quantity or Quality of Fat that Matters?*** *Assoc Prof Dr Pramod Khosla, Wayne State University, USA*
11.15 a.m.	**SYMPOSIUM 1** **Metabolic factors and other biomechanisms of obesity** *Chair: Dr Hamid Jan bin Jan Mohamed, Universiti Sains Malaysia*
11.15–11.35 a.m.	**S1.1 Pharmacological Interventions Beneficial in Improving Vascular Function and Cardiovascular Risk in Obese Patients (VASCULAR study) – Effect on Metabolic and Inflammatory Markers** *Assoc Prof Dr Aida Hanum Ghulam Rasool, Universiti Sains Malaysia*
11.35–11.55 a.m.	**S1.2 Association of Obesity and Metabolic Syndrome with Vitamin D Insufficiency among Malay Adults in Kuala Lumpur** *Dr Moy Foong Ming, University Malaya*

11.55–12.15 p.m.	**S1.3 Role of Adipocytokines in Obesity** *Hayder Abbas Hasan, College of Health Sciences, UAE*
12.15–12.35 p.m.	**S1.4 Study on the Effect of Temulawak Drink on Humoral Immunity in Obese Subjects** *Ms Mira Dewi, Bogor Agricultural University, Indonesia*
12.35 p.m.	Poster session/Exhibition
12.45 p.m.	LUNCH
2.00 p.m.	**SYMPOSIUM 2** **Epidemiology of Obesity I** *Chair: Prof Dr Fatimah Arshad, International Medical University*
2.00 – 2.20 p.m.	**S2.1 Factors Associated with Body Weight Status of Preschoolers in Peninsular Malaysia** *Dr Mohd Nasir Mohd Taib, Universiti Putra Malaysia*
2.20 – 2.40 p.m.	**S2.2 Childhood Obesity Among Primary Schoolchildren in a Rural Area is Associated with Lack of Infant Breastfeeding and Physical Activity but not Screen-time** *Dr Muhammad Yazid Jalaludin, University Malaya*
2.40 – 3.00 p.m.	**S2.3 Vitamin D Status and Its Relationship with Body Mass Index and Physical Activity in Children** *Assoc Prof Dr Poh Bee Koon, Universiti Kebangsaan Malaysia*
3.00 – 3.20 p.m.	**S2.4 Body Image Mediates the Relationship between Obesity and Risk of Eating Disorders in Adolescent Girls** *Dr Chin Yit Siew, Universiti Putra Malaysia*
3.20 – 3.40 p.m.	**S2.5 Life Style and Morbidity among Obese and Normal Adult Working as Administrative Staffs at Bogor Agricultural University** *Ms Desri M Sari, Bogor Agricultural University, Indonesia*

3.50 p.m.	**SYMPOSIUM 3** **Physical activity in obesity management** *Chair: Dr Mohd Nasir Mohd Taib, Universiti Putra Malaysia*
3.50 – 4.10 p.m.	**S3.1 Evaluation of Physical Activity in Children** *Dr Tanaka Shigeho, National Institute of Health and Nutrition, Tokyo, Japan*
4.10 – 4.30 p.m.	**S3.2 Practical Physical Activity for Life in Obesity Management** *Ms Sandra Lahra, Age Defying Fitness & Wellness Solutions, Malaysia*
4.30 – 4.50 p.m.	**S3.3 Does Sedentary Work Lead to Low Physical Activity Level?** *Assoc Prof Dr Nor Azwany bt Yaacob, Universiti Sains Malaysia*
4.50 – 5.10 p.m.	**S3.4 Associations of Current Behavioural Stage of Physical Activity, Health Related and Psychosocial Factors with Physical Activity Levels among Working Women** *Ms Siti Affira Khusani, Universiti Putra Malaysia*
5.10 p.m.	Tea break/Poster session/Exhibition
5.30 – 7.30 p.m.	**MASO AGM** *(All MASO members are invited to attend)*

Day 2 (29 June 2011, Wednesday)

Time	Programme
	PLENARY LECTURE 2
8.30 a.m.	*Chair: Prof Dr Mohd Ismail Noor, Universiti Kebangsaan Malaysia*
	Very Low-calorie Diet and Formula Low Calorie Diet for Effective Weight Management *Prof Dr Anthony R Leeds, Visiting Professor, University of Copenhagen, Denmark*
9.15 a.m.	**SYMPOSIUM 4** **Interventions in obesity and disease management** *Chair: Dr Zawiah Hashim, MASO Council Member*
9.15 – 9.35 a.m.	**S4.1 The Effect of Lowering the Glycemic Index of Conventional Healthy Diets in Postpartum Weight Management of Gestational Diabetes Mellitus (GDM) Women: Intermediary Finding** *Prof Dr Fatimah Arshad, International Medical University, Malaysia*
9.35 – 9.55 a.m.	**S4.2 Community Intervention Program in Enhancing Practical Skill of Overweight Resident toward Healthy Life Style in Kg Nilam Puri, Kota Bahru, Kelantan** *Dr Mohd Ismail Ibrahim, Universiti Sains Malaysia*
9.55 – 10.15 a.m.	**S4.3 Effects of Physical Activity Intervention on Obesity and Metabolic Parameters among Adults with Abdominal Obesity** *Mr Heng Kiang Soon, Universiti Putra Malaysia*
10.15–10.35 a.m.	**S4.4 Effect of Modified Lifestyle Modification on Cardiovascular Risk and Arterial Stiffness in Obese Patients** *Ms Farah Diana Ariffin, Universiti Sains Malaysia*
10.35–11.00 a.m.	Tea break/Poster session/Exhibition

11.00 a.m.	**SYMPOSIUM 5** **Epidemiology of Obesity II** *Chair: Assoc Prof Dr Poh Bee Koon, Universiti Kebangsaan Malaysia*
11.00–11.20 a.m.	**S5.1 Waist-to-Height Ratio and Its Association with Indicators of Obesity and Chronic Diseases among Malaysian Elderly** *Assoc Prof Dr Zaitun Yassin, Universiti Putra Malaysia*
11.20–11.40 a.m.	**S5.2 Adult obesity in Hong Kong: A Snapshot from the first population based food consumption survey 2005-2007** *Professor Dr Georgia Guldan, Asian University for Women, Bangladesh*
11.40–12.00 p.m.	**S5.3 Anthropometry Status and Dietary Intake of Children from Birth to Four Years Old at Childcare Centres in Selangor** *Ms Teh Wai Siew, Ministry of Health Malaysia*
12.00–12.20 p.m.	**S5.4 The Prevalence of Overweight and Obesity among Adolescents and Adults in Rural Districts in Perak (2010 – 2011)** *Dr Hazreen A Majid, University Malaya*
12.20–12.40 p.m.	**S5.5 Association between sleep behavior and body weight status in Malaysian children aged 6-12 years** *Ms Somayyeh Firouzi, Universiti Kebangsaan Malaysia*
12.40 – 2.00 p.m.	LUNCH

2.00 p.m.	**SYMPOSIUM 6** **Psychology of weight loss: Behavioral and attitude modification** *Chair: Assoc Prof Dr Zaitun Yassin, Universiti Putra Malaysia*
2.00 – 2.20 p.m.	**S6.1 Psychological Moderators of Mental Health Risk among Malaysian Obese Population: Body Image Dissatisfaction and Weight Stigmatization** *Assoc Prof Dr Ng Lai Oon, Universiti Kebangsaan Malaysia*
2.20 – 2.40 p.m.	**S6.2 Phasing out overweight: From fit to fat to fit again and maintaining it** *Mr James Khoo, Cake Experiential Communications Sdn Bhd*
2.40 – 3.00 p.m.	**S6.3 Self-motivation at work: A behaviorist perspective of what triggered change in weight management** *Mr Mohammad Zabri Johari, Ministry of Health Malaysia*
3.00 – 3.20 p.m.	**S6.4 Weight loss through hiking and salsa dancing** *Mr Ganesh Kumar*
3.20 p.m.	**SYMPOSIUM 7** **The Bigger Picture of Obesity** *Chair: Dr Mahenderan Appukutty, Universiti Teknologi MARA*
3.20 – 3.35 p.m.	**S7.1 Association of a FTO Gene Variant with Obesity in Malaysian Malays** *Ms Yamunah Devi Apalasamy, University Malaya*
3.35 – 3.50 p.m.	**S7.2 Television screen time: Impact on BMI and food intake** *Assoc Prof Dr Ruzita Abd Talib, Universiti Kebangsaan Malaysia*

3.50 – 4.05 p.m.	**S7.3 Body mass index (BMI): Appropriate to apply on Malaysian state athletes** *Ms Chai Wen Jin, National Sports Institute, Malaysia*
4.05 – 4.20 p.m.	**S7.4 Association of Sweetened Beverages Consumption with Body Weight Status among Adults in Klang Valley** *Prof Dr Norimah A Karim, Universiti Kebangsaan Malaysia*
4.20 – 4.35 p.m.	**S7.5 Qualitative study to determine the barriers and enabling factors for good nutrition among post graduate international students in the University of Southampton** *Ms Suhaila Abdul Ghaffar, Ministry of Health Malaysia*
4.35 – 5.00 p.m.	Closing Remarks and Poster competition prize presentation
5.00 p.m.	Tea break
5.10 p.m.	End of Conference

Biography of Plenary Speaker 1

Pramod Khosla

Associate Professor, Wayne State University, USA

Dr. Khosla has been on the faculty at Wayne State University since 1996. He has been working on diet and lipoprotein metabolism for almost 20 years. Additionally, he has been doing palm oil-related research since 1989. After obtaining his PhD from the University of Western Ontario in Canada, he did post-doctoral research at Brandeis University in the USA, where a series of studies in non-human primates, documented the pivotal role of linoleic acid in modulating cholesterol levels. Additional work revealed that palmitic acid was "conditionally hypercholesterolemic". This paved the way for various human studies which have documented the "neutrality" of palm oil (in normocholesterolemic humans consuming diets that are currently advocated by most health agencies). These studies as well as an early nonhuman primate kinetic study showing that trans fatty acids were worse than palm oil, have provided the scientific rationale for palm oil being an ideal choice for fat formulations, requiring a solid-fat content. At Wayne State, recent collaborative studies by Dr. Khosla's group, were one of the first to document the appearance of supplemental palm oil-derived tocotrienols in various human lipoprotein fractions. Dr Khosla is the author of some fifty original articles and has consulted extensively for the oils and fats industry for some fifteen years. His current research interests include the interaction of dietary fat/carbohydrate on lipoprotein metabolism, life-style risk factors in various ethnic groups and oral supplements for decreasing inflammation. He was the Guest Editor for a Special Supplement on Palm Oil that was published in the June 2010 issue of the J. Am Coll. Nutr.

Plenary Lecture 1

Dietary Fat in Relation to Dyslipidemia and Obesity- Is it Quantity or Quality of Fat that Matters?

Pramod K

Department of Nutrition and Food Science, Wayne State University, Detroit, Michigan, USA

For almost fifty years dietary fat has been the focal point for reduction of risk from coronary heart disease (CHD). With evidence based largely on animal and observational studies documenting that SFA increase LDL-C (with the latter being associated with increased CHD risk), it was assumed a priori that SFA increased CHD. As a consequence, decreasing SFA to <10% of total calories, became the cornerstone of world-wide dietary recommendations as is evidenced by the latest USDA Dietary Guidelines released early in 2011. However a series of studies starting in 2009 has dramatically challenged our thinking on the "widely accepted" role of SFA. These studies have shown that when replacing/removing SFA from the diet, the replacement nutrient may be as important. Thus SFA replacement with PUFA may provide small benefits, but the replacement represents a dramatic shift in dietary regimen. The effects of replacing SFA with MUFA are inconclusive. If SFA are replaced with carbohydrates, then the quality of the carbohydrate (as measured by the glycemic index) is also important. All of this is superimposed in a scenario when there is a global increase in obesity, diabetes and the metabolic syndrome (MeS). Therefore while the quality of fat is important for managing CHD, any recommendations must also factor potential effects on obesity. Although fat is more energy dense than carbohydrates or protein, there is debate on what the ideal macronutrient mix for weight management is. Some recent data suggests that high-fat, low-carbohydrate diets may be more effective than low-fat, high carbohydrate diets for decreasing weight as well as indices of diabetes and MeS. Alternatively other studies suggest that the macronutrient mix is not critical and practically any hypocaloric combination can be effective. In agreement with the latter, animal studies from our laboratory suggest that with a constant intake of protein, wide range of fat intakes (20 to 60% of total calories) with concomitant changes in carbohydrate intake result in comparable effects on body weight – which are dictated solely by caloric intake per se. Thus public

health messages should target total dietary patterns emphasizing caloric intake, rather than a simplified myopic focus on a single nutrient.

Biography of Plenary Speaker 2

Anthony R Leeds

Visiting Professor, University of Copenhagen, Denmark

Anthony Leeds is a Visiting Senior Fellow in the Faculty of Health and Medical Sciences at the University of Surrey and was recently appointed as visiting Professor in the Faculty of Life Sciences at the University of Copenhagen, Denmark. He practices medicine part-time in the UK's National Health Service at the Central Middlesex Hospital in the department of Diabetes and Endocrinology and is a member of the multidisciplinary team of the North London Obesity Surgery Service at The Whittington Hospital. He was Senior Lecturer and Principal Investigator in the Division of Nutrition Sciences at King's College London until September 2007 and is now Medical Director of the Cambridge Weight Plan.

Dr Leeds graduated from the Middlesex Hospital Medical School where, as a senior student, he studied trans-placental malaria transmission in Nigeria, west Africa, in 1970. He learned his parasitology laboratory skills from P G Shute, then aged 75, who had in turn, in 1917, learned from Ronald Ross, who showed experimentally how malaria infestation occurs. Following junior medical posts at the Middlesex, Lister and Northwick Park Hospitals and a short spell as a medical officer in Sierra Leone, west Africa, he held a research fellowship at the MRC Gastroenterology Unit contributing to studies on dietary fibre in health and disease with Professor David Jenkins, who first described the 'glycaemic index' of foods in 1981. He then moved to Queen Elizabeth College which subsequently merged with King's College London in 1985, where he developed an intercalated BSc course in Nutrition for medical students. He has been seconded to the United Kingdom's Department of Health as head of the Nutrition Unit and secretary to the Committee on Medical Aspects of Food Policy (COMA), and has served two terms on the Council of the Nutrition Society.

He was chairman of the London-based Royal Society of Medicine's Forum on Food and Health, where he founded Christmas lectures for sixth-formers, for ten years from 1990 in succession to Sir Francis Avery Jones and Dr Kenneth Heaton. He served as Chairman of the Research Ethics Committee of King's College London for eighteen years until

December 2001 and facilitated the registration of Nutritionists serving as Chairman of the joint Institute of Biology/Nutrition Society Accreditation Panel for the Register of Nutritionists. He was chairman of the registration committee of the Nutrition Society until 2007. He is a member of the Society of Authors, and a trustee of HeartUK, the cholesterol charity, and of the All Saints Educational Trust. At HeartUK he is a member of the product approval working group, on which he facilitated the development of a transparent systematic review process.

His current research interests concern the use of low energy diets and very low energy diets (VLED) in weight management; he works with colleagues at the Parker Institute, Frederiksberg hospital, Copenhagen. An occasional speaker on Radio he has an interest in the diet of ancient man and made contributions to 'Ray Mears Wild Foods' aired on UK Television channel BBC2 in 2007. In 2010 he contributed to the UK's BBC web-site 'scrubbing up' series discussing obesity, sleep apnoea and road traffic accidents, and the costs of obesity treatment with surgery.

Plenary Lecture 2

Very Low-calorie Diet and Formula Low Calorie Diet for Effective Weight Management

Anthony R Leeds

University of Surrey, UK; University of Copenhagen, Denmark; and Cambridge Weight Plan

When faced with an obese patient in need of more than a few kilograms of weight loss the health care practitioner has few options between conventional diet and drugs and bariatric surgery – there is in fact a 'therapeutic void'. Until now there have been no scientifically proven methods with which to fill this void. Formula diet programmes may be the much needed option. Most patients with type 2 diabetes mellitus are overweight, insulin resistant and on a one-way path towards cardiovascular, eye and renal complications. Effective reduction of dietary energy intake can reduce body weight, fat mass, insulin resistance, and cardiovascular risk factors. At the appropriate stage in the natural history of diabetes, effective weight loss (15kg in Europeans) and weight maintenance may dramatically alter the course of the disease. Most recent scientific evidence for weight reduction in patients with type 2 diabetes reports the effects of bariatric-surgical procedures rather than medical management. There is no doubt that a compliant patient with diabetes following a very low-calorie diet (VLCD) can lose weight but there is still a need for good quality randomised controlled trials especially to confirm that weight loss and the metabolic benefit can be maintained. Recently reported studies in men with moderate and severe sleep apnoea who lost weight with VLCD showed that compliance can be good and clinical benefit worthwhile both immediately after weight loss and a year later – it must be remembered that a proportion (25% in the UK) of people with type 2 diabetes have sleep apnoea. Almost all older patients with type 2 diabetes have some degree of osteoarthritis which impairs mobility and therefore undermines compliance during a weight loss programme. Formula LCD and VLCD have been shown to cause effective weight loss and increased mobility in older people with osteoarthritis, a difficult group to manage, with evidence for weight maintenance and medical benefit one year after weight loss. While a recent review published in France (November 2010) indicated that many popular diets were nutritionally inadequate

and could result in loss of bone mineral among other adverse effects, properly composed formula diets can give effective weight loss, improved mobility, improved muscle strength, improved vitamin D status, maintained bone mineral content and much less lean loss than expected while delivering medical benefits in older people with osteoarthritis. Apart from the improved quality of life which such effects give there is a need for detailed calculations to demonstrate the reduced costs of medical and surgical treatments as well as social-care costs in the ever growing group of elderly people with mobility impaired by osteoarthritis. The lives of some individuals can be transformed from an experience of constant pain, poor sleep and social isolation to greater social integration, greater mobility, less pain, and a more positive outlook on life. Translation into routine practice has already begun in Scotland in the north of the UK in a feasibility study where most participants (with BMI >40) in a primary care setting appear to have done well over 8 to 12 weeks. Weight loss of the order of 15 to 20kg improves mobility, improves metabolic state, may reduce medication costs and ultimately social-care costs, and the programmes are not hugely expensive to deliver.

Abstracts of Papers

Symposium Day 1

Symposium 1: Metabolic factors and other biomechanisms of obesity

S1.1 Pharmacological Interventions Beneficial in Improving Vascular Function and Cardiovascular Risk in Obese Patients (VASCULAR Study) – Effect on Metabolic and Inflammatory Markers

Belges AT, Aida Hanum GR, Aziz Al-Safi I, Siti Azima, Wan Rimei & VASCULAR Study Investigators

Pharmacology Vascular Laboratory, School of Medical Sciences & USM Hospital, USM Health Campus, Kota Bharu, Kelantan

This presentation reports the effect of nine months pharmacological interventions with orlistat and sibutramine on metabolic and inflammatory markers in obese subjects. This randomised, controlled clinical study involved 76 obese subjects, given orlistat 120 mg three times daily or sibutramine 10 mg daily for 9 months. Bloods were taken for lipid profile, insulin level and resistance, fasting blood glucose, adiponectin, and hsCRP levels. Anthropometric measurements which include weight, BMI, visceral fat (VF), waist circumferance (WC) and blood parameters were recorded at baseline before starting treatment, 3, 6 and 9 months after treatment. All subjects received physical activity advice and consultations with dieticians 4 weeks before treatment and every 3 months thereafter. Microvascular endothelial function, arterial stiffness and central blood pressure (BP) were also recorded and will be reported elsewhere. Results are presented as mean ±SD. 48 subjects (24 each group) completed the 9 months study, their data was used for analysis. Mean age and BMI of subjects were 36.8±1.4 years and 34.1±0.6 kg/m2 respectively; no significant differences were seen between the groups in their baseline age, BMI, BP, WC, and VF. Significant weight reductions were seen in both groups after 9 months treatment. Serum total cholesterol and LDL-C were significantly lower after treatment for orlistat group (5.31±0.82 vs. 4.88±0.92 mmol/L, p=0.004 and 3.31±0.8 vs 3.01±0.73 mmol/L, p=0.031 respectively). Both groups have no effect of TG and HDL-C levels after 9 months treatment.

Both treatments reduced serum hsCRP levels and increased adiponectin levels. Fasting insulin level and insulin resistance (HOMA-IR) was significantly reduced in both groups with treatment. We conclude that treatment with orlistat and sibutramine caused significant weight reduction which is associated with higher adiponectin, lower hsCRP, insulin level and resistance. Additionally, orlistat treatment also significantly reduced serum TC and LDL-C.

S1.2 Association of Obesity and Metabolic Syndrome with Vitamin D Insufficiency among Malay Adults in Kuala Lumpur

Moy FM & Awang Bulgiba

Julius Centre University of Malaya, Department of Social & Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur

Vitamin D insufficiency has been associated with obesity, metabolic syndrome and cardiovascular diseases recently. However, evidence from the Asian population is limited. Therefore, a study of vitamin D status and obesity indicators as well as other cardio-metabolic indicators was initiated among an existing Malay cohort in Kuala Lumpur. A total of 380 subjects were sampled to have their vitamin D status assessed using 25-hydroxyvitamin D (25(OH)D). Fasting blood glucose and full lipid profile were also assessed via venous blood. Systolic and diastolic blood pressure, weight, height and waist circumference were measured following standard protocols. Baseline characteristics showed female made up 58% of the sample and the mean age of respondents was 48.5 $\pm$ 5.2 years. The prevalence of Metabolic Syndrome was 38.4 (95% CI: 33.5, 43.3)% while the mean 25-hydroxyvitamin D level was 44.5 (95% CI: 42.6; 46.4)nmol/L. Females had significantly lower mean Vitamin D levels (36.3; 95% CI: 34.5, 38.0 nmol/L) compared to males (56.1; 95% CI: 53.2, 59.2 nmol/L). After adjustment for age and sex, respondents with insufficient Vitamin D level (cut off at 50nmol/L) had 2.82 (95% CI: 1.68; 4.72) odds of having abdominal obesity, 1.95 (95% CI: 1.01, 3.77) odds of having overall obesity (Body Mass Index) and 1.86 (95%CI: 1.09, 3.17) odds of having abnormal/ high diastolic blood pressure. Respondents with insufficient vitamin D levels were also found to have higher odds of having Metabolic Syndrome (OR: 1.73; 95% CI: 1.02, 2.92). In conclusion our results highlight the high prevalence of vitamin D insufficiency among Malay adults especially among females in Kuala Lumpur, Malaysia. Vitamin D insufficiency is associated with overall obesity, abdominal obesity and diastolic blood pressure which predispose these individuals to Metabolic Syndrome. Our findings concur with those from the West.

S1.3 Role of Adipocytokines in Obesity

Hayder AH

College of Health Sciences, University of Sharjah, United Arab Emirates

Obesity is a chronic disease characterized by excessive fat accumulation. Its prevalence is rising steadily world wide, this could be attributed to lifestyle changes. This excessive adipose tissue is associated with an increase in a number of complications like type II diabetes and cardiovascular diseases. Adipose tissue is no longer considered as an inert tissue that is only involved in energy storage; in fact it is now recognized as the biggest endocrine organ that regulates physiological and pathological processes of the human body. Not only adipocytes, but other cells like macrophages that infiltrate the adipose tissue also secrete a number of bioactive substances known as adipocytokines. Until recently as many as 100 substances synthesized by cells in the adipose tissue, have been identified. These adipocytokines may act locally or remotely to trigger inflammation, immune responses or hormonal secretions. They play an important role in the interactions of the adipose tissue with m uscular tissue, adrenal gland and the nervous system. Examples of adipocytokines include leptin, adiponectin, resistin, visfatin, TNF-alpha, IL-6, and others. The excess adipose tissue and increased production of adipocytokines are mainly responsible for the constellation of abnormalities that affect insulin sensitivity, regulation of blood pressure, immune response, angiogenesis, lipid metabolism and hemostasis. Alteration in these factors, together with adiposity could ultimately result in metabolic syndrome.

S1.4 Study on the Effect of Temulawak Drink on Humoral Immunity in Obese Subjects

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In Indonesia, temulawak (Curcuma xanthorrhiza Roxb.) has been traditionally used as medicinal plant to treat various diseases or as health drink to improve stamina and to enhance immune system. Obesity, a fast growing problem all over the world including in Indonesia, is known as a condition with declining immune function and has been reported to have corelation with various infectious diseases. Several studies reported that temulawak is able to modulate various components of immune system but the data involving human subjects, especially obese people, is still very limited. The following study was aimed to investigate the effect of temulawak extract drink on humoral immunity in obese subjects. Before the intervention, an organoleptic test was conducted to determine maximum dosage of temulawak extract which is still well accepted by panelis. The intervention involved 25 healthy obese adults (Body Mass Index > 27) as subjects. Temulawak extract drink containing 2,8 mg curcumin dan 7,56 mg xanthorrhizol was given to every subject every day for 14 days. The blood samples were taken before and after the intervention period. Subject's humoral immunity was assessed by blood B lymphocyte population with immunofluoresence method using flow cytometry. The study showed that there was significant difference in pre-and post-intervention values of % of B lymphocyte (14,4 + 3,5 vs 11,8 + 2,6 α=0,05 ; p=0,00) and B lymphocyte population (400,6 + 132,1 vs 345,0 + 108,6, α=0,05 ; p=0,001). Both values were lower after the intervention. Based on the results, it was concluded from this study that instead of increasing, temulawak extract appeared to decreasing humoral immune function in obese subjects. Further studies need to be conducted to investigate the effect of temulawak drink on immunity in obese subjects involving more immune parameters.

Symposium 2: Epidemiology of Obesity I

S2.1 Factors Associated with Body Weight Status of Preschoolers in Peninsular Malaysia

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This study determined factors associated with body weight status of preschoolers aged 4 to 6 years (mean age=4.9±0.8 years) in Peninsular Malaysia (N=1933; m=929, f=1004). Parents were interviewed on socio-demographic background, nutrition knowledge, child feeding practices, beliefs and attitudes toward milk consumption and children's food habits. Cognitive performance was measured using Raven's Coloured Progressive Matrices. Height and weight of the preschoolers were measured and BMI-for-Age was determined. Majority of the preschoolers were Malay (81.6%). Mean monthly household income was RM3610±RM2932 and a majority (59.6%) of the parents attained secondary education. Some 33.1% of the parents had good, 39.0% satisfactory and 27.9% poor nutrition knowledge. For Child Feeding Practices, mean scores for perceived responsibility (4.0±0.7) and pressure to eat (4.0±0.8) towards child were quite high; while concern about child weight (3.6±0.8), dietary restriction (3.7±0.6) and monitoring of foods (3.8±0.8) were moderate and perceived child weight was slightly low (2.9±0.4). Mean scores for parental beliefs on responsibility towards milk feeding (3.8±1.0) and concern about child weight due to milk consumption (3.5±1.0) were moderate and the mean scores for parental attitudes on milk restriction (3.3±1.1), pressure to drink (3.5±1.0) and monitoring (3.8±1.06) were also found to be moderate. Mean cognitive score was 103.5±14.4. A sizeable percentage (16.8%) of the preschoolers frequently skipped breakfast. The prevalence of wasting/thinness, possible risk of overweight, overweight and obesity were 3.9%, 3.9%, 7.9% and 8.1% respectively. Monthly household income (r=0.090, p<0.001), number of siblings (r=-0.127, p<0.001), perceived child weight (r=0.444, p<0.001), pressure to eat (r=-0.146, p<0.001) and pressure to drink milk (r=-0.115, p<0.001) were associated with body weight status of the preschoolers. These variables explained about 23.8% of the variance in body weight status of the

preschoolers (F=118.715, p<0.001) with perceived child weight being the highest contributor (19.8%).

S2.2 Childhood Obesity among Primary Schoolchildren in a Rural Area is Associated with Lack of Infant Breastfeeding and Physical Activity but not Screen-time

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Rapid advances in the socioeconomic situation in many developing countries, including Malaysia resulted in significant changes in the lifestyles of communities. Modern life is becoming increasingly sedentary and has been associated with the dramatic rise in childhood obesity. The objective of this study is to determine the prevalence of childhood obesity among the primary schoolchildren in a rural area and to determine the association of breastfeeding practice, physical activity and dietary habit with childhood obesity. This community based cross-sectional study was conducted in four randomly selected primary schools in Dungun, Terengganu from 2nd to 13th January 2011. Questionnaires were completed by parents and collected on the school visit day where weight, height and waist circumference were measured. Body mass index (BMI) was calculated and classified according to age and gender using the Center for Disease Control (CDC) BMI chart as reference. A total of 351 pupils (7 to 9 years) were involved with 294 (83.8%) returned the completed questionnaires. All were Malays (54.1% females) with mean age 7.9 (0.7) years. Fourty-one (13.9%) were overweight/obese. Children who were not breastfed were more likely to be overweight (p = 0.023). No association with duration of exclusive breastfeeding (p-value = 0.231) and weaning time (p-value = 0.673) was found. Obese kids performed significantly lower physical activity in their daily life (p=0.001) but not having longer screen-time (p=0.439). Girls who spend most of their time doing light physical activities were more likely to be overweight. Majority (92.9%) consumed fast foods <2 times/month but 90.5% consumed sugary drinks 3-5 times/day, with only 21.4% consumed vegetables and fruits >5 portions/day. The prevalence of obesity among the primary school children in the rural area of Dungun was high. Obesity was associated with poor breastfeeding practice, lack of physical activity, and poor dietary choices but not consumption of fast foods.

S2.3 Vitamin D Status and Its Relationship with Body Mass Index and Physical Activity in Children

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Low vitamin D status has been linked with obesity and physical inactivity in previous reports usually among adults. This paper aims to determine the relationship between body mass index and physical activity level with vitamin D status in Malaysian children. A cross-sectional study was conducted among 402 children aged 7-12 years from primary schools in Kuala Lumpur. Body weight and height were measured; body mass index was calculated and categorised based on WHO (2007) BMI-for-age growth references. Serum 25-hydroxyvitamin D, physical activity levels, sunlight exposure were also assessed. Mean age was 9.9 ±1.2 years, while that for BMI was 18.1 ± 4.2 kg/m2, serum 25(OH)D level 44.0 ± 14.7 nmol/l, and time spent in physical activity was 147 ± 88 mins/week. Prevalence of obesity was 16.4%, overweight 17.9%, normal weight 58%, and underweight 7.7%. No significant difference was found in serum vitamin D levels among the BMI groups, as well as physical activity categories. However, serum 25(OH)D was found to have significant inverse correlation with BMI ($p<0.01$). Time spent on moderate-intensity physical activity during leisure time and sunlight exposure was found to be associated with vitamin D status. It may be concluded that serum vitamin D status among the children is related to weight status and physical activity levels.

S2.4 Body Image Mediates the Relationship between Obesity and Risk of Eating Disorders in Adolescent Girls

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Although the prevalence of adolescent obesity is on the rise, eating disorders remain as the most common nutritional issue in adolescence, particularly girls. Realizing that negative body image was one of the important risk factors of obesity and eating disorders, this study aims to determine the mediation effect of body image between obesity and risk of eating disorders in adolescent girls. A total of 407 female students in Kuantan, Pahang aged between 13 to 19 years were randomly selected to complete the Multidimensional Body Image Scale (MBIS) and Eating Attitude Test-26 (EAT), which assess body image and risk of eating disorders respectively. Body weight and height of the participants were measured, and BMI was calculated and categorized according to WHO (2007). Findings showed that the prevalence of overweight and obesity (23.9%) were five times higher than underweight (4.7%), with a mean BMI of $21.0 \pm 4.3 kgm-1$. At least one in ten (12.8%) were at risk of eating disorders with a mean EAT score of 10.07 ± 7.56. Simple linear regression analyses found that adolescent girls who were at risk of obesity were at risk of both negative body image ($R^2=0.364$, $F=231.373$, $P<0.05$) and eating disorders ($R^2=0.073$, $F=32.002$, $P<0.05$). However, after controlling for both EAT and MBIS scores respectively, the contributions of BMI for MBIS ($R^2=0.197$, $F=181.784$ $P<0.05$) and EAT ($R^2=0.011$, $F=7.302$, $P<0.05$) scores reduced significantly, indicating interrelationships among BMI, MBIS and EAT scores. Mediational analyses using the Baron and Kenny's approach and Sobel test, showed that there was an indirect relationship between BMI and EAT score, whereby MBIS score mediated the relationship between BMI and EAT score ($P<0.05$). Therefore, adolescent girls who were at risk of obesity tended to be at risk of negative body image, and further developing eating disorders. Promoting positive body image should be an integral component of both eating disorders and obesity prevention programs.

S2.5 Lifestyle and morbidity among obese and normal adult working as administrative staffs at Bogor Agricultural University

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The impact of socio-economic and technology development may change community lifestyle, such as less physical activities, consume more ready-to-eat food and less fiber. The change is predicted result in increasing of obesity. The objectives of this paper are to identify individual and families characteristic, dietary intake, lifestyle and morbidity among obese and normal adult working as administrative staffs in Bogor Agricultural University (BAU). A cross-sectional study was conducted from October to November 2010 in BAU. The study participants were employee of rector office of BAU, with inclusion criteria: age >21 years, male and female, body mass index (BMI) >27.0-35.0 for obese subject and 18.5-25.0 for normal subject. The obese subject were those involved in "Study on the Effect of Temulawak Drink on Humoral Immunity in Obese Subjects", therefore, there were 25 obese and 25 normal subjects. Dietary intake and physical activity were assessed using food recall and physical activity questionnaire, respectively. The study showed that most of obese and normal subjects were 30-49 years old, and both subjects come from small families. There was a significant difference in family history of obesity (obese 72% vs normal 28%) and level of education (52% of obese were senior high school, 60% of normal were university). Consumption of rice, cassava, street food and soft drink as well as the average of carbohydrate intake were found higher in obese subjects. Obese subjects were consume more frequent ready-to-eat food had leisure-time activity longer than normal subjects. Both subjects suffer from infections of acute respiratory. Diabetes mellitus was found in obese subjects, while anemia was in normal subjects. The study showed that nutritional status was positively associated with age, education level, family history of obesity, frequency of cassava consumption, consumption of ready-to-eat food.

Symposium 3: Physical activity in obesity management

S3.1 Evaluation of Physical Activity in Children

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The prevalence of obesity in Japanese including children remains higher than that reported in the 1980's, although the increase seems to have stopped in recent years. Physical activity is one of important determinants of obesity. Especially in children, physical activity is important because physical activity/inactivity and physical fitness may track from childhood to adolescence and adulthood. Interestingly, it has also been reported that the physical fitness of Japanese preschool children enrolled in physical education programs at kindergartens is lower than in children who did not participate in these programs. This finding indicates free play by children is recommended, and also suggests that accurate evaluation of daily physical activity using objective methods such as doubly labeled water method and accelerometry is necessary. Several studies on the validation of accelerometers have been performed in children. Children, especially preschoolers, participate in activities that require less vertical movement and more omnidirectional movement. We have developed algorithms using triaxial accelerometry which records not only locomotive activities, but also nonlocomotive activities. Our data suggest that time spent in nonlocomotive activities is larger than that in locomotive activities even in moderate-to-vigorous activity. Thus, it is important to improve the accuracy of evaluation methods of physical activity in children and to collect data in Japanese children that can be used to examine the effect of physical activity on obesity and the various factors associated with physical activity. In order to develop effective strategies, national physical activity guideline for preschoolers will be established by next year in Japan, because the national guideline in Japan is only for adults (Exercise and physical activity Guide for Health Promotion 2006).

S3.2 Practical physical activity for life in obesity management

Sandra Lahra

Age Defying Fitness & Wellness Solutions, Malaysia

Physical activity as defined by the World Health Organisation is 'any bodily movement produced by skeletal muscles that requires energy expenditure.' An integral component in the treatment and management of obesity, physical activity plays a favourable role in managing energy balance and weight composition. Physical activity includes exercise (structured physical activity) and activities which are done as part of playing, working, active transportation, household and gardening tasks as well as recreational and sporting activities. Creating and maintaining a negative energy balance requires a lifelong commitment to physical activity. The willingness and enthusiasm required by obese patients to stay committed to a physical activity program is often hindered by their physical and psychological states - size, functional ability, co-morbidities, past experiences, expectations, and or by their support team. Practical Physical Activity for Life in Obesity Management will provide practicable applications that will enable the obesity management professional to keep their patients focused and motivated towards lifelong physical activity.

S3.3 Does Sedentary Work Lead to Low Physical Activity Level?

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Sedentary life-styles is commonly said to be related to sedentary occupation. This study focuses on clerk as sedentary occupation to test the hypothesis that sedentary occupation lead to low physical activity level. The objective of this study is to describe the physical activity levels and the association factors of low physical activity of clerks of USM Health Campus. This is a cross sectional study involving all clerical staff in USM Kubang Kerian Health Campus. Sociodemographic data, job description, height and weight measurements for computing body mass index (BMI) were taken from all subjects. The Short form International Physical Activity Questionnaire (IPAQ) was used to categorize subject into low, moderate and high physical activity level. One hundred and forty six clerks (109 women and 37 men) were interviewed using IPAQ with the mean age of 37.3 (8.53) years old. There were 117 (80.1%) N17/W17 and 20 (13.7%) N22/W22 and 9 (6.2%) clerks were N27/W27 by job category. The mean duration of service was 11.3 (8.25) years. Majority of the clerks were overweight (57 (39%) and 49(33.6%) were obese based on BMI. Majority of them were physically inactive during leisure time 94 (64.4%) as well as during working hours 88 (60.3%). IPAQ assessment noted 37.7% of the clerks were having low, 28.1% high and 34.2% moderate physical activity. Those who are older (AdjOR 1.042 (95% CI, 1.00 – 1.09) and inactive during leisure-time (AdjOR 3.043 (95% CI 1.40 – 6.63) were found to be at higher risk to be physically inactive. Sedentary work does not necessary lead to low level of physical activity. Being active during leisure time may prevent low physical activity.

S3.4 Associations of Current Behavioural Stage of Physical Activity, Health Related and Psychosocial Factors with Physical Activity Levels among Working Women

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This study on 215 working women from four private corporate listed companies in Petaling Jaya was conducted to assess the contributions of socio-demographic characterictics (age, income and education), psychosocial factors (perceived benefits and barriers and self efficacy to physical activity) and current behavioural stage of physical activity towards physical activity level. Data were collected using a questionnaire on socio-demographic characteristics, the International Physical Activity Questionnaire (IPAQ), Exercise Barrier and Benefits Scale, and an 8-item questionnaire on current behavioural stage of physical activity. Descriptive and multiple linear regression analyses were used to assess the contribution of independent variables towards physical activity levels of the respondents. A majority of the respondents were Malay (81.9%), 10.2% Chinese and 7.9% were Indian. The mean weight, height, BMI and waist circumference were 59.4±13.1 kg, 1.6±0.6 cm, 23.7±4.8 kg/m² and 77.0±12.1cm respectively. Some 28.8% of the respondents were in the low physical activity level category, whereas 48.8% were in the moderate physical activity level category while 22.3% were in the high physical activity category. Results showed income, current behavioural stage of physical activity, and perceived benefits to physical activity explained 19.0% of the variation in physical activity. Current behavioural stage of change had the largest beta coefficient (0.399) followed by perceived benefits to physical activity and current behavioural stage of physical activity. Further studies are essential to confirm these findings among the general working women population.

Abstracts of Papers

Symposium Day 2

Symposium 4: Interventions in obesity and disease management

S4.1 The Effect of Lowering the Glycemic Index of Conventional Healthy Diets in Postpartum Weight Management of Gestational Diabetes Mellitus (GDM) Women: Intermediary Finding

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Gestational diabetes mellitus (GDM) increases risk for developing type 2 diabetes mellitus (T2DM). Research indicates that risks of recurrent GDM or development of T2DM can be reduced with weight loss. However, the efficacy of lowering dietary glycaemic index (GI) in the postpartum weight management of GDM women has not been systematically examined. The study aims to evaluate the effectiveness of lowering the GI (LGI) of conventional healthy diets (CHDR) for postpartum weight management in GDM women. Targeted intervention packages were prepared for both groups. 60 Post-GDM women in the age group of 20- 40 yr, without T2DM were randomised into CHDR and LGI groups. Both groups received similar dietary advice, with the LGI group alone receiving additional advice about lowering dietary GI (Primary outcomes: FBS, 2HPP glucose, and fasting serum insulin levels; Secondary outcomes: Anthropometry (weight, BMI, WC, WHR, body and trunk fat), clinical (BP, FMD and EID) and biochemical (HsCRP, FSL)). All outcomes are to be assessed after 6 and 12mo of

intervention. There was no significant difference in baseline age, duration since last GDM delivery and other outcome variables between groups. The mean baseline weight and BMI of the subjects were 62.5 kg and 25.6 respectively. After 3 mo, diet GI (57 vs. 64; P=0.0001) was significantly different between the groups but not glycaemic load (GL) (122 vs. 138 P= 0.1539). Changes in dietary GI (LGI vs. CHDR: -4 vs. 3) and GL (-37 vs. 8) were significantly different between the groups. Intermediate weight loss was greater in the LGI group (-0.8 kg, vs. -0.1 kg, both NS). The mean baseline WC decreased significantly in the CHDR group (CHDR:-1.5 cm; P=0.008, LGI:-0.9cm; P=0.241). At 3mo, changes in BP and hip circumference were not significant. Anthropometric and BP changes were not significantly different between the groups at 3 months. Low GI diets probably aid short term weight loss in Post-GDM women. This trial will further evaluate the long term (1yr) feasibility of maintaining low diet GI and its effects in managing metabolic risks in Post-GDM women.

S4.2 Community Intervention Program in Enhancing Practical Skill of Overweight Resident toward Healthy Life Style in Kg Nilam Puri, Kota Bahru, Kelantan

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Overweight is directly related to lifestyle. Introducing community related activities could help the public to improve their practical skill in reducing their weight. The aim of this study is to assess the effectiveness of community related activities by comparing the level of practice among overweight resident in Kg Nilam Puri. It is a community intervention study conducted within 6months started from Jun 2010. It involved 103 respondents who had fulfilled the study criteria. Fifty three of them were overweight and the others were non overweight respondents. The overweight respondents were exposed to intervention packages namely health talk, cooking demonstration, exercise and health exhibition. A set of questionnaire was used to assess practical skill of the respondent before and a month after the intervention program. It showed a significant improvement of mean practice score among overweight respondent after the intervention program, [pre test: 8.0, post test: 13.0,

p<0.001] but there was significance different in mean practice score between the study groups. The community intervention program has given a significant impact to the community in improving their practical skill related to overweight problem.

S4.3 Effects of Physical Activity Intervention on Obesity and Metabolic Parameters among Adults with Abdominal Obesity

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A twelve-week controlled intervention study was conducted to evaluate the effects of physical activity intervention on obesity and metabolic parameters among the employees of Universiti Putra Malaysia, Serdang. Males and females aged 25 to 55 years with abdominal obesity and no reported chronic diseases were recruited into either physical activity (PA) group or control group. At baseline, 69 persons were recruited for both study groups. Upon completion of the program, the final sample consisted of 56 participants, with an equal number of 28 for each study group. The PA group received intervention to increase walking steps with 10'000 steps/day as a goal while no intervention was given to the control group. Weight, body mass index, waist circumference, hip circumference, waist-hip ratio and percentage of body fat were accessed before and after the twelve weeks. At post-intervention, no significant change in steps/day was observed in the PA group. Besides, no significant group effect was detected for all the study parameters. However, within PA group, over the 12-week intervention, there was a significant increase in hip circumference (p=0.019) and percentage of body fat (p=0.010) while a significant reduction in waist-hip ratio (p=0.007) was detected. The PA intervention focusing on increasing walking steps was not effective in improving the obesity parameters. The findings from the study are useful to further improve intervention program for the prevention and management of obesity in the country.

S4.4 Effect of Modified Lifestyle Modification on Cardiovascular Risk and Arterial Stiffness in Obese Patients

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Prevalence of obesity is increasing in Malaysia; cardiovascular morbidity is a known complication of obesity. Lifestyle modification via dietary changes and increasing physical activity has been shown to be able to reduce weight. This study aims to determine the effect of a 9 months' education on modified lifestyle modification to reduce weight on cardiovascular risks and arterial stiffness among obese and overweight subjects. Methodology: 25 overweight and obese subjects (body mass index >25.0 kg/m2, age: 36.8 ± 9.8 years) completed the nine months' lifestyle modification intervention program. All subjects were requested to attend dietary consultations with dieticians and physical activity and exercise consultation regularly during the 9 months. Assessment of anthropometric measurements, arterial stiffness parameters, body fat percentage, visceral fat, peripheral and aortic blood pressure were performed at baseline and every three months thereafter. Arterial stiffness parameters (augmentation index and pulse wave velocity) were assessed non-invasively using the SphygmoCor device. Lipid profile, hs-CRP and insulin sensitivity were performed during baseline, six and nine months. Results: Significant reduction in body weight was shown by 2.9% (p=0.019) at the end of 9 months compared to baseline. Significant improvements in aortic systolic blood pressure (110 ± 14 vs 105 ± 13, p=0.02), insulin sensitivity parameters (fasting insulin; p=0.001, HOMA%S; p=0.008, HOMA%B; p=0.004, HOMA-IR; p=0.007) and hs-CRP (9.12 ± 12.1 vs 7.37 ± 9.9, p=0.01) were observed after 9 months intervention. Waist and hip circumferences were significantly decreased (89.5 ± 8.1 vs 86.4 ± 9.4, p=0.034 and 107.2 ± 10.0 vs 104.0 ± 11.8, p=0.004). No significant differences were seen in arterial stiffness parameters, peripheral blood pressure, lipid profile, body fat percentage and visceral fat after intervention. Conclusion: Nine months

of education on lifestyle modification significantly reduced and improved insulin resistance and sensitivity, aortic systolic blood pressure, hsCRP and waist circumference.

Symposium 5: Epidemiology of Obesity II

S5.1 Waist-to-Height Ratio and Its Association with Indicators of Obesity and Chronic Diseases among Malaysian Elderly

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Waist-to-height ratio (WHtR) has been proposed to be a sensitive indicator to assess central fat distribution and can be used to identify individuals who are at increased risk for metabolic disorders. The purpose of this paper is to examine the relationship of WHtR with indicators of obesity and chronic diseases among Malaysian elderly in Peninsular Malaysia. A total of 1013 non-institutionalized elderly (504 men and 509 women) participated in this study. Socio-economic characteristics and health-related information were collected using a pretested questionnaire through a face-to-face interview. Weight, height, waist and hip circumferences and percent body fat (%BF) were measured using appropriate equipments and standard procedures. Indicators of obesity including body mass index (BMI) were computed. The age of the respondents ranged from 60 to 95 years (Mean= 68.8 ± 6.3 years). The mean WHtR was significantly different between the men (0.54) and women (0.57). About 76.9% of the respondents were classified with central obesity based on WHtR≥0.5, representing 72.4% of men, 81.3% of women; 75% of the Malays, 75.9% of the Chinese and 81.3% of the Indian; 78.3% and 75.9% of those in the urban and rural areas, respectively; 97.5% of those with high %BF and 66.5% in the normal BMI range. Significant associations were observed between classification of WHtR with self-reported chronic diseases. A high proportion of those with coronary heart disease (87.6%), diabetes mellitus (87.7%) and hypertension (85.3%) were classified with WHtR≥0.5. Waist-to-height ratio can provide a simple and practical indicator to identify those with higher metabolic risks in normal and overweight older adults. A simple rule"Keep your waist circumference below half your height"can be used to monitor those at increased risk. The usefulness of this indicator needs to be confirmed among the Malaysian population through future studies among different age and ethnic groups and gender.

S5.2 Adult obesity in Hong Kong: A snapshot from the first population-based food consumption survey: 2005-2007

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The data for Hong Kong's first population-based food consumption survey was collected in 2005 through 2007 to understand the food consumption among Hong Kong adults in order to provide information to conduct food-related risk assessment. A two-stage stratified random sampling plan with quotas by age and gender was used to select the sample which consisted of 5008 individuals representing a total population of about 5,394,000 Hong Kong residents aged 20-84. Information collected in three interviews with each respondent included measured weights and reported heights of the respondents, along with foods and dishes consumed in two non-consecutive 24-h recalls, for which a food and recipe database was developed for the dishes identified. A 110-item food frequency questionnaire also queried some irregularly consumed foods because of these foods' special food safety/risk assessment interest. The respondents were weighed and reported their heights to the trained investigators. The results were age- and gender- weighted. This presentation will report the anthropometric results of that survey which showed that 47.1% of the population, 54.2% of the males and 40.6% of the females, were overweight or obese according to the WHO/IASO/IOTF 2000 proposed classification of weight by BMI for adult Asians. Another 8.5% were underweight, with females aged 20-29 years making up 29.8% of the underweight individuals. The overweight increased with age among the males through their fourth decade and through the females' sixth decade. The results were consistent with other surveys in Hong Kong. The distribution found likely contributes to Hong Kong's noncommunicable disease burden and may have implications for future osteoporosis risk as well.

S5.3 Anthropometry Status and Dietary Intake of Children from Birth to Four Years Old at Childcare Centres in Selangor

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As children spend a large proportion of their time at childcare centres, they should provide an environment that supports childhood growth and development. This cross-sectional study was conducted to determine nutrient intake and anthropometric status of children from birth to 4 years attending childcare centres in Selangor. Anthropometric measurements included weight and height. Body mass index (BMI)-for-age, height-for-age and weight-for-age were determined by WHO Child Growth Standards (2006). Self-administered parents' proxy-reported questionnaires were used to obtain information on socio-demographic and one day food diary of respondents. Nutrient intakes were compared to the Malaysian Recommended Nutrient Intakes (RNI). A total of 844 respondents from 42 childcare centres in Selangor participated in the study. Mean height, weight and BMI was 91.2 ± 11.9 cm, 13.2 ± 3.9 kg and 15.7 ± 2.3 kg/m2, respectively. The prevalence of stunting and underweight was 13.6% and 11.8%, respectively. In addition, only 5.8% of respondents were wasted, 2.0% overweight and 3.9% obese. Mean daily energy intake of the respondents was 1240 (CI: 1211, 1269) kcal. Respondents consuming energy and vitamin A below RNI were 20.3% and 38.3%, respectively. In contrast, 90.2% of respondents consumed vitamin C above RNI. There was positive weak correlation between BMI and energy intake at childcare centres ($r=0.107$, $p<0.05$). Besides, energy intake out of childcare centres were correlated with household income ($r=0.201$, $p<0.01$), mother's education level ($r=0.153$, $p<0.01$) and father's education level ($r=0.126$, $p<0.05$). In conclusion, undernutrition is more prevalent than overnutrition among young children at childcare centres in Selangor. Hence, nutritional monitoring of children should be emphasized to ensure optimal growth and development.

S5.4 The Prevalence of Overweight and Obesity among Adolescents and Adults in Rural Districts in Perak (2010 – 2011)

Hazreen AM & Tin Tin S

Centre for Population Health & Department of Social and Preventive Medicine, Faculty of Medicine, University of Malaya, Kuala Lumpur

The rate of overweight and obesity has increased drastically within the last ten years. This problem can be seen in both adults and adolescents in Malaysia. The aim of this study is to compare the prevalence of obesity amongst adults and adolescents in the rural Perak districts with the findings from the third National Health and Morbidity Survey (NHMS) 2006. This was a cross sectional study in eight districts in Perak. Participants were chosen based on multi-stage sampling, where 3481 participants' height and weight been measured using stadiometers and weighing scales (SECA, Germany). Data were analysed using STATA programme. A total of 1158 adolescents aged 10 – 19 years and 2323 adults aged 20 – 98 years participated. Body Mass Index (BMI) for both groups were categorised according to World Health Organization classification for adults and using Z-score for BMI-for-age for adolescents. The prevalence of adults overweight and obesity from Perak state were higher compared to Perak NHMS 2006 data (31.5 % vs 27.6 % and 20.5 % vs 12.9 % respectively). The prevalence of adolescents overweight was higher compared to Perak NHMS 2006 data (10.7 % vs 5.9 %). In addition, 6.3 % of adolescents are obese from the current study. The results imply overweight and obesity problems are quite pertinent in both groups in Perak rural districts. This public health issue requires attention from all stakeholders to combat current problem. Overweight and obesity problems are no longer an urban issue and future research is needed to evaluate lifestyle factors that contributed to this problem especially in the rural population.

S5.5 Association between Sleep Behavior and Body Weight Status in Malaysian Children aged 6-12 years

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The prevalence of obesity among children has increased dramatically during past years and recent studies have targeted novel contributing factors to obesity such as sleep duration. This study aimed to determine the association between sleep habits and body weight status in children aged 6-12 years. Subjects comprised of 90 boys and 74 girls from Kuala Lumpur and Kuala Terengganu. Body weight, height, waist circumference, and body fat percentage of the subjects were measured. Subjects were categorized into normal weight (n=82) and overweight/obese (n=82) groups based on WHO (2007) BMI-for-age growth reference. Questionnaires on sleep habits include bed time, wake up time, sleep duration, and sleep disorder score while physical activity and food frequency were proxy-reported by parents. Sleep disorder score was positively correlated ($p < 0.05$) with weight (r=0.166), BMI (r=0.174), and WC (r=0.2); while bed time duration was also positively correlated with sedentary behavior (r=0.219, $p < 0.01$). Increase in sleep disorder score was positively correlated with energy intake (r=0.254, $p < 0.01$) and fat consumption (r=0.219, $p < 0.05$), while CHO consumption was significantly associated with obesity ($p < 0.05$). After adjusting for covariates, the results showed that children with the shortest sleep duration are 2.4 times more susceptible to obesity (OR 2.39, 95%CI: 0.518-11.061) while those with shorter sleep duration are also 1.7 times more susceptible to become overweight or obese (OR 1.7, 95%CI: 0.608-4.756) in comparison to normal duration sleepers. The study also found that children who had high sleep disorder score were 1.55 times more susceptible (OR 1.55, 95%CI: 0.629-3.822) to be overweight or obese. In conclusion, this study revealed that children who were sleep deprived, and had poor sleep quality, or consumed more carbohydrates are more susceptible to becoming overweight or obese.

Symposium 6: Psychology of weight loss: Behavioral and attitude modification

S6.1 Psychological Moderators of Mental Health Risk among Malaysian Obese Population: Body Image Dissatisfaction and Weight Stigmatization

Tan KL & Ng LO

Health Psychology Unit, Faculty of Allied Health Sciences, UKM, Kuala Lumpur

Obesity has been considered as a worldwide epidemic that needs attention from various health professionals, including mental health professionals. There are many health complications associated with obesity including mental health problems. Body image problems and negative stigma have been found to plague people who are overweight or obese. Nevertheless, existing research have reveal inconsistent findings on psychosocial consequences of obesity. This study investigates the psychosocial moderators that increase mental health risk among a sample obese population in Klang Valley, Malaysia. A total of 91 men and women between ages of 15 to 35 years participated in this study. Measures included demographics, and their responses on the Body Shape Questionnaire (BSQ), Physical Appearance Related to Teasing Scale (PARTS), General Health Questionnaire-28 (GHQ-28), the Self-Esteem Rating Scale (SERS) and the Satisfaction with Life Scale (SWLS). All inventories were self-administered. Mean age was 25.27 years and mean body mass index was 33.77kgms-2Results indicated that in general obesity does not directly relate to poor general mental health, low self-esteem and low life satisfaction. However, it was detected that participants who experienced a high level of weight stigmatization or presented with high scores on body image dissatisfaction have significantly higher risk of adverse mental health problems. These variables were found to be moderators of self-esteem, satisfaction with life and general health perceptions. Implications on the need to address body image dissatisfaction and weight stigmatization are discussed in relation to psychological well-being, as well as obesity management.

S6.2 Phasing Out Overweight: From Fit to Fat to Fit Again and Maintaining It

Khoo TK

Cake Experiential Communication Sdn. Bhd., Kuala Lumpur

Being overweight can be just a phase. I was a fit teenager, actively involved in sports such as badminton, cycling, swimming, martial arts and more. Moving into tertiary education, academic life became a priority in pursuing a stable career. Once at work, productivity was the main objective until I found myself overweight and feeling weak as well as unmotivated in my daily activities. A friend's suggestion to join the gym became a wake-up call when I realised how overweight I was. After a number of years of passionate gym work and dietary change, I am now able to retain my fitness with proper diet and regular physical activities. This paper presents a situation I feel is common to many people, regardless of their nutrition or physical activity education, where working life takes over from a balanced healthy lifestyle. Personal experiences will be shared with regards to motivation to change, and successes in maintaining a healthy weight loss.

S6.3 Self-Motivation at Work: A Behaviourist Perspective of what Triggered Change in Weight Management

Mohammad Zabri J

Institute for Health Behavioural Research, Ministry of Health Malaysia, Kuala Lumpur

Behaviour change in weight loss has always been a challenge amongst healthcare professionals. It's the single most difficult barrier to overcome as change is greatly; if not solely governed by the individual motivation. This presentation highlights the success story of a person on how weight loss was achieved and maintained. The case study explored the trigger and turning point which the person experienced and led to the change. Multiple methods such as calorie zig zag, Very Low Calorie Diet (VLCD), expanded exercise routines and self-restraint that lead to the trending weight loss will be discussed. What's more important was the self-motivation that was maintained over the period of 2 years and how the person overcame adversities and challenges that included social distancing, re-orienting the mindset to maintain weight loss. This study carefully peels the inter-relationship between self-motivation and existing behaviour models and theories such as the Health Belief Model,

Trans-Theoretical Model, Social Learning Theories amongst others; and also the journey the person went through that included actual failures and success throughout the process. Self-motivation does not work alone; it works best when challenged.

S6.4 Weight Loss through Hiking and Salsa Dancing

**Ganesh Kumar**

The issue of losing weight the fun way is important in motivating one to start doing it. As long as it is fun and engaging, exercise may not be perceived as hard labour and sweaty This presentation highlights the journey to my weight loss. I am a horticulturist and weighed 106 kg at one time. It all started with a hiking adventure to Gunung Tahan. At that time, all the exercise that I did was once a week of hiking. I did not notice any weight changes for the first one month but after that, I started to lose 1 kilo after each consecutive hiking. A few months later, I was down to 84 kg and has been maintaning the weight since. Apart from hiking, Salsa dancing is the other form of exercise which I took on. These two simple and fun activites has definitely changed my lifestyle and at the same time a catalyst for my weight loss. Get into a lifestyle that you burn more calories than the calories you eat.

Symposium 7: The Bigger Picture of Obesity

S7.1 Association of a FTO Gene Variant with Obesity in Malaysian Malays

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Obesity is considered a global epidemic and is also identified as a major health threat in Malaysia. It is a complex disease which is attributed to genetic, environmental and behavioural factors. Heritability of obesity is high, varying from 30%-70%. Obesity is a polygenic disorder involving many genes for its predisposition. Recently, two independent genome wide association study (GWAS) in European populations have showed strong association between FTO rs9939609 single nucleotide polymorphism (SNP) and obesity. FTO refers to the fat mass and obesity associated gene which is located on chromosome 16q22.2. This gene encodes for a protein expressed in the hypothalamus, a center of energy balance, and in the adipose tissue. Many studies have shown a positive association between this SNP in early onset and severe obesity in children and adults. However, a few other studies carried out in other ethnicities reported lack of association between this SNP with obesity. In this study, we investigated the association between the FTO gene rs9939609 with obesity and obesity-related parameters including Body Mass Index (BMI), body weight, height, waist circumference (WC), hip circumference, waist hip ratio (WHR), blood glucose, cholesterol and lipid parameters. Subjects of this study were 649 Malaysians of the Malay ethnic group. Following collection of buccal swabs, genotyping was carried out using Real-Time PCR. Data were analyzed using SPSS 16 statistical software. Results showed that the A allele frequency was 0.30 and 0.31 and T allele frequency was 0.70 and 0.69 in the non-obese and obese subjects respectively. Genotype frequency of AA was 9 and 12, AT was 41 and 39 and TT was 50 and 49, in the non-obese and obese subjects respectively. There is no significant association between the genotype and allelic frequency in obese and non-obese groups. The FTO rs9939609 SNP was found to be associated with body weight (age and gender adjusted) (additive model: $p<0.001$; R2=0.067). There is no significant association between this SNP with other obesity-related parameters. The study indicates that FTO may play a functional

role in body weight regulation in Malaysian Malays and following this finding, an association study of other variants of FTO with obesity is now being carried out.

S7.2 Television Screen Time: Impact on BMI and Food Intake

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[2]*Faculty of Creative Industry, Universiti Tunku Abdul Rahman, Petaling Jaya*

This cross-sectional study was conducted to determine the relationship pattern of body mass index (BMI), food intake and duration of television screen time among primary school children in Wilayah Persekutuan, Kuala Lumpur and Daerah Hulu Langat, Selangor. A total of 180 Malay school children (65 boys and 107 girls) from three primary schools in both areas participated in this study. The anthropometric data including body weight, height, and BMI were measured using standard measurement. Data on television viewing habit was collected using standar questionnaire developed for this study. While data on energy and nutrients intake were collected using 3 day 24 hour dietary recall. Out of 180 children, 6.1% of children were underweight, 55.6% normal weight and 38.3% overweight/obese. The result indicated that 100% of the overweight/obese children watched television during weekend. Overweight/obese children (60.9%) watched television for >2 hours during weekend and weekdays compared to normal weight children. The mean BMI of the children were found significantly higher ($p<0.05$) among children who watched television for >2 hours (20.4 ± 5.0kg/m2) than those who watched television for ≤2 hours (18.4 ± 4.3kg/m2) during weekend and weekdays. However, there was no significant difference ($p>0.05$) for mean total daily energy intake between children who watched television for >2 hours (1981 ± 368kcal/day) and ≤2 hours (1869 ± 310kcal/day) during weekend. Besides, there was also no significant difference ($p>0.05$) for the mean of total daily energy intake between children who watched television for >2 hours (1941 ± 376kcal/day) and children who watched television for ≤2 hours (1920 ± 323kcal/day) during weekdays. This study found positive correlation between duration of television screen time and BMI during weekend ($r=0.212$, $p<0.05$) and weekdays ($r=0.201$, $p<0.05$) but no correlation with daily energy intake. In conclusion, this study showed that, duration of television screen time does affect body mass index of school children but not their energy intake.

S7.3 Body Mass Index (BMI): Appropriate to Apply on Adult Malaysian State Athletes?

Chai WJ & Loo LH

Sports Nutrition Centre, Sports Science Division, National Sports Institute of Malaysia, Kuala Lumpur

This study was conducted to evaluate the suitability of body mass index (BMI) to indicate the adiposity status among adult Malaysian state athletes. 1389 (939 male, 450 female) state athletes age 18 and above that participating Malaysian Games (SUKMA) were recruited in the Malaysian Games Anthropometry Project series from 2006 to 2010. Anthropometric parameters (weight, height, skinfolds, girths and bone breadths) were taken and BMI, body fat percentage and somatotype were derived from the measurements. Subjects were divided into three BMI groups: underweight, normal and overweight. Result showed that body fat percentage for male athletes were 7.1 ± 1.3 %, 10.3 ± 3.7 % and 20.0 ± 5.7 % for underweight, normal and overweight category, while female athletes were 17.0 ± 3.1 %, 20.9 ± 3.6 % and 28.3 ± 3.1 % respectively. There were significant and strong positive correlation between BMI and mesomorphy rating for both male ($r = 0.65$) and female ($r = 0.66$) athletes under normal BMI category. Analysis was done according to sports categories, namely: team, racquet, endurance, skill, power, combat and aesthetic sports. Ectomorphy rating was having significant and very strong negative correlation ($r > 0.80$) for all sports category on both gender. For endurance sports, the mesomorphy rating shown to be significant and very strong positive correlation with BMI for both male ($r = 0.90$) and female ($r = 0.89$) athletes. Power sports also shown the similar trend where $r = 0.81$ and 0.83 for male and female athletes respectively. In summary, BMI need to be used cautiously as an indicator of adiposity level among adult Malaysian state athletes and not recommended specifically on endurance and power sports.

S7.4 Association of Sweetened Beverages Consumption with body weight status among adults in Klang Valley

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The consumption of sweetened beverages has been a contributing factorin the increasing prevalence of obesity.This cross sectional study was conducted to determine the relationship between sugar intakes from beverages with body weight status among adults. 321 adults aged 18 to 59 years old in Klang Valley participated in this study. Anthropometric measurements taken were body weight, height, waist circumferences, and body fat percentage. Sweetened beverages consumption among subjects was evaluated by using self administered questionnaires. Three-days 24-hour diet recall (two weekdays and one weekend) were used to assess sugar intakes in beverages of subjects. Mean body mass index (BMI) of women and men were 24.79 ± 5.42 kg/m2 and 24.90 ± 4.33 kg/m2 respectively; while waist circumference were 80.8 ± 11.5 cm and 86.3 ± 11.8 cm respectively. The mean body fat percentage of women and men were $33.2 \pm 6.7\%$ and $24.6 \pm 6.7\%$ respectively. The most commonly consumed sweetened beverage among adults was tea (31.2%) followed by coffee (21.8%) and malted drink (10%).Overweight or obese subjects consumed significantly higher mean sugar intake (34.6 ± 23.0 g/day) compared to their normal counterparts (25.1 ± 17.9 g/day) ($p < 0.01$). By ethnic, the Malays consumed significantly higher mean sugar intake (40.4 ± 24.4 g/day) ($p < 0.01$). from beverages followed by Indians (25.4 ± 15.0 g/day) and lowest among the Chinese (20.8 ± 15.4 g/day). There was a weak association between sugar intake from beverages and waist circumference ($r = 0.240$, $p < 0.01$) and 6% of variation in waist circumference is due to sugar from beverages. Sugar intake in beverages consumption plays 10% of variation in body fat percentage with moderate association ($r = 0.318$, $p < 0.01$). In conclusion, this study showed that sugar intakes from beverages was with BMI ($r = 0.282$, $p < 0.01$) and 8% of variation in BMI is due to sugar intake from beverages. Immediate interventions need to be carried out to reduce sweetened beverages consumption, as a way to curb obesity among adults.

S7.5 Qualitative Study to determine the Barriers and Enabling Factors for Good Nutrition among Post Graduates International Students at the University of Southampton

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[2]_School of Medicine, University of Southampton, Hampshire, UK_

Developing or maintaining a healthy lifestyle among young adults is important. This can be a challenge for international students as many take on sole responsibility for their own food and lifestyle decisions for the first time on arrival in Southampton. They may lack experience around food, particularly meal preparation and food shopping. This study aimed to determine the barriers and enabling factors that affect dietary intake and physical activity among post graduate international students at the University of Southampton. Qualitative research methods were used. Data were obtained from 24 respondents from 11 countries through 7 topic-led focus group discussions during June and July 2010. Lack of both time and cooking skills as well as poor access to familiar foods were barriers to preparing healthy food. Irregular meal patterns led to meal skipping, more snacking and fewer main meals per day. The lack of time to prepare and cook food resulted in greater use of convenience foods, either fast food or frozen food. In contrast, the abundance of fresh fruit and vegetables enabled good dietary practices. Time constraints and low self efficacy discouraged students from being actively involved in physical activity and sports on a regular basis. However, the favourable summer weather did encourage some students to pursue physical activities. The barriers to pursuing a healthy lifestyle for international students outweigh the enabling factors. By detecting the constraints and enabling factors, several approaches were identified to help international students adjust to a new life in Southampton. These included developing a map showing the grocery stores and recreational facilities in the areas where students live; introducing the options for online food shopping; and creating a recipe book for international students showing what fruits and vegetables can be used as substitutes for foods that would be used at 'home'. Other options to promote healthier lifestyles include collaborating with the university cafeteria to provide a healthy food environment and free trial classes at the sport's centre.

LIST OF POSTERS

GROUP A   CHILDHOOD OBESITY
GROUP B   CAUSES AND CONSEQUENCES OF OBESITY
GROUP C   EPIDEMIOLOGY OF OBESITY
GROUP D   PHYSICAL ACTIVITY
GROUP E   ISSUES RELATED TO OBESITY

GROUP A: CHILDHOOD OBESITY

A01   **Parental feeding styles and practices in association with fast food consumption among primary school children in Gombak, Selangor**
Tung SEH & Lim YV

A02   **Associations between parenting styles and child feeding practices among preschoolers in Johor Bahru, Malaysia**
Loh SH, Mohd Nasir MT & Zalilah MS

A03   **Overweight and obese elementary school children eat less frequent   vegetables than the normal one**
Dwiriani CM, Damayanthi E, Kustiyah L & Briawan D

A04   **Body fat and intelligence quotient in primary school children: Does adiposity influence intelligence?**
Ng BK, Poh BK & Ng LO

A05   **Risk behaviors in food consumption and physical activity among children (10-12 years old) with different weight status in Kuala Lumpur**
Norimah AK & Masnur Hidayah Z

A06   **Relationship between Quality of Life (QoL) and Body Mass Index (BMI) among Malay School Children in Kuala Lumpur**
Ruzita AT, W Nurul Ashikin WM & Ismail MN

A07   **The relationship of breakfast cereal consumption and body mass index of school children in urban area**
Fazlyla Nadya MF & Ruzita AT

A08 **Impact of educational program based on BAZNEF model on the nutritional behaviour (HEI) and physical activity among high school students in Isfahan, Iran**
Nimah B, Ismail MN, Poh BK, Ruzita AT,Syarif HL, Marjan G & Ahmad E

GROUP B: CAUSES AND CONSEQUENCES OF OBESITY

B01 **Comparison of obstetric outcomes in normal and obese pregnant women**
M.Sood, Nurul Atiqah, Nur Anis, A.B.Hakim, Nur Syazana, Mu Mu Win, P.Daniel & A.H. Roslan

B02 **Insulin resistance among overweight/obese children**
Azriyanti AZ, Noor Asyikin A, Jalaludin MY & Fatimah H.

B03 **Association of leptin LEP A19G and G2548A variants with obesity in the Kampar health clinic cohort, Malaysia**
Fan SH & Say YH

B04 **Waist circumference and waist:height ratio for prediction of metabolic syndrome in overweight/obese children**
Wee BS, Poh BK, Bulgiba AM, Ruzita AT & Ismail MN

GROUP C: EPIDEMIOLOGY OF OBESITY

C01 **Association between weight status and dietary intake with eating behaviour among young adults in Universiti Tunku Abdul Rahman, Setapak**
Satvinder Kaur NS & Yap LY

C02 **How can understanding psychosocial behavioural determinants, knowledge and the school environment help prevent childhood obesity in Malaysia?**
Hayati Adilin MAM, McCullough F, Swift J, Holdsworth M & Norimah AK

C03 **Eating attitude and body weight status among adolescents**
Law LS, Mohd Nasir MT & Hazizi AS

C04 **Prevalence of obesity and dietary intake of men and women with type 2 diabetes mellitus in Tehran, Iran**
Nasrin DZ, Rokiah MY & Rosita J

C05 **Relationship between body image perception and body change techniques among adolescents in Tehran, Iran**
Monireh H, Mohd Nasir MT, Rosita J & Hazizi AS

C06 **Body Mass Index vs Body Fat: A significant difference in frequency distribution and fat levels among three nutritional groups**
DV Muralidhara

C07 **Body weight status in women 15-50 ages referred to Health Center Number 9 in West City of Ahvaz, Iran**
Salimi M & Saki A

C08 **Relationship between total dietary intake with body mass index(BMI) and dental caries experience(DMFT) among adults**
Saw WS, Nik Shanita S, Zahara BAM & Tuti Ningseh MD

C09 **Socio demographic influences on food consumption pattern and weight status of adults living in Kuala Lumpur, Malaysia**
Hamizah Y & Ismail MN

C10 **Association between body weight status and sick leave among Malay government employees in Kuala Lumpur, Malaysia**
Lee YS & Ismail MN

C11 **Relationship between health-related quality of life (HRQoL) and body mass index among adolescents in Kuala Lumpur, Malaysia**
Tan SY, Ismail MN & Ruzita AT

C12 **Body image perception and weight control behaviours among normal weight and overweight/ obese adolescents in Kuala Lumpur, Malaysia**
Ting QY, Ismail MN & Norimah AK

C13 **Life style and health status of normal and obese housewives living in urban Bogor, West Java Indonesia**
Desi Namora R & Dwiriani CM

C14 **Young men with abdominal obesity have increased indices of arterial stiffness**
Nor Anita MMN, Kalaivani C, Amilia A, Gan KB, Ahmad Faiz AF, Zaiton Z & Wan Zurinah WN

C15 **The prevalence of overweight and obesity and its associated factors among students aged 10-17 years old: findings from the seafood consumption survey in Peninsular Malaysia, 2008-2009**
Nurul Izzah A, Wan Rozita WM, Mohd Fairulnizal MN, Tengku Rozaina TM, Zarina Z, Hamdan J, Siti Fatimah D & Suraya Z

GROUP D: PHYSICAL ACTIVITY

D01 **Physical activity level among overweight and obese adolescents in Kajang, Selangor**
Kaartina S, Chin YS, Fara Wahida R & Tania B

D02 **Physical activity barriers in relation with body weight status and socio-demographic factors among Malaysian men in Klang Valley**
Suraya I, Norimah AK & Ng LO

D03 **Relationships between body mass index and pedometer-measured physical activity among primary school children in Malaysia**
Ong WW, Noorashikin R, Poh BK, Nor Aini J, Wong JE & Ismail MN

D04 **Effect of single exercise session on appetite measures and energy intake in overweight women**
Azlinda H & Malkova D

D05 **Physical activity barriers and body weight status among IPTA students**
Goh HC & Norimah AK

GROUP E: ISSUES RELATED TO OBESITY

E01   **Educating Malaysian children to choose healthy foods through exergaming**
Mashitoh H & Ramlah M

E02   **Relationship fiber consumption with incidence of obesity in 4 SLTP Bengkulu Indonesia**
Yosephin Betty

E03   **Effectivity of green tea (*Camellia sinensis*) to prevent metabolic syndrome related disorders in Sprague Dawley rats**
Mira Dewi, Anna P Roswiem, Sri Budiarti & Evy Damayanthi

E04   **Strategic model for childhood obesity nutrition intervention: Preliminary recommendations**
Hanee F, Ruzita AT, Poh BK & Syarif HL

E05   **Construct Validity of Malay version of Children Eating Behavior Questionnaire (CEBQ)**
Ong SC, Chin YS, Nik Shanita S & Poh BK

E06   **Body weight perception and weight management practices among Royal Malaysian Navy (RMN) Personnel**
Razalee S, Poh BK & Ismail MN

Abstracts for Poster Session

GROUP A: CHILDHOOD OBESITY

A01 Parental Feeding Styles and Practices in Association with Fast Food Consumption among Primary School Children in Gombak, Selangor

Tung SEH *& Lim YV*

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A cross-sectional study was conducted to determine parental feeding styles and practices in association with fast food consumptions among primary school children in Gombak, Selangor. The subjects comprised of 408 aged 7-9 years old school children and parent pairs. Assessing instruments used were Caregiver's Feeding Style Questionnaire (CFQ), Child Feeding Questionnaire (CFQ) and food frequency questionnaire (FFQ). Height and weight of the children were measured and BMI was calculated. A total of 12.3% children were overweight while 6.1% were obese. Ethnic differences were found among obese children ($\chi2=20.847$; $p=0.002$), with Malay having the highest (9.5%) followed by Indian (8.8%) and Chinese (1.7%) children. Parental feeding practices among the 3 ethnics were found to significantly differ according to weight status. Malay parents with obese children have higher concern about child's weight ($F=2.969$; $p=0.033$), whereas parents with thin or normal weight children practiced higher pressure to eat ($F=3.851$; $p=0.010$). Chinese parents with overweight and obese children were found to have higher concern about child weight ($F=8.842$; $p<0.001$) but no significant difference was found among Indian parents. Malay children were found to have highest consumption of fast food (237.59 kcal/month) among the 3 ethnics ($\chi2=30.883$; $p<0.001$). Fast food consumption was found to significantly differ among parental feeding styles ($\chi2=12.394$; $p=0.006$) with highest consumption among authoritarian parents (233.77 kcal/month) and lowest consumption among the uninvolved (179.31 kcal/month). For parental feeding practices, only perceived child weight ($rsp=0.116$; $p<0.05$) and concern about child weight ($rsp=0.107$; $p<0.05$) was found to be positively correlated with fast food consumption. Parental feeding styles was also found to be positively correlated with concern about child weight ($r=0.226$; $p<0.01$), restriction ($r=0.166$;

0<0.01), pressure to eat (r=0.249; p<0.01) and monitoring (r=0.177; p<0.01). In conclusion, parental feeding styles, practices and fast food consumption vary among ethnicity and were associated with children's fast food consumption.

A02 Associations between Parenting Styles and Child Feeding Practices among Preschoolers in Johor Bahru, Malaysia

Loh SH, Mohd Nasir MT & Zalilah MS

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This study determined the associations between parenting styles and child feeding practices among preschoolers aged 4 to 6 years in Johor Bahru, Malaysia. Malay preschoolers were randomly selected among 14 preschools (N=212) and their weight and height were measured. Their parents were required to complete a questionnaire assessing socio-demographic characteristics, parenting styles and child feeding practices. Parenting styles and child feeding practices were determined using the Parenting Styles and Dimensions Questionnaire (PSDQ) and Child Feeding Questionnaire (CFQ) respectively. The Partial Correlations were used to determine the associations between parenting styles and child feeding practices controlling for relevant covariates. The preschoolers consisted of 117 boys and 95 girls with mean age of 65.59 months (SD=8.77) and mean birth weight of 3.06kg (SD=0.47). Mean household size and monthly household income were 5.46 persons (SD=1.59) and RM2050 (SD=1250). Using WHO classification, 10.8% of the preschoolers were overweight and obese, 14.2% and 7.5% were underweight and stunted. Authoritative parenting style was significantly associated with greater perceived feeding responsibility (r=0.301, p=0.0001), monitoring (r=0.328, p=0.0001) and restriction (r=0.263, p=0.0001). Authoritarian parenting was related to increased use of pressure to eat (r=0.169, p=0.014) and restriction (r=0.232, p=0.001). Permissive parenting was positively correlated with use of restriction in child eating (r=0.135, p=0.049). Parenting styles were not associated with preschoolers' BMI but parental use of pressure to eat was negatively related with preschoolers' BMI (r=-0.249, p=0.0001). Parenting styles may influence child feeding practices to some extent but may not have direct relationships with children's BMI. Interventions addressing child weight management may include appropriate training on parenting skills which may be reflected later in good feeding practices.

A03 Overweight and Obese Elementary School Children Eat Less Frequent Vegetables than the Normal One

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A study was carried out to observe eating habit among overweight and obese comparing to normal elementary school children in urban Bogor. Subjects consisted of 1018 children from 4th and 5th grade of ten schools. Research was conducted on July-August 2010. School children's eating habit was assessed by using a self-administered questionnaire which has 25 questions. Socioeconomic data were gathered by using a one-page questionnaire that was filled in by the parents at home. Nutritional status was assessed by using body mass index for age z score and height for age z score. The results showed that the age of school children were 7-14 years (mean 10.1 ± 0.72 years) and majority of them were boys (50.1%). Obese group had more boys (12.1%), while most girls had normal weight (36.2%). Both groups mostly came from middle class small families. Overweight and obese children were significantly eating less vegetables and sweetened drink, but more plain water. Overweight and obese children tend to eat less fruits, plant based side dish and milk, but more animal food. In general, eating habit among all elementary school children was relatively good but it seems that they need to be improved through balanced dietary guideline promotion, specially developed for school children. The results indicated that there is a need to introduce and apply balanced dietary guideline as earlier as possible to prevent improper eating habit.

A04 Body Fat and Intelligence Quotient in Primary School Children: Does Adiposity Influence Intelligence?

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Studies have shown conflicting findings on the association of childhood obesity with cognitive ability and learning in children. Besides body mass index (BMI), body fat is also known to be a measure of obesity, and has been found to affect cognitive functioning. This cross-sectional study investigated the relationship between body fat and intelligence quotient (IQ) among a sample of schoolchildren in East Coast and Southern regions of Peninsular Malaysia. A total of 408 primary school children, comprising 188 boys and 220 girls, aged 7 to 11 years old of Malay, Chinese and Indian ethnicities participated in this study. Sociodemographic data was obtained from a parental administered questionnaire. Anthropometric measurements included weight, height, and fat mass as measured by bioelectrical impedance analysis. IQ was assessed using the Raven's Coloured Progressive Matrices (CPM). Mean BMI and fat mass percentage were $17.0 \pm 3.8 kg/m2$ and $22.0 \pm 9.5\%$, respectively. About 21.1% of the subjects were "underfat", while 36.5% normal, 16.7% "overfat" and 25.7% obese based on the cutoff recommended by McCarthy et al. (2006). Boys had significantly lower fat mass percentage compared to girls. Children from the East Coast region had higher fat mass percentage than their counterparts in the Southern region. Among the three main ethnicities, Indians had the lowest fat mass percentage, followed by Chinese and Malay. Mean IQ score was 97.7 ± 16.5. Children in the Southern region were found to have significantly higher IQ scores than their East-coast counterparts. Significant inverse relationship was found between IQ score and fat mass percentage ($r=-0.178$, $p<0.001$). After controlling for age, gender, ethnicity, region, household income and parental education level, IQ score was negatively related to fat mass percentage ($F=2.95$, $p<0.05$, partial $2=0.022$). This study showed that body fat has influence on intelligence quotient among school children. As the percentage of overweight and obese children continues to rise, it is necessary to further investigate adiposity causality on cognitive development and functioning.

A05 Risk Behaviors in Food Consumption and Physical Activity among Children (10-12 years old) with Different Weight Status in Kuala Lumpur

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Risk behaviors are behaviors which are associated with increased risk of developing chronic diseases and obesity. This study was carried out to determine the risk behaviors in food consumption and physical activity among primary school children with different weight status in Kuala Lumpur and to evaluate the relationship between these risk behaviors with BMI and energy intake. 289 Malay students (120 boys and 155 girls) aged 10 to 12 years old participated in this study. Anthropometric measurements such as height and weight were measured and BMI calculated. Subjects completed questionnaires on socio demography, IPAQ and 8 items of risk behaviors adapted from Youth Risk Behaviors Surveillance Systems. Two day 24-hour dietary recall was carried out by interview in small groups. 61.6% subjects were normal weight and 38.9% were overweight or obese. Higher proportion of overweight/obese children demonstrated risk behaviors in food consumption such drinking milk ≤3 glasses/week (59.8%), skipping breakfast ≤3 days/week (48.6%), intake of fruits ≤3 times/week (44.9%), consuming sweetened beverages or carbonated drink ≥1 times/day (38.3%) and intake of fast food ≥4 days/week (12.1%). As for risk behaviors in physical activity, only risk behaviors in watching television ≥3 hours/day were higher in overweight/obese children (60.7%) compared to normal weight children (40.5%). Risk behaviors such as skipping breakfast and watching television were associated with BMI ($p < 0.05$) ($r = -0.97, 0.004$) while risk behaviors in consumption of fast foods and drinking milk were associated with energy intake ($p < 0.05$) ($r = 0.137, 0.198$) In conclusion, this study showed that more overweight/obese children presented risk behaviors in food consumption and physical activity than the normal weight children. Thus, promoting healthy eating and active lifestyle are important in an effort to reduce obesity in children.

A06 Relationship between Quality of Life (QoL) and Body Mass Index (BMI) among Malay School Children in Kuala Lumpur

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This cross sectional study was conducted to determine the relationship between body mass index (BMI) and quality of life of schoolchildren. 124 children (75 normal weight, 23 overweight and 26 obese) aged between 8 to11 years old were participated in this study with mean age of 9.6 ±1.0 year old for boys (n=41) and 9.8 ± 0.9 year old for girls (n=83). QoL was assessed using the Pediatric Quality of Life Inventory (translated into Malay version) version 4.0. It was self-administered and completed by both parent and child. The QoL questionnaire assessed physical, social, emotional and school functioning from which total, physical and psychosocial health summary scores were derived. The higher the score indicates better QoL of the children. Body weight and height were measured using standard measurement to calculate the BMI. The results showed that mean of body weight were 35.5 ± 12.8 kg, 134.8 ± 9.1 cm for height, 19.2 ± 5.1 kg/m² for BMI and 1.2 ± 2.1 BMI z-score. This study found that mean score for all domains including physical and psychosocial health and total score of the QoL were not differed significanlty (p>0.05) between normal weight, overweight and obese children. However, the trend of child's report, showed that mean total score was higher among normal weight (71.2±12.9) than overweight (69.9±11.0) and obese children (66.7±10.9). For parent-proxy report, parents of obese children had higher QoL score (69.7±15.7) than parents of normal (68.6±14.1) and overweight children (63.9±16.0). There was significant different (p<0.05) between child self-report and parent-proxy report for physical health and emotional. The study also found that there was no significant difference between child self-report and parent-proxy report for all domains except for physical health domain among the normal weight children. Parent-proxy mean score of QoL was significantly lower (p<0.05) in physical health domain (69.9±20.2) than their child (75.1±16.9). The result was similar to the overweight group. However, there was weak negative correlation found between QoL score of the children with their BMI (r=-0.13, p>0.05 for total score).

A07 The Relationship of Breakfast Cereal Consumption and Body Mass Index of School Children in Urban Area

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This study was conducted to determine the frequency of ready-to-eat-breakfast-cereal (RTEC) consumption between normal and obese primary school children. School children aged 10 to 12 years old from 3 different schools in the Keramat zone, Kuala Lumpur were selected for this study. Anthropometric measurements were taken to determine the body mass index (BMI). A self-administered questionnaire was given to the students to determine the patterns of RTEC consumptions. The results showed that 71.4% of normal and 66.7% of overweight/obese boys consumed RTEC. The findings indicated that most normal (97.1%) and overweight/obese girls (90.3%) consumed RTEC. 34.5% normal children consume RTEC at least once a week while 40.0% of overweight/ obese never or rarely consumed RTEC. The study also found that 49.1% normal children and 40.0% overweight/obese children consumed RTEC during lunch or dinner instead of breakfast. There was a weak association between frequency of RTEC consumption with BMI (r = -0.084, p>0.05) and a negative association with age (r = 0.190, p>0.05). In conclusion, this study showed that the RTEC was more common among normal BMI children as compared to overweight/obese and was not associated with BMI.

A08 Impact of Educational Program Based on BAZNEF Model on the Nutritional Behaviour (HEI) and Physical Activity among High School Students in Isfahan, Iran

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Obesity and overweight are known to have a major impact on health status affecting adolescent today and their future. This intervention study was designed to assess the impact of HEI and physical activity based on BAZNEF (Belief, Attitude, Subjective Norm, and Enabling Factors) Model on nutritional behavior and physical activity among males and females adolescents. A total of 288 students were randomly divided into experimental and control groups. Each subject completed the BAZNEF questionnaire during pre-test, post test after one month and follows up period 3months after education intervention while physical activity questionnaire was completed during post-test and follows up period by overweight (experimental) subjects. After pre-test, four educational sessions, each one for 120 minutes and physical activity information was obtained from the questionnaires. Data on physical activity were collected based on the questionnaires and expressed as metabolic equivalent hours per week (MET-h/week). The experimental group received 120 minutes lesson in fitness, while the control group received no educational units. The results revealed that in the experimental group, nutrition belief and nutrition attitude scores increased significantly ($p < 0.001$) in both males and females subjects. Attitude to behavior and intention behavior scores in males and females were higher but not statistically significant. In comparison, there were no significant changes ($p > 0.11$) in the control group for all the parameters, at all stages of the study. After intervention the mean scores of BAZNEF variable were significantly more in experimental group ($p < 0.001$) and participation in physical activity was significantly greater than control group ($p < 0.001$). In conclusion, the educational initiatives in nutritional behavior and physical activities based on BASNEF model proved to be effective in encouraging the adolescents to eat more healthy food and to adopt an active lifestyle as recommended.

GROUP B: CAUSES AND CONSEQUENCES OF OBESITY

B01 Comparison of Obsteric Outcomes in Normal and Obese Pregnant Women

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Maternal obesity causes reduced placental oxygen transfer to meet fetal requirements. This leads to hypoxia, miscarriage, stillbirth and death. A two-fold increase in ante-partum stillbirths was found in morbidly obese women as compared to women with a normal BMI. The aim was to compare maternal and fetal complication rates in normal and obese pregnant women. Retrospective data of 200 subjectives from 17th May to 27th June 2010 was collected. Women with singleton pregnancy at 34-38 weeks gestation without underlying disease were recruited, and classified on the basis of maternal prepregnancy Body Mass Index (BMI). Demographic detail, obstetrics history, booking details, follow up and delivery outcome recorded.The data were analyzed by SPSS. Maternal obesity is associated with a greater risk of maternal and fetal mortality and morbidity (19.3%) as compared to women with normal BMI(7.7%). It was seen that the incidence of diabetes, preeclampsia, induced labors, operative delivery and postpartum hemorrhage were all higher in the obese patients, with PIH being statistically significant. Of the fetal complications the stillbirth rate was 7% as compared to 0.7% in the obese group (p=0.001). Fetal macrosomia, hyperglycemia, respiratory distress, and fetal distress,were also higher. Maternal obesity represents an important modifiable risk factor for adverse pregnancy outcome. This study was done to assess hospital data of obeses pregnancies. Suggestions for preventive measures can thus be determined and implemented.

B02 Insulin Resistance among Overweight/Obese Children

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Childhood obesity is a major concern globally. It is highly associated with metabolic complications. Insulin resistance (IR) in childhood obesity predispose an early risk of cardiovascular disease and diabetes mellitus. The objective of this study is to measure IR in overweight and obese children seen in University Malaya Medical Center (UMMC). We collected data on children who were referred to Paediatric Obesity Clinic (POC) from 2005 until end of 2010. Their anthropometric measurements and fasting blood investigations were reviewed. A child was considered as having IR if waist circumference (WC) > 90th centile for age and sex, presence of acanthosis nigricans (AN), and had impaired fasting glucose (IFG>5.6mmol/L but < 7mmol/L), impaired glucose tolerance (IGT >7.8mmol/L but <11.1mmol/L) or abnormal HOMA index (>3 prepubertal or >4 pubertal). A total of 310 children were seen during that period. However, only 160 were eligible for this study. Ninety three (58.1%) boys and 67 (41.6%) girls with the mean age of 12.7 ± 3.5 years old (ranged 2 to 17 years old) were studied. They were predominantly Malays (65.6%, n=105), followed by Indians (25%) and Chinese (8.8%). Their mean BMI was 28.5 ± 5.3 kgm^2. Fifty percent (n=80) had abnormal WC measurements (90.4±14.6cm), 70% (n=112) had AN, 14.1% had IFG, 16.7% had IGT and 53.8% had abnormal HOMA index. Thirty five percent (n=56) fulfilled 2 criterias (AN+ abnormal WC), 18.8% with 3 criterias (AN+WC+HOMA), 3.8% (AN+WC+IFG) and 3.8% met all criterias (AN+WC+IFG+HOMA). The incidence of IR among obese children was high. Routine screening at the earliest clinic visit and early intervention might lower the risk of further morbidity.

B03 Association of Leptin LEP A19G and G2548A Variants with Obesity in the Kampar Health Clinic Cohort, Malaysia.

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According to WHO, Malaysia is ranked sixth among Asian countries with high adult obesity rate. Obesity, marked by an excess fat mass, is due to the combined effects of genetic and environmental factors. Leptin is an adipocyte-derived hormone that acts to reduce food intake and increase energy expenditure by binding and activating its specific receptor in the hypothalamus. Previous studies exploring association between Single Nucleotide Polymorphism (SNP) of leptin (LEP) gene and obesity in different populations have been inconclusive. This study was to investigate the prevalence of LEP A19G and G2548A polymorphisms and their possible association with obesity in the Kampar Health Clinic cohort. Convenience sampling was performed with informed consents and a total of 437 subjects with the mean age 52.4 ± 13.5 years (183 males, 254 females; 205 obese, 232 non-obese) were recruited. Dietary habits and lifestyle factors were assessed by questionnaire and anthropometric measurements were taken. Genotyping was performed using Polymerase Chain Reaction-Restriction Fragment Length Polymorphism. The mutated LEP A19G and G2548A allele frequencies were 0.74 and 0.32, respectively. There was no significant difference in the genotype and allele frequencies of LEP A19G and G2548A between obese and non-obese subjects. The genotype and allele distribution was associated with ethnicity (A19G – $p=0.009$ and 0.002, respectively; G2548A – both $p<0.00$), but not with gender. No association was also found between the LEP variants with anthropometric measurements, except Systolic and Diastolic Blood Pressures ($p=0.049$ and $p=0.026$, respectively) for A19G and Waist-Hip Ratio ($p=0.013$) for G2548A. All the surveyed dietary habits and lifestyle factors did not seem to have any association with obesity. In conclusion, although LEP A19G and G2548A SNPs were not associated with obesity in the Kampar Health Clinic cohort, G19G individuals tend to have significantly higher blood pressures compared to A19G and G2548A individuals had lower WHR compared to G2548G.

B04 Waist Circumference and Waist:height Ratio for Prediction of Metabolic Syndrome in Overweight/Obese Children

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This study aimed to compare the usefulness of waist circumference (WC) and waist:height ratio (WHtR) in determining metabolic syndrome risk among overweight/obese children. A total of 209 overweight/obese subjects (102 boys; 107 girls) aged 9 – 12 years in Selangor and Kuala Lumpur participated in this study. Body weight, height, WC, blood pressure, fasting blood glucose, triglycerides, high lipoprotein cholesterol, low lipoprotein cholesterol and total cholesterol were determined. Receiver operating characteristic (ROC) analysis was used to examine optimal cut-off values of waist circumference (WC) and waist:height ratio (WHtR) to predict metabolic syndrome risk between the sexes. The area under the ROC curve was 0.828 (95%CI: 0.741, 0.896) for WC, and 0.912 (95%CI: 0.840, 0.959) for WHtR for boys. For girls, area under the ROC curve for WC was 0.727 (95%CI: 0.632, 0.808), and for WHtR 0.619 (95%CI: 0.530, 0.711). The optimal cut-off on the ROC curve correspond to the 90th percentile WC for boys and 95th percentile WC for girls; and WHtR 0.59 for boys and 0.55 for girls. In conclusion, WHtR was found to give a slightly higher cut off than the recommended cut off of less than 0.5 among our overweight/obese children, however waist circumference was found to be less predictive in diagnosing metabolic syndrome. Thus, we conclude that waist:height ratio a better discriminative test for metabolic syndrome among the overweight/obese children than waist circumference.

GROUP C: EPIDEMIOLOGY OF OBESITY

C01 Association between Weight Status and Dietary Intake with Eating Behaviour among Young Adults in Universiti Tunku Abdul Rahman, Setapak

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This cross-sectional study aimed to compare the differences of BMI and eating behavior based on Three Factor Eating Questionnaire among young adults in Universiti Tunku Abdul Rahman, Setapak. A total of 343 subjects were recruited and all were assessed based on their anthropometric measurements and dietary intake (Semi-Quantitative Food Frequency Questionnaire). Results showed that male subjects had significantly higher means of BMI (21.6±3.2kg/m2) and waist circumference (78.2±6.9cm) than female subjects (20.2±3.0 kg/m2; 72.4±5.8cm). More males (n=53) were also in the overweight category as compared to their females (n=28) counterpart. However, more females were abdominally obese in this study. Most male fall in the emotional eating behaviour (n=73) meanwhile most female were found to be restrain eaters (n=79). There was no significant difference found between BMI and waist circumference with eating behaviours. However, a higher percentage of underweight females (n=22) compared to males (n=8) were restrained eaters. A higher percentage of restrained eaters (n=129) and emotional eaters (n=119) were found to have normal waist circumference. A total of 13 respondents who were abdominally obese are restrained eaters. In terms of dietary intake in both genders, males had significantly higher mean of energy and macronutrients intake as compared to their females counterparts. There were significant differences found in energy and macronutrients intake with different eating behaviour. Restrained eating respondents had the lowest mean energy and macronutrient intake. The sodium intake in uncontrolled eating respondents was significantly lower (2156.6±1576mg/day) while emotional eating respondents had significantly higher and excessive intake of sodium (2573.2±1047.1 mg/day). In conclusion, different eating behaviour have different dietary intake and weight status and this may be due to lifestyle factors as well as social factors that are associated with eating habits.

C02 How can Understanding Psychosocial Behavioural Determinants, Knowledge and the School Environment help Prevent Childhood Obesity in Malaysia?

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Malaysia is experiencing an increase in childhood obesity/overweight. This current study included the investigation of the psychosocial behavioural determinants, knowledge and school environmental factors that could potentially mediate healthier eating in the school setting. The survey was conducted in 8 randomly selected schools (4 urban/ 4 rural) in Terengganu involving 960 children aged 10-12 yr. Weight and height were measured and psychosocial factors based on the Theory of Planned Behaviour (TPB) (attitude, subjective norm, perceived behaviour control, i.e. self-efficacy/barriers) combined with knowledge scores were developed and validated (Cronbach's alpha ranged from 0.61-0.83). Chi-square tests and multinomial regression analyses were used to determine the association between psychosocial constructs and knowledge with weight status and socio-demographic factors. Whole school mapping assessed the school environment on 4 levels (physical, economic, political and socio-cultural) in these 8 schools, plus a further 4 randomly selected schools (6 rural; 6 urban). The finding showed that nearly one-quarter (21.4%) of the sample was overweight/obese (WHO cut-offs), which was most prevalent in boys, urban children, older children and those in the higher socio-economic group (p<0.001). Findings for psychosocial constructs highlight that overweight/obese were significantly (p<0.0001) more likely to have negative attitudes (OR 31.52), more barriers (OR 24.12) less self efficacy (OR 19.00) and less subjective norm (OR 17.46) as well as low intention to eat healthily (OR 8.21) and less healthy eating behaviour (OR 23.56) compared with underweight and normal children. Obese/overweight children with high knowledge did not have healthier eating behaviour or more positive psychosocial factors. Findings indicate there was much room for improvement in the physical, economic, policy and socio-cultural environments in the schools surveyed. Psychosocial factors among obese /overweight children need to be modified, accompanied by

enhancing knowledge and improving the school environment to increase children's intention to eat healthily to prevent overweight/obesity.

C03 Eating Attitude and Body Weight Status among Adolescents

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A study was carried out to investigate the relationship between eating attitude with body mass index (BMI) z-score among adolescents. A total of 453 students (32.2% males and 67.8% females) from five public secondary schools in Sibu, Sarawak were recruited. Their weight and height were measured using standard procedures and their eating attitude was assessed using Eating Attitudes Test 26 (EAT-26).The mean age of the respondents was 16.02±0.56 years. The prevalence of overweight was higher than underweight (18.6% and 5.2% respectively) in which more males (21.5%) than females (17.2%) were overweight. The mean score for the EAT-26 score was 11.99±9.615 with 89 respondents (19.2%) recorded a composite score equal or more than 20, which meant they were the group at risk of having eating disorder. There was a positively and weakly significant relationship between eating attitude and BMI z-score among adolescents (r=0.159; p=0.001). Understanding the eating attitude is important in planning intervention to address the weight problem among adolescents.

C04 Prevalence of Obesity and Dietary Intake of Men and Women with Type 2 Diabetes Mellitus in Tehran, Iran.

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Obesity and weight gain have been implicated in the increasing prevalence of type 2 diabetes mellitus in the adults' population in Iran. This study reports the prevalence of obesity, abdominal obesity among 300 Tehranian male (25%) and female (75%) aged 30 years and above. Anthropometric measurements were taken according to standard methods. Dietary intake was assessed by using a food frequency questionnaire with 105 items for assessing energy of macronutrients. The overall mean ages of the male and female subjects were 55.45±10.73 and 54.71±9.15 years respectively. The mean BMI of the male and female subjects were 26.95±4.14 and 29.91±4.81 kg/m2 respectively. The subjects were 18.3 % normal weight, 44.3% overweight, 25.7% obese class I, 8.3 % obese class II and 3.3% obese class III. Overall, 66.7% of male and 86.7% of female subjects was overweight or obese. The highest prevalence of overweight was between age of 50-59 in both female and male. The highest prevalence of obesity class I in male was at the age group of 60-69 years, male subjects at the age of 40-49 and 60-19 had same prevalence of obesity class II and male subjects at the age of 30-39 had highest prevalence of obesity class III. For female, the highest prevalence of obesity class I, II, III was at the age groups of 40-49, 60-69 and50-59 respectively. The Prevalence of abdominal obesity was 25.3% of the male and 76.4% of the female. Almost 60.3% of the respondents consumed>15% of their daily calories from protein, 74.7% and 28% of patients consumed >55%and >30% of total calories from carbohydrate and fat respectively. Iranian adults face serious risk of diabetes mellitus brought about by obesity. The Prevention and control of obesity should be addressed through health promotion programs in Iran.

C05 Relationship between Body Image Perception and Body Change Techniques among Adolescents in Tehran, Iran

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The objective of this study is to assess relationship between body image disturbance and body change techniques with among Tehranian adolescents. This study was carried out among 376 male and 444 female adolescents aged 12-18 years. Weight and height were measured. A questionnaire consisted of body change techniques and body shape perception drawing scale was completed by the adolescents. The majority (75%) of the adolescents were concerned with their body shape. More female (78%) were dissatisfied with their body shape compare to males (71%) [$x2$ (1, 758) = 5.39, p = .02). There were statistical differences for changing normal eating pattern to lose and to gain weight, and exercise to change muscle size between males and females [U = 61761.00, p < .0001, U = 64901.50, p = .001, U = 149622.50, p = .035 respectively]. Body image discrepancy showed positive significant correlation with "change normal eating to lose weight" [ρ (758) = .65, p < .0001], " exercise to decrease body size" [ρ (758) = .39, p < .0001, "exercise to change body shape" [ρ (758) = .12, p = .001 and " exercise to change muscle size" [ρ (758) = .09, p = .011] and was negatively correlated with "change normal eating to gain weight" [ρ (758) = - .47, p < .0001and " exercise to increase body size" [ρ (758) = - .26, p < .0001]. According to the findings, it is recommended that appropriate educational efforts on body image and body change strategies be incorporated into school health activities for adolescents.

C06 Body Mass Index vs Body Fat: A Significant Difference in Frequency Distribution and Fat Levels among Three Nutritional Groups

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Body mass index (BMI) is a popular and often used surrogate measure to relate people of different nutritional status as undernourished (UN), normal (N) and overweight and/or obese (OW/Ob) subjects. BMI has come under criticism for its inability to be applied universally and even within the groups of a population. Moreover, relevance of BMI to cardiovascular risks and body fat levels was seriously questioned recently. This has lead to the proposal that one should look beyond BMI and suggested that it is best to actually measure body fat especially in nutrition related studies. In the present study, we have measured body fat using the bioelectrical impedance principle (Omron body composition monitor, Model HBF – 362 KaradaScan) and classified 86 male and 191 female (Total 277) subjects into UN, N, OW/Ob on the basis of recommended body fat levels. We also used WHO recommended BMI criteria for Asian population and the old BMI cut off-points for a similar grouping of the subjects. Statistical analysis revealed that not only the frequency distribution of UN, N and OW/Ob subjects was significantly different based on body fat and BMI criteria, but the body fat levels were too different in certain groups particularly, the UN category. Since the methods of determination of body composition has become easy, fast and economical both for clinical and populations studies in particular, a shift from BMI to actual estimations of body composition is recommended.

C07 Body Weight Status in Women aged 15-50 Referred to Health Center Number 9 in West City of Ahvaz, Iran

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According to the World Health Organization (WHO) estimates, chronic diseases will account for around three-quarters of all the deaths in the developing world by the year 2020. In this view, the rising incidence of overweight and obesity could be an rising public health crisis in the low- and middle-income countries. Purpose of this study to determine body weight status among women aged 15-50 in west city of Ahvaz, Iran. In a cross-sectional study during August 2007 to September 2007 anthropometric measurements, including height and weight, were obtained in a randomly selected sample population (n = 499), aged 15-50 years, and permanently resident of the west city of Ahvaz in Iran. Body mass index (BMI) (kg/m2) was calculated for each individual, and the results were categorized for all by socio-demography factors. The mean body mass index was 24.55 for all women with SD deviation 4.43. The prevalence of body weight status was 33(7.1%) for underweight, 235(50.8%) for normal weight, 147(31.7%) for overweight, and 48(10.4%) for obese (BMI > 30).There was statistically significant relationship between women age and body mass index at $p<0.001$. There was no statistically significant relationship between education level, job and body mass index in the participants. Obesity has become one of the main health problems in the area, and is associated with several chronic diseases. Either to study factors contributing to the occurrence of obesity or to establish programmers' to control it. It is important in primary healthcare to be alert of a potential preventable increased risk of unhealthy behaviors and risk factors for obesity.

C08 Relationship between Total Dietary Intake with Body Mass Index (BMI) and Dental Caries Experience (DMFT) among Adults

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The objective of this cross sectional study was to determine relationship between diet intake with BMI and dental caries experience among adults in dental clinic UKM Kuala Lumpur campus. Out of 168 study participants, majority were female (n=117, 69.6%), malay (n=150,89.3%) in the aged range from 20-59 years. Participants were recruited at the registration counter of UKM primary care dental clinic. Data were collected via face-to-face interview questionnaire, anthropometry measurement and dental examination. Participant's diet composition was estimated through an interview by using multiple-pass 24-hour recall method. Anthropometry measurement included weight, height, BMI was calculated. Dental health examination was conducted by a qualified dentist and dental caries experience was reported using Decayed/Missing/Filled Teeth Index (DMFT). The mean energy intake per day was 1510 ± 373 kcal while the mean added sugar intake per day was 43.05 ± 21.20g. The participants in this study averagely intake 50.83 ± 7.81% carbohydrate, 14.73 ± 3.03% protein, 34.54 ± 6.59% fat from daily total energy intake. This study found that mean of BMI among the participants was 25.59 ± 6.0kg/m². According to BMI classification, 6% of the participants were underweight (BMI<18.5kg/m²), 47% were normal (BMI 18.5-24.9kg/m²), 24.4% were overweight (BMI 25.0-29.9kg/m²) and 22.6% were obese (BMI ≥ 30kg/m²). The mean of DMFT scores for all participants were 5.65 ± 5.85. One way- ANOVA test indicated that there were no significant differences in (i) daily energy intake (F=0.294, p=0.829) (ii) carbohydrate intake (F=1.289, p=0.280) (iii) protein intake (F=0.298, p=0.827) (iv) fat intake (F= 0.135, p=0.939) among BMI classes. According to Kruskal Wallis test, there were no significant differences in (i) total sugar intake (p=0.252) (ii) DMFT index (p=0.265) between BMI classes. However Spearman test showed that there were significant correlations between Body Mass Index and DMFT index among study participants (r=0.156, p<0.05). In conclusion, there was no significant difference between BMI classes in nutrient intake but body mass index had significant relationship with dental caries experience.

C09 Socio Demographic Influences on Food Consumption Pattern and Weight Status of Adults Living in Kuala Lumpur, Malaysia

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Food consumption pattern and body weight status are known to vary according to differences in socioeconomics and demographic status which are fundamental in designing intervention programme for healthy eating.. The objective of this study was to identify whether socio demographic factors can influence eating pattern and body weight among adults in Malaysia. A total 270 adult aged 20 to 59 years completed the questionnaires which were divided into three categories namely, demographic status, a 2 days 24 hours dietary recall and eating pattern questionnaire which consist of 11 items in order to determine eating habits. Possible influence of other social variables such as age, gender, income and household composition were also taken into consideration. In comparison to income <RM1500, those with an income >RM3500 (78%) didn't regularly ate three meals a day while those with income levels between RM1500-RM3500, 70% consume more snack and 76% dine out more. Intake of fruits (68%), vegetables (80%) and dairy products (80%) was higher in subjects with higher education level. Unmarried subjects consume more snacks (72%), less intake of fruits (91%), vegetables (78%) and dairy products (85%). With regards to adherence to meal times, unmarried subjects (29%) were slightly better than married subjects (27%). As for the influence of socio-demographic factors on body weight status, low income subjects (11%) are obese compared to high income subjects (22%). For unmarried subjects (60%) were in normal BMI category compared to married subjects (46%) while overweight (35% and obese (25%) were from low educational level category. In conclusion, socio demography do have an influence on adult eating pattern and body weight status, factors to look out for in any planned weight control programmes.

C10 Association between Body Weight Status and Sick Leave among Malay Government Employees in Kuala Lumpur, Malaysia

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Overweight and obesity have not only give great impacts towards general health but also caused increasing sick-leave, which is an important source of productivity losses to workforce. A cross-sectional study was carried out to determine the association between body weight status and sick-leave among Malay government employees in Kuala Lumpur with total 218 subjects aged between 18 to 59 years. An interview based questionnaires were used to obtain socio-demographic data while physical activity was assessed using shortened version of International Physical Activity Questionnaire (IPAQ). Anthropometric measurements were taken to calculate Body Mass Index (BMI) while the incidence of sick-leave for the previous 1 year was collected from the respective government agencies. Overall, the mean reported of sick-leave for subjects was 4.95 ± 4.01 days/year. Majority of the subjects (74.3%) took short spells of sick-leave (0 to 7 days/year) while only 25.7% subjects took long spells of sick-leave (more than 7 days/year). Reported sick-leave in female subjects(5.52 ± 4.37 days/year) was significantly more ($p<0.05$) than male subjects (3.85 ± 2.92 days/year) while subjects with higher physical activity level (3.67 ± 3.06 days/year)recorded significantly less ($p<0.05$) sick-leave than low (6.11 ± 4.94 days/year) and moderate physical activity level (4.90 ± 3.62 days/year) subjects. Both spells of sick-leave were associated significantly ($p<0.001$) with gender while marital status and level of education were not associated significantly ($p>0.05$). Spearman correlation revealed significant positive association ($p<0.001$) between incidence of sick-leave with BMI and age, also a significant negative association between incidence of sick-leave with physical activity ($p<0.001$) was found. The findings suggested that obese and overweight government employees take significantly more sick leave than normal weight government employees. Worksite intervention aimed at weight reduction, is the strategy most likely to be successful both for the reduction of weight and concomitant effects on sick leave.

C11 Relationship between Health-Related Quality of Life (HRQoL) and Body Mass Index among Adolescents in Kuala Lumpur, Malaysia

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Obesity remains a major worldwide public health challenges and brings about negative consequences on quality of life. A cross-sectional study was carried out to determine relationship between health-related quality of life (HRQoL) and body mass index (BMI)of 341 adolescents aged 13-16 years, comprising of 186 (54.5%) boys and 155 (45.5%) girls. Body weight and height were measured to determine BMI. HRQoL was assessed using adolescents self-report and parent-proxy report of the validated (PedsQL 4.0TM) Generic Core Scales. Overall, 59.8% were normal weight, 22.6% were overweight and 17.6% were obese. Overweight/obese subjects were significantly lower (p<0.01) than normal weight subjects for HRQoL score (77.64 ± 11.7 vs 71.16 ± 13.4), physical health summary (83.76 ± 13.7 vs 74.38 ± 17.5), psychosocial health summary (74.38 ± 13.2 vs 69.21 ± 14.0), and social functioning (83.31 ± 14.9 vs 75.99 ± 17.6) while emotional functioning (68.78 ± 18.5 vs 63.85 ± 19.7; p<0.05). All domains of HRQoL namely total HRQoL (r=-0.258); physical health summary (r=-0.281); psychosocial health summary (r=-0.228); emotional functioning (r=-0.169); social functioning (r=-0.244) except school functioning (r=-0.125) were found to have significant negative correlations (p<0.01) with BMI. Only physical health summary was significantly higher (p<0.01) among boys (81.84 ± 15.8) compared to girls (77.78 ± 16.0). Physical health summary (79.34 ± 17.2 vs 82.93 ± 14.1) and emotional functioning (75.14 ± 17.9 vs 68.73 ± 19.1) were found to be significant (p<0.01) among parents and their children. In conclusion, there was significant negative correlation between HRQoL and BMI among subjects. Overweight/obese subjects have lower HRQoL compared with normal weight subjects. Further studies are needed to investigate the mechanisms by which obesity impacts negatively on HRQOL in order to identify targets for interventions to improve HRQOL whilst the longer term and somewhat more difficult task of achieving weight loss is addressed.

C12 Body Image Perception and Weight Control Behaviours among Normal Weight and Overweight/ o\Obese Adolescents in Kuala Lumpur, Malaysia

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Body image plays a vital role in the management of body weight among adolescents.The objective of this study was to examine the body image perception and weight control behaviours among normal weight and overweight/obese adolescents. A total of 240 secondary students aged 13 and 14 years old in Kuala Lumpur were involved in this study, where 120 (50%) subjects were males and 120 (50%) subjects were females. There were 60 normal subjects and 60 overweight/obese subjects for both genders. Weight and height were measured to determine the body mass index (BMI) of subjects based on WHO (2007). Subjects were required to complete a self-administered questionnaire on demographics, body image perception and weight control behaviours. The results revealed that more boys (61.7%) than girls (45.0%) reported body distortion. Overweight/obese subjects for both genders significantly expressed the desire for a smaller body shape ($p< 0.001$). Normal weight male subjects wish they have a bigger body shape while normal weight female subjects expressed a desired of a slimmer body shape. Body dissatisfaction was significantly ($p< 0.001$) higher in overweight/obese subjects compared to normal weight subjects for both genders. Overweight/obese subjects expressed a desire to lose weight (67.5% vs 24.2%) as compared to normal weight subjects. Healthy weight control behaviours rather than the unhealthy weight control behaviours were more frequently reported by the subjects. Overweight/ obese subjects were more frequently engaged in unhealthy weight control behaviours than normal weight subjects. However, there were no significant differences for both genders in weight control behaviours. Body dissatisfaction may leads adolescents to engage in unhealthy weight control behaviours. It is recommended that consistent messages about positive body image and healthy weight management should be incorporated into health activities for adolescents.

C13 Life Style and Health Status of Normal and Obese Housewives living in Urban Bogor, West Java Indonesia

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The study was aimed to analyze life style and health status of normal and obese housewives living in urban Bogor. Cross sectional study design was applied, with the number of 80 housewives chosen purposively (40 normal and 40 obese). For each subject the following was performed: individual and family characteristics, food habit, sport and physical activity, health status, pregnancy and family planning history. Anthropometric measurements were weight, height and waist to hip ratio (WHR). Data analysis was done using SPSS version 16. The result showed that more obese subjects come from low education level. Moreover, both of subjects have nutrition knowledge in middle level, 65 % and 67%, respectively. Snacking habits were more common in obese subject compare the normal ones (82,5% vs. 65%). No significant differences were found in sport and physical activity of both subjects. More obese subjects reported suffer from gastrointestinal diseases compare to the normal ones (65% vs. 2,5%). Statistical analysis showed a negative correlation between educational level and nutritional status. Meanwhile waist and hip circumference, duration of family planning-acceptor and energy and carbohydrate intake from meal and snack foods have positive correlation with body mass index. A significant positive correlation was found between nutritional status and health status.

C14 Young Men with Abdominal Obesity Have Increased Indices of Arterial Stiffness

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Arterial stiffness is associated with increased cardiovascular risk as well as being a strong risk marker for premature coronary heart disease. The aim of this study was to characterise the effect of cardiovascular risks on indices of arterial stiffness among young men. Men aged between 20 - 30 years were selected by random cluster sampling from Kuala Lumpur. They were divided into healthy (A), one risk (B) and two risk factors (C) for cardiovascular disease groups. Cardiovascular disease risks were defined as having waist circumference >90 cm, or systolic blood pressure >140 mmHg or smoking. Brachial and central blood pressures were measured and indices of arterial stiffness were pulse wave velocity (PWV) and augmentation index (AI). Results for all men (n=31) showed that BMI, both brachial and central blood pressures were normal. However, 65% of men with normal BMI had abdominal obesity (95.02 + 7.63 cm). Eighty-nine percent from group B and 100% from group C had abdominal obesity as a cardiovascular risk factor.Those with cardiovascular risks had higher brachial (p< 0.02) and central blood pressures (p< 0.03) and a higher AI (p<0.04) compared to the healthy group. Abdominal obesity appears to be the main contributing factor for increased arterial stiffness among men in their early twenties.

C15 The prevalence of overweight and obesity and its associated factors among students aged 10-17 years old: findings from the seafood consumption survey in Peninsular Malaysia, 2008-2009

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The prevalence of overweight and obesity in children has increased steadily in recent years. A population-based cross-sectional study was carried out to determine the prevalence of overweight and obesity among school children aged 10 to 17 years in Peninsular Malaysia and to determine its' association with some demographic factors and food intake. A stratified two-stage cluster sampling design with proportional allocation was used. Weight and height were measured using SECA weighing machine model 780 and food intake was estimated with a 3-day food consumption recording form. The children were classified as normal, overweight and obese in accordance with the body mass index reference values for Malaysian children. Statistical analysis was carried out using SPSS version 13. The prevalence of overweight and obesity among subjects (N=594) were 8.1% and 4.5%, respectively. Malay and Indian school boys, aged between 13-17 years old, with a household income of ≥ RM5,000 and lived around the north and middle zone with a small household members (≤4 person/household) were prone to be implicated with overweight and obesity problems. However, only age (p=0.024), household income (p=0.050) and household number (p=0.030) associated significantly. Overweight and obese students consumed more food compared to students with normal bodyweight. However, no significant differences were found between these two groups in the intake of high carbohydrate or protein food, fruits and vegetables except for miscellaneous food (p=0.023). Thus, resulted in a significant difference (P=0.031) for a total food intake per day. These findings suggest that social and dietary habits of the students influence their obesity.

GROUP D: PHYSICAL ACTIVITY

D01 Physical Activity Level among Overweight and Obese Adolescents in Kajang, Selangor

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The increasing prevalence of obesity among children and adolescent is one of the nutritional problems occurring in many countries including Malaysia. This study was carried out to determine the relationship between physical activity (PA) and body mass index (BMI) among adolescents. A total of 382 adolescents (male: 49.1%; female: 50.9%) with mean age of 13.98 ± 1.64 years old from three secondary schools in Kajang district, state of Selangor participated in this study. Anthropometric measurements included body weight and height, and BMI was calculated. They were also required to complete the Two Day Physical Activity Record. Majority of the respondents were normal weight (70%), but overweight and obese respondents (19.5%) were almost two times of the underweight respondents (10.5%). The mean for body height, weight and BMI were 50.0±13.1 kg, 1.59±0.08m, 19.8±4.5 kg/m2, respectively. Most adolescents (56.8%) were found to have sedentary physical activity, followed by light activity (35%), moderate activity (6.36%) and vigorously active (1.8%). The mean for physical activity was 1.30±0.34. Based on the findings, BMI was associated with physical activity ($\chi2=57.108$, p=0.0001). In particular, most of the activities among underweight and normal weight adolescents were sedentary. None of the underweight and 8.6% of the normal weight adolescents was practicing moderate and vigorous PA levels. However, about one-third of the overweight (31.2%) and obese (37.5%) adolescents were practicing moderate and vigorous PA levels. The active overweight and obese adolescents in this study may have involved in weight loss strategies, such as exercise. Further studies should be conducted to examine the weight loss behaviors among overweight and obese adolescents. This is because adolescents who are overweight and obese have incorporated exercise into their lifestyle maybe as a result of participation in intervention programs.

D02 Physical Activity Barriers in Relation with Body Weight Status and Socio-demographic Factors among Malaysian Men in Klang Valley

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Physical inactivity has been acknowledged as one of the public health issues and gaining more interests in recent years. This cross-sectional study was carried out to determine the barriers to physical activity participation among men and to evaluate its association to socio-demographic factors, physical activity level and body composition. 589 Malaysian men aged 40 years and above participated in this study. Participants answered the physical activity barriers questionnaire categorized into personal and psychology, physical and social environment. International Physical Activity Questionnaire (IPAQ) was used to assess the physical activity level. Weight, height, waist circumference and body fat percentage were measured. The mean body composition of Malays were significantly higher than Chinese ($p<0.01$). Participants with lower monthly household income had significantly higher personal and psychology and physical environment domain scores compared to higher income participants ($p<0.01$). Normal weight participants had significantly lower barriers than participants who were obese ($p<0.05$) while participants with low physical activity level had more barriers than active participants ($p<0.01$). Most overweight participants chose the perception that other recreational activities with family and friends were more entertaining as the main perceived barrier (3.04 ± 1.10) while participants with normal weight picked bad weather as the main barrier (2.76 ± 1.24). This study revealed that total barriers score was significantly correlated with BMI ($p<0.05$), body fat percentage, waist circumference and total physical activity ($p<0.01$). In conclusion, the main barriers to physical activity participation among men were lack of motivation with the perception that other recreational activities were more entertaining. Bad weather, lack of discipline, finance issues and no acquaintances to participate in regular physical activities together were other reasons for physical activity barriers. These findings would be useful in developing the appropriate physical activity intervention programs for men in future.

D03 Relationships between Body Mass Index and Pedometer-measured Physical Activity among Primary School Children in Malaysia

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Although physical activity is a key public health priority in the prevention of obesity, to date there is limited scientific evidence to show link between pedometer-measured physical activity with childhood obesity. This study aims to determine the relationship between body mass index (BMI) and pedometer-measured steps among primary school children aged 7-12 years in Malaysia. A total of 161 children (75 boys and 86 girls) aged 9.55 ± 1.55 years from East Coast and Southern regions of Peninsular Malaysia participated in this study. Body weight and height were measured and BMI was calculated and categorized according to WHO 2007 BMI-for-age growth reference. Physical activity were measured using pedometer strapped on an elastic belt for seven days during waking hours and recorded a mean pedometer step counts of 8256 ± 3321 steps. In boys, mean BMI and pedometer step counts were 17.0 ± 4.4 kg/m2 and 8605 ± 3615 steps, respectively; while in girls, they were 17.3 ±4.2 kg/m2 and 7949 ± 3027 steps, respectively. Pedometer step counts for obese children (7312 ± 2946, $p<0.05$) were significantly lower than that of their non-obese counterparts (8569 ± 3390). In both sexes, results showed that pedometer step counts were not significantly correlated with BMI (boys: r=-0.181, p=0.12; girls: r=-0.179, p=0.10). In conclusion, pedometer-measured physical activity was not significantly associated with BMI. Hence, the need of a combination of different strategies to combat the escalation of childhood obesity in Malaysia.

D04 Effect of Single Exercise Session on Appetite Measures and Energy Intake in Overweight Women

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This study aimed to identify the impact of single exercise session on appetite measures and energy intake in overweight women. Twelve healthy women, aged 39.3 ± 7.1, with BMI 31.6 ± 6.14 kg/m2, who were classified as sedentary (exercising less than 1 hour of planned exercise per week) participated in two trials: control trial and exercise trial. Exercise trial involved an exercise sessions where subjects conducted an exercise at 60% VO2 max to expend 500 kcal per session. While control trial was resting quietly for the same duration as exercise trial. Energy intake was assessed in both trials following intervention. Energy intake assessment took place over two days and lasted for approximately 24 hours. On day one of energy intake measures, an ad libitum buffet dinner was provided and the amount of food ingested was recorded. On day two of energy intake assessment, subjects were given ad libitum buffet meals throughout the day and the amounts of food ingested were recorded. Breakfast was given at around 09.00 hrs, lunch at around 3.5 hours after breakfast and dinner were given 4.5 hours after lunch. Appetite were measured during both day 1 and day 2 using a self-administrated, validated questionnaire that comprised five questions in the form of visual analog scales (VAS) of 100 mm horizontal lines. The questions consisted of the sensations of 'hunger, fullness, satiety, desire to eat and prospective food consumption (PFC)'. The questionnaires were repeated before and after each meal and every 30 to 60 minutes in between meals. The results from this study shows in overweight females that acute exercise session has no impact on appetite measures such as hunger (Control: 19.7 ± 1.6 mm, Exercise: 20.6 ± 2.1) mm, satiety (Control: 48.9 ± 2.5 mm, Exercise: 50.8 ± 3.1 mm, fullness (Control: 49.2 ± 2.0 mm, Exercise: 49.0 ± 2.8 mm, desire to eat (Control: 20.9 ± 2.2 mm, Exercise: 21.6 ± 2.6 mm and prospective food consumption (Control: 25.6 ± 2.5 mm , Exercise: 25.4 ± 2.8 mm and does not alter 24 hours energy intake (Control: 3223 ± 288 kcal, Exercise: 3094 ± 248 kcal). Thus, the data suggests negative energy balance induced by single exercise session is not compensated by an increase in appetite energy intake.

D05 Physical activity barriers and body weight status among IPTA students

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A cross sectional study was conducted to determine the association between physical activity barriers and body weight status among IPTA students. 321 undergraduate students (aged 19 to 25 years old, 130 males and 191 females) from UKM, UPM and UM, participated in this study. Anthropometric measurements such as height, weight, waist circumferences(wc) and body fat percentage were taken. Physical activity level was assessed using the short form International Physical Activity Questionnaire (IPAQ), while physical activity barriers (PAB) were evaluated using a PAB questionnaire, drawn up on a 5 point Likert Scale with 5 domains . The domains were intrapersonal, interpersonal, institutional, community and physical environmental barriers. Mean BMI was 21.2 ± 3.7 kg /m2, with 23.1% underweight, 62.6% normal weight and 14.3% overweight subjects. 86.8% of male and 89.6% female undergraduates had normal waist circumference. On the other hand, 48.4% of male undergraduates and 66.3% female undergraduates had normal body fat percentage. 39.3% of the undergraduates was highly active, 44.5% was moderately active and only 16.2% was sedentary. Institutional barrier (3.08 ± 0.75) was scored highest while intrapersonal barrier (2.45 ± 0.52) the least. Specifically, the top five PAB among the undergraduates were academic assignments and preparations for exam (3.24 ± 1.06, 3.24 ± 0.99), exam –induced stress (3.18 ± 1.01), lack of sleep (3.13 ± 1.01), bad weather (3.12 ± 1.10), followed by visitors (friends and family members), (2.91 ± 0.88). Significant correlations were found between PAB score with physical activity level and body fat percentage, with ($r = -0.194$, $p < 0.001$) and ($r = 0.141$, $p < 0.05$) respectively. However, no significant difference was observed among undergraduates with low, normal and high body fat percentage, regardless of gender, in term of the PAB score in 5 domains.This was observed among underweight, normal weight and overweight undergraduates as well. Higher PAB score was observed among males with wc $\geq$ 90cm but significant difference only existed in intrapersonal domain. Interestingly, higher PAB score was observed among females with wc $\leq$ 80cm but significant difference only existed in community and physical environmental domain.In conclusion, 62.6.% of the IPTA students had normal BMI, and their main PAB was academic burden.

GROUP E: ISSUES RELATED TO OBESITY

E01 Educating Malaysian Children to Choose Healthy Foods through Exergaming

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There is a saying that says obesity is easier to prevent than to correct. As a rapid rise in obesity among Malaysian children, comprehensive steps should be taken to overcome this issue. One of techniques used to prevent the obesity problem is by educating the children about healthy diets. This will lead to build up healthy food preferences among the children thus minimizing the weight gain. However, many people believe that it is not an easy task to develop children's healthy meal preferences if the children are not introduced with the right meals since they are at the preschool stage. Additionally, children only like to do what they want to do, not what they have to do. An important question to ask is how to educate the children to opt healthy eating habits in the most enjoyable way? What is a right or a suitable approach that can be adopted? Since persuasive technology is a relatively new technique to change people's attitudes and behaviours, it may have a potential to convey messages to the children particularly those at the preschool level effectively. Furthermore, recent findings from a study conducted by a medical school show that the introduction of new generation active computer and video console games that is known as exergaming has increased children's physical activities rather than promoting sedentary lifestyles. The aim of the research is to look into details how exergaming as a persuasive tool can provide nutrition education to the children while not only enjoying playing the games but also indirectly contributing to the children's energy expenditure.

E02 Relationship between Fiber Consumption with Incidence of Obesity in 4 SLTP Bengkulu, Indonesia

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A study was carried out to determine the effectiveness of fiber consumption among students obesity in 4 SLTP (junior high students) Bengkulu. Subjects consisted of 127 adults (75 women, 52 men) who registration in SLTP Negeri 1, 2, 7 and 13.The subjects were student between the ages of 13 and 15 years. This study is cross sectional study. Anthropometric measurements IMT persentile, data fiber and foods measurement use form recall. The results showed that most energy consumption <= 2400 Kkal/day (75.6%), Protein <= 60 gram (51.2%), whereas most fiber consumption <= 8 gram/day (61.4%). For physical activity most students have a heavy category of physical activity (75.6%).   Factors related to the incidence of obesity in 4 junior high students (SLTP) Bengkulu are energy consumption and fiber consumption. Students who have energy consumption > 2400 Kkal/day chance of 4.7 times for obese compared with students who energy consumption <= 2400 Kkal/day (p value 0.009, OR 4,781, CI 1,474-15,508). Students who low fiber consumption have a chance of obesity 2.9 times compared to students who consume high fiber (p value 0.011, OR 2,916 CI 1,279 – 6,652). Intake fiber deficiency is associated with incident obesity in student SLTP. Increase consumption of vegetables, fruits and reduce consumption of fat and high sugar can significantly reduce the percentage of obesity in student.

E03 Effectivity of Green Tea (Camellia sinensis) to Prevent Metabolic Syndrome Related Disorders in Sprague Dawley Rats

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Metabolic syndrome is a growing health problem all over the world, including Indonesia. It is characterized by at least 3 out of 5 criterias: abdominal obesity, high level of blood fasting glucose, hypertension, higher level of serum triglyceride and lower level of cholesterol HDL. Green tea (Camellia sinensis) is believed to have beneficial effect on preventing metabolic syndrome related disorders. The following study was aimed to investigate the effectivity of green tea against metabolic syndrome related disorders. Fifteen female Sprague Dawley rats aged 10 weeks were randomly assigned to 3 group of treatments, 5 per group; (S) standard diet, high fat diet (HF), and high fat diet plus green tea extract (HFT) for 10 weeks. The green tea water extract was given ad libitum as drinking water. Body weight was measured every week. At the end of the intervention period, the blood pressure was measured using non- invasive method using tail cuff and oscillograph, and an aliquot of blood was drawn from tail for glucose analysis after 12 hour fasting. On the next day, all rats were sacrificed and blood was drawn from the heart for triglyceryde and HDL cholesterol analysis. Visceral fat was cut to be weighed. It was shown that HF group had significantly greater weight gain and visceral fat, higher fasting blood glucose, higher blood pressure, higher blood triglyceride concentration, and lower HDL cholesterol compared to S group. Thus, the HF group was likely to develop metabolic syndrome. At the other side, HFT group had significantly lower weight gain and visceral fat accumulation, lower blood pressure, lower blood triglyceride concentration, and higher HDL cholesterol compared to HF group. These results suggest that green tea extract has beneficial effect in preventing metabolic syndrome related disorders in Sprague Dawley rats with metabolic syndrome induced by high fat diet.

E04 Strategic Model for Childhood Obesity Nutrition Intervention: Preliminary Recommendations

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Childhood overweight and obesity have reached epidemic and are major public health problems both globally and nationally. It has been associated with numerous adverse effects including a variety of health complications such as hypertension, dyslipidemia, left ventricular hypertrophy, atherosclerosis, metabolic syndrome, type 2 diabetes, sleep disorders, and non-alcoholic fatty liver disease as well as psychological effects such as stigmatization, discrimination, depression and emotional trauma. Many factors including environmental (e.g., homes, schools, community, food availability and cost), and societal (e.g., cultural norms, advertising and food marketing, social networks, technological developments, public policy), personal (e.g., beliefs, attitudes, taste preferences, and dietary composition), as well as physiological (e.g., intrauterine and early life "programming", appetite and satiety mechanisms and regulation, adipose tissue metabolism, genetic predisposition) contribute to this problem. Intervention strategies at the individual/household, community/institution, and social structures/policy levels are important to prevent excessive weight gain in children. With this background in mind, a quasi experimental study focussing on nutrition education using the traffic light approach and increase in physical activities is being planned to evaluate the effectiveness of school-based intervention programme among overweight and obese children aged 9-11 years old. This study will manifest in a logic model for treating and preventing childhood obesity in Malaysia. Besides, a series of nutrition education materials will be produced that can be used by health professionals in educating parents and children to combat childhood obesity. Impact and outcome of the program will be assessed through weight reduction, increment in daily physical activities, reduction of television screen time and changes of eating habits after the program. Intervention program with community/institution partnership is anticipated to gain awareness among individual/household as well as the community. It is hoped that the program will help to incorporate skills and change behaviours, decrease the risk factors for health problems/chronic diseases, as well as reduce the number of obese children in the long term.

E05 Construct Validity of Malay Version of Children Eating Behavior Questionnaire (CEBQ)

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This study was undertaken to determine the construct validity of self-reported Children Eating Behavior Questionnaire (CEBQ) in Malaysian children. The Children Eating Behavior Questionnaire (CEBQ) is parental-reported questionnaire designed to assess eight aspects of children's appetite, that is the satiety responsiveness (SR), enjoyment of food (EF) and food responsiveness (FR), slowness in eating (SE) and food fussiness (FF), desire to drink (DD), emotional over-eating (EOE) and emotional under-eating (EUE). In this study, CEBQ was self-reported by the children. A total number of 90 children aged between 9 – 12 years were selected. They are required to self-report the Children Eating Behavior Questionnaire (CEBQ) with the assistance of interviewers. Principal components analysis using all thirty-five CEBQ items was conducted with Varimax rotation. The resultant seven-factor model explained 57.0% of variance in CEBQ responses. All the subscales remained except Emotional over-eating (EOE) and Emotional under-eating (EUE), which merged into one subscale instead. However, the underlying structure was similar to the original CEBQ with Cronbach's alphas ranging from 0.5-0.7 being reported. All the 35 items were retained. The reliability of the questionnaire is considered as acceptable compared to previous study with Cronbach's alphas ranging from 0.7-0.9. However, this could be further improved by increasing the number of subjects, hence improving the statistical power. It should be noted that factors such as child's cognitive level and denial of certain eating habits may affect the ability of a child's reporting. This results support the use of the self-reported CEBQ for further understanding of eating style as a behavioral pathway to obesity.

E06 Body weight perception and weight management practices among Royal Malaysian Navy (RMN) Personnel

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The alarming increase in cases of overweight and obesity in militaries in recent decades has become the catalyst for this study. This cross sectional study examines the association between actual weight status against perception of body weight and explores the relationship of socio-demographic variables and weight management practices on body weight perception. A total of 909 male RMN personnel, aged 18-50 years old, from three RMN bases in Peninsular Malaysia participated in the study. The subjects were selected using the stratified sampling technique. Anthropometric measurements, including weight and height, were taken using standardised methods and body mass index (BMI) was calculated. A questionnaire was administered to obtain socio-demographic background, perception of weight status and weight management practices. Based on BMI categories (WHO 1988) on actual body weight, 3.6% of the subjects were underweight, 60.0% normal, 29.3% overweight, and 7.2% obese. However, based on subjects perception, 7.6% perceived themselves as underweight, 67% as having normal weight, 24.8% as overweight, and 0.7% as obese. The majority of underweight (55.3%) and normal weight subjects (87.9%), tend to correctly perceive themselves, while overweight (58.6%) and obese subjects (9.4%) tend to perceive themselves correctly. A total of 41% of overweight subjects perceived themselves to be normal while 10.9% and 79.7% obese subjects considered themselves as normal and overweight respectively. Overall, only about 27.6% of subjects in this study perceived their weight incorrectly. The results revealed a significant association between perception of body weight and actual weight status (χ^2=206.567,p<0.001). A total of 78.7% subjects reported experiencing weight gain since serving as RMN personnel. As perception of overweight is a key determinant of weight management, about 71% of the subjects who are overweight or obese, and do not perceive themselves as such, are unlikely to engage in reducing their weight. Chi-square tests showed significant relationship between accuracy of body weight perception, and practice to reduce (χ^2=9.996,p<0.05). The perception of subjects who correctly assessed their own body weight was affected by socio-demographic variables.

Within the levels of BMI, the best classification was obtained among the normal subjects (87.9%, p<0.001). Younger subjects perceived their actual BMI better than older subjects (93.2%, p<0.001). The subjects also perceived themselves better if they were single (82.6%, p<0.001), low ranking (77.1%, p<0.001), smoked (75%, p<0.05) and had low educational level (73.4%, p<0.05). In conclusion, the results indicate the need to increase awareness of the military personnel perception of their weight status. We recommend that health promotion programmes should take into account the importance of cultivating a realistic and healthy body image.

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