BIBLIOGRAPHY

Abobaker, A., Alzwi, A., & Alraied, A. H. A. (2020). Overview of the possible role of vitamin C in management of COVID-19. *Pharmacological Reports, 72*(6), 1517-1528

Aderinto, N., Olatunji, G., Kokori, E., Olaniyi, P., Isarinade, T., & Yusuf, I. A. (2023). Recent advances in bariatric surgery: a narrative review of weight loss procedures. *Annals of Medicine and Surgery, 85*(12), 6091-6104. DOI: 10.1097/MS9.0000000000001472

Adıgüzel, İ., Onmuş, İ. R. D., Mandıracıoğlu, A., & Öcek, Z. A. (2021). Adaptation of the Global Physical Activity Questionnaire (GPAQ) into Turkish: A validation and reliability study. *Turkish Journal of Physical Medicine and Rehabilitation, 67*(2), 175

Ahmed, S. S., & Mohammed, A. A. (2020). Effects of thyroid dysfunction on hematological parameters: Case controlled study. *Annals of Medicine and Surgery, 57*, 52-55

Akhtar., N., Mallick., H. (2019). Recommendations for a National Sleep Policy in India. *National Medical Journal of India, 32*, 59-60. DOI: 10.4103/0970-258X.272131

Akmal, N. L. H. B. I., Chaudhary, M., & Duraisamy, R. (2021). Food Intake Of Patients With Recurrent Aphthous Stomatitis In Indian Population-A Case Control Study. *International Journal of Dentistry and Oral Science, 8*(8), 4074-4079. DOI: 10.19070/2377-8075-21000832

Al Dweik R, Sheble Y, Ramadan H, Issa H, Sheble A. (2022). The association between sleeping behavior, obesity, psychological depression, and eating habits among adolescents in the emirate of Abu Dhabi-United Arab Emirates. *The Public Library of Science-One, 17*(8), e0269837. DOI: 10.1371/journal.pone.0269837

Al Kibria, G. M., Swasey, K., Hasan, M. Z., Sharmeen, A., & Day, B. (2019). Prevalence and factors associated with underweight, overweight and obesity among women of reproductive age in India. *Global Health Research and Policy, 4*(24), 1-12. DOI: 10.1186/s41256-019-0117-z

Albuquerque, D., Nóbrega, C., Manco, L., & Padez, C. (2017). The contribution of genetics and environment to obesity. *British Medical Bulletin, 123*(1), 159-173

Ali, J., & Nath, T. (2013). Factors affecting consumers' eating-out choices in India: Implications for the restaurant industry. *Journal of Foodservice Business Research, 16*(2), 197-209

Al-Makhroumi, N., Al-Khusaibi, M., Al-Subhi, L., Al-Bulushi, I., & Al-Ruzeiqi, M. (2022). Development and validation of a food safety knowledge, attitudes and self-reported practices (KAP) questionnaire in Omani consumers. *Journal of the Saudi Society of Agricultural Sciences, 21*(7), 485-492

Al-Makhroumi, N., Al-Khusaibi, M., Al-Subhi, L., Al-Bulushi, I., & Al-Ruzeiqi, M. (2022). Development and validation of a food safety knowledge, attitudes and self-reported practices (KAP) questionnaire in Omani consumers. *Journal of the Saudi Society of Agricultural Sciences, 21*(7), 485-492

Alzahrani, H., Mackey, M., Stamatakis, E., Zadro, J. R., & Shirley, D. (2019). The association between physical activity and low back pain: a systematic review and meta-analysis of observational studies. *Scientific Reports, 9*(1), 8244. DOI: 10.1038/s41598-019-44664-8

American Psychological Association. (2023). Socioeconomic status. Available on: https://www.apa.org/topics/socioeconomic-status. Accessed on 23rd August, 2023

Anand, D., & Anuradha, R. K. (2018). Impact of nutrition education programme on knowledge attitude and practices (KAP) about nutrition among adolescent girls. *International Journal of Home Science, 4*(3), 313-315

Anand, T., Rahi, M., Sharma, P., & Ingle, G. K. (2014). Issues in prevention of iron deficiency anemia in India. *Nutrition, 30*(7-8), 764-770

Anderson, E., & Durstine, J. L. (2019). Physical activity, exercise, and chronic diseases: A brief review. *Sports Medicine and Health Science*, *1*(1), 3-10. DOI: 10.1016/j.smhs.2019.08.006

Andrade, C., Menon, V., Ameen, S., & Kumar Praharaj, S. (2020). Designing and conducting knowledge, attitude, and practice surveys in psychiatry: practical guidance. *Indian Journal of Psychological Medicine*, *42*(5), 478-481

Andrade, C., Menon, V., Ameen, S., & Kumar Praharaj, S. (2020). Designing and conducting knowledge, attitude, and practice surveys in psychiatry: practical guidance. Indian Journal of Psychological Medicine, 42(5), 478-481

Angulo, J., El Assar, M., Álvarez-Bustos, A., & Rodríguez-Mañas, L. (2020). Physical activity and exercise: Strategies to manage frailty. *Redox biology, 35*, 101513

Anjana, R.M., Pradeepa, R., Das, A.K., Deepa, M., Bhansali, A., Joshi, S.R., Joshi, P.P., Dhandhania, V.K., Rao, P.V., Sudha, V. and Subashini, R. (2014). Physical activity and inactivity patterns in India–results from the ICMR-INDIAB study (Phase-1) [ICMR-INDIAB-5]. *International Journal of Behavioral Nutrition and Physical Activity, 11*, 1-11

Anwar, N., & Mahmud, S. N. (2018). Quality of sleep in CKD patients on chronic hemodialysis and the effect of dialysis shift. *Journal of the College of Physicians and Surgeons Pakistan, 28*(8), 636-640

Aoyama, S., & Shibata, S. (2020). Time-of-day-dependent physiological responses to meal and exercise. *Frontiers in Nutrition, 7*, 18. DOI: 10.3389/fnut.2020.00018

Aparna, P., Muthathal, S., Nongkynrih, B., & Gupta, S. K. (2018). Vitamin D deficiency in India. *Journal of Family Medicine and Primary Care, 7*(2), 324

Apovian, CM. (2016). Obesity: definition, comorbidities, causes, and burden. *The American Journal of Managed Care, 22*, 176-185

Arasaretnam, S., Kiruthika, A., & Mahendran, T. (2018). Nutritional and mineral composition of selected green leafy vegetables. *Ceylon Journal of Science, 47*(1), 35

Archer, E., Lavie, C. J., & Hill, J. O. (2018). The contributions of 'diet','genes', and physical activity to the etiology of obesity: contrary evidence and consilience. *Progress in Cardiovascular Diseases, 61*(2), 89-102

Archundia Herrera, M. C., & Chan, C. B. (2018). Narrative review of new methods for assessing food and energy intake. *Nutrients, 10*(8), 1064

Arlappa, N. (2023). Vitamin A supplementation policy: a shift from universal to geographical targeted approach in India considered detrimental to health and nutritional status of under 5 years children. *European Journal of Clinical Nutrition, 77*(1), 1-6

Armstrong, A., Jungbluth Rodriguez, K., Sabag, A., Mavros, Y., Parker, H. M., Keating, S. E., & Johnson, N. A. (2022). Effect of aerobic exercise on waist circumference in adults with overweight or obesity: A systematic review and meta-analysis. *Obesity Reviews, 23*(8), e13446

Arora, C., Malhotra, A., Ranjan, P., Singh, V., Singh, N., Dwivedi, S. N., & Vikram, N. K. (2022). Effect of intensive weight-loss intervention on metabolic, ultrasound and anthropometric parameters among patients with obesity and non-alcoholic fatty liver disease: an RCT. *European Journal of Clinical Nutrition, 76*(9), 1332-1338

Arslan, F. (2011). The effects of an eight-week step-aerobic dance exercise programme on body composition parameters in middle-aged sedentary obese women. *International SportMed Journal, 12*(4), 160-168

Asghari, G., Mirmiran, P., Yuzbashian, E., & Azizi, F. (2017). A systematic review of diet quality indices in relation to obesity. *British Journal of Nutrition, 117*(8), 1055-1065. DOI:10.1017/S0007114517000915

Ayosanmi, O.S., Alli, B.Y., Akingbule, O.A., Alaga, A.H., Perepelkin, J., Marjorie, D., Sansgiry, S.S. and Taylor, J. (2022). Prevalence and correlates of self-medication practices for prevention and treatment of COVID-19: a systematic review. *Antibiotics, 11*(6), 808

Baart, A. M., Balvers, M. G. J., de Vries, J. H. M., Ten Haaf, D. S. M., Hopman, M. T. E., & Klein Gunnewiek, J. M. T. (2021). Relationship between intake and plasma concentrations of vitamin B12 and folate in 873 adults with a physically active lifestyle: a cross-sectional study. *Journal of Human Nutrition and Dietetics, 34*(2), 324-333

Bailey, R. L. (2021). Overview of dietary assessment methods for measuring intakes of foods, beverages, and dietary supplements in research studies. *Current Opinion in Biotechnology, 70*, 91-96

Balachandar, R., Pullakhandam, R., Kulkarni, B., & Sachdev, H. S. (2021). Relative Efficacy of Vitamin D2 and Vitamin D3 in improving Vitamin D status: Systematic review and meta-Analysis. *Nutrients, 13*(10), 3328

Baliki, G., Weiffen, D., Schreinemachers, P., Shrestha, A., Shrestha, R. M., Schreiner, M., & Brück, T. (2023). Effect of an Integrated School Garden and Home Garden Intervention on Anemia Among School-Aged Children in Nepal: Evidence From a Cluster Randomised Controlled Trial. *Food and Nutrition Bulletin, 44*(3), 195-206

Bandyopadhyay, N. (2022). Exercise as a cost-effective modality for healthy aging of Indian women. In: *Emerging Trends of Physical Education and Sports Science*. ISBN: 978-93-82606-09-3. Available online at: https://www.researchgate.net/publication/363470162. Accessed online on: 23rd October, 2023

Banerjee, S., Srivastava, S., & Giri, A. K. (2020). Possible nutritional approach to cope with COVID-19 in Indian perspective. *Advanced Research Journal Of Medical And Clinical Sciences, 6*(06), 207-219

Banson, A. N., Boateng, B. A., Abonie, U. S., Mensah, Y. A., Yarfi, C., Kofi-Bediako, W. A., & Salia, V. O. (2023). Knowledge of physical activity, physical activity level and waist-to-hip ratio in adults with diabetes in a Ghanaian municipality. *Ghana Medical Journal, 57*(2), 112-121

Barrett, S., Begg, S., O'Halloran, P., & Kingsley, M. (2020). A physical activity coaching intervention can improve and maintain physical activity and health-related outcomes in adult ambulatory hospital patients: the Healthy4U-2 randomised controlled trial. *International Journal of Behavioral Nutrition and Physical Activity, 17*(1), 1-11. DOI: 10.1186/s12966-020-01063-x

Belcher, B., & Palenberg, M. (2018). Outcomes and impacts of development interventions: toward conceptual clarity. *American Journal of Evaluation, 39*(4), 478-495

Bellafronte, N. T., Diani, L. M., Vega-Piris, L., Cuadrado, G. B., & Chiarello, P. G. (2021). Comparison between dual-energy x-ray absorptiometry and bioelectrical impedance for body composition measurements in adults with chronic kidney disease: a cross-sectional, longitudinal, multi-treatment analysis. *Nutrition, 82*, 111059. DOI: 10.1016/j.nut.2020.111059

Besedovsky, L., Lange, T., & Haack, M. (2019). Das Schlaf-Immun-Übersprechen in Gesundheit und Krankheit. *Physiological Reviews, 99*(3), 1325-1380

Bhadra, P., & Deb, A. (2020). A review on nutritional anemia. *Indian Journal of Natural Sciences, 10*(59), 18466-18474

Bhaskaran, K., dos-Santos-Silva, I., Leon, D. A., Douglas, I. J., & Smeeth, L. (2018). Association of BMI with overall and cause-specific mortality: a population-based cohort study of 3.6 million adults in the UK. *Lancet Diabetes Endocrinology, 6*(12), 944-953

Bidyasagar Bal, S. C., Oberoi, S. S., Dalai, R. P., & Oberoi, A. (2019). The Relationship between Nutrition and Oral Health: A Review. *Indian Journal of Public Health Research & Development, 10*(9), 1708-1712

Bircher, J. (2005). Towards a dynamic definition of health and disease. Medicine, *Health Care and Philosophy, 8*, 335-341

Bircher, J. (2020). Meikirch model: new definition of health as hypothesis to fundamentally improve healthcare delivery. *Integrated Healthcare Journal, 2*(1). e000046. DOI: 10.1136/ihj-2020-000046

Blanck, H., Bowman, B., Serdula, M., Khan, L., Kohn, W., & Woodruff, B. (2002). Angular stomatitis and riboflavin status among adolescent Bhutanese refugees living in southeastern Nepal. *The American Journal of Clinical Nutrition, 76(2*), 430-435. DOI: 10.1093/AJCN/76.2.430

Blüher, M. (2016). Adipose tissue inflammation: a cause or consequence of obesity-related insulin resistance?. *Clinical Science, 130(*18), 1603-1614

Blüher, M. (2019). Obesity: global epidemiology and pathogenesis. *Nature Reviews Endocrinology, 15*(5), 288-298.

Blüher, M. (2019). Obesity: global epidemiology and pathogenesis. *Nature Reviews Endocrinology, 15*(5), 288-298

Bobbitt Z. (2022). The Importance of Statistics in Research (With Examples). Statology. Available on: https://www.statology.org/importance-of-statistics-in-research/. Accessed on 13 July, 2023

Bolognese, M.A., Franco, C.B., Ferrari, A., Bennemann, R.M., Lopes, S.M.A., Bertolini, S.M.M.G., Júnior, N.N. and Branco, B.H.M. (2020). Group nutrition counseling or individualized prescription for women with obesity? A clinical trial. *Frontiers in Public Health, 8*(127), 1-13

Booth, A., & Camacho, P. (2013). A closer look at calcium absorption and the benefits and risks of dietary versus supplemental calcium. *Postgraduate Medicine, 125*(6), 73-81

Bourassa, M. W., Gomes, F., & Bergeron, G. (2020). Thiamine Deficiency Remains an Urgent Public Health Problem. *Field Exchange, 63*, 100

Bowen, L., Taylor, A.E., Sullivan, R., Ebrahim, S., Kinra, S., Krishna, K.R., Kulkarni, B., Ben-Shlomo, Y., Ekelund, U., Wells, J.C. and Kuper, H. (2015). Associations between diet, physical activity and body fat distribution: a cross sectional study in an Indian population. *The Bio-Med Central Public Health, 15*, 1-12

Bradley, T., Campbell, E., Dray, J., Bartlem, K., Wye, P., Hanly, G., & Bowman, J. (2022). Systematic review of lifestyle interventions to improve weight, physical activity and diet among people with a mental health condition. *Systematic Reviews, 11*(1), 198

British Heart Foundation. (2023). Blood tests: What happens during a blood test and what can the results show?. BHF – Heart Matters: More than a magazine: information, inspiration and support. Accessed online at: https://www.bhf.org.uk/ informationsupport/ heart-matters-magazine/medical/tests/blood-tests

Britten-Jones, A. C., Craig, J. P., & Downie, L. E. (2022). Omega-3 polyunsaturated fatty acids and corneal nerve health: Current evidence and future directions. *The Ocular Surface, 27*, 1-12

Bull, F. C., Al-Ansari, S. S., Biddle, S., Borodulin, K., Buman, M. P., Cardon, G., Carty, C., Chaput, J., Chastin, S., Chou, R., Dempsey, P. C., DiPietro, L., Ekelund, U., Firth, J., Friedenreich, C. M., Garcia, L., Gichu, M., Jago, R., Katzmarzyk, P. T., Lambert, E., Leitzmann, M., Milton, K., Ortega, F. B., Ranasinghe, C., Stamatakis, E., Tiedemann, A., Troiano, R. P., Ploeg, H. P., Wari, V., & Willumsen, J. F. (2020). World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *British Journal of Sports Medicine, 54*(24), 1451-1462

Bull, F. C., Maslin, T. S., & Armstrong, T. (2009). Global physical activity questionnaire (GPAQ): nine country reliability and validity study. *Journal of Physical Activity and Health, 6*(6), 790-804

Bullard, T., Ji, M., An, R., Trinh, L., Mackenzie, M., & Mullen, S. P. (2019). A systematic review and meta-analysis of adherence to physical activity interventions among three chronic conditions: cancer, cardiovascular disease, and diabetes. *Bio-Med Central Public Health, 19*(1), 1-11

Buysee, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). Pittsburgh sleep quality index. *Journal of Clinical Psychology in Medical Settings, 25*, 52-73. DOI: 10.1016/j.smrv.2015.01.009

Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry research, 28*(2), 193-213

Buysse, D. J., Reynolds III, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Research, 28*(2), 193-213

Buysse, D. J., Reynolds, C. F., 3rd, Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh Sleep Quality Index: a new instrument for psychiatric practice and research. *Psychiatry Research, 28*(2), 193–213. DOI: 10.1016/0165-1781(89)90047-4

Cai, Q., Shi, S., Shen, H., Ye, B., & Cheng, W. (2023). Combined general and central obesity indices to predict gestational diabetes. *The Journal of Maternal-Fetal & Neonatal Medicine, 36*(1), 2183765

Calleja, M., Caetano Feitoza, N., Falk, B., Klentrou, P., Ward, W. E., Sullivan, P. J., & Josse, A. R. (2020). Increased dairy product consumption as part of a diet and exercise weight management program improves body composition in adolescent females with overweight and obesity—A randomized controlled trial. *Pediatric Obesity, 15*(12), e12690

Campa, F., Toselli, S., Mazzilli, M., Gobbo, L. A., & Coratella, G. (2021). Assessment of body composition in athletes: A narrative review of available methods with special reference to quantitative and qualitative bioimpedance analysis. *Nutrients, 13*(5), 1620. DOI: 10.3390/nu13051620

Campbell E.W., and Lynn C. K. (1990). Chapter 4 – The Physical Examination. In Walker, Hall, & Hurst (Ed.). Clinical methods: the history, physical, and laboratory examinations. Boston, USA. Butterworth Publishers.

Candow, D. G., Forbes, S. C., Little, J. P., Cornish, S. M., Pinkoski, C., & Chilibeck, P. D. (2012). Effect of nutritional interventions and resistance exercise on aging muscle mass and strength. *Biogerontology, 13*, 345-358

Cankaya, C., Cumurcu, T., & Gunduz, A. (2018). Corneal endothelial changes in patients with vitamin D deficiency. *Indian Journal of Ophthalmology, 66*(9), 1256

Cao, C., Xiao, Z., Wu, Y., & Ge, C. (2020). Diet and skin aging—From the perspective of food nutrition. *Nutrients, 12*(3), 870. DOI: 10.3390/nu12030870

Carounanidy, U., & Sathyanarayanan, R. (2009). Dental caries: A complete changeover (Part II)-Changeover in the diagnosis and prognosis. *Journal of Conservative Dentistry, 12*(3), 87-100. DOI: 10.4103/0972-0707.57631

Carr, A. C. (2020). A new clinical trial to test high-dose vitamin C in patients with COVID-19. *Critical Care, 24*(1), 1-2

Case, M. A., Burwick, H. A., Volpp, K. G., & Patel, M. S. (2021). Accuracy of smartphone applications and wearable devices for tracking physical activity data. *The Journal of the American Medical Association, 325*(7), 654-655

Cena, H., & Calder, P. C. (2020). Defining a healthy diet: evidence for the role of contemporary dietary patterns in health and disease. *Nutrients, 12*(2), 334

Centers for Disease Control and Prevention. (2020). Disability and Health: Healthy Living. In Disability and Health Promotion. National Center on Birth Defects and Developmental Disabilities. Available at: https://www.cdc.gov/ncbddd/disabilityandhealth/healthyliving.html. Accessed on 13 July, 2023

Centre for Disease Control and Prevention. (2022). How much physical activity do adults need? In Physical Activity Basics. Division of Nutrition, Physical Activity, and Obesity, NCDCPH. Available at: https://www.cdc.gov/physicalactivity/basics/adults/index.htm. Accessed on 14 July, 2023

Chandan, S. N., & Rao, S. (2023). Dietary interventions and nutritional impact on oral health and development: a review. *Journal of Food Science and Technology, 60*(6), 1666-1673

Chander, A., Chopra, R., & Batra, N. (2013). Vitamin A deficiency: an eye sore. *Journal of Medical Nutrition and Nutraceuticals, 2*(1), 41

Chaput, J.P., McHill, A.W., Cox, R.C., Broussard, J.L., Dutil, C., da Costa, B.G., Sampasa-Kanyinga, H. and Wright Jr, K.P. (2023). The role of insufficient sleep and circadian misalignment in obesity. *Nature Reviews Endocrinology, 19*(2), 82-97

Charoenngam, N., Shirvani, A., & Holick, M. F. (2019). Vitamin D for skeletal and non-skeletal health: What we should know. *Journal of Clinical Orthopaedics and Trauma, 10(*6), 1082-1093

Charoenphandhu, N. (2007). Physical activity and exercise affect intestinal calcium absorption: a perspective review. Sport Med, 7(1), 171-81

Chaudhury, S. (2019). Effects of Vitamin Deficiencies on Oral Health. *Indian Journal of Public Health Research & Development, 10*(11). 1263-1267

Cheikh Ismail, L., Hashim, M., Jarrar, A.H., Mohamad, M.N., Al Daour, R., Al Rajaby, R., AlWatani, S., AlAhmed, A., Qarata, S., Maidan, F. and Saleh, S.T. (2022). Impact of a nutrition education intervention on salt/sodium related knowledge, attitude, and practice of university students. *Frontiers in Nutrition, 9*, 830262. DOI: 10.3389/fnut.2022.830262

Chen, G., Lv, Y., Ni, W., Shi, Q., Xiang, X., Li, S., & Jin, S. (2020). Associations between phase angle values obtained by bioelectrical impedance analysis and nonalcoholic fatty liver disease in an overweight population. *Canadian Journal of Gastroenterology and Hepatology.* Vol. 2020, Article ID 8888405, 7 pages. DOI: 10.1155/2020/8888405

Cherubal, A. G., Pooja, S., & Raghavan, V. (2020). Association between hypertension, body mass index, and sleep: A cross-sectional study. *Indian Journal of Mental Health and Neurosciences, 3*(1), 11-14

Chiang, C. P., Chang, J. Y. F., Wang, Y. P., Wu, Y. H., Wu, Y. C., & Sun, A. (2020). Atrophic glossitis: Etiology, serum autoantibodies, anemia, hematinic deficiencies, hyperhomocysteinemia, and management. *Journal of the Formosan Medical Association, 119*(4), 774-780

Cho, S. W., Wee, J. H., Yoo, S., Heo, E., Ryu, B., Kim, Y., & Kim, J. W. (2018). Effect of lifestyle modification using a smartphone application on obesity with obstructive sleep apnea: a short-term, randomized controlled study. *Clinical and Experimental Otorhinolaryngology, 11*(3), 192-198

Choi, M. S., & Kim, M. S. (2006). The effect of nutritional education and exercise intervention on reducing weight of obese women. *The Korean Journal of Community Living Science, 17*(4), 57-66

Chopra, S., Ranjan, P., Singh, V., Kumar, S., Arora, M., Hasan, M.S., Kasiraj, R., Kaur, D., Vikram, N.K., Malhotra, A. and Kumari, A. (2020). Impact of COVID-19 on lifestyle-related behaviours-a cross-sectional audit of responses from nine hundred and ninety-five participants from India. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14*(6), 2021-2030

Chouraqui, J. P. (2023). Risk Assessment of Micronutrients Deficiency in Vegetarian or Vegan Children: Not So Obvious. *Nutrients, 15*(9), 2129

Chu, A. H., Ng, S. H., Koh, D., & Müller-Riemenschneider, F. (2015). Reliability and Validity of the Self- and Interviewer-Administered Versions of the Global Physical Activity Questionnaire (GPAQ). *The Public Library of Science-One, 10*(9), e0136944. DOI: 10.1371/journal.pone.0136944

Cifuentes, L., Ghusn, W., Feris, F., Campos, A., Sacoto, D., De la Rosa, A., & Acosta, A. (2023). Phenotype tailored lifestyle intervention on weight loss and cardiometabolic risk factors in adults with obesity: a single-centre, non-randomised, proof-of-concept study. E-Clinical Medicine, *The Lancet Discovery Science, 58*, 101923

Claesson, I.M., Sydsjö, G., Brynhildsen, J., Cedergren, M., Jeppsson, A., Nyström, F., Sydsjö, A. and Josefsson, A. (2008). Weight gain restriction for obese pregnant women: a case–control intervention study. BJOG: An *International Journal of Obstetrics & Gynaecology, 115*(1), 44-50

Cleland, C. L., Hunter, R. F., Kee, F., Cupples, M. E., Sallis, J. F., & Tully, M. A. (2014). Validity of the global physical activity questionnaire (GPAQ) in assessing levels and change in moderate-vigorous physical activity and sedentary behaviour. *Bio-Med Central Public Health, 14*, 1-11

Cleland, C. L., Hunter, R. F., Kee, F., Cupples, M. E., Sallis, J. F., & Tully, M. A. (2014). Validity of the global physical activity questionnaire (GPAQ) in assessing levels and change in moderate-vigorous physical activity and sedentary behaviour. *The Bio-Med Central Public Health, 14*, 1-11. DOI: 10.1186/1471-2458-14-1255

Cormick, G., & Belizán, J. M. (2019). Calcium intake and health. *Nutrients, 11*(7), 1606

Cota, B. C., Priore, S. E., Ribeiro, S. A. V., Juvanhol, L. L., de Faria, E. R., de Faria, F. R., & Pereira, P. F. (2022). Cardiometabolic risk in adolescents with normal weight obesity. *European Journal of Clinical Nutrition, 76*(6), 863-870

Croce, L., Pallavicini, C., Crotti, S., Coperchini, F., Minnelli, L., Magri, F., Chiovato, L. and Rotondi, M. (2021). Basal and longitudinal changes in serum levels of TSH in morbid obese patients experiencing failure or success of dietary treatment. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 26*, 1949-1955. DOI: 10.1007/s40519-020-01043-x

Cunnane, S. C., Swerdlow, R. H., Inzitari, M., Olaso-Gonzalez, G., & Viña, J. (2022). Multimodal strategy to rescue the brain in mild cognitive impairment: Ketogenic oral nutrition supplementation with B vitamins and aerobic exercise. *European Journal of Clinical Investigation, 52*(9), e13806

Dalen, J., Brody, J. L., Staples, J. K., & Sedillo, D. (2015). A Conceptual Framework for the Expansion of Behavioral Interventions for Youth Obesity: A Family-Based Mindful Eating Approach. *Childhood Obesity, 11*(5), 577–584. DOI: 10.1089/chi.2014.0150

Daniel, W. W., & Cross, C. L. (2018). Biostatistics: a foundation for analysis in the health sciences. Wiley.

Dayan, P. H., Sforzo, G., Boisseau, N., Pereira-Lancha, L. O., & Lancha Jr, A. H. (2019). A new clinical perspective: Treating obesity with nutritional coaching versus energy-restricted diets. *Nutrition, 60*, 147-151

De Siqueira, J. V. V., Almeida, L. G., Zica, B. O., Brum, I. B., Barceló, A., & de Siqueira Galil, A. G. (2020). Impact of obesity on hospitalizations and mortality, due to COVID-19: A systematic review. *Obesity Research & Clinical Practice, 14*(5), 398-403

Dehghan, M., & Merchant, A. T. (2008). Is bioelectrical impedance accurate for use in large epidemiological studies?. *Nutrition Journal, 7*(1), 1-7

Deng, J., Zhou, F., Hou, W., Silver, Z., Wong, C.Y., Chang, O., Drakos, A., Zuo, Q.K. and Huang, E. (2021). The prevalence of depressive symptoms, anxiety symptoms and sleep disturbance in higher education students during the COVID-19 pandemic: A systematic review and meta-analysis. *Psychiatry Research, 301*, 113863

Devi, K. S., Gupta, U., Dhall, M., & Kapoor, S. (2020). Incidence of obesity, adiposity and physical activity pattern as risk factor in adults of Delhi, India. *Clinical Epidemiology and Global Health, 8*(1), 8-12

Dhawan, D., & Sharma, S. (2020). Abdominal obesity, adipokines and non-communicable diseases. *The Journal of Steroid Biochemistry and Molecular Biology, 203*, 105737

Dietrich, A., Aberle, J., Wirth, A., Müller-Stich, B., Schütz, T., & Tigges, H. (2018). Obesity surgery and the treatment of metabolic diseases. *Deutsches Ärzteblatt International, 115*(42), 705-711. DOI: 10.3238/arztebl.2018.0705

Ding, L., Fan, Y., Li, H., Zhang, Y., Qi, D., Tang, S., Cui, J., He, Q., Zhuo, C. & Liu, M. (2020). Comparative effectiveness of bariatric surgeries in patients with obesity and type 2 diabetes mellitus: A network meta-analysis of randomized controlled trials. *Obesity Reviews, 21*(8), e13030. DOI: 10.1111/obr.13030

Dodhia, S.A., West, N.X., Thomas, S.J., Timpson, N.J., Johansson, I., Lif Holgerson, P., Dudding, T. and Haworth, S., 2021. Examining the causal association between 25-hydroxyvitamin D and caries in children and adults: a two-sample Mendelian randomization approach. *Wellcome Open Research, 5*, 281. DOI: 10.12688/wellcomeopenres.16369.2

Dong, Z., Xu, X., Wang, C., Cartledge, S., Maddison, R., & Islam, S. M. S. (2020). Association of overweight and obesity with obstructive sleep apnoea: a systematic review and meta-analysis. *Obesity Medicine, 17*, 100185

Donnelly, J. E., Herrmann, S. D., Lambourne, K., Szabo, A. N., Honas, J. J., & Washburn, R. A. (2014). Does increased exercise or physical activity alter ad-libitum daily energy intake or macronutrient composition in healthy adults? A systematic review. *The Public Library of Science-One, 9*(1), e83498

Drake, I., Sonestedt, E., Ericson, U., Wallström, P., & Orho-Melander, M. (2018). A Western dietary pattern is prospectively associated with cardio-metabolic traits and incidence of the metabolic syndrome. *British Journal of Nutrition, 119*(10), 1168-1176

Dresen, E., Lee, Z. Y., Hill, A., Notz, Q., Patel, J. J., & Stoppe, C. (2023). History of scurvy and use of vitamin C in critical illness: A narrative review. *Nutrition in Clinical Practice, 38*(1), 46-54

Dresen, E., Lee, Z. Y., Hill, A., Notz, Q., Patel, J. J., & Stoppe, C. (2023). History of scurvy and use of vitamin C in critical illness: A narrative review. *Nutrition in Clinical Practice, 38*(1), 46-54. DOI: 10.1002/ncp.10914

Dubey, M., Nongkynrih, B., Gupta, S. K., Kalaivani, M., Goswami, A. K., Salve, H. R. (2019). Sleep Quality Assessment of Adolescents Residing in an Urban Resettlement Colony, New Delhi, India. *Indian Journal of Community Medicine, 44*(3), 271-276. DOI: 10.4103/ijcm.IJCM_87_19

Dutta, S., Kaur, R.J., Bhardwaj, P., Ambwani, S., Godman, B., Jha, P.A., Sukhija, S., Venkatesh, S.S., Lugova, H., Islam, S. and Charan, J. (2022). Demand of COVID-19 medicines without prescription among community pharmacies in Jodhpur, India: Findings and implications. *Journal of Family Medicine and Primary Care, 11*(2), 503

Dzik, K.P., Skrobot, W., Kaczor, K.B., Flis, D.J., Karnia, M.J., Libionka, W., Antosiewicz, J., Kloc, W. and Kaczor, J.J. (2019). Vitamin D deficiency is associated with muscle atrophy and reduced mitochondrial function in patients with chronic low back pain. *Oxidative Medicine and Cellular Longevity*, *2019*. DOI: 10.1155/2019/6835341

Ehtesham, N., Shahrbanian, S., Valadiathar, M., & Mowla, S. J. (2021). Modulations of obesity-related microRNAs after exercise intervention: a systematic review and bioinformatics analysis. *Molecular Biology Reports, 48*(3), 2817-2831

Ekelund, U., Tarp, J., Steene-Johannessen, J., Hansen, B.H., Jefferis, B., Fagerland, M.W., Whincup, P., Diaz, K.M., Hooker, S.P., Chernofsky, A. and Larson, M.G. (2019). Dose-response associations between accelerometry measured physical activity and sedentary time and all-cause mortality: systematic review and harmonised meta-analysis. *British Medical Journal*, 366. DOI: 10.1136/bmj.l4570

Elgharably, N., Al Abadie, M., Al Abadie, M., Ball, P. A., & Morrissey, H. (2023). Vitamin B group levels and supplementations in dermatology. *Dermatology Reports, 15*(1). DOI: 10.4081/dr.2022.9511

Elias, S. S. M., Saad, H. A., Taib, M. N. M., & Jamil, Z. (2018). Effects of sports nutrition education intervention on sports nutrition knowledge, attitude and practice, and dietary intake of Malaysian team sports athletes. *Malaysian Journal of Nutrition, 24*(1). 103-116

Elsayed, M. M., Rabiee, A., El Refaye, G. E., & Elsisi, H. F. (2022). Aerobic exercise with Mediterranean-DASH intervention for neurodegenerative delay diet promotes brain cells' longevity despite sex hormone deficiency in postmenopausal women: a randomized controlled trial. *Oxidative Medicine and Cellular Longevity*, Vol. 2022, Article ID 4146742. 8 pages. DOI: 10.1155/2022/4146742

Engin, A. (2017). The definition and prevalence of obesity and metabolic syndrome. *Advances in Experimental Medicine and Biology, 960*, 1-17

Estecha Querol, S., Iqbal, R., Kudrna, L., Al-Khudairy, L., & Gill, P. (2021). The double burden of malnutrition and associated factors among south Asian adolescents: Findings from the global school-based student health survey. *Nutrients, 13*(8), 2867

Fabbri, M., Beracci, A., Martoni, M., Meneo, D., Tonetti, L., Natale, V. (2021). Measuring Subjective Sleep Quality: A Review. *International Journal of Environmental Research and Public Health, 18*(3), 1082. DOI: 10.3390/ijerph18031082

Faghy, M. A., Owen, R., Thomas, C., Yates, J., Ferraro, F. V., Skipper, L., Barley-McMullen, S., Brown, D. A., Arena, R., & Ashton, R. E. (2022). Is long COVID the next global health crisis? *Journal of Global Health, 12*. 030367. DOI: 10.7189/jogh.12.03067

FAO - Food and Agriculture Organization of the United Nations. (2021). Impact evaluation in OED. Available on: https://www.fao.org/3/cb7084en/cb7084en.pdf. Accessed on 13 July, 2023

Faria-Silva, C., Ascenso, A., Costa, A. M., Marto, J., Carvalheiro, M., Ribeiro, H. M., & Simões, S. (2020). Feeding the skin: A new trend in food and cosmetics convergence. *Trends in Food Science & Technology, 95*, 21-32

Fathima, A., & Daniel, A. (2023). Life Style Factors and Morbidity Pattern of Biscuit Company Workers at Puducherry. *Journal of Research and Health, 13*(2), 5-5

Faulkner, J., O'brien, W.J., McGrane, B., Wadsworth, D., Batten, J., Askew, C.D., Badenhorst, C., Byrd, E., Coulter, M., Draper, N. and Elliot, C. (2021). Physical activity, mental health and well-being of adults during initial COVID-19 containment strategies: A multi-country cross-sectional analysis. *Journal of Science and Medicine in Sport, 24*(4), 320-326

Fazliana, M., Liyana, A.Z., Omar, A., Ambak, R., Mohamad Nor, N.S., Shamsudin, U.K., Salleh, N.A. and Aris, T. (2018). Effects of weight loss intervention on body composition and blood pressure among overweight and obese women: findings from the MyBFF@ home study. *The Bio-Med Central Women's Health, 18*, 25-32. DOI: 10.1186/s12905-018-0592-2

Fernando, H. A., Zibellini, J., Harris, R. A., Seimon, R. V., & Sainsbury, A. (2019). Effect of Ramadan fasting on weight and body composition in healthy non-athlete adults: a systematic review and meta-analysis. *Nutrients, 11*(2), 478

Flores-Dorantes, M. T., Díaz-López, Y. E., & Gutiérrez-Aguilar, R. (2020). Environment and gene association with obesity and their impact on neurodegenerative and neurodevelopmental diseases. *Frontiers in Neuroscience, 14*, 863. DOI: 10.3389/fnins.2020.00863

Foley, M., & Akers, H. F. (2019). Does poverty cause dental caries?. *Australian Dental Journal, 64*(1), 96-102

Francisco, S.G., Smith, K.M., Aragonès, G., Whitcomb, E.A., Weinberg, J., Wang, X., Bejarano, E., Taylor, A. and Rowan, S. (2020). Dietary patterns, carbohydrates, and age-related eye diseases. *Nutrients, 12*(9), 2862

Friedrich, A., & Schlarb, A. A. (2018). Let's talk about sleep: a systematic review of psychological interventions to improve sleep in college students. *Journal of Sleep Research, 27*(1), 4-22

Frühbeck, G., Busetto, L., Dicker, D., Yumuk, V., Goossens, G. H., Hebebrand, J., & Toplak, H. (2019). The ABCD of obesity: an EASO position statement on a diagnostic term with clinical and scientific implications. *Obesity Facts, 12*(2), 131-136

Frumkin, H. (2016). Environmental Health: From Global to Local. John Wiley & Sons.

Gallagher, C. T., Hanley, P., & Lane, K. E. (2022). Pattern analysis of vegan eating reveals healthy and unhealthy patterns within the vegan diet. *Public Health Nutrition, 25*(5), 1310-1320

Gangal, S. V., & Malik, B. K. (2013). Food allergy - how much of a problem really is this in India?. *Journal of Scientific & Industrial Research. 62*(8), 755-765

Garcia-Basteiro, A. L., & Abimbola, S. (2021). The challenges of defining global health research. *The British Medical Journal of Global Health, 6*(12), e008169

Garg, R., Agarwal, V., Agarwal, P., Singh, S., & Malhotra, N. (2018). Prevalence of vitamin D deficiency in Indian women. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology, 7*(6), 2222-2225

Garvey, W. T. (2022). Is obesity or adiposity-based chronic disease curable: the set point theory, the environment, and second-generation medications. *Endocrine Practice, 28*(2), 214-222

Gažarová, M., Bihari, M., & Šoltís, J. (2023). Fat and fat-free mass as important determinants of body composition assessment in relation to sarcopenic obesity. *Roczniki Państwowego Zakładu Higieny, 74*(1), 59-69

GBD 2015 Obesity Collaborators. (2017). Health effects of overweight and obesity in 195 countries over 25 years. *The New England Journal of Medicine, 377*, 13-27

GBD 2015 Obesity Collaborators. (2017). Health effects of overweight and obesity in 195 countries over 25 years. New England journal of medicine, 377(1), 13-27

Ghosh, S., Dhar, S., Bhattacharjee, S., & Bhattacharjee, P. (2023). Contribution of environmental, genetic and epigenetic factors to obesity-related metabolic syndrome. *The Nucleus*, 1-23.

Ghrouz, A. K., Noohu, M. M., Dilshad Manzar, M., Warren Spence, D., BaHammam, A. S., & Pandi-Perumal, S. R. (2019). Physical activity and sleep quality in relation to mental health among college students. *Sleep and Breathing, 23*, 627-634

Godos, J., Grosso, G., Castellano, S., Galvano, F., Caraci, F., & Ferri, R. (2021). Association between diet and sleep quality: A systematic review. *Sleep Medicine Reviews, 57,* 101430. DOI: 10.1016/j.smrv.2021.101430

Gomez, A. M., Gomez, C., Aschner, P., Veloza, A., Munoz, O., Rubio, C., & Vallejo, S. (2015). Effects of performing morning versus afternoon exercise on glycemic control and hypoglycemia frequency in type 1 diabetes patients on sensor-augmented insulin pump therapy. *Journal of Diabetes Science and Technology, 9*(3), 619-624

Goss, A.M., Gower, B., Soleymani, T., Stewart, M., Pendergrass, M., Lockhart, M., Krantz, O., Dowla, S., Bush, N., Garr Barry, V. and Fontaine, K.R. (2020). Effects of weight loss during a very low carbohydrate diet on specific adipose tissue depots and insulin sensitivity in older adults with obesity: a randomized clinical trial. *Nutrition & Metabolism, 17*(1), 1-12

Grandi, B., Burt, S., & Cardinali, M. G. (2021). Encouraging healthy choices in the retail store environment: Combining product information and shelf allocation. *Journal of Retailing and Consumer Services, 61*, 102522

Grimani, A., Aboagye, E., & Kwak, L. (2019). The effectiveness of workplace nutrition and physical activity interventions in improving productivity, work performance and workability: a systematic review. *Bio-Med Central Public Health, 19*, 1-12

Gu, Y., Guo, X., Sun, S., & Che, H. (2022). High-fat diet-induced obesity aggravates food allergy by intestinal barrier destruction and inflammation. *International Archives of Allergy and Immunology, 183(*1), 80-92

Guha, K. B., & Gupta, P. (2020). Growing trend of veganism in metropolitan cities: Emphasis on baking. *PUSA Journal of Hospitality and Applied Sciences, 6*, 22-31

Guo, X., Cheng, L., Yang, S., & Che, H. (2020). Pro-inflammatory immunological effects of adipose tissue and risk of food allergy in obesity: Focus on immunological mechanisms. *Allergologia et Immunopathologia, 48*(3), 306-312

Gupta S.C., & Kapoor V.K. (2020). Introduction – Meaning and Scope. In Fundamentals of Mathematical Statistics (12th Edition, pages 11-18). Daryaganj, New Delhi. Sultan Chand & Sons.

Gupta, A., Gupta, R. (2014). Vitamin D deficiency in India: prevalence, causalities and interventions. *Nutrients, 6*(2), 729-775

Gupta, S. K., Nayak, R. P., Shivaranjani, R., & Vidyarthi, S. K. (2015). A questionnaire study on the knowledge, attitude, and the practice of pharmacovigilance among the healthcare professionals in a teaching hospital in South India. *Perspectives in Clinical Research, 6*(1), 45

Hales, C. M., Carroll, M. D., Fryar, C. D., & Ogden, C. L. (2020). Prevalence of obesity and severe obesity among adults: United States, 2017–2018. *NCHS Data Brief, 360*, 1-8

Hall, W. L. (2022). The emerging importance of tackling sleep–diet interactions in lifestyle interventions for weight management. *British Journal of Nutrition, 128*(3), 561-568. DOI: 10.1017/S000711452200160X

Hamed, H., Said, M., Elghadban, H., & Elgeidie, A. (2020). Outcome and adverse events of endoscopic bariatric stents for management of leakage after bariatric surgery. *Obesity Surgery, 30*, 982-991. DOI: 10.1007/s11695-019-04373-7

Hamman, R.F., Wing, R.R., Edelstein, S.L., Lachin, J.M., Bray, G.A., Delahanty, L., Hoskin, M., Kriska, A.M., Mayer-Davis, E.J., Pi-Sunyer, X. and Regensteiner, J. (2006). Effect of weight loss with lifestyle intervention on risk of diabetes. *Diabetes care, 29*(9), 2102-2107

Hancock, S., Zinn, C., & Schofield, G. (2020). The consumption of processed sugar-and starch-containing foods, and dental caries: a systematic review. *European Journal of Oral Sciences, 128*(6), 467-475

Hannan, A., Shafiq, M. Z., Hussain, F., & Pires, I. M. (2021). A portable smart fitness suite for real-time exercise monitoring and posture correction. *Sensors, 21*(19), 6692

Harb, A. A., Shechter, A., Koch, P. A., & St-Onge, M. P. (2023). Ultra-processed foods and the development of obesity in adults. *European Journal of Clinical Nutrition, 77*(6), 619-627. DOI: 10.1038/s41430-022-01225-z

Hardman, R. J., Meyer, D., Kennedy, G., Macpherson, H., Scholey, A. B., & Pipingas, A. (2020). Findings of a pilot study investigating the effects of Mediterranean diet and aerobic exercise on cognition in cognitively healthy older people living independently within aged-care facilities: The Lifestyle Intervention in Independent Living Aged Care (LIILAC) Study. *Current Developments in Nutrition, 4*(5), nzaa077. DOI: 10.1093/cdn/nzaa077

Harinarayan, C. V. (2018). How to treat Vitamin D deficiency in sun-drenched India-guidelines. *Journal of Clinical and Scientific Research, 7*(3), 131-140

Heindel, J. J., & Blumberg, B. (2019). Environmental obesogens: mechanisms and controversies. *Annual Review of Pharmacology and Toxicology*, 59, 89-106

Hewage, N., Wijesekara, U., & Perera, R. (2023). Determining the best method for evaluating obesity and the risk of non-communicable diseases in females of childbearing age by using the body mass index, waist circumference, waist-to-hip ratio, waist-to-height ratio, A Body Shape Index, and hip index. *Nutrition, 114,* 112135. DOI: 10.1016/j.nut.2023.112135

Hildebrand, H. V., Arias, A., Simons, E., Gerdts, J., Povolo, B., Rothney, J., & Protudjer, J. L. (2021). Adult and pediatric food allergy to chickpea, pea, lentil, and lupine: a scoping review. *The Journal of Allergy and Clinical Immunology: In Practice, 9*(1), 290-301

Hills, A. P. (2022). Imagine a healthy lifestyle for all: Early years nutrition and physical activity to prevent obesity. *European Journal of Clinical Nutrition, 78,* 1-5

Hills, A. P. (2022). Imagine a healthy lifestyle for all: Early years nutrition and physical activity to prevent obesity. *European Journal of Clinical Nutrition,* DOI: 10.1038/s41430-022-01230-2

Hodgson, S. (2015). Types of intervention and their development. In Smith, Morrow & Ross (Ed.), Field trials of health interventions: a Toolbox (3rd Edition, pages). Oxford, UK. Oxford University Press. Available from: www.ncbi.nlm.nih.gov/books/NBK305514/. Accessed on 13 July, 2023

Hruby, A., & Hu, F. B. (2015). The epidemiology of obesity: a big picture. *Pharmacoeconomics, 33*, 673-689

Hruby, A., Manson, J. E., Qi, L., Malik, V. S., Rimm, E. B., Sun, Q., & Hu, F. B. (2016). Determinants and consequences of obesity. *American Journal of Public Health, 106*(9), 1656-1662

Hruby, A., Manson, J. E., Qi, L., Malik, V. S., Rimm, E. B., Sun, Q., & Hu, F. B. (2016). Determinants and consequences of obesity. *American Journal of Public Health, 106*(9), 1656-1662

Huang, Y., Dong, X., Xu, L., Cao, X., & Sun, S. (2023). Additional health education and nutrition management cause more weight loss than concurrent training in overweight young females. *Complementary Therapies in Clinical Practice, 51,* 101721

Huber, M., Knottnerus, J.A., Green, L., Van Der Horst, H., Jadad, A.R., Kromhout, D., Leonard, B., Lorig, K., Loureiro, M.I., Van der Meer, J.W. and Schnabel, P. (2011). How should we define health?. *British Medical Journal*, *343*. DOI: 10.1136/bmj.d4163

Hui, T. T., Garvey, L., & Olasoji, M. (2021). Improving the physical health of young people with early psychosis with lifestyle interventions: Scoping review. *International Journal of Mental Health Nursing, 30*(6), 1498-1524. DOI: 10.1111/inm.12922

ICMR-National Institute of Nutrition (2020). Nutrient requirements and recommended dietary allowances for Indians: A Brief Report. ICMR-National Institute of Nutrition: Hyderabad, India

Ilankizhai, R. J., & Chaudhary, M. (2021). Madhu laxmi M. Prevalence Of Benign Migratory Glossitis In Patients Visiting A Private Dental College In Chennai. *International Journal of Dentistry and Oral Science, 8*(8), 4080-4084

Indian Council of Medical Research - National Institute of Medical Statistics. 2021. National Guidelines for Data Quality in Surveys. New Delhi: ICMR-NIMS

Indian Council of Medical Research. (2020). A Brief Note on Nutrient Requirements for Indians, the Recommended Dietary Allowances (RDA) and the Estimated Average Requirements (EAR). Available at: https://www.nin.res.in/rdabook/brief_note.pdf. Accessed on 19 Sep 2022

Indian Council of Medical Research. (2021). Good Clinical Laboratory Practices Guidelines, 2nd edition. In Pahuja, Nigam and Kumar (Ed). ICMR, New Delhi

Indian Council of Medical Research-ICMR. (2010). Dietary Guidelines for Indians. Available at: https://www.nin.res.in/downloads/ Dietary Guidelines for NINwebsite.pdf. Accessed 19 Sep 2022.

Indian Council of Medical Research-National Institute of Nutrition. (2017). Nutrition Lifestyle & Immunity. ICMR-NIN, Hyderabad. Available at: https://www.nin.res.in/ downloads/Nutrition_Lifestyle_and_Immunity.pdf. Accessed on: 10th October, 2023

Institute of Medicine. (1988). The Future of Public Health. National Academies Press. https://www.ncbi.nlm.nih.gov/books/NBK218239/

International Institute for Population Sciences (IIPS) and ICF. (2021). National Family Health Survey (NFHS-5), 2019-21. Volume I. Mumbai: IIPS.

International Institute for Population Sciences (IIPS). National family health survey (NFHS-4), 2015–16. Mumbai, India. 2017

International Institute for Population Sciences (IIPS). National family health survey (NFHS-5), 2019–20. Mumbai, India. 2021

International Institute for Population Sciences and ICF. (2017). National Family Health Survey (NFHS-4), 2015-2016: India. Mumbai: IIPS

International Institute for Population Sciences and ICF. (2021). National Family Health Survey (NFHS-5), 2019-2021: India. Volume I. Mumbai: IIPS

Islam, B., Khan, S. N., & Khan, A. U. (2007). Dental caries: from infection to prevention. *Medical Science Monitor, 13*(11), RA196-203

Izquierdo, M., Merchant, R.A., Morley, J.E., Anker, S.D., Aprahamian, I., Arai, H., Aubertin-Leheudre, M., Bernabei, R., Cadore, E.L., Cesari, M. and Chen, L.K. (2021). International exercise recommendations in older adults (ICFSR): expert consensus guidelines. *The Journal of Nutrition, Health & Aging, 25*(7), 824-853. DOI: 10.1007/s12603-021-1665-8

Jacobsen, K. H. (2022). Introduction to global health. Jones & Bartlett Learning. Fourth Edition, ISBN: 9781284234930

Jakicic, J. M., Rogers, R. J., Davis, K. K., & Collins, K. A. (2018). Role of physical activity and exercise in treating patients with overweight and obesity. *Clinical Chemistry, 64*(1), 99-107

Jalal, S. M., Beth, M. R. M., Al-Hassan, H. J. M., & Alshealah, N. M. J. (2021). Body mass index, practice of physical activity and lifestyle of students during COVID-19 lockdown. *Journal of Multidisciplinary Healthcare, 14,* 1901-1910

James, G., Witten, D., Hastie, T., Tibshirani, R., Taylor, J. (2023). Linear Regression. In: An Introduction to Statistical Learning. Springer Texts in Statistics. Springer, Cham. https://doi.org/10.1007/978-3-031-38747-0_3

Javed, M., Qureshi, M. A., & Latif, M. Z. (2023). Assessment of Quality of Sleep in Medical Students by Using Pittsburgh Sleep Quality Index. *Pakistan Postgraduate Medical Journal, 34*(01), 12-17

Jehi, T., Khan, R., Halawani, R., & Dos Santos, H. (2023). Effect of COVID-19 outbreak on the diet, body weight and food security status of students of higher education: A systematic review. *British Journal of Nutrition, 129*(11), 1916-1928.

Jensky-Squires, N. E., Dieli-Conwright, C. M., Rossuello, A., Erceg, D. N., McCauley, S., & Schroeder, E. T. (2008). Validity and reliability of body composition analysers in children and adults. *British Journal of Nutrition, 100*(4), 859-865

Jian, C., Silvestre, M.P., Middleton, D., Korpela, K., Jalo, E., Broderick, D., de Vos, W.M., Fogelholm, M., Taylor, M.W., Raben, A. and Poppitt, S. (2022). Gut microbiota predicts body fat change following a low-energy diet: A PREVIEW intervention study. *Genome Medicine, 14*(1), 54

Jiwani, S. S., Carrillo-Larco, R. M., Hernández-Vásquez, A., Barrientos-Gutiérrez, T., Basto-Abreu, A., Gutierrez, L., & Miranda, J. J. (2019). The shift of obesity burden by socioeconomic status between 1998 and 2017 in Latin America and the Caribbean: a cross-sectional series study. *The Lancet Global Health, 7*(12), 1644-1654

John, B., Marath, U., Valappil, S. P., Mathew, D., & Renjitha, M. (2022). Sleep pattern changes and the level of fatigue reported in a community sample of adults during COVID-19 pandemic. *Sleep and Vigilance, 6*(2), 297-312

Johnson, N., Johnson, C. R., Thavarajah, P., Kumar, S., & Thavarajah, D. (2020). The roles and potential of lentil prebiotic carbohydrates in human and plant health. *Plants, People, Planet, 2*(4), 310-319

Joint United Nations Programme on HIV/Aids (UNAIDS). (2020). UNAIDS Data 2020. Available at: www.unaids.org/en/resources/documents/2020/unaids-data. Accessed on 27.09.2023

Jones, C., Chen, K. M., Weeks, B., Qi, M., & Moyle, W. (2021). Healthy Beat Acupunch exercise program: Validation and feasibility study for older adults with reduced physical capacity or probable sarcopenia. *Explore, 17*(6), 498-504

Jose, J.K., E.S., Sarika. (2023). A clinical study on the homoeopathic management of iron deficiency anaemia in women of reproductive age group. *International Journal of Homoeopathic Sciences, 7*(3) 134-139. DOI: 10.33545/26164485.2023.v7.i3c.901

Juchacz, K., Kłos, P., Dziedziejko, V., & Wójciak, R. W. (2021). The effectiveness of supportive psychotherapy in weight loss in a group of young overweight and obese women. *Nutrients, 13*(2), 532

Kadowaki, T., Isendahl, J., Khalid, U., Lee, S. Y., Nishida, T., Ogawa, W., & Lim, S. (2022). Semaglutide once a week in adults with overweight or obesity, with or without type 2 diabetes in an east Asian population (STEP 6): a randomised, double-blind, double-dummy, placebo-controlled, phase 3a trial. *The Lancet Diabetes & Endocrinology, 10*(3), 193-206

Kalita, K., & Sarma, M. K. (2017). "Eating out" as Life Style: Yielding to the Impulsive Temptation. *SCMS Journal of Indian Management, 14*(4), 76-94

Kanase, R. R., Kumavat, A. N., Sinalkar, R. D., & Somani, S. (2021). Pose estimation and correcting exercise posture. In ITM Web of Conferences (Vol. 40, p. 03031). EDP Sciences

Karpińska, E., Moskwa, J., Naliwajko, S. K., Soroczyńska, J., & Socha, K. (2022). Body Composition of Young Women and the Consumption of Selected Nutrients. *Nutrients, 15*(1), 129. DOI: 10.3390/nu15010129

Karpyn, A., McCallops, K., Wolgast, H., & Glanz, K. (2020). Improving consumption and purchases of healthier foods in retail environments: a systematic review. International journal of environmental research and public health, 17(20), 7524

Kaur, G., Bains, K., & Kaur, H. (2012). Body composition, dietary intake and physical activity level of sedentary adult Indian women. *Food and Nutrition Sciences, 3*(11), Article ID:24607, 9 pages. DOI:10.4236/fns.2012.311206

Kaur, R., Sharma, A. K., Rani, R., Mawlong, I., & Rai, P. K. (2019). Medicinal Qualities of Mustard Oil and Its Role in Human Health against Chronic Diseases: A Review. *Asian Journal of Dairy & Food Research, 38*(2). 98-104

Kaur, S., & Goraya, J. S. (2021). Scurvy in children: Down but not out. *Indian Journal of Paediatric Dermatology, 22*(2), 118-122. DOI: 10.4103/ijpd.IJPD_102_20

Kawai, T., Autieri, M. V., & Scalia, R. (2021). Adipose tissue inflammation and metabolic dysfunction in obesity. American Journal of Physiology-Cell *Physiology, 320*(3), C375-C391. DOI: 10.1152/ajpcell.00379.2020

Keating, E. M., Johnson, C. R., Cardiel Nunez, K. E., & Fischer, P. R. (2023). Thiamine deficiency disorders in women and children. *Paediatrics and International Child Health, 43,* 40-49

Keith, L., Seo, C., Rowsemitt, C., Pfeffer, M., Wahi, M., Staggs, M., Dudek, J., Gower, B., & Carmody, M. (2020). Ketogenic diet as a potential intervention for lipedema. *Medical Hypotheses, 146*, 110435. DOI: 10.1016/j.mehy.2020.110435

Kim, K., Im, H., Son, Y., Kim, M., Tripathi, S. K., Jeong, L. S., & Lee, Y. H. (2022). Anti-obesity effects of the dual-active adenosine A2A/A3 receptor-ligand LJ-4378. *International Journal of Obesity, 46*(12), 2128-2136. DOI: 10.1038/s41366-022-01224-x

Kivimäki, M., Strandberg, T., Pentti, J., Nyberg, S. T., Frank, P., Jokela, M., Ervasti, J., Suominen, S.B., Vahtera, J., Sipilä, P.N., Lindbohm, J.V., & Ferrie, J. E. (2022). Body-mass index and risk of obesity-related complex multimorbidity: an observational multicohort study. *The Lancet Diabetes & Endocrinology, 10*(4), 253-263

Klasson, C. L., Sadhir, S., & Pontzer, H. (2022). Daily physical activity is negatively associated with thyroid hormone levels, inflammation, and immune system markers among men and women in the NHANES dataset. *The Public Library of Science-One, 17*(7), e0270221. DOI: 10.1371/journal.pone.0270221

Kline, C.E., Irish, L.A., Krafty, R.T., Sternfeld, B., Kravitz, H.M., Buysse, D.J., Bromberger, J.T., Dugan, S.A. and Hall, M.H. (2013). Consistently high sports/exercise activity is associated with better sleep quality, continuity and depth in midlife women: the SWAN sleep study. *Sleep, 36*(9), 1279-1288

Ko, Y. H., Son, J. H., & Kim, G. J. (2023). An exploratory study of changes in consumer dining out behavior before and during COVID-19. *Journal of Foodservice Business Research, 26*(5), 700-718

Kong, K. A., Park, J., Hong, S. H., Hong, Y. S., Sung, Y. A., & Lee, H. (2017). Associations between body mass index and mortality or cardiovascular events in a general Korean population. *The Public Library of Science-One, 12*(9), e0185024

Koshy, R., Smith, T. J., Johnson, C. R., Hess, S. Y., Qureshi, U. A., Mynak, M. L., & Fischer, P. R. (2021). Thiamine deficiency disorders: a clinical perspective. *Annals of the New York Academy of Sciences, 1498*(1), 9-28

Kouidrat, Y., Diouf, M., Desailloud, R., & Louhou, R. (2019). Effects of a diet plus exercise program on thyroid function in patients with obesity. *Metabolism Open, 2,* 100008. DOI: 10.1016/j.metop.2019.100008

Kredlow, M. A., Capozzoli, M. C., Hearon, B. A., Calkins, A. W., & Otto, M. W. (2015). The effects of physical activity on sleep: a meta-analytic review. *Journal of Behavioral Medicine, 38*, 427-449. DOI: 10.1007/s10865-015-9617-6

Krishna, M. T., Mahesh, P. A., Vedanthan, P. K., Mehta, V., Moitra, S., & Christopher, D. J. (2020). The burden of allergic diseases in the Indian subcontinent: barriers and challenges. *The Lancet Global Health, 8*(4), e478-e479

Kriswanto, E. S., Sunardi, J., Sari, I. P. T. P., & Suharjana, F. (2021). Effect of physical activity and haemoglobin levels on cardiorespiration. *Human. Sport. Medicine, 21*(4), 49-56. DOI: 10.14529/hsm210406

Kulkarni, V. S., Kulkarni, V. S., & Gaiha, R. (2017). “Double burden of malnutrition” re-examining the coexistence of undernutrition and overweight among women in India. *International Journal of Health Services, 47*(1), 108-133

Kumar, D., Kumar, S., & Shekhar, C. (2020). Nutritional components in green leafy vegetables: A review. *Journal of Pharmacognosy and Phytochemistry, 9*(5), 2498-2502

Kumar, G. S., Kulkarni, M., & Rathi, N. (2022). Evolving food choices among the urban Indian middle-class: a qualitative study. *Frontiers in Nutrition, 9,* 844413

Kumar, G. S., Kulkarni, M., & Rathi, N. (2022). Evolving Food Choices Among the Urban Indian Middle-Class: A Qualitative Study. *Frontiers in Nutrition, 9*, 844413. DOI: 10.3389/fnut.2022.844413

Kumaran, K., Yajnik, P., Lubree, H., Joglekar, C., Bhat, D., Katre, P., Joshi, S., Ladkat, R., Fall, C. and Yajnik, C. (2017). The Pune Rural Intervention in Young Adolescents (PRIYA) study: design and methods of a randomised controlled trial. *The Bio-Med Central Nutrition, 3*(1), 1-12

Kuriakose, S. (2020). Global Health: Issues and Challenges. *Modern Medicine, 27*(1), 1-3

Kwak, L., Proper, K. I., Hagströmer, M., & Sjöström, M. (2020). The repeatability and validity of questionnaires assessing occupational physical activity—a systematic review. *Scandinavian Journal of Work, Environment & Health*, *46*(5), 399-416

L. Yalun and A. Khamaksorn, (2020). A Review of Applying Healthy Dietary Nutrition Knowledge in Tertiary Education Setting. Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunications Engineering (ECTI DAMT & NCON), Pattaya, Thailand, 342-346, DOI: 10.1109/ECTIDAMTNCON48261. 2020.9090755

Laar, R. A., Shi, S., Ashraf, M. A., Khan, M. N., Bibi, J., & Liu, Y. (2020). Impact of physical activity on challenging obesity in Pakistan: a knowledge, attitude, and practice (KAP) study. *International Journal of Environmental Research and Public Health, 17*(21), 7802

Laha, A., Bhattacharya, S., Moitra, S., Saha, N. C., Biswas, H., & Podder, S. (2022). Assessment of egg and milk allergies among Indians by revalidating a food allergy predictive model. *World Allergy Organization Journal, 15*(3), 100639

Lal, A., Abdalla, S.M., Chattu, V.K., Erondu, N.A., Lee, T.L., Singh, S., Abou-Taleb, H., Morales, J.V. and Phelan, A. (2022). Pandemic preparedness and response: exploring the role of universal health coverage within the global health security architecture. *The Lancet Global Health, 10*(11), e1675-e1683

Lau, X.C., Wong, Y.L., Wong, J.E., Koh, D., Sedek, R., Jamil, A.T., Ng, A.L.O., Hazizi, A.S., Ruzita, A.T. and Poh, B.K. (2019). Development and validation of a physical activity educational module for overweight and obese adolescents: CERGAS programme. *International Journal of Environmental Research and Public Health, 16*(9), 1506

Lázaro, J., Sanz-Rubio, D., Clavería, P., Cabrejas, C., Fernando, J., Castanera, A., & Marin, J. M. (2023). Effect of positive pressure ventilation and bariatric surgery on extracellular vesicle microRNAs in patients with severe obesity and obstructive sleep apnea. *International Journal of Obesity, 47*(1), 24-32. DOI: 10.1038/s41366-022-01230-z

Leak, R. K., Calabrese, E. J., Kozumbo, W. J., Gidday, J. M., Johnson, T. E., Mitchell, J. R., Ozaki, C. K., Wetzker, R., Bast, A., Belz, R. G., Bøtker, H. E., Koch, S., Mattson, M. P., Simon, R. P., Jirtle, R. L., & Andersen, M. E. (2018). Enhancing and Extending Biological Performance and Resilience. *Dose-Response, 16*(3). 1-24. DOI: 10.1177/1559325818784501

Lederer, A.K., Hannibal, L., Hettich, M., Behringer, S., Spiekerkoetter, U., Steinborn, C., Gründemann, C., Zimmermann-Klemd, A.M., Müller, A., Simmet, T. and Schmiech, M. (2019). Vitamin B12 status upon short-term intervention with a vegan diet—a randomized controlled trial in healthy participants. *Nutrients, 11*(11), 2815.

Lee, H. S., Lee, J. W., Kim, J. M., & Chang, N. (2010). The effect of nutrition education and excercise program on body composition and dietary Intakes, blood lipid and physical fitness in obese women (2)-Relationship between participation rates and effectiveness of obesity management program. *Korean Journal of Nutrition, 43*(3), 260-272

Lee, J., Lee, C., Min, J., Kang, D.W., Kim, J.Y., Yang, H.I., Park, J., Lee, M.K., Lee, M.Y., Park, I. and Jae, S.Y. (2020). Development of the Korean Global Physical Activity Questionnaire: reliability and validity study. *Global Health Promotion, 27*(3), 44-55

Leitzmann M. (2017). Physical activity, sedentary behaviour, and obesity. In: Romieu I, Dossus L, Willett WC, editors. *Energy Balance and Obesity. Lyon (FR): International Agency for Research on Cancer*; 2017. (IARC Working Group Reports, No. 10.) CHAPTER 6. Available at: https://www.ncbi.nlm.nih.gov/books/NBK565813/. Accessed on: 17.07.2023

Lewnard, J. A., Mahmud, A., Narayan, T., Wahl, B., Selvavinayagam, T. S., & Laxminarayan, R. (2022). All-cause mortality during the COVID-19 pandemic in Chennai, India: an observational study. *The Lancet Infectious Diseases, 22*(4), 463-472

Li, J., Ogorodova, L.M., Mahesh, P.A., Wang, M.H., Fedorova, O.S., Leung, T.F., Fernandez-Rivas, M., Mills, E.C., Potts, J., Kummeling, I. and Versteeg, S.A. (2020). Comparative study of food allergies in children from China, India, and Russia: the EuroPrevall-INCO surveys. *The Journal of Allergy and Clinical Immunology: In Practice, 8*(4), 1349-1358

Li, P., Li, J., Wang, Y., Xia, J., & Liu, X. (2021). Effects of exercise intervention on peripheral skeletal muscle in stable patients with COPD: a systematic review and meta-analysis. *Frontiers in Medicine, 8*, 766841. DOI: 10.3389/fmed.2021.766841

Liagre, A., Martini, F., Anduze, Y., Boudrie, H., Van Haverbeke, O., Valabrega, S., Kasir, R., Debs, T., & Petrucciani, N. (2021). Efficacy and drawbacks of single-anastomosis duodeno-ileal bypass after sleeve gastrectomy in a tertiary referral bariatric center. *Obesity Surgery, 31*, 2691-2700. DOI: 10.1007/s11695-021-05323-y

Lim, J. U., Lee, J. H., Kim, J. S., Hwang, Y. I., Kim, T. H., Lim, S. Y., Yoo, K.H., Jung, K., Kim, Y.K., & Rhee, C. K. (2017). Comparison of World Health Organization and Asia-Pacific body mass index classifications in COPD patients. *International Journal of Chronic Obstructive Pulmonary Disease, 12*, 2465-2475

Little, M., Humphries, S., Patel, K., & Dewey, C. (2016). Factors associated with BMI, underweight, overweight, and obesity among adults in a population of rural south India: a cross-sectional study. *Bio-Med Central Obesity, 3*, 1-13

Liu, C., Huang, N., Fu, M., Zhang, H., Feng, X. L., & Guo, J. (2021). Relationship between risk perception, social support, and mental health among general Chinese population during the COVID-19 pandemic. *Risk Management and Healthcare Policy*, 1843-1853

Liu, X., Chen, H., Zhou, Q., Zhang, H., Asawasirisap, P., & Kearney, J. (2020). Knowledge, attitude and practices (KAP) towards diet and health among international students in Dublin: a cross-sectional study. *International Journal of Environmental Research and Public Health, 17*(9), 3182

Logue, E. E., Bourguet, C. C., Palmieri, P. A., Scott, E. D., Matthews, B. A., Dudley, P., & Chipman, K. J. (2012). The better weight-better sleep study: a pilot intervention in primary care. *American Journal of Health Behavior, 36*(3), 319-334

Longvah, T., An□antan□, I., Bhaskarachary, K., Venkaiah, K., & Longvah, T. (2017). Indian food composition tables (pages 2-58). National Institute of Nutrition, Indian Council of Medical Research, Hyderabad

Loos, R. J. F. (2018). Genetic determinants of common obesity and their value in prediction. *Best Practice & Research Clinical Endocrinology & Metabolism, 32*(2), 139-146

Lopez, P., Taaffe, D.R., Galvão, D.A., Newton, R.U., Nonemacher, E.R., Wendt, V.M., Bassanesi, R.N., Turella, D.J. and Rech, A. (2022). Resistance training effectiveness on body composition and body weight outcomes in individuals with overweight and obesity across the lifespan: A systematic review and meta-analysis. *Obesity Reviews, 23*(5), e13428. DOI: 10.1111/obr.13428

López-Hernández, L., Martínez-Arnau, F. M., Pérez-Ros, P., Drehmer, E., & Pablos, A. (2020). Improved nutritional knowledge in the obese adult population modifies eating habits and serum and anthropometric markers. *Nutrients, 12*(11), 3355

Lucero-Prisno, D.E.I., Kouwenhoven, M.B.N., Adebisi, Y.A., Miranda, A.V., Gyeltshen, D., Suleman, M.H., Chiumia, I.K., Lowe, M., Dorji, T., Huang, J. and Gacutno-Evardone, A.J. (2022). Top ten public health challenges to track in 2022. *Public Health Challenges, 1*(3), e21

Luy S.C., and Dampil O.A. (2018). Comparison of the Harris-Benedict Equation, Bioelectrical Impedance Analysis, and Indirect Calorimetry for Measurement of Basal Metabolic Rate among Adult Obese Filipino Patients with Prediabetes or Type 2 Diabetes Mellitus. *Journal of the ASEAN Federation of Endocrine Societies, 33*(2), 152-159. DOI: 10.15605/jafes.033.02.07

Ma, T., Bennett, T., Lee, C. D., & Wicklow, M. (2023). The diurnal pattern of moderate-to-vigorous physical activity and obesity: a cross-sectional analysis. Obesity, 31(10), 2638-2647. DOI: 10.1002/oby.23851

Mahmoodabad, S. S. M., Tonekaboni, N. R., Farmanbar, R., Fallahzadeh, H., & Kamalikhah, T. (2017). The effect of motivational interviewing-based intervention using self-determination theory on promotion of physical activity among women in reproductive age: a randomized clinical trial. *Electronic Physician, 9*(5), 4461

Mahmud, S., Mohsin, M., Dewan, M. N., & Muyeed, A. (2023). The global prevalence of depression, anxiety, stress, and insomnia among general population during COVID-19 pandemic: A systematic review and meta-analysis. *Trends in Psychology, 31*(1), 143-170

Mahumud, R. A., Sahle, B. W., Owusu-Addo, E., Chen, W., Morton, R. L., & Renzaho, A. M. (2021). Association of dietary intake, physical activity, and sedentary behaviours with overweight and obesity among 282,213 adolescents in 89 low and middle income to high-income countries. *International Journal of Obesity, 45*(11), 2404-2418

Malhotra, U., Roy, M., Sontakke, M., & Choudhary, P. (2023). A recent paradigm on iron absorption, prevalence, and emerging dietary approaches to eradicate iron deficiency. *Food Bioengineering, 2*(1), 53-63

Manzar, M. D., BaHammam, A. S., Hameed, U. A., Spence, D. W., Pandi-Perumal, S. R., Moscovitch, A., & Streiner, D. L. (2018). Dimensionality of the Pittsburgh Sleep Quality Index: a systematic review. *Health and Quality of Life Outcomes, 16*(1), 1-22

Marmot, M. (2020). Health equity in England: the Marmot review 10 years on. *The British Medical Journal, 368*. DOI: 10.1136/bmj.m693

Marmot, M., & Wilkinson, R. G. (Eds.). (2020). Social Determinants of Health. Oxford University Press.

Marra, M., Sammarco, R., De Lorenzo, A., Iellamo, F., Siervo, M., Pietrobelli, A., & Contaldo, F. (2019). Assessment of body composition in health and disease using bioelectrical impedance analysis and dual energy X-ray absorptiometry: a critical overview. *Contrast Media & Molecular Imaging*, Vol. 2019, Article ID 3548284, 9 pages. DOI: 10.1155/2019/3548284

Marrone, G., Guerriero, C., Palazzetti, D., Lido, P., Marolla, A., Di Daniele, F., & Noce, A. (2021). Vegan diet health benefits in metabolic syndrome. *Nutrients, 13*(3), 817

Martinez Aguirre-Betolaza, A., Mujika, I., Loprinzi, P., Corres, P., Gorostegi-Anduaga, I., & Maldonado-Martín, S. (2020). Physical activity, sedentary behavior, and sleep quality in adults with primary hypertension and obesity before and after an aerobic exercise program: EXERDIET-HTA study. *Life, 10*(8), 153

Martinussen, C., Bojsen-Moller, K. N., Svane, M. S., Dejgaard, T. F., & Madsbad, S. (2017). Emerging drugs for the treatment of obesity. *Expert Opinion on Emerging Drugs, 22*(1), 87-99

Marwaha, R.K., Tandon, N., Ganie, M.A., Mehan, N., Sastry, A., Garg, M.K., Bhadra, K. and Singh, S. (2013). Reference range of thyroid function (FT3, FT4 and TSH) among Indian adults. *Clinical biochemistry, 46*(4-5), 341-345

Masood, B., & Moorthy, M. (2023). Causes of obesity: a review. *Clinical Medicine, 23*(4), 284-291. DOI: 10.7861/clinmed.2023-0168

Mathew, T.K., Tadi, P. (2022). Blood Glucose Monitoring. In: StatPearls. StatPearls Publishing, Treasure Island (FL), PMID: 32310436

Mathur, P., & Pillai, R. (2019). Overnutrition: Current scenario & combat strategies. *The Indian Journal of Medical Research, 149*(6), 695-705. DOI: 10.4103/ijmr.IJMR_1703_18

Mathur, P., & Pillai, R. (2019). Overnutrition: Current scenario & combat strategies. *The Indian Journal of Medical Research, 149*(6), 695-705. DOI: 10.4103/ijmr.IJMR_1703_18

Matthias, B. (2019). Obesity: global epidemiology and pathogenesis. *Nature Reviews. Endocrinology, 15*(5), 288-298

Mawani, M., Ali, S. A., Bano, G., & Ali, S. A. (2016). Iron deficiency anemia among women of reproductive age, an important public health problem: situation analysis. Reproductive System & Sexual Disorders: *Current Research, 5*(3), 1

Mazhar, S. A., Anjum, R., Anwar, A. I., & Khan, A. A. (2021). Methods of data collection: A fundamental tool of research. *Journal of Integrated Community Health, 10*(1), 6-10

McAuley, E. A., MacLaughlin, H. L., Hannan-Jones, M. T., King, N., & Ross, L. J. (2023). Effectiveness of diet quality indices in measuring a change in diet quality over time: a systematic review and meta-analysis of randomized controlled trials. *Nutrition Reviews, 81*(4), 361-383

McEvoy, B. P., & Visscher, P. M. (2009). Genetics of human height. *Economics & Human Biology, 7*(3), 294-306

McGlory, C., van Vliet, S., Stokes, T., Mittendorfer, B., & Phillips, S. M. (2019). The impact of exercise and nutrition on the regulation of skeletal muscle mass. *The Journal of Physiology, 597*(5), 1251-1258

McLester, C. N., Nickerson, B. S., Kliszczewicz, B. M., & McLester, J. R. (2020). Reliability and agreement of various InBody body composition analyzers as compared to dual-energy X-ray absorptiometry in healthy men and women. *Journal of Clinical Densitometry, 23*(3), 443-450

Meessen, E.C., Andresen, H., van Barneveld, T., van Riel, A., Johansen, E.I., Kolnes, A.J., Kemper, E.M., Olde Damink, S.W., Schaap, F.G., Romijn, J.A. and Jensen, J. (2022). Differential effects of one meal per day in the evening on metabolic health and physical performance in lean individuals. *Frontiers in Physiology, 12*, 2495

Melzer, K., Kayser, B., Saris, W. H., & Pichard, C. (2005). Effects of physical activity on food intake. *Clinical Nutrition, 24*(6), 885-895

Mendhe, H. G., Borkar, S. K., Shaikh, M. K., & Choudhari, S. G. (2023). Assessment of Obesity and Associated Risk Factors of Diabesity in an Urban Population in Central India. *Insulin, 2*, 3

Mengesha, M. M., Roba, H. S., Ayele, B. H., & Beyene, A. S. (2019). Level of physical activity among urban adults and the socio-demographic correlates: a population-based cross-sectional study using the global physical activity questionnaire. *The Bio-Med Central Public Health, 19*, 1-11

Meshram, I., Boiroju, N. K., & Longvah, T. (2022). Prevalence of overweight/obesity, hypertension and its associated factors among women from Northeast India. *Indian Heart Journal, 74*(1), 56-62

Meshram, I.I., Balakrishna, N., Sreeramakrishna, K., Rao, K.M., Kumar, R.H., Arlappa, N., Manohar, G., Reddy, C.G., Ravindranath, M., Kumar, S.S. and Brahmam, G.N.V., Laxmaiah, A. (2016). Trends in nutritional status and nutrient intakes and correlates of overweight/obesity among rural adult women (≥ 18–60 years) in India: National Nutrition Monitoring Bureau (NNMB) national surveys. *Public Health Nutrition, 19*(5), 767-776

Messier, S. P. (2017). Obesity and osteoarthritis: disease genesis and nonpharmacologic weight management. *Rheumatic Disease Clinics of North America, 43*(2), 217-232

Milani, G. P., Macchi, M., & Guz-Mark, A. (2021). Vitamin C in the Treatment of COVID-19. *Nutrients, 13*(4), 1172

Mirza, F. G., Abdul-Kadir, R., Breymann, C., Fraser, I. S., & Taher, A. (2018). Impact and management of iron deficiency and iron deficiency anemia in women's health. *Expert Review of Hematology, 11*(9), 727-736

Misra, A., Jayawardena, R., & Anoop, S. (2019). Obesity in South Asia: phenotype, morbidities, and mitigation. *Current Obesity Reports, 8*, 43-52

Mohajan, D., & Mohajan, H. K. (2023). Obesity and Its Related Diseases: A New Escalating Alarming in Global Health. *Journal of Innovations in Medical Research*, *2*(3), 12-23

Mohamad Nor, N. S., Ambak, R., & Aris, T. (2018). An introduction to the my body is fit and fabulous at home (MyBFF@ home): a community-based weight loss intervention study among Malaysian housewives. *The Bio-Med Central Women's Health, 18*, 1-4. DOI: 10.1186/s12905-018-0589-x

Moitra, P., Madan, J., & Verma, P. (2021). Impact of a behaviourally focused nutrition education intervention on attitudes and practices related to eating habits and activity levels in Indian adolescents. *Public Health Nutrition, 24*(9), 2715-2726

Mollayeva, T., Thurairajah, P., Burton, K., Mollayeva, S., Shapiro, C. M., & Colantonio, A. (2016). The Pittsburgh sleep quality index as a screening tool for sleep dysfunction in clinical and non-clinical samples: A systematic review and meta-analysis. *Sleep Medicine Reviews, 25*, 52-73

Montenegro, K., Cruzat, V., Carlessi, R., & Newsholme, P. (2019). Mechanisms of vitamin D action in skeletal muscle. *Nutrition Research Reviews, 32*(2), 192-204. DOI:10.1017/S0954422419000064

Moon, S., Kang, J., Kim, S.H., Chung, H.S., Kim, Y.J., Yu, J.M., Cho, S.T., Oh, C.M. and Kim, T. (2020). Beneficial effects of time-restricted eating on metabolic diseases: a systemic review and meta-analysis. *Nutrients, 12*(5), 1267

Moonen, H. P. F. X., van Zanten, F. J. L., Driessen, L., de Smet, V., Slingerland-Boot, R., Mensink, M., & van Zanten, A. R. H. (2021). Association of bioelectric impedance analysis body composition and disease severity in COVID-19 hospital ward and ICU patients: The BIAC-19 study. *Clinical Nutrition, 40*(4), 2328-2336

Mozaffarian, D., Rosenberg, I., & Uauy, R. (2018). History of modern nutrition science—implications for current research, dietary guidelines, and food policy. *The British Medical Journal, 361*, k2392. DOI: 10.1136/bmj.k2392

Mumu, S. J., Ali, L., Barnett, A., & Merom, D. (2017). Validity of the global physical activity questionnaire (GPAQ) in Bangladesh. *The Bio-Med Central Public Health, 17*, 1-10. DOI: 10.1186/s12889-017-4666-0

Murty, P. V. V. S., Rao, M. V., & Bamji, M. S. (2016). Impact of enriching the diet of women and children through health and nutrition education, introduction of homestead gardens and backyard poultry in rural India. *Agricultural Research, 5*, 210-217

Myers, J., Kokkinos, P., & Nyelin, E. (2019). Physical activity, cardiorespiratory fitness, and the metabolic syndrome. *Nutrients, 11*(7), 1652

Nagarathna, R., Bali, P., Anand, A., Srivastava, V., Patil, S., Sharma, G., Manasa, K., Pannu, V., Singh, A. and Nagendra, H.R. (2020). Prevalence of diabetes and its determinants in the young adults Indian population - Call for yoga intervention. *Frontiers in Endocrinology, 11*, 846. DOI: 10.3389/fendo.2020.507064

Naito, R., McKee, M., Leong, D., Bangdiwala, S., Rangarajan, S., Islam, S., & Yusuf, S. (2023). Social isolation as a risk factor for all-cause mortality: Systematic review and meta-analysis of cohort studies. *The Public Library of Science-One, 18*(1), e0280308. DOI: 10.1371/journal.pone.0280308

Narayana, Y. L., Kumar, T. S., Yaswanthi, T., Prakash, P. K., & Swathi, G. A. (2023). Cross Sectional Study on Effect of Physical Activity on Improving Sleep Quality Among Young Adults. *International Journal of Health Sciences and Research, 13*(2), 50-62. DOI: 10.52403/ijhsr.20230209

Naska, A., Lagiou, A., & Lagiou, P. (2017). Dietary assessment methods in epidemiological research: current state of the art and future prospects. *F1000Research, 6*:926. DOI: 10.12688/f1000research.10703.1

Natekar, P., Deshmukh, C., Limaye, D., Ramanathan, V., & Pawar, A. (2022). A micro review of a nutritional public health challenge: iron deficiency anemia in India. *Clinical Epidemiology and Global Health, 14*, 100992. DOI: 10.1016/j.cegh.2022.100992

Natesh, H. N., Abbey, L., & Asiedu, S. K. (2017). An overview of nutritional and antinutritional factors in green leafy vegetables. *International Journal of Horticultural Science, 1*(2), 00011

National Academies of Sciences, Engineering, and Medicine. (2016). Frameworks for Addressing the Social Determinants of Health. In A Framework for Educating Health Professionals to Address the Social Determinants of Health. National Academies Press (US). Available at: https://www.ncbi.nlm.nih.gov/books/NBK395979/. Accessed on 26.09.2023

National Institute of Health-National Cancer Institute (NIH-NCI). 2023. Morbidity. NIC Dictionary of Cancer Terms. Available online at: https://www.cancer.gov/ publications/ dictionaries/cancer-terms/def/morbidity, Accessed on 11 July, 2023

National Institute of Health-National Cancer Institute (NIH-NCI). 2023. Dietary counseling. NIC Dictionary of Cancer Terms. Available online at: https://www.cancer.gov/publications/dictionaries/cancer-terms/def/dietary-counseling, Accessed on 13 July, 2023

National Nutrition Monitoring Bureau. (2017). Diet and Nutritional Status of Urban Population in India and Prevalence of Obesity, Hypertension, Diabetes and Hyperlipidemia in Urban Men and Women. NIN-ICMR, Hyderabad, India

Newton, S., Braithwaite, D., & Akinyemiju, T. F. (2017). Socio-economic status over the life course and obesity: Systematic review and meta-analysis. *The Public Library of Science-One, 12*(5), e0177151

Ng, M., Fleming, T., Robinson, M., Thomson, B., Graetz, N., Margono, C., & Gakidou, E. (2014). Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study 2013. *The Lancet, 384*(9945), 766-781.

Nguyen, H. T., Collins, P. F., Pavey, T. G., Nguyen, N. V., Pham, T. D., & Gallegos, D. L. (2019). Nutritional status, dietary intake, and health-related quality of life in outpatients with COPD. *International Journal of Chronic Obstructive Pulmonary Disease, 14,* 215-226

Nitschke, E., Gottesman, K., Hamlett, P., Mattar, L., Robinson, J., Tovar, A., & Rozga, M. (2022). Impact of nutrition and physical activity interventions provided by nutrition and exercise practitioners for the adult general population: a systematic review and meta-analysis. *Nutrients, 14*(9), 1729

North, M., Kothe, E., Klas, A., & Ling, M. (2021). How to define "Vegan": An exploratory study of definition preferences among omnivores, vegetarians, and vegans. *Food Quality and Preference, 93*, 104246

Nunn, R.L., Kehoe, S.H., Chopra, H., Sahariah, S.A., Gandhi, M., Di Gravio, C., Coakley, P.J., Cox, V.A., Sane, H., Shivshankaran, D. and Marley-Zagar, E. (2019). Dietary micronutrient intakes among women of reproductive age in Mumbai slums. *European Journal of Clinical Nutrition, 73*(11), 1536-1545

Nuraeny, N. (2019, November). Various Oral Lesions due to Micronutrient Deficiencies (Literature Review) [Paper presentation]. FDI-PDGI Continuing Education, Bandung, West Java, Indonesia. URL: www.researchgate.net/publication/ 346305587

Nuttall, F. Q. (2015). Body Mass Index: Obesity, BMI, and Health: A Critical Review. *Nutrition Today, 50*(3), 117-128

Nyenhuis, S. M., Greiwe, J., Zeiger, J. S., Nanda, A., & Cooke, A. (2020). Exercise and fitness in the age of social distancing during the COVID-19 pandemic. *The Journal of Allergy and Clinical Immunology: In Practice, 8*(7), 2152-2155. DOI: 10.1016/j.jaip.2020.04.039

Oleribe, O.O., Ukwedeh, O., Burstow, N.J., Gomaa, A.I., Sonderup, M.W., Cook, N., Waked, I., Spearman, W. and Taylor-Robinson, S.D., (2018). Health: redefined. *Pan African Medical Journal, 30*(1), 292

Ordovas, J. M., Ferguson, L. R., Tai, E. S., & Mathers, J. C. (2018). Personalised nutrition and health. *British Medical Journal*, 361. DOI: 10.1136/bmj.k2173

Osadnik, K., Osadnik, T., Lonnie, M., Lejawa, M., Reguła, R., Fronczek, M., Gawlita, M., Wądołowska, L., Gąsior, M. and Pawlas, N. (2020). Metabolically healthy obese and metabolic syndrome of the lean: The importance of diet quality. Analysis of MAGNETIC cohort. *Nutrition Journal, 19*(1), 1-13

Ostarahimi, A., Safaiyan, A., Modarresi, J., Pourabdollahi, P., & Mahdavi, R. (2010). Effect of nutrition education intervention on nutritional knowledge, attitude and practice (KAP) among female employees of Tabriz University of Medical Sciences. *Medical Journal of Tabriz University of Medical Sciences, 31*(4), 12-17

Pampalon, R., Hamel, D., & Gamache, P. (2009). A comparison of individual and area-based socio-economic data for monitoring social inequalities in health. *Health Reports, 20*(4), 85

Pan, W.H, Yeh, W.T. (2008). How to define obesity? Evidence-based multiple action points for public awareness, screening, and treatment: an extension of Asian-Pacific recommendations. *Asia Pacific Journal of Clinical Nutrition, 17*(3), 370–374

Pandey, P., & Pandey, M. M. (2021). Research methodology tools and techniques. Bridge Center, Romania

Paoli, A., Tinsley, G., Bianco, A., & Moro, T. (2019). The influence of meal frequency and timing on health in humans: the role of fasting. *Nutrients, 11*(4), 719

Paradies, Y., & Stevens, M. (2005). Conceptual diagrams in public health research. *Journal of Epidemiology & Community Health, 59*(12), 1012-1013

Pasqual, E., O'Brien, K., Rinaldi, S., Sandler, D. P., & Kitahara, C. M. (2023). Obesity, obesity-related metabolic conditions, and risk of thyroid cancer in women: results from a prospective cohort study (Sister Study). *The Lancet Regional Health–Americas, 23,* 100537. DOI: 10.1016/j.lana.2023.100537

Pasupula, D. K., & Reddy, P. S. (2014). When is a south Indian really anemic?. *Indian Journal of Clinical Biochemistry, 29*, 479-484

Pathak, G., Kalita, D., & Deka, B. (2022). Study on morbidity pattern among elderly in urban area of Barpeta, Assam, India. *Journal of Family Medicine and Primary Care, 11*(2), 553

Paul, K., & Singh, J. (2017). Understanding levels, patterns & trends of self-reported morbidity in India: Evidence from three rounds of national sample survey. In 2017 International Population Conference. IUSSP. (2017, October).

Payab, M., Hasani-Ranjbar, S., Shahbal, N., Qorbani, M., Aletaha, A., Haghi-Aminjan, H., & Larijani, B. (2020). Effect of the herbal medicines in obesity and metabolic syndrome: a systematic review and meta-analysis of clinical trials. *Phytotherapy Research,34*(3), 526-545

Pearce, N., Vandenbroucke, J. P., VanderWeele, T. J., & Greenland, S. (2020). Accurate statistics on COVID-19 are essential for policy guidance and decisions. *American Journal of Public Health, 110*(7), 949-951

Pellegrini, M., Senni, C., Bernabei, F., Cicero, A.F., Vagge, A., Maestri, A., Scorcia, V. and Giannaccare, G. (2020). The role of nutrition and nutritional supplements in ocular surface diseases. *Nutrients, 12*(4), 952

Pesta, D. H., & Samuel, V. T. (2014). A high-protein diet for reducing body fat: mechanisms and possible caveats. *Nutrition & Metabolism, 11*(1), 1-8

Petridou, A., Siopi, A., & Mougios, V. (2019). Exercise in the management of obesity. *Metabolism, 92*, 163-169

Pigeyre, M., Yazdi, F. T., Kaur, Y., & Meyre, D. (2016). Recent progress in genetics, epigenetics and metagenomics unveils the pathophysiology of human obesity. *Clinical Science, 130*(12), 943-986

Pigsborg, K., Kalea, A. Z., De Dominicis, S., & Magkos, F. (2023). Behavioral and Psychological Factors Affecting Weight Loss Success. *Current Obesity Reports, 12*, 223-230. DOI: 10.1007/s13679-023-00511-6

Pojednic, R., D'Arpino, E., Halliday, I., & Bantham, A. (2022). The benefits of physical activity for people with obesity, independent of weight loss: a systematic review. *International Journal of Environmental Research and Public Health, 19*(9), 4981

Pollakova, D., Andreadi, A., Pacifici, F., Della-Morte, D., Lauro, D., & Tubili, C. (2021). The impact of vegan diet in the prevention and treatment of type 2 diabetes: a systematic review. *Nutrients, 13*(6), 2123

Poly, T. N., Islam, M. M., Yang, H. C., Lin, M. C., Jian, W. S., Hsu, M. H., & Jack Li, Y. C. (2021). Obesity and mortality among patients diagnosed with COVID-19: a systematic review and meta-analysis. *Frontiers in Medicine, 8*, 620044

Popiolek-Kalisz, J., & Szczygiel, K. (2023). Bioelectrical impedance analysis and body composition in cardiovascular diseases. *Current Problems in Cardiology, 48*(11), 101911

Popkin, B. M. (2011). Contemporary nutritional transition: determinants of diet and its impact on body composition. *Proceedings of the Nutrition Society, 70*(1), 82-91

Prasad, D.S., Zubair, K., Suganthy, J.P., Dash, A.K., & Das, B.C. ((2013Appropriate . .anthropometric indices to identify cardiometabolic risk in South Asians*WHO South-East Asia Journal of Public Health, 2* ((4-3World Health .148 - 142 , East Asia-ice for SouthOrganization. Regional Off

Proietto, J. (2022). Medicines for long-term obesity management. *Australian Prescriber, 45*(2), 38

Purushotham, A., Aiyar, A., & von Cramon-Taubadel, S. (2023). Processed foods, socio-economic status, and peri-urban obesity in India. *Food Policy,* 117, 102450. DOI: 10.1016/j.foodpol.2023.102450

Purushotham, A., Aiyar, A., & von Cramon-Taubadel, S. (2023). Processed foods, socio-economic status, and peri-urban obesity in India. *Food Policy, 117*, 102450

Puzhankara, L., & Janakiram, C. (2022). Assessment of Common Risk Factors of Non-Communicable Diseases (NCDs) and Periodontal Disease in Indian Adults: An Analytical Cross-Sectional Study. *Methods and Protocols, 5*(2), 22

Rahayu, E. S., & Pangarungan, M. (2021). Scurvy: A Case Report. *Archives of The Medicine and Case Reports, 2*(1), 75-81. DOI: 10.37275/amcr.v2i1.13

Rajendran, D., & Pandurangan, K. K. (2021). Awareness And Knowledge About Pharmacotherapy Of Angular Cheilitis Among Ug Dental Students In Private Dental College Chennai. *International Journal of Pharmaceutical Research, 13*(1), 1811-1821

Ramot, R., Yadav, S., Vishnoi, S. K., Sharma, P., Khadgawat, R., & Jora, R. (2022). Effect of maternal supplementation with two different doses of vitamin D during lactation on vitamin D status, anthropometry and bone mass of infants: a randomized controlled trial. *Indian Pediatrics, 59*(4), 276-282

Ranjan, P., Vikram, N.K., Choranur, A., Pradeep, Y., Ahuja, M., Puri, M., Malhotra, A., Kumari, A., Chopra, S., Batra, A. and Balsalkar, G. (2022). Executive summary of evidence and consensus-based clinical practice guidelines for management of obesity and overweight in midlife women: An AIIMS-DST initiative. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 16*(3), 102426. DOI: 10.1016/j.dsx.2022.102426

Rao, N. D., Min, J., DeFries, R., Ghosh-Jerath, S., Valin, H., & Fanzo, J. (2018). Healthy, affordable and climate-friendly diets in India. *Global Environmental Change, 49*, 154-165

Ratner, R.E., Christophi, C.A., Metzger, B.E., Dabelea, D., Bennett, P.H., Pi-Sunyer, X., Fowler, S., Kahn, S.E. and Diabetes Prevention Program Research Group., (2008). Prevention of diabetes in women with a history of gestational diabetes: effects of metformin and lifestyle interventions. *The Journal of Clinical Endocrinology & Metabolism, 93*(12), 4774-4779

Recchia, F., Leung, C.K., Angus, P.Y., Leung, W., Danny, J.Y., Fong, D.Y., Montero, D., Lee, C.H., Wong, S.H. and Siu, P.M. (2023). Dose–response effects of exercise and caloric restriction on visceral adiposity in overweight and obese adults: a systematic review and meta-analysis of randomised controlled trials. *British Journal of Sports Medicine, 57*:1035-1041

Reddy, G.B., Shalini, T., Ghosh, S., Pullakhandam, R., Kumar, B.N., Kulkarni, B., Laxmaiah, A., Kapil, U., Deb, S., Hemalatha, R. and Kurpad, A.V. (2022). Prevalence of vitamin A deficiency and dietary inadequacy in Indian school-age children and adolescents. *European Journal of Nutrition*, *61,* 1-13. DOI: 10.1007/s00394-021-02636-7

Redeker, N. S., Caruso, C. C., Hashmi, S. D., Mullington, J. M., Grandner, M., & Morgenthaler, T. I. (2019). Workplace interventions to promote sleep health and an alert, healthy workforce. *Journal of Clinical Sleep Medicine, 15*(4), 649-657

Reethesh, S.R., Ranjan, P., Arora, C., Kaloiya, G.S., Vikram, N.K., Dwivedi, S.N., Jyotsna, V.P. and Soneja, M. (2019). Development and validation of a questionnaire assessing knowledge, attitude, and practices about obesity among obese individuals. *Indian Journal of Endocrinology and Metabolism, 23*(1), 102

Reethesh, S.R., Ranjan, P., Arora, C., Kaloiya, G.S., Vikram, N.K., Dwivedi, S.N., Jyotsna, V.P. and Soneja, M. (2019). Development and validation of a questionnaire assessing knowledge, attitude, and practices about obesity among obese individuals. *Indian Journal of Endocrinology and Metabolism, 23*(1), 102

Reyes Matos, U., Mesenburg, M. A., & Victora, C. G. (2020). Socioeconomic inequalities in the prevalence of underweight, overweight, and obesity among women aged 20-49 in low-and middle-income countries. *International Journal of Obesity, 44*(3), 609-616

Reyes Matos, U., Mesenburg, M. A., & Victora, C. G. (2020). Socioeconomic inequalities in the prevalence of underweight, overweight, and obesity among women aged 20–49 in low-and middle-income countries. *International Journal of Obesity, 44*(3), 609-616

Ritchie, K. C., Snelgrove-Clarke, E., & Murphy, A. L. (2019). The 23-item Evidence Based Practice-Knowledge Attitudes and Practices (23-item EBP-KAP) survey: initial validation among health professional students. *Health Professions Education, 5*(2), 152-162

Roa Dueñas, O. H., Koolhaas, C., Voortman, T., Franco, O. H., Ikram, M. A., Peeters, R. P., & Chaker, L. (2021). Thyroid function and physical activity: A population-based cohort study. *Thyroid, 31*(6), 870-875

Röhling, M., Herder, C., Stemper, T., & Müssig, K. (2016). Influence of acute and chronic exercise on glucose uptake. *Journal of Diabetes Research.* Vol. 2016. Article ID: 2868652. DOI: 10.1155/2016/2868652

Rothman, K. J., Greenland, S., & Lash, T. L. (2008). Modern Epidemiology. Lippincott Williams & Wilkins.

Rowe, S., & Carr, A. C. (2020). Global vitamin C status and prevalence of deficiency: a cause for concern?. *Nutrients, 12*(7), 2008. DOI: 10.3390/nu12072008

Roy, D., Palavalli, B., Menon, N., King, R., Pfeffer, K., Lees, M., & Sloot, P. (2018). Survey-based socio-economic data from slums in Bangalore, India. *Scientific data, 5*(1), 1-9

Ryan, D. H., & Braverman-Panza, J. (2014). Obesity in women. *Journal of Family Practice, 63*(2), S15-S15

Ryvicker M. (2018). A Conceptual Framework for Examining Healthcare Access and Navigation: A Behavioral-Ecological Perspective. *Social Theory & Health, 16*(3), 224–240. DOI: 10.1057/s41285-017-0053-2

Sabini, E., Biagini, A., & Molinaro, E. (2015). Thyroid dysfunction and physical activity: clinical and therapeutic implications. *Rehabilitation and Motor Sciences Periodical of the Journal of Sport and Anatomy, 1*,1-24. ISSN: 2421-3292

Sadaf, A. (2023). The role of built environment, personal, religious, cultural, and socioeconomic factors in increasing overweight and obesity rate in women vs men: a case study of Karachi, Pakistan. *Cities & Health, 8*(1), 1-14

Saha, A., Marma, K.K.S., Rashid, A., Tarannum, N., Das, S., Chowdhury, T., Afrin, N., Chakraborty, P., Emran, M., Mehedi, H.H. and Hussain, M.I. (2022). Risk factors associated with self-medication among the indigenous communities of Chittagong Hill Tracts, Bangladesh. *The Public Library of Science-One, 17*(6), e0269622. DOI: 10.1371/journal.pone.0269622

Sakkas, H., Bozidis, P., Touzios, C., Kolios, D., Athanasiou, G., Athanasopoulou, E., Gerou, I. and Gartzonika, C. (2020). Nutritional status and the influence of the vegan diet on the gut microbiota and human health. *Medicina, 56*(2), 88

Salm, M., Ali, M., Minihane, M., & Conrad, P. (2021). Defining global health: findings from a systematic review and thematic analysis of the literature. *The British Medical Journal of Global Health, 6*(6), e005292

Salmón-Gómez, L., Catalán, V., Frühbeck, G., & Gómez-Ambrosi, J. (2023). Relevance of body composition in phenotyping the obesities. *Reviews in Endocrine and Metabolic Disorders, 24,* 809-823

Saltzman, E., & Mogensen, K. M. (2013). Physical and clinical assessment of nutrition status. In Coulston, Boushey, Ferruzzi (Ed.) Nutrition in the Prevention and Treatment of Disease, (3rd Edition, pages 65-79). Massachusetts, USA. Academic Press. Available online as scanned pages at: www.sciencedirect.com/science/article/abs/pii/B9780123918840000032. Accessed on 10th July, 2023

Samadi, Z., Taghian, F., & Valiani, M. (2013). The effects of 8 weeks of regular aerobic exercise on the symptoms of premenstrual syndrome in non-athlete girls. *Iranian Journal of Nursing and Midwifery Research, 18*(1), 14-19. URL: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3748549/

Sancho-Domingo, C., Carballo, J. L., Coloma-Carmona, A., & Buysse, D. J. (2021). Brief version of the Pittsburgh Sleep Quality Index (B-PSQI) and measurement invariance across gender and age in a population-based sample. *Psychological Assessment, 33*(2), 111

Sankar, P., Ahmed, W. N., Koshy, V. M., Jacob, R., & Sasidharan, S. (2020). Effects of COVID-19 lockdown on type 2 diabetes, lifestyle and psychosocial health: a hospital-based cross-sectional survey from South India. *Diabetes & Metabolic Syndrome: Clinical Research & Reviews, 14*(6), 1815-1819

Santos-Rocha, R., Freitas, J., Ramalho, F., Pimenta, N., Costa Couto, F., & Apóstolo, J. (2020). Development and validation of a complex intervention: A physical exercise programme aimed at delaying the functional decline in frail older adults. *Nursing Open, 7*(1), 274-284

Sarma, S., Sockalingam, S., & Dash, S. (2021). Obesity as a multisystem disease: Trends in obesity rates and obesity-related complications. Diabetes, *Obesity and Metabolism, 23*, 3-16

Sartorius, N. (2006). The meanings of health and its promotion. *Croatian Medical Journal*, 47(4), 662

Sathish, T., & Mathews, E. (2023). Development of a Modified Global Physical Activity Questionnaire and Its Construct Validity among Adults in Kerala, India. *Diabetology, 4*(2), 235-242

Sathish, T., & Mathews, E. (2023). Development of a Modified Global Physical Activity Questionnaire and Its Construct Validity among Adults in Kerala, India. *Diabetology, 4*(2), 235-242

Sawadogo, W., Tsegaye, M., Gizaw, A., & Adera, T. (2022). Overweight and obesity as risk factors for COVID-19-associated hospitalisations and death: systematic review and meta-analysis. *British Medical Journal of Nutrition*, *Prevention & Health*, *5*(1), 10-18

Scannell, N., Moran, L., Mantzioris, E., Cowan, S., & Villani, A. (2022). Efficacy, feasibility and acceptability of a Mediterranean diet intervention on hormonal, metabolic and anthropometric measures in overweight and obese women with polycystic ovary syndrome: study protocol. *Metabolites, 12*(4), 311

Schramme, T. (2023). Health as complete Well-being: the WHO Definition and beyond. *Public Health Ethics, 16*(3), 210-218. DOI: 10.1093/phe/phad017

Selvan, S. C., & Andrew, S. A. (2021). Emerging trends towards online food delivery apps in India. (April 3rd, 2021). DOI: 10.2139/ssrn.3837117

Sengupta, A., Angeli, F., Syamala, T. S., Dagnelie, P. C., & Van Schayck, C. P. (2015). Overweight and obesity prevalence among Indian women by place of residence and socio-economic status: contrasting patterns from ‘underweight states’ and ‘overweight states’ of India. *Social Science & Medicine, 138,* 161-169

Shad, R., Thawani, R., & Goel, A. (2015). Burnout and sleep quality: a cross-sectional questionnaire-based study of medical and non-medical students in India. *Cureus, 7*(10), e361. DOI 10.7759/cureus.361

Shaked, M., Levkovich, I., Adar, T., Peri, A., & Liviatan, N. (2019). Perspective of healthy asymptomatic patients requesting general blood tests from their physicians: a qualitative study. *Bio-Med Central Family Practice, 20*, 1-8

Shan, Z., Rehm, C.D., Rogers, G., Ruan, M., Wang, D.D., Hu, F.B., Mozaffarian, D., Zhang, F.F. and Bhupathiraju, S.N. (2019). Trends in dietary carbohydrate, protein, and fat intake and diet quality among US adults, 1999-2016. *The Journal of the American Medical Association, 322*(12), 1178-1187

Shankar, B., Agrawal, S., Beaudreault, A.R., Avula, L., Martorell, R., Osendarp, S., Prabhakaran, D. and Mclean, M.S. (2017). Dietary and nutritional change in India: implications for strategies, policies, and interventions. *Annals of the New York Academy of Sciences, 1395*(1), 49-59

Sharaf, S., Al-Shalabi, B., Althani, G., Mohammad, H., Ali, A., & Mohammad, A. (2021). Obesity self-management: knowledge, attitude, practice, and pharmaceutical use among healthy obese individuals in Saudi Arabia. *International Journal of Family & Community Medicine, 5*(4), 110-121

Sharma, M., Kishore, A., Roy, D., & Joshi, K. (2020). A comparison of the Indian diet with the EAT-Lancet reference diet. *The Bio-Med Central Public Health, 20*(1), 1-13

Sharma, M., Kishore, A., Roy, D., & Joshi, K. (2020). A comparison of the Indian diet with the EAT-Lancet reference diet. *The Bio-Med Central Public Health, 20*(1), 1-13. DOI: 10.1186/s12889-020-08951-8

Sharma, N. (2022). Chapter-5 Ways of Nutrition Security. In Shashi Gour & S. Shahir (Eds.). *Research Trends in Nutrition and Food Science*, page 65. Bright Sky Publications, New Delhi. DOI: 10.22271/bs.book.27

Sharma, S. K., Nambiar, D., & Ghosh, A. (2023). Sex differences in non-communicable disease multimorbidity among adults aged 45 years or older in India. BMJ open, 13(3), e067994

Shi, L., & Singh, D. A. (2015). Essentials of the U.S. Health Care System. Jones & Bartlett Learning.

Shin, J. C., Kim, J., & Grigsby-Toussaint, D. (2017). Mobile phone interventions for sleep disorders and sleep quality: systematic review. *JMIR mHealth and uHealth, 5*(9), e7244

Shrestha, A. B., Aryal, M., Magar, J. R., Shrestha, S., Hossainy, L., & Rimti, F. H. (2022). The scenario of self-medication practices during the covid-19 pandemic; a systematic review. *Annals of Medicine and Surgery, 82,* 104482

Sienso, G., Lyford, C., & Oldewage-Theron, W. (2022). Using Knowledge, Attitudes and Practices (KAP) in Assessing the Impact of Nutrition Education on Associated Nutrition and Health Outcomes in Northern Ghana. 10 October 2022, PREPRINT (Version 1). *Research Square,* DOI: 10.21203/rs.3.rs-2117886/v1

Singh, S.K., Revand, R. (2022). Physiological Basis of Lower Limb Edema. In: Tiwary, S.K. (eds) In *Approach to Lower Limb Oedema*. pages 25-43. Springer, Singapore. DOI: 10.1007/978-981-16-6206-5_3

Sivapathasundharam, B., & Raghu, A. R. (2020). Dental caries. Shafer's Textbook of Oral Pathology, Ninth Edition, [An adaptation of A Textbook of Oral Pathology, 1983, 4th Ed., Elsevier Inc.], RELX India Pvt Ltd., India, Chapter 11. 369-403

Skogstad, M., Lunde, L. K., Ulvestad, B., Aass, H. C. D., Clemm, T., Mamen, A., & Skare, Ø. (2018). The effect of a leisure time physical activity intervention delivered via a workplace: 15-Month follow-up study. *International Journal of Environmental Research and Public Health, 15*(2), 264. DOI: 10.3390/ijerph15020264

Smith, K. B., & Smith, M. S. (2016). Obesity statistics. *Primary Care, 43*(1), 121-135. DOI: 10.1016/j.pop.2015.10.001

Smith, K. B., & Smith, M. S. (2016). Obesity statistics. *Primary care: Clinics in Office Practice, 43*(1), 121-135. DOI: 10.1016/j.pop.2015.10.001

Sood, P., & Bindra, S. (2022). Modified Kuppuswamy socioeconomic scale: 2022 update of India. *International Journal of Community Medicine and Public Health, 10(2)*, 821-823

Sri, K. B., Supriya, A. N., Manyam, R., Pasupuleti, S., Ramesh, T., & Ramesh, M. V. (2023). Prevalence of Oral Mucosal Lesions among Geriatric Patients: A Cross-sectional Study. *World, 14*(4), 341

Srivastav, P., Vaishali, K., Bhat, V. H., & Broadbent, S. (2021). Structured, multifactorial randomised controlled intervention to investigate physical activity levels, body composition and diet in obese and overweight adolescents. *The British Medical Journal Open, 11*(3), e044895

Srivastava, S., KJ, V. J., Dristhi, D., & Muhammad, T. (2021). Interaction of physical activity on the association of obesity-related measures with multimorbidity among older adults: a population-based cross-sectional study in India. *The British Medical Journal Open, 11*(5), e050245. DOI: 10.1136/bmjopen-2021-050245

Stenberg, K., Hanssen, O., Edejer, T.T.T., Bertram, M., Brindley, C., Meshreky, A., Rosen, J.E., Stover, J., Verboom, P., Sanders, R. and Soucat, A., (2017). Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries. *The Lancet Global Health, 5*(9), e875-e887

Stoffel, N. U., von Siebenthal, H. K., Moretti, D., & Zimmermann, M. B. (2020). Oral iron supplementation in iron-deficient women: How much and how often?. *Molecular Aspects of Medicine, 75*, 100865

Strain, T., Wijndaele, K., Garcia, L., Cowan, M., Guthold, R., Brage, S., & Bull, F. C. (2020). Levels of domain-specific physical activity at work, in the household, for travel and for leisure among 327 789 adults from 104 countries. *British Journal of Sports Medicine, 54*(24), 1488-1497

Stulp, G., & Barrett, L. (2016). Evolutionary perspectives on human height variation. *Biological Reviews, 91*(1), 206-234

Sujatha, K., & Kowsalya, S. (2018). Interventional Strategies for Control of Anemia among Rural Young Women in Coimbatore. *The Indian Journal of Nutrition and Dietetics, 55*(3), 266-277. DOI:10.21048/ijnd.2018.55.3.21067

Sukhatme, P. V. (1970). Incidence of protein deficiency in relation to different diets in India. *British Journal of Nutrition, 24*(2), 477-487

Sullivan, P. A., Still, C. D., Jamieson, S. T., Dixon, C. B., Irving, B. A., & Andreacci, J. L. (2019). Evaluation of multi-frequency bioelectrical impedance analysis for the assessment of body composition in individuals with obesity. *Obesity Science & Practice, 5*(2), 141-147

Sullivan, R., Kinra, S., Ekelund, U., AV, B., Vaz, M., Kurpad, A., Collier, T., Srinath Reddy, K., Prabhakaran, D., Ben-Shlomo, Y. and Davey Smith, G. (2011). Socio-demographic patterning of physical activity across migrant groups in India: results from the Indian Migration Study. *The Public Library of Science-One, 6*(10), e24898

Sumarto, S., Radiati, A., & Seftiatullaeli, N. (2023). Downstreaming research results on food products as enhancers of immunity during the covid-19 pandemic through nutrition education. *Jurnal Penelitian Pendidikan, 9*(2), 762–769. DOI: 10.29303/jppipa.v9i2.3021

Sutton, K., Caldwell, J., Yoshida, S., Thompson, J., & Kuo, T. (2019). Healthy food marketing and purchases of fruits and vegetables in large grocery stores. *Preventive Medicine Reports, 14*, 100861

Svalastog, A. L., Donev, D., Kristoffersen, N. J., & Gajović, S. (2017). Concepts and definitions of health and health-related values in the knowledge landscapes of the digital society. *Croatian Medical Journal, 58*(6), 431-435

Swain, S., & Chowdhury, S. (2018). Trends of nutritional status among rural adults in six states of India: findings from national survey data. *Clinical Epidemiology and Global Health, 6*(4), 181-187.

Swaminathan, S., Ghosh, S., Varghese, J. S., Sachdev, H. S., Kurpad, A. V., & Thomas, T. (2019). Dietary iron intake and anemia are weakly associated, limiting effective iron fortification strategies in India. *The Journal of Nutrition, 149*(5), 831-839

Swaminathan, S., Vaz, M., & Kurpad, A. V. (2012). Protein intakes in India. *British Journal of Nutrition, 108*(S2), S50-S58

Syn, N. L., Cummings, D. E., Wang, L. Z., Lin, D. J., Zhao, J. J., Loh, M., Koh, Z. J., Chew, C. A., Loo, Y. E., Tai, B. C., Kim, G., So, J. B., Kaplan, L. M., Dixon, J.B. & Shabbir, A. (2021). Association of metabolic–bariatric surgery with long-term survival in adults with and without diabetes: a one-stage meta-analysis of matched cohort and prospective controlled studies with 174 772 participants. *The Lancet, 397*(10287), 1830-1841.

Taherdoost, H., (2018). Validity and Reliability of the Research Instrument; How to Test the Validation of a Questionnaire/Survey in a Research (August 10, 2016). Available at SSRN: https://ssrn.com/abstract=3205040 or DOI: 10.2139/ssrn.3205040. Accessed on 28th April, 2022

Tai, D., Falck, R. S., Davis, J. C., Vint, Z., & Liu-Ambrose, T. (2022). Can exercise training promote better sleep and reduced fatigue in people with chronic stroke? A systematic review. *Journal of Sleep Research, 31*(6), e13675

Tanaka, H., Anno, T., Takenouchi, H., Iwamoto, H., Kaneto, H., Okimoto, N., & Tomoda, K. (2021). Case Report: Severe Edema and Marked Weight Gain Induced by Marginal Thiamine Deficiency in a Patient With Alcohol Dependency and Type 2 Diabetes Mellitus. *Frontiers in Nutrition, 8*, 675992

Tariq, M. N. M., Stojanovska, L., Dhaheri, A. S. A., Cheikh Ismail, L., Apostolopoulos, V., & Ali, H. I. (2022). Lifestyle Interventions for Prevention and Management of Diet-Linked Non-Communicable Diseases among Adults in Arab Countries. *In Healthcare, 11*(1), 45

Tavakol, Z., Ghannadi, S., Tabesh, M.R., Halabchi, F., Noormohammadpour, P., Akbarpour, S., Alizadeh, Z., Nezhad, M.H., Reyhan, S.K. (2021). Relationship between physical activity, healthy lifestyle and COVID-19 disease severity; a cross-sectional study. *Journal of Public Health, 31*, 267-275

Templin, T., Cravo Oliveira Hashiguchi, T., Thomson, B., Dieleman, J., & Bendavid, E. (2019). The overweight and obesity transition from the wealthy to the poor in low- and middle-income countries: A survey of household data from 103 countries. *The Public Library of Science Medicine, 16*(11), e1002968

Thaker, V. V. (2017). Genetic and epigenetic causes of obesity. *Adolescent Medicine: State of the Art Reviews, 28*(2), 379-405

Thankachan, P., Muthayya, S., Walczyk, T., Kurpad, A. V., & Hurrell, R. F. (2007). An analysis of the etiology of anemia and iron deficiency in young women of low socioeconomic status in Bangalore, India. *Food and Nutrition Bulletin, 28*(3), 328-336

The United Nations. (2023). Goal 3: Ensure healthy lives and promote well-being for all at all ages. Available at: https://unric.org/en/sdg-3/. Accessed on 27.09.2023

The United Nations. (2023). The Sustainable Development Agenda. Available at: https://www.un.org/sustainabledevelopment/development-agenda-retired/, Accessed on 27.09.2023

Theorell-Haglöw J, Lemming EW, Michaëlsson K, Elmståhl S, Lind L, Lindberg E. (2020). Sleep duration is associated with healthy diet scores and meal patterns: results from the population-based EpiHealth study. *Journal of Clinical Sleep Medicine, 16*(1), 9-18. DOI: 10.5664/jcsm.8112

Tomiyama, A. J. (2019). Stress and obesity. *Annual Review of Psychology, 70*, 703-718.

Tranæs, K., Ding, C., Chooi, Y. C., Chan, Z., Choo, J., Leow, M. K. S., & Magkos, F. (2021). Dissociation Between Insulin Resistance and Abnormalities in Lipoprotein Particle Concentrations and Sizes in Normal-Weight Chinese Adults. *Frontiers in Nutrition, 8*, 651199

Trestini, I., Sperduti, I., Caldart, A., Bonaiuto, C., Fiorio, E., Parolin, V., Zambonin, V., Zanelli, S., Tregnago, D., Avancini, A. and Cintoni, M. (2021). Evidence-based tailored nutrition educational intervention improves adherence to dietary guidelines, anthropometric measures and serum metabolic biomarkers in early-stage breast cancer patients: A prospective interventional study. *The Breast, 60*, 6-14

Truby, H., Edwards, B. A., Day, K., O'Driscoll, D. M., Young, A., Ghazi, L., & Hamilton, G. S. (2022). A 12-month weight loss intervention in adults with obstructive sleep apnoea: is timing important? A step wedge randomised trial. *European Journal of Clinical Nutrition, 76*(12), 1762-1769

Tucker. K.L. (2023). Dietary surveys: Surveys of food intake in groups and individuals. In B. Caballero (Ed.). Encyclopedia of Human Nutrition (4th Edition, pages 385-391). Massachusetts, USA. Academic Press. Available online as scanned pages at: https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/dietary-surveys. Accessed on 11 July, 2023

Tungare, S., & Paranjpe, A. G. (2018). Diet and nutrition to prevent dental problems. Study Guide from StatPearls Publishing, Treasure Island (FL), 28 Nov 2018. PMID: 30480981. Accessed on 6th October, 2023.

Turaga, A. H. (2023). Vegetarianism and Its Implications for Body Mass Index, Health, and Dietary Awareness in a Metropolitan City in India: A Cross-Sectional Study. *Cureus, 15*(7): e42187. DOI: 10.7759/cureus.42187

UNICEF. (2020). Under-five Mortality. Available at: https://data.unicef.org/topic/child-survival/under-five-mortality/. Accessed on 27.09.2023

Upadhyay, J., Farr, O., Perakakis, N., Ghaly, W., & Mantzoros, C. (2018). Obesity as a disease. *The Medical clinics of North America, 102*(1), 13-33

Van Druten, V.P., Bartels, E.A., Van de Mheen, D. (2022). Concepts of health in different contexts: a scoping review. *Bio-Med Central Health Services Research, 22*(1), 1-21. DOI: 10.1186/s12913-022-07702-2

Van Zyl, C., Badenhorst, M., Hanekom, S., & Heine, M. (2021). Unravelling 'low-resource settings': a systematic scoping review with qualitative content analysis. *The British Medical Journal of Global Health, 6*(6), e005190

Vandevijvere, S., De Ridder, K., Fiolet, T., Bel, S., & Tafforeau, J. (2019). Consumption of ultra-processed food products and diet quality among children, adolescents and adults in Belgium. *European Journal of Nutrition, 58*, 3267-3278

Varela-Vásquez, L. A., Girabent-Farrés, M., Medina-Rincón, A., Rierola-Fochs, S., Jerez-Roig, J., & Minobes-Molina, E. (2022). Validation of a dual-task exercise program to improve balance and gait speed in older people (DualPro): a Delphi study. *Sports Medicine and Rehabilitation, 10*, e13204. DOI: 10.7717/peerj.13204

Vazir, S., Engle, P., Balakrishna, N., Griffiths, P.L., Johnson, S.L., Creed-Kanashiro, H., Fernandez Rao, S., Shroff, M.R. and Bentley, M.E. (2013). Cluster-randomized trial on complementary and responsive feeding education to caregivers found improved dietary intake, growth and development among rural Indian toddlers. *Maternal & Child Nutrition, 9*(1), 99-117

Veit, M., van Asten, R., Olie, A., & Prinz, P. (2022). The role of dietary sugars, overweight, and obesity in type 2 diabetes mellitus: a narrative review. *European Journal of Clinical Nutrition, 76*(11), 1497-1501

Venkidasamy, B., Selvaraj, D., Nile, A. S., Ramalingam, S., Kai, G., & Nile, S. H. (2019). Indian pulses: A review on nutritional, functional and biochemical properties with future perspectives. *Trends in Food Science & Technology, 88*, 228-242

Vicziany, M., & Hardikar, J. (2018). Point-of-Care Blood Tests: Do Indian Villagers Have Cultural Objections?. *Frontiers in Chemistry, 6*, 505

Visioli, F., Marangoni, F., Poli, A., Ghiselli, A., & Martini, D. (2022). Nutrition and health or nutrients and health?. *International Journal of Food Sciences and Nutrition*, *73*(2), 141-148

Vlassopoulos, A., Govers, E., Mulrooney, H., Androutsos, O., & Hassapidou, M. (2021). Dietetic management of obesity in Europe: gaps in current practice. *European Journal of Clinical Nutrition, 75*(7), 1155-1158

Vlassopoulos, A., Govers, E., Mulrooney, H., Androutsos, O., & Hassapidou, M. (2021). Dietetic management of obesity in Europe: gaps in current practice. *European Journal of Clinical Nutrition, 75*(7), 1155-1158

Völgyi, E., Tylavsky, F. A., Lyytikäinen, A., Suominen, H., Alén, M., & Cheng, S. (2012). Assessing body composition with DXA and bioimpedance: effects of obesity, physical activity, and age. *Obesity, 16*(3), 700-705

Volkova, E., & Ni Mhurchu, C. (2015). The influence of nutrition labeling and point-of-purchase information on food behaviours. *Current Obesity Reports, 4,* 19-29

Wadden, T. A., Bailey, T. S., Billings, L. K., Davies, M., Frias, J. P., Koroleva, A., & STEP 3 Investigators. (2021). Effect of subcutaneous semaglutide vs placebo as an adjunct to intensive behavioral therapy on body weight in adults with overweight or obesity: the STEP 3 randomized clinical trial. *The Journal of the American Medical Association, 325*(14), 1403-1413

Walczak, K., & Sieminska, L. (2021). Obesity and thyroid axis. *International Journal of Environmental Research and Public Health*, *18*(18), 9434. DOI: 10.3390/ijerph 18189434

Wang, F., & Boros, S. (2021). The effect of physical activity on sleep quality: a systematic review. *European Journal of Physiotherapy, 23*(1), 11-18. DOI: 10.1080/21679169.2019.1623314

Wang, H., Wang, T., Tan, J. Y. B., Bressington, D., Zheng, S. L., Liu, X. L., & Huang, H. Q. (2023). Development and validation of an evidence-based breathing exercise intervention protocol for chronic pain management in breast cancer survivors. *Pain Management Nursing, 24*(3), 357-364

Wang, T., Jiang, R., Bai, J., & Zhang, K. (2020). Integrative bioinformatic analyses of genome-wide association studies for understanding the genetic bases of human height. *Biologia, 75*, 2413-2420

Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Belesova, K., Boykoff, M., Byass, P., Cai, W., Campbell-Lendrum, D., Capstick, S. and Chambers, J. (2019). The 2019 report of The Lancet Countdown on health and climate change: ensuring that the health of a child born today is not defined by a changing climate. *The Lancet, 394*(10211), 1836-1878.

WHO - World Health Organization. (2023). Coronavirus disease (COVID-19). World Health Organization. Available at: https://www.who.int/emergencies /diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus- disease-covid-19. Accessed on 13 July, 2023

WHO. (2020). Universal Health Coverage: Everyone, Everywhere. Available at: https://www.who.int/campaigns/world-health-day/world-health-day-2020. Accessed on 27.09.2023

Widjaja, N. A., Arifani, R., & Irawan, R. (2023). Value of waist-to-hip ratio as a predictor of metabolic syndrome in adolescents with obesity. *Acta Bio-medica: Atenei Parmensis, 94*(3), e2023076

Wilkins, J. L. (2020). Challenges and opportunities created by the COVID-19 pandemic. *Journal of Nutrition Education and Behavior, 52*(7), 669

Williams, C.J., Li, Z., Harvey, N., Lea, R.A., Gurd, B.J., Bonafiglia, J.T., Papadimitriou, I., Jacques, M., Croci, I., Stensvold, D. and Wisloff, U. (2021). Genome wide association study of response to interval and continuous exercise training: the Predict-HIIT study. *Journal of Biomedical Science*, *28*(1), 37

Williams, R. L., Wood, L. G., Collins, C. E., & Callister, R. (2015). Effectiveness of weight loss interventions–is there a difference between men and women: a systematic review. *Obesity Reviews, 16*(2), 171-186

World Bank. (2021). Maternal Mortality Ratio. Available at: www.data.worldbank.org /indicator/SH.STA.MMRT. Accessed on 27.09.2023

World Health Organization Expert Consultation. (2004). Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. *Lancet*. 363: 157–63

World Health Organization. (1948). Basic documents. 45th ed. Geneva: World Health Organization; 2005.

World Health Organization. (1995, 2011). Physical status: The use of and interpretation of anthropometry, Report of a WHO Expert Committee. World Health Organization

World Health Organization. (2010). A Conceptual Framework for Action on the Social Determinants of Health. Available at: https://www.who.int/publications/ i/item/9789241500852. Accessed on 27.09.2023

World Health Organization. (2011). Waist circumference and waist-hip ratio: report of a WHO expert consultation, Geneva, 8-11 December 2008

World Health Organization. (2012). Global Physical Analysis Questionnaire (GPAQ) Analysis Guide. Pages 1-22, Geneva, Switzerland: World Health Organization. Available online at: https://cdn.who.int/media/docs/default-source/ncds/ncd-surveillance/gpaq-analysis-guide.pdf. Accessed on 12 July, 2023

World Health Organization. (2018). Injuries and Violence: The Facts. Available at: https://www.who.int/teams/social-determinants-of-health/injuries-and-violence. Accessed on 27.09.2023

World Health Organization. (2020). Obesity and Overweight - Fact Sheet. Available at: www.who.int/news-room/fact-sheets/detail/obesity-and-overweight. Accessed on 25.09.2023

World Health Organization. (2021). Noncommunicable Diseases. Available at: www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases. Accessed on 27.09.2023

World Health Organization. (2021). Obesity and overweight. World Health Organization. Available at: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight. Accessed on 14 July, 2023

World Health Organization. (2022). Noncommunicable diseases. World Health Organization. Available at: https://www.who.int/news-room/fact-sheets/detail/noncommunicable- diseases. Accessed on 13 July, 2023

World Health Organization. (2022). Obesity and Overweight. Available at: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight. Accessed on 11.03.2023

World Health Organization. (2022). Obesity and Overweight. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight

World Health Organization. (2022). Physical activity. World Health Organization. Available at: https://www.who.int/news-room/fact-sheets/detail/physical-activity. Accessed on 14 July, 2023

World Health Organization. (2023). Constitution. Available at: https://www.who.int/about/governance/constitution. Accessed on 13 July, 2023

World Health Organization. (2023). Constitution: WHO remains firmly committed to the principles set out in the preamble to the Constitution. https://www.who.int/about/governance/constitution

World Health Organization. (2023). Noncommunicable Disease Surveillance, Monitoring and Reporting - Physical activity surveillance. Available online at: https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/physical-activity-surveillance. Accessed on 12 July, 2023

World Health Organization. (2023). Obesity. World Health Organization. Available at: https://www.who.int/health-topics/obesity. Accessed on 13 July, 2023

World Health Organization. (2023). Sustainable Development Goals. Available at: https://www.who.int/europe/about-us/our-work/sustainable-development-goals. Accessed on 27.09.2023

World Health Organization. (2023). The Global Health Observatory: Estimated general mortality rate. Available at: www.who.int/data/gho/ indicator-metadata-registry/imr-details/1157. Accessed on 27.09.2023

World Health Organization. Obesity and Overweight. 2022. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight. Accessed 12 Sep 2022.

World Obesity Federation (WOF). (2022). World Obesity Atlas 2022. https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2022. Accessed on 15 Sep 2022

World Obesity Federation. (2022). World Obesity Atlas 2022. Available at: https://www.worldobesity.org/resources/resource-library/world-obesity-atlas-2022. Accessed on 15.03.2023

World Population Review. (2023). Coimbatore Population 2023. Available at: https://worldpopulationreview.com/world-cities/coimbatore-population, Accessed on: 16.07.2023

Wu, G. (2016). Dietary protein intake and human health. *Food & Function, 7*(3), 1251-1265. DOI: 10.1039/C5FO01530H

Xu, C., Zhao, S., Yu, S., Tang, J., Zhang, H., Xu, B., Xu, Y., Zhang, Y. (2022). Short Sleep Duration Was Associated with Increased Regional Body Fat in US Adults: The NHANES from 2011 to 2018. *Nutrients, 14*(14), 2840. DOI: 10.3390/nu14142840

Yang, D., Yang, Y., Li, Y., & Han, R. (2019). Physical exercise as therapy for type 2 diabetes mellitus: From mechanism to orientation. *Annals of Nutrition and Metabolism, 74*(4), 313-321

Yang, Y. J. (2019). An overview of current physical activity recommendations in primary care. *Korean Journal of Family Medicine, 40*(3), 135. DOI: 10.4082%2Fkjfm.19.0038

Yasmin, F., Asghar, M. S., Naeem, U., Najeeb, H., Nauman, H., Ahsan, M. N., & Khattak, A. K. (2022). Self-medication practices in medical students during the COVID-19 pandemic: a cross-sectional analysis. *Frontiers in Public Health, 10*, 803937. DOI: 10.3389/fpubh.2022.803937

Yetnayet, M., Henry, C. J., Berhanu, G., Whiting, S. J., & Regassa, N. (2017). Nutrition education promoted consumption of pulse based foods among rural women of reproductive age in Sidama Zone, Southern Ethiopia. *African Journal of Food, Agriculture, Nutrition and Development, 17*(3), 12377-12395

Zatterale, F., Longo, M., Naderi, J., Raciti, G. A., Desiderio, A., Miele, C., & Beguinot, F. (2020). Chronic adipose tissue inflammation linking obesity to insulin resistance and type 2 diabetes. *Frontiers in Physiology, 10*:1607. DOI: 10.3389/fphys.2019.01607

Zhang, Q., Zhang, C., Zhang, Y., Liu, Y., Wang, J., Gao, Z., Sun, J., Li, Q., Sun, J., Cui, X. and Wang, Y. (2023). Early-life risk factors for food allergy: Dietary and environmental factors revisited. *Comprehensive Reviews in Food Science and Food Safety*, 22(6), 4355-4377

Zhang, S., Rowlands, A. V., Murray, P., & Hurst, T. L. (2020). Physical activity classification using the GENEA wrist-worn accelerometer. *Medicine & Science in Sports & Exercise, 52*(3), 610-617

Zhong, Y., Gelaye, B., Sánchez, S. E., & Williams, M. A. (2015). Psychometric Properties of the Pittsburgh Sleep Quality Index (PSQI) in a Cohort of Peruvian Pregnant Women. Journal of Clinical Sleep Medicine : JCSM : *Official Publication of the American Academy of Sleep Medicine, 11*(8), 869-877. DOI: 10.5664/jcsm.4936

Zouhal, H., Ben Abderrahman, A., Khodamoradi, A., Saeidi, A., Jayavel, A., Hackney, A.C., Laher, I., Algotar, A.M. and Jabbour, G. (2020). Effects of physical training on anthropometrics, physical and physiological capacities in individuals with obesity: A systematic review. *Obesity reviews, 21*(9), e13039

ANNEXURE I

ETHICAL PERMISSION LETTER – 1

INSTITUTIONAL HUMAN ETHICS COMMITTEE

Avinashilingam

Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956) Re-accredited with 'A+' Grade by NAAC.
Recognised by UGC Under Section 12 B
Coimbatore-641 043, Tamil Nadu, India

3rd December 2020

To
Ms. Nita Ann Johnson
Department of Food Science and Nutrition
Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore – 641 043

Dear Nita Ann Johnson,

Ref: Your proposal No. IHEC/19-20/FSN/38 entitled "Obesity among Children of Working Mothers" submitted for approval of IHEC.

The Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/19-20/FSN/38 entitled "Obesity among Children of Working Mothers" submitted by you. The Approval number for the same is AUW/IHEC/FSN-19-20/XPD-38.

We wish you all the best in your research endeavours.

Regards,

V. Uma Mageshwari

Dr.S.Uma Mageshwari
Member Secretary

Institutional Human Ethics Committee

ANNEXURE II

ETHICAL PERMISSION LETTER – 2

INSTITUTIONAL HUMAN ETHICS COMMITTEE

Avinashilingam

Institute for Home Science and Higher Education for Women
(Deemed to be University under Category 'A' by MHRD, Estd. u/s 3 of UGC Act 1956) Re-accredited with 'A++' Grade by NAAC.
Recognised by UGC Under Section 12 B
Coimbatore-641 043, Tamil Nadu, India

23rd March 2022

To
Ms.Nita Ann Johnson
Department of Food Science and Nutrition
Avinashilingam Institute for Home Science and
Higher Education for Women
Coimbatore – 641 043

Dear Nita Ann Johnson,

Ref: Your proposal No. IHEC/19-20/FSN-38 entitled "Obesity among Young People" resubmitted for approval to IHEC on 15.03.2021.

The Institutional Human Ethics Committee of our University hereby grants approval to your research proposal No. IHEC/19-20/ FSN-38 entitled "Obesity among Young People"resubmitted by you. The Approval number for the same is AUW/IHEC/FSN-19-20/XPD-38.

We wish you all the best in your research endeavours.

Regards,

Dr.S.Uma Mageshwari
Member Secretary

Institutional Human Ethics Committee

ANNEXURE III

PERMISSION LETTER FROM HEAD OF INSTITUTION

AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN
0714
30 APR 2021
COIMBATORE-641 043

30.04.2021

From,

Nita Ann Johnson
JRF and PhD Scholar (18PHFNF011)
Department of Food Science and Nutrition
Avinashilingam Institute of Home Science and Higher Education for Women
Coimbatore, TN – 641043

To,

The Vice Chancellor,
Avinashilingam Institute of Home Science and Higher Education for Women
Coimbatore, TN – 641043

Through,

Dr. S. Kowsalya
Registrar
Professor, Department of Food Science and Nutrition
Avinashilingam Institute of Home Science and Higher Education for Women
Coimbatore, TN – 641043

Sub: Permission for Online Data Collection of Institute Students for Thesis

Respected Madam,

The research I am pursuing is in the field of Obesity Among Youngsters with guidance from my supervisor, Dr. S. Kowsalya. Thank you for permitting me to change my title and age group because of which I was able to collect my sub-sample data within the last two days from our Institute itself. I also want to request that I be permitted to approach the respective Heads of Departments of the Avinashilingam Institute to obtain the rest of my 375 samples. After the respective faculties collect the height and weight of all their students, their body mass indices will be calculated be me. Only those who are overweight and/or obese will be contacted through online platforms after which they will be given nutrition education and follow-up for 4months. I humbly request you to kindly permit me for the same to proceed with the doctoral research.

Thanking You,

Yours Obediently,

Coimbatore
Dated: 30.04.2021

Dean HSC / HOD FSN / Scholar
Permitted
S. Kowsalya

30/4/2021

Nita Ann Johnson

Dean HSC
HOD FSN

(Enclosed: The data collection sheet to be sent to all departments)

Sub to VC Madam
May be permitted madam
S. Kowsalya
30/4/2021.

To Registrar

Permitted
for maraithy
29.4.2021

ANNEXURE IV

INFORMED CONSENT FORM

INFORMED CONSENT FORMAT FOR RESEARCH PROJECTS

(Strike off items that are not applicable)

I, NITA ANN JOHNSON am carrying out a study on the topic OBESITY AMONG YOUNG PEOPLE as part of my research project being carried out under the aegis of the Department of FOOD SCIENCE AND NUTRITION, AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN, COIMBATORE - 43.

My research guide is: DR. S. KOWSALYA
(Applicable to students only)

The justification for this study is:

Along with urbanization, advancements in technology and rising economic stability of urban families that puts an electronic device in most people's hands, reduced access to nutritious food (which may be due to lack of awareness of parents or lack of time on their hands) and decreasing levels of physical activity are contributing to the trend of obesity. Identifying probable causes of obesity is becoming important now, more than ever, to build secure and healthy future generations post COVID-19. Thus, this proposed research study would aim to find non-invasive, individual-centric, behaviour change based approaches designed to address obesity among young women.

The objectives of this study are:

Primary Objective(s):

- To study the socio-economic status, dietary pattern, nutritional status and frequency of morbidities of 18 – 25 years old women.
- To determine the nutritional status, physical activity levels, sleep quality, and the Knowledge, Attitudes and Practices (KAP) of healthy lifestyles of these women.
- To develop aerobic exercise routines and nutrition education modules as interventions for the women based on their nutrition knowledge and health status.
- To assess the impact of intervention on the nutritional status, physical activity levels, sleep quality, and the knowledge, attitudes and practices of the selected women.

Secondary Objective(s):

- To estimate the prevalence of obesity among women in urban Coimbatore
- To find out the degree of association (and whether it is positive or negative) between lifestyle interventions and the incidence of obesity among the selected women.
- In the case of an association, helping these women be aware of what they can do to decrease the incidence of obesity at their individual and family levels.

Sample size: 632

Study participants are (specify population group & age group): Women (18-25 years).

Location of the study: Coimbatore District, Tamil Nadu.

We request you to kindly cooperate with us in this study. We propose collect background information and other relevant details related to this study. We will be carrying out:

Initial interview (specify approximate duration): 30 minutes.

Data collected will be stored for a period of fifteen years. We will use the data as part of another study.

Health education sessions: Number of sessions: TEN.

Approximate duration of each session: 20 minutes.

Clinical examination (Specify details and purpose):

Blood sample collection: Specify quantity of blood being drawn: 2 – 3.5mL.

No. of times it will be collected: Two times during the study, six months apart.

Whether blood sample collection is part of routine procedure or for research (study purpose):

☐ Routine Procedure ■ Research Purpose

Specify purpose, discomfort likely to be felt and side effects, if any:

The blood test will be used to assess the level of obesity in the child subject. On the day of collecting the blood samples, the subjects may feel a small irritating pain at the site of entry of the blood collection needle.

Will the blood sample collected be stored after study period: ☐ Yes
■ No, it will be destroyed

Will the blood sample collected be sold: ☐ Yes ■ No

Will the sample collected be shared with persons from another institution: ☐ Yes ■ No

Medication / supplementation given, if any, with duration, side effects, purpose, benefits: **NA**

Final interview (specify approximate duration): 10 minutes.

If photograph is taken, purpose: **Proof of participation and for record keeping**

Benefits from this study, if any:

The study volunteers will be able to:

- Know more about how to control the outcome of obesity in women

- Know more about how to control the outcome of obesity in women
- Improved knowledge about diet, exercises to be followed for an obese woman
- Help manage and prevent obesity among women and their families

Risks involved by participating in this study, if any:

There is no possible harm or risk to the participant by being part of this study as she is expected only to give answers to the questions asked with regard to the subject's personal profile, diet and health. No laboratory experiments (medical or otherwise) will be administered to her as the subject. However, the blood tests administered (on consent) will be used to assess obesity in the participants. On the day of the tests, the subject may feel irritated or sore at the site of the needle entry.

How will the results be used:

The results will be accessed by the investigator and her supervisor and the results will be shared with all the participants. The results may also be published so that others can be informed about obesity and this study.

If you are uncomfortable in answering any of our questions during the course of the interview / biological sample collection, you have the right to withdraw from the interview / study at any time. You will NOT be paid any remuneration for the time you spend with us for this interview / study. The information provided by you will be kept in strict confidence. Under no circumstances shall we reveal the identity of the respondent or their families to anyone. The information that we collect shall be used for approved research purposes only. You will be informed about any significant new findings – including adverse events, if any – whether directly or indirectly related to you or to other participants of this study, developed during the course of this research which may relate to your willingness to continue participation

Consent: The above information regarding the study, has been read by me/ read to me, and has been explained to me by the investigator(s). Having understood the same, I hereby give my consent to them to interview me, and collect biological sample __BLOOD__ from me. I am affixing my signature / left thumb impression to indicate my consent and willingness to participate in this study (i.e., willingly abide by the project requirements):

Signature / ~~Left thumb~~ impression of the Study Volunteer: 7/10/2020

Signature of the Interviewer with date: 7/10/20

Signature of the Witness with date: 7/10/20

ANNEXURE V

PRELIMINARY CONSENT GOOGLE FORM

Understanding Obesity Among Young Women of Coimbatore - Preliminary Consent Form

This survey form will be used to include you as participants for an online study. Once you fill out this form, a participant information sheet and confirmation sheet will be sent to you.

1. Email *

_____

2. Your Name (First Name, Last Name OR Initial, Name)

_____

3. The month and year of your birth (Month Name, Year)

_____

4. You are currently:

Mark only one oval.

- ◯ Pursuing graduation (BSc, BA, BTech etc.)
- ◯ Completed graduation (BSc, BA, BTech etc.)
- ◯ Pursuing post-graduation (MSc, MA, MTech etc.)
- ◯ Completed post-graduation (MSc, MA, MTech etc.)
- ◯ Pursuing Doctorate (PhD)
- ◯ Other: _____

5. Name of your college or institution:

_____

6. Name of the district and state you're currently in (District Name, State Name):

_____

7. The number of bedrooms you have in your home:

This is to categorize you into similar groups for the benefit of the study based on whether you stay alone or with families.

Mark only one oval.

- ◯ 1
- ◯ 2
- ◯ 3 or more
- ◯ I stay in the hostel
- ◯ I stay as a paying guest

8. You are a:

This is to understand the different sects of people partaking in the study. It also helps us identify any religion-based food consumption practices or dietary behavior.

Mark only one oval.

- ◯ Prefer not to say
- ◯ Hindu
- ◯ Christian
- ◯ Muslim
- ◯ Other: _____

9. Are you willing to be a part of this online study which will last for 2-3months?

Check all that apply.

- ☐ I give my consent to receive more information on this study
- ☐ I agree and give my consent to receive more information on this study
- ☐ I am not willing to be part of this study
- ☐ I am not willing to receive information nor be a part of this study

ANNEXURE – VI

CLINICAL EXAMINATION FORM

Date:

Name:

Age: Gender: Occupation:

Name of father/guardian:

Adress:

Size of family: Birth order: No. of siblings (boys, girls):

Height: Weight: BMI:

Circumference of: Head: Arm: Chest:

I. Healthy and free from any deficiency symptoms (yes/no):

II. Mark yes/ no for the presence of:

a) Poor musculature:
b) Deficient in subcutaneous fat:
c) Mild anaemia:
d) Lack of interest in surroundings:

III. Mark yes/ no for the presence of:

a) Nutritional oedema
b) Gross muscular wasting
c) Marked anaemia
d) Xerosis of the cornea

IV. Mark yes/ no for the presence of:

a) Tenderness of the calf:
b) Red and/or raw or glazed tongue:
c) Angular stomatitis
d) Bleeding gums
e) Conjuctival xerosis

V. Mark yes/ no for the presence of:

a) Xerosis or pigmentation of the cornea:
b) Bitot's spots:
c) Dental caries:
d) Dry or rough skin:
e) Cracked pavement skin:
f) Hyperkeratosis:

Other remarks:

Signature of Examiner

(Seal)

ANNEXURE VII

GOOGLE FORM FOR MORBIDITY PATTERN & DIETARY PREFERENCES

Understanding Obesity Among Young Women of Coimbatore - Part II (Morbidity & Diet Behaviour)

Hello! We are glad to have you as part of our study and hope you will be with us the entire way. Please answer these questions to the best of your ability. If you have any doubts, please do not fill in or attempt the answer. We will contact you regarding the same. Thank you!

1. Have you had any episodes of the following in the past three months? Check all that are applicable.

   Check all that apply.

   - [ ] Cold with or without a runny nose/sore throat/headaches
   - [ ] Fever with or without a dry or wet cough
   - [ ] Corona
   - [ ] Diarrhoea or vomiting
   - [ ] Food poisoning
   - [ ] No, I have not had any such episodes

2. How often do such episodes happen?

   Mark only one oval.

   - ◯ Not Applicable
   - ◯ At-least once a month
   - ◯ Once in 2 or 3 months
   - ◯ Once in 6 months
   - ◯ Rarely

3. When such episodes happen, do you require medicines to recover?

   Mark only one oval.

   - ◯ Not Applicable
   - ◯ All the time
   - ◯ Sometimes
   - ◯ No, it goes away even if I don't use medicines

4. Do you have any food allergies?

   A food allergy is defined as an unpleasant or dangerous immune system reaction after a certain food is eaten. Common symptoms include digestive problems, hives or rashes or swollen airways. They may or may not require medication in the form of anti-histamines or epinephrine injections.

   Mark only one oval.

   - ◯ Yes
   - ◯ I haven't identified any such allergies
   - ◯ No

5. If your answer to the above question was 'YES', please check the food related allergies applicable to you.

Check all that apply.

- [ ] NA
- [ ] Gluten intolerance
- [ ] Lactose intolerance
- [ ] Gastroesophageal Reflex Disease (GERD)
- [ ] Nuts (peanuts, tree nuts etc.)
- [ ] Eggs
- [ ] Soy
- [ ] Fish
- [ ] Other: _____

6. You are a:

Mark only one oval.

- ◯ Vegan (all plant based food, no dairy)
- ◯ Vegetarian (vegan and dairy, no egg)
- ◯ Ovo-vegetarian (vegetarian and egg)
- ◯ Non-vegetarian (vegetarian and any type of meat)

7. How many meals do you have in a day? (Tick all that apply)

Check all that apply.

- [ ] Early Morning (before breakfast - including tea or milk)
- [ ] Breakfast
- [ ] Mid-morning snack (includes biscuits or fruits or drinks before lunch)
- [ ] Lunch
- [ ] Evening Snack
- [ ] Dinner
- [ ] Post-dinner Snack (before bed including milk or tea)

8. Do you eat out or order your food?

Mark only one oval.

- ◯ Yes
- ◯ No

9. If yes, how often do you eat out or order your food?

Mark only one oval.

- ◯ No, I don't eat out or order my food.
- ◯ Once a week
- ◯ 2-3 times in a week
- ◯ Once a month
- ◯ 2-3 times in a month
- ◯ Once in two or three months
- ◯ Other: _____

ANNEXURE VIII

GOOGLE FORM FOR ASSESSING FREQUENCY OF FOOD CONSUMPTION

Understanding Obesity Among Young Women of Coimbatore - Part III (FFQ)

A Food Frequency Questionnaire is often used to understand how often you eat certain foods. Try to recollect your consumption pattern as much as you can, since this will help us to understand your frequent dietary habits.

* Indicates required question

1. Indicate how often you consumed the below mentioned food groups (see description for details) in the past six months: *

Cereals include your atta (wheat), rice, millets, upma, potato and tubers. Pulses include your dal (payaru or paruppu), chickpea (sundal), sambaar etc. Dosa, idli and other fermented foods may be a combination of the above so indicate both categories. Lean meat includes poultry (duck or chicken) and fish. Other Meat includes egg, mutton, beef etc. Milk includes milk and milk products including paneer, cheese, curd etc. Fats include your cooking oil, mayonnaise, ghee, butter etc. Sugar includes white (refined) and brown sugar, honey, jaggery etc.

Mark only one oval per row.

	Daily	Weekly Once	2-3 Times Weekly	Monthly Once	2-3 Times Monthly	Rarely
Cereals	◯	◯	◯	◯	◯	◯
Pulses	◯	◯	◯	◯	◯	◯
Milk	◯	◯	◯	◯	◯	◯
Lean Meat	◯	◯	◯	◯	◯	◯
Other Meat	◯	◯	◯	◯	◯	◯
Vegetables	◯	◯	◯	◯	◯	◯
Green Leafy Vegetables	◯	◯	◯	◯	◯	◯
Fruits	◯	◯	◯	◯	◯	◯
Fats	◯	◯	◯	◯	◯	◯
Nuts	◯	◯	◯	◯	◯	◯
Sugar	◯	◯	◯	◯	◯	◯

2. Indicate how often you consume the below mentioned packaged food items that are not home-made (see description for details) in the past six months: *

Pastry items include breakfast cereals like corn flakes or chocos etc., biscuits, cookies, cakes, puffs etc. Fried foods include all snacks (vada, chips, mixture, samosa, banana fry). Sweets include gulab jamun, jalebi, barfi etc. Spreads include mayonnaise, nutella, jam etc. Frozen foods include packaged frozen vegetables, fruits or pre-fried foods (nuggets, patties, wedges etc.). Fast food chains includes foods from outlets such as McDonalds, KFC, Pizzahut, Dominos etc.

Mark only one oval per row.

	Daily	Weekly Once	2-3 Times Weekly	Monthly	2-3 Times Monthly	Rarely
Breakfast cereals	◯	◯	◯	◯	◯	◯
Pastry items	◯	◯	◯	◯	◯	◯
Fried foods	◯	◯	◯	◯	◯	◯
Spreads	◯	◯	◯	◯	◯	◯
Pickles	◯	◯	◯	◯	◯	◯
Frozen Foods	◯	◯	◯	◯	◯	◯
Ice-cream	◯	◯	◯	◯	◯	◯
Chocolates	◯	◯	◯	◯	◯	◯
Sweets	◯	◯	◯	◯	◯	◯
Carbonated drinks	◯	◯	◯	◯	◯	◯
From fast food outlets	◯	◯	◯	◯	◯	◯

Thank you for filling this out and have a great day!

ANNEXURE – IX

24 HOUR DIETARY RECALL FORM

Date & Day	Meal Time	Name of Dish/ Snack/ Beverage	Ingredients	Amount (in g/ml)
	Early Morning	1. 2. 3.		
	Breakfast	1. 2. 3.		
	Mid-morning	1. 2. 3.		
	Lunch	1. 2. 3.		
	Evening Snack	1. 2. 3.		
	Dinner	1. 2. 3.		
	Post-dinner	1. 2. 3.		

ANNEXURE X

GPAQ QUESTIONNAIRE

2 The questionnaire

Physical Activity		
Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. *[Insert other examples if needed].* In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.		
Question	**Response**	**Code**
Work		
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like *[carrying or lifting heavy loads, digging or construction work]* for at least 10 minutes continuously? *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P 4*	P1
In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	Number of days ⌊_⌋	P2
How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours : minutes ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	P3 (a-b)
Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking *[or carrying light loads]* for at least 10 minutes continuously? *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P 7*	P4
In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days ⌊_⌋	P5
How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	P6 (a-b)
Travel to and from places		
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. *[Insert other examples if needed]*		
Do you walk or use a bicycle *(pedal cycle)* for at least 10 minutes continuously to get to and from places?	Yes 1 No 2 *If No, go to P 10*	P7
In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days ⌊_⌋	P8
How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	P9 (a-b)

Continued on next page

2 The questionnaire, Continued

Physical Activity, Continued		
Question	**Response**	**Code**
Recreational activities		
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure), *[Insert relevant terms]*.		
Do you do any vigorous-intensity sports, fitness or recreational *(leisure)* activities that cause large increases in breathing or heart rate like *[running or football]* for at least 10 minutes continuously? *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P 13*	P10
In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational *(leisure)* activities?	Number of days ⌊_⌋	P11
How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	P12 (a-b)
Do you do any moderate-intensity sports, fitness or recreational *(leisure)* activities that cause a small increase in breathing or heart rate such as brisk walking, *[cycling, swimming, volleyball]* for at least 10 minutes continuously? *[INSERT EXAMPLES] (USE SHOWCARD)*	Yes 1 No 2 *If No, go to P16*	P13
In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational *(leisure)* activities?	Number of days ⌊_⌋	P14
How much time do you spend doing moderate-intensity sports, fitness or recreational *(leisure)* activities on a typical day?	Hours : minutes ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	P15 (a-b)
Sedentary behaviour		
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping. *[INSERT EXAMPLES] (USE SHOWCARD)*		
How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes ⌊_⌋⌊_⌋ : ⌊_⌋⌊_⌋ hrs mins	P16 (a-b)

ANNEXURE XI

PSQI QUESTIONNAIRE

Subject's Initials_____ID#_____Date_____Time_____AM PM

PITTSBURGH SLEEP QUALITY INDEX

INSTRUCTIONS:
The following questions relate to your usual sleep habits during the past month only. Your answers should indicate the most accurate reply for the majority of days and nights in the past month. Please answer all questions.

1. During the past month, what time have you usually gone to bed at night?

   BED TIME _____

2. During the past month, how long (in minutes) has it usually taken you to fall asleep each night?

   NUMBER OF MINUTES _____

3. During the past month, what time have you usually gotten up in the morning?

   GETTING UP TIME _____

4. During the past month, how many hours of actual sleep did you get at night? (This may be different than the number of hours you spent in bed.)

   HOURS OF SLEEP PER NIGHT _____

For each of the remaining questions, check the one best response. Please answer all questions.

5. During the past month, how often have you had trouble sleeping because you . . .

a) Cannot get to sleep within 30 minutes

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

b) Wake up in the middle of the night or early morning

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

c) Have to get up to use the bathroom

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

d) Cannot breathe comfortably

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

e) Cough or snore loudly

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

f) Feel too cold

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

g) Feel too hot

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

h) Had bad dreams

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

i) Have pain

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

j) Other reason(s), please describe_____

_____

How often during the past month have you had trouble sleeping because of this?

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

6. During the past month, how would you rate your sleep quality overall?

   Very good _____

   Fairly good _____

   Fairly bad _____

   Very bad _____

7. During the past month, how often have you taken medicine to help you sleep (prescribed or "over the counter")?

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

8. During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

9. During the past month, how much of a problem has it been for you to keep up enough enthusiasm to get things done?

No problem at all _____

Only a very slight problem _____

Somewhat of a problem _____

A very big problem _____

10. Do you have a bed partner or room mate?

No bed partner or room mate _____

Partner/room mate in other room _____

Partner in same room, but not same bed _____

Partner in same bed _____

If you have a room mate or bed partner, ask him/her how often in the past month you have had . . .

a) Loud snoring

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

b) Long pauses between breaths while asleep

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

c) Legs twitching or jerking while you sleep

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

d) Episodes of disorientation or confusion during sleep

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

e) Other restlessness while you sleep; please describe_____

_____

Not during the past month_____ Less than once a week_____ Once or twice a week_____ Three or more times a week_____

Buysse et al. [1].

ANNEXURE XII

GOOGLE FORMS FOR KNOWLEDGE, ATTITUDES & PRACTICES

DETAILS OF EDUCATION MODULES

Understanding Obesity Among Young Women of Coimbatore - Part V (KnowledgeAP)

This questionnaire will aim to understand how much you know about certain topics related to this field of study. It will also help me to understand the topics you know well and those you do not; helping me to better tailor the education modules you will soon be receiving as part of this study.

1. What is the full form of RDA?

Mark only one oval.

- ◯ Recommended Dietary Allowances
- ◯ Required Daily Allowances
- ◯ Allotted Dietary Regime
- ◯ Recommended Dietary Allowance

2. Does a tomato have more water content than a watermelon?

Mark only one oval.

- ◯ Tomato has more
- ◯ Watermelon has more
- ◯ They have the same amount
- ◯ Neither of them has any water content

3. Practice of estimating how much energy (calories) we eat every day is called:

Mark only one oval.

- ◯ Nutrient Counting
- ◯ Energy Estimation
- ◯ Calorie Counting
- ◯ Calorie Addition

4. The lower our lifestyle activity:

Mark only one oval.

- ◯ The lesser we should exercise to save energy
- ◯ The longer we should exercise to spend energy
- ◯ Lifestyle level and exercise level should be the same
- ◯ Exercise level doesn't depend on lifestyle level

5. Which of these has soluble fibre?

Mark only one oval.

- Papaya peel
- Fruit seeds
- Oats
- Cauliflower

6. 1 gram of protein provides gives you how many calories?

Mark only one oval.

- 9Kcal
- 4Kcal
- 7Kcal
- 1Kcal

7. Sucrose is made up of:

Mark only one oval.

- Glucose + Glucose
- Glucose + Fructose
- Fructose + Maltose
- Glucose + Maltose

8. Butter is:

Mark only one oval.

- Unsaturated Fat
- Saturated Fat
- Trans-fat
- Liquid at room temperature

9. Cornflakes (cereal) is what type of processed food?

Mark only one oval.

- Instant Food
- Fast Food
- Junk Food
- Street Food

10. The amino-acid absent in cereals but present in pulses:

Mark only one oval.

- Lysine
- Leucine
- Methionine
- Cystryophine

11. What does BMI stand for?

Mark only one oval.

- Body Mass Indice
- Basal Metabolic Indice
- Basal Muscular Index
- Body Mass Index

12. How many litres of water should we have daily?

Mark only one oval.

- 1L
- 1.5L
- 2L
- 2.5L

13. Weight loss with a FAD Diet is:

Mark only one oval.

- Healthy
- Somewhat healthy
- Not at all healthy
- FAD diet is not related to weight loss

14. Which of these give you most energy?

Mark only one oval.

- Cereals
- Protein
- Fat
- Vegetable

15. What does WHR stand for?

Mark only one oval.

- World Health Rate
- Waist-to-Hip Ratio
- Wellness & Happiness Ruler
- Waist-to-Hand Ratio

Thank you for filling this out and have a great day!

Understanding Obesity Among Young Women of Coimbatore - Part VI (KAttitudesP)

This questionnaire will aim to understand how much you agree or disagree with certain topics related to this field of study. It will also help me to understand the topics you know well and those you do not; helping me to better tailor the education modules you will soon be receiving as part of this study.

1. Nutrition is not a process.

Mark only one oval.

- Agree
- Neutral
- Disagree

2. 75% of the human body is water.

Mark only one oval.

- Agree
- Neutral
- Disagree

3. There is no way to measure how much food we eat.

Mark only one oval.

- Agree
- Neutral
- Disagree

4. Any exercise is better than no exercise at all.

Mark only one oval.

- Agree
- Neutral
- Disagree

5. Fibre is an an essential nutrient.

Mark only one oval.

- Agree
- Neutral
- Disagree

6. Proteins are building blocks of body tissues.

Mark only one oval.

- Agree
- Neutral
- Disagree

7. White sugar is irreplaceable in our diets.

Mark only one oval.

- Agree
- Neutral
- Disagree

8. Fat from food is bad for health.

Mark only one oval.

- Agree
- Neutral
- Disagree

9. Wheat pasta is a processed food.

Mark only one oval.

- Agree
- Neutral
- Disagree

10. Grilling is better than frying.

Mark only one oval.

- Agree
- Neutral
- Disagree

11. We should eat only when we feel hungry.

Mark only one oval.

- Agree
- Neutral
- Disagree

12. Dieting means eating less food at less number of times.

Mark only one oval.

- Agree
- Neutral
- Disagree

13. BMI is a bad indicator of health

Mark only one oval.

- Agree
- Neutral
- Disagree

14. Vegetarians are more likely to be protein deficient.

Mark only one oval.

- Agree
- Neutral
- Disagree

15. Eating two times in a day is enough to lose weight.

Mark only one oval.

- Agree
- Neutral
- Disagree

Thank you for filling this out and have a great day!

Survey Form Understanding Obesity Among Young Women of Coimbatore - Part VII (KAPractices)

This questionnaire will aim to understand how frequently you carry out certain behaviours related to this field of study. It will also help me to understand the topics you know well and those you do not; helping me to better tailor the education modules you will soon be receiving as part of this study.

1. I should drink water whenever I am thirsty

Mark only one oval.

- Yes
- Maybe
- No

2. I should fall sick every month - it is my immune system's natural response

Mark only one oval.

- Yes
- Maybe
- No

3. I should keep a track of what I eat in a day

Mark only one oval.

- Yes
- Maybe
- No

4. I should do stretching exercises every day

Mark only one oval.

- Yes
- Maybe
- No

5. I should peel my cucumber before eating

Mark only one oval.

- Yes
- Maybe
- No

6. I should eat nuts (groundnuts or peanuts, cashew, almond, walnut etc.) for more protein content in my diet

Mark only one oval.

- Yes
- Maybe
- No

7. It's okay to add sugar every time I drink tea, coffee, juice or other beverages

Mark only one oval.

- Yes
- Maybe
- No

8. It's okay to add a bit of butter on top of my Dosa

Mark only one oval.

- Yes
- Maybe
- No

9. I can eat chocolates once in a while i.e., once or twice in a week

Mark only one oval.

- Yes
- Maybe
- No

10. I should always boil potatoes with the skin

Mark only one oval.

- Yes
- Maybe
- No

11. I should necessarily have 3-5 meals in a day

Mark only one oval.

- Yes
- Maybe
- No

12. It's okay to skip a meal when I don't feel hungry

Mark only one oval.

- Yes
- Maybe
- No

13. I should always keep track my weight

Mark only one oval.

- Yes
- Maybe
- No

14. It's okay to eat a banana every day as my fruit quota

Mark only one oval.

- Yes
- Maybe
- No

15. I need to eat breakfast everyday

Mark only one oval.

- Yes
- Maybe
- No

Thank you for filling this out and have a great day!

ANNEXURE – XIII

DETAILS OF EDUCATION MODULES

Module 1: A Glance at Nutrition

NEd.d1

A Glance at Nutrition

Nita Ann Johnson
PhD Scholar, FSN Dept.
AIHS&HE

Nutrition

- The subject that studies how the food you eat, makes you, who you are!
- It studies how food affects our health – both positively and negatively.
- Nutrition is also a process.
- It is the process of consumption of food, its digestion and complete absorption by the body.

Purpose of Nutrition

- Energy
- Growth
- Repair
- Immunity

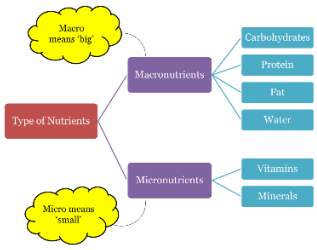
How can we get Nutrition?

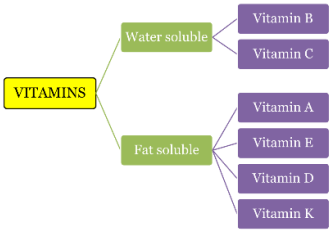
"Through food!"

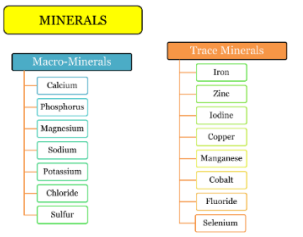
Yes, but what exactly is it in food that gives us 'Nutrition'?

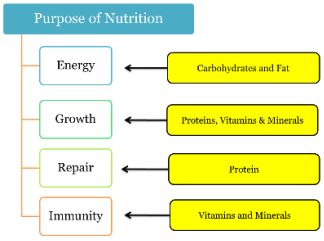
Nutrients

- Substances that provide nourishment essential for the maintenance of life, growth and development of an organism.
- Different nutrients exist in nature.









Now we know we need nutrients.

But how much do we need and how often?

What is RDA?

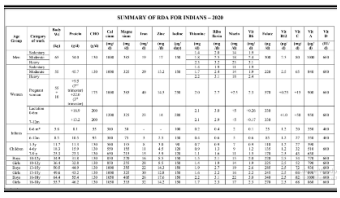
- RDA is expanded as Recommended Dietary Allowances
- They are the levels of intake of essential nutrients which have been calculated scientifically to be adequate for nearly all members of healthy populations
- In India, the ICMR and NIN publish these requirements

Who is the RDA for?

- Calculated for all stages of the human lifespan
- In adults, nutrient requirements are meant also for different levels of lifestyle

Age Group	Category of work
Men	Sedentary
	Moderate
	Heavy
Women	Sedentary
	Moderate
	Heavy
	Pregnant woman
	Lactation 0-6m
	7-12m
Infants	0-6 m*
	6-12m
Children	1-3y
	4-6y
	7-9 y
Boys	10-12y
Girls	10-12y
Boys	13-15y
Girls	13-15y
Boys	16-18y
Girls	16-18y

The RDA Table actually looks like this:



Source: RDA_short_report(1).pdf (imgchange.org)

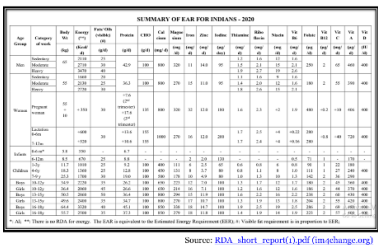
There was one nutrient that wasn't mentioned in the previous slide.

Can you guess which one?

What is EAR?

- Energy does not have RDA.
- So an average estimate is made for this, which is called Estimated Average Requirement.
- EAR (unlike RDA) is applicable for atleast half of the members of a healthy population.

The EAR Table actually looks like this:



Source: RDA_short_report(1).pdf (imgchange.org)

Review

- Nutrition and Nutrients
- Macro and micro-nutrients and their functions
- Vitamins and Minerals
- RDA and EAR

Module 2: Drinking Water: A Conscious Choice

NEd.d2

Drinking Water: A Conscious Choice

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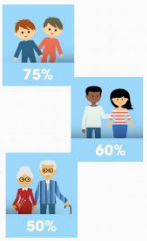
PhD Scholar, FSN Dept., AIHS&HE

Water In Our Bodies

- 60% of our body is water
- Each day humans must consume a certain amount of water to survive.
- This varies according to age and gender, and also by where someone lives.
- All of the water a person needs does not have to come from drinking liquids, as some of this water is contained in the food we eat.



Essential Functions of Body Water

- A vital nutrient to the life of cells
- Regulates internal body temperature by sweating and respiration
- Carbohydrates and proteins that bodies use as food are metabolized and transported by water in the bloodstream
- Assists in flushing waste mainly through urination
- Acts as a shock absorber for brain, spinal cord
- Forms saliva
- Lubricates joints

How Much Water Do We Need?

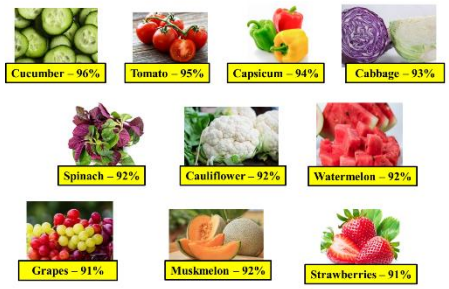
- Usually it is 6-8 glasses or 2L every day.
- ICMR-NIN however has given these minimum amounts of water to be consumed daily:

Age Category	Minimum Amount of Water Needed (per kg body weight per day)
Man	32ml
Woman	27ml
Adolescent Boy	47ml
Adolescent Girl	39ml
Children	60ml

Estimation of Water In Foods

Food or Beverage	Approximate Water Content
0%	Oils, Sugars
1-9%	Nuts, Chocolates, Cookies, Crackers, Cereals
30-39%	Bread, Cheese
60-69%	Pasta, Beans, Peas, Fish, Chicken, Ice-cream
70-79%	Bananas, Avocados, Potato, Paneer, Whole Milk
80-89%	Fruit Juice, Curd, Apples, Pears, Oranges, Carrots
90-99%	Double-toned Milk, Tea, Coffee, Strawberries, Watermelon, Cucumbers, Lettuce, Spinach
100%	Water

Foods With High Water Content



How Do I Make Sure I Drink Enough Water?

1. Use a glass the size of your palm as a reference to have six to eight glasses every day

OR

1. Use a 1L water bottle and make sure to fill it up twice in a day
2. Set alarms or timers every one to two hours to remind yourself to consume water
3. Have more water during the day to prevent abdominal water retention

Review

- Content of body water
- Functions of water in the human body
- Amount of water to drink every day (per kg bwt. per day)
- Foods with almost 90-98% water content
- Steps to ensure I drink enough water

Module 3: Measuring Your Food Intake: Steps We Can Do at Home

NEd.d3

MEASURING YOUR FOOD INTAKE: STEPS WE CAN DO AT HOME

Nita Ann Johnson
PhD Scholar, FSN Dept., AIHS&HE

Why should we measure our food?

- One of the steps to healthy weight loss is to measure your food.
- This focuses on the 'quantity' aspects of food intake
- If we measure our food, we will know how many calories (units of energy) we are consuming.
- This practice of estimating how many calories we are eating every day and then reducing the unnecessary calories is called calorie counting and it is one of the popular ways people lose weight.

Are we calorie counting?

- NO.
- Calorie counting although effective on a short term basis:
  - does not tell you about other necessary nutrients like protein or fat
  - not a way to lose weight healthily
  - is impractical in the long run

Nutrient Counting

- Nutrient counting is when you are mindful and aware of the particular foods you are putting into your body and the health benefits they have.
- Longer, more effort taking but completely healthy process.

What are the steps we'll be doing?

Steps To Measure Food (DIY)

1. Identify a glass (for liquids) and a small bowl (for solids like rice and curries) at home.
2. Try to measure how much quantity (in ml) of liquid can be poured into both the glass or cup and bowl (use a standard bottle of water or a packet of milk)
3. After cooking the food, before you serve it on your plate, put the foods into these bowls and or glass and note down how much you are eating.

Do This At Home

If 500ml = 2½ glasses

Then 1glass = 200ml

If 500ml = 2 bowls

Then 1bowl = 250ml

REVIEW

- Calorie Counting
- Nutrient Counting
- Steps to measure food at home

Module 4: Exercising to Stay Healthy

NEd.d4

Exercising To Stay Healthy

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Lifestyle Activity Levels

- Every person has a particular activity level that is part of their day-to-day lifestyle
- This depends on how much energy we spend in a day
- Thus a lifestyle activity level is directly related to the 'work' we do every day!

Occupations and Activity Levels

Sedentary Level Occupations	Moderate Level Occupations	Heavy Level Occupations
• Teachers • Tailors • Barbers • Executives • Shoemakers • Peons/Clerks • Post-woman • Housewives • Nurses • Doctors	• Servant maids • *Cooli* • Basket makers • Weavers • Agricultural labourers • *Beedi* makers • Electrician • Mason • Potter • Fisherwoman	• Stone cutters • Mineworkers • Wood cutters

Do you know what type of activity levels you have?

Since we are students who have a desk job (sitting down most of the day) we all have sedentary lifestyles.

This means that:

- **The lower our lifestyle activity level, the higher we need to exercise**
- **Even though we belong to a similar weight category or similar activity level, each person responds differently to physical activity.**

Why Do We Need Physical Activity?

- It improves your fitness.
- You'll have more energy throughout the day.
- You'll have better posture and balance.
- You'll have stronger muscles and bones.
- It floods your body with adrenaline and dopamine, the happy hormones.
- It helps you manage your weight.
- It can improve your sleep.
- You'll feel more relaxed, and less stressed!

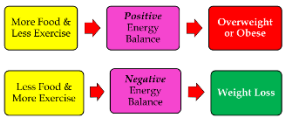
Intensity of Physical Activities

- Light: You can do such exercises talking comfortably, there is only little warming up of the body
- Moderate: Causes a slight but noticeable increase in breath and heart rate. You can still carry on a conversation.
- Heavy: These activities make you out of breath so you can't do these and chat at the same time.

Types of Physical Activity

Physical Activity & Weight Loss

- Energy balance: relationship of energy intake to energy expenditure and energy storage.



- In any person, healthy weight loss will happen only if the energy expended or used (through physical activity) is more than the energy taken in (through food)

Exercise Recommendations

- ICMR-NIN recommends atleast 150-180minutes of activity per week.
- Atleast 30-45 minutes every day for 5 days in a week is where we can start.
- 20 minutes in the morning and evening is a good way to distribute our exercising time.

Review

- Sedentary, moderate and heavy activity levels
- Need for physical activity (to exercise)
- Link between physical activity and weight loss
- Minimum duration of physical activity for Indians

Module 5: Dietary Modification #1: Dietary Fibre

NEd.d5

Dietary Modification #1

DIETARY FIBRE

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PHD SCHOLAR, FSN DEPT., AIHS&HE

What is Dietary Fibre?

- Plant components that cannot be broken down by human digestive enzymes
- They are made of carbohydrate polymers (long chains of carbohydrates)

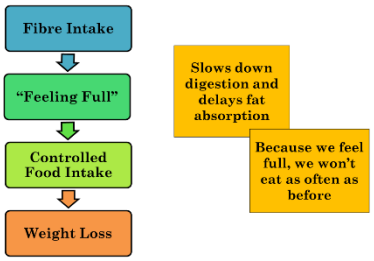
Types of Fibre

Soluble Fibre	Insoluble Fibre
• Loves water • Soaks up water and the fibre turns into gel during digestion • Slows down digestion • Pectin, Polydextrose	• Does not like water • The unabsorbed water adds bulk to the fibre • Helps food to pass quickly from stomach to intestines • Cellulose, Lignin

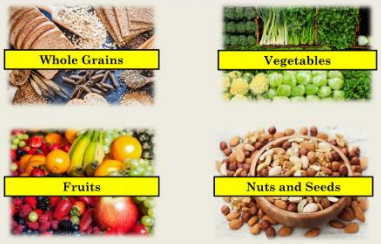
How Does Dietary Fibre Help?

- Dietary fiber adds bulk to your diet and makes you feel full faster
- It helps digestion and helps prevent constipation.
- But, increasing dietary fiber too quickly can lead to gas, bloating, and cramps
- Natural bacteria in your digestive system needs time to adjust to the change.
- Drink lots of water.

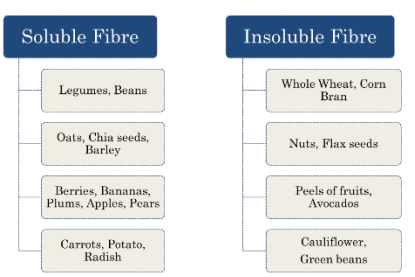
Fibre Intake & Weight Loss



Fibre Rich Food Groups



Fibre Rich Foods



Review

- Types & Functions Of Dietary Fibre
- Fibre Intake & Weight Loss
- Fibre Rich Foods

Module 6: Dietary Modification #2: Protein

NEd.d5

Dietary Modification #2

PROTEIN

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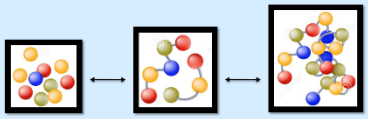
Protein

- Building blocks of body tissue
- Related to structure, function, and regulation of tissues and organs
- Provides 4kcal per gram of food



Types & Functions of Protein

Function	Description
Antibody	Antibodies bind to specific foreign particles, such as viruses and bacteria, to help protect the body.
Enzyme	Enzymes carry out almost all of the thousands of chemical reactions that take place in cells. They also assist with the formation of new molecules by reading the genetic information stored in DNA.
Messenger	Messenger proteins, such as some types of hormones, transmit signals to coordinate biological processes between different cells, tissues, and organs.
Structural component	These proteins provide structure and support for cells. On a larger scale, they also allow the body to move.
Transport/storage	These proteins bind and carry atoms and small molecules within cells and throughout the body.

Protein and Weight Loss

- Protein is believed to help us lose weight
- Only true sometimes and for certain people – those who need protein in diet because of high wear and tear.
- Not practical due to strain on kidneys

Protein Rich Foods

1. Sea food
2. Lean meat, poultry
3. Eggs
4. Beans and peas
5. Nuts & seeds
6. Dairy

Improving Protein Content In Diet

1. Eat 3 eggs in a week
2. Pulses for 2-3 days in a week
3. Chicken, fish for 2-3 days in a week
4. Beef, mutton should be restricted to once a month

Review

- Structure and Functions of Protein
- Protein Rich Foods
- High Protein Diet and Weight Loss
- Including Protein In Our Diets

Module 7: Dietary Modification #3: Sugar & Salt

NEd.d6

Dietary Modification #3

SUGAR AND SALT

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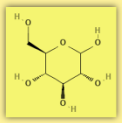
SUGAR

- Carbohydrates comprising of sugars and starches are broken down in the body into glucose.
- Is an important source of energy with glucose being the most important for the body.
- The brain requires around 130 grams of sugar (glucose) per day to keep functioning.
- Glucose can be found in a range of foods including fruit, vegetables and honey.



TYPES OF SUGAR

Glucose & Fructose
- Natural Forms
- Found in Fruits, Vegetables and Honey

Lactose
- Milk Sugar
- Milk & Dairy Products

Maltose
- Malt Sugar
- Malted Drinks & Beer

Sucrose
- Table Sugar
- From sugar cane
- Glucose + Fructose

SALT

- Common salt is sodium (40%) chloride (60%)
- Sodium is the major electrolyte in the extra-cellular fluid.
- Has an important role in nerve conduction and fluid balance in the body.
- All foods contain sodium.
- Sodium requirements can be met with moderate salt intake.
- Sodium intake needs to be balanced by potassium intake.

Notes To Keep In Mind

- Sugar gives you empty calories
- Salt needs to be consumed carefully.
- Both are acquired tastes
- Every day Indians have:
  - Salt: 11 grams
  - Sugar: 10 spoons
- WHO recommends:
  - Salt: 5 grams in a day
  - Sugar: <10% of total energy in a day

What Happens If We Eat Too Much?

- Excess sugar causes Diabetes Mellitus (Type 2)
- Excess salt can lead to Hypertension

Visible and Invisible

- Natural Sugar or Salt
- Added Sugar or Salt

Ways To Prevent Lifestyle Related NCDs

USE ALTERNATIVE NATURAL SEASONINGS

SAY 'NO' TO TABLE SALT

Review

- Limits for Daily Consumption
- Consequences of Unlimited Consumption
- How To Control Intake

Module 8: Dietary Modification #4: Essential Fats

NEd.d8

DIETARY MODIFICATION # 4

ESSENTIAL FATS

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What is 'FAT'?

- Cooking oils (in liquid form) and solid fats (solid at room temperature) together are referred to as 'fats'.

Why Do We Need Dietary Fats?

- Dietary fats can be derived from plant and animal sources
- Contributes to texture, flavor and taste
- Increases the palatability and satiety of the diet
- Promotes the absorption of fat-soluble vitamins (A,D,E and K)
- Constitutes major components of body fluids and cell membranes

Types of Fat

Used as such at serving time or during cooking (vegetable oils, vanaspati, butter and ghee)
Visible Fats

Present as an integral components of various foods
Invisible Fats

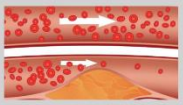
Present in processed and ready to eat foods
Hidden Fats

Types of Fat

SFA	MUFA	PUFA
• Short and medium chain fatty acids are easily digested and absorbed • High intake increases atherogenic risk • Found in butter, ghee, coconut oil, dairy products	• Has n-9 fatty acids • Plant origin • Found in palm, groundnut, rice-bran, sesame and olive	• Has n-3 and n-6 fatty acids • Plant and animal origin • N-3 is found in soyabean, rapeseed, mustard and fatty fish • N-6 is in all plant oils except coconut oil

Consequences of Not Watching Dietary Fat

- The total fat (visible + invisible) in the diet should provide between 20-30% of total calories
- Increases serum cholesterol levels, reduce insulin sensitivity and increase CVD risk
- Higher LDL levels is atherogenic i.e. increases risk of heart disease



How Can We Keep Our Fat Intake In Check?

- Take just enough fat
- Substitute part of visible fat and invisible fat from animal foods with whole nuts atleast 2 times in a week
- Use low-fat or fat-free dairy products
- Prefer fish to meat or poultry OR legumes, green leafy vegetables, fenugreek and mustard seeds
- Choose cuts of meat with less fat and remove the skin from chicken
- Minimize consumption of ready-to-eat fast/ bakery and processed foods prepared in hydrogenated fat

Review

- Pros of Dietary Fats
- SFA vs. MUFA vs. PUFA
- LDL and CVD Risks
- Keeping Fat Intake In Check

Module 9: Dietary Modification #5: Processed Foods

NEd.d9

Dietary Modification #5

PROCESSED FOODS

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Why Is Food Processed?

- Foods subjected to technological modifications for:
  - preservation
  - converting into ready-to-use/ready-to-eat (RTE) foods
  - eliminating laborious household procedures
- Includes ready-to-eat mixes, dehydrated foods, extruded products (pasta), canned foods, confectioneries, bakery, dairy products and breakfast foods

PROS & CONS

- Requires less time to prepare than traditional home-cooked foods
- Preserve highly perishable products like milk, meat, fish and fresh fruits and vegetables
- Increases the seasonal availability of foods and enables easy transportation and distribution over long distances

- Generally refined and gets digested too quickly, leading to more eating
- Majority of them are rich in fat or in salt/sugar, and are calorie dense
- They lack dietary fibre and micronutrients

TYPES OF PROCESSED FOODS

Instant	Fast	Street	Unhealthy (Junk)
Specially processed to dissolve in a liquid right before consumption	Calorie-dense, cooked to order/for immediate consumption	RTE foods/beverages prepared and/or sold by vendors in public spaces	Contains little or no proteins, vitamins or minerals
May contain MSG & other additives	Microbiological contamination may be present (storage/ handling)	Maybe contaminated with pathogens	Rich in salt, sugar, fats & calories
E.g.: Cup noodles, instant soups, Cornflakes	E.g.: Sandwiches, Shawarma	E.g.: Golgappa, chaats	E.g.: Carbonated drinks, french-fries

KEEP IN MIND

PROCESSED FOOD ≠ JUNK FOOD

Any food that undergoes processing that may not be nutritionally balanced.

Processed food rich in only unhealthy fats, sugars and/or sodium when eaten regularly causes NCDs.

WHY TO RESTRICT PROCESSED FOODS

- Increases calorie intake without providing any nutrients
- Contains chemical food additives that may have adverse effects on health
- Too much sugary foods can cause dental carries
- Excess consumption may lead to diet-related-chronic-diseases or NCDs like obesity and hypercholesterolemia, diabetes, hypertension etc.

CAN WE AVOID PROCESSED FOOD?

- **Presence in our daily lives is inevitable**
- **What can we do?**
  - Opt for healthier alternatives like fortified foods
  - Control the number of days in a week when eating unhealthy food
  - Use a combination of both healthy and non-healthy foods in a day if you must
  - Use a food log – record everything eaten in a day
  - Read food labels (given on containers) regarding content of nutrients, shelf-life and the additives present.

Review

- Pros & Cons of Processing Foods
- Types of Processed Foods
- How To Keep Unhealthy Food In-check

Module 10: Using Different Cooking Methods

NEd.d10

USING DIFFERENT COOKING METHODS

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AIHS&HE

WHY UNDERSTAND COOKING?

- Cooking renders food palatable and helps in easy digestion
- Cooking destroys harmful germs
- Faulty pre-cooking and cooking process lead to loss of nutrients

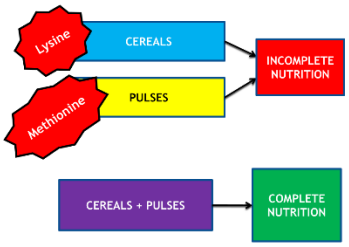
IMPROVING NUTRITION VIA COOKING

- While preparing, foods are subjected to various processes such as washing, grinding, cutting, fermentation, germination and cooking.
- Soaking, fermentation (in idli, dosa, dhokla) and germination (sprouting) are common practices we all use.
- These methods improve digestibility and increase availability of nutrients such as B-complex vitamins and vitamin C

TO AVOID NUTRIENT LOSS

- During boiling heat-labile and water-soluble vitamins like vitamin B-complex and C is lost.
- Using excess water while cooking rice leads to loss of vitamins
- Use of baking soda for quicker cooking of pulses results in loss of vitamins.
- Frying cooks food in oil/ghee/vanaspati at high temperatures.
- Shallow frying involves use of much smaller amounts of oils than deep frying.
- Similarly, oils which have been repeatedly heated should not be mixed with fresh oil but can be used seasoning.

MUTUAL SUPPLEMENTATION



HOUSEHOLD EXAMPLES OF M.S.

Idli + Sambaar - ?
Dosa + Sambaar - ?
Upma & Sundal - ?
Khichdi - ?
Soyabean Rice - ?
Rice + Pacchapayar Kulambu ?

Methods of Cooking

Dry Heat	Moist Heat	Combination
• Roasting • Grilling • Toasting • Baking • Sautéing • Frying (deep, shallow)	• Boiling • Stewing • Steaming • Pressure Cooking • Poaching • Blanching	• Braising

**These are better suggested for weight loss than the others

REVIEW

- Cooking Improves Nutritional Benefits
- Mutual Supplementation And Examples
- Methods of Cooking for Weight Loss

ANNEXURE – XIV

INITIAL AND FINAL SCORES OF THE KAP SURVEY (N=632)

Question Code	Section and Questions	Scoring	Pre		Post	
			N	%	N	%
Knowledge Section						
K1	Expansion of RDA / BMI / WHR	✓	100	15.8	494	78.2
		✗	532	84.2	138	21.8
K2	Water content of tomato vs. watermelon / soluble fibre food examples	✓	193	30.5	549	86.9
		✗	439	69.5	83	13.1
K3	Definitions of terms such as calorie counting and energy estimation	✓	94	14.9	521	82.4
		✗	538	85.1	111	17.6
K4	Most energy: cereals, protein, fats, vegetables / calories per gram of carbohydrate, protein and fat	✓	146	23.1	495	78.3
		✗	486	76.9	137	21.7
K5	FAD diets and weight loss / physical activity in lifestyle	✓	108	17.1	468	74.1
		✗	521	82.9	164	25.9
K6	Daily water intake	✓	99	15.7	472	74.7
		✗	583	84.3	160	25.3
K7	Amino acid absent in cereals but present in pulses	✓	115	18.2	501	79.3
		✗	517	81.8	131	20.7
K8	Types of processed foods	✓	84	13.3	467	73.9
		✗	548	86.7	165	26.1
K9	Composition of white sugar / butter	✓	123	19.5	453	71.7
		✗	509	80.5	179	28.3
Attitudes Section						
A1	Nutrition is not a process	✓	81	12.8	491	77.7
		✗	551	87.2	141	22.3
A2	Percent of water in body	✓	185	29.3	524	82.9
		✗	447	70.7	108	17.1
A3	Measuring food	✓	84	13.3	470	74.4
		✗	548	86.7	162	25.6
A4	Any exercise vs. no exercise	✓	96	15.2	488	77.2
		✗	536	84.8	144	22.8
A5	Fibre as nutrient	✓	186	29.4	476	75.3
		✗	446	70.6	156	24.7
A6	Proteins as building blocks of body tissues	✓	165	26.1	489	77.4
		✗	467	73.9	143	22.6
A7	Irreplaceability of white sugar in diet	✓	192	30.4	514	81.3
		✗	440	69.6	118	18.7

A8	All fat from food being bad	✓	194	30.7	468	74.1
		✗	438	69.3	164	25.9
A9	Wheat pasta being a processed food	✓	179	28.3	461	72.9
		✗	453	71.7	171	27.1
A10	Grilling vs. frying	✓	85	13.4	470	74.4
		✗	547	86.6	162	25.6
A11	Eating only when hungry	✓	192	30.4	482	76.3
		✗	440	69.6	150	23.7
A12	Dieting means ‘less quantity, more frequency’ / eating only twice a day to lose weight	✓	125	19.8	478	75.6
		✗	507	80.2	154	24.4
A13	BMI as a poor indicator of health	✓	139	22.0	453	71.7
		✗	493	78.0	179	28.3
A14	Protein deficient: vegetarians vs. non-vegetarians	✓	51	8.1	545	86.2
		✗	581	91.9	87	13.8
Practices Section						
P1	Drinking water only when thirsty	✓	22	3.48	447	70.7
		✗	610	96.51	185	29.2
P2	Falling sick every month is a natural response of the body	✓	135	21.36	495	78.3
		✗	497	78.63	137	21.7
P3	Peeling cucumber before eating / peeling potatoes before boiling	✓	141	22.3	509	80.5
		✗	491	77.7	123	19.5
P4	Keeping track of body weight / measuring food regularly	✓	117	18.5	461	72.9
		✗	515	81.5	171	27.1
P5	Daily stretching is mandatory	✓	125	19.8	551	87.2
		✗	507	80.2	81	12.8
P6	Eating nuts for more protein in the diet	✓	122	19.3	475	75.2
		✗	510	80.7	157	24.8
P7	Adding sugar to tea, coffee, juice, other beverages	✓	161	25.5	531	84.0
		✗	471	74.5	101	16.0
P8	Adding a bit of butter / ghee on cooked roti, dosa etc.	✓	131	20.7	450	71.2
		✗	501	79.3	182	28.8
P9	Eating sweets / chocolates once or twice a week	✓	166	26.3	468	74.1
		✗	466	73.7	164	25.9
P10	Skipping meals in absence of hunger / not necessarily having 3 to 5 meals in a day	✓	135	21.4	545	86.2
		✗	497	78.6	87	13.8
P11	Eating banana as daily fruit quota	✓	182	28.8	537	84.9
		✗	450	71.2	95	15.1
P12	Eating breakfast everyday	✓	463	73.3	559	88.5
		✗	169	26.7	73	11.5

✓ - correct response: 1 mark, ✗ - incorrect response: 0 mark

ANNEXURE XV

PROOF OF PUBLICATIONS

Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD
Re-accredited with A++ Grade by NAAC. CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

Appendix L2
(Item No 5 of Check List)

Details of Research Publications

Sl. No	Article	Journal	Other Details Vol/No/Page No/ Year	Published in UGC CARE / Scopus Indexed/ Web of Science
1	"Physical Activity as a Beneficial Solution for Obesity in College-Going Women"	The Indian Journal of Home Science	Vol. 35/ No. 2/ Pages 272-279/ 2023 (ISSN: 0970 2733)	UGC CARE - I
2	"Impact of Physical Activity on BMI and Thyroid Function in Obese Women"	The Indian Journal of Nutrition and Dietetics	Vol. 60/ No. 3/ Pages: 368–377/ 2023 (DOI: 10.21048/IJND. 2023.60.3.34813)	UGC CARE - I

*Proof of list of Journals from the Internet to be attached along with copies of reprints.

Scholar: 02/11/23

Supervisor:

Checked By: HoD / Dean of Respective School 3/11/23

The scholar Miss. Nita Ann Johnson (18PHFNFO11) has published her paper in the following journals:

1. The Indian Journal of Home Science - is active and indexed in UGC care Group I from July 2020 to present and
2. The Indian Journal of ~~Home Science~~ Nutrition and Dietetics - indexed & active in UGC care Group I from January 2021 to present

This may be considered.

02.11.23

ANNEXURE XVI

PROOF OF PLAGIARISM CHECK

Avinashilingam Institute for Home Science and Higher Education for Women
(Deemed to be University Estd. u/s 3 of UGC Act 1956, Category A by MHRD)
Re-accredited with 'A++' Grade by NAAC.CGPA 3.65/4, Category I by UGC
Coimbatore - 641 043, Tamil Nadu, India

PLAGIARISM CHECK REPORT (THESES)

1.	Name of the Research Scholar	Nita Ann Johnson
2.	Roll No. and Year of Registration	18PHFNF011, 2019
3.	Department	Food Science and Nutrition
4.	Name of the Research Guide	Dr. S. Kowsalya
5.	Title of the Thesis / Dissertation	Impact of Lifestyle Interventions on Nutritional Status, Physical Activity and Sleep Pattern of Overweight and Obese 18 to 25 Year Old Women During Covid -19
6.	Similarity Content (%) Identified	**5%**
7.	Software Used	Turnitin
8.	Date of Verification	27-02-2024

Note : The report is excluding 14 Consecutive words, Review of Literature and Quoted Materials.

Checked by :

For IC. Dept

Information Scientist

27/2/24

Research Scholar

J. Thiagarajan 27.02.24

Assistant Librarian

S. Kowsalya

Research Guide
27/2/24

Date: 27-02-2024