

Supplementary Table S1. Energy and macronutrient intakes of women by cultured-milk drinks and fruit juice categories.

Pre-pregnancy	Cultured-milk drinks categories					Fruit juice categories					F ^c	p-value
	T1 (n=47)	T2 (n= 73)	T3 (n= 30)	F ^a	p-value	T1 (n= 70)	T2 (n= 97)	T3 (n= 118)	F ^b	p-value		
	mean ± se											
Energy intake (kcal/day)	2353 ± 147.64 ^a	2092 ± 69.37 ^b	2702 ± 287.47 ^{a,b}	4.15	0.02*	2011 ± 121.78 ^a	2176.90 ± 103.89 ^b	2574.68 ± 94.11 ^{a,b}	7.73	0.01*	1.29	0.28
Carbohydrate (g/1000 kcal)	139.88 ± 2.66	142.25 ± 2.13	142.56 ± 3.29	2.94	0.75	134.55 ± 2.43 ^{a,b}	146.20 ± 2.07 ^a	145.58 ± 1.87 ^b	8.21	0.001**	0.75	0.56
Sugar (g/1000 kcal)	40.69 ± 2.03	41.26 ± 1.62	45.41 ± 2.51	1.23	0.29	33.07 ± 2.00 ^{a,b}	43.28 ± 1.71 ^a	46.62 ± 1.54 ^b	14.73	0.001**	2.62	0.05
Fat (g/1000 kcal)	22.57 ± 1.05	23.56 ± 0.84	24.43 ± 1.30	0.65	0.53	26.52 ± 0.87 ^{a,b}	22.15 ± 0.74 ^a	22.64 ± 0.67 ^b	8.42	0.001**	5.40	0.001*
Protein (g/1000 kcal)	33.81 ± 1.11 ^c	38.35 ± 0.89 ^c	35.44 ± 1.37	5.27	0.01*	38.75 ± 0.91 ^{a,b}	35.61 ± 0.78 ^{a,c}	32.54 ± 0.70 ^{b,c}	14.76	0.001**	1.13	0.35
First trimester	T1 (n=29)	T2 (n= 49)	T3 (n= 31)	F ^a	p-value	T1 (n=63)	T2 (n= 77)	T3 (n= 117)	F ^b	p-value	F ^c	p-value
Energy intake (kcal/day)	2017 ± 142.63 ^a	2089 ± 129.16 ^b	2603 ± 193.01 ^{a,b}	3.85	0.02*	1890 ± 117.33 ^a	2136.34 ± 106.53 ^b	2439.08 ± 86.3 ^{a,b}	7.43	0.001*	0.75	0.56
Carbohydrate (g/1000 kcal)	140.92 ± 3.86	143.39 ± 2.93	143.06 ± 3.72	0.18	0.83	135.71 ± 2.44 ^{a,b}	144.18 ± 2.21 ^a	143.19 ± 1.79 ^b	4.00	0.02*	1.51	0.21
Sugar (g/1000 kcal)	43.20 ± 3.11	47.01 ± 2.36	52.05 ± 2.99	2.09	0.13	41.35 ± 1.96 ^a	45.19 ± 1.78	48.25 ± 1.44 ^a	4.05	0.02*	1.46	0.23
Fat (g/1000 kcal)	32.10 ± 1.32	30.02 ± 0.99	31.83 ± 1.27	1.04	0.36	33.16 ± 0.93	31.15 ± 0.85	31.31 ± 0.69	1.60	0.20	1.36	0.26
Protein (g/1000 kcal)	37.07 ± 1.41	36.55 ± 1.07	36.42 ± 1.36	0.06	0.94	38.93 ± 0.96 ^{a,b}	35.61 ± 0.87 ^a	35.62 ± 0.71 ^b	4.51	0.01	0.31	0.87

Note. Cultured-milk drinks categories: Pre-pregnancy: T1: < 13.10 g, T2: 13.10 – 17.90 g, T3: > 17.90 g; Fruit juice categories: T1: < 35.72 g, T2: 35.72 – 71.43 g, T3: > 71.43 g); First trimester: T1: < 8.34 g, T2: 8.34 – 17.86 g, T3: > 17.86 g; Fruit juice categories: T1: < 35.72 g, T2: 35.72 – 71.43 g, T3: > 71.43 g).

F^a= F between cultured-milk drink categories; F^b= F between fruit juice categories; F^c= F between cultured-milk drink categories and fruit juice categories
Adjusted for age, education level and pre-pregnancy BMI. Similar superscript letters indicated statistically significant difference. *p<0.05

Supplementary Table S2: Food groups based on dietary patterns between T3 of cultured-milk and T3 of fruit juice drinkers

	T3 Cultured-milk drinks (> 17.90 g) (n= 30)	Bread, fish, eggs, chicken, green leafy vegetables, milk, cereal & other cereal products, rice, other vegetables, tubers, oil, spreads, sweet foods, tea, coffee, sugar and creamer
Pre-pregnancy	T3 Fruit juice (> 71.43 g) (n=118)	Bread, fish, eggs, chicken, green leafy vegetables, milk, cereal & other cereal products, rice, other vegetables, tubers, oil, nuts, seeds & legumes, cruciferous vegetables
	T3 Cultured-milk drinks (> 17.86 g) (n= 31)	Bread, fish, eggs, chicken, green leafy vegetables, nuts, seeds & legumes, milk, dairy products, spreads, cereal & other cereal products, rice, processed foods, sauces, sugar and creamer
First trimester	T3 Fruit juice (> 71.43 g) (n= 117)	Bread, fish, eggs, chicken, green leafy vegetables, nuts, seeds & legumes, milk, dairy products, spreads, cereal & other cereal products, red meat, seafood, fruits, other vegetables, tubers, cruciferous vegetables

Supplementary Table S3. Energy and nutrient intakes of women by categories of energy derived from beverages.

	Energy derived from beverages			F	p-value
Pre-pregnancy	T1 (< 154 kcal) (n= 151)	T2 (154 – 297 kcal/day) (n= 151)	T3 (> 297 kcal/day) (n= 150)		
mean ± se					
Energy intake (kcal/day)	1821 ± 63.63	2047 ± 52.26	2611 ± 101.46	29.10	0.001*,a
Carbohydrate (g/day)	251.49 ± 9.94	293.32 ± 8.47	366.00 ± 14.14	27.19	0.001*,a
Sugar (g/day)	57.99 ± 2.90	82.38 ± 3.12	110.85 ± 4.55	54.08	0.001*,a
Fat (g/day)	41.60 ± 1.72	49.46 ± 2.07	60.10 ± 2.71	17.67	0.001*,a
Protein (g/day)	68.61 ± 2.64	74.70 ± 2.50	88.79 ± 3.94	11.18	0.001*,a
First trimester	T1 (< 215 kcal/day) (n=150)	T2 (215 – 395 kcal/day) (n= 152)	T3 (> 395 kcal/day) (n= 150)		
mean ± se					
Energy intake (kcal/day)	1577 ± 52.76	1946 ± 50.77	2578 ± 89.26	57.53	0.001*,a
Carbohydrate (g/day)	224.45 ± 8.34	272.17 ± 7.92	356.63 ± 12.20	43.80	0.001*,a
Sugar (g/day)	56.71 ± 3.55	80.26 ± 2.53	130.58 ± 4.30	114.05	0.001*,a
Fat (g/day)	49.17 ± 2.09	63.51 ± 2.24	83.56 ± 3.08	47.27	0.001*,a
Protein (g/day)	57.49 ± 1.59	69.69 ± 2.36	99.13 ± 4.09	50.44	0.001*,a
Second trimester	T1 (< 239 kcal/day) (n=151)	T2 (239 – 406 kcal/day) (n= 151)	T3 (> 406 kcal/day) (n= 150)		
mean ± se					
Energy intake (kcal/day)	1771 ± 46.34	2092 ± 53.74	2655 ± 91.83	44.76	0.001*,a
Carbohydrate (g/day)	252.66 ± 7.01	290.27 ± 8.45	370.14 ± 13.73	34.99	0.001*,a
Sugar (g/day)	56.86 ± 2.03	81.52 ± 2.63	125.33 ± 5.65	84.27	0.001*,a
Fat (g/day)	56.40 ± 2.07	71.62 ± 2.37	88.67 ± 3.28	37.89	0.001*,a

Protein (g/day)	61.15 ± 2.04	70.11 ± 1.84	93.99 ± 1.64	42.08	0.001*, ^a
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Adjusted for age, education level and pre-pregnancy BMI

^a Significant difference between each other, which all had statistical significance.

*p<0.05

References

1. Malik, V.S.; Schulze, M.B.; Hu, F.B. Intake of sugar-sweetened beverages and weight gain: A systematic review. *Am. J. Clin. Nutr.* **2006**, *84*, 274–288, doi:10.1093/ajcn/84.1.274.
2. Imamura, F.; O'Connor, L.; Ye, Z.; Mursu, J.; Hayashino, Y.; Bhupathiraju, S.N.; Forouhi, N.G. Consumption of sugar sweetened beverages, artificially sweetened beverages, and fruit juice and incidence of type 2 diabetes: Systematic review, meta-analysis, and estimation of population attributable fraction. *Br. J. Sports Med.* **2016**, *351*, h3576, doi:10.1136/bjsports-2016-h3576rep.
3. U.S. Department of Health and Human Services and U.S. Department of Agriculture Dietary Guidelines for Americans 2015 – 2020.
4. Nielsen, S.J.; Popkin, B.M. Changes in beverage intake between 1977 and 2001. *Am. J. Prev. Med.* **2004**, *27*, 205–210, doi:10.1016/j.amepre.2004.05.005.
5. Xi, B.; Huang, Y.; Reilly, K.H.; Li, S.; Zheng, R.; Barrio-Lopez, M.T.; Martinez-Gonzalez, M.A.; Zhou, D. Sugar-sweetened beverages and risk of hypertension and CVD: A dose-response meta-analysis. *Br. J. Nutr.* **2015**, *113*, 709–717, doi:10.1017/S0007114514004383.
6. Singh, G.M.; Micha, R.; Khatibzadeh, S.; Lim, S.; Ezzati, M.; Mozaffarian, D. Estimated global, regional, and national disease burdens related to sugar-sweetened beverage consumption in 2010. *Circulation* **2015**, *132*, 639–666, doi:10.1161/CIRCULATIONAHA.114.010636.
7. Keller, A.; Heitmann, B.L.; Olsen, N. Sugar-sweetened beverages, vascular risk

- factors and events: A systematic literature review. *Public Health Nutr.* **2015**, *18*, 1145–1154, doi:10.1017/S1368980014002122.
8. Woodward-Lopez, G.; Kao, J.; Ritchie, L. To what extent have sweetened beverages contributed to the obesity epidemic? *Public Health Nutr.* **2011**, *14*, 499–509, doi:10.1017/S1368980010002375.
9. Liu, S.; Manson, J.A.E.; Buring, J.E.; Stampfer, M.J.; Willett, W.C.; Ridker, P.M. Relation between a diet with a high glycemic load and plasma concentrations of high-sensitivity C-reactive protein in middle-aged women. *Am. J. Clin. Nutr.* **2002**, *75*, 492–498, doi:10.1093/ajcn/75.3.492.
10. Lundein, E.A.; Park, S.; Woo Baidal, J.A.; Sharma, A.J.; Blanck, H.M. Sugar-Sweetened Beverage Intake Among Pregnant and Non-pregnant Women of Reproductive Age. *Matern. Child Health J.* **2020**, *24*, 709–717, doi:10.1007/s10995-020-02918-2.
11. Gamba, R.J.; Leung, C.W.; Petito, L.; Abrams, B.; Laraia, B.A. Sugar sweetened beverage consumption during pregnancy is associated with lower diet quality and greater total energy intake. *PLoS One* **2019**, *14*, 1–13, doi:10.1371/journal.pone.0215686.
12. Petherick, E.S.; Goran, M.I.; Wright, J. Relationship between artificially sweetened and sugar-sweetened cola beverage consumption during pregnancy and preterm delivery in a multi-ethnic cohort: analysis of the Born in Bradford cohort study. *Eur. J. Clin. Nutr.* **2014**, *68*, 404–407, doi:10.1038/ejcn.2013.267.

13. Cohen, J.F.W.; Rifas-Shiman, S.L.; Young, J.; Oken, E. Associations of Prenatal and Child Sugar Intake With Child Cognition. *Am. J. Prev. Med.* **2018**, *54*, 727–735, doi:10.1016/j.amepre.2018.02.020.
14. Gillman, M.W.; Rifas-Shiman, S.L.; Fernandez-Barres, S.; Kleinman, K.; Taveras, E.M.; Oken, E. Beverage intake during pregnancy and childhood adiposity. *Pediatrics* **2017**, *140*, doi:10.1542/peds.2017-0031.
15. Wright, L.S.; Rifas-Shiman, S.L.; Oken, E.; Litonjua, A.A.; Gold, D.R. Prenatal and early life fructose, fructose-containing beverages, and midchildhood asthma. *Ann. Am. Thorac. Soc.* **2018**, *15*, 217–224, doi:10.1513/AnnalsATS.201707-530OC.
16. Jen, V.; Erler, N.S.; Tielemans, M.J.; Braun, K.V.E.; Jaddoe, V.W.V.; Franco, O.H.; Voortman, T. Mothers' intake of sugar-containing beverages during pregnancy and body composition of their children during childhood: The Generation R Study. *Am. J. Clin. Nutr.* **2017**, *105*, 834–841, doi:10.3945/ajcn.116.147934.
17. Chen, L.; Hu, F.B.; Yeung, E.; Willett, W.; Zhang, C. Prospective study of pregravid sugar-sweetened beverage consumption and the risk of gestational diabetes mellitus. *Diabetes Care* **2009**, *32*, 2236–2241, doi:10.2337/dc09-0866.
18. Ahmad, M.H. Food Consumption Patterns: Findings from the Malaysian Adults Nutrition Survey (MANS) 2014. In Proceedings of the Medical Journal of Malaysia; 2015; Vol. 70, p. 16.
19. Norimah, A.K.; Safiah, M.; Jamal, K.; Haslinda, S.; Zuhaida, H.; Rohida, S.;

- Fatimah, S.; Norazlin, S.; Poh, B.K.; Kandiah, M.; et al. Food Consumption Patterns: Findings from the Malaysian Adult Nutrition Survey (MANS). *Malays. J. Nutr.* **2008**, *14*, 25–39.
20. Yong, H.Y.; Mohd Shariff, Z.; Rejali, Z.; Mohd Yusof, B.N.; Yasmin, F.; Palaniveloo, L. Seremban Cohort Study (SECOST): a prospective study of determinants and pregnancy outcomes of maternal glycaemia in Malaysia. *BMJ Open* **2018**, *8*, e018321, doi:10.1136/bmjopen-2017-018321.
21. Ministry of Health Malaysia *Perinatal Care Manual 3rd Edition*; Division of Family Health Development, MOH: Putrajaya, Malaysia, 2013;
22. Ministry of Health Malaysia *The Malaysian Adults Nutrition Survey (MANS)-Findings Report 2003*; Ministry of Health Malaysia, Malaysia: Nutrition Section Family Health Development Division, Putrajaya, 2007;
23. WHO *Physical status: The Use and Interpretation of Anthropometry. Report of a WHO Expert Committee.*; World Health Organization, Ed.; WHO Technical Report Series No. 854.: Geneva, 1995;
24. IOM *Weight Gain During Pregnancy: Reexamining the Guidelines*; Rasmussen, K.M., Yaktine, A.L., Eds.; The National Academies Press: Washington (DC), 2009; ISBN 9780309131131.
25. Drouin-Chartier, J.P.; Zheng, Y.; Li, Y.; Malik, V.; Pan, A.; Bhupathiraju, S.N.; Tobias, D.K.; Manson, J.A.E.; Willett, W.C.; Hu, F.B. Changes in consumption of sugary beverages and artificially sweetened beverages and subsequent risk of type 2 diabetes: Results from three large prospective U.S. Cohorts of women

and men. *Diabetes Care* **2019**, dc190734, doi:10.2337/dc19-0734.

26. Mathur, K.; Agrawal, R.K.; Nagpure, S.; Deshpande, D. Effect of artificial sweeteners on insulin resistance among type-2 diabetes mellitus patients. *J. Fam. Med. Prim. care* **2020**, *9*, 69–71, doi:10.4103/jfmpc.jfmpc_329_19.
27. Chen, L.; Hu, F.B.; Yeung, E.; Tobias, D.K.; Willett, W.C.; Zhang, C. Prepregnancy consumption of fruits and fruit juices and the risk of gestational diabetes mellitus: a prospective cohort study. *Diabetes Care* **2012**, *35*, 1079–1082, doi:10.2337/dc11-2105.
28. Savaiano, D.A.; Hutkins, R.W. Yogurt, cultured fermented milk, and health: a systematic review. *Nutr. Rev.* **2020**, *0*, 1–16, doi:10.1093/nutrit/nuaa013.
29. Asemi, Z.; Samimi, M.; Tabasi, Z.; Talebian, P.; Azarbad, Z.; Hydarzadeh, Z.; Esmaillzadeh, A. Effect of daily consumption of probiotic yoghurt on insulin resistance in pregnant women: A randomized controlled trial. *Eur. J. Clin. Nutr.* **2013**, *67*, 71–74.
30. Pellonperä, O.; Mokkala, K.; Houttu, N.; Vahlberg, T.; Koivuniemi, E.; Tertti, K.; Rönnemaa, T.; Laitinen, K. Efficacy of fish oil and/or probiotic intervention on the incidence of gestational diabetes mellitus in an at-risk group of overweight and obese women: A randomized, placebo-controlled, double-blind clinical trial. *Diabetes Care* **2019**, *42*, 1009–1017, doi:10.2337/dc18-2591.
31. Bakker, R.; Steegers, E.A.P.; Obradov, A.; Raat, H.; Hofman, A.; Jaddoe, V.W.V. Maternal caffeine intake from coffee and tea, fetal growth, and the risks of adverse birth outcomes: The Generation R Study. *Am. J. Clin. Nutr.*

- 2010, 91, 1691–1698, doi:10.3945/ajcn.2009.28792.
32. Chen, L.W.; Fitzgerald, R.; Murrin, C.M.; Mehegan, J.; Kelleher, C.C.; Phillips, C.M. Associations of maternal caffeine intake with birth outcomes: Results from the Lifeways Cross Generation Cohort Study. *Am. J. Clin. Nutr.* **2018**, *108*, 1301–1308, doi:10.1093/ajcn/nqy219.
33. Van Der Hoeven, T.; Browne, J.L.; Uiterwaal, C.S.P.M.; Van Der Ent, C.K.; Grobbee, D.E.; Dalmeijer, G.W. Antenatal coffee and tea consumption and the effect on birth outcome and hypertensive pregnancy disorders. *PLoS One* **2017**, *12*, e0177619, doi:10.1371/journal.pone.0177619.
34. Sengpiel, V.; Elind, E.; Bacelis, J.; Nilsson, S.; Grove, J.; Myhre, R.; Haugen, M.; Meltzer, H.M.; Alexander, J.; Jacobsson, B.; et al. Maternal caffeine intake during pregnancy is associated with birth weight but not with gestational length: Results from a large prospective observational cohort study. *BMC Med.* **2013**, *11*, 42, doi:10.1186/1741-7015-11-42.
35. Skreden, M.; Bere, E.; Sagedal, L.R.; Vistad, I.; Overby, N.C. Changes in beverage consumption from pre-pregnancy to early pregnancy in the Norwegian Fit for Delivery study. *Public Health Nutr.* **2015**, *18*, 1187–1196, doi:10.1017/S136898001400189X.
36. Chen, L.W.; Low, Y.L.; Fok, D.; Han, W.M.; Chong, Y.S.; Gluckman, P.; Godfrey, K.; Kwek, K.; Saw, S.M.; Soh, S.E.; et al. Dietary changes during pregnancy and the postpartum period in Singaporean Chinese, Malay and Indian women: The GUSTO birth cohort study. *Public Health Nutr.* **2014**, *17*,

- 1939–1948, doi:10.1017/S1368980013001730.
37. Reis, C.E.G.; Dórea, J.G.; da Costa, T.H.M. Effects of coffee consumption on glucose metabolism: A systematic review of clinical trials. *J. Tradit. Complement. Med.* **2019**, *9*, 184–191, doi:10.1016/j.jtcme.2018.01.001.
38. Shi, X.; Xue, W.; Liang, S.; Zhao, J.; Zhang, X. Acute caffeine ingestion reduces insulin sensitivity in healthy subjects: a systematic review and meta-analysis. *Nutr. J.* **2016**, *15*, 103, doi:10.1186/s12937-016-0220-7.
39. Tunnicliffe, J.M.; Shearer, J. Coffee, glucose homeostasis, and insulin resistance: Physiological mechanisms and mediators. *Appl. Physiol. Nutr. Metab.* **2008**, *33*, 1290–300, doi:10.1139/H08-123.
40. Hinkle, S.N.; Laughon, S.K.; Catov, J.M.; Olsen, J.; Bech, B.H. First trimester coffee and tea intake and risk of gestational diabetes mellitus: A study within a national birth cohort. *BJOG An Int. J. Obstet. Gynaecol.* **2015**, *122*, 420–428, doi:10.1111/1471-0528.12930.
41. Adeney, K.L.; Williams, M.A.; Schiff, M.A.; Qiu, C.; Sorensen, T.K. Coffee consumption and the risk of gestational diabetes mellitus. *Acta Obstet. Gynecol. Scand.* **2007**, *86*, 161–166, doi:10.1080/00016340600994992.
42. Ministry of Health Malaysia *Malaysian Adult Nutrition Survey 2003. Habitual food intake of adults aged 18 to 59 years.*; Nutrition Section, Family Health Development Division, Ministry of Health, Malaysia: Putrajaya, Malaysia, 2008;

