**Isocaloric-restricted Mediterranean diet and Chinese diets high or low in plants in adults with prediabetes**

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**STable 1** Baseline characteristics of participants completed the trial and those dropped out 1

|  |  |  |  |
| --- | --- | --- | --- |
|  | Completers (n=202) | Dropouts (n=51) | *P value* 7 |
| Male, no. (%) | 172 (85) | 43 (84) | 0.88 |
| Age, years | 38 ± 9 | 37 ± 9 | 0.74 |
| Education, no. (%) |  |  | 0.25 |
| 0-12 y | 11 (5) | 5 (10) |  |
| ≥ 13 y | 191 (95) | 46 (90) |  |
| Current smoker, no. (%) | 33 (16) | 14 (27) | 0.068 |
| Alcohol drinker, no. (%) | 144 (71) | 42 (82) | 0.12 |
| Physical activity, no. (%) 2 |  |  | 0.54 |
| High | 31 (15) | 8 (16) |  |
| Moderate | 133 (66) | 30 (59) |  |
| Low | 38 (19) | 13 (25) |  |
| Dietary intake 3 |  |  |  |
| Energy, male, kcal/day | 2001 ± 482 | 1947 ± 412 | 0.76 |
| Energy, female, kcal/day | 1752 ± 408 | 1688 ± 281 | 0.80 |
| Total fat (%) | 33.5 ± 11.0 | 34.6 ± 10.5 | 0.94 |
| Carbohydrate (%) | 49.4 ± 12.6 | 47.9 ± 13.5 | 0.16 |
| Protein (%) | 17.1 ± 5.03 | 17.5 ± 3.84 | 0.57 |
| Cholesterol, mg/day | 479 ± 222 | 544 ± 212 | 0.049 |
| Fiber, g/day | 9.1 ± 3.5 | 8.1 ± 3.5 | 0.036 |
| Anthropometrics and MRI |  |  |  |
| Weight, kg | 79.4 ± 11.6 | 79.1 ± 13.0 | 0.90 |
| BMI, kg/m2 | 26.8 ± 2.93 | 26.4 ± 3.43 | 0.94 |
| Waist circumference, cm | 92.1 ± 9.08 | 91.7 ± 9.86 | 0.78 |
| SBP, mmHg | 129 ± 14.7 | 127 ± 12.5 | 0.26 |
| DBP, mmHg | 85.6 ± 10.8 | 84.1 ± 10.1 | 0.48 |
| Abdominal fat, cm2 4,5 | 271 (108) | 266 (150) | 0.97 |
| VAT, cm2 5 | 85.4 (59.1) | 91.4 (63.2) | 0.60 |
| SAT, cm2 5 | 182 (80.2) | 149 (81.3) | 0.10 |
| OGTT |  |  |  |
| 0 h-glucose, mmol/L 4,5 | 6.04 (0.70) | 6.06 (0.80) | 0.64 |
| 2 h-glucose, mmol/L 4,5 | 7.05 (2.70) | 7.39 (2.85) | 0.61 |
| AUC glucose, mmol\*h/L 5 | 16.9 (4.4) | 17.3 (4.8) | 0.92 |
| CGM 6 |  |  |  |
| Mean glucose, mmol/L 5 | 5.81 (0.70) | 5.84 (0.82) | 0.97 |
| TBR, % 5 | 1.05 (1.38) | 1.01 (1.43) | 0.72 |
| TAR, % 5 | 0.76 (1.09) | 0.80 (1.10) | 0.79 |
| Nighttime SD, mmol/L | 11.0 ± 4.41 | 11.4 ± 4.85 | 0.73 |

1 Data are mean ± standard deviation or n (%) unless otherwise stated.

2 Physical activity was calculated based on the International Physical Activity Questionnaire.

3 Dietary intake data were from the 3-day dietary record.

**4** Data are medians (interquartile range).

5 183 participants had valid MRI records at baseline, 148 were completers and 39 were dropouts.

6 200 participants had valid CGM records at baseline, 161 were completers and 39 were dropouts.

7*P* values for differences among the two groups were calculated by Wilcoxon rank-sum test or one-way ANOVA test.

Abbreviations: AUC, area under the curve. CD, Control diet. CGM, continuous glucose monitoring. DBP, diastolic blood pressure. MD, Mediterranean diet. OGTT, oral glucose tolerance test. SAT, subcutaneous adipose tissue. SBP, systolic blood pressure. SD, standard deviation. TAR, time above range (> 10.0 mmol/L). TBR, time below range (< 3.9 mmol/L). TJD, Traditional Jiangnan diet. VAT, visceral adipose tissue.

**STable 2** Exploratory changes in glucose homeostasis from CGM at three and six months of stratified by sex.

|  | Male | | | | Female | | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | MD (n=71) | TJD (n=72) | CD (n=73) | P  group\*time | MD (n=13) | TJD (n=13) | CD (n=11) | P  group\*time | P  heterogeneity |
| Weight |  |  |  | 0.44 |  |  |  | 0.24 | 0.68 |
| 3-month change | -5.16 (-5.92,-4.41) | -4.91 (-5.64,-4.18) | -5.1 (-5.83,-4.37) |  | -4.92 (-6.54,-3.3) | -3.43 (-5.09,-1.77) | -4.32 (-6.18,-2.46) |  |  |
| 6-month change | -5.82 (-6.59,-5.05) | -5.25 (-6,-4.5) | -5.4 (-6.14,-4.65) |  | -5.23 (-6.85,-3.61) | -3.74 (-5.44,-2.03) | -5.56 (-7.47,-3.65) |  |  |
| OGTT metrics |  |  |  |  |  |  |  |  |  |
| 0-h glucose |  |  |  | 0.37 |  |  |  | 0.46 | 0.24 |
| 3-month change | -0.1 (-0.21,0.01) | -0.14 (-0.25,-0.04) | -0.14 (-0.24,-0.04) |  | -0.2 (-0.51,0.1) | -0.02 (-0.34,0.29) | -0.05 (-0.39,0.29) |  |  |
| 6-month change | -0.41 (-0.52,-0.3) | -0.35 (-0.46,-0.24) | -0.3 (-0.41,-0.19) |  | -0.22 (-0.52,0.09) | -0.19 (-0.52,0.14) | -0.22 (-0.58,0.13) |  |  |
| AUC glucose |  |  |  | 0.92 |  |  |  | 0.89 | 0.83 |
| 3-month change | 0.38 (-0.18,0.93) | 0.81 (0.28,1.33) | 0.74 (0.22,1.25) |  | -0.53 (-2.13,1.07) | 1.17 (-0.44,2.78) | 0.07 (-1.67,1.82) |  |  |
| 6-month change | -0.91 (-1.48,-0.33) | -0.23 (-0.8,0.34) | -0.45 (-1,0.1) |  | -1.11 (-2.71,0.49) | 0.09 (-1.78,1.95) | -0.55 (-2.49,1.39) |  |  |
| 0-h insulin |  |  |  | 0.84 |  |  |  | 0.33 | 0.98 |
| 3-month change | -4.13 (-5.96,-2.31) | -2.83 (-4.61,-1.04) | -4.16 (-5.92,-2.39) |  | -3.24 (-5.66,-0.83) | -1 (-3.5,1.51) | -4.04 (-6.71,-1.37) |  |  |
| 6-month change | -4.91 (-6.81,-3.01) | -4.58 (-6.49,-2.68) | -4.19 (-6.05,-2.33) |  | -3.25 (-5.67,-0.84) | -2.56 (-5.17,0.06) | -3.25 (-6.07,-0.44) |  |  |
| AUC insulin |  |  |  | 0.11 |  |  |  | 0.46 | 0.32 |
| 3-month change | -16.7 (-37.6,4.13) | -37.7 (-57.6,-17.8) | -26.9 (-46.2,-7.64) |  | -4.14 (-51.2,42.9) | 0.96 (-47.2,49.11) | -52.0 (-105.9,1.84) |  |  |
| 6-month change | -31.2 (-52.6,-9.8) | -26.5 (-47.7,-5.17) | -23.0 (-43.2,-2.84) |  | -9.30 (-56.4,37.8) | -43.3 (-99.8,13.31) | -45.6 (-106.1,14.98) |  |  |
| Matsuda index |  |  |  | 0.8 |  |  |  | 0.79 | 0.18 |
| 3-month change | 3.26 (1.47,5.04) | 3.31 (1.61,5.01) | 2.15 (0.51,3.8) |  | 5.17 (2.04,8.29) | -1.09 (-4.31,2.13) | 3.7 (0.15,7.24) |  |  |
| 6-month change | 5.31 (3.45,7.17) | 3.94 (2.11,5.77) | 4.05 (2.33,5.78) |  | 2.57 (-0.56,5.7) | 2.73 (-1.22,6.69) | 4.63 (0.63,8.63) |  |  |
| CGM metrics |  |  |  |  |  |  |  |  |  |
| Mean glucose |  |  |  | 0.11 |  |  |  | 0.29 | 0.021 |
| 3-month change | -0.62 (-0.76,-0.49) | -0.42 (-0.55,-0.29) | -0.62 (-0.74,-0.49) |  | -0.5 (-0.91,-0.09) | -0.71 (-1.06,-0.36) | -0.33 (-0.76,0.1) |  |  |
| 6-month change | -0.42 (-0.57,-0.27) | -0.38 (-0.53,-0.24) | -0.67 (-0.82,-0.53) |  | -0.1 (-0.51,0.31) | -0.8 (-1.21,-0.39) | -0.41 (-0.93,0.11) |  |  |
| TBR  (＜3.9 mmol/L) |  |  |  | **0.029** |  |  |  | 0.44 | 0.018 |
| 3-month change | 0.85 (0.44,1.25) | 0.19 (-0.21,0.6) | 0.47 (0.07,0.86) |  | -0.12 (-1.17,0.92) | 1.42 (0.5,2.34) | 0.62 (-0.48,1.72) |  |  |
| 6-month change | **0.4 (-0.06,0.85)ab** | **0.3 (-0.15,0.74)a** | **1.14 (0.7,1.58)b** |  | -0.69 (-1.73,0.36) | 1.77 (0.73,2.81) | 0.16 (-1.11,1.43) |  |  |
| Level 1 TBR  (3-3.9 mmol/L) |  |  |  | **0.013** |  |  |  | 0.47 | 0.015 |
| 3-month change | 0.85 (0.47,1.22) | 0.23 (-0.15,0.6) | 0.46 (0.1,0.82) |  | 0.04 (-0.96,1.04) | 1.49 (0.6,2.38) | 0.71 (-0.35,1.77) |  |  |
| 6-month change | **0.4 (-0.02,0.82)a** | **0.34 (-0.08,0.75)a** | **1.16 (0.76,1.57)b** |  | -0.52 (-1.52,0.48) | 1.74 (0.74,2.74) | 0.24 (-0.98,1.45) |  |  |
| Level 2 TBR  (＜3 mmol/L) |  |  |  | 0.98 |  |  |  | 0.47 | 0.38 |
| 3-month change | 0.02 (-0.19,0.23) | -0.07 (-0.28,0.14) | 0.1 (-0.1,0.31) |  | -0.43 (-0.84,-0.01) | -0.04 (-0.4,0.32) | -0.15 (-0.6,0.3) |  |  |
| 6-month change | 0.04 (-0.19,0.28) | -0.01 (-0.24,0.22) | 0.11 (-0.11,0.34) |  | -0.45 (-0.86,-0.04) | 0.36 (-0.06,0.78) | -0.16 (-0.68,0.37) |  |  |
| TAR |  |  |  | 0.10 |  |  |  | 0.17 | 0.072 |
| 3-month change | -0.45 (-0.6,-0.3) | -0.21 (-0.35,-0.06) | -0.44 (-0.58,-0.3) |  | -0.35 (-0.71,0.01) | -0.38 (-0.69,-0.07) | 0.06 (-0.31,0.43) |  |  |
| 6-month change | -0.21 (-0.37,-0.04) | -0.26 (-0.42,-0.1) | -0.41 (-0.57,-0.25) |  | 0.01 (-0.35,0.37) | -0.47 (-0.83,-0.11) | -0.25 (-0.69,0.18) |  |  |
| Nighttime SD |  |  |  | 0.067 |  |  |  | 0.81 | 0.55 |
| 3-month change | -0.09 (-0.15,-0.03) | -0.11 (-0.17,-0.05) | -0.1 (-0.16,-0.04) |  | -0.11 (-0.22,-0.01) | -0.12 (-0.22,-0.03) | -0.06 (-0.17,0.06) |  |  |
| 6-month change | -0.01 (-0.08,0.05) | -0.14 (-0.21,-0.08) | -0.11 (-0.17,-0.04) |  | -0.1 (-0.21,0.01) | -0.05 (-0.16,0.05) | 0 (-0.14,0.14) |  |  |

The *P group\*time* were examined by mixed-effects linear models with unstructured variance structure, which adjusted for age, sex, baseline BMI, baseline fasting glucose, physical activity, and baseline TBR. Letters indicate the differences of the pairwise comparisons among three groups. Different letters indicate significant between-group differences (P value with Bonferroni adjustment < 0.05).

**STable 3** Exploratory changes in glucose homeostasis from CGM at three and six months of stratified by overweight/obese.

|  | Overweight (24≤ BMI＜28 kg/m2) | | | | Obese (BMI ≥ 28kg/m2) | | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | MD (n=63) | TJD (n=60) | CD (n=60) | P  group\*time | MD (n=21) | TJD (n=25) | CD (n=24) | P  group\*time | P  heterogeneity |
| Weight |  |  |  | 0.44 |  |  |  | 0.24 | 0.021 |
| 3-month change | -4.43 (-5.14,-3.73) | -4.48 (-5.19,-3.78) | -4.55 (-5.27,-3.83) |  | -5.16 (-5.92,-4.41) | -4.91 (-5.64,-4.18) | -5.1 (-5.83,-4.37) |  |  |
| 6-month change | -4.87 (-5.58,-4.16) | -4.86 (-5.59,-4.13) | -4.64 (-5.36,-3.92) |  | -5.82 (-6.59,-5.05) | -5.25 (-6,-4.5) | -5.4 (-6.14,-4.65) |  |  |
| OGTT metrics |  |  |  |  |  |  |  |  |  |
| 0-h glucose |  |  |  | 0.37 |  |  |  | 0.46 | 0.43 |
| 3-month change | -0.08 (-0.2,0.04) | -0.17 (-0.29,-0.05) | -0.06 (-0.19,0.06) |  | -0.1 (-0.21,0.01) | -0.14 (-0.25,-0.04) | -0.14 (-0.24,-0.04) |  |  |
| 6-month change | -0.35 (-0.47,-0.23) | -0.34 (-0.47,-0.21) | -0.25 (-0.37,-0.12) |  | -0.41 (-0.52,-0.3) | -0.35 (-0.46,-0.24) | -0.3 (-0.41,-0.19) |  |  |
| AUC glucose |  |  |  | 0.92 |  |  |  | 0.89 | 0.99 |
| 3-month change | 0.45 (-0.16,1.05) | 1.09 (0.51,1.68) | 1.01 (0.42,1.61) |  | 0.38 (-0.18,0.93) | 0.81 (0.28,1.33) | 0.74 (0.22,1.25) |  |  |
| 6-month change | -0.72 (-1.34,-0.09) | 0.03 (-0.62,0.69) | -0.23 (-0.84,0.39) |  | -0.91 (-1.48,-0.33) | -0.23 (-0.8,0.34) | -0.45 (-1,0.1) |  |  |
| 0-h insulin |  |  |  | 0.84 |  |  |  | 0.33 | 0.018 |
| 3-month change | -2.53 (-3.69,-1.38) | -3.06 (-4.22,-1.9) | -3.24 (-4.41,-2.07) |  | -4.13 (-5.96,-2.31) | -2.83 (-4.61,-1.04) | -4.16 (-5.92,-2.39) |  |  |
| 6-month change | -3.2 (-4.38,-2.01) | -3.55 (-4.81,-2.28) | -3.41 (-4.62,-2.21) |  | -4.91 (-6.81,-3.01) | -4.58 (-6.49,-2.68) | -4.19 (-6.05,-2.33) |  |  |
| AUC insulin |  |  |  | 0.11 |  |  |  | 0.46 | 0.57 |
| 3-month change | -3.4 (-24.4,17.6) | -18.1 (-39.1,2.87) | -23.6 (-44.3,-2.88) |  | -16.7 (-37.6,4.13) | -37.7 (-57.6,-17.8) | -26.9 (-46.2,-7.64) |  |  |
| 6-month change | -18.2 (-39.7,3.39) | -20.7 (-43.5,2.21) | -10.6 (-31.8,10.6) |  | -31.2 (-52.6,-9.8) | -26.5 (-47.8,-5.17) | -23.0 (-43.2,-2.84) |  |  |
| Matsuda index |  |  |  | 0.80 |  |  |  | 0.79 | 0.75 |
| 3-month change | 3.24 (1.3,5.17) | 2.68 (0.74,4.61) | 2.7 (0.79,4.6) |  | 3.26 (1.47,5.04) | 3.31 (1.61,5.01) | 2.15 (0.51,3.8) |  |  |
| 6-month change | 4.94 (2.92,6.96) | 3.6 (1.44,5.77) | 4.59 (2.63,6.55) |  | 5.31 (3.45,7.17) | 3.94 (2.11,5.77) | 4.05 (2.33,5.78) |  |  |
| CGM metrics |  |  |  |  |  |  |  |  |  |
| Mean glucose |  |  |  | **0.015** |  |  |  | 0.70 | 0.43 |
| 3-month change | -0.56 (-0.7,-0.41) | -0.47 (-0.61,-0.33) | -0.52 (-0.66,-0.37) |  | -0.62 (-0.76,-0.49) | -0.42 (-0.55,-0.29) | -0.62 (-0.74,-0.49) |  |  |
| 6-month change | **-0.32 (-0.47,-0.16)a** | **-0.45 (-0.62,-0.29)ab** | **-0.66 (-0.81,-0.5)b** |  | -0.42 (-0.57,-0.27) | -0.38 (-0.53,-0.24) | -0.67 (-0.82,-0.53) |  |  |
| TBR  (＜3.9 mmol/L) |  |  |  | **0.045** |  |  |  | 0.30 | 0.94 |
| 3-month change | 0.7 (0.26,1.14) | 0.34 (-0.1,0.77) | 0.45 (0.01,0.89) |  | 0.85 (0.44,1.25) | 0.19 (-0.21,0.6) | 0.47 (0.07,0.86) |  |  |
| 6-month change | 0.16 (-0.32,0.63) | 0.52 (0.02,1.02) | 0.93 (0.46,1.4) |  | 0.4 (-0.06,0.85) | 0.3 (-0.15,0.74) | 1.14 (0.7,1.58) |  |  |
| Level 1 TBR  (3-3.9 mmol/L) |  |  |  | **0.033** |  |  |  | 0.23 | 0.92 |
| 3-month change | 0.69 (0.28,1.1) | 0.38 (-0.03,0.78) | 0.48 (0.07,0.89) |  | 0.85 (0.47,1.22) | 0.23 (-0.15,0.6) | 0.46 (0.1,0.82) |  |  |
| 6-month change | **0.18 (-0.26,0.62)a** | **0.54 (0.07,1)ab** | **0.99 (0.55,1.42)b** |  | 0.4 (-0.02,0.82) | 0.34 (-0.08,0.75) | 1.16 (0.76,1.57) |  |  |
| Level 2 TBR  (＜3 mmol/L) |  |  |  | 0.69 |  |  |  | 0.99 | 0.91 |
| 3-month change | 0.02 (-0.2,0.24) | -0.05 (-0.27,0.17) | 0.03 (-0.19,0.25) |  | 0.02 (-0.19,0.23) | -0.07 (-0.28,0.14) | 0.1 (-0.1,0.31) |  |  |
| 6-month change | -0.04 (-0.27,0.2) | 0.08 (-0.18,0.33) | 0.02 (-0.22,0.26) |  | 0.04 (-0.19,0.28) | -0.01 (-0.24,0.22) | 0.11 (-0.11,0.34) |  |  |
| TAR |  |  |  | 0.072 |  |  |  | 0.94 | 0.27 |
| 3-month change | -0.46 (-0.61,-0.31) | -0.22 (-0.37,-0.08) | -0.35 (-0.49,-0.2) |  | -0.45 (-0.6,-0.3) | -0.21 (-0.35,-0.06) | -0.44 (-0.58,-0.3) |  |  |
| 6-month change | -0.26 (-0.42,-0.11) | -0.37 (-0.54,-0.2) | -0.46 (-0.62,-0.3) |  | -0.21 (-0.37,-0.04) | -0.26 (-0.42,-0.1) | -0.41 (-0.57,-0.25) |  |  |
| Nighttime SD |  |  |  | 0.22 |  |  |  | 0.49 | 0.96 |
| 3-month change | -0.08 (-0.15,-0.02) | -0.1 (-0.16,-0.04) | -0.08 (-0.14,-0.02) |  | -0.09 (-0.15,-0.03) | -0.11 (-0.17,-0.05) | -0.1 (-0.16,-0.04) |  |  |
| 6-month change | -0.02 (-0.09,0.05) | -0.1 (-0.17,-0.03) | -0.1 (-0.17,-0.03) |  | -0.01 (-0.08,0.05) | -0.14 (-0.21,-0.08) | -0.11 (-0.17,-0.04) |  |  |

The *P group\*time* were examined by mixed-effects linear models with unstructured variance structure, which adjusted for age, sex, baseline BMI, baseline fasting glucose, physical activity, and baseline TBR. Letters indicate the differences of the pairwise comparisons among three groups. Different letters indicate significant between-group differences (P value with Bonferroni adjustment <0.05).

**STable 4** Adverse events during intervention 1

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Dietary groups |  |
|  | MD (n = 84) | TJD (n = 85) | CD (n = 84) |
| Allergy |  |  |  |
| 3-month | 1 (1) | 0 (0) | 0 (0) |
| 6-month | 0 (0) | 0 (0) | 0 (0) |
| Nausea |  |  |  |
| 3-month | 0 (0) | 0 (0) | 1 (1) |
| 6-month | 0 (0) | 1 (1) | 0 (0) |
| Diarrhea |  |  |  |
| 3-month | 0 (0) | 1 (1) | 2 (2) |
| 6-month | 2 (2) | 0 (0) | 2 (2) |
| Constipation |  |  |  |
| 3-month | 5 (6) | 5 (6) | 5 (6) |
| 6-month | 7 (8) | 8 (10) | 7 (8) |
| Headache |  |  |  |
| 3-month | 1 (1) | 0 (0) | 1 (1) |
| 6-month | 2 (2) | 1 (2) | 2 (2) |

1 Data are n (%). No significant between-group difference was observed among the adverse events above.

Abbreviations: CD, Control diet. MD, Mediterranean diet. TJD, Traditional Jiangnan diet.