

**Table S1** Grouping standard of dietary energy density

|      | Males                       |                |                |                | Females        |                |                |                |
|------|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
|      | Q <sub>1</sub> <sup>1</sup> | Q <sub>2</sub> | Q <sub>3</sub> | Q <sub>4</sub> | Q <sub>1</sub> | Q <sub>2</sub> | Q <sub>3</sub> | Q <sub>4</sub> |
| 1993 | <2.01                       | 2.01~2.26      | 2.27~2.53      | ≥2.54          | <1.98          | 1.98~2.23      | 2.24~2.50      | ≥2.51          |
| 1997 | <2.09                       | 2.09~2.33      | 2.34~2.58      | ≥2.59          | <2.02          | 2.02~2.26      | 2.27~2.53      | ≥2.54          |
| 2000 | <2.06                       | 2.06~2.30      | 2.31~2.58      | ≥2.59          | <1.98          | 1.98~2.24      | 2.25~2.51      | ≥2.52          |
| 2004 | <1.93                       | 1.93~2.19      | 2.20~2.47      | ≥2.48          | <1.86          | 1.86~2.13      | 2.14~2.42      | ≥2.43          |
| 2006 | <1.94                       | 1.94~2.20      | 2.21~2.48      | ≥2.49          | <1.85          | 1.85~2.13      | 2.14~2.41      | ≥2.42          |
| 2009 | <1.90                       | 1.90~2.17      | 2.18~2.43      | ≥2.44          | <1.79          | 1.79~2.05      | 2.06~2.34      | ≥2.35          |
| 2011 | <1.76                       | 1.76~2.04      | 2.05~2.36      | ≥2.37          | <1.67          | 1.67~1.95      | 1.96~2.27      | ≥2.28          |
| 2015 | <1.88                       | 1.88~2.14      | 2.15~2.43      | ≥2.44          | <1.78          | 1.78~2.06      | 2.07~2.36      | ≥2.37          |
| 2018 | <1.88                       | 1.88~2.15      | 2.16~2.45      | ≥2.46          | <1.77          | 1.77~2.05      | 2.06~2.35      | ≥2.36          |

<sup>1</sup>Q = quartile.

**Table S2** Relationship between waist circumference and DED, gender and their interaction in Chinese subjects aged 18 ~ 64 (1993-2018)

|              | b(95%CI)           | P      |
|--------------|--------------------|--------|
| DED          |                    |        |
| Q1           | 0.00               |        |
| Q2           | 0.13(-0.10,0.37)   | 0.267  |
| Q3           | 0.08(-0.15,0.32)   | 0.488  |
| Q4           | -0.07(-0.32,0.17)  | 0.548  |
| Gender       |                    |        |
| Male         | 0.00               |        |
| Female       | -4.57(-4.86,-4.27) | <0.001 |
| Gender * DED |                    |        |
| Gender *Q1   | 0.00               |        |
| Gender *Q2   | -0.13(-0.45,0.19)  | 0.431  |
| Gender *Q3   | 0.11(-0.22,0.43)   | 0.521  |
| Gender *Q4   | 0.48(0.15,0.82)    | 0.004  |

The models were constructed using three-level mixed-effects linear regression with maximum likelihood estimation methods.

Q1-Q4 is the quartile grouping of DED.

**Table S3** Relationship between abdominal obesity and DED, gender and their interaction in Chinese subjects aged 18 ~ 64 (1993-2018)

|        | OR(95%CI)       | P     |
|--------|-----------------|-------|
| DED    |                 |       |
| Q1     | 1.00            |       |
| Q2     | 1.02(0.93,1.12) | 0.645 |
| Q3     | 1.02(0.93,1.12) | 0.668 |
| Q4     | 0.99(0.90,1.08) | 0.775 |
| Gender |                 |       |

|              |                 |       |
|--------------|-----------------|-------|
| Male         | 1.00            |       |
| Female       | 1.04(0.94,1.16) | 0.414 |
| Gender * DED |                 |       |
| Gender *Q1   | 1.00            |       |
| Gender *Q2   | 0.99(0.87,1.12) | 0.890 |
| Gender *Q3   | 1.05(0.92,1.19) | 0.470 |
| Gender *Q4   | 1.17(1.03,1.33) | 0.017 |

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The models were constructed using three-level mixed-effects logistic regression

Q1-Q4 is the quartile grouping of DED.