Supplementary data

**SUPPLEMENTAL TABLE 1** Definitions and components of dietary pattern scores recommended for the prevention and management of CVD in the general population.

| **AHA score[1,2] components** | **Optimal Target Intake** | **Remaining score range** |
|---|---|---|
| **Primary** | **Receives 10 points each** | **Receives 0 to 9 points (ranked linearly from 1 to 9)** |
| 1. Fruits and Vegetables, g/d | ≥ 576 (5.00 serving) | 0.00 to < 576 |
| 2. Whole grain, oz.-equivalent/d | ≥ 3.00 (3.00 serving) | 0.00 to < 3.00 |
| 3. Fish and shellfish, serving/wk | ≥ 2.00 (100-g=1 serving) | 0.00 to < 2.00 |
| 4. SSBs[1], mL/d | ≤ 152 (237 mL=1 serving) | > 473 to > 152 |
| 5. Sodium[1], g/d | ≤ 1.50 | > 4.50 to > 1.50 |
| **Sum 1 to 5 for total possible score: 50 points** | | |
| **Secondary** | | |
| 6. Nuts, seeds, legumes, serving/wk | ≥ 4.00 | 0.00 to ≥ 4.00 |
| 7. Processed meat[1], serving/wk | ≤ 2.00 (50-g=1 serving) | ≤ 0.29 to > 2.00 |
| 8. Saturated fat[1], %E/d | ≤ 7 | ≤7 to > 15 |
| **Sum 1 to 8 for total possible score: 80 points** | | |

| **DASH score[3] components** | | |
|---|---|---|
| **Encouraged foods/nutrients** | **Intake ≥ median from Q5** | **Receives 0 to 4 points** |
| 1. Fruits and juices, serving/d | ≥ 5.00 | 0 to < 5 |
| 2. Vegetables, serving/d | ≥ 2.60 | 0 to < 2.60 |
| 3. Nuts/Legumes, serving/d | ≥ 0.40 | 0 to < 0.40 |
| 4. Whole Grain, serving/d | ≥ 5.00 | 0 to < 5 |
| 5. Low-fat dairy, serving/d | ≥ 5.00 | ≤ 0.2 to < 5 |
| **Discouraged[1] foods/nutrients** | **Intake ≤ median from Q1** | **Receives 4 to 0 points** |
| 6. Red/Processed meats, serving/d | ≤ 0.30 | < 0.30 to > 2.10 |
| 7. SSBs, serving/d | ≤ 0.10 | < 0.10 to > 3 |
| 8. Sodium, g/d | ≤ 2.60 | < 2.60 to > 3.73 |
| **Sum 1 to 8 for Total possible score: 40 points** | | |

[1]Discouraged food and nutrients receive more points for less consumption.

AHA, The American Heart Association; CVD, cardiovascular disease; DASH, dietary patterns to stop hypertension; MJ, megajoules; %E, percentage of total energy intake; Q5, highest quintile of intake in the study population; Q1, lowest quintile of intake in the study population.

**SUPPLEMENTAL TABLE 2** Association of 2nd trimester of pregnancy adherence to dietary recommendations from the American Heart Association (AHA) 2020 Strategic Impact Goals(1) and the Dietary Approaches to Stop Hypertension(3) (DASH) diet with risk of severe preeclampsia (n = 66,651 pregnancies).

| | **Relative Risk (95%CI) of severe preeclampsia across quintiles of adherence** | | | | | |
|---|---|---|---|---|---|---|
| **AHA primary score** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **P- trend** |
| *n* cases | 71 | 52 | 61 | 59 | 57 | |
| *n* pregnancies | 14,258 | 11,911 | 14,000 | 12,937 | 13,545 | |
| Age and energy[1] | 1.00 | 0.75 (0.52, 1.09) | 0.89 (0.63,1.24) | 0.79 (0.56, 1.13) | 0.88 (0.63, 1.24) | 0.48 |
| Multivariable[2] | 1.00 | 0.81 (0.56, 1.17) | 0.99 (0.70,1.40) | 0.92 (0.64, 1.33) | 1.07 (0.74, 1.55) | 0.69 |
| **DASH score** | | | | | | |
| *n* cases | 73 | 48 | 72 | 43 | 64 | |
| *n* pregnancies | 14,734 | 10,026 | 17,287 | 9,939 | 14,665 | |
| Age and energy[1] | 1.00 | 1.00 (0.70, 1.44) | 0.82 (0.59, 1.13) | 0.85 (0.58, 1.25) | 0.96 (0.68, 1.25) | 0.63 |
| Multivariable[2] | 1.00 | 1.05 (0.73, 1.51) | 0.89 (0.64, 1.25) | 0.96 (0.64, 1.44) | 1.12 (0.77, 1.63) | 0.70 |

[1]Model adjusted for total energy intake and maternal age at pregnancy.

[2] Model adjusted for total energy intake, age, pre-pregnancy BMI, parity, smoking, concurrent gestational diabetes, height, Denmark demographic regions, education, Vitamin C and Vitamin E intakes.

AHA, American Heart Association; DASH, Dietary Approaches to Stop Hypertension; Q, quintile; ref, reference.

Supplementary data

**SUPPLEMENTAL TABLE 3** Association of 2nd trimester of pregnancy adherence to dietary recommendations from the American Heart Association (AHA) 2020 Strategic Impact Goals(1) and the Dietary Approaches to Stop Hypertension(3) (DASH) diet with risk of gestational hypertension.

| | **Relative Risk (95%CI) of GHTN by quintiles of adherence** | | | | | |
|---|---|---|---|---|---|---|
| **AHA primary score** | **Q1** | **Q2** | **Q3** | **Q4** | **Q5** | **P- trend[2]** |
| *n* cases | 145 | 92 | 132 | 112 | 137 | |
| *n* pregnancies | 13,942 | 11,671 | 13,941 | 13,041 | 14,056 | |
| Age and energy[1] | 1.00 | 0.86 (0.64,1.14) | 0.98 (0.75,1.28) | 0.84 (0.63,1.11) | 0.99 (0.76,1.29) | 0.87 |
| Multivariable[2] | 1.00 | 0.92 (0.69,1.23) | 1.08 (0.82,1.41) | 0.95 (0.71,1.28) | 1.20 (0.90,1.60) | 0.26 |
| Multivariable vs. Normotensive[3] | 1.00 | 0.91 (0.69,1.22) | 1.08 (0.82,1.41) | 0.94 (0.71,1.27) | 1.19 (0.89,1.58) | 0.28 |
| **DASH score** | | | | | | |
| *n* cases | 150 | 91 | 154 | 92 | 131 | |
| *n* pregnancies | 14,685 | 10,033 | 17,331 | 10,013 | 14,586 | |
| Age and energy[1] | 1.00 | 0.82 (0.61, 1.10) | 0.85 (0.66, 1.09) | 0.96 (0.72, 1.28) | 0.86 (0.65, 1.12) | 0.42 |
| Multivariable[2] | 1.00 | 0.85 (0.63,1.15) | 0.92 (0.74,1.19) | 1.07 (0.80,1.44) | 0.99 (0.74,1.33) | 0.80 |
| Multivariable vs. Normotensive[3] | 1.00 | 0.85 (0.63,1.14) | 0.92 (0.71,1.19) | 1.07 (0.80,1.44) | 1.00 (0.74,1.33) | 0.80 |

[1]Model adjusted for total energy intake and maternal age at pregnancy.

[2]Model adjusted for total energy intake, age, pre-pregnancy BMI, parity, smoking, concurrent gestational diabetes, height, Denmark demographic regions, education, Vitamin C and Vitamin E intakes.

[3]Excluded 1,310 cases of preeclampsia

AHA, American Heart Association; DASH, Dietary Approaches to Stop Hypertension; GHTN, gestational hypertension; Q, quintile; HTN, hypertension.

Supplementary data

**SUPPLEMENTAL TABLE 4** Associations between individual components of the Goals(1) and the Dietary Approaches to Stop Hypertension(3) scores with the risk of HDPs by chronic hypertension status before pregnancy.

| | Adjusted RR (95%CI) per unit increases[1] | | |
|---|---|---|---|
| | **Original results from Figure 1[2]** | **Adjusted for HTN[3]** | **Excluding HTN[4]** |
| ***n* pregnancies** | 66,651 | 66,651 | 66,062 |
| ***n cases, (%)*** | 1,809 (2.71%) | 1,809 (2.71%) | 1,220 (1.85%) |
| **AHA secondary score** | | | |
| Sodium | 1.24 (1.10, 1.40) | 1.25 (1.11, 1.41) | 1.26 (1.12, 1.43) |
| Fish | 0.95 (0.82, 1.09) | 0.94 (0.82, 1.08) | 0.92 (0.79, 1.06) |
| SSBs | 1.02 (0.99, 1.06) | 1.02 (0.99, 1.06) | 1.02 (0.99, 1.06) |
| Processed meats | 1.01 (0.99, 1.01) | 0.96 (0.90, 1.02) | 0.97 (0.91, 1.03) |
| Whole grains | 1.02 (0.99, 1.01) | 1.01 (0.99, 1.02) | 1.01 (0.99, 1.02) |
| Fruits & Vegetables | 1.00 (0.97, 1.03) | 0.98 (0.90, 1.07) | 1.01 (0.97, 1.04) |
| Saturated fat | 0.98 (0.90, 1.07) | 0.98 (0.90, 1.07) | 0.96 (0.88, 1.05) |
| Nuts & Legumes | 0.88 (0.70, 1.10) | 0.87 (0.69, 1.09) | 0.85 (0.70, 1.07) |
| **DASH score** | | | |
| Sodium | 1.26 (1.11, 1.42) | 1.24 (1.10, 1.40) | 1.26 (1.11, 1.43) |
| Low-fat dairy | 0.99 (0.96, 1.01) | 0.99 (0.96, 1.01) | 1.00 (0.96, 1.02) |
| SSBs | 1.02 (0.99, 1.06) | 1.02 (0.99, 1.06) | 1.02 (0.99, 1.06) |
| Red & processed meats | 0.97 (0.92, 1.03) | 0.97 (0.91, 1.02) | 0.97 (0.92, 1.04) |
| Whole grains | 1.01 (0.99, 1.02) | 1.01 (0.99, 1.02) | 1.01 (0.99, 1.02) |
| Fruit & fruit juices | 1.01 (0.97, 1.05) | 1.01 (0.97, 1.05) | 1.02 (0.98, 1.06) |
| Vegetables | 1.00 (0.95, 1.06) | 1.00 (0.95, 1.06) | 1.01 (0.96, 1.07) |
| Nuts & Legumes | 0.88 (0.70, 1.11) | 0.87 (0.69, 1.10) | 0.85 (0.67, 1.09) |

[1] Represents an increase from the 10$^{th}$ to the 90$^{th}$ percentile for sodium intake of 1.13 g/d, saturated fat increase of 5% E%/d, and serving/d for the remaining components (fish, SSBs, processed meats, whole grains, fruits & vegetables, nuts & legumes, low-fat dairy, red & processed meats, fruit & fruit juices, and vegetables)

[2]Multivariable model adjusted for total energy intake, age, pre-pregnancy BMI, parity, smoking, concurrent gestational diabetes, height, Denmark demographic regions, education, Vitamin C and Vitamin E intakes (multivariable).

[3]Multivariable model further adjusted for diagnosis of chronic hypertension before pregnancy.

[4]Multivariable model excluding *n* = 589 pregnancies with diagnosis of HTN before pregnancy.

AHA, American Heart Association; DASH, Dietary Approaches to Stop Hypertension; GHTN, gestational hypertension; HTN, hypertension; Q, quintile of adherence; SSBs, sugar-sweetened beverages.

Supplementary data

**SUPPLEMENTAL TABLE 5** Associations between sodium intake with the relative risk and 95% confidence of HDPs by chronic hypertension status before pregnancy.

| | Original results from Figure 2[1] | Adjusted for HTN[2] | Excluding HTN[3] |
|---|---|---|---|
| **HDP** | | | |
| *n* pregnancies | 66,651 | 66,651 | 66,034 |
| *n cases, (%)* | 1,809 (2.71%) | 1,809 (2.71%) | 1,719 (2.60%) |
| Q1 | 1.00 | 1.00 | 1.00 |
| Q2 | 1.09 (0.93, 1.26) | 1.09 (0.94, 1.27) | 1.10 (0.94, 1.28) |
| Q3 | 1.21 (1.04, 1.40) | 1.21 (1.04, 1.40) | 1.21 (1.04, 1.41) |
| Q4 | 1.15 (0.99, 1.33) | 1.16 (1.00, 1.35) | 1.18 (1.01, 1.37) |
| Q5 | 1.29 (1.11, 1.49) | 1.28 (1.11, 1.48) | 1.29 (1.11, 1.50) |
| P-trend | 0.03 | <0.01 | <0.01 |
| **Preeclampsia** | | | |
| *n* pregnancies | 66,651 | 66,651 | 66,034 |
| *n cases, (%)* | 1,310 (1.97%) | 1,310 (1.97%) | 1,262 (1.91%) |
| Q1 | 1.00 | 1.00 | 1.00 |
| Q2 | 1.05 (0.88, 1.26) | 1.05 (0.89, 1.64) | 1.06 (0.89, 1.28) |
| Q3 | 1.21 (1.02, 1.43) | 1.21 (1.02, 1.43) | 1.22 (1.02, 1.45) |
| Q4 | 1.14 (0.95, 1.35) | 1.14 (0.96, 1.36) | 1.17 (0.98, 1.40) |
| Q5 | 1.20 (1.01, 1.42) | 1.20 (1.01, 1.42) | 1.23 (1.03, 1.46) |
| P-trend | 0.04 | 0.03 | 0.04 |
| **GHTN** | | | |
| *n* pregnancies | 66,651 | 66,651 | 66,034 |
| *n cases, (%)* | 499 (0.74%) | 499 (0.74%) | 457 (0.69%) |
| Q1 | 1.00 | 1.00 | 1.00 |
| Q2 | 1.18 (0.87, 1.60) | 1.19 (0.88, 1.62) | 1.18 (0.86, 1.62) |
| Q3 | 1.22 (0.90, 1.66) | 1.21 (0.90, 1.64) | 1.18 (0.86, 1.61) |
| Q4 | 1.18 (0.88, 1.60) | 1.20 (0.89, 1.62) | 1.18 (0.86, 1.62) |
| Q5 | 1.54 (1.16, 2.04) | 1.52 (1.14, 2.01) | 1.49 (1.11, 2.00) |
| P-trend | <0.01 | <0.01 | 0.01 |

[1]Model adjusted for total energy intake, age, pre-pregnancy BMI, parity, smoking, concurrent gestational diabetes, height, Denmark demographic regions, education, Vitamin C and Vitamin E intakes (multivariable).

[2]Multivariable model further adjusted for diagnosis of chronic hypertension before pregnancy.

[3]Multivariable model excluding *n* = 589 pregnancies with diagnosis of HTN before pregnancy.

AHA, American Heart Association; DASH, Dietary Approaches to Stop Hypertension; GHTN, gestational hypertension; Q, quintile of adherence; HTN, hypertension.

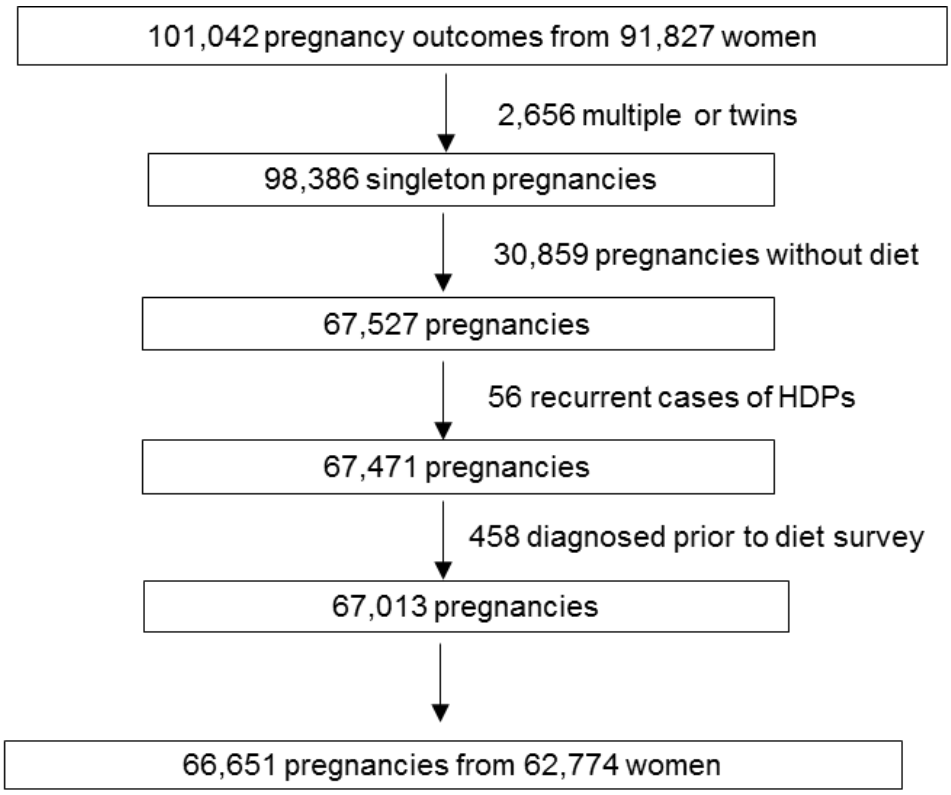
**SUPPLEMENTAL TABLE 6** Association between the adherence to AHA and DASH dietary pattern scores, and sodium intake from across potential risk factors for preeclampsia and GHTN (*n* = 66,651 pregnancies). The Danish National Birth Cohort (1996-2002).

| | | Adjusted RR (95% CI) per increases from 10th to the 90th percentile | | | |
|---|---|---|---|---|---|
| **Preeclampsia** | ***n* cases** | **AHA primary, 18 points** | **AHA secondary, 28 points** | **DASH, 12 points** | **Sodium, 1.13 g/d** |
| All participants | 1,310 | 0.91 (0.79,1.06) | 0.86 (0.75,1.00) | 0.91 (0.78,1.08) | 1.16 (1.03,1.32) |
| **Age**, y | | | | | |
| Age < 30 | 725 | 0.84 (0.07, 1.01) | 1.08 (0.87,1.35) | 0.84 (0.70,1.01) | 1.21 (1.02,1.44) |
| Age ≥ 30 | 585 | 1.03 (0.85, 1.26) | 0.98 (0.78,1.23) | 1.04 (0.86,1.27) | 1.11 (0.92,1.34) |
| P-interaction | | 0.50 | 0.71 | 0.11 | 0.50 |
| **Parity** | | | | | |
| Nulliparous | 966 | 0.91 (0.83, 1.00) | 0.93 (0.77,1.13) | 0.94 (0.80,1.11) | 1.15 (0.99,1.33) |
| Parous | 344 | 0.96 (0.82, 1.12) | 0.86 (0.63,1.17) | 0.88 (0.68,1.14) | 1.22 (0.95,1.57) |
| P-interaction | | 0.51 | 0.87 | 0.64 | 0.68 |
| **BMI** | | | | | |
| <25 kg/m$^2$ | 753 | 0.89 (0.80, 0.99) | 0.96 (0.77,1.20) | 0.82 (0.68,0.97) | 1.29 (1.09, 1.54) |
| ≥ 25 kg/m$^2$ | 557 | 0.97 (0.86, 1.09) | 1.08 (0.85,1.37) | 1.10 (0.90,1.35) | 1.03 (0.85, 1.25) |
| P-interaction | | 0.29 | 0.18 | 0.29 | 0.21 |
| **Smoking** | | | | | |
| No | 1030 | 0.90 (0.82, 0.99) | 0.92 (0.82,1.03) | 0.93 (0.79,1.08) | 1.20 (1.04, 1.39) |
| Yes | 280 | 1.00 (0.85, 1.18) | 1.05 (0.85,1.29) | 0.94 (0.71,1.24) | 1.05 (0.80, 1.38) |
| P-interaction | | 0.25 | 0.25 | 0.94 | 0.38 |
| **GHTN** | | | | | |
| All participants | 499 | 1.11 (0.86, 1.43) | 1.06 (0.81, 1.37) | 1.04 (0.79,1.38) | 1.37 (1.12, 1.66) |
| **Age**, y | | | | | |
| Age < 30 | 247 | 0.83 (0.68,0.99) | 1.08 (0.87,1.35) | 1.17 (0.81,1.70) | 1.23 (0.91,1.66) |
| Age ≥ 30 | 252 | 0.91 (0.73,1.13) | 0.98 (0.78,1.23) | 0.90 (0.62,1.30) | 1.50 (1.13,1.98) |
| P-interaction | | 0.40 | 0.51 | 0.28 | 0.56 |
| **Parity** | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| Nulliparous | 329 | 0.84 (0.71,0.99) | 1.13 (0.81,1.56) | 1.13(0.81,1.56) | 1.36 (1.06,1.75) |
| Parous | 170 | 0.93 (0.71,1.23) | 0.90 (0.58,1.40) | 0.90 (0.58,1.40) | 1.38 (0.97,1.97) |
| P-interaction | | 0.81 | 0.87 | 0.39 | 0.94 |
| **BMI** | | | | | |
| <25 kg/m$^2$ | 278 | 0.81 (0.67,0.98) | 0.96 (0.77,1.20) | 0.98 (0.69,1.39) | 1.37(1.03,1.82) |
| ≥ 25 kg/m$^2$ | 221 | 0.94 (0.76,1.17) | 1.08 (0.85,1.37) | 1.13 (0.76,1.67) | 1.38(1.02,1.85) |
| P-interaction | | 0.26 | 0.50 | <0.01 | <0.01 |
| **Smoking** | | | | | |
| No | 404 | 0.83 (0.70,0.97) | 0.99 (0.83,1.19) | 0.91 (0.68,1.23) | 1.40 (1.11,1.76) |
| Yes | 95 | 1.00 (0.74,1.34) | 1.25 (0.88,1.77) | 1.89 (1.06,3.36) | 1.23 (0.78,1.95) |
| P-interaction | | 0.04 | 0.24 | 0.02 | 0.61 |

AHA, American Heart Association; DASH, Dietary Approaches to Stop Hypertension; GHTN, gestational hypertension.

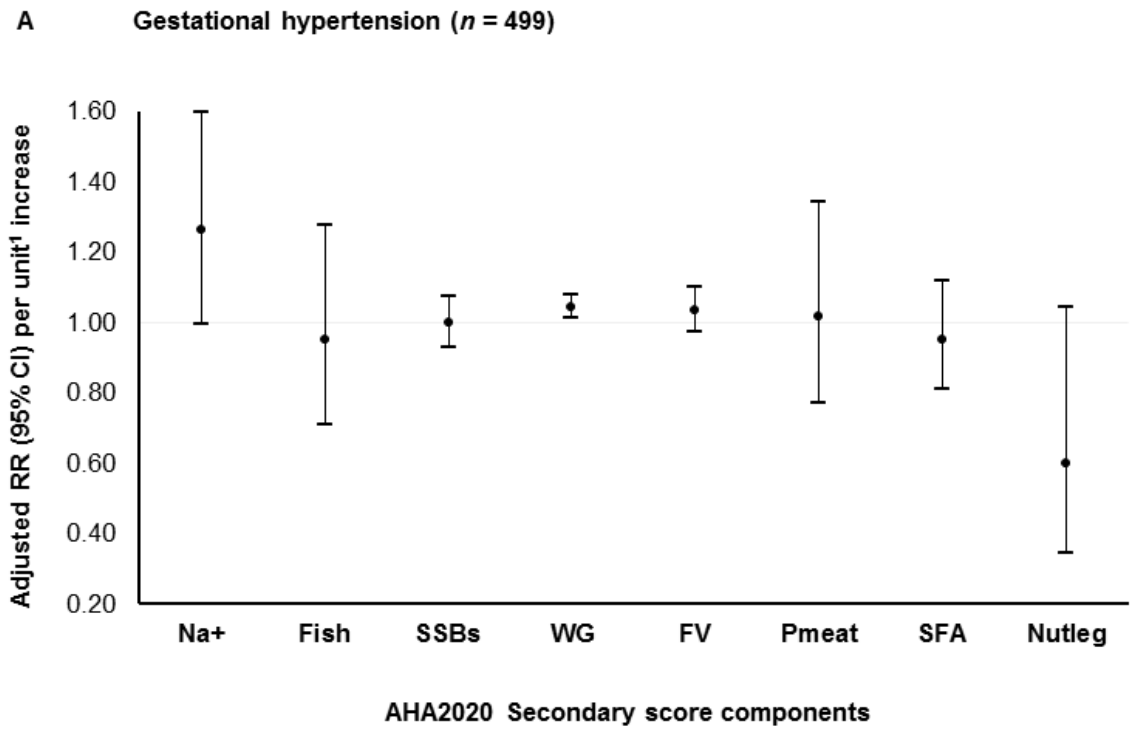
Supplementary data

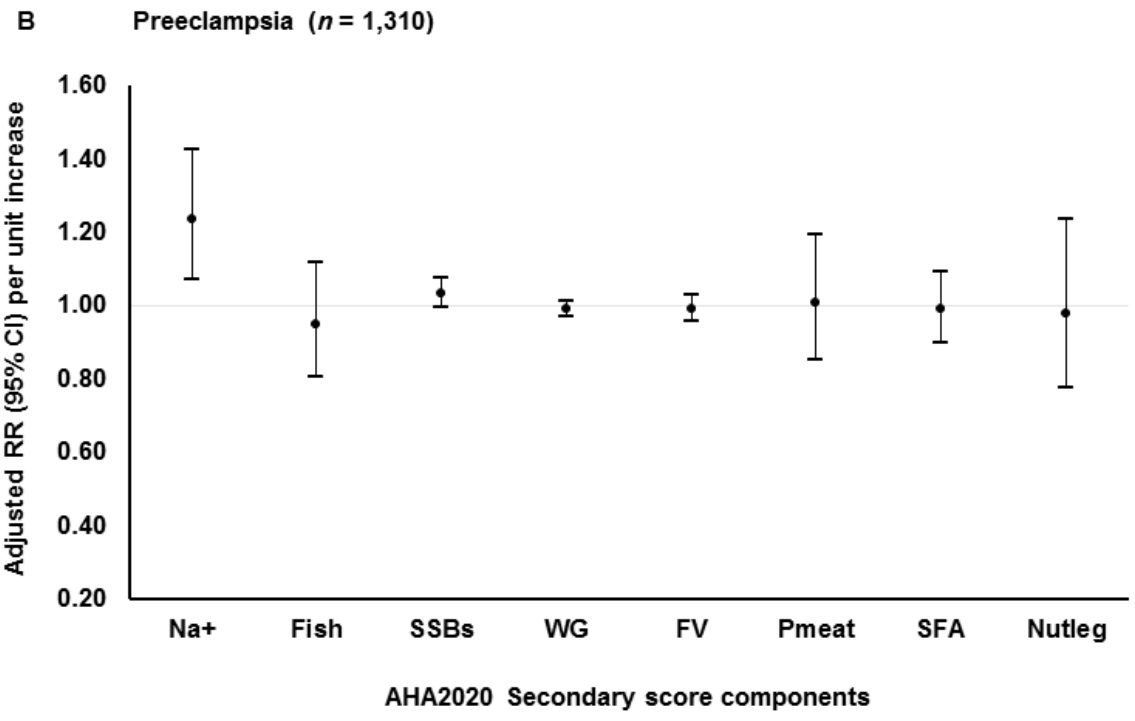



**SUPPLEMENTAL FIGURE 1** The Danish National Birth Cohort participant eligibility flowchart.

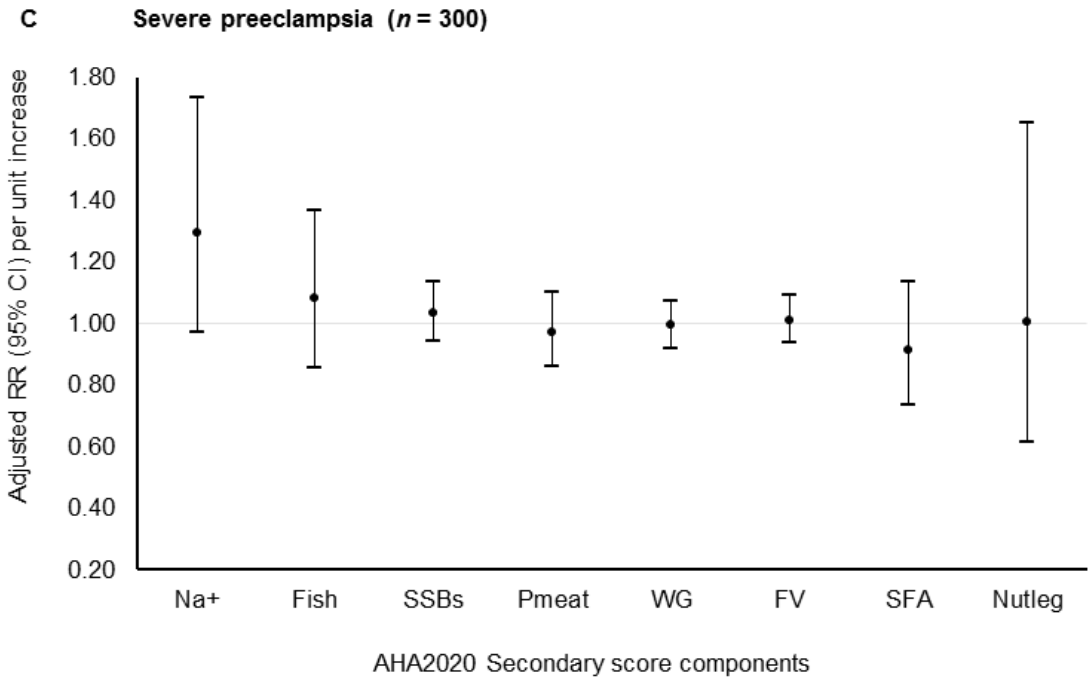
GHTN, gestational hypertension; HDPs, hypertensive disorders of pregnancy.

Supplementary data



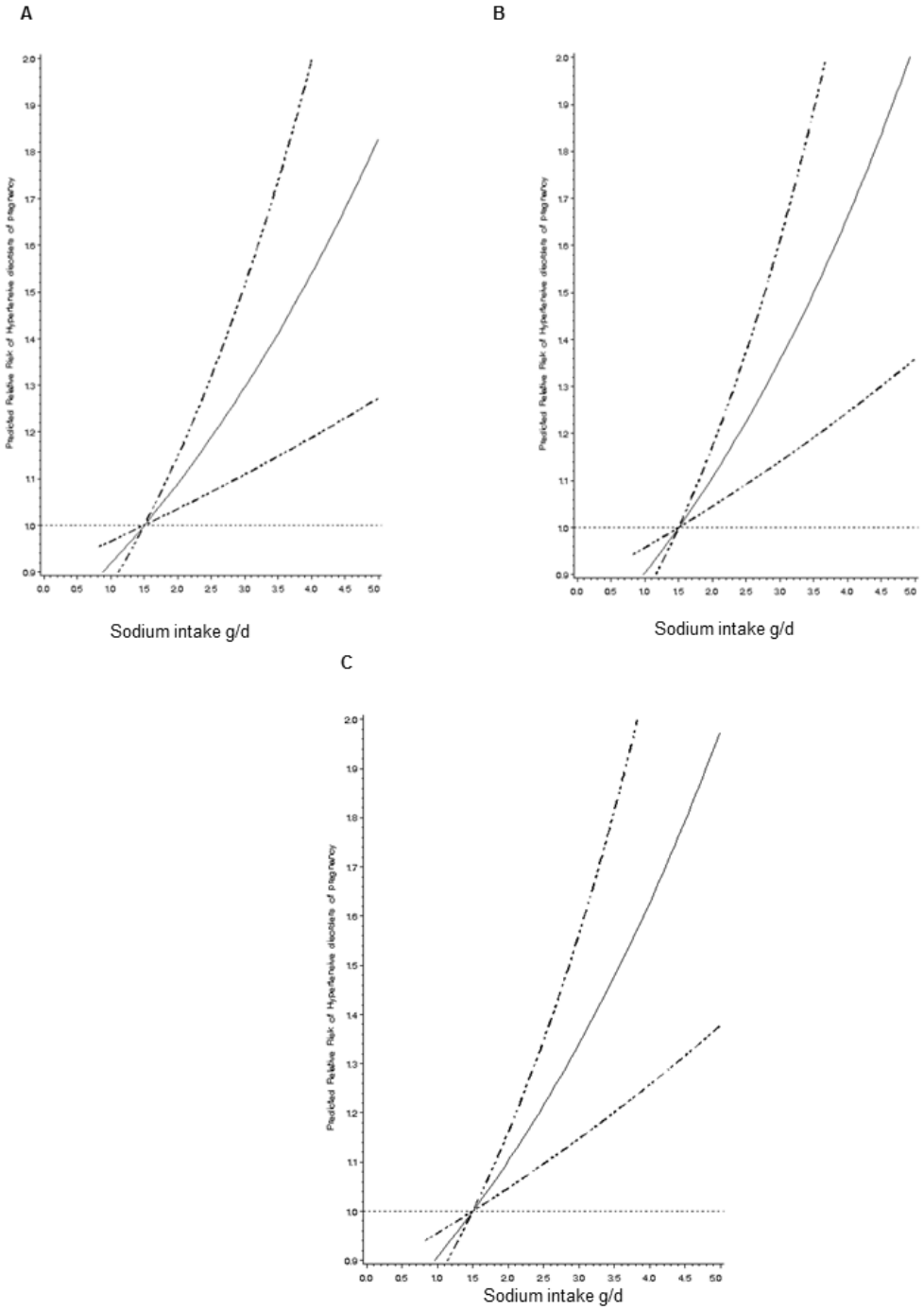
Supplementary data




**SUPPLEMENTAL FIGURE 2** Associations between individual components from the dietary recommendations of the AHA 2020 Impact Goals with the relative risk of preeclampsia, including severe preeclampsia, and GHTN ($n$ = 66,651 pregnancies). [1]Increase from the 10$^{th}$ to the 90$^{th}$ percentile for sodium intake was 1.13 g/d, for saturated fat increase of 5% E/d, and serving/day for the remaining components (fish, SSBs, WG, FV, Pmeat, SFA, and Nutleg)

AHA, American Heart Association; E, energy; GHTN, gestational hypertension; Na+, sodium; Nutleg, nuts and legumes; Pmeat, processed meat; SFA, saturated fatty acids; SSBs, sugar-sweetened beverages; WG, whole-grain.

Supplementary data




**SUPPLEMENTAL FIGURE 3** Association between sodium intake with the risk of HDPs while further adjusting for AHA scores and whole grain intake with the risk of HDPs.

(A) Multivariable model further adjusted for Whole grain (P-linearity = 0.0013). (B) Multivariable model further adjusted for AHA secondary individual components: SSBs, processed meats, saturated fat, nuts and legumes, whole grain, fish, and fruits and vegetables (P-linearity = 0.0003). (C) Further adjusted for AHA secondary score individual components: SSBs, processed meats, saturated fat, nuts and legumes, whole grain, fish, and fruits and vegetables (excluding sodium points) (P-linearity =0.0003). AHA, The American Heart Association; HDPs, hypertensive disorders of pregnancy; SSBs, sugar-sweetened beverages.

Supplementary data

## SUPPLEMENTARY DATA REFERENCES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