# Supplementary Results

**Reduced peanut sensitization with triple exposure to maternal peanut consumption, breastfeeding, and early peanut introduction (Azad et al.)**

### Table S1. Characteristics of dyads included in the current analysis compared to the full CHILD cohort.

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| **Variable** | **General CHILD Cohort****N=3264** | **Included in Current Analysis****N=2759** |
| **Study centre** |   |   |
| Edmonton | 765/3264 (23.4) | 628/2759 (22.8) |
| Toronto | 765/3264 (23.4) | 568/2759 (20.6) |
| Vancouver | 730/3264 (22.4) | 664/2759 (24.1) |
| Winnipeg | 1004/3264 (30.8) | 899/2759 (32.6) |
| **Sex (male)** | 1717/3264 (52.8) | 1458/2759 (52.6) |
| **Maternal ethnicity (White)** | 2339/3213 (74.7) | 2049/2743 (74.7) |
| **Maternal education (completed post-secondary degree)** | 2394/3133 (76.4) | 2082/2685 (77.5) |
| **Maternal age, years** | 32.3 (4.7) | 32.4 (4.6) |
| **Maternal peanut consumption** |  |  |
| Never or <1/month | 261/2976 (8.8) | 221/2586 (8.5) |
| Infrequent (1/month to <1/week) | 675/2976 (22.7) | 577/2586 (22.3) |
| Regular (at least 1/week) | 2040/2976 (68.5) | 1788/2586 (69.1) |
| **Breastfeeding initiation** | 3183/3262 (97.6) | 2699/2759 (98.0) |
| **Breastfeeding duration, months** | 10.4 (6.8) | 11.1 (6.8) |
| **Maternal Atopy & Allergy** |
| **Atopy**  |  |  |
|  Any allergen | 1729/2995 (57.7) | 1580/2724 (58.0) |
|  Peanut | 136/2992 (4.5) | 117/2721 (4.3) |
| **Food allergy (self-reported)** |  |  |
|  Any food | 688/3162 (21.8) | 605/2708 (22.3) |
|  Peanut | 70/3161 (2.2) | 62/2707 (2.3) |
| **Child Atopy & Allergy** |
| **Atopy (Any allergen)** |  |  |
|  1 year | 398/2924 (13.6) | 363/2712 (13.4) |
| 3 years | 379/2672 (14.2) | 356/2479 (14.4) |
|  5 years | 493/2546 (19.4) | 460/2369 (19.4) |
| **Atopy (Peanut)** |  |  |
|  1 year | 137/2919 (4.7) | 126/2708 (4.7) |
| 3 years | 106/2650 (4.0) | 100/2460 (4.1) |
|  5 years | 104/2505 (4.2) | 96/2328 (4.1) |
| **Probable Allergy (Peanut)\*** |  |  |
|  3 years | 46/2591 (1.8) | 46/2396 (1.9) |

Values are n/N (%) or mean (standard deviation).
Atopy defined by skin prick testing as: mean wheal diameter ≥2mm larger than the negative control.
\*Probable clinical IgE-mediated peanut allergy, defined as: sensitization to peanut, not consuming peanut at least once per month, and having a convincing history of signs or symptoms of an allergic reaction to peanut.

### Table S2. Peanut sensitization at 1, 3 and 5 years in the CHILD cohort, according to breastfeeding status and timing of peanut introduction.

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| **Peanut introduction** | **Peanut Sensitization** | **Probable Peanut Allergy** |
| **1 Year** **(N=2708)** | **3 Years** **(N=2460)** | **5 Years** **(N=2328)** | **3 Years(N=2396)** |
| **n/N (%)** | **aOR (95% CI)** | **n/N (%)** | **aOR (95% CI)** | **n/N (%)** | **aOR (95% CI)** | **n/N (%)** | **aOR (95% CI)** |
| Avoided >12 months | 101/1734 (5.8) | 1.00 (reference) | 82/1566 (5.2) | 1.00 (reference) | 86/1485 (5.8) | 1.00 (reference) | 40/1475 (2.6) | 1.00 (reference) |
| Introduced without BF | 10/437 (2.3) | 0.39 (0.19, 0.72)\* | 10/396 (2.5) | 0.48 (0.23, 0.89)\* | 7/373 (1.9) | 0.34 (0.14, 0.68)\* | 4/386 (1.0) | 0.44 (0.14, 1.07) |
| Introduced with BF | 15/537 (2.8) | 0.47 (0.26, 0.79)\* | 8/498 (1.6) | 0.33 (0.14, 0.61)\* | 3/470 (0.6) | 0.12 (0.03, 0.31)\* | 2/489 (0.4) | 0.19 (0.04, 0.53)\* |

BF, breastfeeding; aOR, adjusted odds ratio; CI, confidence interval. aORs are adjusted for maternal atopy and study site.
\*p<0.05 compared to reference group.

### Table S3. Peanut sensitization at 5 years in the CHILD cohort, according to breastfeeding status and timing of peanut introduction, with and without adjustment for breastfeeding duration. (N=2328)

|  |  |
| --- | --- |
| **Peanut Introduction** | **aOR (95%CI) for Peanut Sensitization at 5 years** |
| Basic Model | Adjusted for Breastfeeding Duration | Adjusted for age at Peanut Introduction |
| Avoided >12 months | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Introduced without BF | 0.34 (0.14, 0.68)\* | 0.32 (0.14, 0.66)\* | 0.19 (0.03, 1.25) |
| Introduced with BF | 0.12 (0.03, 0.31)\* | 0.13 (0.04, 0.33)\* | 0.07 (0.01, 0.58)\* |

BF, breastfeeding; aOR, adjusted odds ratio; CI, confidence interval. \*p<0.05 compared to the reference group.
Models are adjusted for maternal atopy and study site.

### Table S4. Peanut sensitization at 1, 3 and 5 years in the CHILD cohort, according to breastfeeding exposures or maternal peanut consumption, without accounting for infant peanut consumption. (N=2759)

|  |  |
| --- | --- |
|  | **OR (95%CI) for Peanut Sensitization at Age** |
| 1 year | 3 years | 5 years |
| **Breastfeeding (BF) Exposures** |  |  |  |
| Any BF at 3 months (yes vs. no) | 1.04 (0.63,1.84) | 0.91 (0.53,1.67) | 1.03 (0.58,1.98) |
| Exclusive BF at 3 months (yes vs. no) | 0.79 (0.55,1.14) | 0.93 (0.62,1.40) | 0.81 (0.54,1.22) |
| Any BF at 6 months (yes vs. no) | 0.95 (0.63,1.47) | 0.87 (0.55,1.41) | 0.87 (0.55,1.42) |
| Exclusive BF at 6 months (yes vs. no) | 1.22 (0.77,1.86) | 1.14 (0.67,1.83) | 0.99 (0.56,1.63) |
| Any BF at 12 months (yes vs. no) | 0.91 (0.64,1.30) | 0.90 (0.60,1.35) | 0.91 (0.60,1.36) |
| Duration of Any BF (per additional month) | 0.99 (0.97,1.02) | 0.99 (0.96,1.02) | 0.99 (0.96,1.02) |
| **Maternal Peanut Consumption** |  |  |  |
| Never or <1/month | 1.00 (reference) | 1.00 (reference) | 1.00 (reference) |
| Infrequent (1/month to <1/week) | 1.04 (0.48, 2.46) | 1.16 (0.54, 2.75) | 1.08 (0.50, 2.55) |
| Regular (at least 1/week) | 1.21 (0.62, 2.68) | 0.88 (0.44, 1.98) | 0.82 (0.41, 1.84) |

Values are unadjusted odds ratios (OR) and 95% confidence intervals. No significant associations at p<0.05.

### Table S5. Peanut sensitization at 5 years in the CHILD cohort, according to breastfeeding status and timing of introduction, stratified on maternal consumption.

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| **Peanut Introduction** | **Mother Never/Rarely Eats Peanut**(less than once per week)**N=665** | **Mother Regularly Eats Peanut**(at least once per week)**N=1511** |
| **n/N (%) Peanut Sensitization at 5 years** | **aOR (95%CI) Peanut Sensitization at 5 years** | **n/N (%) Peanut Sensitization at 5 years** | **aOR (95%CI) Peanut Sensitization at 5 years** |
| Avoided >12 months | 27/481 (5.6) | 1.00 (reference) | 54/903 (5.9) | 1.00 (reference) |
| Introduced without BF | 2/99 (2.0) | 0.45 (0.09, 1.44) | 3/252 (1.2) | 0.22 (0.06, 0.59)\*  |
| Introduced with BF | 2/85 (2.3) | 0.49 (0.10, 1.55) | 1/356 (0.3) | 0.07 (0.01, 0.25)\* |

BF, breastfeeding; OR, odds ratio; CI, confidence interval. Models are adjusted for maternal atopy and study site.
\*p<0.05 compared to reference group.

### Table S6. Sensitivity analyses for the association of peanut sensitization or allergy at 5 years with the timing of peanut introduction and breastfeeding in the CHILD cohort.

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| **Peanut Introduction** | **Peanut Sensitization** |
| Main analysis | Alternative cut-off for sensitization (≥3mm) | Alternative classification of exposure groups\* | Excluding mothers (n=62) with self-reported peanut allergy | Excluding infants (n=39) with diagnosed atopic dermatitis before 6 months |
| Avoided >12 months | 86/1485 (5.8) | 77/1485 (5.1) | 86/1485 (5.8) | 83/1439 (5.8) | 56/1009 (5.5) |
| Introduced without BF | 7/373 (1.9) | 5/373 (1.3) | 5/247 (2.0) | 7/366 (1.9) | 5/242 (2.1) |
| Introduced with BF | 3/470 (0.6) | 2/470 (0.4) | 5/596 (0.8) | 3/467 (0.6) | 3/302 (1.0) |

Values are n/N (%). BF, breastfeeding. \*Alternative classification for n=155 infants where we could not confirm if peanut introduction happened before or after breastfeeding cessation; see methods for details.

### Table S7. Sensitivity analysis omitting mothers with unclear peanut consumption: peanut sensitization at 5 years in the CHILD cohort, according to breastfeeding status and timing of introduction, stratified on maternal consumption.

|  |  |  |
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| **Peanut Introduction** | **Mother Probably Eats Peanut Regularly** (original analysis)**N=1511** | **Mother Definitely Eats Peanut Regularly**(sensitivity analysis)~**N=1181** |
| **n/N (%) Peanut Sensitization at 5 years** | **aOR (95%CI) Peanut Sensitization at 5 years** | **n/N (%) Peanut Sensitization at 5 years** | **aOR (95%CI) Peanut Sensitization at 5 years** |
| Avoided >12 months | 54/903 (5.9) | 1.00 (reference) | 41/664  (6.2) | 1.00 (reference) |
| Introduced without BF | 3/252 (1.2) | 0.22 (0.06, 0.59)\* |  2/219 (0.9) | 0.17 (0.03, 0.51)\* |
| Introduced with BF | 1/356 (0.3) | 0.07 (0.01, 0.25)\* |  1/298 (0.3) | 0.08 (0.008, 0.30)\* |

BF, breastfeeding; aOR, adjusted odds ratio; CI, confidence interval. Models are adjusted for maternal atopy and study site.
~n=330 mothers who responded “YES” to consuming “peanuts and other nuts and seeds” but “NO” to “peanut butter” were excluded. \*p<0.05 compared to reference group.

Eligible children with available data at beginning of study

(n=3455)

General CHILD cohort

(n=3264)

Children with complete data (n=2759)

**Avoided:**

Delayed peanut introduction until
at least 12 months
of age
(n=1767) (64.0%)

 **Early introduction
with BF:**Introduced peanut before 12 months and was breastfeeding at time of introduction

(n=545) (19.8%)

**Early introduction without BF**:
Introduced peanut before 12 months and was NOT breastfeeding at time of introduction

(n=447) (16.2%)

Children in CHILD vanguard cohort
(n=191)

Missing data on timing of peanut introduction, breastfeeding (BF) duration or peanut sensitization (n=505)

**Supplementary Figure 1.** CONSORT Diagram. Vanguard cohort was excluded because data collection tools were modified for the General cohort and essential data for the current analysis was not compatible