**Appendix Table 1. Energy-dense nutrient-poor food and beverages explored in the Euromonitor country reports and Nielsen grocery and convenience stores datasets**

|  |  |  |
| --- | --- | --- |
| **Foods and beverages specified in the Australian Dietary Guidelines\* as energy-dense nutrient-poor** | **Food and beverage product categories available in the Euromonitor or Nielsen datasets** | **Justification for foods and beverages not included in the analysis** |
| Cakes | Cakes |  |
| Biscuits | Sweet biscuits |  |
|  | Savoury biscuits |  |
| Pastries | Pastries |  |
| Pies | Pastries |  |
| Processed meats | Processed meats |  |
| Burgers |  | *Usually prepared from a number of ingredients, or purchased on-trade* |
| Pizzas | Frozen pizza |  |
| Fried foods | - | *Usually prepared from a number of ingredients, or purchased on-trade* |
| Potato chips | Potato chips |  |
| Crisps | Tortilla chips |  |
| Other savoury snacks | Frozen processed potato |  |
| Butter | - | *Not able to be identified as a stand-alone category in either dataset* |
| Cream | - | *Not able to be identified as a stand-alone category in either dataset* |
| High saturated fat spreads (aside from nut butters) | Chocolate spread |  |
| Confectionary | Sugar confectionery |  |
|  | Chocolate confectionery |  |
| Sugary soft drinks | Soft drinks |  |
| Sports drinks | Sports and energy drinks |  |
| Energy drinks | Sports and energy drinks |  |
| Vitamin waters | - | *Not able to be identified as a stand-alone category in either dataset* |
| Cordials | - | *Not able to be identified as a stand-alone category in either dataset* |
| Alcohol | - |  |
| Alcoholic drinks | - | *While alcoholic beverages provide energy and no other key nutrients in the diet, they were excluded from this analysis because they are purchased, consumed and regulated differently to other energy-dense nutrient-poor foods and beverages.* |
| **Energy dense nutrient poor foods or beverages not specified in the Australian Dietary Guidelines\*** | **Food and beverage product categories available in the Euromonitor or Nielsen datasets** | **Justification for inclusion in the analysis** |
|  | Ice cream | *Substantially contributes to daily energy intake of Australians (19)* |

**\* Guideline 3 of the Australian Dietary Guidelines was used to inform our selection of discretionary foods and beverages.(6)**

**Appendix Table 2. Sales (volume per capita) of energy-dense, nutrient-poor foods (between 2012 and 2017) and beverages (between 2011 and 2016) across major retail outlets in Australia**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Category (unit)** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **Annual change\* (95% CI)** | **Annual %-change^ (95% CI)** | **p-value** |
| **Energy dense nutrient poor foods (kg/capita)** | | | |  |  |  |  |  |  |  |
| **Sweet biscuits** |  | 4.48 | 4.48 | 4.32 | 4.22 | 4.39 | 4.50 | -0.01 (-0.09, 0.07) | -0.2% (-2.0, 1.6) | 0.784 |
| **Savoury biscuits** |  | 2.29 | 2.24 | 2.26 | 2.20 | 2.05 | 2.06 | -0.05 (-0.08, -0.02) | -2.2% (-3.5, -0.9) | 0.009 |
| **Processed meat** |  | 4.78 | 4.84 | 4.67 | 4.62 | 4.60 | 4.51 | -0.06 (-0.09, -0.03) | -1.3% (-2.0, -0.6) | 0.007 |
| **Frozen pizza** |  | 0.88 | 1.02 | 1.06 | 1.08 | 1.11 | 1.18 | 0.05 (0.03, 0.07) | 5.8% (3.2, 8.3) | 0.003 |
| **Frozen processed potatoes** |  | 2.67 | 2.69 | 2.78 | 2.81 | 2.89 | 2.99 | 0.06 (0.05, 0.08) | 2.4% (1.8, 3.0) | <0.001 |
| **Potato chips** |  | 1.75 | 1.72 | 1.80 | 1.86 | 2.00 | 2.12 | 0.08 (0.04, 0.12) | 4.5% (2.3, 6.7) | 0.005 |
| **Tortilla chips** |  | 0.58 | 0.63 | 0.64 | 0.65 | 0.67 | 0.69 | 0.02 (0.01, 0.03) | 3.4% (2.2, 4.6) | 0.001 |
| **Ice cream** |  | 8.29 | 8.56 | 9.07 | 8.84 | 8.96 | 9.08 | 0.14 (0.01, 0.27) | 1.7% (0.2, 3.2) | 0.037 |
| **Chocolate spreads** |  | 0.30 | 0.33 | 0.34 | 0.36 | 0.33 | 0.31 | 0.00 (-0.01, 0.02) | 1.1% (-3.6, 5.7) | 0.557 |
| **Sugar confectionery** |  | 3.34 | 3.34 | 3.37 | 3.37 | 3.37 | 3.37 | 0.01 (0.00, 0.01) | 0.2% (0.0, 0.4) | 0.024 |
| **Chocolate confectionery** |  | 4.19 | 4.28 | 4.40 | 4.45 | 4.50 | 4.54 | 0.07 (0.05, 0.09) | 1.7% (1.1, 2.2) | 0.001 |
| **Cakes** |  | 2.68 | 2.71 | 2.75 | 2.68 | 2.66 | 2.63 | -0.01 (-0.04, 0.01) | -0.5% (-1.4, 0.4) | 0.207 |
| **Pastries** |  | 1.83 | 1.94 | 2.11 | 2.17 | 2.22 | 2.28 | 0.09 (0.06, 0.12) | 5.0% (3.3, 6.6) | 0.001 |
| **Energy dense nutrient poor beverage (litres/capita)** | | | |  |  |  |  |  |  |  |
| **Sports and Energy Drinks** | 8.08 | 8.51 | 8.85 | 9.23 | 9.52 | 9.74 |  | 0.33 (0.29, 0.38) | 4.1% (3.5, 4.7) | <0.001 |
| **Soft drinks (Total)** | 79.35 | 78.10 | 76.49 | 74.50 | 72.23 | 69.55 |  | -1.96 (-2.32, -1.6) | -2.5% (-2.9, -2.0) | <0.001 |
| **Soft drink ­– Diet cola** | 22.40 | 22.44 | 22.65 | 22.66 | 22.65 | 22.27 |  | 0.00 (-0.12, 0.12) | 0.0% (-0.5, 0.5) | 1.00 |
| **Soft drink – Regular cola** | 25.87 | 25.01 | 23.33 | 21.66 | 19.94 | 18.30 |  | -1.56 (-1.75, -1.38) | -6.0% (-6.8, -5.3) | <0.001 |
| **Soft drink – Non-Cola** | 31.07 | 30.65 | 30.51 | 30.18 | 29.64 | 28.98 |  | -0.39 (-0.51, -0.28) | -1.3% (-1.7, -0.9) | 0.001 |

\* Average annual change (kg/capita for foods, litres/capita for beverages) was calculated using linear regression analyses  
^ Average annual percentage change was calculated by dividing the average absolute annual change by the sales observed in 2012 (foods) or 2011 (beverages)  
We have included the sign of negative values that round to -0.00 to ensure the significance of average annual changes over time is clear.

**Appendix Table 3. Volume of energy-dense, nutrient-poor food sub-categories sold, per capita, and average annual change over five years**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Category (unit)** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **Annual change\* (95% CI)** | **Annual %-change^ (95% CI)** | **p-value** |
| **Sweet biscuits (kg/capita)** |  |  |  |  |  |  |  |  |  |
| Chocolate coated biscuits | 1.25 | 1.24 | 1.12 | 1.05 | 1.07 | 1.07 | -0.04 (-0.07, -0.01) | -3.3% (-5.9, -0.8) | 0.021 |
| Cookies | 0.72 | 0.79 | 0.79 | 0.82 | 0.83 | 0.84 | 0.02 (0.01, 0.03) | 3.0% (1.4, 4.5) | 0.006 |
| Filled biscuits | 0.89 | 0.86 | 0.84 | 0.81 | 0.87 | 0.91 | 0.00 (-0.02, 0.03) | 0.5% (-2.6, 3.5) | 0.694 |
| Plain biscuits | 1.57 | 1.52 | 1.51 | 1.48 | 1.54 | 1.60 | 0.01 (-0.03, 0.04) | 0.4% (-1.7, 2.5) | 0.651 |
| Wafers | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.00 (0, 0.01) | 2.6% (-3.6, 8.8) | 0.311 |
| **Chocolate confectionery (kg/capita)** |  |  |  |  |  |  |  |  |  |
| Chocolate pouches and bags¥ | 0.55 | 0.55 | 0.60 | 0.60 | 0.61 | 0.61 | 0.01 (0.01, 0.02) | 2.6% (1.0, 4.1) | 0.01 |
| Boxed assortments | 0.54 | 0.53 | 0.51 | 0.50 | 0.50 | 0.51 | -0.01 (-0.01, -0.00) | -1.2% (-2.4, -0.0) | 0.049 |
| Chocolate with toys | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.00 (0.00, 0.00) | 6.0% (2.6, 9.4) | 0.008 |
| Countlines± | 0.99 | 1.00 | 1.02 | 1.04 | 1.06 | 1.09 | 0.02 (0.02, 0.02) | 2.0% (1.6, 2.5) | 0 |
| Seasonal chocolate | 0.21 | 0.21 | 0.22 | 0.23 | 0.24 | 0.25 | 0.01 (0.01, 0.01) | 4.3% (3.6, 4.9) | 0 |
| Tabletsα | 1.88 | 1.97 | 2.03 | 2.06 | 2.06 | 2.05 | 0.03 (0.01, 0.06) | 1.7% (0.3, 3.1) | 0.029 |
| **Sugar confectionery (kg/capita)** |  |  |  |  |  |  |  |  |  |
| Boiled sweets | 0.21 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | -0.00 (-0.01, -0.00) | -2.2% (-2.9, -1.6) | 0.001 |
| Liquorice | 0.24 | 0.24 | 0.26 | 0.27 | 0.28 | 0.27 | 0.01 (0.00, 0.01) | 3.7% (2.0, 5.5) | 0.004 |
| Lollipops | 0.04 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | -0.00 (-0.00, -0.00) | -7.1% (-10.2, -4.0) | 0.003 |
| Pastilles, Gums, Jellies and Chews | 2.23 | 2.24 | 2.27 | 2.28 | 2.28 | 2.29 | 0.01 (0.01, 0.02) | 0.6% (0.3, 0.8) | 0.005 |
| Toffees, Caramels and Nougat | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.33 | -0.00 (-0.00, -0.00) | -0.6% (-0.9, -0.4) | 0.002 |
| Other sugar confectionary (marshmallow, sherbet, sours, fairy floss, musk sticks) | 0.28 | 0.27 | 0.27 | 0.26 | 0.26 | 0.26 | -0.00 (-0.01, -0.00) | -1.3% (-2.2, -0.4) | 0.017 |
| **Ice cream (kg/capita)** |  |  |  |  |  |  |  |  |  |
| Frozen yoghurt | 0.33 | 0.34 | 0.32 | 0.28 | 0.29 | 0.32 | -0.01 (-0.02, 0.1) | -0.2% (-1.2, 0.7 | 0.27 |
| Impulse ice creams# | 0.59 | 0.57 | 0.59 | 0.58 | 0.58 | 0.58 | -0.00 (-0.01, 0.00) | -0.2 (-1.2, 0) | 0.520 |
| Take home dairy ice cream tub | 5.66 | 5.81 | 6.18 | 6.06 | 6.13 | 6.19 | 0.10 (0.01, 0.19) | 1.8% (0.2, 3.3) | 0.032 |
| Take home dairy ice cream deserts | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | -0.00 (-0.00, 0.00) | 0% (-0.8, 0.7) | 0.957 |
| Take home dairy ice cream multi-pack | 1.12 | 1.23 | 1.39 | 1.36 | 1.41 | 1.46 | 0.06 (0.03, 0.10) | 5.6% (2.3, 8.8) | 0.009 |
| Take home water-based ice creams | 0.50 | 0.53 | 0.50 | 0.47 | 0.46 | 0.45 | -0.01 (-0.02, -0.00) | -2.5% (-4.6, -0.4) | 0.029 |
| **Processed meat (kg/capita)** |  |  |  |  |  |  |  |  |  |
| Shelf-stable Red meat | 0.19 | 0.19 | 0.17 | 0.16 | 0.15 | 0.15 | -0.01 (-0.01, -0.01) | -5.4% (-7.5, -3.4) | 0.002 |
| Shelf-stable Poultry | 0.07 | 0.08 | 0.08 | 0.07 | 0.06 | 0.05 | -0.00 (-0.01, -0.00) | -6.2% (-12.4, -0.0) | 0.049 |
| Chilled processed Red meat | 3.33 | 3.35 | 3.15 | 3.08 | 3.05 | 2.99 | -0.08 (-0.11, -0.04) | -2.3% (-3.4, -1.3) | 0.003 |
| Chilled processed Poultry | 0.31 | 0.31 | 0.30 | 0.31 | 0.31 | 0.32 | 0.00 (-0.01, 0.00) | 0.6% (-0.2, 1.3) | 0.099 |
| Frozen processed Red meat | 0.07 | 0.06 | 0.04 | 0.03 | 0.03 | 0.03 | -0.01 (-0.01, -0.00) | -13.4% (-19.6, -7.1) | 0.004 |
| Frozen processed Poultry | 0.81 | 0.85 | 0.92 | 0.97 | 1.00 | 0.98 | 0.04 (0.02, 0.06) | 4.8% (2.5, 7.0) | 0.004 |

\* Average annual change (kg/capita for foods, litres/capita for beverages) was calculated using linear regression analyses  
^ Average annual percentage change was calculated by dividing the average absolute annual change by the sales observed in 2012 (foods) or 2011 (beverages)

¥ Includes chocolate or sugar-coated bagged products (typically with a solid centre, such as honeycomb or malted milk), selflines (which typically have a liquid or soft centre, such as cream or caramel), chocolate-coated candies and soft candies with a chocolate centre. Does not include Easter eggs (which are classified as seasonal chocolate).  
± Chocolate bars that are typically filled and un-segmented (not pre-cut) and eaten as snacks. Sold in a variety of formats, including multi-packs and fun-size. Also includes chocolate-coated cereal and muesli bars, except those that are nutritionally fortitied (which are classified as energy bars).

α Chocolate bars that are moulded and segmented. Some are filled with nuts or raisins, and they can be made from different types of chocolate (white, milk and dark). Sold in a variety of formats, including “family bars” and bite-size. This category includes tablets in countline format.  
# Dairy and water-based based single serve ice creams to eat immediately

We have included the sign of negative values that round to -0.00 to ensure the significance of average annual changes over time is clear.

**Appendix Table 4. The effect of season on unit sales of energy-dense, nutrient-poor foods and beverages in Australian grocery stores and convenience stores**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Average summer sales\* | Autumn effect |  | Winter effect |  | Spring effect |  |
|  | '000 units | '000 units (95% CI)) | p-value | ('000 units (95% CI)) | p-value | ('000 units (95% CI)) | p-value |
| **Sweet biscuits** | |  |  |  |  |  |  |
| Convenience | 974 | 177 (-54, 408) | 0.113 | 367 (132, 602) | 0.008 | 101 (-130, 333) | 0.335 |
| Grocery | 80821 | 4275 (-876, 9427) | 0.091 | 19535 (14294, 24775) | <0.001 | 12652 (7267, 18037) | 0.001 |
| **Savoury Biscuits** | | |  |  |  |  |  |
| Convenience | 259 | 59 (-31, 149) | 0.166 | -55 (-146, 37) | 0.202 | -22 (-112, 69) | 0.589 |
| Grocery | 64113 | -4921 (-8033, -1810) | 0.007 | -7317 (-10483, -4152) | 0.001 | -1489 (-4742, 1763) | 0.315 |
| **Chocolate confectionery** | | |  |  |  |  |  |
| Convenience | 12657 | 2039 (1318, 2759) | <0.001 | 3577 (2844, 4310) | <0.001 | 1392 (671, 2112) | 0.003 |
| Grocery | 136131 | 5603 (-379, 11585) | 0.062 | 43960 (37875, 50045) | <0.001 | 36902 (30649, 43155) | <0.001 |
| **Chocolate spread** | |  |  |  |  |  |  |
| Convenience | 18 | 5 (-1, 10) | 0.075 | 2 (-3, 7) | 0.388 | 0 (-5, 6) | 0.866 |
| Grocery | 3233 | 96 (-119, 312) | 0.325 | 502 (283, 721) | 0.001 | 715 (490, 940) | <0.001 |
| **Sugar confectionery** | | |  |  |  |  |  |
| Convenience | 6077 | 350 (-190, 891) | 0.169 | 616 (66, 1165) | 0.033 | 391 (-149, 931) | 0.131 |
| Grocery | 54594 | -343 (-3035, 2349) | 0.772 | 8438 (5700, 11177) | <0.001 | 7464 (4649, 10278) | <0.001 |
| **Frozen pizza** | |  |  |  |  |  |  |
| Convenience | 24 | -1 (-14, 12) | 0.842 | 2 (-12, 15) | 0.739 | 2 (-12, 15) | 0.774 |
| Grocery | 9510 | 1382 (700, 2064) | 0.002 | 1426 (732, 2119) | 0.002 | 1426 (713, 2138) | 0.002 |
| **Frozen processed potato** | | |  |  |  |  |  |
| Convenience | 7 | 2 (-2, 6) | 0.375 | 1 (-3, 6) | 0.484 | -1 (-5, 4) | 0.745 |
| Grocery | 17221 | 2008 (349, 3668) | 0.024 | 2643 (954, 4331) | 0.008 | 1618 (-117, 3353) | 0.063 |
| **Ice cream** | |  |  |  |  |  |  |
| Convenience | 8028 | -2921 (-3298, -2544) | <0.001 | -3069 (-3453, -2685) | <0.001 | -361 (-738, 17) | 0.058 |
| Grocery | 58584 | -11634 (-14353, -8915) | <0.001 | -20057 (-22822, -17291) | <0.001 | -8776 (-11618, -5934) | <0.001 |
| **Sports drinks** | |  |  |  |  |  |  |
| Convenience | 16027 | -810 (-1333, -287) | 0.008 | -782 (-1314, -250) | 0.01 | 900 (377, 1423) | 0.005 |
| **Energy drinks** | |  |  |  |  |  |  |
| Convenience | 6630 | -2572 (-3056, -2087) | <0.001 | -2958 (-3451, -2465) | <0.001 | -748 (-1233, -263) | 0.008 |
| **Total soft drinks** | | |  |  |  |  |  |
| Convenience | 26721 | -8559 (-12415, -4702) | 0.001 | -9237 (-13160, -5314) | 0.001 | -1014 (-4871, 2842) | 0.554 |
| **All cola soft drinks** | | |  |  |  |  |  |
| Convenience | 14184 | -2490 (-3308, -1672) | <0.001 | -3429 (-4261, -2598) | <0.001 | -1009 (-1827, -191) | 0.022 |
| **All non-cola soft drinks** | | |  |  |  |  |  |
| Convenience | 12537 | -6069 (-10255, -1882) | 0.011 | -5808 (-10066, -1549) | 0.015 | -5 (-4191, 4181) | 0.998 |

\* Average summer sales were calculated over three years (June 2014 to 2017 for convenience; November 2014 to 2017 for grocery). The autumn, winter and spring effects represent the average increase in ‘000 units sold in that season, compared to summer, for each energy-dense, nutrient-poor food and beverage item in Australian Grocery and Convenience stores over the three year period of 28-06-2014 to 25-06-2017 (Convenience stores) and 15-11-2014 to 12-11-2017 (Grocery stores).