Supplemental Table 1. Classification of commodity items in the Food Commodity Intake Database (FCID) to types of protein

|  |  |
| --- | --- |
| Types of protein | Commodity items in FCID |
| Beef | beef meat, dried beef meat, beef meat byproducts, beef fat, beef kidney and liver |
| Pork | pork meat, pork skin, pork meat byproducts, pork fat, pork kidney and liver |
| Lamb or goat | lamb meat, lamb meat byproducts, lamb fat, lamb kidney and liver, goat meat, goat meat byproducts, goat fat, goat kidney and liver |
| Chicken | Chicken, chicken liver, chicken meat byproducts, chicken skin |
| Turkey | Turkey meat, turkey liver, turkey meat byproducts, turkey meat byproducts turkey skin, turkey fat |
| All poultry | Includes all items from chicken, turkey, and other poultry (other poultry meat, other poultry liver, other poultry meat byproduct, other poultry fat, other poultry skin) |
| Fish and shellfish | freshwater Fish, freshwater farm raised Fish, saltwater Fish (tuna), other saltwater Fish, shellfish (crustacean), shellfish (mollusk) |
| Milk and milk products | milk fat, nonfat solid milk, milk water |
| Eggs | whole egg, egg white, egg yolk |
| Legumes | black bean, broad bean, cowpea, great northern bean, kidney bean, lima bean, mung bean, navy bean, pink bean, pinto bean, chickpea, chickpea flour, guar, lentil, dry pea, soybean, soybean products, pigeon pea, snapbean |
| Nuts and seeds | Almond, brazil nut, cashew, coconut, coconut dried, hazelnut, hickory nut, macademia nut, pecan, pine nut, pistachio, walnut, white walnut (butternut), peanut, peanut butter, water chestnut, alfara seed, coriander seed, dill seed, flax seed, sunflower seed, pumpkin seed |

Supplemental Table 2. Mean intake of types of protein in the overall study population, stratified by age, National Health and Nutrition Examination Survey 1999-2010, United States

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1999-2000 | 2001-2002 | 2003-2004 | 2005-2006 | 2007-2008 | 2009-2010 |  |
|  | (n=4,252) | (n=4,744) | (n=4,448) | (n=4,520) | (n=5,419) | (n=5,762) |  |
|  | Population mean intake in g/kg ± SE for the overall study population1 | *P-*trend |
|  | 20-<40 years of age |  |
| Beef | 0.80 ± 0.06 | 0.71 ± 0.05 | 0.75 ± 0.05 | 0.84 ± 0.04 | 0.72 ± 0.03 | 0.66 ± 0.03 | 0.06 |
| Pork | 0.42 ± 0.04 | 0.4 ± 0.03 | 0.37 ± 0.03 | 0.38 ± 0.03 | 0.33 ± 0.03 | 0.37 ± 0.02 | 0.04 |
| Lamb or goat | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.01 ± 0.01 | 0.03 ± 0.01 | 0.02 ± 0.01 | 0.51 |
| Chicken | 0.56 ± 0.04 | 0.60 ± 0.02 | 0.59 ± 0.04 | 0.64 ± 0.05 | 0.59 ± 0.03 | 0.62 ± 0.04 | 0.22 |
| Turkey | 0.11 ± 0.02 | 0.12 ± 0.02 | 0.14 ± 0.03 | 0.14 ± 0.02 | 0.15 ± 0.02 | 0.15 ± 0.02 | 0.06 |
| All poultry | 0.67 ± 0.04 | 0.73 ± 0.03 | 0.73 ± 0.05 | 0.77 ± 0.05 | 0.74 ± 0.04 | 0.76 ± 0.04 | 0.05 |
| Fish and shellfish | 0.23 ± 0.03 | 0.18 ± 0.02 | 0.21 ± 0.03 | 0.24 ± 0.04 | 0.21 ± 0.03 | 0.25 ± 0.03 | 0.30 |
| Milk and Milk products | 3.71 ± 0.17 | 3.92 ± 0.24 | 3.70 ± 0.22 | 3.59 ± 0.18 | 3.14 ± 0.19 | 3.19 ± 0.13 | <0.001 |
| Eggs | 0.32 ± 0.02 | 0.34 ± 0.03 | 0.32 ± 0.03 | 0.30 ± 0.02 | 0.33 ± 0.02 | 0.35 ± 0.03 | 0.54 |
| Legumes | 0.16 ± 0.02 | 0.16 ± 0.02 | 0.24 ± 0.04 | 0.25 ± 0.03 | 0.21 ± 0.04 | 0.21 ± 0.03 | 0.03 |
| Nuts and Seeds | 0.21 ± 0.02 | 0.21 ± 0.02 | 0.25 ± 0.02 | 0.23 ± 0.02 | 0.22 ± 0.03 | 0.24 ± 0.02 | 0.27 |
|  | 40- <65 years of age |  |
| Beef | 0.65 ± 0.05 | 0.63 ± 0.02 | 0.63 ± 0.03 | 0.62 ± 0.03 | 0.61 ± 0.03 | 0.61 ± 0.03 | 0.44 |
| Pork | 0.38 ± 0.02 | 0.35 ± 0.02 | 0.34 ± 0.02 | 0.35 ± 0.02 | 0.36 ± 0.02 | 0.38 ± 0.03 | 0.70 |
| Lamb or goat | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.03 ± 0.02 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.39 |
| Chicken | 0.42 ± 0.02 | 0.42 ± 0.03 | 0.43 ± 0.02 | 0.53 ± 0.04 | 0.54 ± 0.04 | 0.51 ± 0.04 | 0.001 |
| Turkey | 0.10 ± 0.01 | 0.10 ± 0.01 | 0.12 ± 0.02 | 0.10 ± 0.01 | 0.14 ± 0.01 | 0.13 ± 0.01 | 0.002 |
| All poultry | 0.53 ± 0.03 | 0.53 ± 0.03 | 0.55 ± 0.03 | 0.62 ± 0.04 | 0.68 ± 0.04 | 0.64 ± 0.04 | 0.001 |
| Fish and shellfish | 0.2 ± 0.02 | 0.22 ± 0.03 | 0.22 ± 0.03 | 0.26 ± 0.03 | 0.22 ± 0.01 | 0.28 ± 0.04 | 0.11 |
| Milk and Milk products | 3.35 ± 0.21 | 3.3 ± 0.14 | 2.97 ± 0.18 | 3.07 ± 0.18 | 3.02 ± 0.15 | 3.24 ± 0.1 | 0.39 |
| Eggs | 0.34 ± 0.03 | 0.31 ± 0.02 | 0.34 ± 0.02 | 0.35 ± 0.02 | 0.35 ± 0.01 | 0.31 ± 0.02 | 0.80 |
| Legumes | 0.25 ± 0.02 | 0.23 ± 0.03 | 0.27 ± 0.02 | 0.25 ± 0.02 | 0.26 ± 0.02 | 0.30 ± 0.03 | 0.14 |
| Nuts and Seeds | 0.22 ± 0.02 | 0.24 ± 0.02 | 0.23 ± 0.01 | 0.24 ± 0.02 | 0.23 ± 0.03 | 0.27 ± 0.02 | 0.20 |
|  | ≥65 years of age |  |
| Beef | 0.51 ± 0.03 | 0.47 ± 0.04 | 0.57 ± 0.04 | 0.51 ± 0.03 | 0.49 ± 0.04 | 0.50 ± 0.05 | 0.89 |
| Pork | 0.32 ± 0.02 | 0.29 ± 0.02 | 0.29 ± 0.02 | 0.29 ± 0.02 | 0.31 ± 0.02 | 0.34 ± 0.02 | 0.19 |
| Lamb or goat | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.01 ± 0.01 | 0.01 ± 0.01 | 0.01 ± 0.01 | 0.01 ± 0.01 | 0.33 |
| Chicken | 0.37 ± 0.04 | 0.35 ± 0.04 | 0.33 ± 0.03 | 0.36 ± 0.02 | 0.34 ± 0.03 | 0.36 ± 0.02 | 0.87 |
| Turkey | 0.08 ± 0.01 | 0.08 ± 0.01 | 0.10 ± 0.02 | 0.08 ± 0.01 | 0.10 ± 0.01 | 0.11 ± 0.02 | 0.06 |
| All poultry | 0.45 ± 0.04 | 0.44 ± 0.04 | 0.43 ± 0.03 | 0.44 ± 0.03 | 0.44 ± 0.03 | 0.47 ± 0.03 | 0.71 |
| Fish and shellfish | 0.21 ± 0.02 | 0.21 ± 0.01 | 0.23 ± 0.03 | 0.26 ± 0.04 | 0.18 ± 0.02 | 0.29 ± 0.03 | 0.06 |
| Milk and Milk products | 3.69 ± 0.2 | 3.49 ± 0.2 | 3.33 ± 0.09 | 3.69 ± 0.17 | 3.37 ± 0.08 | 3.27 ± 0.13 | 0.10 |
| Eggs | 0.33 ± 0.03 | 0.31 ± 0.03 | 0.34 ± 0.01 | 0.33 ± 0.03 | 0.33 ± 0.01 | 0.31 ± 0.02 | 0.78 |
| Legumes | 0.29 ± 0.02 | 0.31 ± 0.03 | 0.36 ± 0.05 | 0.36 ± 0.03 | 0.3 ± 0.02 | 0.26 ± 0.01 | 0.33 |
| Nuts and Seeds | 0.19 ± 0.01 | 0.20 ± 0.02 | 0.20 ± 0.02 | 0.20 ± 0.01 | 0.20 ± 0.02 | 0.21 ± 0.01 | 0.16 |

1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.

Supplemental Table 3. Mean intake of types of protein (g per 70 kg of body weight) in US adults (≥20 y), National Health and Nutrition Examination Survey 1999-2010

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1999-2000(n=4,252) | 2001-2002(n=4,744) | 2003-2004(n=4,448) | 2005-2006(n=4,520) | 2007-2008(n=5,419) | 2009-2010(n=5,762) |  |
|  |
|  | Population mean intake in g per 70 kg of body weight ± SE for the overall study population | *P*-trend |
| Beef | 48.4 ± 2.5 | 44.6 ± 1.6 | 46.6 ± 1.7 | 47.7 ± 1.4 | 43.9 ± 1.4 | 42.3 ± 1.7 | 0.08 |
| Pork | 26.8 ± 1.4 | 25.3 ± 1.2 | 23.9 ± 1.1 | 24.3 ± 0.9 | 23.8 ± 1.1 | 25.6 ± 1.2 | 0.47 |
| Lamb or goat | 0.9 ± 0.3 | 1.2 ± 0.4 | 1.3 ± 0.3 | 1.5 ± 0.6 | 1.4 ± 0.3 | 1.1 ± 0.2 | 0.51 |
| Chicken | 33.0 ± 1.3 | 33.8 ± 1.1 | 33.0 ± 1.4 | 37.7 ± 1.9 | 36.7 ± 1.8 | 36.6 ± 1.8 | 0.01 |
| Turkey | 6.9 ± 0.3 | 7.2 ± 0.5 | 8.7 ± 1.1 | 7.5 ± 0.5 | 9.3 ± 0.6 | 9.0 ± 0.5 | <0.001 |
| All poultry | 40.1 ± 1.3 | 41.4 ± 1.5 | 41.8 ± 1.7 | 45.2 ± 2.0 | 46.2 ± 2.2 | 45.7 ± 1.7 | <0.001 |
| Fish and shellfish | 15.1 ± 1.2 | 13.7 ± 1.1 | 15.2 ± 1.4 | 17.6 ± 1.6 | 14.6 ± 1.0 | 18.9 ± 1.5 | 0.03 |
| Milk and Milk products | 249.2 ± 10.2 | 250.9 ± 8.8 | 231.9 ± 9.1 | 236.4 ± 9.8 | 218.5 ± 8.9 | 225.8 ± 4.4 | 0.002 |
| Eggs | 23.0 ± 0.6 | 22.5 ± 0.6 | 23.2 ± 0.9 | 23.0 ± 0.6 | 23.5 ± 0.8 | 22.6 ± 0.9 | 0.91 |
| Legumes | 14.9 ± 1.0 | 14.9 ± 1.0 | 19.1 ± 1.5 | 18.9 ± 0.9 | 17.0 ± 1.4 | 18 ± 1.0 | 0.03 |
| Nuts and Seeds | 14.7 ± 0.9 | 15.2 ± 0.9 | 16.0 ± 0.8 | 16.0 ± 0.7 | 15.3 ± 1.2 | 17.2 ± 0.8 | 0.09 |
|  | Mean intake in g per 70 kg of body weight ± SE among consumers only | *P*-trend |
| Beef | 68.6 ± 2.6 | 66.9 ± 2.5 | 65.2 ± 2.0 | 68.6 ± 2.3 | 64.8 ± 1.2 | 63.9 ± 1.8 | 0.18 |
| Pork | 41.9 ± 1.9 | 40.9 ± 1.6 | 38.1 ± 1.7 | 39.2 ± 1.1 | 39.5 ± 1.5 | 44.5 ± 1.5 | 0.41 |
| Lamb or goat | 9.4 ± 2.9 | 14.4 ± 5.0 | 11.3 ± 2.6 | 15.6 ± 5.3 | 13.2 ± 2.4 | 12.4 ± 2.1 | 0.52 |
| Chicken | 74.6 ± 2.5 | 73.9 ± 1.8 | 67.1 ± 1.9 | 77.3 ± 2.3 | 73.4 ± 2.5 | 74.7 ± 2.7 | 0.53 |
| Turkey | 31.3 ± 1.4 | 29.4 ± 1.3 | 37.9 ± 3.8 | 31.3 ± 1.6 | 33.7 ± 1.0 | 34.6 ± 1.6 | 0.07 |
| All poultry | 81.8 ± 2.8 | 82.9 ± 2.2 | 79.3 ± 2.5 | 86.5 ± 2.4 | 86.4 ± 2.5 | 87.2 ± 2.4 | 0.02 |
| Fish and shellfish | 81.9 ± 4.4 | 84.2 ± 3.6 | 82.0 ± 4.4 | 87.9 ± 3.9 | 76.2 ± 2.7 | 90.4 ± 4.1 | 0.46 |
| Milk and Milk products | 254.4 ± 10.0 | 260.5 ± 9.4 | 234.8 ± 8.9 | 238.9 ± 9.6 | 221.3 ± 8.8 | 228.7 ± 4.5 | 0.001 |
| Eggs | 27.9 ± 0.9 | 27.6 ± 0.9 | 27.2 ± 1.1 | 27.5 ± 0.8 | 27.6 ± 0.9 | 27.6 ± 1.2 | 0.83 |
| Legumes | 23.4 ± 1.4 | 22.8 ± 1.5 | 26.1 ± 1.9 | 27.3 ± 1.2 | 24.9 ± 2.1 | 26.7 ± 1.3 | 0.09 |
| Nuts and Seeds | 19.5 ± 1.1 | 20.2 ± 1.2 | 20.7 ± 0.8 | 20.3 ± 0.9 | 19.6 ± 1.3 | 22.0 ± 1.0 | 0.28 |

1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.

Supplemental Table 4. Proportion of adults consuming different types of protein on a given day, stratified by age, National Health and Nutrition Examination Survey 1999-2010, United States

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1999-2000 | 2001-2002 | 2003-2004 | 2005-2006 | 2007-2008 | 2009-2010 |  |
|  | Percent of Consumers, %1 | *P*-trend |
|  | 20-<40 years of age |  |
| Beef | 74 | 68 | 71 | 72 | 70 | 68 | 0.14 |
| Pork | 65 | 63 | 62 | 62 | 57 | 56 | <0.001 |
| Lamb or goat | 10 | 8 | 10 | 8 | 9 | 7 | 0.13 |
| Chicken | 47 | 49 | 53 | 52 | 51 | 54 | 0.004 |
| Turkey | 24 | 28 | 24 | 26 | 26 | 27 | 0.39 |
| All poultry | 51 | 54 | 56 | 56 | 55 | 57 | 0.02 |
| Fish and shellfish | 19 | 14 | 18 | 17 | 19 | 19 | 0.18 |
| Milk and Milk products | 98 | 96 | 98 | 98 | 98 | 99 | 0.002 |
| Eggs | 82 | 81 | 84 | 84 | 85 | 83 | 0.11 |
| Legumes | 58 | 60 | 69 | 62 | 64 | 61 | 0.23 |
| Nuts and Seeds | 77 | 77 | 80 | 79 | 79 | 79 | 0.19 |
|  | 40-<65 years of age |  |
| Beef | 69 | 67 | 72 | 67 | 67 | 66 | 0.23 |
| Pork | 63 | 61 | 63 | 61 | 62 | 58 | 0.14 |
| Lamb or goat | 10 | 9 | 11 | 10 | 10 | 10 | 0.44 |
| Chicken | 44 | 44 | 49 | 47 | 51 | 48 | 0.02 |
| Turkey | 22 | 23 | 24 | 23 | 31 | 26 | 0.001 |
| All poultry | 50 | 48 | 52 | 51 | 55 | 52 | 0.08 |
| Fish and shellfish | 18 | 18 | 19 | 22 | 20 | 21 | 0.10 |
| Milk and Milk products | 98 | 97 | 99 | 99 | 99 | 99 | 0.004 |
| Eggs | 83 | 82 | 86 | 83 | 86 | 81 | 0.86 |
| Legumes | 67 | 66 | 74 | 71 | 69 | 70 | 0.07 |
| Nuts and Seeds | 76 | 76 | 77 | 79 | 79 | 78 | 0.11 |
|  | ≥65 years of age |  |
| Beef | 66 | 61 | 70 | 71 | 67 | 63 | 0.78 |
| Pork | 64 | 60 | 63 | 65 | 62 | 58 | 0.30 |
| Lamb or goat | 9 | 9 | 15 | 14 | 14 | 10 | 0.16 |
| Chicken | 36 | 41 | 42 | 45 | 44 | 41 | 0.10 |
| Turkey | 19 | 21 | 19 | 21 | 23 | 26 | 0.002 |
| All poultry | 42 | 45 | 47 | 48 | 47 | 46 | 0.22 |
| Fish and shellfish | 17 | 17 | 20 | 21 | 17 | 23 | 0.03 |
| Milk and Milk products | 98 | 95 | 100 | 100 | 100 | 99 | <0.001 |
| Eggs | 83 | 81 | 89 | 85 | 84 | 83 | 0.86 |
| Legumes | 72 | 77 | 81 | 80 | 77 | 76 | 0.50 |
| Nuts and Seeds | 70 | 69 | 72 | 77 | 74 | 78 | <0.001 |

1 Consumers are defined as those with more than 0 grams of reported intake of each protein food from the Food Commodity Intake Database.

Supplemental Table 5. Mean intake of types of protein by consumers only among US adults, stratified by age, National Health and Nutrition Examination Survey 1999-2010, United States

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1999-2000 | 2001-2002 | 2003-2004 | 2005-2006 | 2007-2008 | 2009-2010 |  |
|  | (n=4,252) | (n=4,744) | (n=4,448) | (n=4,520) | (n=5,419) | (n=5,762) |  |
|  | Mean intake in g/kg ± SE among consumers only1 | *P-*trend |
|  | 20-<40 years of age |  |
| Beef | 1.08 ± 0.06 | 1.04 ± 0.06 | 1.05 ± 0.06 | 1.16 ± 0.05 | 1.02 ± 0.03 | 0.96 ± 0.04 | 0.15 |
| Pork | 0.64 ± 0.04 | 0.64 ± 0.05 | 0.59 ± 0.03 | 0.61 ± 0.03 | 0.58 ± 0.04 | 0.65 ± 0.02 | 0.62 |
| Lamb or goat | 0.13 ± 0.07 | 0.2 ± 0.09 | 0.18 ± 0.06 | 0.18 ± 0.07 | 0.30 ± 0.09 | 0.21 ± 0.06 | 0.23 |
| Chicken | 1.17 ± 0.06 | 1.22 ± 0.06 | 1.10 ± 0.04 | 1.22 ± 0.06 | 1.14 ± 0.05 | 1.15 ± 0.06 | 0.6 |
| Turkey | 0.46 ± 0.03 | 0.43 ± 0.03 | 0.59 ± 0.09 | 0.51 ± 0.04 | 0.56 ± 0.04 | 0.53 ± 0.04 | 0.04 |
| All poultry | 1.30 ± 0.05 | 1.34 ± 0.05 | 1.3 ± 0.06 | 1.37 ± 0.06 | 1.34 ± 0.05 | 1.34 ± 0.05 | 0.60 |
| Fish and shellfish | 1.19 ± 0.09 | 1.25 ± 0.11 | 1.18 ± 0.11 | 1.36 ± 0.11 | 1.04 ± 0.08 | 1.27 ± 0.08 | 0.92 |
| Milk and Milk products | 3.78 ± 0.17 | 4.09 ± 0.25 | 3.76 ± 0.21 | 3.65 ± 0.17 | 3.19 ± 0.18 | 3.23 ± 0.13 | <0.001 |
| Eggs | 0.39 ± 0.02 | 0.41 ± 0.02 | 0.38 ± 0.03 | 0.36 ± 0.02 | 0.39 ± 0.02 | 0.41 ± 0.02 | 0.90 |
| Legumes | 0.26 ± 0.03 | 0.26 ± 0.03 | 0.34 ± 0.05 | 0.40 ± 0.04 | 0.32 ± 0.05 | 0.34 ± 0.04 | 0.04 |
| Nuts and Seeds | 0.27 ± 0.02 | 0.27 ± 0.02 | 0.30 ± 0.02 | 0.28 ± 0.03 | 0.28 ± 0.03 | 0.03 ± 0.02 | 0.41 |
|  | 40-<65 years of age |  |
| Beef | 0.94 ± 0.06 | 0.94 ± 0.03 | 0.88 ± 0.04 | 0.93 ± 0.04 | 0.91 ± 0.03 | 0.92 ± 0.04 | 0.81 |
| Pork | 0.6 ± 0.03 | 0.57 ± 0.03 | 0.54 ± 0.04 | 0.57 ± 0.03 | 0.58 ± 0.02 | 0.65 ± 0.04 | 0.24 |
| Lamb or goat | 0.11 ± 0.05 | 0.18 ± 0.07 | 0.2 ± 0.06 | 0.32 ± 0.15 | 0.17 ± 0.04 | 0.17 ± 0.03 | 0.53 |
| Chicken | 0.96 ± 0.04 | 0.95 ± 0.04 | 0.89 ± 0.03 | 1.11 ± 0.05 | 1.06 ± 0.05 | 1.06 ± 0.05 | 0.001 |
| Turkey | 0.44 ± 0.03 | 0.43 ± 0.03 | 0.52 ± 0.08 | 0.42 ± 0.04 | 0.44 ± 0.02 | 0.49 ± 0.02 | 0.33 |
| All poultry | 1.06 ± 0.04 | 1.09 ± 0.05 | 1.05 ± 0.04 | 1.23 ± 0.06 | 1.24 ± 0.05 | 1.24 ± 0.05 | <0.001 |
| Fish and shellfish | 1.14 ± 0.09 | 1.17 ± 0.06 | 1.16 ± 0.09 | 1.19 ± 0.1 | 1.13 ± 0.08 | 1.32 ± 0.14 | 0.36 |
| Milk and Milk products | 3.42 ± 0.2 | 3.4 ± 0.14 | 3 ± 0.18 | 3.1 ± 0.18 | 3.06 ± 0.15 | 3.28 ± 0.1 | 0.26 |
| Eggs | 0.42 ± 0.03 | 0.38 ± 0.02 | 0.39 ± 0.02 | 0.42 ± 0.02 | 0.4 ± 0.01 | 0.38 ± 0.02 | 0.77 |
| Legumes | 0.37 ± 0.03 | 0.35 ± 0.04 | 0.37 ± 0.03 | 0.35 ± 0.02 | 0.37 ± 0.03 | 0.43 ± 0.03 | 0.25 |
| Nuts and Seeds | 0.29 ± 0.03 | 0.31 ± 0.02 | 0.3 ± 0.02 | 0.31 ± 0.02 | 0.28 ± 0.03 | 0.34 ± 0.02 | 0.33 |
|  | ≥ 65 years of age |  |
| Beef | 0.78 ± 0.05 | 0.77 ± 0.06 | 0.82 ± 0.04 | 0.72 ± 0.04 | 0.74 ± 0.05 | 0.79 ± 0.05 | 0.75 |
| Pork | 0.49 ± 0.04 | 0.48 ± 0.03 | 0.46 ± 0.02 | 0.45 ± 0.03 | 0.5 ± 0.03 | 0.58 ± 0.03 | 0.05 |
| Lamb or goat | 0.18 ± 0.08 | 0.28 ± 0.12 | 0.06 ± 0.02 | 0.08 ± 0.03 | 0.06 ± 0.02 | 0.15 ± 0.04 | 0.19 |
| Chicken | 1.01 ± 0.08 | 0.85 ± 0.05 | 0.78 ± 0.05 | 0.8 ± 0.06 | 0.78 ± 0.03 | 0.87 ± 0.03 | 0.07 |
| Turkey | 0.44 ± 0.04 | 0.36 ± 0.04 | 0.51 ± 0.06 | 0.36 ± 0.04 | 0.43 ± 0.04 | 0.42 ± 0.04 | 0.91 |
| All poultry | 1.06 ± 0.07 | 0.97 ± 0.05 | 0.9 ± 0.06 | 0.92 ± 0.07 | 0.94 ± 0.04 | 1.02 ± 0.04 | 0.62 |
| Fish and shellfish | 1.18 ± 0.09 | 1.2 ± 0.07 | 1.17 ± 0.09 | 1.24 ± 0.17 | 1.09 ± 0.07 | 1.25 ± 0.08 | 0.82 |
| Milk and Milk products | 3.77 ± 0.21 | 3.66 ± 0.19 | 3.35 ± 0.09 | 3.7 ± 0.17 | 3.38 ± 0.08 | 3.31 ± 0.12 | 0.03 |
| Eggs | 0.4 ± 0.04 | 0.39 ± 0.04 | 0.39 ± 0.02 | 0.39 ± 0.03 | 0.39 ± 0.02 | 0.38 ± 0.02 | 0.75 |
| Legumes | 0.4 ± 0.03 | 0.4 ± 0.03 | 0.44 ± 0.06 | 0.46 ± 0.03 | 0.39 ± 0.03 | 0.35 ± 0.02 | 0.18 |
| Nuts and Seeds | 0.27 ± 0.02 | 0.29 ± 0.03 | 0.28 ± 0.02 | 0.26 ± 0.02 | 0.27 ± 0.02 | 0.27 ± 0.01 | 0.91 |

1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.

Supplemental Table 6. Mean intake of types of protein in US adults (≥20 y), stratified by sex, National Health and Nutrition Examination Survey 1999-2010, United States

|  |  |  |  |
| --- | --- | --- | --- |
|  | Men | Women |  |
|  | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 |  |
|  | (n=1,986) | (n=2,789) | (n=2,266) | (n=2,973) |  |
|  | Mean intake in g/kg ± SE1 | *P*-interaction |
| Beef | 0.84 ± 0.04 | 0.73 ± 0.03\*\* | 0.55 ± 0.04 | 0.49 ± 0.03 | 0.74 |
| Pork | 0.46 ± 0.02 | 0.46 ± 0.03 | 0.31 ± 0.02 | 0.28 ± 0.01\*\* | 0.52 |
| Lamb or goat | 0.02 ± 0.01 | 0.02 ± 0.005 | 0.01 ± 0.003 | 0.01 ± 0.003 | 0.41 |
| Chicken | 0.51 ± 0.03 | 0.58 ± 0.03\*\*\* | 0.44 ± 0.02 | 0.47 ± 0.03\* | 0.70 |
| Turkey | 0.12 ± 0.01 | 0.15 ± 0.01\* | 0.08 ± 0.01 | 0.11 ± 0.01\*\*\* | 0.14 |
| All Poultry | 0.63 ± 0.03 | 0.73 ± 0.03\*\*\* | 0.53 ± 0.02 | 0.58 ± 0.03\*\* | 0.72 |
| Fish and shellfish | 0.24 ± 0.02 | 0.28 ± 0.03 | 0.19 ± 0.02 | 0.26 ± 0.02 | 0.01 |
| Milk and Milk products | 3.60 ± 0.11 | 3.22 ± 0.09\*\* | 3.52 ± 0.22 | 3.24 ± 0.08 | 0.93 |
| Eggs | 0.33 ± 0.02 | 0.34 ± 0.02 | 0.32 ± 0.01 | 0.30 ± 0.01 | 0.01 |
| Legumes | 0.18 ± 0.02 | 0.24 ± 0.01\*\* | 0.25 ± 0.03 | 0.27 ± 0.02\*\* | 0.40 |
| Nuts and Seeds | 0.26 ± 0.02 | 0.25 ± 0.01 | 0.17 ± 0.03 | 0.24 ± 0.02 | 0.52 |

1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.

Asterisks indicate a statistical significance in trends in types of protein within a subgroup (\* *P* <0.05,\*\* *P*<0.01, \*\*\* *P*<0.001)

Supplemental Table 7. Mean intake of types of protein in US adults (≥20 y), stratified by education, National Health and Nutrition Examination Survey 1999-2010, United States

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | < high school　 | High school graduate | Some college　 | College graduate |  |
|  | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 |  |
|  | (n=1,641) | (n=1,634) | (n=961) | (n=1,316) | (n=955) | (n=1,624) | (n=681) | (n=1,175) |  |
|  | Mean intake in g/kg ± SE1 | *P*-interaction |
| Beef | 0.72 ± 0.04 | 0.67 ± 0.05 | 0.74 ± 0.06 | 0.69 ± 0.04 | 0.70 ± 0.05 | 0.60 ± 0.04 | 0.58 ± 0.06 | 0.49 ± 0.03 | 0.06 |
| Pork | 0.4 ± 0.03 | 0.41 ± 0.03 | 0.47 ± 0.04 | 0.44 ± 0.03 | 0.35 ± 0.03 | 0.37 ± 0.02 | 0.31 ± 0.03 | 0.27 ± 0.02 | 0.57 |
| Lamb or goat | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.01 ± 0.01 | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.64 |
| Chicken | 0.47 ± 0.03 | 0.56 ± 0.04\*\* | 0.43 ± 0.04 | 0.5 ± 0.04 | 0.5 ± 0.05 | 0.52 ± 0.04 | 0.5 ± 0.02 | 0.52 ± 0.04 | 0.91 |
| Turkey | 0.08 ± 0.01 | 0.11 ± 0.02\* | 0.08 ± 0.01 | 0.11 ± 0.01\* | 0.11 ± 0.02 | 0.15 ± 0.02 | 0.14 ± 0.02 | 0.14 ± 0.02 | 0.37 |
| All Poultry | 0.55 ± 0.04 | 0.68 ± 0.04\*\* | 0.51 ± 0.04 | 0.6 ± 0.04\* | 0.61 ± 0.06 | 0.67 ± 0.04 | 0.64 ± 0.03 | 0.66 ± 0.05 | 0.91 |
| Fish and shellfish | 0.22 ± 0.03 | 0.23 ± 0.03 | 0.18 ± 0.02 | 0.21 ± 0.03 | 0.21 ± 0.03 | 0.25 ± 0.03 | 0.27 ± 0.05 | 0.37 ± 0.04 | 0.21 |
| Milk and Milk products | 2.98 ± 0.12 | 2.82 ± 0.11 | 3.52 ± 0.23 | 3.38 ± 0.18 | 3.74 ± 0.36 | 3.22 ± 0.17 | 3.94 ± 0.22 | 3.39 ± 0.10\*\* | 0.11 |
| Eggs | 0.35 ± 0.02 | 0.33 ± 0.03 | 0.37 ± 0.04 | 0.31 ± 0.02 | 0.31 ± 0.02 | 0.34 ± 0.02 | 0.27 ± 0.03 | 0.31 ± 0.03 | 0.53 |
| Legumes | 0.21 ± 0.04 | 0.18 ± 0.03 | 0.18 ± 0.01 | 0.19 ± 0.02 | 0.21 ± 0.04 | 0.28 ± 0.02 | 0.27 ± 0.03 | 0.34 ± 0.03 | 0.57 |
| Nuts and Seeds | 0.21 ± 0.01 | 0.25 ± 0.02 | 0.17 ± 0.02 | 0.18 ± 0.01 | 0.21 ± 0.02 | 0.23 ± 0.03 | 0.27 ± 0.02 | 0.31 ± 0.02 | 0.004 |

 1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.

 Asterisks indicate a statistical significance in trends in types of protein within a subgroup (\* *P* <0.05,\*\* *P*<0.01, \*\*\* *P*<0.001)

Supplemental Table 8. Mean intake of types of protein in US adults (≥20 y), stratified by number of people in a household, National Health and Nutrition Examination Survey 1999-2010, United States

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | One person | Two person | Three and more |  |
|  | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 | 1999-2000 | 2009-2010 |  |
|  | (n=580) | (n=802) | (n=1,447) | (n=2,953) | (n=2,953) | (n=1,447) |  |
|  | Mean intake in g/kg ± SE1 | *P*-interaction |
| Beef | 0.43 ± 0.03 | 0.59 ± 0.06 | 0.7 ± 0.05 | 0.55 ± 0.03 | 0.75 ± 0.05 | 0.64 ± 0.02\*\* | 0.73 |
| Pork | 0.37 ± 0.04 | 0.35 ± 0.03 | 0.38 ± 0.03 | 0.36 ± 0.03 | 0.39 ± 0.03 | 0.37 ± 0.02 | 0.84 |
| Lamb or goat | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.02 ± 0.01 | 0.01 ± 0.01 | 0.01 ± 0.01 | 0.02 ± 0.01 | 0.44 |
| Chicken | 0.46 ± 0.03 | 0.49 ± 0.04 | 0.43 ± 0.03 | 0.44 ± 0.02 | 0.5 ± 0.03 | 0.58 ± 0.03\*\*\* | 0.49 |
| Turkey | 0.1 ± 0.01 | 0.13 ± 0.02 | 0.1 ± 0.01 | 0.13 ± 0.01 | 0.1 ± 0.01 | 0.13 ± 0.01\* | 0.55 |
| All Poultry | 0.55 ± 0.03 | 0.62 ± 0.05 | 0.53 ± 0.03 | 0.57 ± 0.02 | 0.6 ± 0.02 | 0.72 ± 0.04\*\*\* | 0.34 |
| Fish and shellfish | 0.19 ± 0.03 | 0.23 ± 0.03 | 0.19 ± 0.02 | 0.29 ± 0.03 | 0.24 ± 0.03 | 0.27 ± 0.03 | 0.35 |
| Milk and Milk products | 3.33 ± 0.26 | 3.43 ± 0.21 | 3.80 ± 0.27 | 3.05 ± 0.10\* | 3.45 ± 0.18 | 3.29 ± 0.08 | 0.21 |
| Eggs | 0.33 ± 0.03 | 0.31 ± 0.02 | 0.37 ± 0.03 | 0.32 ± 0.02 | 0.3 ± 0.01 | 0.33 ± 0.02 | 0.86 |
| Legumes | 0.23 ± 0.04 | 0.26 ± 0.04 | 0.22 ± 0.02 | 0.29 ± 0.02 | 0.2 ± 0.02 | 0.24 ± 0.03\*\* | 0.89 |
| Nuts and Seeds | 0.17 ± 0.02 | 0.21 ± 0.02 | 0.21 ± 0.02 | 0.27 ± 0.03 | 0.22 ± 0.02 | 0.24 ± 0.01 | 0.57 |

1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.

Asterisks indicate a statistical significance in trends in types of protein within a subgroup (\* *P* <0.05,\*\* *P*<0.01, \*\*\* *P*<0.001)

Supplemental Table 9. Mean intake of types of protein in US adults (≥20 y) from 2003 to 2010 when 2 days of dietary recalls are available, National Health and Nutrition Examination Survey

|  |  |  |
| --- | --- | --- |
|  | Average of two days of dietary recalls |  |
|  | 2003-2004(n=4,118) | 2005-2006(n=4,064) | 2007-2008(n=4,681) | 2009-2010(n=5,037) |  |
|  |
|  | Population mean intake in g/kg ± SE for the overall study population1 | *P*-trend |
| Beef | 0.66 ± 0.02 | 0.67 ± 0.01 | 0.62 ± 0.02 | 0.61 ± 0.02 | 0.03 |
| Pork | 0.35 ± 0.01 | 0.34 ± 0.01 | 0.33 ± 0.01 | 0.35 ± 0.01 | 0.95 |
| Lamb or goat | 0.02 ± 0.004 | 0.02 ± 0.004 | 0.02 ± 0.003 | 0.02 ± 0.003 | 0.22 |
| Chicken | 0.48 ± 0.02 | 0.52 ± 0.02 | 0.54 ± 0.02 | 0.55 ± 0.02 | 0.05 |
| Turkey | 0.12 ± 0.01 | 0.11 ± 0.005 | 0.13 ± 0.008 | 0.13 ± 0.005 | 0.51 |
| All poultry | 0.61 ± 0.02 | 0.63 ± 0.02 | 0.67 ± 0.03 | 0.68 ± 0.03 | 0.03 |
| Fish and shellfish | 0.23 ± 0.02 | 0.25 ± 0.02 | 0.22 ± 0.02 | 0.26 ± 0.02 | 0.53 |
| Milk and Milk products | 3.38 ± 0.13 | 3.39 ± 0.16 | 3.09 ± 0.14 | 3.26 ± 0.06 | 0.14 |
| Eggs | 0.34 ± 0.01 | 0.33 ± 0.01 | 0.33 ± 0.01 | 0.33 ± 0.01 | 0.28 |
| Legumes | 0.28 ± 0.02 | 0.26 ± 0.02 | 0.26 ± 0.02 | 0.29 ± 0.01 | 0.73 |
| Nuts and Seeds | 0.21 ± 0.008 | 0.22 ± 0.01 | 0.22 ± 0.02 | 0.25 ± 0.02 | 0.08 |
| % with only 1 day of dietary recall | 7.0 | 8.8 | 13.3 | 10.9 |  |

1 g/kg indicates grams of food per kilogram of body weight and SE indicates standard errors.