**Additional file 3: Detailed characteristics on all 81 studies included**

| **First author, year, country** | **Sample characteristics**  | **Study design**  | **Dietary assess-ment** | **Validity dietary assessment** | **Sub-groups** | **Dietary factor** | **Effect estimates** | **Statistical method,****Effect size** | **Selection bias** | **Quality Score** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Outcome: Fasting triglycerides** |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 47.9% | Cross- sectional; Cohort study | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | n.s.an.s.an.s.an.s.a | ANOVA,Mean  | No | 9 |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | BoysGirls | SSBSSB | n.s.an.s.a | Mixed linear regression models,% of change  | Unknown | 7 |
| Appannah et al. 2015, Australia[3] | n: 1163;age: 14, 17;female: 48.0% | Prospective cohort study | FFQ | Yes | BoysGirls | “Energy dense, high fat and low fiber dietary pattern”“Energy dense, high fat and low fiber dietary pattern” | n.s.n.s. | GEE, $β$-coefficient | Yes | 6 |
| Au et al. 2012, USA[4] | n: 148;age: 9-15;female: 58.8% | Cross-sectional | FFQ | Yes | no | SFAMUFAPUFACarbohydrates | n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | Yes | 3 |
| Bel-Serrat et al. 2014a, Multiple European Countries[5] | n: 454;age: 12.5-17.5;female: 56.0% | Cross-sectional | 24h recall | Yes | no | ProteinsCarbohydratesFat | n.s.n.s.-0.32\*\* | Multi-level regression,$β$-coefficient  | Unknown | 4 |
| Bel-Serrat et al. 2014b,Multiple European countries[6] | n: 454;age: 12.5-17.5;female: 56.0% | Cross - sectional | 24h recall | Yes | BoysGirls | AlanineGlycineIsoleucineLeucineValinePhenylalanineTryptophanTyrosineArginineHistidineLysineAsparagine acidsGlutamic acidSerineThreonineCysteineMethionineProlineAlanineGlycineIsoleucineLeucineValinePhenylalanineTryptophanTyrosineArginineHistidineLysineAsparagine acidsGlutamic acidSerineThreonineCysteineMethionineProline | -0.26\*-0.29\*n.s.n.s.n.s.n.s.n.s.n.s.-0.29\*-0.28\*-0.26\*-0.29\*n.s.-0.30\*n.s.n.s.n.s.n.s.-0.23\*-0.23\*-0.30\*\*-0.29\*-0.30\*\*-0.30\*-0.29\*-0.30\*\*-0.27\*-0.25\*-0.23\*-0.23\*-0.31\*-0.31\*-0.27\*-0.29\*-0.27\*-0.29\* | Multilevel linear regression,$β$-coefficient | Yes | 4 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | 0.47\*2.25\* | Linear regression,$β$-coefficient | No | 7 |
| Casazza et al. 2009b, USA[8] | n: 202;age: 7-12;female:47.03% | Cross-sectional | 24h recall | Unknown | no | FatCarbohydratesProteins | -0.20\*0.18\*n.s. | Multiple linear regression, Standardized$β$-coefficient  | Yes | 3 |
| Chan et al. 2014a, China[9] | n: 200;age: 12-16;female: 51.0% | Cross-sectional | FFQ | Unknown | no | SSB | significant a | Multiple linear regression, Multivariate adjusted difference | Unknown | 1 |
| Chan et al. 2014b, China[10] | n: 2727;age: 12-16;female: 51.3% | Cross-sectional | FFQ | Unknown | BoysGirls | SSB SSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 6 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17;female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1512 | DGI-CA | -0.003\* | Linear regression,$β$-coefficient  | Unknown | 7 |
| Day et al. 2009, USA[12] | n: 489;age: 8, 11, 14;female: 51.3% | Cross-sectional | FFQ | Yes | BoysGirls | FatFat | n.s. an.s. a | ANCOVA,Mean | Yes | 2 |
| Hong et al. 2009, South Korea[13] | n: 246;age: 12-13;female: 47.6% | Cross-sectional | Dietary record | Unknown | no | CarbohydratesProteinsFat | n.s.n.s.n.s. | Partial correlation analysis, Partial correlation coefficient | Unknown | 2 |
| Hur et al. 2012, USA[14] | n: 4928;age: 12-19;female: 49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. an.s. a | Multiple linear regression, Adjusted mean values | No | 8 |
| Kell et al. 2014, USA[15] | n: 320;age: 7-12;female: 46.9% | Cross-sectional | 24h recall | Unknown | no | Added sugarsFat | 0.11\*n.s. | Linear regression,$β$-coefficient | Unknown | 4 |
| Kosova et al. 2013, USA[16] | n: 4880;age: 3-11;female: 49.3% | Cross-sectional | 24h recall | Unknown | Age 3-5(n:468)Age 6-8(n:560)Age 9-11(n:576) | SSBSSBSSB | n.s.n.s.n.s. | Linear regression, Adjusted $β$-coefficient  | No | 9 |
| Kuzawa et al. 2003, Philippines[17] | n: 608age: 14-16;female: 50.7% | Prospective cohort study | 24h recall | Unknown | BoysGirls | Fat Fat  | n.s.n.s. | Partial correlation coefficiens, Partial correlation coefficient | Yes | 3 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | FiberSoluble fiberInsoluble fiber | n.s.n.s.n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Michels et al. 2015, Multiple European countries[19] | n: 387;age: 12.5-17.5;female: n.a. | Cross-sectional | FFQ | No | no | Ready to eat cereals | n.s. a | Linear regression, Estimated marginal means | Yes | 1 |
| Nobre et al. 2013, Brazil[20] | n: 227;age: 4-5;female: n.a. | Cross-sectional | FFQ | No | no | “Mixed dietary pattern“ (representing a typical Brazilian diet) | n.s. a | Multivariate poisson regression, Adjusted prevalence ratios | Unknown | 1 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age: 10-16;female: n.a. | Cross-sectional | 24h recall | Unknown | no | “Rice-rich non-animal fat pattern”“Wheat-dense animal-fat pattern” | n.s.n.s. | Linear regression, $β$-% | Unknown | 2 |
| Rinaldi et al. 2012, Brazil[22] | n: 147;age: 4-11female: 51.7% | Cross-sectional | 24h recall | Yes | no | Dairy products (full fat)CarbohydratesProteinsSFAFatMUFAPUFACholesterolFiberCerealsMeatLegumesVegetablesFruitsSugar, sweet foodOils and fats | n.s.n.s.n.s.n.s.0.17\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression,$β$-coefficient  | Yes | 3 |
| Royo-Bordonada et al. 2003, Spain[23] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | “Dietary variety index” | n.s. | Partial correlation analysis, Partial correlation coefficient | No | 7 |
| Royo-Bordonada et al. 2006, Spain[24] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | SFA | n.s. a | T-test, Mean | Yes | 7 |
| Sanchez-Bayle et al. 2008, Spain[25] | n: 673;age: 6;female: 47.7% | Cross-sectional | 24h recall | Unknown | no | FatSFAMUFAPUFACarbohydratesProteins | positive\*\* an.s. an.s. an.s. anegative\* an.s. a | ANOVA, Differences in means | Unknown | 3 |
| Scaglioni et al. 2004, Italy[26] | n: 105;age: 8;female: 41.0% | Cross-sectional | FFQ; 24h recall | Unknown | no | High pasta, low red meat vs. Low pasta, high red meat | n.s. | Mann-Whitney U test, Mean | Unknown | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ; 24h recall | No | no | SSB vs. milk, vs. other beverages | n.s.a | General linear model, Mean differences | Unknown | 6 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | CarbohydratesWhite riceCarbohydrates White rice  | n.s. an.s. an.s. an.s. a | Multivariate linear regression, Quartiles | No | 8 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Takada et al. 1998, Japan[30] | n: 457;age: 10;female: 45.1% | Cross-sectional | FFQ | No | no | “Japanese diet score” | n.s. | Multiple linear regression, $β$-coefficient  | Unknown | 0 |
| Van Rompay et al. 2015, USA[31] | n: 613;age: 8-15;female: n.a. | Cross-sectional | FFQ | No | no | SSB  | n.s. a | Linear regression and ANCOVA, Adjusted least square means | Yes | 6 |
| Vyncke et al. 2013, Multiple European Countries[32] | n: 552;age: 12.5-17.5;female: 52.0% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-A DQI-A  | n.s.n.s. | Multilevel regression models, $β$-coefficient | Yes | 2 |
| Wajid et al. 1995, Kashmir[33] | n: 314;age: 5-14;female: 46.2% | Cross-sectional | Dietary history | Unknown | no | Fat | n.s. a | Pearson correlation, Mean | Unknown | 1 |
| Wang et al. 2013, Canada[34] | n: 548;age: 8-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | SSB | n.s. | Multivariate linear regression analysis, $β$-coefficient | Yes | 4 |
| Washi & Ageib 2010, Saudi Arabia[35] | n: 239;age: 13-18;female: 53.1% | Cross-sectional | FFQ | Unknown | no | CarbohydratesSFA | 8.76\*7.27\* | Chi-2-Test, Chi-2-Value | Yes | 2 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.2% | Cross-sectional | FFQ | Unknown | n: 1266 | Yoghurt | n.s. a | Multivariate linear regression, Least square means | Unknown | 6 |
|  | **Outcome: Total cholesterol** |
| Akerblom et al. 1984, Finland[37] | n: 233;age: 12;female: 46.4% | Cross-sectional | 24h recall | No | no | FA | positive\*\* a | T-tests,Mean difference | No | 3 |
| Altwaiji et al. 2009, USA[38] | n: 678;age: 8-18;female: 49.1% | Prospective cohort study | FFQ | Yes | BoysGirls | CholesterolCholesterol | 0.01\*n.s. | Multilevel regression models,$β$-coefficient | Yes | 3 |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 47.9% | Cross –sectional; Cohort study | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | n.s. an.s. an.s. apositive\* a | ANOVA,Mean | No | 9 |
| Beck et al. 2014, Brazil[39] | n: 660;age: 14-19;female: 52.0% | Cross-sectional | 24h recall | No | no | LipidsSFACholesterol Fiber | n.s.n.s.n.s.n.s. | Linear and multiple regression, $β$-coefficient | No | 7 |
| Bel-Serrat et al. 2014a, Multiple European Countries[5] | n: 454;age: 12.5-17.5;female: 56.0% | Cross-sectional | 24h recall | Yes | no | ProteinsCarbohydratesFat | n.s.n.s.n.s. | Multi-level regression,$β$-coefficient  | Unknown | 4 |
| Bel-Serrat et al. 2014b,Multiple European countries[6] | n: 454;age: 12.5-17.5;female: 56.0% | Cross-sectional | 24h recall | Yes | BoysGirls | AlanineGlycineIsoleucineLeucineValinePhenylalanineTryptophanTyrosineArginineHistidineLysineAsparagine acidsGlutamic acidSerineThreonineCysteineMethionineProlineAlanineGlycineIsoleucineLeucineValinePhenylalanineTryptophanTyrosineArginineHistidineLysineAsparagine acidsGlutamic acidSerineThreonineCysteineMethionineProline | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.-0.10\*-0.10\*n.s.n.s.-0.10\*n.s.n.s.n.s.-0.11\*-0.09\*-0.08\*-0.10\*n.s.n.s.-0.10\*-0.11\*n.s.n.s. | Multilevel linear regression, $β$-coefficient | Yes | 4 |
| Boulton et al. 1995, Australia[40] | n: 134age: 1, 2, 8, 11, 13, 15;female: 42.5% | Prospective study | Dietary record | Unknown | BoysGirls | ProteinsSugarStarchFatSFAMUFAPUFAFiberProteinsSugarStarchFatSFAMUFAPUFAFiber | n.s.n.s.n.s.-0.24\*n.s.-0.27\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Correlation analysis, Correlation coefficient | Yes | 3 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 7 |
| Chan et al. 2014a, China[9] | n: 200;age: 12-16;female: 51.0% | Cross-sectional | FFQ | Unknown | no | SSB | n.s. a | Multiple linear regression, Multivariate adjusted difference | Unknown | 1 |
| Chan et al. 2014b, China[10] | n: 2727;age: 12-16;female: 51.3% | Cross-sectional | FFQ | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient  | No | 6 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14; 17female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1479 | DGI-CA | n.s. | Linear regression,$β$-coefficient | Unknown | 7 |
| Day et al. 2009, USA[12] | n: 489;age: 8, 11, 14;female: 51.3% | Cross-sectional | FFQ | Yes | BoysGirls | FatFat | n.s. a n.s. a | ANCOVA,Mean | Yes | 2 |
| Franko et al. 2010, USA[41] | n: 2371;age: 9-19;female: 100.0% | Prospective cohort study | Dietary record |  Yes | Girls | Cereals | negative\* a | Mixed regression models,Mean | Yes | 8 |
| Fukushima et al. 1999, Japan[42] | n: 514;age: 10-15;female: 49.2% | Cross-sectional | FFQ | Unknown | no | FishSoybeanMeatMilkEggsVegetablesSeaweedOil | n.s.n.s.n.s.n.s.n.s.0.24\*n.s.n.s. | Correlation analysis, Correlation coefficient | Unknown | 3 |
| Hong et al. 2009, South Korea[13] | n: 246;age: 12-13;female: 47.6% | Cross-sectional | Dietary record | Unknown | no | CarbohydratesProteinsFat | n.s.n.s.n.s. | Partial correlation analysis, Partial correlation coefficient | Unknown | 2 |
| Hur et al. 2012, USA[14] | n: 4928;age: 12-19;female:49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. an.s. a | Multiple linear regression, Adjusted mean values | No | 8 |
| Kell et al. 2014, USA[15] | n: 320;age: 7-12;female: 46.9% | Cross-sectional | 24h recall | Unknown | no | Added sugarsDietary fat | n.s.n.s. | Linear regression,$β$-coefficient | Unknown | 4 |
| Kosova et al. 2013, USA[16] | n: 4880;age: 3-11;female: 49.3% | Cross-sectional | 24h recall | Unknown | Age 3-5(n: 1153)Age 6-8(n: 1284)Age 9-11(n: 1355) | SSBSSBSSB | n.s.n.s.n.s. | Linear regression, Adjusted $β$-coefficient  | No | 9 |
| Kuzawa et al. 2003, Philippines[17] | n:608age: 14-16;female: 50.66% | Prospective cohort study | 24h recall | Unknown | BoysGirls | Fat Fat | n.s.n.s. | Partial correlation coefficient | Yes | 3 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | FiberSoluble fiberInsoluble fiber | n.s.n.s.n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Llyod et al. 1998, USA[43] | n: 86;age: 16.5-17.5;female: 100.0% | Cross-sectional | Dietary record | Unknown | Girls | Fruits | n.s. | Multiple regression,$β$-coefficient  | No | 4 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age:10-16;female: n.a. | Cross-sectional | 24h recall |  | Rural (n: n.a.)Urban(n: n.a.) | “Rice-rich non-animal fat pattern”“Wheat-dense animal-fat pattern”“Wheat-dense animal-fat pattern” | n.s.3.7\*n.s. | Linear regression, $β$-% |  | 2 |
| Rinaldi et al. 2012, Brazil[22] | n: 147;age: 4-11female: 51.7% | Cross-sectional | 24h recall | Yes | no | Dairy products (full fat)CarbohydratesProteinsSFAFatMUFAPUFACholesterolFiberCerealsMeatLegumesVegetablesFruitsSugar, sweet foodOils and fats | 0.36\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression,$β$-coefficient  | Yes | 3 |
| Royo-Bordonada et al. 2003, Spain[23] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | “Dietary variety index” | n.s. | Partial correlation analysis, Partial correlation coefficient | No | 7 |
| Royo-Bordonada et al. 2006, Spain[24] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | SFA | n.s. a | T-test, Mean | Yes | 5 |
| Sanchez-Bayle et al. 2008, Spain[25] | n: 673;age: 6;female: 47.7% | Cross-sectional | 24h recall | Unknown | no | FatSFAMUFAPUFACarbohydratesProteins | positive\*\*\* apositive\*\*\* apositive\*\*\* an.s. apositive\*\*\* an.s. a | ANOVA, Differences in means | Unknown | 3 |
| Scaglioni et al. 2004, Italy[26] | n: 105;age: 8;female: 41.0% | Cross-sectional | FFQ;24h recall | Unknown | no | High pasta, low red meat vs. Low pasta, high red meat | n.s. | Mann-Whitney U test, Mean | Unknown | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ, 24h recall | No | no | SSB; vs. milk vs. other beverages | n.s.a | General linear model, Mean differences | Unknown | 6 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Takada et al. 1998, Japan[30] | n: 457;age: 10;female: 45.1% | Cross-sectional | FFQ | No | no | “Japanese diet score” | n.s. | Multiple linear regression, $β$-coefficient  | Unknown | 0 |
| Truthmann et al. 2012, Germany[44] | n: 5198;age: 12-17;female: 49.1% | Cross-sectional | FFQ | Yes | Boys (n: 2634)Girls(n: 2104) | HFDHuSKYIFIF &V IndexHFDHuSKYIFIF & V Index | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | No | 10 |
| Vyncke et al. 2013, Multiple European Countries[32] | n: 552;age: 12.5-17.5;female: 52.0% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-A DQI-A  | -0.00061\*n.s. | Multilevel regression models, $β$-coefficient | Yes | 2 |
| Wajid et al. 1995, Kashmir[33] | n: 314;age: 5-14;female: 46.2% | Cross-sectional | Dietary history | Unknown | no | Fat | positive\* a | Pearson correlation, Mean | Unknown | 1 |
| Washi & Ageib 2010, Saudi Arabia[35] | n: 239;age: 13-18;female: 53.1% | Cross-sectional | FFQ | Unknown | no | Carbohydrates | 6.82\* | Chi-2-Test, Chi-2-Value | Yes | 2 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.2% | Cross-sectional | FFQ | Unknown | n: 3272 | Yoghurt | n.s. a | Linear regression, Least square means | Unknown | 6 |
|  | **Outcome: HDL-cholesterol** |
| Akerblom et al. 1984, Finland[37] | n: 233;age: 12;female: 46.4% | Cross-sectional | 24h recall | No | no | SFASucrose | positive \*\* anegative\*\*\*a | T-tests,Mean difference | No | 3 |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 47.9% | Cross-sectional | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | positive \* an.s. an.s. an.s. a | ANOVA,Mean | No | 9 |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | Boys(n:587)Girls(n:537) | SSBSSB | n.s. an.s. a | Mixed linear regression,% of change  | Unknown | 7 |
| Appannah et al. 2015, Australia[3] | n: 1163;age: 14;17;female: 48.0% | Prospective cohort study | FFQ | Yes | BoysGirls | “Energy dense, high fat and low fibre dietary pattern”“Energy dense, high fat and low fibre dietary pattern” | n.s.0.02\* | GEE, $β$-coefficient | Yes | 6 |
| Au et al. 2012, USA[4] | n: 148;age: 9-15;female: 58.8% | Cross-sectional | FFQ | Yes | no | SFAMUFAPUFACarbohydrates | n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | Yes | 3 |
| Beck et al. 2014, Brazil[39] | n: 660;age: 14-19;female:52.0% | Cross-sectional | 24h recall | No | no | LipidsSFACholesterolFiber | n.s.n.s.n.s.n.s. | Linear and multiple regression, $β$-coefficient | No | 7 |
| Bel-Serrat et al. 2014a, Multiple European Countries[5] | n: 454;age: 12.5-17.5;female: 56.0% | Cross-sectional | 24h recall | Yes | no | ProteinsCarbohydratesFat | n.s.-0.19\*\*n.s. | Multi-level regression,$ β$-coefficient  | Unknown | 4 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | -0.35\*-0.73\* | Linear regression,$β$-coefficient | No | 7 |
| Boreham et al. 1999, Northern Ireland[45] | n: 454;age: 12-15;female: 50.7% | Longitudinal cohort study | Dietary history | Unknown | Girls | CarbohydratesCholesterol Fat | -0.22\*-0.09\*-0.21\* | GEE,$β$-coefficient | No | 4 |
| Casazza et al. 2009b, USA[8] | n: 202;age: 7-12;female: 47.0% | Cross-sectional | 24h recall | Unknown | no | FatCarbohydratesProteins | n.s.n.s.n.s. | Linear regression, Standardized$ β$-coefficient  | Yes | 3 |
| Chan et al. 2014a, China[9] | n: 200;age: 12-16;female: 51.0% | Cross-sectional | FFQ | Unknown | no | SSB | n.s. a | Multiple linear regression, Multivariate adjusted difference | Unknown | 1 |
| Chan et al. 2014b, China[10] | n: 2727;age: 12-16;female: 51.3% | Cross-sectional | FFQ | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 6 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17; female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1479 | DGI-CA | n.s. | Linear regression,$β$-coefficient | Unknown | 7 |
| Day et al. 2009, USA[12] | n: 489;age: 8, 11, 14;female: 51.3% | Cross-sectional | FFQ | Yes | BoysGirls | FatFat | n.s. an.s. a | ANCOVA,Mean | Yes | 2 |
| Franko et al. 2010, USA[41] | n: 2371;age: 9-19;female: 100.0% | Prospective cohort study | Dietary record | Yes | Girls | Cereals  | n.s. a | Mixed regression models,Mean | Yes | 8 |
| Hong et al. 2009, South Korea[13] | n: 246;age: 12-13;female: 47.6% | Cross-sectional | Dietary record | Unknown | no | CarbohydratesProteinsFat | n.s.n.s.n.s. | Partial correlation analysis, Partial correlation coefficient | Unknown | 2 |
| Hur et al. 2012, USA[14] | n: 4928;age: 12-19;female: 49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. a n.s. a | Multiple linear regression, Adjusted mean values | No | 8 |
| Kell et al. 2014, USA[15] | n:320;age: 7-12;female: 46.9% | Cross-sectional | 24h recall | Unknown | no | Added sugarsFat | n.s.n.s. | Linear regression,$β$-coefficient | Unknown | 4 |
| Kosova et al. 2013, USA[16] | n: 4880;age: 3-11;female: 49.3% | Cross-sectional | 24h recall | Unknown | Age 3-5(n: 1151)Age 6-8(n: 1284)Age 9-11(n: 1354) | SSBSSBSSB | n.s.n.s.-0.95\*\*\* | Linear regression, Adjusted $β$-coefficient  | No | 9 |
| Kuzawa et al. 2003, Philippines[17] | n: 608age: 14-16;female: 50.6% | Prospective cohort study | 24h recall | Unknown | BoysGirls | FatFat | n.s.0.13\* | Partial correlation coefficiens | Yes | 3 |
| Lin et al. 2014, Multiple European countries[18] | n:1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | FiberSoluble fiberInsoluble fiber | n.s.n.s.n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Llyod et al. 1998, USA[43] | n: 86;age: 16.5-17.5;female: 100.0% | Cross-sectional | Dietary record | Unknown | Girls | Fruits | n.s. | Multiple regression,$β$-coefficient  | No | 4 |
| Michels et al. 2015, Multiple European countries[19] | n: 387;age: 12.5-17.5;female: n.a. | Cross-sectional | FFQ | No | no | Ready to eat cereals | n.s. a | Linear regression, Estimated marginal means | Yes | 1 |
| Nobre et al. 2013, Brazil[20] | n: 227;age: 4-5;female: n.a. | Cross-sectional | FFQ | No | no | “Mixed dietary pattern“ (representing a typical Brazilian diet) | n.s. a | Multivariate poisson regression, Adjusted prevalence ratios | Unknown | 1 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age: 10-16;female: n.a. | Cross-sectional | 24h recall |  | no | “Rice-rich non-animal fat pattern”“Wheat-dense animal-fat pattern” | n.s.n.s. | Linear regression, $β$-% |  | 2 |
| Rinaldi et al. 2012, Brazil[22] | n: 147;age: 4-11female: 51.7% | Cross-sectional | 24h recall | Yes | no | Dairy products (full fat)CarbohydratesProteinsSFAFatMUFAPUFACholesterolFiberCerealsMeatLegumesVegetablesFruitsSugar, sweet foodOils and fats | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression,$ β$-coefficient  | Yes | 3 |
| Royo-Bordonada et al. 2003, Spain[23] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | “Dietary variety index” | n.s. | Partial correlation analysis, Partial correlation coefficient | No | 7 |
| Royo-Bordonada et al. 2006, Spain[24] | n:1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | SFA | n.s. a | T-test, Mean | Yes | 5 |
| Sanchez-Bayle et al. 2008, Spain[25] | n: 673;age: 6;female: 47.7% | Cross-sectional | 24h recall | Unknown | no | FatSFAMUFAPUFACarbohydratesProteins | positive\* anegative\* apositive\* an.s. an.s. an.s. a | ANOVA, Differences in means | Unknown | 3 |
| Scaglioni et al. 2004, Italy[26] | n: 105;age: 8;female: 41.0% | Cross-sectional | FFQ; 24h recall | Unknown | no | High pasta, low red meat vs. Low pasta, high red meat | n.s. | Mann-Whitney U test, Mean | Unknown | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ; 24h recall | No | no | SSB vs. milk, vs. other beverages | n.s.a | General linear model, Mean differences | Unknown | 6 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | Carbohydrates White riceCarbohydratesWhite rice  | n.s. an.s. anegative\* anegative\*\*\*a | Multivariate linear regression, Quartiles | No | 8 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Takada et al. 1998, Japan[30] | n: 457;age: 10;female: 45.1% | Cross-sectional | FFQ | No | no | “Japanese diet score” | n.s. | Multiple linear regression,$β$-coefficient  | Unknown | 0 |
| Truthmann et al. 2012, Germany[44] | n: 5198;age: 12-17;female: 49.1% | Cross-sectional | FFQ | Yes | Boys Girls | HFDHuSKYIFIF & V IndexHFDHuSKYIFIF & V Index | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression, $β$-coefficient  | No | 10 |
| Van Rompay et al. 2015, USA[31] | n: 613;age: 8-15;female: n.a. | Cross-sectional | FFQ | No | no | SSB  | n.s. a | Linear regression and ANCOVA, Adjusted least square means | Yes | 6 |
| Vyncke et al. 2013, Multiple European Countries[32] | n: 552;age: 12.5-17.5;female: 52.0% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-A DQI-A  | n.s.n.s. | Multilevel regression models, $β$-coefficient | Yes | 2 |
| Wajid et al. 1995, Kashmir[33] | n: 314;age: 5-14;female: 46.2% | Cross-sectional | Dietary history | Unknown | no | Fat | n.s. a | Pearson correlation, Mean | Unknown | 1 |
| Wang et al. 2013, Canada[34] | n: 548;age: 8-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | SSB | n.s. | Multivariate linear regression analysis, $β$-coefficient | Yes | 4 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | n: 3272 | Yoghurt | n.s. a | Multivariate linear regression, Least square means | Unknown | 6 |
|  | **Outcome: LDL-cholesterol** |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 47.9% | Cross-sectional | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | n.s. an.s. an.s. an.s. a | ANOVA,Mean  | No | 9 |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | Boys(n: 587)Girls(n: 537) | SSBSSB | n.s. an.s. a | Linear regression,% of change | Unknown | 7 |
| Appannah et al. 2015, Australia[3] | n: 1163;age: 14-17;female: 48.0% | Prospective cohort study | FFQ | Yes | BoysGirls | “Energy dense, high fat and low fiber dietary pattern”“Energy dense, high fat and low fiber dietary pattern” | n.s.n.s. | GEE, $β$-coefficient | Yes | 6 |
| Au et al. 2012, USA[4] | n:148;age: 9-15;female: 58.8% | Cross-sectional | FFQ | Yes | no | SFAMUFAPUFACarbohydrates | n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | Yes | 3 |
| Bel-Serrat et al. 2014a, Multiple European Countries[5] | n: 454;age: 12.5-17.5;female: 56.0% | Cross-sectional | 24h recall | Yes | no | ProteinsCarbohydratesFat | n.s.n.s.n.s. | Multi-level regression,$β$-coefficient  | Unknown | 4 |
| Bel-Serrat et al. 2014b,Multiple European countries[6] | n: 454;age: 12.5-17.5;female: 56.0% | Cross- sectional | 24h recall | Yes | BoysGirls | AlanineGlycineIsoleucineLeucineValinePhenylalanineTryptophanTyrosineArginineHistidineLysineAsparagine acidsGlutamic acidSerineThreonineCysteineMethionineProlineAlanineGlycineIsoleucineLeucineValinePhenylalanineTryptophanTyrosineArginineHistidineLysineAsparagine acidsGlutamic acidSerineThreonineCysteineMethionineProline | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.-0.14\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.-0.14\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multilevel linear regression,$β$-coefficient | Yes | 4 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 7 |
| Chan et al. 2014a, China[9] | n: 200;age: 12-16;female: 51.0% | Cross-sectional | FFQ | Unknown | no | SSB | n.s. a | Multiple linear regression, Multivariate adjusted difference | Unknown | 1 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17 female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1547 | DGI-CA | n.s. | Linear regression,$β$-coefficient  | Unknown | 7 |
| Day et al. 2009, USA[12] | n: 489;age: 8, 11, 14;female: 51.3% | Cross-sectional | FFQ | Yes | BoysGirls | FatFat | n.s. an.s. a | ANCOVA,Mean | Yes | 2 |
| Franko et al. 2010, USA[41] | n: 2371;age: 9-19;female: 100.0% | Prospective cohort study | Dietary record | Yes | Girls | Cereal consumption | negative\* a | Mixed regression models, Mean | Yes | 8 |
| Hur et al. 2012, USA[14] | n: 4928;age: 12-19;female: 49.8% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. an.s. a | Multiple linear regression, Adjusted mean values | No | 8 |
| Kell et al. 2014, USA[15] | n: 320;age: 7-12;female: 46.9% | Cross-sectional | 24h recall | Unknown | no | Added sugarsDietary fat | n.s.n.s. | Linear regression,$β$-coefficient | Unknown | 4 |
| Kosova et al. 2013, USA[16] | n: 4880;age: 3-11;female: 49.3% | Cross-sectional | 24h recall | Unknown | Age 3-5(n: 467)Age 6-8(n: 558)Age 9-11(n: 574) | SSBSSBSSB | 1.64\*n.s.n.s. | Linear regression, Adjusted$β$-coefficient  | No | 9 |
| Kuzawa et al. 2003, Philippines[17] | n: 608age: 14-16;female: 50.7% | Prospective cohort study | 24h recall | Unknown | BoysGirls | FatFat | 0.13\*n.s. | Partial correlation coefficiens | Yes | 3 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | Dietary fiberWSFWIF | n.s.0.03\*n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Michels et al. 2015, Multiple European countries[19] | n: 387;age: 12.5-17.5;female: n.a. | Cross-sectional | FFQ | No | no | Ready to eat cereals | n.s. a | Linear regression, Estimated marginal means | Yes | 1 |
| Nobre et al. 2013, Brazil[20] | n:227;age: 4-5;female: n.a. | Cross-sectional | FFQ | No | no | “Mixed dietary pattern“ (representing a typical Brazilian diet) | negative\*\* a | Multivariate poisson regression, Adjusted prevalence ratios | Unknown | 1 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age: 10-16;female: n.a. | Cross-sectional | 24h recall |  | Rural(n: n.a.)Urban(n: n.a.) | Rice-rich non-animal fat patternWheat-dense animal-fat patternWheat-dense animal-fat pattern | n.s.8.4\*n.s. | Linear regression, $β$-% |  | 2 |
| Rinaldi et al. 2012, Brazil[22] | n: 147;age: 4-11female: 51.7% | Cross-sectional | 24h recall | Yes | no | Full fat dairy productsCarbohydratesProteinsSFAFatMUFAPUFACholesterol intakeFiberCerealsMeatLegumesVegetablesFruitsSugar, sweet foodOils and fats | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression,$β$-coefficient  | Yes | 3 |
| Royo-Bordonada et al. 2003, Spain[23] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | Dietary variety index | n.s. | Partial correlation analysis, Partial correlation coefficient | No | 7 |
| Royo-Bordonada et al. 2006, Spain[24] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | SFA | positive\* a | T-test, Mean | Yes | 5 |
| Sanchez-Bayle et al. 2008, Spain[25] | n: 673;age: 6;female: 47.7% | Cross-sectional | 24h recall | Unknown | no | FatSFAMUFAPUFACarbohydratesProteins | positive\*\*\* apositive\*\*\* anegative\*\*\* an.s. anegative\*\*\* an.s. a | ANOVA, Differences in means | Unknown | 3 |
| Scaglioni et al. 2004, Italy[26] | n: 105;age: 8;female: 41.0% | Cross-sectional | FFQ; 24h recall | Unknown | no | High pasta, low red meat vs. Low pasta, high red meat | n.s. a | Mann-Whitney U test, Mean | Unknown | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ; 24h recall | No | no | SSB; vs. milk, vs. other beverages | n.s.a | General linear model, Mean differences | Unknown | 6 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study  | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Takada et al. 1998, Japan[30] | n: 457;age: 10;female: 45.1% | Cross-sectional | FFQ | No | no | Japanese diet score | -0.95\* | Multiple linear regression, $β$-coefficient  | Unknown | 0 |
| Vyncke et al. 2013, Multiple European Countries[32] | n: 552;age: 12.5-17.5;female: 52.0% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-A DQI-A  | n.s.n.s. | Multilevel regression models, $β$-coefficient | Yes | 2 |
| Wajid et al. 1995, Kashmir[33] | n: 314;age: 5-14;female: 46.2% | Cross-sectional | Dietary history | Unknown | no | Fat | n.s. a | Pearson correlation, Mean | Unknown | 1 |
| Washi & Ageib 2010, Saudi Arabia[35] | n: 239;age: 13-18;female: 53.1% | Cross-sectional | FFQ | Unknown | no | Fat | 13.43\* | Chi-2-Test, Chi-2-Value | Yes | 2 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | n: 1265 | Yoghurt | n.s. a | Multivariate linear regression, Least square means | Unknown | 6 |
|  | **Outcome: Fasting insulin** |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 47.9% | Cross-sectional | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | n.s. an.s. an.s. an.s. a | ANOVA,Mean | No | 9 |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | Boys(n: 564)Girls(n: 519) | SSBSSB | n.s. an.s. a | Linear regression,% of change | Unknown | 7 |
| Appannah et al. 2015, Australia[3] | n: 1163;age: 14-17;female: 48.0% | Prospective cohort study  | FFQ | Yes | BoysGirls | “Energy dense, high fat and low fiber dietary pattern”“Energy dense, high fat and low fiber dietary pattern” | 3.0\*3.0\* | GEE, $β$-coefficient (%) | Yes | 6 |
| Casazza et al. 2009a, USA[46] | n: 250;age: 7-12;female: 48.9% | Cross-sectional | 24h recall | Yes | no | FatCarbohydratesProteinsSugarfiber intake SFAMUFAPUFA | n.s.-0.10\*n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression, Standardized parameter estimate | Unknown | 3 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14; 17 female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1479 | DGI-CA | -0.03\* | Linear regression,$β$-coefficient | Unknown | 7 |
| Cook et al. 2014, USA[47] | n: 175;age: 8-18;female: 68.6% | Cross-sectional | 24h recall | Yes | no | VegetablesNo starchy vegetablesNutrient rich vegetables | n.s. an.s. an.s. a | ANOVA, Mean | Yes | 3 |
| Hur et al. 2012, USA[14] | n: 4928;age:12-19;female: 49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | significant anegative\* a | Multiple linear regression, Adjusted mean values | No | 8 |
| Jimenez-Pavon et al. 2013, Multiple European countries[48] | n: 637;age: 12.5-17.5;female: 54.5% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-ADQI-A | n.s.n.s. | Multiple linear regression, Standardized$β$-coefficient  | Unknown | 2 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | Dietary fiberWSFWIF | n.s.n.s.n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Michels et al. 2015, Multiple European countries[19] | n: 387;age: 12.5-17.5;female: n.a. | Cross-sectional | FFQ | No | no | Ready to eat cereals | n.s. a | Linear regression, Estimated marginal means | Yes | 1 |
| Scaglioni et al. 2004, Italy[26] | n: 105;age: 8;female: 41.0% | Cross-sectional | FFQ; 24h recall | Unknown | no | High pasta, low red meat vs. Low pasta, high red meat | significant a | Mann-Whitney U test, Mean | Unknown | 2 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | CarbohydratesWhite riceCarbohydratesWhite rice | n.s. a n.s. an.s. apositive\*\* a | Linear regression, Quartiles | No | 8 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Wang et al. 2013, Canada[34] | n: 457;age: 8-10;female: n.a. | Prospective cohort study | 24h recall | Unknown | no | Added sugars (solid sources)Added sugars (liquid sources) | n.s.2.26\*\* | Linear regression,$β$-coefficient | Yes | 4 |
| White et al. 2012, USA[49] | n: 774;age: 16-17;female: 100.0% | Prospective cohort study | Dietary record | Unknown | no | SFAMUFAPUFACarbohydratesSucroseStarchSoluble fiberInsoluble fiber | n.s.n.s.-0.84\*n.s.n.s.n.s.n.s.n.s. | Multiple linear regression, $β$-coefficient | Yes | 5 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | n: 913 | Yoghurt | negative\*\*\* a | Linear regression, Least square means | Unknown | 6 |
|  | **Outcome: Fasting glucose** |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 47.9% | Cross-sectional | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | negative\* an.s. anegative\* an.s. a | ANOVA,Mean | No | 9 |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | Boys(n: 587)Girls(n: 537) | SSBSSB | n.s. an.s. a | Linear regression,% of change | Unknown | 7 |
| Appannah et al. 2015, Australia[3] | n: 1163;age: 14-17;female: 48.0% | Prospective cohort study | FFQ | Yes | BoysGirls | “Energy dense, high fat and low fiber dietary pattern”“Energy dense, high fat and low fiber dietary pattern” | 0.04\*n.s. | GEE,$β$-coefficient | Yes | 6 |
| Casazza et al. 2009b, USA[8] | n: 202;age: 7-12;female: 47.0% | Cross-sectional | 24h recall | Unknown | no | FatCarbohydratesProteins | -0.36\*0.49\*-0.43\* | Linear regression, Standardized$β$-coefficient  | Yes | 3 |
| Chan et al. 2014b, China[10] | n: 2727;age: 12-16;female: 51.3% | Cross-sectional | FFQ | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 6 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17;female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1478 | DGI-CA | n.s. | Linear regression,$β$-coefficient | Unknown | 7 |
| Cook et al. 2014, USA[47] | n: 175;age: 8-18;female: 68.6% | Cross-sectional | 24h recall | Yes | no | VegetablesNo starchy vegetablesNutrient rich vegetables | n.s. an.s. an.s. a | ANOVA, Mean | Yes | 3 |
| Donin et al. 2014, England[50] | n: 1841age: 9-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | FatSFAMUFAPUFACarbohydratesSugarsStarchNo starch polysaccharidesProteins | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multilevel linear regression,% of change | Yes | 7 |
| Hong et al. 2009, South Korea[13] | n: 246;age: 12-13;female: 47.6% | Cross-sectional | Dietary record | Unknown | no | CarbohydratesProteinsFat | n.s.n.s.n.s. | Partial correlation analysis, Partial correlation coefficient | Unknown | 2 |
| Hur et al. 2012, USA[14] | n: 4928;age:12-19;female: 49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. an.s. a | Multiple linear regression, Adjusted mean values | No | 8 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | Dietary fiberWSFWIF | n.s.-0.01\*n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Michels et al. 2015, Multiple European countries[19] | n: 387;age: 12.5-17.5;female: n.a. | Cross-sectional | FFQ | No | no | Ready to eat cereals | n.s. a | Linear regression, Estimated marginal means | Yes | 1 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age: 10-16;female: n.a. | Cross-sectional | 24h recall |  | Rural(n.a.); Urban (n.a.) | “Rice-rich non-animal fat pattern”“Rice-rich non-animal fat pattern”“Wheat-dense animal-fat pattern” | n.s.3.3\*\*n.s. | Linear regression, $β$-% |  | 2 |
| Royo-Bordonada et al. 2003, Spain[23] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | “Dietary variety index | n.s. | Partial correlation analysis, Partial correlation coefficient | No | 7 |
| Royo-Bordonada et al. 2006, Spain[24] | n: 1112;age: 6-7;female: 49.9% | Cross-sectional | FFQ | Unknown | no | SFA | n.s. a | T-test, Mean | Yes | 5 |
| Scaglioni et al. 2004, Italy[26] | n: 105;age: 8;female: 41.0% | Cross-sectional | FFQ; 24h recall | Unknown | no | High pasta, low red meat vs. Low pasta, high red meat  | n.s. | Mann-Whitney U test, Mean | Unknown | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ; 24h recall | No | no | SSB vs. milk, vs. other beverages | n.s.a | General linear model, Mean differences | Unknown | 6 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | CarbohydratesWhite riceCarbohydratesWhite rice  | n.s. an.s. an.s. an.s. a | Linear regression, Quartiles | No | 8 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Wang et al. 2014, Canada[51] | n: 457;age: 8-10;female: n.a. | Prospective cohort study | 24h recall | Unknown | no | Added sugars (solid sources)Added sugars (liquid sources) | n.s.0.04\*\* | Linear regression,$β$-coefficient | Yes | 4 |
| White et al. 2012, USA[49] | n: 774;age: 16-17;female: 100.0% | Prospective cohort study | Dietary record | Unknown | no | SFAMUFAPUFACarbohydratesSucroseStarchSoluble fiberInsoluble fiber | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression, $β$-coefficient | Yes | 5 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | no | Yoghurt | n.s. a | Linear regression, Least square means | Unknown | 6 |
|  | **Outcome: (HOMA-) insulin resistance** |
| Ambrosini et al. 2010, Australia[1] | n: 1139;age: 14;female: 48.0% | Cross-sectional | FFQ | Unknown | BoysGirls | “Healthy dietary pattern”“Western dietary pattern”“Healthy dietary pattern”“Western dietary pattern” | n.s. an.s. an.s. an.s. a | ANOVA,Mean | No | 9 |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | Boys(n: 564)Girls(n: 519) | SSBSSB | n.s. an.s. a | Linear regression,% of change  | Unknown | 7 |
| Appannah et al. 2015, Australia[3] | n: 1163;age: 14-17;female: 48.0% | Prospective cohort study | FFQ | Yes | BoysGirls | “Energy dense, high fat and low fiber dietary pattern”“Energy dense, high fat and low fiber dietary pattern” | 4.0\*4.0\* | GEE, $β$-coefficient(%) | Yes | 6 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | n.s.0.07\* | Linear regression,$β$-coefficient | No | 7 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17;female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1464 | DGI-CA | -0.004\*\* | Linear regression,$β$-coefficient | Unknown | 7 |
| Cook et al. 2014, USA[47] | n: 175;age: 8-18;female: 68.6% | Cross-sectional | 24h recall | Yes | no | VegetablesNo starchy vegetablesNutrient rich vegetables | n.s. an.s. an.s. a | ANOVA, Mean | Yes | 3 |
| Donin et al. 2014, England[50] | n: 1841age: 9-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | FatSFAMUFAPUFACarbohydratesSugarsStarchNo starch polysaccharidesProteins | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multilevel linear regression,% of change | Yes | 7 |
| Hirschler et al. 2008, Argentina[52] | n: 365;age: 8-12;female: 48.0% | Cross-sectional | FFQ | Unknown | no | Milk | -0.14\* | Linear regression,$β$-coefficient | Unknown | 1 |
| Jimenez-Pavon et al. 2013, Multiple European countries[48] | n: 637;age: 12.5-17.5;female: 54.5% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-ADQI-A | n.s.n.s. | Multiple linear regression, Standardized$ $$β$-coefficient  | Unknown | 2 |
| Jimenez-Pavon et al. 2014, Multiple European countries[53] | n: 794;age: 12.5-17.5;female: 54.4% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-ADQI-A | n.s.n.s. | Logistic regression, Odds ratio | Unknown | 2 |
| Karatzi et al. 2014, Greece[54] | n: 1912;age: 9-13;female: 51.4% | Cross-sectional | 24h recall | Unknown | no | Pattern 1: Fried potatoes, red meat, SSB;Pattern 2: Processed meat, cheese; Pattern 3: Margarine, sweets, savory snacks; Pattern 4: Legumes, Fruits;Pattern 5: Egg, fish | n.s.n.s.0.08\*\*\*n.s.n.s. | Multiple linear regression, Logistic regression, Standardized$ $$β$-coefficient  | No | 8 |
| Kondaki et al. 2012, Multiple European countries[55] | n: 546;age: 12.5-17.5;female: 54.6% | Cross-sectional | FFQ | Unknown | no | SSBWhite breadBrown bread | significant an.s.n.s. | Multiple linear regression, $β$-coefficient  | Unknown | 4 |
| Kynde et al. 2009, Denmark[56] | n: 651;age: 8-16;female: 62.5% | Prospective study | 24 hour recall; food record | Unknown | 1. Boys1.1 Children school1.2 Adolescents2. Girls2.1 Children school2.2 Adolescents | Total sugarAdded sugarsNon added sugarsStarchFiberTotal sugarAdded sugarsNon added sugarsStarchFiberTotal sugarAdded sugarsNon added sugarsStarchFiberTotal sugarAdded sugarsNon added sugarsStarchFiber | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.0.23\*n.s.n.s.n.s.-1.28\*n.s.n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | Unknown | 5 |
| Lopez Alarcon et al. 2014, Mexico[57] | n: 229;age: 10-18;female: 46.7% | Cross-sectional | 24h recall | Unknown | no | ProteinsCarbohydratesLipidsFiberSFA | n.s. amixed amixed amixed an.s. a | Logistic regression, Odds ratio  | Yes | 2 |
| Michels et al. 2015, Multiple European countries[19] | n: 387;age: 12.5-17.5;female: n.a. | Cross-sectional | FFQ | No | no | Ready to eat cereals | n.s. a | Linear regression, Estimated marginal means | Yes | 1 |
| Romero-Polvo et al. 2012, Mexico[58] | n: 916;age: 7-18;female: 50.8% | Cohort study | FFQ |  | no | Western dietary patternPrudent dietary patternHigh protein/fat dietary pattern | positivean.s. an.s. a | Multiple logistic regressions, Odd’s ratio |  | 5 |
| Sese et al. 2012, Multiple European Countries[59] | n: 826age: 12.5-17.5;female: 52.1% | Cross-sectional | FFQ | Yes | BoysGirls | Fresh fruitsVegetablesDried fruitsNuts, peanuts, seedsYoghurt, yoghurt productsCheese productsSweets, candyChocolateBiscuits, cookiesCake, muffins, pastriesCrisps, tortilla chipsCrackers, rice cakes, salty sticksPopcornMeat based snacksBread, toastCerealsOatmeal, porridgeCereal barsSandwiches, toasties, panniniPizzaHamburgerHot dog, sausagesFrench friesPasta dishesPasta snack productsMilkChocolate milkSoft drinksJuicesWaterFresh fruitsVegetablesDried fruitsNuts, peanuts, seedsYoghurt, yoghurt productsCheese productsSweets, candyChocolateBiscuits, cookiesCake, muffins, pastriesCrisps, tortilla chipsCrackers, rice cakes, salty sticksPopcornMeat based snacksBread, toastBowl of cerealOatmeal, porridgeCereal barsSandwiches, toasties, panniniPizzaHamburgerHot dog, sausagesFrench friesPasta dishesPasta snack productsMilkChocolate milkSoft drinksJuicesWater | n.s.an.s.an.s.an.s.an.s. an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.asignificant**a**significant**a**n.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.an.s.asignificant**a**n.s.an.s.an.s.asignificant**a**n.s.an.s.an.s.an.s.an.s.asignificant**a**n.s.an.s.an.s.an.s.an.s.an.s.asignificant**a**n.s.an.s.an.s.an.s.an.s.an.s.asignificant**a**significant**a**n.s.a | One way ANOVA, Mean | Unknown | 1 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | Carbohydrates White riceCarbohydratesWhite rice | n.s. an.s. an.s. apositive\*\* a | Linear regression, Quartiles | No | 8 |
| Wang et al. 2013, Canada[34] | n: 548;age: 8-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | SSB | n.s. | Linear regression analysis, $β$-coefficient | Yes | 4 |
| Wang et al. 2014, Canada[51] | n: 457;age: 8-10;female: n.a. | Prospective cohort study | 24h recall | Unknown | no | Added sugars (solid sources)Added sugars (liquid sources) | n.s.0.09\*\* | Linear regression,$β$-coefficient | Yes | 4 |
| White et al. 2012, USA[49] | n: 774;age: 16-17;female: 100.0% | Prospective cohort study | Dietary record | Unknown | no | SFAMUFAPUFACarbohydratesSucroseStarchSoluble fiberInsoluble fiber | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression, $β$-coefficient | Yes | 5 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | n: 3769 | Yoghurt | negative\*\*\* a | Linear regression, Least square means | Unknown | 6 |
|  | **Outcome: insulin sensitivity** |
| Casazza et al. 2009a, USA[46] | n: 250;age: 7-12;female: 48.9% | Cross-sectional | 24h recall | Yes | no | FatCarbohydratesProteinsSugarFiber SFAMUFAPUFA | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression, Standardized parameter estimate | Unknown | 3 |
| Cook et al. 2014, USA[47] | n: 175;age: 8-18;female: 68.6% | Cross-sectional | 24h recall | Yes | no | VegetablesNo starchy vegetablesNutrient rich vegetables | n.s. an.s. apositive\* a | ANOVA, Mean | Yes | 3 |
| Davis et al. 2007, USA[60] | n: 120;age: 10-17;female: 43.3% | Cross-sectional | 24h recall | Unknown | no | Sugar | -0.02\* | Hierarchical multiple regression analyses, Unstandar-dized $β$-coefficient  | Yes | 3 |
| Forbes et al. 2013, Canada[61] | n: 378;age: 10-14;female: 60.1% | Cross- sectional; Cohort study | 24h recall | Yes | BoysGirls | SugarFiberFruits/Vegetables FatSugarFiberFruits/Vegetables Fat | n.s.n.s.n.s.n.s.n.s.-0.18\*n.s.n.s. | Least squares multiple regression analysis,$β$-coefficient  | Yes | 3 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | positive\* a | Multiple linear regression, Adjusted mean values | Yes | 4 |
|  | **Outcome: C-reactive Protein** |
| Aeberli et al. 2006, Switzerland[62] | n: 79;age: 6-14;female: 46.8% | Cross-sectional | 24h recall; 1d food record | Yes | no | FatFat (% energy)SFAPUFAMUFADairy productsMeatPlant oilsAnimal fat | 0.28\*\*0.28\*\*0.24\*0.21\*0.27\*n.s.n.s.0.24\*n.s. | Multiple regression and ANCOVA,$β$-coefficient | Yes | 3 |
| Au et al. 2012, USA[4] | n: 148;age: 9-15;female: 58.8% | Cross-sectional | FFQ | Yes | no | SFAMUFAPUFACarbohydrates | n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | Yes | 3 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17;female: 50.4% | Prospective cohort study | FFQ | Unknown | n: 1458 | DGI-CA | n.s. | Linear regression,$β$-coefficient | Unknown | 7 |
| Gonzalez Gil et al. 2015, Multiple European countries[63] | n: 3884; age: 6-9;female: 50.9% | Cross-sectional | FFQ | No | BoysGils | Raw vegetablesRaw vegetables | 0.7\*n.s. | Multilevel ordinal logistic regression, Odds ratio | Unknown | 5 |
| Holt et al. 2009, USA[64] | n: 285;age: 13-17;female: 45.6% | Cross –sectional; Cohort study | FFQ | Yes | no | Fruits (no fruit juice)Fruit juiceVegetablesFrench friesLegumesFruits/Vegetables  | -0.19\*\*n.s.n.s.n.s.n.s.-0.15\* | Spearman partial correlation coefficients, Correlation coefficient | Yes | 4 |
| Hur et al. 2012, USA[14] | n: 4928;age: 12-19;female: 49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. asignificant a | Multiple linear regression, Adjusted mean values | No | 8 |
| Kosova et al. 2013, USA[16] | n: 4880;age: 3-11;female: 49.3% | Cross-sectional | 24h recall | Unknown | Age 3-5(n: 1227)Age 6-8(n: 1316)Age 9-11(n: 1375) | SSBSSBSSB | n.s.n.s.0.01\* | Linear regression, Adjusted $β$-coefficient  | No | 9 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | Dietary fiberSoluble FiberInsoluble Fiber | n.s.n.s.n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
| Qureshi et al. 2009, USA[65] | n: 4110;age: 5-16;female: 49.9% | Cross-sectional | 24h recall | Unknown | no | Dairy productsMilkCheeseYoghurtGrains Refined grainsWhole grainsFruitsCitrus, melon, berriesOther fruitsVegetablesNon starchy vegetablesDark green vegetablesDeep yellow/orange vegetablesTomatoesStarchy vegetablesLegumesPotatoesMeat/other ProteinsRed meat White meatOther Proteins sources | significant asignificant an.s. an.s. asignificant asignificant an.s. an.s. asignificant an.s. asignificant asignificant an.s. an.s. asignificant asignificant an.s. an.s. an.s. an.s. an.s. an.s. a | ANOVA, Mean differences  | No | 7 |
| Thomas et al. 2008, UK[66] | n: 164; age: 12-13;female: 54.3% | Cross-sectional | FFQ , food diary | Yes | BoysGirls | FatSFAFatSFA | n.s.n.s.n.s.n.s. | Pearson correlation, Partial correlation coefficient | No | 4 |
| Truthmann et al. 2012, Germany[44] | n: 5198;age:12-17;female: 49.1% | Cross-sectional | FFQ | Yes | Boys(n: 2554)Girls(n: 2438) | HFDHuSKYIFIF & V IndexHFDHuSKYIFIF & V Index | n.s.-8.20\*n.s.n.s.n.s.n.s.-14.00\*\*n.s. | Linear regression,$β$-coefficient | No | 10 |
| Vyncke et al. 2013, Multiple European Countries[32] | n: 552;age: 12.5-17.5;female: 52.0% | Cross-sectional | 24h recall | Yes | BoysGirls | DQI-ADQI-A | n.s.n.s. | Multilevel regression models,$β$-coefficient  | Yes | 2 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | n: 3769 | Yoghurt | n.s. a | Linear regression, Least square means  | Unknown | 6 |
|  | **Outcome: systolic blood pressure** |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | BoysGirls | SSBSSB | n.s. an.s. a | Linear regression,% of change  | Unknown | 7 |
| Aounallah-Skhiri et al. 2011, Tunisia[67] | n: 1019;age: 15-19;female: 57.6% | Cross-sectional | FFQ | Yes | BoysGirls  | “Modern dietary pattern”“Meat & fish dietary pattern”“Modern dietary pattern”“Meat & fish dietary pattern” | n.s. an.s. an.s. an.s. a | Linear/ Logistic regression, Mean difference | Yes | 8 |
| Bobridge et al. 2013, Australia[68] | n: 814;age: 13.0-14.9;female: 48.5% | Cross-sectional | Dietary record | Yes | BoysGirls | FructoseFructose | n.s.n.s. | Linear regression, Standardized $β$-coefficient  | Yes | 4 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | n.s.0.38\* | Linear regression,$β$-coefficient | No | 7 |
| Boreham et al. 1999, Northern Ireland[45] | n: 454;age: 12-15;female: 50.7% | Longitudinal cohort study | Dietary history | Unknown | Boys | Carbohydrates | 0.27\* | GEE, $β$-coefficient | No | 4 |
| Casazza et al. 2009b, USA[8] | n: 202;age: 7-12;female: 47.0% | Cross-sectional | 24h recall | Unknown | no | FatCarbohydratesProteins | 0.05\*n.s.-0.15\* | Linear regression, Standardized$β$-coefficient | Yes | 3 |
| Chan et al. 2014b, China[10] | n: 2727;age: 12-16;female: 51.3% | Cross-sectional | FFQ | Unknown | BoysGirls | SSBSSB | 1.6\*n.s. | Linear regression,$β$-coefficient | No | 6 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17;female: 50.4% | Prospective cohort study | FFQ | Unknown | no | DGI-CA | n.s. | Linear regression,$β$-coefficient | Unknown | 7 |
| Coelho et al. 2015, Brazil[69] | n: 738;age: 6-14;female: 51.3% | Cross-sectional | FFQ |  | age: 6-9age: 10-14 | RFS adapted by Coelho et al. 2012RFS adapted by Coelho et al. 2012 | -0.11\*n.s. | Linear regression,$β$-coefficient |  | 2 |
| Colin Ramirez et al. 2009, Mexico[70] | n: 1239; age: 8-10 years;female: 49.5% | Cross-sectional | 24h recall | No | no | FatSFAMUFA | n.s.n.s.n.s. | Logistic regression,$β$-coefficient | Yes | 5  |
| Day et al. 2009, USA[12] | n: 489;age: 8, 11, 14;female: 51.3% | Cross-sectional | FFQ | Yes | BoysGirls | FatFat | n.s. asignificant**a** | ANCOVA,Mean | Yes | 2 |
| De Moraes et al. 2015, Multiple European countries[71] | n: 1605;age: 12.5-17.5;female: 51.9% | Cross-sectional | 24h recall |  | BoysGirls | Vegetal ProteinsAnimal ProteinsTotal ProteinsAlanineGlycineIsoleucineLeucineValinePhenilalanineTryptophaneTyrosineArginineHistidineLysineAsparaginic acidGlutamic acidSerineTheorineCysteineMethionineProlineVegetal ProteinsAnimal ProteinsTotal ProteinsAlanineGlycineIsoleucineLeucineValinePhenilalanineTryptophaneTyrosineArginineHistidineLysineAsparaginic acidGlutamic acidSerineTheorineCysteineMethionineProline | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.1.01\*\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.4.41\*\*-2.14\*n.s.1.13\*\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression,$β$-coefficient  |  | 6 |
| Gopinath et al. 2014, Australia[72] | n: 888; age: baseline 12, follow up 17;female: 49.0% | Cohort study | FFQ | Unknown | BoysGirls | Total dairyMilkCheeseYoghurtTotal dairyMilkCheeseYoghurt | n.s.n.s.n.s.n.s.n.s.n.s.-7.18\*\*n.s. | Linear regression, $β$-coefficient | Yes | 5 |
| Hojhabrimanesh et al. 2015, Iran[73] | n: 557; age: 12-14.9;female: 56.4% | Cross-sectional | FFQ | Yes | no | Mixed dietary pattern scoreWestern Dietary pattern scorePrudent Dietary pattern Score | n.s. asignificantan.s. a | ANCOVA, Mean | No | 8 |
| Hong et al. 2009, South Korea[13] | n: 246;age: 12-13;female: 47.6% | Cross-sectional | Dietary record | Unknown | no | CarbohydratesProteinsFat | n.s.n.s.n.s. | Partial correlation analysis, Partial correlation coefficient | Unknown | 2 |
| Hur et al. 2012, USA[14] | n: 4928;age: 12-19;female: 49.4% | Cross-sectional | 24h recall | Unknown | BoysGirls | Whole grainsWhole grains | n.s. an.s. a | Multiple linear regression, Adjusted mean values | No | 8 |
| Kelishadi et al. 2006, Iran[74] | n: 21111;age: 6-18;female: 51.4% | Cross-sectional | FFQ | Yes | no | Dairy productsSweets/CandySolid hydrogenated fatFast food | -0.43\*\*0.32\*\*1.64\*\*1.38\*\* | Linear regression, $β$-coefficientLogistic regression, Odds ratio | No | 8 |
| Kell et al. 2014, USA[15] | n: 320;age: 7-12;female: 46.9% | Cross-sectional | 24h recall | Unknown | no | Added sugars | n.s. | Linear regression,$β$-coefficient | Unknown | 4 |
| Kollias et al. 2009, Greece[75] | n: 558;age: 12-17;female: 50.0% | Cross-sectional | FFQ | No | BoysGirls | MeatLegumesFruits/VegetablesMilkSnacksMeatLegumesFruits/VegetablesMilkSnacks | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multiple regression analysis, $β$-coefficient | Yes | 1 |
| Lazarou et al. 2009, Republic of Cyprus[76] | n: 622;age: 9-13;female: 50.8% | Cross-sectional | FFQ | Unknown | no | Food E-KINDEX Score | 0.43\* | Logistic regression, Odds ratio | Unknown | 6 |
| Moore et al. 2005, USA[77] | n: 91;age:Dietary intake assessment at age 3.0-5.9 years and 6.0-11.9 years, blood pressure assessment at age 10.0-12.9 years;female: n.a. | Prospective study | Dietary record | Yes | no | Fruits/VegetablesDairy intake | n.s. an.s. a | ANOCVA, Mean | Unknown | 3 |
| O Sullivan et al. 2012, Australia[78] | n: 814;age: 13-15;female: 48.5% | Cohort study  | Dietary record | Unknown | BoysGirls | FatPUFATotal omega 3 FAAlpha linoleic acidLong chain omega 3 FAEPADPADHATotal omega 6 FALinoleic acidArachidonic acidFatPUFATotal omega 3 FAAlpha linoleic acidLong chain omega 3 FAEPADPADHATotal omega 6 FALinoleic acidArachidonic acid | -0.12\*-0.15\*-0.12\*n.s.n.s.-0.11\*n.s.n.s.-0.11\*-0.11\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression, Standardized $β$-coefficient | Yes | 4 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age: 10-16;female: n.a. | Cross-sectional | 24h recall |  | Rural(n: n.a.)Urban(n: n.a.) | “Rice-rich non-animal fat pattern”“Wheat-dense animal-fat pattern”“Wheat-dense animal-fat pattern” | n.s.n.s.n.s. | Linear regression, $β$-% |  | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ, 24h recall | No | no | SSB vs. milk, vs. other beverages | n.s. a | General linear model, Mean differences | Unknown | 6 |
| Shi et al. 2014, Germany[79] | n: 435;age: 4-18;female: 51.3% | Prospective cohort study | Dietary record | Yes | no | Fruits/Vegetablesintake | n.s. | Linear mixed effects regression models, $β$-coefficient | Yes | 5 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | CarbohydratesWhite rice intakeCarbohydrates White rice  | n.s. an.s. an.s. an.s. a | Linear regression, Quartiles | No | 8 |
| Souza et al. 2016, Brazil[80] | n: 488age: 9-16;female: 49.4% | Cross-sectional | FFQ | Yes | no | Soft drinks | significant a | Linear regression,Estimated mean | Unknown | 2 |
| Steffen et al. 2003, USA[29] | n: 285;age: 13, 15;female: 45.6% | Prospective cohort study | FFQ | Unknown | no | Whole grains | n.s. a | Multiple linear regression, Adjusted mean values | Yes | 4 |
| Sugiyama et al. 2007, USA[81] | n: 4508;age: 12-19;female: 49.1% | Cross-sectional | 24h recall | Unknown | no | CarbohydratesProteinsSFAMUFAPUFAFiber | n.s.n.s.n.s.n.s.n.s.n.s. | Multiple linear regression, $β$-coefficient | No | 7 |
| Truthmann et al. 2012, Germany[44] | n: 5198;age: 12-17;female: 49.1% | Cross-sectional | FFQ | Yes | Boys Girls | HFDHuSKYIFIF & V Index HFDHuSKYIFIF & V Index | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | No | 10 |
| Wang et al. 2013, Canada[34] | n: 548;age: 8-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | SSB | 0.58\*\* | Linear regression,$β$-coefficient | Yes | 4 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | n: 2868 | Yoghurt | n.s. a | Linear regression, Least square means | Unknown | 6 |
|  | **Outcome: diastolic blood pressure** |
| Ambrosini et al. 2013, Australia[2] | n: 1366;age: 14-17;female: 48.3% | Prospective cohort study | FFQ | Yes | BoysGirls | SSBSSB | n.s. an.s. a | Linear regression,% of change  | Unknown | 7 |
| Aounallah-Skhiri et al. 2011, Tunisia[67] | n: 1019;age: 15-19;female: 57.6% | Cross-sectional | FFQ | Yes | BoysGirls  | “Modern dietary pattern”“Meat & fish dietary pattern”“Modern dietary pattern”“Meat & fish dietary pattern” | n.s. an.s. an.s. an.s. a | Linear/ Logistic regression, Mean difference | Yes | 8 |
| Bobridge et al. 2013, Australia[68] | n: 814;age: 13.0-14.9;female: 48.5% | Cross-sectional | Dietary record |  Yes | BoysGirls | FructoseFructose | n.s.n.s. | Yes |  | 4 |
| Bremer et al. 2009, USA[7] | n: 6967;age: 12-19;female: 48.9% | Cross-sectional | 24h recall | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 7 |
| Chan et al. 2014b, China[10] | n: 2727;age: 12-16;female: 51.3% | Cross-sectional | FFQ | Unknown | BoysGirls | SSBSSB | n.s.n.s. | Linear regression,$β$-coefficient | No | 6 |
| Chan et al. 2015, Australia[11] | n: 2262;age: 14, 17; female: 50.4% | Prospective cohort study | FFQ | Unknown | n:1701 | DGI-CA | n.s. | Linear regression,$β$-coefficient | Unknown | 7 |
| Colin Ramirez et al. 2009, Mexico[70] | n: 1239; age: 8-10 years;female: 49.5% | Cross-sectional | 24h recall | No | no | FatSFAMUFA | 2.61\*\*n.s.n.s. | Logistic regression,$β$-coefficient | Yes | 5  |
| Day et al. 2009, USA[12] | n:489;age: 8, 11, 14;female: 51.3% | Cross-sectional | FFQ | Yes | BoysGirls | FatFat | n.s. an.s. a | ANCOVA,Mean | Yes | 2 |
| De Moraes et al. 2015, Multiple European countries[71] | n: 1605;age: 12.5-17.5;female: 51.9% | Cross-sectional | 24h recall |  | BoysGirls | Plant ProteinsAnimal ProteinsTotal ProteinsAlanineGlycineIsoleucineLeucineValinePhenilalanineTryptophaneTyrosineArginineHistidineLysineAsparaginic acidGlutamic acidSerineTheorineCysteineMethionineProlinePlant ProteinsAnimal ProteinsTotal ProteinsAlanineGlycineIsoleucineLeucineValinePhenilalanineTryptophaneTyrosineArginineHistidineLysineAsparaginic acidGlutamic acidSerineTheorineCysteineMethionineProline | -1.16\*-1.82\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.-1.41\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.2.78\*\*\*n.s. | Linear regression,$β$-coefficient |  | 6 |
| Gopinath et al. 2014, Australia[72] | n: 888; age: baseline 12, follow up 17;female: 49.0% | Cohort study | FFQ | Unknown | BoysGirls | Total dairyMilkCheeseYoghurtTotal dairyMilkCheeseYoghurt | n.s.n.s.n.s.n.s.-1.04\*-1.14\*-5.28\*\*n.s. | Linear regression,$β$-coefficient | Yes | 5 |
| Hojhabrimanesh et al. 2015, Iran[73] | n: 557; age: 12-14.9;female: 56.4% | Cross-sectional | FFQ | Yes | no | “Mixed dietary pattern score”“Western Dietary pattern score”“Prudent Dietary pattern Score” | n.s. an.s. an.s. a | ANCOVA, Mean | No | 8 |
| Hong et al. 2009, South Korea[13] | n: 246;age: 12-13;female: 47.6% | Cross-sectional | Dietary record | Unknown | no | CarbohydratesProteinsFat | n.s.n.s.n.s. | Partial correlation analysis, Partial correlation coefficient | Unknown | 2 |
| Kelishadi et al. 2006, Iran[74] | n: 21111;age: 6-18;female: 51.4% | Cross-sectional | FFQ | Yes | no | Whole grain breadVegetablesSweets/CandyTrans-fatFast food | -0.47\*\*-0.44\*\*0.41\*1.61\*\*1.41\*\* | Linear regression, $β$-coefficient;Logistic regression, Odds ratio | No | 8 |
| Kell et al. 2014, USA[15] | n: 320;age: 7-12;female: 46.9% | Cross-sectional | 24h recall | Unknown | no | Added sugars | 0.02\* | Linear regression, $β$-coefficient | Unknown | 4 |
| Kollias et al. 2009, Greece[75] | n: 558;age: 12-17;female: 50.0% | Cross-sectional | FFQ | No | BoysGirls | MeatLegumesFruits/VegetablesMilkSnacksMeatLegumesFruits/VegetablesMilkSnacks | n.s.n.s.n.s.-2.14\*n.s.n.s.n.s.n.s.n.s.n.s. | Multiple regression analysis, $β$-coefficient | Yes | 1 |
| Lazarou et al. 2009, Republic of Cyprus[76] | n: 622;age: 9-13;female: 50.8% | Cross-sectional | FFQ |  | no | Food E-KINDEX Score | 0.52\* | Logistic regression, Odds ratio |  | 6 |
| Moore et al. 2005, USA[77] | n: 91;age at intake assessment: 3.0-5.9 ; 6.0-11.9, age at outcome assessment: 10.0-12.9 female: n.a. | Prospective study | Dietary record | Yes | no | Fruits/VegetablesDairy | n.s. an.s. a | ANOCVA, Mean | Unknown | 3 |
| O Sullivan et al. 2012, Australia[78] | n: 814;age: 13-15;female: 48.5% | Cohort study | Dietary record | Unknown | BoysGirls | FatPUFATotal n3-FAAlpha linoleic acidLC-n3-FAEPADPADHATotal n6-FALinoleic acidArachidonic acidFatPUFATotal n3-FAAlpha linoleic acidLC-n3-FA EPADPADHATotal n6-FALinoleic acidArachidonic acid | n.s.n.s.n.s.n.s.-0.15\*-0.15\*n.s.-0.14\*n.s.n.s.-0.12\*n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Linear regression, Standardized $β$-coefficient | Yes | 4 |
| Ochoa-Avilés et al. 2014, Euqador[21] | n: 334;age: 10-16;female: n.a. | Cross-sectional | 24h recall |  | no | “Rice-rich non-animal fat pattern”“Wheat-dense animal-fat pattern” | n.s.n.s. | Linear regression, $β$-% |  | 2 |
| Shang et al. 2012, China[27] | n: 6974;age: 6-13;female: 49.0% | Cross-sectional | FFQ; 24h recall | No | no | SSB vs. milk, vs. other beverages | n.s. a | General linear model, Mean differences | Unknown | 6 |
| Shi et al. 2014, Germany[79] | n: 435;age: 4-18;female: 51.3% | Prospective cohort study | Dietary record | Yes | no | Fruits/Vegetables | n.s. | Linear mixed effects regression models, $β$-coefficient | Yes | 5 |
| Song et al. 2015, Korea[28] | n: 2209;age: 10-18;female: 47.3% | Cross-sectional | 24h recall | Unknown | BoysGirls | CarbohydratesWhite rice Carbohydrates White rice  | n.s. an.s. an.s. an.s. a | Linear regression, Quartiles | No | 8 |
| Souza et al. 2016, Brazil[80] | n: 488age: 9-16;female: 49.4% | Cross-sectional | FFQ | Yes | no | Soft drinks | significant a | Linear regression,Estimated mean | Unknown | 2 |
| Sugiyama et al. 2007, USA[81] | n: 4508;age: 12-19;female: 49.1% | Cross-sectional | 24h recall | Unknown | no | CarbohydratesProteinsSFAMUFAPUFAFiber | n.s.n.s.n.s.0.09\*n.s.n.s. | Multiple linear regression, $β$-coefficient | No | 7 |
| Truthmann et al. 2012, Germany[44] | n: 5198;age: 12-17;female: 49.1% | Cross-sectional | FFQ | Yes | Boys Girls | HFDHuSKYIFIF&V Index HFDHuSKYIFIF&V Index | n.s.n.s.n.s.n.s.n.s.n.s.0.33\*0.26\* | Linear regression,$β$-coefficient | No | 10 |
| Zhu et al. 2014, USA[36] | n: 5124;age: 2-18;female: 51.3% | Cross-sectional | FFQ | Unknown | no | Yoghurt | n.s. a | Linear regression, Least square means | Unknown | 6 |
|  | **Outcome: Leptin** |
| Aeberli et al. 2006, Switzerland[62] | n: 79;age: 6-14;female: 46.8% | Cross-sectional | 24h recall; 1d food record | Yes | no | FatFat (% energy)SFAPUFAMUFADairy productsMeatPlant oilsAnimal fat | n.s.n.s.n.s.n.s.n.s.n.s.0.17\*n.s.n.s. | ANCOVA,$β$-coefficient | Yes | 3 |
| Lin et al. 2014, Multiple European countries[18] | n: 1804;age: 12.5-17.5;female: 52.6% | Cross-sectional | 24h recall | Yes | no | FiberSoluble fiberInsoluble fiber | n.s.n.s.n.s. | GLM multivariate analysis, $β$-coefficient  | Unknown | 6 |
|  | **Outcome: HbA1c** |
| Donin et al. 2014, England[50] | n: 1841age: 9-10;female: n.a. | Cross-sectional | 24h recall | Yes | no | FatSFAMUFAPUFACarbohydratesSugarsStarchNo starch polysaccharidesProteins | n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s.n.s. | Multilevel linear regression,% of change | Yes | 7 |
| Truthmann et al. 2012, Germany[44] | n: 5198;age: 12-17;female: 49.1% | Cross-sectional | FFQ | Yes | Boys (n: 2646)Girls(n:2552) | HFDHuSKYIFIF&V Index HFDHuSKYIFIF&V Index | n.s.n.s.-0.01\*n.s.n.s.n.s.n.s.n.s. | Linear regression,$β$-coefficient | No | 10 |

Effect estimates: p<: 0.001: \*\*\*; p<: 0.01: \*\*; p<: 0.05: \*

Quality Score: 0-4 : low; 5-8 : moderate; 9-11 : high

n.s.: not significant; n.a. : not available

a) Categorized intake variable, please see original manuscript for further details

**Abbreviations:**

ANCOVA: Analysis of Covariance

DGI-CA: Dietary Guideline Index for Children and Adolescents

DHA: Decosahexaenoic acid

DPA: Decosapentaenoic acid

DQI-A: Dietary quality index

EPA: Eicosapentaenoic acid

FA: Fatty acids

FFQ: Food Frequency Questionnaire

F&V Index: Fruit and Vegetable Index

GEE: Generalised estimation equasions

HFD: Healthy Food Diversity Index

HuSKY: Healthy Nutrition Score for Kids and Youth

IFI: Indicator Food Index

MUFA: Monounsaturated Fatty Acids

PUFA: Polyunsaturated Fatty Acids

RFS: Recommended Food Score

SFA: Saturated Fatty Acids

SSB: Sugar sweetened beverages

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