# Supplementary Material.

Search Strategy for Medline Database.

Search for: limit 11 to yr="2015 -Current"  
  
Results: 108  
  
Database: Ovid MEDLINE(R) ALL <1946 to March 30, 2020>  
Search Strategy:  
--------------------------------------------------------------------------------  
1     exp Nutritional Sciences/ (19477)  
2     ‘sport\* nutrition knowledge’.mp. [mp=title, abstract, original title, name of substance word, subject heading word,  
floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept  
word, rare disease supplementary concept word, unique identifier, synonyms] (37)  
3     ‘general nutrition knowledge’.mp. [mp=title, abstract, original title, name of substance word, subject heading word,  
floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept  
word, rare disease supplementary concept word, unique identifier, synonyms] (50)

4 ‘nutrition knowledge’.mp. [mp=title, abstract, original title, name of substance word, subject heading word,  
floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept  
word, rare disease supplementary concept word, unique identifier, synonyms] (1179)

5 1 or 2 or 3 or 4 (20332)

6 Athletes/ (12585)

7 athlete\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word,  
floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept  
word, rare disease supplementary concept word, unique identifier, synonyms] (53873)  
8     sport\*.mp. [mp=title, abstract, original title, name of substance word, subject heading word,  
floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept  
word, rare disease supplementary concept word, unique identifier, synonyms] (37)exp Nutritional Sciences/ (101748)

9 6 or 7 or 8 (125853)

10 5 and 9 (293)

11 limit 10 to (English language and yr=”2015-Current”) (108)

Table 1. Quality assessment results based on JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies (26**).**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 Participant inclusion | 2 Demographics & setting | 3 Exposure | 4 Athlete condition | 5 Confounders identified | 6 Confounder control strategies | 7A NK tool validity | 7B Dietary assessment tool validity | 8 Appropriate statistical analysis | Total | Out of | % |
| Abbey et al. (50) | 1 | 1 | 1 | 0 | NA | NA | 0 | 1 | Unclear | 4 | 8 | 50 |
| Andrews et al. (54) | 1 | 0.5 | 1 | 0 | NA | NA | 1 | NA | Unclear | 3.5 | 7 | 50 |
| Andrews & Itsiopoulos (37) | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 7 | 10 | 70 |
| Argolo et al. (63) | 1 | 1 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | 9 | 10 | 90 |
| Balaravi et al. (40) | 1 | 1 | 0 | 1 | NA | NA | 1 | NA | 1 | 5 | 7 | 71.42857 |
| Blennerhassett et al. (64) | 0 | 1 | 1 | 1 | NA | NA | 2 | NA | 1 | 6 | 7 | 85.71429 |
| Coccia et al. (49) | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | Unclear | 5 | 10 | 50 |
| Condo et al. (36) | 1 | 1 | 0 | 0 | NA | NA | 2 | 1 | 1 | 6 | 8 | 75 |
| Devlin et al. (32) | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 6 | 10 | 60 |
| Hardy et al. (65) | 1 | 1 | 1 | 0 | 1 | 1 | 2 | NA | 1 | 8 | 9 | 88.88889 |
| Holden et al. (59) | 1 | 1 | 1 | 0 | NA | NA | 2 | NA | Unclear | 5 | 7 | 71.42857 |
| Jenner et al. (33) | 1 | 1 | 1 | 0 | NA | NA | 2 | NA | 1 | 6 | 7 | 85.71429 |
| Jenner et al. (34) | 1 | 1 | 1 | 0 | 1 | 0 | 2 | 1 | 1 | 8 | 10 | 80 |
| Judge et al. (56) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | NA | Unclear | 7 | 9 | 77.77778 |
| Lohman et al. (35) | 1 | 1 | 0 | 0 | NA | NA | 2 | 1 | 1 | 6 | 8 | 75 |
| Madrigal et al. (51) | 1 | 1 | 0 | 0 | 0 | 0 | 0 | NA | 1 | 3 | 9 | 33.33333 |
| Magee et al. (31) | 1 | 1 | 0 | 0 | NA | NA | 2 | NA | 1 | 5 | 7 | 71.42857 |
| McCrink et al. (60) | 1 | 1 | 0 | 0 | NA | NA | 2 | 1 | 1 | 6 | 8 | 75 |
| Mitchell et al. (57) | 1 | 1 | 1 | 0 | NA | NA | 2 | NA | Unclear | 5 | 7 | 71.42857 |
| Murphy et al. (61) | 1 | 1 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 8 | 10 | 80 |
| Nascimento et al. (30) | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 6 | 10 | 60 |
| Renard et al. (62) | 0 | 1 | 1 | 0 | 1 | 1 | 2 | NA | 1 | 7 | 9 | 77.77778 |
| Rossi et al. (58) | 1 | 0.5 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 6.5 | 10 | 65 |
| Saribay & Kirbaş (52) | 0 | 0.5 | 0 | 0 | NA | NA | 1 | NA | Unclear | 1.5 | 7 | 21.42857 |
| Simpson et al. (53) | 1 | 1 | 0 | 0 | NA | NA | 0 | Unclear | 1 | 3 | 8 | 37.5 |
| Trakman, Forsyth, Hoye, & Belski (18) | 1 | 1 | 1 | 0 | NA | NA | 2 | NA | 1 | 6 | 7 | 85.71429 |
| Trakman et al. (11) | 1 | 1 | 1 | 1 | NA | NA | 2 | NA | 1 | 7 | 7 | 100 |
| Werner et al. (55) | 1 | 0.5 | 0 | 0 | NA | NA | 2 | NA | Unclear | 3.5 | 7 | 50 |

Quality Assessment results utilising the JBI Critical Appraisal Checklist for Analytical Cross Sectional Studies (26).

Table 2. Data extraction results for Dietary Intake and Correlational data between Nutrition Knowledge and Dietary Intake.

|  |  |  |  |
| --- | --- | --- | --- |
| Study information (Author(s), year, study location) | Participant information (total number, age, gender) | Secondary outcome results Macronutrient/Micronutrient/Food group intakes | Correlation measures |
| Abbey, Wright, & Kirkpatrick 2017 (50) USA | n=88 19.6±1.7 (mean±SD) Male=88 | Average nutrient intake of linemen compared to the DRI  Energy, kcals n=88 (5225.4±1693.6); DRI for Average Lineman (4552.9); p=0.268  Total CHO, g n=88 (549.2±261.5); Lineman (911.2); p=0.017  Dietary fiber, g n=88 (45.8±18.5); Lineman (63.7); p=0.020  PRO, g n=88 (225.00±89.6); Lineman (182.2); p=0.190  Total fat, g n=88 (192.5±60.2); Lineman (141.7); p=0.035  SFA, g n=88 (61.3±17.3); Lineman (45.5); p=0.026  MUFA, g n=88 (49.0±15.7); Lineman (50.6); p=0.769  PUFA, g n=88 (29.2±9.3); Lineman (45.5); p=0.001  Omega-3 s, g n=88 (2.4±07); Lineman (4.6); p=<0.001  Omega-6 s, g n=88 (25.5±8.7); Lineman (40.5); p=0.001  Dietary cholesterol, mg n=88 (957.6±406.3); Lineman (300); p=0.001 Sodium, mg n=88 (9404.3±3390.5); Lineman (2300); p=<0.001 Potassium, mg n=88 (6298.1±1986.5); Lineman (4700); p=0.042 Reporting Daily in % of n =88 Starches/grains - 67 Meat - 52.3 Seafood - 6 Dairy - 82.8 Fruits - 47.1 Vegetables - 38.4 Desserts/candy - 20.2 Sports drinks - 34.1 Juice - 29.9 Coffee - 3.4 Soda - 2.3 Energy drinks - 2.3 Protein powders - 33.0 Multivitamin/mineral - 18.2 Creatine - 5.7 Other - 6.9 | NA |
| Andrews & Itsiopoulos 2016 (37) AUS | Professional n=29 22 (18-27) Male=29 Semiprofessional n=44 21(18-33) Male=44 | Professional:Semiprofessional Energy, kJ 11525±1987:10831±3842  kJ/kg 142.3±21.1:145.1±44.8  PRO Pro:semi:recommended intakes (64)  g 152.3±27.7:149.1±46.8:15.25  %EI 22.7±3.8:24.1±5.9:0.84, 1.4-1.7  g/kg 1.9±0.3:2.0±0.6:1.5-2.0  CHO g 302.4±72.3:289.7±148.5:  %EI 43.6±8.3:43.3±9.3:45-65  g/kg 3.5±0.8:3.9±1.8:5-10  Fat g 95.9±31.7:85.8±37.8:  %EI 30.4±7.3:29.5±7.4:20-35  Alcohol g 1.2±3.5:0.8±3.5:  %EI 0.3±1.0:0.2±0.7:  Fiber g 32.4±8.7:30.3±16.8:30  %EI 2.3±0.6:2.2±0.7: | Moderate positive correlations were found between SNK and average energy intake (n=46, spearman's rho=0.31, p=0.04); SNK and carbohydrate intake (n=46, spearman's rho=0.35, p=0.02); and relative to body mass (n=41, spearman's rho=0.32, p=0.04) |
| Argolo et al. 2018 (63) Brazil | n=17 33±10.8 Male=17 | MEDIAN (ICC): Inadequacy %  CHO (g/kg) - 3.2 (2.7-3.8):88  PRO (g/kg) - 1.1 (0.6-1.5):64.7  Fat (%) - 26.6 (19-32): 35.3  SFA (%) - 9.4 (6-13.1): 35.3  MUFA (%) - 5.2 (3.3-10): 76.5  PUFA (%) - 4.3 (2-5.1): 88.2  Fiber (g) - 15 (10-17): 94.1 MEDIAN (ICC): Inadequacy % Vit A (μg) - 484 (326-882): 70.6 Vit C (mg) - 610 (553-628): 0 Vit B1 (mg) - 1.2 (0.7-1.5): 53 Vit B2 (mg) - 1(0.7-2.5): 41.2 Vit B5 (mg) - 3.4 (3-4.4): 88 Vit B6 (mg) - 7.2 (5.6-7.6): 0 Vit B9 (μg) - 108 (0-263):76.5 Vit B12 (μg) - 3.2 (1.2-3.8): 35.3 Vit E (mg) - 8.1 (6-16): 58.8 Calcium (mg) - 648 (603-696): 100 Iron (mg) - 10 (8.6-14.6): 53 Zinc (mg) - 8.8 (7.5-13.8): 58.8 Sodium (mg) - 2485 (1940-3981): 64.7 Phosphorus (mg) - 900 (898-904):0 | Negative correlation between adults' total nutrition knowledge and their sodium intake (r=-485) |
| Coccia et al., 2020 (49) | n=50  19.62±1.483  Male=11, Female=39 | n=27  Mean (SD)  Fat % of E - 31.36 (3.72)  fruit and vegetable intake - 5.52 (3.00) | Not reported |
| Condo, Lohman, Kelly, & Carr (36) 2019 AUS | n=30 24.15±4.1 Female=30 | Energy, kJ - 7826 ± 2411.6 kJ/kg/day - 199.5±37.4 PRO - g - 98±32.1 g/kg/day - 1.5±0.5 CHO, g - 192.4±51.8 g/kg/day - 3.0±0.8 Sugar, g - 86.2±33.1 % of E - 18.6±4.4 Fibre, g - 25.5±8 Total fat, g - 72.2±33.4 % of E - 33.2±6.5 SFA, g - 25.7±14.6 % of E - 11.6±3.2 MUFA, g - 29±14.1 PUFA, g - 11.4±4.8 calcium, mg - 924.8±544.7 iron, mg - 12.2±3.2 magnesium, mg - 367.5±137.8 phosphorus, mg - 1569.3±549.4 potassium, mg - 3109±1173 sodium, mg - 2063.3±957 zinc, mg - 11.7±4 selenium, μg - 98.1±64.7 vit. C, mg - 106.8±115.3 thiamine, mg - 1.9±1.9 riboflavin, mg - 2.8±2.2 niacin, mg - 25.5±8.9 folate, μg - 484.6±149.8 vitamin B12, μg - 13.7±46.8 | NA |
| Devlin, Leveritt, Kingsley, & Belski 2017 (32) AUS | n=66 23±4 Male=66 | Elite AF:Subelite AF: Elite Soccer Energy, MJ - 17.3±4.2:13.2±2.5:9.4±2.3 g - 295±97:171±52:140±35 PRO, g/kg/day - 3.4±1.1:2.1±0.7:1.9±0.5 %TEI - 30±8:22±7:26±6 CHO, g - 406±132:368±93:220±76 g/kg/day - 4.6±1.5:4.5±1.2:2.9±1.1 %TEI - 38±9:45±10:38±8 Fat, g - 137±44:100±37:83±31 g/kg/day - 1.6±0.5:1.2±0.5:1.1±0.4 %TEI - 29±6:28±8:33±9 | small, statistically significant, positive correlation between level of sport nutrition knowledge and both total energy intake (r2=0.046, p=0.014) and total CHO intake (r2=0.043, p=0.039) medium-large statistically significant - negatively correlation between total nutrition knowledge score and total protein intake (r2=0.244, p=0.026 and r2=0.382, p=0.016 respectively) |
| Hardy, Kliemann, Evansen, & Brand 2017 (65) USA | n=194 18-19 - 95 (49%), 20-21 - 83 (42.8%), >=22 - 16 (8.2) Male=82 Female=112 | Energy drink consumption? User - n=28 nonusers - n=166 < 1 drink/wk - 54% 1-2 drinks/week - 29% | Knowledge scores were 5.6 points lower for consumers over non-consumers |
| Jenner et al. (34) 2018 AUS | n=46 24.2±4.0 Male=46 | Mean +/- SD Energy (MJ) - 9.1±1.8 CHO (g/kg/day) - 2.4±0.8 PRO (g/kg/day) - 1.8±0.4 Fat (g/kg/day) - 0.9±0.3 Fibre (g) - 27.0±7.6 Calcium (mg) - 952±287 Fruit (serves) - 1.0±0.8 Vegetable (serves) - 4.2±1.7 | moderate positive association between NK scores and meeting estimated energy requirements (r=0.325, P=0.031) NK scores positively associated with protein (r=0.348, P=0.021), fibre (r=0.510, P=0.001), and calcium intakes (r=0.428, P=0.004) |
| Lohman, Carr, & Condo 2019 (35) Australia | n=71 Elite=25±13, Sub-elite=21±3 Male=37 | Elite (n=35): Sub-elite (n=31) Energy (kJ) - 14140±5887:10412±3316 PRO (g) - 210.9±77.5:163.2±48.6 CHO (g) - 285.5±154.9:225.6±86.9 CHO (g/kg BM) - 3.2±1.6:2.8±1.1 Sugar (g) - 124.3±77.5:93.2±40.2 Sugar (%EI) - 13.3±4.6:14.2±4.3 Fibre (g) - 35.1±17.0:29.4±14.3 Total fat (g) - 147.6±56.9:96.3±36.5 Total fat (g/kg BM) - 1.6±0.6:1.2±0.5 Total fat (%EI) - 39.8±6.0:33.8±5.7 SFA (g) - 51.0±24.0:34.3±14.4 SFA (g/kg BM) - 0.6±0.2:0.4±0.2 SFA (%EI) - 13.4±2.6:12±3 MUFA (g) - 61.7±23.2:39±17.6 PRO (g/kg BM) - 2.3±0.9:2.0±0.6 | NA |
| McCrink et al., 2020 (60) | n=24 (for NSKQ results)  Median = 23.0 (IQR = 20.0, 27.0)  Male=24 | Intake (median [IQR]) energy  Kcal/day - 2496.2 (2162.2, 2719.1) PRO - total, g 114.2 (96.4, 125.2) g/kg/day - 1.4 (1.2, 1.7) %EI - 18.1 (16.4, 20.8) CHO  Total, g - 290.7 (234.1, 319.2) g/kg/day - 3.6 (3.0, 4.1) %EI - 46.4 (41.2, 49.4) Free sugar, % EI - 8.8 (4.9, 12.3) Fibre, g - 21.5 (18.5, 25.8) Fat Total, g - 87.0 (75.5, 97.3) g/kg/day - 1.1 (1.0, 1.3) % EI - 32.2 (28.5, 36.2) SFA, % EI - 11.7 (10.0, 13.1) MUFA, %EI - 11.3 (9.6, 13.0) PUFA, % EI - 4.5 (3.4, 5.5) Alcohol Total, % EI - 0.0 (0.0, 9.1) Intake (median [IQR]) Vitamins Vitamin A, (μg) - 859.5 (578.5, 1165.9) Vitamin D (μg) - 3.8 (1.8, 5.5) Vitamin E (mg) - 10.0 (6.9, 12.6) Thiamin (mg) - 2.3 (1.8, 2.7) Riboflavin (mg) - 2.3 (2.0, 3.1) Niacin (mg) - 58.8 (46.4, 70.0) Folate (μg) - 345.4 (279.8, 425.4) Vitamin B12 (μg) - 6.2 (5.2, 9.4) Vitamin C (mg) - 91.3 (55.5, 130.9) Minerals Sodium (mg) - 2793.7 (2338.1, 3294.7) Potassium (mg) - 3796.5 (3386.2, 4408.0) Magnesium (mg) - 354.5 (312.1, 426.7) Calcium (mg) - 1080.9 (812.4, 1420.6) Iron (mg) - 14.1 (11.6, 17.5) Zinc (mg) - 11.6 (9.3, 15.6) Selenium (μg) - 54.2 (47.2, 76.7) |  |
| Murphy & O’Reilly, 2020 (61)  Ireland | n=328  elite n=129, sub-elite n=136  18-21= 70  22-27= 127  28-32=47  33+=21  Male=328 | Food group intake  Median, % score, IQR  Vegetables – 10, 47.6%, 8-12  Fruit – 5, 45.5%, 4-6  Meat – 4, 57.1%, 3-5  Meat alternative – 3, 50%, 3-4  Grains – 6, 46.2%, 5-7  Dairy – 5, 45.5%, 4-6  Water – 1, 100%, 1-1  Extras – 1, 100%, 0-1  Total – 35, 48.6%, 30-39 | Correlation between nutrition knowledge and food score  Total sample - Weak to moderate positive correlation (r=0.3, p=0.007)  Sub-elite athletes - Weak positive correlation (r=0.26, p=0.002)  Elite athletes – Moderate positive correlation (r=0.35, p=0.006) |
| Nascimento et al. 2016 (30) Brazil | n=11 (adult participants) 23.7 (SE=0.53) Male=11 | Adequate portion intakes n(%) Cereals - 7(50) Fruits - 8 (34.8) Vegetables - 2 (34.6) Meats and eggs - 4 (25) Dairy - 3 (23.1) Beans and nuts - 3 (33.3) Fats and oils - 4 (21.1) Sweets - 9 (45) | NA |
| Rossi et al. 2017 (58) USA | n=15 19.3 (1.0) Male=15 | Energy, kcal - 3878 (443) PRO, g - 143 (25) CHO (g) - 291 (77) Fat, g - 129 (21) | NA |

SFA, saturated fatty acids. MUFA, mono-unsaturated fatty acids. PUFA, poly-unsaturated fatty acids. n, number of participants. SD, standard deviations. CHO, carbohydrate. PRO, protein. kJ/kg, kilojoule per kilogram. %EI, percentage of energy intake. g/kg, grams per kilogram. kJ/kg/day, kilojoules per kilogram per day. g/kg/day, grams per kilogram per day. % of E, percentage of energy. %TEI, percentage of total energy intake. g/kg BM, grams per kilogram of body mass.