# 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**).**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1Participant inclusion | 2Demographics & setting | 3Exposure | 4Athlete condition | 5Confounders identified | 6Confounder control strategies | 7ANK tool validity | 7BDietary assessment tool validity | 8Appropriate 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 resultsMacronutrient/Micronutrient/Food group intakes | Correlation measures |
| Abbey, Wright, & Kirkpatrick2017 (50)USA | n=8819.6±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=0.001Sodium, mg n=88 (9404.3±3390.5); Lineman (2300); p=<0.001Potassium, mg n=88 (6298.1±1986.5); Lineman (4700); p=0.042Reporting Daily in % of n =88Starches/grains - 67Meat - 52.3Seafood - 6Dairy - 82.8Fruits - 47.1Vegetables - 38.4Desserts/candy - 20.2Sports drinks - 34.1Juice - 29.9Coffee - 3.4Soda - 2.3Energy drinks - 2.3Protein powders - 33.0Multivitamin/mineral - 18.2Creatine - 5.7Other - 6.9 | NA |
| Andrews & Itsiopoulos2016 (37)AUS | Professional n=2922 (18-27)Male=29Semiprofessional n=4421(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=1733±10.8Male=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): 94.1MEDIAN (ICC): Inadequacy %Vit A (μg) - 484 (326-882): 70.6Vit C (mg) - 610 (553-628): 0Vit B1 (mg) - 1.2 (0.7-1.5): 53Vit B2 (mg) - 1(0.7-2.5): 41.2Vit B5 (mg) - 3.4 (3-4.4): 88Vit B6 (mg) - 7.2 (5.6-7.6): 0Vit B9 (μg) - 108 (0-263):76.5Vit B12 (μg) - 3.2 (1.2-3.8): 35.3Vit E (mg) - 8.1 (6-16): 58.8Calcium (mg) - 648 (603-696): 100Iron (mg) - 10 (8.6-14.6): 53Zinc (mg) - 8.8 (7.5-13.8): 58.8Sodium (mg) - 2485 (1940-3981): 64.7Phosphorus (mg) - 900 (898-904):0 | Negative correlation between adults' total nutrition knowledge and their sodium intake (r=-485) |
| Coccia et al., 2020 (49) | n=5019.62±1.483Male=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)2019AUS | n=3024.15±4.1Female=30 | Energy, kJ - 7826 ± 2411.6kJ/kg/day - 199.5±37.4PRO - g - 98±32.1g/kg/day - 1.5±0.5CHO, g - 192.4±51.8g/kg/day - 3.0±0.8Sugar, g - 86.2±33.1% of E - 18.6±4.4Fibre, g - 25.5±8Total fat, g - 72.2±33.4% of E - 33.2±6.5SFA, g - 25.7±14.6% of E - 11.6±3.2MUFA, g - 29±14.1PUFA, g - 11.4±4.8calcium, mg - 924.8±544.7iron, mg - 12.2±3.2magnesium, mg - 367.5±137.8phosphorus, mg - 1569.3±549.4potassium, mg - 3109±1173sodium, mg - 2063.3±957zinc, mg - 11.7±4selenium, μg - 98.1±64.7vit. C, mg - 106.8±115.3thiamine, mg - 1.9±1.9riboflavin, mg - 2.8±2.2niacin, mg - 25.5±8.9folate, μg - 484.6±149.8vitamin B12, μg - 13.7±46.8 | NA |
| Devlin, Leveritt, Kingsley, & Belski2017 (32)AUS | n=6623±4Male=66 | Elite AF:Subelite AF: Elite SoccerEnergy, MJ - 17.3±4.2:13.2±2.5:9.4±2.3g - 295±97:171±52:140±35PRO, g/kg/day - 3.4±1.1:2.1±0.7:1.9±0.5%TEI - 30±8:22±7:26±6CHO, g - 406±132:368±93:220±76g/kg/day - 4.6±1.5:4.5±1.2:2.9±1.1%TEI - 38±9:45±10:38±8Fat, g - 137±44:100±37:83±31g/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, & Brand2017 (65)USA | n=19418-19 - 95 (49%), 20-21 - 83 (42.8%), >=22 - 16 (8.2)Male=82Female=112 | Energy drink consumption?User - n=28nonusers - 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)2018AUS | n=4624.2±4.0Male=46 | Mean +/- SDEnergy (MJ) - 9.1±1.8CHO (g/kg/day) - 2.4±0.8PRO (g/kg/day) - 1.8±0.4Fat (g/kg/day) - 0.9±0.3Fibre (g) - 27.0±7.6Calcium (mg) - 952±287Fruit (serves) - 1.0±0.8Vegetable (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, & Condo2019 (35)Australia | n=71Elite=25±13, Sub-elite=21±3Male=37 | Elite (n=35): Sub-elite (n=31)Energy (kJ) - 14140±5887:10412±3316PRO (g) - 210.9±77.5:163.2±48.6CHO (g) - 285.5±154.9:225.6±86.9CHO (g/kg BM) - 3.2±1.6:2.8±1.1Sugar (g) - 124.3±77.5:93.2±40.2Sugar (%EI) - 13.3±4.6:14.2±4.3Fibre (g) - 35.1±17.0:29.4±14.3Total fat (g) - 147.6±56.9:96.3±36.5Total fat (g/kg BM) - 1.6±0.6:1.2±0.5Total fat (%EI) - 39.8±6.0:33.8±5.7SFA (g) - 51.0±24.0:34.3±14.4SFA (g/kg BM) - 0.6±0.2:0.4±0.2SFA (%EI) - 13.4±2.6:12±3MUFA (g) - 61.7±23.2:39±17.6PRO (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)FatTotal, 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)AlcoholTotal, % EI - 0.0 (0.0, 9.1)Intake (median [IQR])VitaminsVitamin 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)MineralsSodium (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=13618-21= 7022-27= 12728-32=4733+=21Male=328 | Food group intakeMedian, % score, IQRVegetables – 10, 47.6%, 8-12Fruit – 5, 45.5%, 4-6Meat – 4, 57.1%, 3-5Meat alternative – 3, 50%, 3-4Grains – 6, 46.2%, 5-7Dairy – 5, 45.5%, 4-6Water – 1, 100%, 1-1Extras – 1, 100%, 0-1Total – 35, 48.6%, 30-39 | Correlation between nutrition knowledge and food scoreTotal 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=1519.3 (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.