**Supplementary material**

**Supplementary Table 1 Analgesic use questionnaire**

|  |  |
| --- | --- |
| **Question** | **Answer options** |
| ‘*How many days in the previous 7 days did you use analgesics?* | **0 (questionnaire ends)****1****2****3****4****5****6****7** |
| *Why did you use analgesics? (choose all relevant response options).* | a) To treat pain or injury after participating in sport, b) to treat pain or injury prior to participating in sport, c) to prevent pain that might occur during sports participation, d) to treat pain not related to sports injury (e.g., headache, back pain), e) to treat menstrual pain, f) to treat illness,g) and other reasons. |
| *What type(s) of analgesic(s) did you use? (choose all relevant response options)*. | a) Paracetamol (e.g., Panodil, Pamol, Paracetamol, Pinex), b) Non-steroidal anti-inflammatory drugs (e.g., Ipren, Ibuprofen, Ibumetin, Diclofenac, Naproxen), c) topical gels (e.g., Voltaren gel, Ipren gel, Ibutop), d) acetylsalicylic acid (e.g., Treo, Triplo, Kodimagnyl), e) opioids (e.g., Tramadol, Kodein, Fentanyl, Oxycodon), f) local injections, and g) Other (e.g., antiepileptic medicine [Gabapentin, Pregabalin], antidepressive medicine [Amitryptilin, Duloxetine]). |

**Supplementary Table 2** Different sports disciplines categorized into three major categories (n)

|  |  |  |
| --- | --- | --- |
| **Endurance sports (n=117)** | **Technical sports (n=200)** | **Team sports (n=275)** |
| Cycling (13) | Athletics (25) | American football (4) |
| Kayak (16) | Badminton (38) | Basketball (45) |
| Rowing (4) | BMX (3) | Beach volleyball (1) |
| Swimming (64) | Boxing (2) | Football (92) |
| Skiing/speed skating (13) | Table tennis (12) | Floorball (4) |
| Orienteering (6) | Wrestling (4) | Handball (87) |
| Triathlon (1) | Archery (2) | Ice hockey (14) |
|  | Dance (7) | Rugby (1) |
|  | Fencing (3) | Volleyball (23) |
|  | Golf (17) | Cheerleading (2) |
|  | Gymnastics (12) | Lacrosse (1) |
|  | Judo (5) | Curling (1) |
|  | Karate (5) |  |
|  | Mountain bike (6) |  |
|  | Motor sports (4) |  |
|  | Equestrian sports (11) |  |
|  | Sailing sports (14) |  |
|  | Taekwondo (3) |  |
|  | Tennis (15) |  |
|  | Trampoline (1) |  |
|  | Olympic weightlifting (5) |  |
|  | Climbing (4) |  |
|  | Thai boxing (1) |  |
|  | Dart (1) |  |

**Supplementary Table 3** Drop-out analysis

|  |  |  |  |
| --- | --- | --- | --- |
|  | Participants retained in the study (n=596) | Participants dropped out or excluded (n=143) | Difference (95% CI) or p-value |
| Age, mean (SD): years | 17.1 (1.1) | 17.2 (1.0) | 0.08 (-0.12 to 0.33) |
| Female, n (%) | 257 (43%) | 67 (46%) | p=0.56 |
| BMI, mean (SD) | 21.9 (2.8) | 22.1 (4.1) | 0.2 (-0.35 to 0.75) |
| Weekly sports exposure, median (IQR): hours | 15 (12-20) | 14 (11-18) | p=0.06a |
| Type of sport, n (%) Team sport Endurance sport Technical sport | 275 (46.4)117 (19.8)200 (33.8) | 59 (48.7)22 (18.2)40 (33.1) | P=0.87 |
| Competition level, n (%)b Regional National International | 42 (7.1)277 (46.8)273 (46.1) | 7 (4.9)67 (47.1)68 (47.3) | P=0.68 |
| Age at sports debut, mean (SD): years | 7.5 (3.2) | 7.3 (3.2) | 0.2 (-0.4 to 0.8) |
| Age at sports specialization, mean (SD): years | 13.0 (2.3)b | 12.7 (2.3) | 0.3 (-0.1 to 0.8) |
| Baseline sports-related injury, n (%) No Yes | 273 (46.5)319 (53.5) | 66 (46.3)77 (53.7) | 0.71 |

aCalculated using Chi2 test; bMissing n=1,

**Supplementary Table 4A+B** Comparison of analgesic use (A=prevalence of use, B=frequency of use) between included participants and participants with missing data (excluded in analyses)

**A**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Included (n=592) | Excluded | P-value for difference |
| Week 1, prevalence (%)a | 29.7 | 39.3 | 0.07 |
| Week 2, prevalence (%)b | 25.0 | 37.2 | 0.02 |
| Week 3, prevalence (%)c | 23.9 | 38.8 | 0.01 |
| Week 4, prevalence (%)d | 24.6 | 20.3 | 0.46 |

a Number of excluded participants with available outcome data =84; b Number of excluded participants with available outcome data =86; c Number of excluded participants with available outcome data =72; d Number of excluded participants with available outcome data =59

**B\***

|  |  |  |  |
| --- | --- | --- | --- |
|  | Included (n=592) | Excluded | Difference (mean difference, 95% CI) |
| Week 1, number of days (mean, SD) | 2.2 (0.11) | 2.4 (0.31) | -0.2 (-0.8 to 0.3) |
| Week 2, number of days (mean, SD) | 2.4 (0.14) | 2.0 (0.24) | 0.4 (-0.2 to 1.1) |
| Week 3, number of days (mean, SD) | 2.4 (0.14) | 2.3 (0.24) | 0.1 (-0.6 to 0.7) |
| Week 4, number of days (mean, SD) | 2.4 (0.14) | 2.9 (0.45) | -0.5 (-1.5 to 0.5) |

a Number of excluded participants with available outcome data =33; b Number of excluded participants with available outcome data =32; c Number of excluded participants with available outcome data =28; d Number of excluded participants with available outcome data =12. The number of available participants are lower, as the analysis of frequency data is based on participants reporting $\geq $1 days use.

**Supplementary Table 5** Distribution of WCH item responses, n (%)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Strongly disagree | Disagree | Neither agree nor disagree | Agree | Strongly agree |
| *1. I abstain from competing if I do not feel physically resilient* | 135 (22.8) | 252 (42.6) | 120 (20.3) | 71 (12.0) | 14 (2.3) |
| *2. I abstain from competing if I have joint pain without moving* | 81 (13.7) | 171 (28.9) | 151 (25.5) | 144 (24.3) | 45 (7.6) |
| *3. I abstain from competing if I must use pain killers* | 155 (26.2) | 247 (41.7) | 103 (17.4) | 65 (11.0) | 22 (3.7) |
| *I abstain from competing if I have a fever or cold*.  | 131 (22.1) | 197 (33.3) | 144 (24.3) | 98 (16.6) | 22 (3.7) |

**Supplementary Table 6** Reasons for use and types of analgesics used

|  |  |  |
| --- | --- | --- |
|  | Total number, n (%)a,b | Average weekly number, n (%)c |
| **Reasons for analgesic used** |
| To treat pain/injury after sports participation | 168 (20.5) | 42 (7.1) |
| To treat pain/injury prior to sports participation  | 139 (16.9) | 35 (5.9) |
| To prevent pain from occurring during sports participation | 76 (9.4) | 19 (3.2) |
| To treat pain not associated with sports injury (e.g., headache) | 236 (28.8) | 59 (9.9) |
| To treat menstrual pain | 80 (9.8) | 20 (3.4) |
| To treat illness | 97 (11.8) | 24 (4.1) |
| Other reasons | 23 (2.8) | 6 (1.0) |
| **Types of analgesicse** |
| Paracetamol | 444 (56.9) | 111 (18.8) |
| Non-steroid anti-inflammatory drugs | 156 (20.0) | 39 (6.6) |
| Topical gels | 117 (15.0) | 29 (4.9) |
| Acetylsalicylic acid | 36 (4.6) | 9 (15.2) |
| Opioids | 9 (1.2) | 2 (0.3) |
| Anesthetic injection | 2 (0.3) | 0.5 (0.1) |
| Other analgesic drugs | 16 (2.0) | 4 (0.7) |

a Participants could choose more than one answer option; b Proportion of total number of registrations; c Proportion of participants (n=592), d missing n=23, missing n=46

**Supplementary Table 7** Results of multivariate linear regression analysis (n=592)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Variable** | **Coefficient** | **95% CI** | **P-value** | **R2** |
| Type of sport Endurance sports (reference) Technical sports Team sports | -0.011.32 | -0.72 to 0.690.82 to 1.82 | 0.95>0.001 | 0.05 |
| Age at sports debut | -0.1 | -0.15 to -0.001 | 0.04 | 0.01 |
| Baseline injury No injury (reference) Injury that does not affect sports participation Injury that has affected sports participation for less than 4 weeks Injury that has affected sports participation for more than 4 weeks Time-loss injury | 0.79Omitted0.711.14 | 0.19 to 1.39-0.10 to 1.49-0.11 to 2.39 | 0.010.070.07 | 0.02 |
| Elimination criteria (p=$\leq $0.1)Stepwise elimination of independent variables: age (p=0.89), age at sports specialization (p=0.82), participation in more than one sport (p=0.28), weekly sports exposure hours (p=0.30), gender (p=0.17), competition level (p=0.23). |