**Supplemental Digital Content 7: Study methodological characteristics and results for the association between muscular endurance composite scores and MSK-I in males and females**

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| --- | --- | --- | --- | --- | --- | --- |
| **Author, Country, Population** | **Quality** | **Sample Size** | **Follow-Up** | **MSK-I Type** | **Fitness Test** | **Strength of Association** |
| **Crude Association** | **Association with Adjustments** | **Direction of Association** |
| Kuikka et al. (40), Finland, Military | Good | M=128,584 | 180 to 362 days | Knee Injury | CSa | -- | ***Highest quartile:******Hospitalization for Knee Injury:*** OR=1.6 (1.2-2.4)***New Meniscal Tear:*** OR=3.5 (1.04-12.2)***ACL/PCL Tear:*** OR=2.6 (1.04-6.5) | **- -** |
| Mattila et al. (45),Finland, Military | Fair | 138,031(M=135,987F=2,044) | 8 monthsc  | LE Injuriesd  | CSa | NS | NS | ≠ |
| Mattila et al. (46),Finland, Military | Excellent | 152,095(M=149,750F=2,345) | 8 monthsc  | Overuse(Bone Stress Injury) | CSa | ***Lowest Quartile:*** HR=1.4 (1.1-1.9) | NS | + |
| Taanila et al. (60),Finland, Military | Good | M=1,411 | 180 days | A/T & O | Muscle Fitness Indexb | ***Lowest Quartile:******Acute:***HR=1.6 (1.1-2.4)***Severe acute:*** HR=2.6 (1.1-6.3)***Lowest 2 Quartiles:******Overuse:*** HR=1.5 (1.1-1.9) HR=1.7 (1.3-2.3)***Severe overuse:*** HR=2.1 (1.3-3.3) | NS | **+** |
| Physical Fitness Index | ***Lowest Quartile:******Severe acute:*** HR=1.9 (1.1-3.4)***Severe overuse:*** HR=2.4 (1.7-3.4)***Lowest 2 Quartiles:******Overuse:*** HR=1.3 (1.1-1.5) HR=1.8 (1.5-2.2) | ***Lowest Quartile:******Overuse:*** HR=1.4 (1.1-1.8)***Severe overuse:***HR=1.7 (1.1-2.7) | ++ |

M=Male, F=Female, LE=Lower Extremity, CS=Composite Score, A/T & O= Acute/Traumatic & Overuse, HR=Hazard Ratio, OR=Odds Ratio, NS=Non-Significant

aComposite score comprised of horizontal jump distance, number of sit-ups, push-ups, pull-ups, and back lifts.

bComposite score = (12 minute run distance + 100 \* Muscle Fitness Test points) / 200.

cAverage military service.

dLower extremity injuries requiring hospitalization.

++, Significant multivariate association between low ME/MS and increased MSK-I risk

+, Significant univariate association between low levels of ME/MS and increased MSK-I risk

- -,Significant multivariate association between high levels of ME/MS and increased MSK-I risk

- ,Significant univariate association between high levels of ME/MS and increased MSK-I risk

≠, No significant association