

Neuromusculoskeletal Injury Recovery and Reinjury Following COVID-19 Infection, 2020-2023

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BACKGROUND

- Neuromusculoskeletal injuries (NMSKIs) are a leading cause of medical encounters and limited duty days among U.S. active-duty service members (ADSMs)¹
- COVID-19 infection has been associated with musculoskeletal (MSK) damage and may exacerbate current MSK pain^{2,3}
- Little is known about how COVID-19 infection is associated with NMSKI recovery and reinjury

OBJECTIVE

Determine how COVID-19 infection prior to NMSKI is associated with recovery and reinjury among ADSMs.

METHODS

- Design:** Retrospective cohort using data from the Military Health System Data Repository
- Population:** ADSMs ages 18-64 who experienced an incident NMSKI from March 2020 to February 2022
- Exposure:** Positive COVID-19 infection during the 12 months pre-NMSKI
- Outcomes:** Outpatient rehabilitation, reinjury, and time to recovery during the 12 months post-NMSKI
- Analysis:** Logistic regression (outpatient rehabilitation and reinjury) and Cox proportional hazards models (time to recovery)

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RESULTS

Figure 1. Odds of Post-NMSKI Outpatient Rehabilitation (N = 208,183)

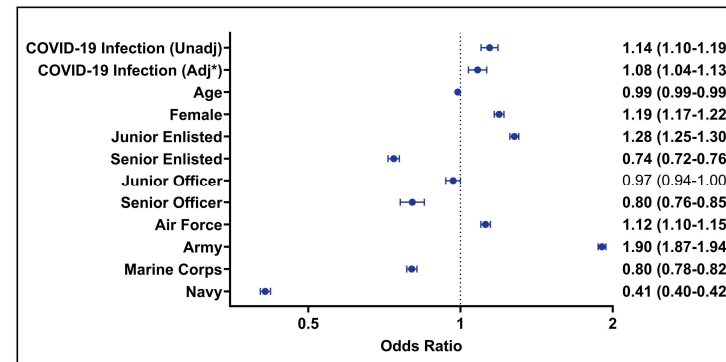
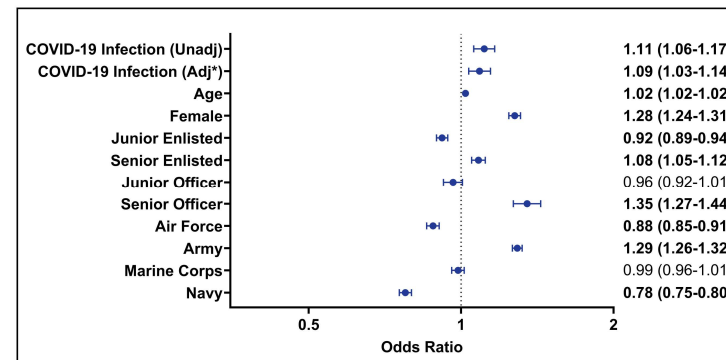


Figure 2. Odds of Post-NMSKI Reinjury (N = 208,183)



* Adjusted for age, sex, race, BMI category, military rank, military branch, and occupation category (N = 186,440)

- Total Population = 208,183
- 10,987 (5.3%) had a pre-NMSKI COVID-19 infection
- 90,365 (43.4%) encountered post-NMSKI outpatient rehabilitation
- 39,425 (18.9%) experienced a post-NMSKI reinjury

Table 1. Hazard Ratios from Cox Proportional Hazards Models of Time to Recovery from an Incident NMSKI (N = 208,183)

	Hazard Ratio (95% CI)
COVID-19 Infection (Unadj)	0.97 (0.95-0.99)
COVID-19 Infection (Adj*)	0.97 (0.95-0.99)
Age	0.99 (0.99-0.99)
Female	0.92 (0.91-0.94)

CONCLUSIONS

- COVID-19 infection in the 12 months pre-NMSKI was associated with an increased odds of outpatient rehabilitation and reinjury in the 12 months post-NMSKI and longer time to NMSKI recovery
- Females had increased odds of both outpatient rehabilitation and reinjury and had longer time to recovery compared to males
- Senior-ranked ADSMs had decreased odds of outpatient rehabilitation but increased odds of reinjury compared to Junior
- Further research is needed to clarify the duration of post-COVID-19 infection effects on recovery timelines and the subsequent impact on ADSM return-to-duty status

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