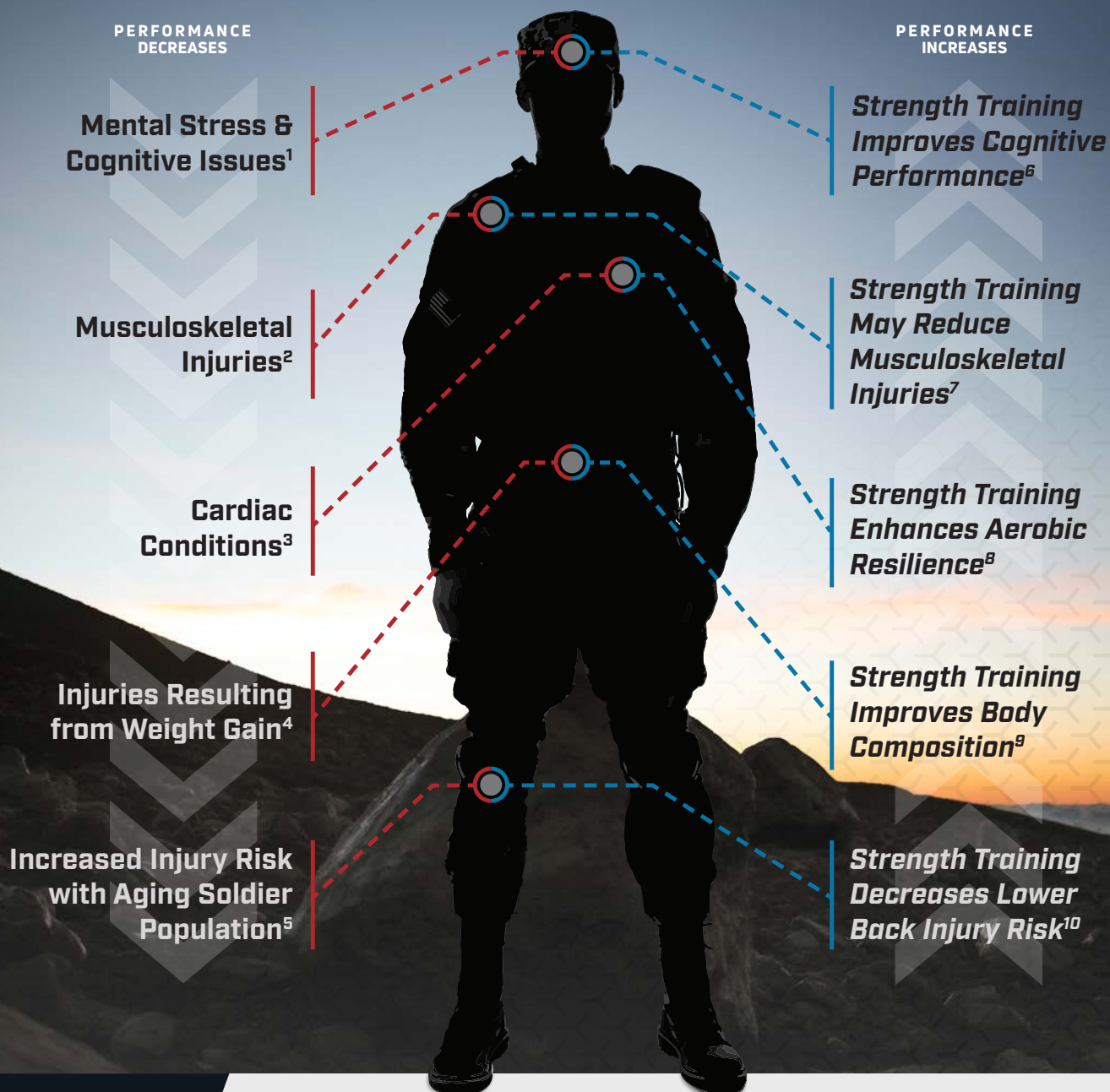


STRENGTH MATTERS FOR MILITARY PERSONNEL



Military professionals across all branches face physical, mental, and psychological stressors as they perform their tasks. Increasingly, health and wellness experts are turning to strength and conditioning to address rising health care costs, to enhance resilience, and to extend retention rates.

Consider the Evidence-based Benefits of Strength & Conditioning



“Strength and conditioning training increases readiness and tactical performance, while reducing injury risks in military personnel”.

Abt, JP, Oliver, JM, Nagai, T, Sell, TC, Lovalekar, MT, Beals, K, Wood, DE, and Lephart, SM. Block-periodized training improves physiological and tactically-relevant performance in naval special warfare operators. J Strength Cond Res 30: 39–52, 2016.

NSCA Tactical Strength and Conditioning Solutions

1 Gold-Standard Strength and Conditioning Certifications

CSCS® - Certified Strength and Conditioning Specialist®

TSAC-F® - Tactical Strength and Conditioning Facilitator®

2 Strength and Conditioning Research Journals

The Journal of Strength and Conditioning Research

The Strength and Conditioning Journal

The TSAC Report

3 Training for Tactical Strength and Conditioning Professionals

NSCA Tactical Annual Training

Tactical Strength and Conditioning Facilitator Course

1 Mental Stress & Cognitive Issues

"Acute stressors in tactical operations can impair cognition and spatial working memory."

Morgan, C. A., Doran, A., Steffian, G., Hazlett, G. & Southwick, S. M. Stress-induced deficits in working memory and visuoconstructive abilities in special operations soldiers. *Biol. Psychiatry* 60, 722-729 (2006).

2 Musculoskeletal Injuries

"On an annual basis, there are over 3.8 million lost duty days and over 10 million limited duty days secondary to musculoskeletal injuries in the US Army."

Hauret KG, Jones BH, Bullock SH, Canham-Chervak M, Canada S. Musculoskeletal injuries description of an under-recognized injury problem among military personnel. *Am J Prev Med.* 2010;38(1)(suppl):S61-S70.

Ruscio BA, Jones BH, Bullock SH, et al. A process to identify military injury prevention priorities based on injury type and limited duty days. *Am J Prev Med.* 2010;38(1)(suppl):S19-S33.

"In the US Army, MSKIs accounted for 73% of all disability cases from 1997-2002 and have been implicated as the single most common (53%) reason for discharge."

Alison S. TB MED 592: Prevention and Control of Musculoskeletal Injury Associated with Physical Training. Washington, DC: Department of the Army; 2006.

Lincoln AE, Smith GS, Amoroso PJ, Bell NS. The natural history and risk factors of musculoskeletal conditions resulting in disability among US Army personnel. *Work.* 2002;18:99-113.

Songer TJ, LaPorte RE. Disabilities due to injury in the military. *Am J Prev Med.* 2000;18:33-40.

3 Cardiac Conditions

"Reduced cardiorespiratory fitness has been found to associate with higher levels of depressive symptoms, stress and stress-related exhaustion as well as lower levels of mental well-being."

Kettunen O, Kyröläinen H, Santtilä M, Vasankari T. Physical fitness and volume of leisure time physical activity relate with low stress and high mental resources in young men. *J Sports Med Phys Fit.* 2014;54:545-51.

Lindegård A, Wastensson G, Hadzibajramovic E, Grimby-Ekman A. Longitudinal associations between cardiorespiratory fitness and stress-related exhaustion, depression, anxiety and sleep disturbances. *BMC Public Health.* 2019;19:1726.

4 Injuries Resulting from Weight Gain

"Improper body composition has been linked to limited aerobic and anaerobic capacity and increased injury risk."

Cowan DN, Bedno SA, Urban N et al. Musculoskeletal injuries among over-weight army trainees: incidence and health care utilization. *Occup Med* 2011;61(4):247-252.7.

Crawford K, Fleishman K, Abt JP et al. Less body fat improves physical and physiological performance in army soldiers. *Mil Med* 2011; 176(1):35-43.8.

5 Increased Injury Risk with Aging Soldier Population

"Older individuals experience higher injury rates than their younger counterparts when engaging in the same amount and type of physical activity."

Jones & Hauschild, *Physical Training, Fitness, and Injuries: Lessons Learned from Military Studies*, *J Strength Cond Res* 29(11S): S57-S64, 2015.

6 Strength Training Improves Cognitive Performance

"Strength and conditioning training can improve cognitive function, including planning, problem solving, and working memory when compared to aerobic training alone."

Colcombe, S. & Kramer, A. F. Fitness effects on the cognitive function of older adults: a meta analytic study. *Psychol. Sci.* 14,125-130 (2003).

Colcombe, S. J. et al. Cardiovascular fitness, cortical plasticity, and aging. *Proc. Natl. Acad. Sci. U. S. A.* 101, 3316-3321 (2004).

7 Strength Training May Reduce Musculoskeletal Injuries

"Strength and conditioning programs to improve balance and peak anaerobic power could reduce musculoskeletal injury."

Najia et al. Poor anaerobic power/capacity and static balance predicted prospective musculoskeletal injuries among Soldiers of the 101st Airborne Division. *Journal of Science and Medicine in Sport* 20 (2017) S11-S16.

8 Strength Training Enhances Aerobic Resilience

"Proper strength and conditioning training, including high-intensity interval training, can improve aerobic and anaerobic capabilities in military populations while reducing running distance and volume."

Gibala MJ, Gagnon PJ, Nindl BC. Military applicability of interval training for health and performance. *J Strength Cond Res* 2015; 29(Suppl. 11):S40-S45.

"Individuals who are more conditioned can perform at a lower relative capacity, for longer periods, recover faster, and perform subsequent tasks more easily than less conditioned individuals."

Knapik, JJ. The importance of physical fitness for injury prevention: Part 1. *J Spec Oper Med* 15: 123-127, 2015.

9 Strength Training Improves Body Composition

"Strength and conditioning training has been shown to increase strength, performance and body composition."

Fleck, S.J. Periodized strength training: A critical review. *J Strength Cond Res* 13: 82-89, 1999.

Rhea, MR, Phillips, WT, Burkett, LN, Stone, WJ, Ball, SD, Alvar, BA, and Thomas, AB. A comparison of linear and daily undulating periodized programs with equated volume and intensity for local muscular endurance. *J Strength Cond Res* 17: 82-87, 2003.

10 Strength Training Decreases Lower Back Injury Risk

"Increasing strength, flexibility, balance, and better movement patterns can decrease injury risk in military populations, particularly in the lower body, shoulder, and back."

Parr JJ, Clark NC, Abt JP et al. Residual impact of previous injury on musculoskeletal characteristics in special-forces operators. *Orthop J Sports Med* 2015;3(11):13.

Sell TC, Clark NC, Wood D et al. Single-leg balance impairments persist in fully operational military special-forces operators with a previous history of low back pain. *Orthop J Sports Med* 2014; 2(5):1-6.

NSCA
TACTICAL

Since 2005, the National Strength and Conditioning Association (NSCA) has partnered closely with tactical professionals to develop strength and conditioning solutions to increase performance and reduce injury among military personnel. We look forward to working with you.

LOGAN BRODINE

Tactical Program Manager

logan.brodine@nsca.com