

# Putting Research to Work for Military Families



**Focus:**  
Multiple  
Branches

## Risk of Diabetes in US Military Service Members in Relation to Combat Deployment and Mental Health

Boyko, E. J., Jacobson, I. G., Smith, B., Ryan, M. A., Hooper, T. I., Amoroso, P. J., & Smith, T. C. (2010). Risk of diabetes in U.S. Military service members in relation to combat deployment and mental health. *Diabetes Care*, 33(8), 1771-1777. doi:10.2337/dc10-0296

**SUMMARY:** Data from 44,754 Millennium Cohort Study participants were used to determine whether military deployment, combat exposures, and mental health conditions were related to the risk of newly reported diabetes over the three-year follow-up period. Those with self-reported diabetes diagnoses at follow-up were significantly older, had greater baseline body mass index (BMI), and were more likely to be Black. Results indicate that, in this military cohort, posttraumatic stress disorder (PTSD) symptoms at baseline, but not other mental health symptoms or military deployment experience, were significantly associated with future risk of diabetes.

### KEY FINDINGS:

- Only PTSD symptoms were strongly and significantly related to diabetes occurrence when considering all self-reported psychiatric conditions and characteristics of military service.
- Depression was not found to be related to risk of diabetes, contrary to results of previous studies.
- Characteristics associated with new onset of diabetes included: two post-baseline deployments, separation from Service, incidence of panic disorders, other anxiety disorders, and PTSD.

### IMPLICATIONS FOR PROGRAMS:

Programs could:

- Provide increased monitoring and assessment specific to Type-2 diabetes for Service members who display or report risk factors for the onset of diabetes
- Educate Service members with PTSD and their families about the possible link with Type-2 diabetes development
- Develop family-oriented activities that include education about risk factors, and methods for prevention and treatment of diabetes

### IMPLICATIONS FOR POLICIES:

Policies could:

- Encourage programs to incorporate additional health screenings and training regarding the development of Type-2 diabetes for Service members diagnosed with PTSD
- Promote the development and continuation of programs that can promote resilience in Service members, their partners, and children
- Continue to support programs that address the unique challenges faced by Service members who experience PTSD and other anxiety disorders

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## METHODS

- Data from the baseline and two follow-up iterations of the Millennium Cohort Study were used for this analysis.
- A quantitative study was conducted on the stratified random sample of Service men and women who completed the self-report questionnaires, including questions regarding physical and mental health.
- The main outcome variable of interest was the self-reported occurrence of Type-2 diabetes.

## PARTICIPANTS

- Sample included 44,754 Service members: 44% Reserve/Guard, 56% Active Duty (46% Army, 31% Air Force, 19% Navy/Coast Guard, 4% Marines).
- Seventy-three percent were male, and represented the following races/ethnicities: 72% White, 12% Black, 8% Asian-American, 6% Latino/Latina, and 2% Other.
- Number of deployments between baseline and follow-up surveys for the sample was zero (85%), one (9%), two (3%), and three (3%).

## LIMITATIONS

- Researchers relied on unvalidated self-reports of various health factors and medical conditions instead of medical encounter data.
- Deployment eligibility criteria may have resulted in a bias toward healthy individuals receiving this assessment.
- No assessment was done of differences between those who dropped out of the study and those who remained throughout.
- No questions were asked regarding level of physical activity at baseline, a potentially important health factor.

## AVENUES FOR FUTURE RESEARCH

Future research could:

- Replicate this study to determine if a prospective association between PTSD and diabetes exists using medical records or direct testing as a measure of diabetes
- Explore the association between separation from military service, intake and discharge screenings, and variation in diabetes risk
- Examine the association of depression, race/ethnicity, and gender with different risk levels of diabetes

## ASSESSING RESEARCH THAT WORKS



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