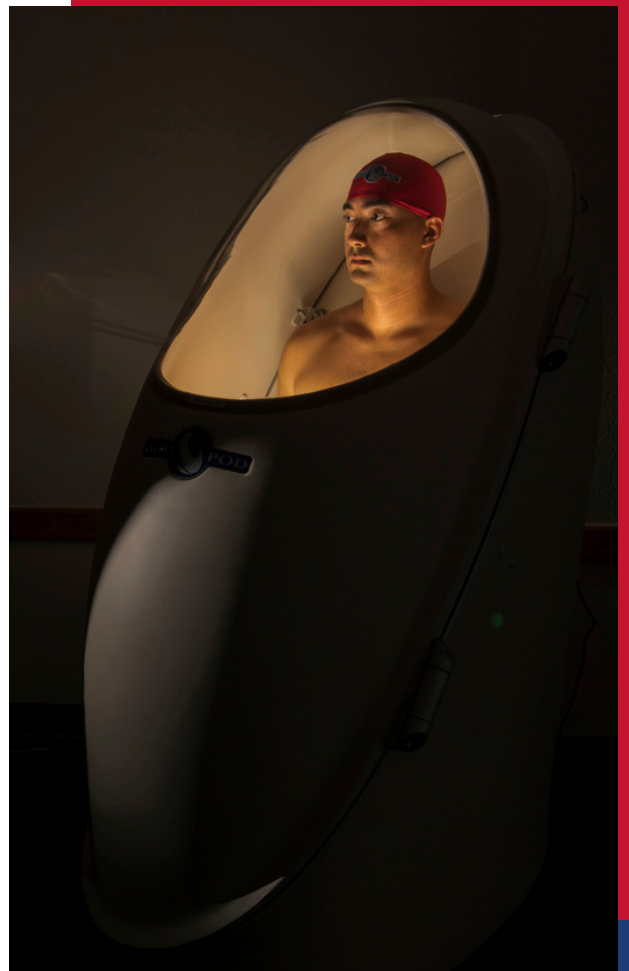


# Combating Military Obesity: Stigma's Persistent Impact on Operational Readiness

WHITE PAPER



American Security Project



# Combating Military Obesity

## In Brief:

Obesity poses a complex challenge to recruitment, readiness, and retention within the U.S. Armed Forces. Amidst an escalating military recruiting crisis, pre-accession weight loss programs are helping services meet enlistment goals. Rapid and sustained recurrence of obesity across all services, ranks, and positions now poses a dire threat, especially for at-risk populations and those in critical combat roles. To effectively tackle the military obesity crisis, the Department of Defense must significantly improve its research and reporting. In the meantime, replacing military appearance regulations with evidence-based health policies can facilitate a shift to treating obesity as a chronic disease rather than an administrative checkmark.

## KEY FINDINGS

- 68% of active-duty service members have overweight or obesity. Obesity is the leading disqualifier of military applicants and a primary contributor to in-service injuries and medical discharges.
- Military obesity rates across the active duty have more than doubled over ten years, from 10.4% in 2012 to 21.6% in 2022. Eating disorders increased by approximately 79% between 2017 and 2021.
- Despite being a chronic disease with several FDA-approved treatment options, antiquated body composition policies and stigma prevent effective treatment of obesity within the Armed Forces.
- The removal of body mass statistics from military recruitment and disability reports used by DoD stakeholders and Congress has resulted in incomplete and misleading conclusions. This data is needed to identify at-risk populations and design effective, evidence-based interventions.

## RECOMMENDATIONS

1. The Defense Health Agency should promote and enforce awareness, diagnosis, and treatment of obesity as a chronic disease across the armed services.
2. Body composition and military appearance regulations should be wholly reviewed and brought in line with evidence-based research. Policies allowing commanders to arbitrarily assign or exempt obese service members from medical intervention should be rescinded.
3. All services should seek to close the gap between high recordings of obese BMI during military health and fitness evaluations and low obesity diagnosis and treatment rates.
4. All service members with obesity should be referred to a credentialed obesity physician, registered dietitian, or bariatric physician for accurate diagnosis and treatment.
5. Military reports on disqualifications, disability, and medical discharge should include BMI data until overweight and obesity diagnoses reflect real obesity rates of the force. Body mass data should be reintroduced within annualized reports evaluating recruitment, retention, and retirement trends.
6. The Defense Health Agency should significantly improve frequency of military obesity reports or broaden the pool of researchers and academics who can access military weight data.

## About the Author

*Courtney Manning is a National Security Research Fellow at the American Security Project. She currently leads ASP's research on military recruitment and readiness, strategic competition with China, and emerging technology risks. Before ASP, she worked as a geopolitical risk consultant on international human rights law, political risk, and climate security in New York and spent seven years as a public sector nutrition consultant. She holds an M.I.A. in international security policy from Columbia University and a B.A. in international relations from the University of Denver Korbel School.*



## Introduction

Across the United States, military recruiters grapple with two national security crises: dwindling interest among qualified individuals in joining the armed forces and an increase in applicants failing to meet the physical requirements for enlistment. In 2018, the American Security Project published “Obesity: An Epidemic that Impacts our National Security” to highlight obesity’s impact on the recruiting crisis and the importance of military health and fitness on personnel readiness. In a 2022 follow-up report, “Obesity’s Increasing Threat to Military Readiness,” ASP explored the impact of the COVID-19 pandemic, with recommendations to adjust requirements for specialized positions and expand pilot programs to increase enlistment of otherwise-qualified applicants.

At the time of the 2018 report, 44% of Americans aged 18 to 25 were too overweight to serve in our armed forces. Today, 57% are either clinically overweight or have obesity.<sup>1</sup> As disease rates rise across all demographics, pre-accession fitness programs demonstrate promise in getting otherwise-qualified applicants through the door. Unfortunately, obesity rapidly recurs across all services, ranks, and positions after enlistment and is now pervasive throughout active-duty, reserve-duty, and veteran populations. The Centers for Disease Control and Prevention estimate that the Department of Defense spends \$1.5 billion annually on obesity-related healthcare for service members, veterans, and their families.



*U.S. Air Force photo by Tech. Sgt. Jeffrey Grossi*

The growing prevalence of obesity in service members reduces the readiness of the all-volunteer military, but it isn’t a moral failing; it’s a health crisis. Framing obesity as an issue of insufficient willpower or discipline prevents soldiers from seeking and receiving treatment, makes commanders and healthcare workers less inclined to intervene, and worsens health outcomes across the services. Persistent social stigmas result in administrative punishments that prevent service members from reaching their potential and fail to address their underlying conditions. At-risk populations and those in critical combat roles are particularly affected by policies targeting physical appearance over operational readiness and health indicators.

Designing an effective strategy to monitor and tackle obesity within the U.S. military begins by treating it like any other chronic disease: consistently recording accurate data and leveraging that data to design effective medical interventions. The Department of Defense’s influence over the active-duty environment allows it to successfully mitigate this crisis by applying evidence-based treatments and controlling contributing factors such as diet, exercise, sleep, and stress. As revolutionary new treatments improve long-term weight management for soldiers and veterans, services have more opportunity than ever to treat obesity as a health condition instead of an administrative checkmark. This report illustrates stigma’s effects on the collection, analysis, treatment, and consequences of obesity within the U.S. military and provides recommendations for improvement.

A Note on Defining Obesity: ‘Obesity’ is a chronic disease that manifests in abnormal or excessive fat accumulation in the body. Diagnoses are generally associated with a Body Mass Index (BMI) of 30.0 kg/m<sup>2</sup> and above as measured by a person’s weight in kilograms (or pounds) divided by the square of height in meters (or feet). However, excessive body fat can also be determined by skinfold measurements, body circumference, dual X-ray absorptiometry scans, and other means.

## Military Obesity from Recruitment to Retirement

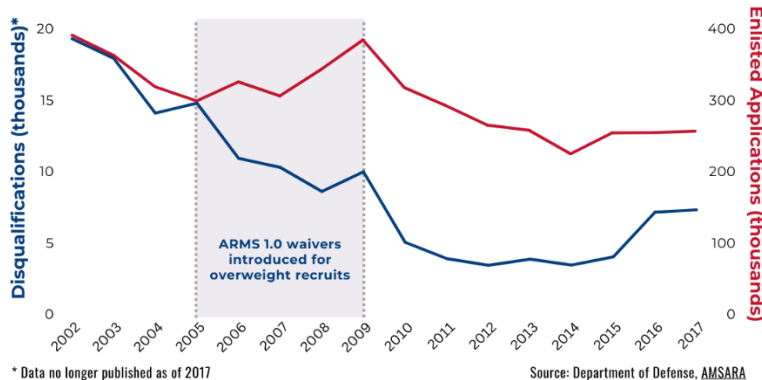
Forty-two percent of adults and twenty percent of children in the United States are affected by obesity.<sup>2</sup> By causing insulin resistance, high blood pressure, hyperlipidemia, vascular dysfunction and more, obesity imposes an aggregated \$260.6 billion in medical costs to U.S. citizens each year.<sup>3</sup> Excess fat increases the risk of multiple debilitating and deadly comorbidities including cardiovascular disease, type 2 diabetes, stroke, osteoarthritis, and cancer.<sup>4</sup> Contrary to film and television depictions of heightened health and fitness in the active-duty military, 67% of service members across the U.S. Department of Defense are either overweight or obese.<sup>5</sup>

### Obesity's Effects on Recruiting

Obesity has been the leading disqualifier of U.S. military applicants for over a decade.<sup>6</sup> Between 2003 and 2011, 36% of male and 30% of female applicants were overweight or had obesity based on their body mass index (BMI), or weight-to-height ratio.<sup>7</sup> While modern body composition requirements allow most overweight applicants to enlist, both services and healthcare providers use a BMI measurement of 30 and above (or  $\geq 30$  kg/m<sup>2</sup> body mass) to determine obesity.<sup>8</sup> When last published in 2017, over 17% of medical disqualifications at Medical Entrance Processing Stations (MEPS) were due to obesity.<sup>9</sup>

Weight-related disqualifications are discouraging, but often temporary. Approximately 3.4% of applicants who are not overweight by BMI are rejected for exceeding military weight standards, predominantly women; these applicants can be re-measured using alternatives such as abdominal circumference, bioelectrical impedance analysis, dual-energy x-ray absorptiometry, or by being determined “highly fit.”<sup>10</sup> While “weight waivers” are only regularly issued by the Marine Corps, these account for nearly half of all medical waivers granted.<sup>11</sup> All services allow applicants to temporarily delay basic training while they lose weight.<sup>12</sup> For these applicants, guides like the Air Force Aim High app provide nutrition and fitness schedules that mimic those of boot camp.<sup>13</sup>

### OBESITY-RELATED DISQUALIFICATIONS WITHIN U.S. MILITARY APPLICATIONS



overweight enlistees demonstrating only slightly higher attrition rates after 18 months.<sup>15</sup>

ARMS 1.0 was discontinued in advance of assumed improvements in recruiting conditions following the 2008 financial crisis.<sup>16</sup> Before 2008, high unemployment rates were strongly correlated with increased applications to the

### BODY COMPOSITION REQUIREMENTS FOR MILITARY ENLISTMENT

	ARMY	NAVY	MARINE CORPS	AIR FORCE
BENCHMARK	Weight-to-Height Ratio	Weight-to-Height Ratio	Weight-to-Height Ratio	Weight-to-Height, Body Fat Measurement
MALE MAXIMUM	BMI 25.7-27.5, depending on age	BMI 26.5-27.5, depending on height	BMI 26.9-27.5, depending on height	BMI 27.5 or 26% body fat, whichever is larger
FEMALE MAXIMUM	BMI 24.9-25.9, depending on age	BMI 24.9-27.5, depending on height	BMI 26	BMI 27.5 or 36% body fat, whichever is larger
	Source: goarmy.com	Source: navy.com	Source: fitness.marines.mil	Source: airforce.gov

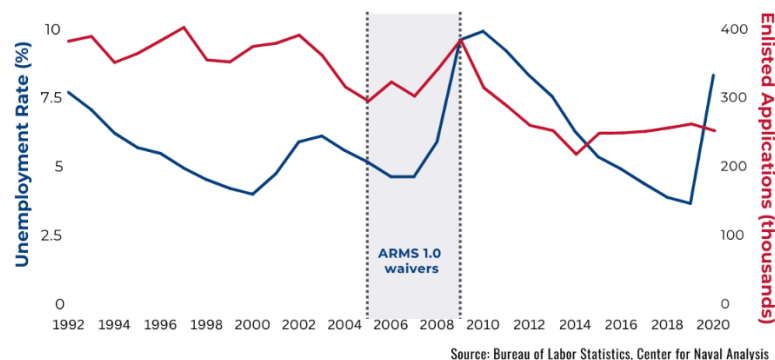
### Pre-Accession Fitness Programs

Despite ongoing modifications to body composition standards and policies since the 1990s, the pool of Qualified Military Available (QMA) continues to shrink each year. To determine whether fitness standards should be relaxed further, the Assessment of Recruit Motivation and Strength (ARMS) program granted enlistment waivers for otherwise-qualified candidates with a body fat percentage two percent or less above regulation from 2005 to 2009.<sup>14</sup> The program increased male applications at study sites by 21% and female applications by 28%, with

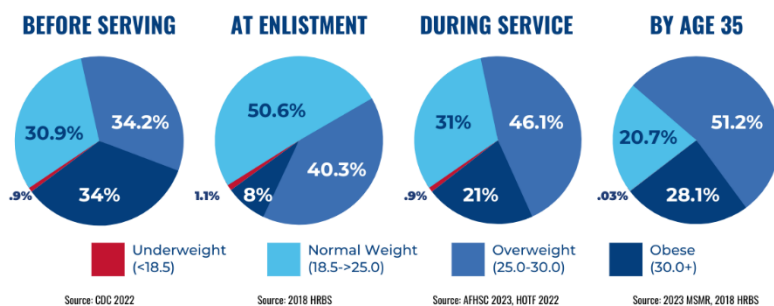


U.S. Armed Forces. Instead, military applications declined 33% over the next ten years, leading to the second iteration of ARMS in 2019.<sup>17</sup> ARMS 2.0 introduced the Future Soldier Preparatory Course, a pre-accession weight-loss program that provided applicants a controlled environment of diet and exercise until they met weight standards.<sup>18</sup> Pilot programs have been very effective, with 87% of participants meeting fitness requirements within the first three weeks and 95% successfully enlisting within 90 days.<sup>19</sup> The Navy launched the Future Sailor Preparatory Course in March 2023, and the Army broadened its eligibility requirements to include those unable to pass aptitude testing in June.<sup>20</sup>

## CIVILIAN UNEMPLOYMENT RATE VERSUS APPLICATIONS FOR MILITARY ENLISTMENT



## BODY MASS INDEX (BMI) TRENDS IN ACTIVE DUTY MILITARY SERVICE MEMBERS



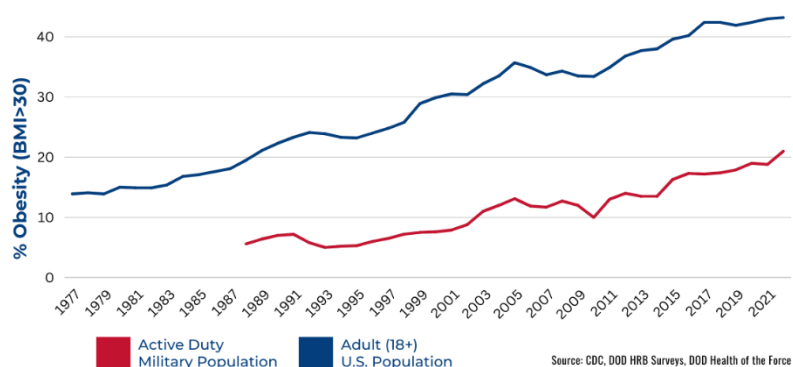
## Obesity Rates Within the Active Duty

As a result of waivers, policy modifications, and pre-accession fitness programs, a high number of enlisted applicants enter active duty with either overweight or obesity. Standardized data from the Army Injury and Health Outcomes Database and Defense Manpower Data Center reflect that 40.9% of those who successfully accessed into the Army from 1989-2012 had a BMI above 25 during entry medical assessments.<sup>21</sup>

Service members across all services, ranks, and occupations experience sustained and recurrent weight gain beginning shortly after enlistment. By the time Active Component (AC) recruits are 21 years old, 15% have obesity.<sup>22</sup> By age 35, the AC obesity rate climbs to 28%.<sup>23</sup> As a majority of AC personnel are under 30 years of age, the reported obesity rate across all active-duty service members is skewed downwards to 21%.<sup>24</sup> However, military obesity rates have doubled over ten years, from 10.4% in 2012 to 21% in 2022.

Obesity rates vary across services; the Air Force has a reported obesity rate of 11%, while the Navy has a reported rate of 27%. AC men are twice as likely to have obesity as AC women.<sup>25</sup> At 41%, those from the Pacific Islands are at greatest risk of obesity; those of Asian descent have the lowest obesity rate at 14%. Enlisted personnel, including combat support (military police/intelligence), combat arms (infantry/artillery), and combat service support (transport/maintenance), are 7% more likely to experience obesity than officers.<sup>26</sup>

## MILITARY VS. CIVILIAN OBESITY RATES



## Regular Health and Fitness Assessments

All service members in the Department of Defense are required to schedule an annual Periodic Health Assessment (PHA) to record their BMI and other health metrics. This data is assembled into annual and supplemental reports published by military agencies.<sup>27</sup> Soldiers also undergo Physical Fitness Tests (PFT) that vary by service:

Service	Assessment Details
<b>Army</b>	Annual fitness exercises and BMI testing, plus surveys inquiring about physical activity. <sup>28</sup>
<b>Navy</b>	Annual Physical Fitness Assessment. Recent ban on exemptions for Sailors who previously earned overall performance levels of excellent or above. <sup>29</sup>
<b>Air Force</b>	Annual physical fitness exercises wherein no body composition measurements are taken. Aviators may substitute core test activities with an alternative activity. <sup>30</sup>
<b>Marine Corps</b>	Twice-annual fitness test; Marines must meet entrance requirements at all times. <sup>31</sup>

## Weight Management Programs

Service members who exceed height-to-weight requirements during their PHA or PFT are referred to a weight control program at the discretion of their chain of command.<sup>32</sup> Each service maintains its own program standards and requirements:

Service	Program Name	Program Details
<b>Army</b>	Body Composition Program	Mandatory program. Soldiers must lose a specific number of pounds each month and are weighed every six months until standards are met. Army provides personal counseling to help develop a fitness and nutrition routine. <sup>33</sup>
<b>Navy</b>	ShipShape Program	Voluntary but “highly recommended” program for active duty and reserve Sailors who fail the PFT, plus civilian employees and their beneficiaries. <sup>34</sup>
<b>Air Force</b>	Body Composition Improvement Program	“Informal, self-directed” 12-month program. Aviators are referred to a medical treatment facility for an evaluation and assessed for additional risk factors. <sup>35</sup>
<b>Marine Corps</b>	Body Composition Program	Mandatory program, with exemptions for Marines who excel in their combat test and fitness test and additional exemptions for good military appearance. <sup>36</sup>

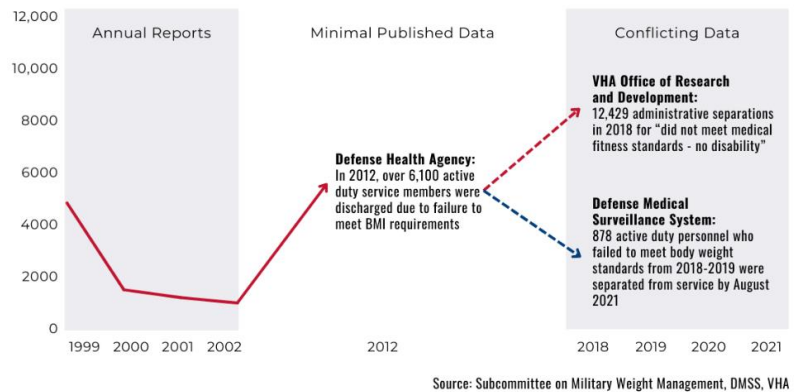
## Separation from Service

Failure to meet body composition standards makes service members ineligible for promotion, transfer, reenlistment, or enrollment in professional schools.<sup>37</sup> After six to twelve months of unsatisfactory progress in a weight control program, a separation authority—typically the first lieutenant colonel in the chain of command—determines whether the soldier can remain in service. When separated for weight control failure, active duty enlisted with more than 180 days of service are honorably discharged, those with fewer than 180 days of active-duty service receive an uncharacterized discharge, and those demonstrating less-than-ideal conduct are given a general discharge.<sup>38</sup>

Administrative discharges are kept separate from health and BMI records, making it difficult to determine how many separations are weight related.<sup>39</sup> The Navy has not discharged for body composition since 1999, and only 878 personnel who failed to meet body weight standards between 2018-2019 were separated from service by August 2021.<sup>40</sup> This suggests that an increased number of obese service members are being retained despite unsatisfactory progress. A presentation by the Veterans Health Administration, however, listed 12,429 administrative separations in 2018 due to “unqualified for active duty, other,” defined as “did not meet medical fitness standards, no disability,” suggesting that weight-related discharges are high.<sup>41</sup> This contradiction may be a result of improper classification; in 2015, the Government Accountability Office observed broad mixing of obesity and mental health conditions under the same separation codes.<sup>42</sup>

In addition to being administratively separated, soldiers can receive a medical discharge for obesity or its associated conditions. While obesity discharges are unreported, the broad category “musculoskeletal” comprises between 36% (Navy) to 65% (Army) of medically discharged service members annually, with osteoarthritis and limited range of motion comprising the majority of diagnoses.<sup>43</sup> These conditions are highly correlated with obesity, and their impact on overall separation is significant; of the 94,036 service members diagnosed with osteoarthritis from 2016 to 2020, 17.9% were medically separated by August 2021.<sup>44</sup>

## ANNUAL SEPARATIONS FOR OBESITY, U.S. ARMED FORCES



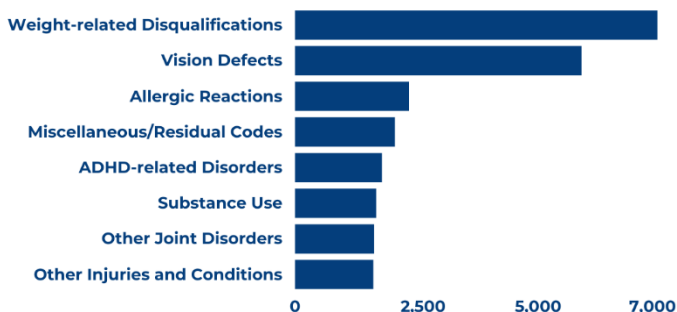
## Challenges with Evaluating Obesity in the U.S. Military

Data-driven decision-making is critical for combatting obesity in the active duty. While the Department of Defense uses various monitoring mechanisms to evaluate obesity and weight management initiatives, frequent changes in classification systems, reporting mechanisms, and nomenclature introduce inconsistencies and gaps in this data. This makes it challenging to analyze trends and produce recommendations.

### Removal of Body Composition Data from Accessions Reports

Understanding where applicants fail to meet enlistment standards is the first step to resolving the recruitment crisis. Permanent disqualifications (DQs) and temporary disqualifications (TDQs) are recorded at MEPS. From 2002-2016, TDQs were defined as “disqualifications that can be remediated by the applicant, such as being overweight,” with most TDQs falling under “failure to meet body fat standards.”<sup>45</sup> Starting in 2016, the agencies tasked with evaluating changes in accessions and accession policies removed body composition data from all annual reports. The definition of TDQ changed to “disqualifications that can be remediated, such as surgical meniscal repair.”

### MOST COMMON DISQUALIFICATIONS ACROSS THE ARMED SERVICES, 2017



published by any agency. Omitting this data from annual reports greatly restricts the ability of policymakers and stakeholders to understand barriers to recruitment.

While no explanation was provided, body mass was changed again from a “medical” to an “administrative” disqualification in 2019. As a result of this policy change, as long as applicants are not diagnosed with a specific condition, applicants entering the U.S. military with overweight or obesity are now initialized as medically qualified.<sup>46</sup> A disclaimer in a 2020 report stated, “other types of DQs may be identified at MEPS, such as unmet height and weight standards... These DQs were excluded.”<sup>47</sup> While it is assumed that those who fail to meet weight are administratively disqualified, administrative disqualifications are not

### Lack of Transparency Within Department of Defense Clinical Codes

In 1979, the United States government adopted the International Classification of Diseases (ICD) to precisely and consistently monitor diagnoses and treatments across the nation. While “obesity” has been an ICD clinical code since

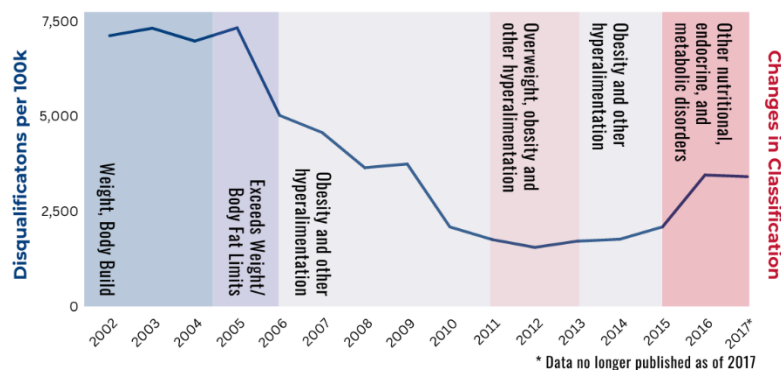
1948, “failure to make weight/body build” was reported by the Department of Defense until 2014.<sup>48</sup> In 2015, military services began recording “obesity and other hyperalimentation” and “abnormal weight loss/underweight” separately in response to the evolving societal understanding of obesity as a global health crisis.<sup>49</sup>

In 2016, however, underweight, obesity, and related conditions were combined again into the category “nutritional, endocrine, and metabolic disorders.”<sup>50</sup>

Annual reports state that this change occurred as a result of the transition from ICD-9 to ICD-10, though neither revision uses this code for obesity.<sup>51</sup>

From 2016 to 2018, this category was comprised of “primarily weight-related disqualifications (i.e. obesity).”<sup>52</sup> One year later, diagnoses were reported within broad “body systems” such as “musculoskeletal” and “respiratory,” and weight-related DQs were removed entirely.

### MILITARY APPLICANTS DISQUALIFIED FOR OBESITY-RELATED CONDITIONS AT MEPS



While categories that include obesity lead each year in diagnoses, frequent and ongoing changes in weight classification make it challenging for researchers to track obesity trends.<sup>53</sup> Reporting the most common ICD codes would prevent obesity diagnoses from being buried within broad categories. Unfortunately, as few service members with a recorded BMI  $\geq 30$  kg/m<sup>2</sup> receive a formal obesity diagnosis, reporting ICD diagnoses without body mass data underestimates obesity in the Armed Forces.<sup>54</sup> Furthermore, use of analogous or improper codes for obesity-related conditions across the services make year-to-year and cross-service comparisons impossible.<sup>55</sup>

## Recategorization of Obesity Data within Medical Discharge Reports

Reliable information on separations is vital for policymakers and the public to understand military retention and its causes and challenges. The impact of medical disqualifications on personnel separations are evaluated in annual DESAR reports, which “inform DoD retention and disability policy decisions to improve readiness and lethality by reducing attrition, streamlining the disability evaluation process, and decreasing replacement time and cost.”<sup>56</sup>

Most documented unfitting conditions—such as limitation of motion, joint disorders, and arthritis—are impacted or caused by obesity. The 2019 recategorization of body composition metrics removed weight data from DESAR reports and in 2022, the report was “updated” to fully exclude all administrative DQs, unmet weight included.<sup>57</sup> Removing this data reduced multiple disability categories by half, leaving much of the remaining data on disqualifications, disability discharges, and separations either incomplete or misleading. For example, the new top medical disqualifiers are eye and vision conditions, psychiatric conditions, and “miscellaneous conditions of the extremities.” As most disability discharges remain obesity-related conditions, recent reports have naturally found “little to no concordance between DQ/waiver and reason for disability discharge.”<sup>58</sup> As the removal of body mass and obesity data from medical reports is ostensibly permanent due to DoD changes in classification, annual reports on accessions and separations no longer publish or analyze the most significant issue affecting recruitment and retention.

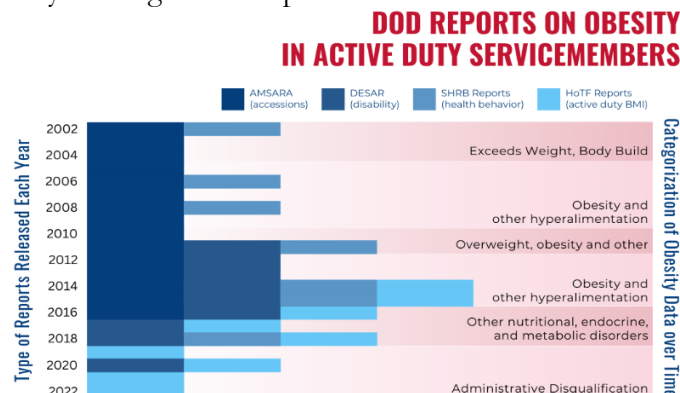
## The Defense Medical Surveillance System

The Defense Medical Surveillance System (DMSS) manages health-related information on military service members in tandem with the Defense Manpower Data Center. To access DMSS data, researchers must work under a U.S. military organization and publish alongside a military principal investigator. DMSS researchers report ongoing concerns with data collection and transfer, including underreporting of diagnoses, differences in services’ systems and methods, and unexplained changes to data or policies that are not relayed back to services.<sup>59</sup> In a 2023 editorial



comment titled, “Increased Missing Data Affects Burden Estimates,” military researchers note that “much of the data” available on “certain routinely reported elements” is currently missing or incomplete within the DMSS.<sup>60</sup>

Due to the reclassification of BMI from a medical to an administrative category in 2016, published research on BMI data has been limited. As a result, annual reports on military health have declined in length and frequency.<sup>61</sup> The U.S. Army Public Health Center's Health of the Force report is now the most reliable obesity resource for policymakers. However, due to data decrements and ongoing changes in methodology, its metrics cannot be compared with prior years nor across military installations or services.<sup>62</sup>



## Stigma's Impact on the Military Obesity Crisis

Assumptions that overweight people are unmotivated, incompetent, or weak-willed cause individuals and services to conceal, obscure, and downplay military obesity. This social stigma has historically resulted in policies that emphasize individual responsibility and self-discipline over evidence-based research on weight management.<sup>63</sup> While much of this behavior is well-intentioned, either to protect the dignity of service members or to project a strong image of the U.S. Armed Forces, treating obesity as a deviant behavior and not as a chronic disease increases comorbid medical conditions, injury, permanent separation, and all-cause mortality across the services.

### Individual Underreporting of Obesity

Mitigating obesity in the active-duty population necessitates accurate health data provided by service members and healthcare personnel on its prevalence and causes. Unfortunately, from 2018-2021, only 60% of active-duty service members had their BMI recorded by a military health worker.<sup>64</sup> The most recent DoD Survey of Health Related Behaviors received an 8% response rate.<sup>65</sup> In 2021, only 54% of active duty soldiers had their height and weight recorded during an outpatient healthcare visit.<sup>66</sup> To explain this trend, the Defense Centers for Public Health suggest that, “although unverified,” soldiers with obesity may be more likely to have an outpatient visit than soldiers without obesity, resulting in an overestimation of the disease within the active duty population.<sup>67</sup>

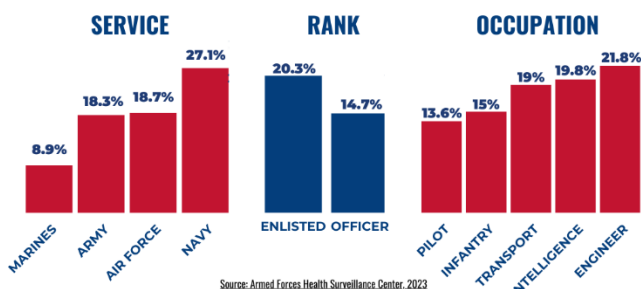
In reality, perceived judgment from healthcare workers, internalized shame, or negative prior experiences mean that individuals with overweight and obesity are statistically less likely to access healthcare services than their normal-weight counterparts.<sup>68</sup> The National Academy of Sciences found that “the consequences of being categorized as exceeding weight standards, such as being forced into a weight-control program, losing access to promotions, or being separated from service” prevent overweight enlisted from seeking and obtaining medical treatment.<sup>69</sup> The 2015 DoD Health Related Behavior Survey stated its low response rate was a partial result of covering “very sensitive topics, including some that could result in a service member being dismissed from the military.”<sup>70</sup>

Concealment of obesity and obesity-related health conditions is associated with an increased risk of attrition. This is especially true among women, recruits with low education or poor aptitude test scores, and enlistees with medical waivers.<sup>71</sup> This suggests that service members feel they must compensate for other social stigmas, such as gender, low education, or disability status, by obscuring their weight. Harassment by commanders and fellow soldiers, mental health conditions such as binge eating disorder and depression, and higher rates of PTSD have also been associated with avoiding treatment, making overweight service members at these intersections especially vulnerable to underreporting or misrepresenting weight data.<sup>72</sup>

## Service-wide Underreporting of Obesity

Due to being removed as a medical disqualifier, BMI is now miscategorized or omitted entirely from medical and fitness testing. This results in artificially low reported obesity rates across the services, starting at the point of enlistment and continuing until separation.<sup>73</sup> Because soldiers and commanders have a vested interest in soldiers being found in compliance with weight standards, a military report found that both groups “consistently seek to present anthropometric measurements as favorably as possible,” including through well-known “tricks” to cause inaccurate readings.<sup>74</sup> Enlisted who receive a medical exemption from body mass standards are categorized as “within medical standards” even if they are overweight or have obesity.<sup>75</sup> Despite obese BMI on record, healthcare workers often opt to avoid diagnosing or diagnose comorbidities such as diabetes, osteoarthritis, and high blood pressure instead.<sup>76</sup>

### % OBESE BMI BY MILITARY SERVICE, RANK, AND OCCUPATION



Reports on military obesity published by the Department of Defense generally include a disclaimer stating that BMI may overrepresent obesity rates due to “high muscle mass,” occasionally followed by a reference to a study of civilian firefighters.<sup>77</sup> However, evidence suggests that BMI is much more likely to underreport obesity than overreport it, including in military populations. After undergoing more accurate body fat analysis, the CDC found that around 3% of women and 11% of men categorized by BMI as “obese” had healthy levels of fat mass, but 31% of individuals classified as “normal weight” by

BMI had obesity.<sup>78</sup> A 2021 Military Medicine study revealed that BMI significantly underestimated excess body fat in soldiers when compared to more accurate methods like X-ray absorptiometry and bioimpedance analysis.<sup>79</sup> After a lengthy and expensive effort to replace “tape tests” that were assumed to overstate obesity, the Army found that soldiers had up to 8% more body fat according to the new body scanning machines.<sup>80</sup>

The misconception that body measurements frequently categorize healthy soldiers as obese harms military populations. A 2016 examination by healthcare providers found that a significant proportion of soldiers with overweight and obesity were not being treated for these conditions due to commanders and services ignoring BMI recordings.<sup>81</sup> Despite 47.3% to 56.0% of active-duty service members meeting prediabetes screening criteria based on TRICARE appointment data from 2014 to 2018, less than 7% were subsequently screened, and fewer received preventative interventions.<sup>82</sup> Disregarding body mass data leaves individuals unaware of their nutritional needs and health risks, increasing risk of injury and disease as well as likelihood of separation and disability discharge.

## Discretionary Policy Enforcement Based on Physical Appearance

Weight-control policies in the Armed Forces are frequently tied to “military appearance” instead of evidence-based indicators of health and fitness.<sup>83</sup> Military appearance is an intangible, self-descriptive condition determined through value judgments made by commanders. As U.S. Marine policy explains, “Marines may meet all established standards yet still fail to present a suitable military appearance.... Simply put, Marines who do not present a suitable military appearance fail to possess the qualities necessary to effectively lead Marines.”<sup>84</sup> Other definitions include “squared away,” “commensurate with the high standards traditionally associated with Army service,” and “contributes to a favorable Military image.”<sup>85</sup> According to the Air Force, these policies exist because “the American public and its elected representatives draw certain conclusions on military effectiveness based on the image of Airmen present.”<sup>86</sup>

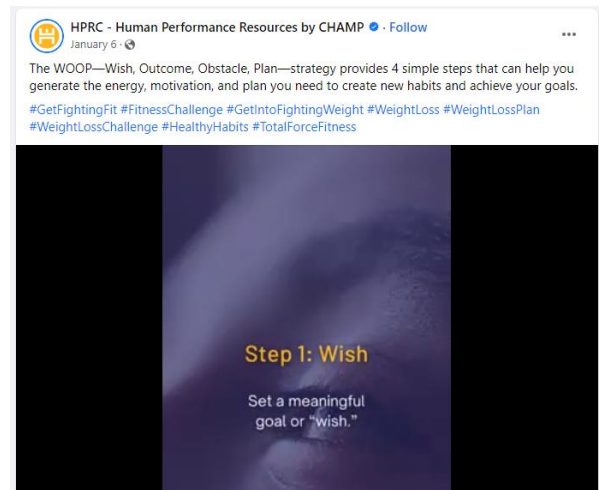
These regulations do not identify what specific determinants beyond “all established standards” necessitate correction, or why those determinants would make one less effective in leadership roles. Regardless, commanders are granted broad discretion in using “good military appearance” to exempt soldiers and each other from obesity determinations, leading to military health policies being inconsistently enforced.<sup>87</sup>

```
graph TD
    A[Meets Weight Standards] -- No --> B[285 in Combat/Fitness Tests]
    A -- Yes --> D[Commander Discretion]
    B -- No --> C[Body Fat Measurement]
    B -- Yes --> D
    C -- No --> E[250 in Combat/Fitness Tests]
    C -- Yes --> D
    E -- No --> F[Commander Discretion]
    E -- Yes --> G[Within 1% of BF Standards]
    G -- No --> H[Commander Discretion]
    G -- Yes --> D
    H -- No --> I[Weight Management]
    H -- Yes --> D
    I -- No Progress --> J[Potential for Discharge]
    I -- Meets Standards --> K[Free to Resume Service]
    I -- Yes --> L[Commander 2 Discretion]
    L -- No --> I
    L -- Yes --> K
    D -- No --> M[Marine Consent]
    M -- No --> L
    M -- Yes --> K
```

The flowchart outlines the process for determining if a Marine can resume service based on weight. It starts with a 'Meets Weight Standards' decision. If 'No', the process moves through '285 in Combat/Fitness Tests' and 'Body Fat Measurement' to '250 in Combat/Fitness Tests'. If 'Yes' at any point, it goes to 'Commander Discretion'. From '250 in Combat/Fitness Tests', if 'No', it goes to 'Commander Discretion'. If 'Yes', it checks 'Within 1% of BF Standards'. If 'No', it goes to 'Commander Discretion'. If 'Yes', it goes to 'Commander Discretion'. From 'Commander Discretion', if 'No', it goes to 'Marine Consent'. If 'Yes', it goes to 'Free to Resume Service'. From 'Marine Consent', if 'No', it goes to 'Commander 2 Discretion'. If 'Yes', it goes to 'Free to Resume Service'. From 'Commander 2 Discretion', if 'No', it goes to 'Weight Management'. If 'Yes', it goes to 'Free to Resume Service'. From 'Weight Management', if 'No Progress', it goes to 'Potential for Discharge'. If 'Meets Standards', it goes to 'Free to Resume Service'. If 'Yes', it goes to 'Commander 2 Discretion'.

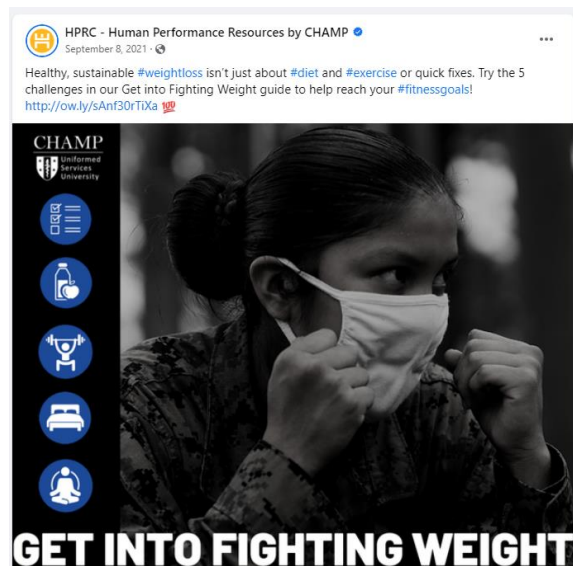
ultimately separated from service.<sup>89</sup> Multiple studies have concluded that soldiers and commanders favor lean or muscular appearances regardless of actual physical fitness, and both groups rank overweight soldiers lower in non-physical qualities like intelligence.<sup>90</sup> Senior leaders at the U.S. Army War College have been shown to associate overweight appearance with poor leadership skills, lack of self-discipline, and low ability to mentor subordinates.<sup>91</sup>

In 2003, the Subcommittee on Military Weight Management found that “data on weight management programs recidivism or long-term success are not systematically compiled by any of the services, a situation that is, at least in part, intentional,” as “services attempt to minimize the stigma associated with participation in these programs by purging records.”<sup>92</sup> It determined that most participants received minimal counseling from a dietitian and that services were inconsistent in determining which applicants received punitive consequences versus medical treatment.<sup>93</sup> In 2021, nearly twenty years later, a review by Miggantz et al. found minimal and contradictory studies on the success of military weight loss programs and only a single study on the demographics of participants in those programs.<sup>94</sup> Within these studies, Malkawi et al. (2018) noted improvement in body composition over the 12 months following enrollment in military weight-loss programs, Murray et al. (2017) found no significant improvement after six months, and Wisbach et al. (2018) found that less than half of those enrolled in Naval programs met physical fitness standards within their next three PFAs.<sup>95</sup> As of 2022, an artificial intelligence algorithm called the Readiness Prediction Model translates nutrition, wellness, and other fitness metrics into marginal impacts for commanders.<sup>96</sup> However, there is little information on the function of this model, its outputs, or whether it is in full or partial use by all the services.



Military health programs are influenced by movements to improve self-perception and reduce discrimination due to body size. As the belief that weight gain is a moral failing becomes less pervasive, new misconceptions have risen in

popularity, including that body fat is uncorrelated with health and that alluding to weight and body fat contributes to negative social stigma.<sup>97</sup> As a result, while nutrition and fitness programs still emphasize individual responsibility and self-discipline, recent DoD initiatives have minimized the use of terms such as “fat,” “obese,” “diet,” and “morbid,” instead using “wellness,” “mindfulness,” “fitness,” or “performance.”<sup>98</sup> Service members remain penalized for exceeding weight standards, but diet and exercise are deprioritized within provided solutions, with “spiritual, mental, and social fitness” gaining in prominence.<sup>99</sup>



By downplaying the role of diet and exercise in weight management and prioritizing “holistic” factors such as extended sleep, low stress environments, access to fresh produce, and regular counseling, DoD fitness initiatives portray lifestyles incongruent with the active duty as critical for weight loss.<sup>100</sup> The DoD's Total Force Fitness Guide, initiated to help active duty enlisted meet weight standards, includes recommendations such as “saving room for a margarita,” cooking with family members, eating mostly fresh fruits and vegetables, and sleeping when tired.<sup>101</sup> Providing these recommendations as solutions instead of adjusting daily diet, sleep, and exercise standards—particularly during training and deployments—leads to disordered eating and other harmful behaviors when active-duty soldiers are unable to follow impractical or infeasible recommendations.<sup>102</sup>

## Obesity's Effects on Readiness and Retention

The Department of Defense spends \$1.5 billion annually on obesity-related healthcare.<sup>103</sup> Overweight soldiers leave service 18 months earlier than their normal-weight counterparts on average, and veterans are significantly more likely to have overweight and obesity than civilians.<sup>104</sup> Exponential increases in recruitment, training, and weight management costs, combined with declining retention and readiness rates of recruits who exceed body fat standards, will significantly impact the long-term operational readiness of the all-volunteer force if these trends continue.

### Internal Health Complications

While self-directed diet and exercise programs can be sufficient to maintain a healthy weight, obesity would not be a global epidemic if it were not a disease with chronic, recurrent, genetic, and neurobehavioral affects. Body mass levels of 30 kg/m<sup>2</sup> and above can cause insulin resistance, high blood pressure, hyperlipidemia, and vascular dysfunction, even in the absence of other conditions.<sup>105</sup> When excess fat is centralized in the abdominal area and between vital organs, adverse metabolic and endocrine activities make it more difficult for the body to regulate insulin, maintain organ function, and manage signals for hunger and satiety.<sup>106</sup> Stress and sleeplessness, common in the active duty, dull reward processing in the brain's hypothalamic-pituitary-adrenal axis and cause individuals to chase food highs, making it more likely that they will .<sup>107</sup> Cyclical weight loss caused by extreme fasting to meet body composition standards followed by increases body fat retention, worsening health outcomes in the long run.<sup>108</sup>

### Decreased Combat Readiness of the Force

The physical effects of obesity negatively impact combat readiness, with effects varying across tasks and occupations. In fitness tests conducted by the U.S. Army Public Health Center, higher-BMI soldiers demonstrated increased load bearing and lifting ability but decreased speed and agility than lower-BMI service members.<sup>109</sup>



While individuals can maintain high musculature and visceral fat levels simultaneously, high musculature does not counteract the adverse effects of excess weight. Being overweight increases a service member's risk of injury, stroke, and musculoskeletal injuries by up to 47% while in service.<sup>110</sup> The respiratory, circulatory, and osteoarthritic impacts of obesity lead to shortness of breath, fatigue, vascular dysfunction, and pressure on joints and bones, reducing exercise function. Individuals with excess body fat are at significantly higher risk of acquiring asthma in the first two years of military service.<sup>111</sup> If left untreated, excess body fat can trigger health events such as strokes, heart attacks, and pulmonary embolisms, which can cause permanent disability or death when overweight soldiers are given waivers to deploy abroad.<sup>112</sup> Soldiers need to be physically lifted if they are incapacitated in a combat zone, but the absence of a maximum weight for otherwise-fit service members means that individuals with high fat and muscle mass may not be safely removed in time to receive medical treatment.<sup>113</sup>



*Air Force Staff Sgt. Johnny White, DoD photo*

## Lack of Qualified Military Available for Technical and Specialist Roles

Roles that require advanced skills and training are more difficult to fill than infantry and support roles. As obesity rates rise nationwide, the pool of qualified candidates for these positions declines in both quality and quantity. After enlistment, inability to meet fitness standards leads to attrition and separation of occupational specialists, reducing services' return on investment as these service members receive particularly expensive and time-consuming training.

As more military activities become computerized, desk-based occupations are increasingly prevalent. Some specialists, like those in intelligence and communications, are required to be sedentary for hours or days at a time during deployments.<sup>114</sup> As they receive the same meals as other active-duty service members, a high level of physical fitness becomes more challenging to meet. If overall proclivity to join the armed forces continues to decrease, the combination of operating environments being conducive to obesity and restrictive weight standards causing stress and healthcare avoidance will significantly impact the recruitment, health, and retainment of occupational specialists.

## Disordered Eating

Pressuring service members to “make weight” through willpower instead of medical treatment leads to increased prevalence of harmful and disordered eating behaviors.<sup>115</sup> A 1994 study of military body composition standards found that 50% of male and 62% of female service members used diuretics, vomiting, fasting, under-the-table diet pills, or laxatives to meet weight standards.<sup>116</sup> Twenty years later, 30% of enlisted reported they regularly smoked cigarettes “to avoid gaining weight” and “to reduce the amount I eat.”<sup>117</sup> Cycles of fasting and feasting before and after weigh-ins have been associated with severe eating disorders in veterans that remain long after their service has ended.<sup>118</sup>

Active duty and veteran service members face disproportionately high eating disorder rates compared to civilian populations, with total incidence rising 79% between 2017 and 2021.<sup>119</sup> Disordered eating is more common in women and people of color, as their weight and body mass are more likely to fall outside military body mass standards.<sup>120</sup> However, behaviors such as vomiting, strenuous exercise, and abuse of saunas or steam rooms are around four times more common in men.<sup>121</sup> While these activities temporarily reduce weight by causing dehydration, they can lead to numerous mental and physical complications such as intestinal disorders, throat and mouth cancers, and cardiac arrest.<sup>122</sup> Eating disorders have been associated with cognitive functioning impairment, reproductive and skeletal problems, depression, and increased suicide risk in soldiers and veterans.<sup>123</sup>

## Strategic Recommendations

Body composition policies in the all-volunteer active-duty military should facilitate high performance in adverse environments, protect the health and safety of service members, and lead to cost-savings for agencies and taxpayers. Active duty enlisted should be empowered to excel at their assigned duties and leave service healthy and well-adjusted. By designing policies that recognize the medical causes and contributors of obesity, the Department of Defense can achieve these goals while reducing the influence of longstanding assumptions about individuals with obesity.

### Educate Commanders and Healthcare Workers on Obesity

Genetic predisposition to obesity was first proposed in 1989.<sup>124</sup> Several genetic, biological, and environmental factors were soon uncovered by scientists, resulting in the broad designation of obesity as a chronic disease. The rapid pace of these discoveries means most commanders and healthcare workers today were taught outdated information on obesity, including recommendations now known to worsen health outcomes.<sup>125</sup> These individuals are granted broad discretion in identifying individuals with obesity and deciding whether they receive treatment.

**Recommendation 1.** The Defense Health Agency should conduct an educational campaign promoting awareness, diagnosis, and treatment of obesity across the services. Materials on enlisted health outcomes should be disseminated to commanders and healthcare providers to facilitate educated decision-making.

### Replace Appearance-Based Regulations with Evidence-Based Equivalents

The longstanding belief that obesity is the result of insufficient willpower, lack of discipline, or poor lifestyle choices led to the creation and enforcement of punitive sanctions in lieu of medical treatments for service members with obesity.<sup>126</sup> Inconsistently applied, these regulations motivate service members to obfuscate, falsify, or misrepresent weight data, as well as engage in disordered eating and weight loss behaviors that harm themselves and the force.<sup>127</sup>

**Recommendation 2.** Body composition and military appearance regulations across the Armed Forces should be wholly reviewed and brought in line with evidence-based research on health and fitness.<sup>128</sup> Policies that allow commanders to arbitrarily assign or exempt service members from medical intervention and treatment of obesity based on “military appearance” should be eliminated.

### Improve Timely Screenings and Diagnosis

By adequately screening for obesity, military services can develop proactive measures to address obesity. Early screenings for obesity and related health conditions, such as prediabetes and high cholesterol, are associated with sustained weight loss, better health outcomes, and a lower cost burden on healthcare systems.<sup>129</sup> Interventions proven to be cost-effective and impactful should be prioritized over initiatives such as social media campaigns, wellness guides, or experimental treatments for obesity until more evidence supports their use.<sup>130</sup>

**Recommendation 3.** The Consortium for Health and Military Performance should be tasked with closing the gap between high recordings of obese BMI ( $>30$  kg/m<sup>2</sup>) during military health and fitness evaluations and low obesity diagnosis and treatment rates.<sup>131</sup>

### Medically Treat Obesity’s Causes and Symptoms

Treating obesity requires more than just weight loss, and many common weight loss methods are detrimental to long-term health and fitness. For example, the Future Soldier Preparatory Course reports an average 1.7% decrease in body fat per week.<sup>132</sup> However, .5% or more weekly body fat loss is associated with weight cycling and adverse effects such as persistent endocrine dysfunctions and muscle loss.<sup>133</sup> Reductions of just 5 to 10 percent have been found to mitigate most obesity-associated health, but individuals must maintain a healthy weight long-term to realize these benefits.<sup>134</sup>

While dietary interventions are the first line of defense, various interventions are FDA-approved to treat obesity.<sup>135</sup> Six medications have been proven to reduce fat absorption, lessen appetite, dull hunger response, or stabilize dysfunctional hormones in overweight individuals. Around 86.4% of participants in semaglutide clinical trials lost more than 5% of their body weight over a year and a half, reducing risk of comorbidities such as cardiovascular disease and diabetes.<sup>136</sup> Other treatments vary from intermittent fasting and behavioral therapy to bariatric surgery.

**Recommendation 4. Due to the unique health and fitness composition of each individual, diagnosing and treating obesity requires specialist care. All service members with a BMI recording over 30 should be referred to a credentialed obesity physician, registered dietitian, or bariatric physician to determine treatment.**<sup>137</sup>

## Reduce Obesogenic Factors in the Active Duty

While between 40% and 70% of excess weight can be tied to genetic indicators, environmental factors also affect weight gain.<sup>138</sup> Limited agency in daily routines and ready availability of low-quality, calorie-dense foods contribute to weight gain. Twenty-four percent of active-duty service members stated they had insufficient access to quality meals between 2020 and early 2021.<sup>139</sup> As posts and roles become increasingly sedentary, obesity rates are expected to rise, particularly in specialized roles and those with certain genetic markers.<sup>140</sup>

**Recommendation 5. The Consortium for Health and Military Performance should use the most updated recommendations provided by the Academy of Nutrition and Dietetics to formulate diet, sleep, and exercise plans tailored to specific active-duty roles and demographics across the Armed Services.**

## Improve Transparency and Reporting of Obesity Data

Civilians, policymakers, and DoD stakeholders rely on data from the DMSS to understand military health trends and craft policy solutions. Services should increase cohesion and interoperability of body composition readings and consistently analyze these metrics for their impact on recruitment and retention over time.

**Recommendation 6. Military reports on disqualifications, disability, and medical discharge should include data on “unmet weight standards” despite its administrative classification. Data on obesity should be reintroduced within reports evaluating recruitment, retention, and retirement trends.**

Due to the stigma surrounding obesity in the military, researchers are incentivized to present metrics demonstrating a favorable view of military health and readiness, even if those metrics result from data errors, inaccurate reporting, or data decrements.<sup>141</sup> These factors impact the reliability and usability of military reports.<sup>142</sup>

**Recommendation 7. The Defense Health Agency should either significantly improve transparency and frequency of military obesity reports or broaden the pool of researchers and academics who can access anonymized DHSS data. A civilian auditing mechanism could ensure accuracy of reported figures.**

## Conclusion

Obesity is a chronic disease, not a lapse in personal discipline. Despite this reality, the enduring stigma against overweight soldiers continues to result in punitive measures in lieu of medical treatment. While eliminating outdated ideologies is the first step to fostering a healthier and more equitable service, loosening BMI standards and obscuring obesity data only worsens obesity’s impacts on recruitment, readiness, and retention. To ensure the long-term strength and operability of the armed forces, services must decisively and cohesively address obesity within their ranks, maintain strong body composition standards, and bring health policies in line with evidence-based recommendations. Identifying, diagnosing, and treating obesity within soldiers at the front lines of our national defense may ultimately determine the long-term survival of the force. It may not be easy, but it is long overdue.

## Endnotes

<sup>1</sup> Kristen Monaco, “In America, the Average Young Adult Is Now Overweight,” *MedpageToday*, November 23, 2021.

<sup>2</sup> “HOP 2023,” *Centers for Disease Control and Prevention*, January 18, 2023; “Prevalence of Obesity Among Adults and Youth: United States, 2015–2016,” *Centers for Disease Control and Prevention*, October 2017.

<sup>3</sup> John Cawley et al., “Direct medical costs of obesity in the United States and the most populous states,” *Journal of Managed Care and Specialty Pharmacy* 27, No. 3 (March 2021), 354–366.

<sup>4</sup> “Health Effects of Overweight and Obesity,” *Centers for Disease Control and Prevention*, September 24, 2022.

<sup>5</sup> Regan A. Stiegmann et al., “Increased prevalence of overweight and obesity and incidence of prediabetes and type 2 diabetes during the COVID-19 pandemic, active component service members, U.S. Armed Forces, 2018 to 2021,” *Medical Surveillance Monthly Report* 30, No. 1 (January 2023).

<sup>6</sup> Weight and body build” was the leading category for medical disqualification from 2010–2015, accounting for 19% of active duty and 20% of reserve disqualifications. See “Attrition and Morbidity Data for 2015 Accessions,” *Accession Medical Standards Analysis & Research Activity*, April 2017, 33. Being overweight is now by far the leading medical reason for rejection, and between 1995 and 2008, the proportion of potential recruits who failed their physicals each year because they were overweight rose nearly 70 percent. See “Too Fat to Fight,” *Mission: Readiness*, April 1, 2010, 2. Weight disqualification data is no longer being reported as of 2017. See “Medical Disqualifications, Medical Waivers, Accessions and Outcomes among FY 2016–2020 Military Applicants,” *Accession Medical Standards Analysis & Research Activity*, April 2023. In 2017, “nutritional, endocrine, and metabolic disorders,” a category that is mainly composed of weight-related conditions (i.e., obesity), was the most frequent disqualification for all components. See “Attrition and Morbidity Data for 2017 Accessions,” *Accession Medical Standards Analysis & Research Activity*, 2018, 8. These trends have worsened since the COVID-19 pandemic. See Regan A. Stiegmann et al., “Increased prevalence of overweight and obesity.”

<sup>7</sup> Between 2003 and 2011, 36 percent of male and 30 percent of female applicants had a BMI above 25 kg/m. See “Implications of Trends in Obesity and Overweight for the Department of Defense,” *Defense Health Board*, November 22, 2013, 31; Marlene Gubata et al., “Accession Medical Standards Analysis and Research Activity 2012 Annual Report,” Walter Reed Army Institute of Research, March 2013. Crude prevalence of overweight and obesity among 18-year-old civilian applicants to U.S. military service rose from 25.6% in 1993 to 33.9% in 2006. See “Trends in Overweight and Obesity Among 18-Year-Old Applicants to the United States Military, 1993–2006,” 611.

<sup>8</sup> “Overweight” is categorized by medical professionals at BMI >25 kg/m<sup>2</sup>. The U.S. military cutoff for Excess Body Fat (EBF) ranges between 24.9–27.5 kg/m<sup>2</sup> depending on age and gender. See Adela Hruby et al., “Trends in overweight and obesity in soldiers entering the U.S. Army, 1989–2012,” *Obesity* 23, no. 3 (March 2015), 665.

<sup>9</sup> The proportion of those rejected for being overweight or obese each year increased by 69.4 percent from 12.3 percent in 1995 to 20.8 percent in 2008. See “Too Fat to Fight,” *Mission: Readiness*, April 1, 2010, 11. In 2014, “Weight, body build” disqualified 15.7% of medically disqualified MEPS applicants. See “Attrition and Morbidity Data for 2014 Accessions,” *Accession Medical Standards Analysis & Research Activity*, 64. In 2017, 17.3% of medically disqualified MEPS applicants were disqualified for obesity. See “Attrition and Morbidity Data for 2017 Accessions,” *Accession Medical Standards Analysis & Research Activity*. Weight disqualification data is no longer being reported as of 2017; however, according to TRADOC Command Sgt. Maj. Daniel Hendrex, “Each year, an estimated 110,000 individuals meet recruiters with an interest in joining the Army. Before the COVID-19 pandemic, 30% to 40% of those interested in joining were disqualified for service for several reasons. Since COVID, that rate has increased to nearly 70% in the first 48 hours of screening. Obesity, drug use, and poor academics drove most of the disqualifications.” See Todd South, “Test scores drop, disqualification rates rise at Army recruiting shops,” *ArmyTimes*, September 15, 2022.

<sup>10</sup> Services have different standards for their “highly fit” determination. Marines who score 285 and higher on both the Marine Corps Physical Fitness Test (PFT) and Marine Corps Combat Fitness Test (CFT) are given “highly fit” exemptions. See Stew Smith, “USMC Weight Charts,” *Military.com*. The Army provides weight exceptions for “good military appearance.” See “2022 Health of the Force Report,” *Defense Health Agency*, May 10, 2023, 30. For Air Force, see “How to Join,” *Air Force*, accessed August 27, 2023.



- <sup>11</sup> There is a discrepancy between how the Marine Corps and the other Services categorize weight waivers. The Offices of the Under Secretary of Defense for Accession Policy believes the Marine Corps incorrectly reports its “weight exceptions” as medical “weight waivers.” The Marine Corps believes that it is correctly reporting these medical (weight) waivers and that the other Services are incorrectly reporting their weight waivers as “exceptions.” Exception statistics are not published by any of the services. See Shannon Desrosiers and Kyle Neering, [“Evaluating Suitability Across the Services: ELS Length and the Relationship Between Enlistment Waivers and Separation Outcomes,”](#) *Centers for Naval Analysis*, June 2020, 7.
- <sup>12</sup> Michael Lee, “Army expands program for recruits who don't meet weight and test requirements as recruiting crisis deepens,” *Fox10*, January 12, 2023.
- <sup>13</sup> “Addressing Health Barriers to Military Service,” House Report 117–88, Page 338, Accompanying H.R. 4432, the Department of Defense Appropriations Bill 2022, May 2022, 12.
- <sup>14</sup> “[Body Fat Waiver Available to Otherwise Fit Recruits](#),” *Association of the United States Army*, October 7, 2019.
- <sup>15</sup> ARMS had no statistically significant effect on within-weight Army applicants or accessions. Regardless of ARMS participation, the attrition rates of all individuals categorized as overweight at their 18-month evaluation post-enlistment were 2.5% higher than non-overweight applicants. See David S. Loughran and Bruce R. Orvis, “The Effect of the Assessment of Recruit Motivation and Strength (ARMS) Program on Army Accessions and Attrition,” *RAND Health Quarterly* 2011, 1(3), 10.
- <sup>16</sup> David S. Loughran and Bruce R. Orvis, “The Effect of the Assessment of Recruit Motivation and Strength (ARMS) Program on Army Accessions and Attrition,” *RAND Health Quarterly* 2011, 1(3), 10.
- <sup>17</sup> Before 2008, a strong negative correlation existed between civilian unemployment and enlistment applications [ $r = 0.7395$ ,  $p\text{-value} = 0.000001328$ ]. Since 2008, this correlation has been statistically insignificant [ $r = 0.4819$ ,  $p\text{-value} = 0.0954$ ]. Calculated from [Active Component Enlisted Accessions Data](#) from the Center for Naval Analysis from 1976–2020 and unemployment data from the [Bureau of Labor Statistics](#) using a two-tailed Pearson correlation test.
- <sup>18</sup> Ryan Morgan, “Army starting new program for recruits who fail body fat and academic standards,” *American Military News*, July 27, 2022.
- <sup>19</sup> Hunter Rhoades Center for Initial Military Training Public Affairs Office, “[Future Soldier Preparatory Course to expand based on initial success](#),” *army.mil*, January 9, 2023; Doug Ware, “[Army prep course has seen 95% grad rate, \\$15M in bonuses in 1st year](#),” *Stars and Stripes*, August 7, 2023.
- <sup>20</sup> Doug Ware, “[Recruits can now take academic and fitness tracks in new basic training prep course, Army says](#),” *Stars and Stripes*, June 2, 2023.
- <sup>21</sup> Adela Hruby et al., “Trends in Overweight and Obesity in Soldiers Entering the U.S. Army, 1989–2012,” *Obesity* 23, No. 3 (March 2015).
- <sup>22</sup> “[2022 Health of the Force Report](#),” *Defense Health Agency*.
- <sup>23</sup> 28.1% of service members aged 35 were classified as obese in 2021. See “[2022 Health of the Force Report](#),” *Defense Health Agency*.
- <sup>24</sup> “[2022 Health of the Force Report](#),” *Defense Health Agency*, page 44.
- <sup>25</sup> In 2021, obesity prevalence among female service members was 11% compared to male service members at 22%. See “[2022 Health of the Force Report](#),” *Defense Health Agency*.
- <sup>26</sup> Regan Stiegmann, Chelsea Payne, Mary Anne Kiel, and Shauna Stahlman, “[Increased Prevalence of Overweight and Obesity and Incidence of Prediabetes and Type 2 Diabetes During the COVID-19 Pandemic, Active Component Service Members, U.S. Armed Forces, 2018 to 2021](#),” *MSMR* 30, No. 1 (January 2023).
- <sup>27</sup> Common data reporters include the Walter Reed Army Institute of Research, the U.S. Army Public Health Center, and the Centers for Naval Analysis. See “[2019 Annual Report: FY 2013–2018 Applicants, Accessions and Outcomes](#),” *Accession Medical Standards Analysis & Research Activity*, April 30, 2020, 9.
- <sup>28</sup> “[Addressing Health Barriers to Military Service](#),” 8. “Physical Fitness Requirements and Test,” *GoArmy.com*, accessed August 29, 2023.
- <sup>29</sup> “[Guide 5: Physical Readiness Test](#),” U.S. Navy, accessed August 29, 2023; Diana Stancy Correll, “[Navy announces single physical fitness assessment cycle in 2023](#),” *Navy Times*, November 14, 2022.
- <sup>30</sup> Ryan Guina, “[2022 Air Force Fitness Test Standards & Score Charts](#),” *Officer Assignments*, May 30, 2022.
- <sup>31</sup> “[Physical Requirements](#),” *Marines.com*. Accessed August 27, 2023.
- <sup>32</sup> “[Chapter 18 - Failure to Meet Body Fat Standards](#),” Fort Knox Field Office. Accessed August 27, 2023.

- <sup>33</sup> Stew Smith, “[What You Should Know About the Army Weight Control Program](#),” *Military.com*.
- <sup>34</sup> “Navy Medicine: ShipShape,” U.S. Navy, accessed on August 11, 2023.
- <sup>35</sup> Secretary of the Air Force Public Affairs, “Department of the Air Force outlines new Body Composition Program for Airmen, Guardians,” *Air Force*, January 9, 2023.
- <sup>36</sup> Stew Smith, “Marine Corps Body Composition Program,” *Military.com*.
- <sup>37</sup> Stew Smith, “What You Should Know About the Army Weight Control Program,” *Military.com*.
- <sup>38</sup> Department of Defense, “[Enlisted Administrative Separations](#), Incorporating Change 7 on June 23, 2022,” DoDI 1332.14 (Washington, DC: January 27, 2014).
- <sup>39</sup> “Veterans' Medical and Health Records,” National Archives, accessed August 31, 2023.
- <sup>40</sup> Regan Stiegmann et al., “Obesity Prevalence”; For 1999-2002 data, see Institute of Medicine, *Weight Management: State of the Science and Opportunities for Military Programs* (Washington, DC: The National Academies Press, 2003), 42.
- <sup>41</sup> In 2012, more than 6,100 soldiers, sailors, airmen and marines were discharged because of failure to meet weight standards. See “Implications of Trends in Obesity,” *Defense Health Board*, 41. “Deployment and Separation Data,” U.S. Department of Veterans Affairs Office of Research and Development, October 3, 2019, 17. On definition of term, see “Citation Nr: 1312752, DOCKET NO.10-47 041A,” On appeal from the Department of Veterans Affairs Medical Center in Houston, Texas, April 17, 2013.
- <sup>42</sup> “Defense Health Care: Better Tracking and Oversight Needed of Servicemember Separations for Non-Disability Mental Conditions,” *GAO*, February 13, 2015. MSMR researchers track separations using administrative codes ISC 1017 and 2017 (failure to meet weight or body fat standards). See Regan Stiegmann et al., “Obesity Prevalence”. Some agencies report separations under ISC 1016 (Unqualified for Active Duty - Other). See “Deployment and Separation Data,” U.S. Department of Veterans Affairs.
- <sup>43</sup> Disability Evaluation System Analysis and Research, “2021 Annual Report,” *Walter Reed Army Institute of Research*, March 13, 2022, 56; Accession Medical Standards Analysis and Research Activity Preventive Medicine Branch, “Disability Evaluation Systems Analysis and Research Annual Report 2014,” *Walter Reed Army Institute of Research*.
- <sup>44</sup> M. A. Treshchynska, “Dorsopathy: Back Pain Management,” December 15, 2020; Woojin Park et al., “Obesity Impact on Range of Motion,” *Ergonomics*, 53, No. 1 (January 2010). Valerie Williams, Saixia Ying, and Shauna Stahlman, “Surveillance Snapshot: Medical Separation from Service Among Incident Cases of Osteoarthritis and Spondylosis, Active Component, U.S. Armed Forces, 2016–2020,” *MSMR* 29, No. 3 (March 2022), 22. D. N. Cowan et al., “Musculoskeletal injuries among overweight army trainees: incidence and healthcare utilization,” *Occupational Medicine* 61, No. 4 (June 2011), 247-252; Valerie Williams et al., “Surveillance Snapshot: Medical Separation from Service Among Incident Cases of Osteoarthritis and Spondylosis, Active Component, U.S. Armed Forces, 2016–2020,” *MSMR* 29, Vol. 3 (March 2022).
- <sup>45</sup> Accession Medical Standards Analysis & Research Activity, “Attrition and Morbidity Data for 2017 Accessions,” *Walter Reed Army Institute of Research*, 2018, 32. From 2011 to 2018, the most common reason for D.Q.s (permanent or temporary) was unmet DoD weight and body fat standards. See Disability Evaluation System Analysis and Research, “2019 Annual Report,” 2-28.
- <sup>46</sup> Accession Medical Standards Analysis & Research Activity, “[2021 Annual Report: Medical Disqualifications, Medical Waivers, Accessions and Outcomes FY 2016-2020 Military Applicants](#),” 2022, 5; Accession Medical Standards Analysis & Research Activity, “2022 Annual Report: Medical Disqualifications, Medical Waivers, Accessions and Outcomes among FY 2016-2020 Military Applicants,” 2023, 5. Note: while published separately as “2021 Annual Report” and “2022 Annual Report,” both reports analyze data from FY 2016-FY 2020 as AMSARA did not receive FY 2021 applicant data from USMEPCOM at the time of publication.
- <sup>47</sup> Accession Medical Standards Analysis & Research Activity, “[2020 Annual Report: Medical Disqualifications, Medical Waivers, Accessions and Outcomes among FY 2016-2019 Military Applicants](#),” 2021, 3.
- <sup>48</sup> Accession Medical Standards Analysis and Research Activity, “Annual Report 2015: Attrition & Morbidity Data for 2014 Accessions,” March 11, 2016, 64.
- <sup>49</sup> Significantly, the American Medical Association (AMA) designated obesity as a disease in 2013. See Theodore Kyle, Emily Dhurandhar, and David Allison, “Regarding Obesity as a Disease: Evolving Policies and Their Implications,” *Endocrinology and Metabolism Clinics of North America* 45, Vol. 3 (September 2016), 511–520.

<sup>50</sup> “[Transition to ICD-10](#),” Office of Workers' Compensation Programs, accessed August 27, 2023; Accession Medical Standards Analysis and Research Activity, “[Annual Report 2017: Attrition & Morbidity Data for 2016 Accessions](#),” August 2018, 41.

<sup>51</sup> The full disclaimer states, “In previous years, DQs were reported using International Classification of Diseases, 9th revision (ICD-9) codes. United States Military Entrance Processing Command (USMEPCOM) transitioned from ICD-9 to ICD-10 codes effective fiscal year (FY) 2016 (starting 01 Oct 2015). Because Military Entrance Processing Station (MEPS) physical examinations are valid for 2 years, a mixture of ICD-9 and ICD-10 codes is expected to persist in our database through FY 2022. To allow for comparisons over the transition period, AMSARA utilized Clinical Classifications Software (CCS) codes, developed at the Agency for Healthcare Research and Quality (AHRQ). Some CCS categories were adapted to better describe disqualifications in relation to DoDI 6130.03.” See Accession Medical Standards Analysis and Research Activity, “[Annual Report 2018: Attrition & Morbidity Data for 2017 Accessions](#),” 2018, 28. From 2006-2013, however, reports inconsistently use “Weight, body build” (no ICD code) and “Obesity and other hyperalimentionation” (ICD category encompassing E65-E68) for obesity. The clinical category for ICD-9 and ICD-10 is E66, “Overweight and obesity.” See “[Chapter IV: Endocrine, nutritional and metabolic diseases \(E00-E90\)](#),” International Statistical Classification of Diseases and Related Health Problems 10th Revision. In ICD-8, obesity was categorized under 277, “Obesity.” In ICD-7, introduced in 1955, obesity was categorized under code 287, “Obesity.”

<sup>52</sup> AMSARA, “[Annual Report 2018](#),” 28.

<sup>53</sup> According to the Centers for Naval Analysis, “Because DMDC data do not report specific International Classification of Diseases (ICD-10) medical conditions, we cannot tell whether the increase in medical conditions is due to an increase in physical or mental health conditions.” See Shannon Desrosiers and Kyle Neering, “[Evaluating Suitability Across the Services](#).”

<sup>54</sup> “[2017 Health of the Force Report](#),” *Defense Health Agency*, 50.

<sup>55</sup> “High utilization of analogous codes, particularly among Service members with musculoskeletal disabilities, and lack of formal MEB medical diagnosis in the electronic file, precludes the evaluation of the association of certain types of disability with specific medical conditions.” See Disability Evaluation System Analysis and Research, “[2019 Annual Report: Key Metrics Disability Evaluations FY2013-2018](#),” *Walter Reed Army Institute of Research*, March 13, 2020, 56. The Centers for Naval Analysis found that Navy physicians misused “condition, not disability” codes as a faster and less costly separation reason for Sailors and Marines who should have received disability ratings with compensation. See Shannon Desrosiers and Kyle Neering, “[Evaluating Suitability Across the Services](#),” page v.

<sup>56</sup> Natalya Weber et al., “[2022 Disability Evaluation System Analysis and Research \(DESAR\) Annual Report](#),” *Walter Reed Army Institute of Research*, January 10, 2023.

<sup>57</sup> The DoD's 2020 disability report tracked “unmet weight” within accessions but not within service or separations. See William Washington et al., “[2020 Annual Report Disability Evaluation System Analysis and Research](#),” *Walter Reed Army Institute of Research*, 43. “The proportions among 2019 disqualified applicants for both the endocrine and miscellaneous categories were approximately half the proportions in 2016 and 2017; these changes may be due medical standard changes.” See AMSARA, “[2020 Annual Report](#),” 16; Natalya Weber et al., “[2022 DESAR](#),” 47.

<sup>58</sup> William Washington et al., “[2020 DESAR](#),” page IV.

<sup>59</sup> Sarah Meadows et al., “[2015 Department of Defense Health Related Behaviors Survey \(HRBS\)](#),” *RAND Health Quarterly* 8, No. 2 (2018). Another RAND study sponsored by the Department of Defense found that “differences between services' systems and methods often leads to incorrect data in systems of record” and “the Defense Manpower Data Center will often change D.D. Form 214 data without relaying those changes back to the services.” See Michael Schwille et al., “[Service Member Separation: Updating the D.D. Form 214](#),” *RAND*, 2019. Reserve component separation codes differ from active component codes, making them incomparable. A spokesperson for the Department of Defense told Reuters that medical diagnoses from 2016-2020 were underreported in DMED, which resulted in an apparent significant increase when comparing the figures with data from 2021. See “[Fact Check-DoD says data error caused spike in numbers of medical diagnoses in their medical database for 2021](#),” *Reuters Fact Check*, February 23, 2022. Overweight and obese data cannot be compared to benchmarks as “no clear benchmarks for the military exist.” See Sarah Meadows et al., “[2015 Department of Defense Health Related Behaviors Survey](#),” page xlii. CNA also found that “erroneous enlistment is primarily used by the Navy, fraudulent entry is primarily used by the Marine Corps, and failed procurement standards is the reason primarily used by the 17



Army and the Air Force.” See Shannon Desrochers and Kyle Neering, “Evaluating Suitability Across the Services,” page viii.

<sup>60</sup> “Increased Missing Data Affects Burden Estimates,” *MSMR* 30, No. 6 (June 2023), 2.

<sup>61</sup> For example, annual AMSARA reports shrank from 144 pages in 2015 to 61 pages in 2019. The website for the DOD Survey of Health-Related Behaviors, “the predominant source of health behavior information for the military since 1980,” has not been updated since 2015. See “Survey of Health-Related Behaviors,” *Health.mil*, accessed August 29, 2023.

<sup>62</sup> “The IHI should not be compared with prior years due to changes in data sources and methodology.” See “2022 Health of the Force Report,” *Defense Health Agency*, 88. “Installations are separated by electronic health record system and should not be compared across systems due to known data decrements resulting from the installation transition from AHLTA to MHS GENESIS.” See “2022 Health of the Force Report,” *Defense Health Agency*, 89.

<sup>63</sup> Rebecca Puhl and Chelsea Heuer, “Obesity Stigma: Important Considerations for Public Health,” *American Journal of Public Health* 100, No. 6 (June 2010), 1019–1028.

<sup>64</sup> “70% of active-duty service members had recorded periodic health assessments during this period, and 10% of those assessments contained missing or invalid BMI data.” See Regan Stieglmann et al., “Obesity Prevalence.”

<sup>65</sup> Sarah Meadows et al., “2015 Department of Defense Health Related Behaviors,” page 15.

<sup>66</sup> “2022 Health of the Force Report,” *Defense Health Agency*, 152.

<sup>67</sup> “Although unverified, obese Soldiers may be more likely to have an outpatient visit than a non-obese Soldier; this would result in an overestimation of obesity prevalence for the A.C. Soldier population.” See “2022 Health of the Force Report,” *Defense Health Agency*, 165.

<sup>68</sup> Christine Aramburu, Alegria Drury, and Margaret Louis, “Exploring the association between body weight, stigma of obesity, and health care avoidance,” *Journal of the American Association of Nurse Practitioners* 14 (December 2002), 554–561; Mary Forhan, Cathy Risdon, and Patricia Solomon, “Contributors to patient engagement in primary health care: perceptions of patients with obesity,” *Primary Health Care Research & Development* 14 (December 2012), 367–372; S. M. Phelan et al., “Impact of weight bias and stigma on quality of care and outcomes for patients with obesity,” *Obesity Review* 16 (April 2015), 319–326.

<sup>69</sup> Military personnel are likely to enroll in commercial weight-reduction programs or to self-treat with supplements or over-the-counter medications rather than call attention to their weight, which invites possible disciplinary action or separation from the service with loss of benefits. See *Weight Management: State of the Science and Opportunities*, 39.

<sup>70</sup> Sarah Meadows et al., “2015 Department of Defense Health Related Behaviors Survey,” page xliii.

<sup>71</sup> AMSARA, “Attrition & Morbidity Data for 2015 Accessions,” 3. Approximately 1200 first-term enlistees separated from the military service before finishing their contracted period because of failure to meet weight standards, which cost the DoD \$61 million. See Tim Dall et al., “Cost Associated With Being Overweight and With Obesity, High Alcohol Consumption, and Tobacco Use Within the Military Health System's TRICARE Prime–Enrolled Population,” *American Journal of Health Promotion* 22, Vol. 2, 120–39 (November 2007).

<sup>72</sup> Patricia H. Rosenberger and Lindsey Dorfinger, “Psychosocial factors associated with binge eating among overweight and obese male veterans,” *Eating Behaviors* 14, No. 3 (August 2013), 401–404; Katherine D. Hoerster et al., “PTSD and depression symptoms are associated with binge eating among U.S. Iraq and Afghanistan veterans,” *Eating Behaviors* 17 (April 2015), 115–118. Overweight individuals in the general population frequently encounter barriers to employment, lower wages, denial of promotions, and pejorative humor and comments from co-workers. See Cory W. Rudolph et al., “A meta-analysis of empirical studies of weight-based bias in the workplace,” *Journal of Vocational Behavior* 74, No. 1 (February 2009), 1–10; Katrin Elizabeth Giel et al., “Weight bias in work settings—A qualitative review,” *Obesity Facts* 3, No. 1 (February 2010), 33–40; Rebecca M. Puhl and Chelsea A. Heuer, “The stigma of obesity: A review and update,” *Obesity* 17, No. 5 (May 2009), 941–964.

<sup>73</sup> At enlistment, obese individuals with no recognized disabilities are categorized as “medically qualified.” “The proportions among 2019 disqualified applicants for both the endocrine and miscellaneous categories were approximately half the proportions in 2016 and 2017; these changes may be due medical standard changes.” See AMSARA, “Annual Report 2020,” 16.

<sup>74</sup> Evan Trivette, “Obesity and Army Readiness,” *U.S. Army Command*, 2019; Rachel Nostrant, “DoD overhauls its body composition and fitness policy,” *MilitaryTimes*, March 21, 2022.

<sup>75</sup> “Exception to Policy: AR 600-9 Army Body Composition Program,” *army.mil*, accessed August 27, 2023.



- <sup>76</sup> Darren Yang et al., “Relationship Between Body Mass Index and Diagnosis of Obesity in the Military Health System Active Duty Population,” *Military Medicine* 187, No. 7-8 (July-August 2022), e948-e954.
- <sup>77</sup> For examples, see “2014 Health Related Behaviors Survey of Active Duty Personnel,” *Defense Health Agency*, Fall 2015, 29; “2022 Health of the Force Report,” *Defense Health Agency*, 152; “2021 Health of the Force Report,” *Defense Health Agency*, 25. “Muscular service members may have been misclassified as overweight or obese. Recent research on male firefighters, who may be more similar to military personnel than other occupational cohorts, found significant misclassification, both false positive and false negative, of obesity when comparing BMI-based measures with more-sensitive measures, including percent body fat and waist circumference (Jitnarin et al., 2014).” See “2015 Department of Defense Health Related Behaviors Survey,” *RAND*, 47. In the firefighters study, the demographics evaluated were not similar to that of active duty service members. It concluded that “rates of false positives (i.e., labeling someone as obese based on BMI when they are not based on Body Fat Percentage or Waist Circumference) were very low.” See Nattinee Jitnarin et al., “Accuracy of Body Mass Index-defined Obesity Status in US Firefighters,” *Safety and Health at Work* 5, No. 3 (September 2014), 161-164.
- <sup>78</sup> Albert Sun, “How Often is BMI Misleading?” *The New York Times*, August 28, 2015. Also see Orison Woolcott and Till Seuring, “Temporal trends in obesity defined by the relative fat mass (RFM) index among adults in the United States from 1999 to 2020: a population-based study,” *BMJ Open* 13, No. 8 (August 2023), e071295.
- <sup>79</sup> Philip Clerc, Stéphanie Mayer, and Sky Graybill, “Overweight BMI (25–29) in Active Duty Military: Excess Fat or More Lean Mass? A Look at the Evidence,” *Military Medicine* 187, No. 7-8 (July-August 2022), 201–203.
- <sup>80</sup> Steve Beynon, “Army Sticking to Flawed Tape Test with Tweaks,” *Military.com*, March 9, 2023.
- <sup>81</sup> “2017 Health of the Force Report,” *Defense Health Analysis*, 50.
- <sup>82</sup> Courtney Clutter et al., “[Are We Missing an Opportunity? Prediabetes in the U.S. Military](#),” *Mil Med* (July 2022).
- <sup>83</sup> For example: “Excessive body fat connotes a lack of personal discipline, detracts from military appearance, [and] may indicate a poor state of health, physical fitness, or stamina.” See Department of Defense, *Army Regulation 600-9* (Washington, DC: Department of the Army, 1986).
- <sup>84</sup> For weight and fitness requirements, see Department of Defense, [MCO 6110.3A W/CH 3](#) (Washington, DC: United States Marine Corps, 2021), 1-1.
- <sup>85</sup> For “Squared away,” see MCO 6110.3, 1-10. For “commensurate with the high standards traditionally associated with Army service,” see AR 670–1, 18. For “contributes to a favorable Military image,” see Navy 2101.2.
- <sup>86</sup> United States Air Force, *Department of the Air Force Guidance Memorandum to DAFI 36-2903, Dress and Personal Appearance of United States Air Force and United States Space Force Personnel*, Air Force Policy, 28 February 2023.
- <sup>87</sup> Multiple sources noted that the Army Regulation (AR) 600-9 Army Body Composition Program (ABCP) provisions are inconsistent and unevenly enforced. One representative source who wrote while attending the Sergeants Major Academy noted, “We have senior leaders in key positions who are not in accordance with AR 600-9.” See Keith D. Carmickle, “The Ethical Dilemma of the Army Overweight Program,” *United States Army Sergeants Major Academy* (Fort Bliss, TX: January 3, 2008).
- <sup>88</sup> MCO 6110.3A; Army Regulation 600-9.
- <sup>89</sup> For example, while Army Regulation 600-9 no longer grants authority to commanders in making health determinations based on appearance alone, it still gives commanders discretion in determining who is evaluated for body fat based on an individual’s “soldierly appearance,” driving subjective and stigma-based decisions that are not based on real health or body weight metrics. See Department of the Army, *The Army Body Composition Program*, Army Regulation 600-9 (Washington, DC: Army Publishing Directorate, 2013).
- <sup>90</sup> E. K. Gunderson, “Body size, self-evaluation, and military effectiveness,” *Journal of Personality and Social Psychology* 2, No. 6 (December 1965), 902–906; R.C. Martin et al., “Validity of self-reported physical fitness and body mass index in a military population,” *Journal of Strength and Conditioning Research* 30, no. 1 (January 2016), 26–32; Andrew Christian, Bina Parekh, and Gilly Koritzky, “Bias and discrimination against men with overweight in the military,” *Health Psychol Open* 7, no. 2 (December 2020).
- <sup>91</sup> Anita H. McCowen, “[The Impact of Fitness on Senior Leadership](#),” *U.S. Army War College*, April 7, 2003.
- <sup>92</sup> *Weight Management: State of the Science and Opportunities*, page 38.
- <sup>93</sup> *Weight Management: State of the Science and Opportunities*, page 55.
- <sup>94</sup> Erin L Miggantz, et al., “Characteristics of Active Duty Service Members Referred to the Navy’s Weight-Management Program,” *Mil Med* 188, No. 1-2 (2023 Jan-Feb), e174–e181.

<sup>95</sup> AM Malkawi et al., “Dietary, physical activity, and weight management interventions among active-duty military personnel: a systematic review,” *Military Medical Research* 5, No. 1 (2018), 1–12; J Murray et al., “Selected weight management interventions for military populations in the United States: a narrative report,” *Nutritional Health* 23, No. 2 (2018), 67–74; Wisbach GG et al., “Are Navy weight management programs ensuring sailor physical readiness? An analysis at Naval Medical Center San Diego,” *Mil Med* 183, No. 9-10 (2018), e624–32.

<sup>96</sup> “Addressing Health Barriers to Military Service,” House Report, 5.

<sup>97</sup> These changes in nomenclature are intended to reduce the stigma surrounding obesity by alleviating body consciousness, reducing embarrassment, being more inclusive of women and people of color, or granting dignity to more senior service members. See Rebecca Puhl and Chelsea Heuer, “[Obesity Stigma: Important Considerations for Public Health](#).”

<sup>98</sup> For example, the Consortium for Health and Military Performance’s “Get into Fighting Weight” campaign advocated a four-step program starting with a “wish” for weight loss. CHAMP was granted \$7.2 million dollars in FY2021 for this campaign and an evaluation of omega-3 supplements. See “Department of Defense Cooperative Agreement HU00012120022,” USASpending.gov; “Department of Defense Cooperative Agreement HU00012020028,” USASpending.gov; “Lighting the Way: 2021 Annual Report,” *Consortium for Health and Military Performance*, November 22, 2021; “Get into Fighting Weight: A Total Force Fitness Guide,” *The Consortium for Health and Military Performance*, accessed August 27, 2023.

<sup>99</sup> “The TFF framework provides a proactive and holistic approach to the management of mission readiness ROI from TFF relevant programs (including nutrition and physical fitness programs), otherwise the estimated impact would/could be miscalculated if other upstream drivers of mission readiness from both an individual and community perspective identified in the TFF framework are not accounted for. The need to look holistically at fitness and control for the many contributing factors of readiness is why we must account for all the variables associated with the TFF domains when assessing the marginal impact of specific military physical fitness and nutrition programs.” See “Addressing Health Barriers to Military Service,” House Report, 5. Representative [James Glynn](#) states, “Holistic performance, including spiritual, mental, social, and physical fitness are critical for Marines and their loved ones, and are a major line of effort for successfully achieving our talent management goals.” See “House Armed Services Subcommittee on Military Personnel Holds Hearing on Personnel Posture One,” *America’s Navy Press Office*, March 29, 2023.

<sup>100</sup> CHAMP, “Get into Fighting Weight: A Total Force Fitness Guide.”

<sup>101</sup> Ibid.

<sup>102</sup> Carmen Good et al., “Sleep in the United States Military,” *Neuropsychopharmacology* 45 (2020), 176–191.

<sup>103</sup> “[Unfit to Serve](#),” National Center for Chronic Disease Prevention and Health Promotion.

<sup>104</sup> “Duration of Service after Overweight-related Diagnoses, Active Component, U.S. Armed Forces, 1998-2010,” *MSMR* 18, No. 06 (June 2011); Alyson J. Littman et al., “Weight Change Following US Military Service,” *International Journal of Obesity* 37, No. 2 (February 2013), 244–253.

<sup>105</sup> Philip Ades et al., “High-calorie-expenditure exercise: a new approach to cardiac rehabilitation for overweight coronary patients,” *Circulation* 119 (2009), 2671–2678; Ibrahim Akin and Christoph A Nienaber, “The obesity paradox, weight loss, and coronary disease,” *American Journal of Medicine* 122 (2009), 1106–1114; Patrick Savage et al., “Exercise and weight loss improve endothelial-dependent vasodilatory capacity in overweight individuals with coronary heart disease,” *Journal of Cardiopulmonary Rehabilitation* 29, No. 264 (2009).

<sup>106</sup> William Knowler et al., “Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin,” *New England Journal of Medicine* 346 (2002), 393–403; Justo Sierra-Johnson et al., “Prognostic importance of weight loss in patients with coronary heart disease regardless of initial body mass index,” *European Journal of Preventive Cardiology* 15 (2008), 336–340.

<sup>107</sup> A. Janet Tomiyama, “[Stress and Obesity](#),” *Annual Review of Psychology* 70 (January 2019), 703–718.

<sup>108</sup> Maria Stukenborg et al., “Exceeding body composition standards is associated with a more negative body image and increased weight cycling in active duty U.S. soldiers,” *Eating Behaviors* 42 (August 2021).

<sup>109</sup> Joseph Pierce et al., “Body mass index predicts selected physical fitness attributes but is not associated with performance on military-relevant tasks in U.S. Army soldiers,” *Journal of Science and Medicine in Sport* 20 (2017), S79–S84.

<sup>110</sup> Cowan et al., “Musculoskeletal injuries among overweight army trainees.”

<sup>111</sup> Nadia Urban, Michael R. Boivin, and David N. Cowan, “Fitness, Obesity, and Risk of Asthma among Army Trainees,” *Occupational Medicine* 66, no. 7 (October 2016), 551-557.

<sup>112</sup> “Service members must meet the DoDI 1308.3 standards to deploy. These standards include weight requirements, and, to deploy in violation of these standards, a waiver is required, slowing the process of deployment. Indeed, waiver-related delays have become so problematic as to prompt consideration of revisions to DoDI 1308.3.” See “2018 Department of Defense Health Related Behaviors Survey,” *RAND*, 42. “Sergeant Major (SGM) Keith Carmickle, noted that leaders mandated the removal of flags from overweight soldiers so that they could deploy, a practice, which at the time, he infers was due to manpower shortages.” See Evan Trivette, “Obesity and Army Readiness,” 13.

<sup>113</sup> Evan Trivette, “Obesity and Army Readiness.”

<sup>114</sup> “COMSEC: What is your need to know?” McConnell Air Force Base, accessed August 27, 2023.

<sup>115</sup> Jeannette Gaudry et al., “Impacts of Marine Corps Body Composition and Military Appearance Program (BCMAP) Standards on Individual Outcomes and Talent Management,” *RAND*, 2022; Lindsay Bodell et al., “Consequences of Making Weight: A Review of Eating Disorder Symptoms and Diagnoses in the United States Military,” *Clinical Psychology* 21, No. 4 (December 2014), 398–409.

<sup>116</sup> *Weight Management: State of the Science and Opportunities*, 39-45.

<sup>117</sup> “2014 Health Related Behaviors Survey,” *Defense Health Agency*, 10.

<sup>118</sup> Brooke Bartlett and Karen Mitchell, “Eating disorders in military and veteran men and women: A systematic review,” *International Journal of Eating Disorders* 8, No. 48 (December 2015), 1057-1069; Danielle A Touma et al., “Eating Disorders in U.S. Active Duty Military Members and Veterans: A Systematic Review,” *Military Medicine* 7-8, No. 188 (July/August 2023), 1637–1648.

<sup>119</sup> Jessica Murray, Sithembile Mabila, and Alexis McQuistan, “Trends in the Incidence of Eating Disorders Among Active Component Service Members, 2017 to 2021,” *MSMR* 30, No. 01 (January 2023).

<sup>120</sup> “Impacts of Marine Corps Body Composition,” *RAND*.

<sup>121</sup> *Weight Management: State of the Science and Opportunities*, page 40.

<sup>122</sup> “Physical Complications of Abuse of Laxatives, Diuretics and Diet Pills,” *InsideOut Institute for Eating Disorders*, October 2022.

<sup>123</sup> Jeannette Gaudry et al., “Impacts of Marine Corps Body Composition and Military Appearance Program (BCMAP) Standards.”

<sup>124</sup> The first comprehensive finding on genetic predisposition to obesity was a 1989 study that found that adopted Dutch infants had body compositions more similar to their biological parents than their adoptive parents despite controlling for changes in nutrition, dietary standards, and other factors. See Lise Dubois et al., “Genetic and Environmental Contributions to Weight, Height, and BMI from Birth to 19 Years of Age: An International Study of Over 12,000 Twin Pairs,” *PLOS One* 7, No. 2 (2012).

<sup>125</sup> “Excessive body fat connotes a lack of personal discipline, detracts from military appearance, [and] may indicate a poor state of health, physical fitness, or stamina.” See AR 600-9, 1986.

<sup>126</sup> The International Classification of Diseases, the American Medical Association, the World Health Organization, and the European Union recognize obesity as a chronic disease.

<sup>127</sup> *Weight Management: State of the Science and Opportunities*, 55.

<sup>128</sup> The services themselves include similar recommendations when revising these policies. See: “This document has been substantially revised and needs to be completely reviewed,” in Department of the Air Force, *Personnel Military Separations*, Instruction 36-3211 (Washington, DC: June 24, 2022). Similar disclaimers exist throughout other service policies.

<sup>129</sup> The U.S. Preventive Services Task Force found “convincing evidence” that preventive interventions in persons diagnosed with prediabetes reduce progression to type 2 diabetes and improve other risk factors such as blood pressure and lipid levels. See “USPSTF Recommendation: Screening for Prediabetes and Type 2 Diabetes,” U.S. Preventive Services Task Force Clinical Review & Education, August 24, 2021. Also see “Why Screen for & Treat Prediabetes,” U.S. Department of Health and Human Services. Prediabetes tests cost under \$20 and can be conducted by anyone in a healthcare setting trained to administer the test; see “Prediabetes Screening: How & Why,” U.S. Department of Health and Human Services, accessed August 27, 2023.



<sup>130</sup> In 2021, CHAMP's #GetIntoFightingWeight posts received low engagement, with between zero to seven "likes," "comments," and "reblogs" each, signifying that the overall reach and impact of this campaign were limited. CHAMP's second initiative evaluated omega-3 levels in service members. Omega-3 supplementation has not been found to correlate significantly with either weight loss or body fat. See Felipe Mendes Delpino, Lílían Munhoz Figueiredo, and Bruna Gonçalves Cordeiro da Silva, "[Effects of omega-3 supplementation on body weight and body fat mass: A systematic review](#)," *Clinical Nutrition* 44 (August 2021), 122-129.

<sup>131</sup> The DoD's Total Force Fitness (TFF) framework prioritizes services and programs to improve military health and readiness. The Department of Defense granted over \$7.2 million in 2021 to the Consortium for Health and Military Performance (CHAMP) to manage TFF and its Human Performance Optimization program, which assigns fitness levels to core tasks. See "Addressing Health Barriers to Military Service," House Report, 5; "[Human Performance Optimization: Moving left of bang](#)," CHAMP, accessed August 11, 2023.

<sup>132</sup> The course reports an average 1.7% decrease in body fat per week. See Doug Ware, "[Army prep course has seen 95% grad rate, \\$15M in bonuses in 1st year](#)."

<sup>133</sup> .5% weekly body fat loss or less is generally considered a safe rate of fat loss. During periods of rapid weight loss, up to 25% of lost mass is muscle tissue. See Kevin Hall and Scott Kahan, "[Maintenance of lost weight and long-term management of obesity](#)," *Medical Clinics of North America* 102, No. 1 (January 2018), 183-197; Damoon Ashtary-Larky et al., "Effects of gradual weight loss v. rapid weight loss on body composition and RMR: a systematic review and meta-analysis," *British Journal of Nutrition* 124, No. 11 (June 2020); Kimberly Neumann and John Morton, "12 Ways To Reduce Body Fat," *Forbes Health*, April 6, 2023. Within six months to a year, program participants typically experience a weight plateau; within five years, over 80% of lost weight is regained. See Anderson JW et al., "Long-term weight-loss maintenance: a meta-analysis of U.S. studies," *American Journal of Clinical Nutrition* 74, No. 5 (November 2001), 579-584.

<sup>134</sup> Weight losses of 5-10% over the course of at least one year decrease the incidence of diabetes by 58 percent and stabilize blood pressure, cholesterol, and arthritis. See Diabetes Prevention Program Research Group, "[Reduction in the incidence of Type 2 diabetes with lifestyle intervention or metformin](#)," *New England Journal of Medicine* 346 (2002), 393-403; Donna Ryan and Sarah Yockey, "[Weight Loss and Improvement in Comorbidity: Differences at 5%, 10%, 15%, and Over](#)," *Current Obesity Reports* 6, No. 2 (June 2017), 187-194; R. Christensen et al., "Weight loss: the treatment of choice for knee osteoarthritis?" *Osteoarthritis and Cartilage* 13, No. 1 (January 2005), 20-27.

<sup>135</sup> "[Prescription Medications to Treat Overweight & Obesity - NIDDK](#)," U.S. Department of Health and Human Services.

<sup>136</sup> Meg Tirrel, "[Weight-loss drug Wegovy produces 'largest benefit ever seen' for patients with most common form of heart failure, trial finds](#)," CNN, August 25, 2023; John Wildling et al., "[Once-Weekly Semaglutide in Adults with Overweight or Obesity](#)," *New England Journal of Medicine* 384 (March 2021), 989-1002.

<sup>137</sup> The health and fitness industries are majority composed of unlicensed "nutrition experts" who are not authorized to diagnose or treat obesity. Physicians credentialed by the American Board of Obesity Medicine maintain specialized knowledge in the practice of Obesity Medicine. See "American Board of Obesity Medicine," <https://www.abom.org/>. Registered Dietitians and Registered Dietetics Technicians are credentialed practitioners required to stay up to date with current nutrition and obesity science. See "[About RDNs and NDTRs](#)," Academy of Nutrition and Dietetics.

<sup>138</sup> Obesogenic influences can be identified as early as infancy and can have significant and ongoing impacts on a person's health throughout their lifetime. Factors such as maternal obesity, gestational diabetes, maternal smoking, and inadequate sleep are all risk factors. See Ruth Loos and Giles Yeo, "[The genetics of obesity: from discovery to biology](#)," *Nature Reviews Genetics* 23 (2022), 120-133; James Gannon et al., "[A Practical Screening Tool to Predict Early Childhood Obesity Risk: Examining a Birth Cohort](#)," *Clinical Pediatrics* 60, No. 3 (March 2023), 178-183.

<sup>139</sup> John Donnelly, "[Congress barely dents scourge of hunger in military](#)," *Roll Call*, January 13, 2023.

<sup>140</sup> For example, days at a combat post can be 14 to 16 hours long, with little time for rest or recuperation. See "[Day in the Life](#)," GoArmy.com; "[An Average Day in the Life of a Warrior at a Combat Post](#)," Combat One.

<sup>141</sup> Military reporters optimistically note when obesity "stabilizes" or "improves," even this is due to changes in categorization, policy, or improperly recorded or missing data. For example, in 2017, 5-15% of Disability Evaluation System records went missing, meaning data on obesity and other medical conditions were significantly underestimated. See DESAR, "Annual Report 2019," 29. Despite this, annual reports noted improvements in



several disability categories, for example “The proportion of all Soldiers with a chronic disease has slowly declined in the last five years” in “[Health of the Force Report 2017](#),” *Defense Health Agency*, 42. Another report notes “overweight/obesity continued to decrease compared to previous years,” but recategorizations significantly affected these results. See “2015 Health Related Behaviors Survey,” *RAND*, 48; AMSARA, “Annual Report 2015,” 2. Some reports mark progress on metrics that are not meant to be same-year goals. For example, “many fewer active-duty service members aged 20 or older were obese (15.0 percent), easily achieving the HP2020 obesity target,” when that target was meant to be a projected rate five years into the future. See “[2015 Health Related Behaviors Survey](#),” *RAND*. Reports have published incremental or stable obesity rates compared to prior years, only for those rates to be adjusted higher in future reports. See “[Decision Brief: Examination of Mental Health Accession Screening](#),” *Defense Health Board*, August 7, 2020; AMSARA, “[Annual Report 2016](#),” 4. This has been a recurring trend since at least 1995, when combined overweight and obesity rates were published at 19%. See Roberty Bray et al., “1995 Department of Defense Survey of Health Related Behaviors Among Military Personnel,” *Research Triangle Institute*, December 1995. This was later corrected to 50.6% in Carolyn Reyes-Guzman, “[Overweight and obesity trends](#)” and future reports. AMSARA, “[Annual Report 2010](#)” states that “The incidence of disqualifications for obesity/overweight (exceeding weight/body fat limits) is lower in 2009 (3,749 per 100,000 applicants) compared to the previous five years (4,353 per 100,000 applicants).” In *AMSARA 2013*, “overweight and obesity (9.0% of disqualifications), a temporary condition, decreased in prevalence among applicants by nearly 50% in 2012 relative to the previous five years to 1,557 per 100,000 applicants.” In *AMSARA 2015*, these rates were adjusted to 15%. In *DoD Health of the Force 2019*, this number climbed to 16.3% using the same dataset.

<sup>142</sup> AMSARA and DESAR reports, for instance, are responsible for systematically evaluating military obesity data, provide context for changes in military health policy, and craft recommendations regarding the effects of excess body fat on recruitment and retention. However, they are unable to do so because of BMI data being removed from medical categories. See “[Decision Brief: Examination of Mental Health Accession Screening](#),” *Defense Health Board*, August 7, 2020; AMSARA, “[Annual Report 2016](#),” 4; “Impacts of Marine Corps Body Composition and Military Appearance Program (BCMAP) Standards,” *RAND*.