

Women in Service Restrictions:

Synopsis of Completed Work and Recommended Next Steps

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Photo credit line: U.S. Marines assigned to a female engagement team (FET) speak with a local Afghan man in his compound during a patrol in Marjah, Helmand Province, Afghanistan, Dec. 30, 2010. The FET worked with infantry Marines by engaging women and children in support of the International Security Assistance Force. (U.S. Marine Corps photo by Cpl Marianne T. Mangrum.)

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Introduction

In January 1994, Secretary of Defense Les Aspin promulgated a memorandum issuing the Department of Defense (DOD) rules for assignment of women in the services [1]. Most notably, the rules prohibited women from serving in “units below the brigade level whose primary mission is to engage in direct combat on the ground.”

In addition to this direct ground combat exclusion, the memorandum allowed additional restrictions on the assignment of women where

- the service secretary attests that the costs of appropriate berthing and privacy arrangements are prohibitive;
- units and positions are doctrinally required to physically collocate and remain with direct ground combat units that are closed to women;
- units are engaged in long-range reconnaissance operations and Special Operations Forces missions; or
- job-related physical requirements would necessarily exclude the vast majority of women servicemembers.

Earlier this year, DOD eliminated the collocation restriction [2].¹ It also has allowed some female officers and staff noncommissioned officers to be assigned to some closed ground combat element (GCE) units at the battalion level as part of an “Exception to Policy.” Otherwise, the department continues to follow the policies established by the Aspin memo.

In accordance with the DOD policies, the Marine Corps restricts women from classification into combat arms primary military occupa-

1. On February 9, 2012, DOD notified Congress of its intent to eliminate the collocation restriction. The new DOD policy went into effect after the expiration of a 30-day waiting period [2].

tional specialties (PMOSs); that is, those in the 03 (infantry), 08 (artillery), and 18 (tank and assault amphibious vehicle) occupational fields (occfields). The Marine Corps also restricts female Marines in “open PMOSs” from assignments below the division level in the GCE—except for the headquarters battery in artillery regiments (and those in the Exception to Policy).

The FY 2011 National Defense Authorization Act (NDAA) directed the secretary of defense and the service secretaries to “conduct a review of laws, policies, and regulations, including the collocation policy, that may restrict the service of female members of the Armed Forces...” Accordingly, in January 2011, the Marine Corps formed an operational planning team (OPT) to review its existing policies related to women in the Marine Corps. CNA has been providing analytical support to the OPT since April 2011. The Assistant Commandant of the Marine Corps (ACMC) also asked CNA to conduct an independent study, providing information to help inform a decision about:

- Whether to change existing policies
- The effects of prospective policy changes on recruiting, retention, manpower management, and training processes.

During this study, we conducted extensive literature reviews; interviewed subject matter experts from other countries’ militaries, other organizations, and the Marine Corps; and conducted data analysis of existing survey and Marine Corps training data relevant to prospective policy decisions. We also developed a force survey (the Women in Combat Units survey—fielded through Marine Corps systems) intended to solicit the thoughts and attitudes of active component and Selected Reserve Marines about current ground combat exclusion policies and prospective policy changes.²

In this document, we present a synopsis of our findings. Specifically, we summarize our research on:

- The number of women who expressed interest in ground combat

2. We owe special thanks to Ms. Cheryl Fitzgerald, Maj Peter Koeneman, Mr. Gary Lindeen, and Mr. Joseph Berger for their help in this endeavor.

- Physiological differences between men and women
- Marines' opinions about prospective policy changes
- Possible effects on recruiting and retention
- Marines' anticipated benefits and concerns about opening ground combat occupations and units to women
- Lessons learned from other militaries and physically demanding professions
- Unit cohesion and related social concerns
- Sexual assault and harassment.³

Finally, we discuss remaining challenges that the Marine Corps could face if it were to lift all remaining gender-related service restrictions, and we suggest topics for future analysis.

Additional details on most of the issues discussed in this report can be found in our previously published documents [3-5].

3. As we discuss later, useful data on sexual assault and harassment were not available.

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Findings

Number of women who expressed interest in ground combat

In our force survey, we asked female Marines if they would be interested in serving in combat arms PMOSs or GCE units. The answers to these questions could help Marine Corps leaders gauge the number of women who potentially would seek ground combat service if current policies were to change. The female Marines responded as follows:

- About 31 percent (1,558 women) of female respondents said that they would be interested in a lateral move to a combat arms PMOS if given the opportunity.
- About 43 percent (2,083 women) said that they would have chosen a combat arms PMOS when they joined the Marine Corps, had it been an option.
- About 34 percent (1,636 women) said that, if allowed, they would volunteer for a GCE unit assignment.

As we discuss in [5], we are uncertain whether the respondents are representative of all female Marines. In addition, we caution that stated intentions in surveys are not always indicative of future behavior [6-7]. Nevertheless, the survey results show that, at a minimum, over 1,500 female Marines indicated an interest in ground combat.

Physiological differences between men and women

Two physiological concerns arise with respect to female ground combat assignments: physical abilities and injury propensity. We discuss these concerns next.

Physical abilities

There are proven physiological differences between women and men that could be significant for female classification to combat arms PMOSs or assignments to GCE units. In particular, there are notable

gender differences in endurance, strength (particularly upper body strength), and movement under a load.

With respect to endurance, women appear to have an advantage. In a test of repeated (twenty) cycling sprints, women showed a lower decline in performance—and, correspondingly, less fatigue—than men, even though perceived exertion was the same for both genders [8]. Others have noted that women’s muscles fatigue more slowly and recover faster than men’s muscles [9].

In general, men have an advantage in strength. In some studies, only 5 percent of women demonstrated median male strength levels [10]. Strength differences appear to be most pronounced in the upper body: one study found that men are 72 percent stronger than women in the upper body [11]. Another found that the average lifting capacity of women was half that of men (66 versus 119 pounds) [11]. Our analysis of Marine Corps data was consistent with these findings. We examined, for example, data on Officer Candidate School (OCS) candidates’ performance on the ammunition-can lift test (part of the combat fitness test (CFT)). We found that, on average, male candidates performed better than their female peers; men averaged 92 repetitions, while women averaged 59.⁴

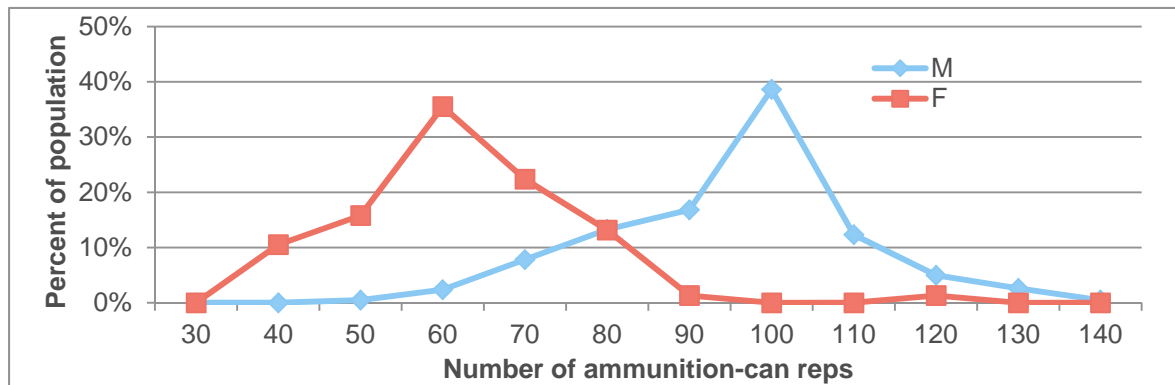
Men also typically outperform women with respect to movement under load. Researchers have explained that women under a load shorten their stride (as opposed to men, who lengthen theirs), spend more time with both feet on the ground, hyperextend their necks, and bring their shoulders farther forward than men [12].

Despite gender differences in average physical abilities, there are some capability overlaps as well. A 1985 U.S. Navy study tested arm strength as it related to the most muscularly demanding tasks that sailors might perform; the measured overlap in dynamic lift scores of men and women was 7 percent [9-10]. Another study showed that the top 10 percent of military women had greater lift capacity than the lowest 10 percent of men [11]. Our analysis also shows overlaps. When we examined OCS CFT ammo-can lift scores from three com-

4. This is based on our analysis of OCS CFT scores from three companies from 2009 and 2010 courses (76 women and 422 men).

panies in the 2009–2010 courses, we found that 18 percent of women outperformed the bottom 10 percent of men, and 1 female candidate performed above the male average (see figure 1).

Figure 1. OCS CFT ammunition-can lift scores^a



a. CNA analysis of OCS CFT scores from three companies from the 2009–2010 courses (76 women and 422 men).

Run times had even greater overlaps. In our analysis of FY08–11 Parris Island bootcamp initial strength test (IST) 1.5-mile run times, 21 percent (2,120) of female recruits ran faster than the bottom male quartile, and 8 percent ran faster than the average male recruit.

The extent to which differences and overlaps in men’s and women’s physical capabilities matter depends on two factors: the ability of training to affect these capabilities and the standards to which men and women have to perform.

Ability of training to improve physical capabilities

Researchers have found that training programs can improve the physical capabilities of both men and women, including aerobic capacity and fat-free mass [13]. On average, women enter the military less fit than men, so training programs can be particularly effective in improving women’s physical fitness. In our analysis of FY08–11 run times from the Parris Island recruit depot, we found that both men and women improved, but women improved more than men. The results are mixed, however, as to whether these programs can improve women’s fitness to the point where they can perform on par with their male counterparts. In some cases, women have been shown to perform to male performance norms following a training regimen; in others, they did not [9, 14-16].

Women’s ability to meet job performance requirements

Whether women’s physical abilities—either before or after training—are sufficient depends on whether they can meet the physical requirements of ground combat service. Existing research offers mixed results. In one study, after 14 weeks of a 28-week training program in which civilian volunteers did weight training, running, backpacking, and specialized drills, 5 days a week for 1 to 1.5 hours per day, all female participants were able to lift 100 pounds to table height (the lifting requirements of the “very heavy” Army MOSs) [17]. We also note that all Marine Combat Training (MCT) students (male and female) must complete a 15-kilometer hike carrying about 73 pounds. According to MCT staff, nearly all Marines complete the hike in 3.5 to 4 hours (approximately the 0300-COND-1001 pace).

Other studies, however, have found that the majority of women are unable to meet ground combat job performance standards. Researchers who conducted Australian Department of Defence tests, for example, estimated that up to 7 percent (but possibly less than 3 percent) of Australian female soldiers could achieve ground combat physical standards [18-19]. United Kingdom (UK) studies estimated that just 1 percent of trained women can achieve the physical standards demanded of ground combat soldiers [20]. Finally, of recruits passing the written portion of the New York City firefighter test, 57 percent of men passed the physical portion compared with 3 percent of women [21].

The Marine Corps Training and Education Command recently completed a round of tests examining male and female Marines’ abilities with respect to GCE Physical Performance standards.⁵ Physical performance data were collected from entry-level training schools and infantry battalions, studying the abilities of participants to complete three GCE tasks:

1. Heavy machine gun (MK19) lift
2. 20-kilometer march under load
3. Casualty movement.

Researchers found that 92 percent of women were able to complete the 20-kilometer march under load in the allotted time. But fewer

5. The standards were based on tasks common to the GCE and derived from an infantry battalion’s Mission Essential Tasks.

women (16 percent) were able to complete the machine gun lift. Women averaged 52 seconds for the casualty movement drill, compared with 25 seconds for men.⁶

We note that the participants did not complete a training regimen designed to prepare them for these tests. Therefore, it is not clear how many men and women would have been able to meet the standards had they been given the opportunity to specifically train for them.

Injury rates

Based on aggregated Marine Corps and Army statistics, women are injured approximately twice as frequently as men during basic training [16]. According to a British study, female soldiers reported back pain three times as often as men, frequently as a result of training or work [22]. Women also appear to have body parts that are particularly injury prone: they are more likely to get stress fractures in the hip and pelvis, and are more likely to have overuse ankle injuries than men [23]. Our analysis of Marine Corps entry-level training supports these findings [3].

Several studies have found, however, that many of the noted differences in injury rates between men and women diminish, or even disappear, when researchers account for fitness. For example, a number of studies that compared the injury rates of men and women whose physical fitness levels were the same found that injury rates between the genders were not statistically different. Researchers concluded that the reason for higher injury rates among women entering military service was not something inherent to their gender, but rather that they were less physically fit than their male counterparts at the time they entered the service [24-26].⁷

6. We do not know what the passing time was for this drill.

7. In fact, accession standards differ for men and women joining the Corps. Differences include height-for-weight standards, body fat percentage restrictions, and IST/physical fitness test (PFT) standards for both officer candidates and enlisted recruits. For example, male enlisted recruits currently must run 1.5 miles in 13.5 minutes or less and complete at least two pull-ups during the IST; female enlisted recruits must run the same distance in 15 minutes or less and do a flexed-arm hang for 12 seconds. Likewise, differences exist for male and female officer candidates.

Our findings were similar. We analyzed Parris Island bootcamp data from FY08 to FY11. As we noted earlier, overall, female recruits suffer about twice the medical attrition rates of male recruits (7.3 percent for women and 3.5 percent for men). However, for men and women with comparable IST run times, medical attrition rates were more similar. Table 1 shows injury rates for women who ran the IST as fast as the top 70, 80, and 90 percent of men. As the table shows, women who completed the IST run in 13 minutes and 6 seconds or faster (36 percent of women) had medical attrition rates of 4.8 percent. Men who completed the run in the same amount of time (90 percent of men) had medical attrition rates of 3.3 percent.⁸ Although the differences in the medical attrition rates for these subpopulations remain statistically significant, the gap in injury rates between men and women narrows considerably. In addition, we note that running is only one component of fitness; other potential measures of initial fitness, however, were not available.⁹

8. Overall attrition rates (including non-medical-related attrition) for these recruits also were similarly low (about 10 percent).

9. As previously noted, male recruits do pull-ups and female recruits currently do a flexed-arm hang during the IST. Because these tests measure different physical abilities, we could not use these test scores to identify men and women who began recruit training with comparable upper body strength. We note that a recent TECOM study, however, found that female officer candidates who could complete at least one pull-up had significantly higher OCS graduation rates than those who could not complete at least one pull-up [27].

Table 1. Parris Island Initial Strength Test run times and medical attrition rates^a

Run time (minutes:seconds)	Percentage of men and women	Medical attrition rate (%)	
		Women	Men
Total	100% of men; 100% of women	7.3	3.5
13:06 or faster	90% of men; 36% of women	4.8	3.3
12:37 or faster	80% of men; 26% of women	4.8	3.1
12:15 or faster	70% of men; 19% of women	4.7	2.9

a. Based on a sample of 8,998 women and 49,207 men for whom we have run times.

Comparison of Marines' opinions about prospective policy changes

Changes to gender-based combat restrictions can take several forms. We sought to understand Marines' opinions about each of the prospective policy changes being considered by DOD and the Marine Corps. Data are available from the Women in Combat Units survey that we conducted and a few other surveys conducted over the past two decades.

Women in Combat Units survey

In the Women in Combat Units survey of the force, we asked active component and Selected Reserve Marines for their opinions on a variety of prospective policy changes, such as allowing female Marines to serve in the following capacities:

- Combat arms PMOSs
- Combat arms PMOSs, but only if they volunteer
- Combat arms PMOSs, regardless of whether they volunteer
- Combat arms PMOSs, but only if they can meet the physical demands of service
- GCE units, including at the regiment level and below

- GCE units, including at the regiment level and below, but only if they could pass a GCE physical screening test [5].

Overall, we found the following for each major group of respondents (including men and women, and across ranks/paygrades):

- Respondents were more favorable toward female service in GCE units than in combat arms PMOSs.
- Respondents were more favorable to voluntary than involuntary female ground combat service.
- Respondents were more favorable to female ground combat service that is limited to those who can meet the physical demands of service.

Combining some of these factors, respondents were most supportive of physically capable women serving in GCE units. Respondents were least supportive of women involuntarily serving in combat arms PMOSs.

Figure 2 presents male respondents’ answers to our primary questions requesting opinions about prospective policy changes. Because a large percentage of male respondents indicated that they opposed the prospective policy changes, this figure highlights the level of opposition to each policy.

Figure 2. Male respondents: Comparison of opinions about potential policy changes

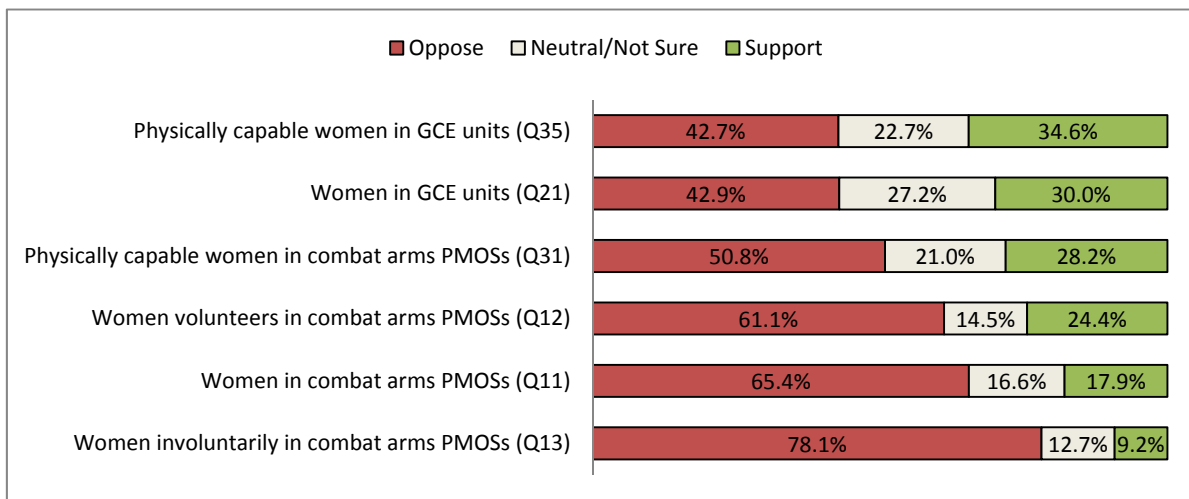
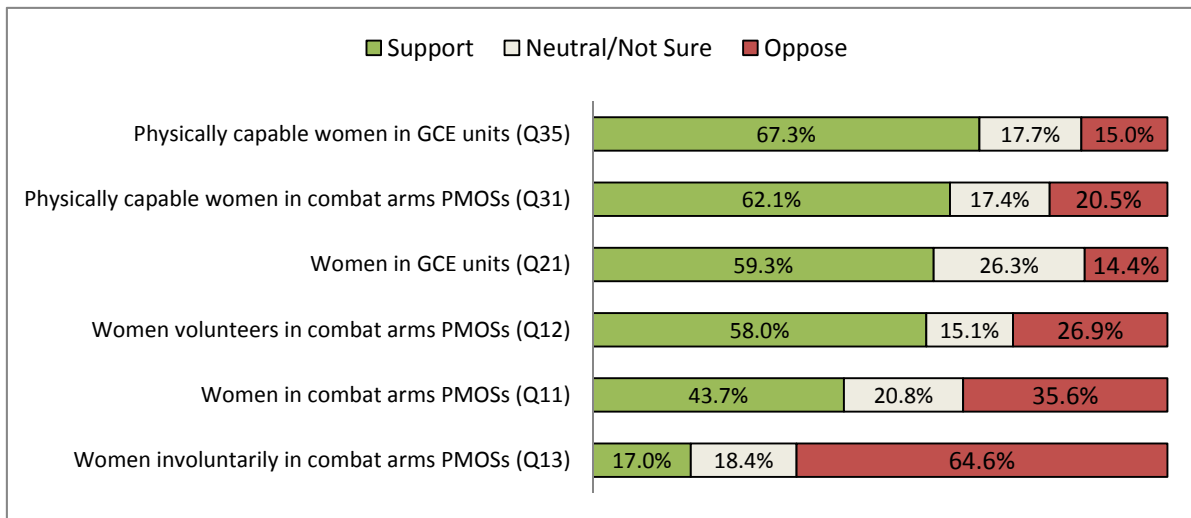


Figure 3 presents female respondents’ answers to our primary questions requesting opinions about prospective policy changes. Because most women favored most of the prospective policy changes, the figure highlights the level of support for each policy.

Figure 3. Female respondents: Comparison of opinions about potential policy changes



GCE echelons in which respondents would support females

In the survey, we asked Marines to specify the lowest level in which they feel female Marines should be able to serve within the GCE. Response options included echelons ranging from squad to division.¹⁰ In analyzing the responses, we assume that those who support assigning female Marines to a lower echelon also would support their inclusion in higher-level echelons. For example, if a respondent indicated support for female Marines serving at the squad level, we assume the

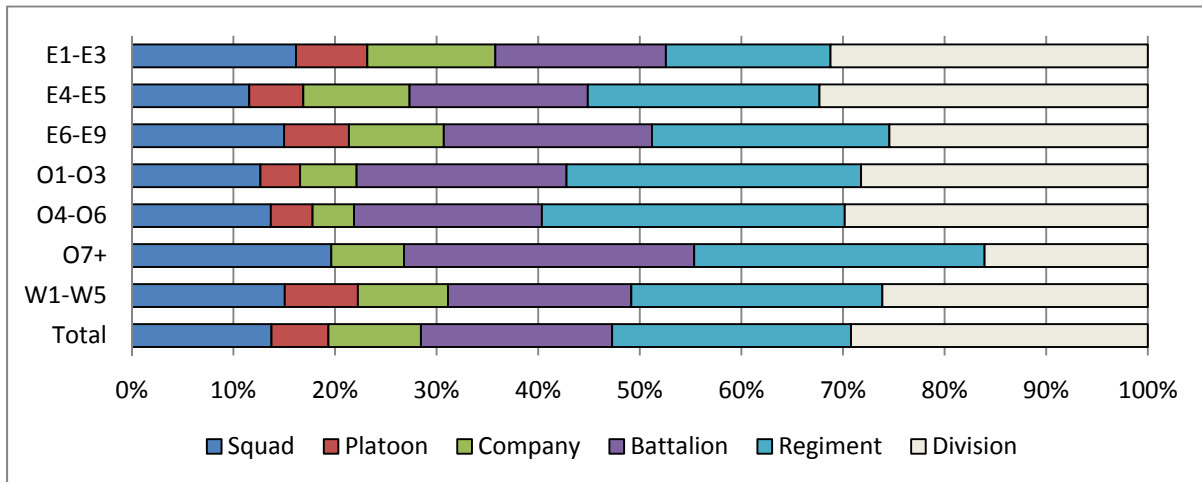
10. We also provided a response option of “not sure,” which was chosen by about 26 percent of men and 32 percent of women. Though noteworthy, these responses do not help us understand to which echelons they would either support or oppose female Marines’ assignments. So, for the analysis in this section, we exclude those who responded “not sure.”

respondent also would support female Marines serving at the company level.

Male respondents

Among men who stated opinions, 14 percent indicated support for female Marines serving at the squad level and about 19 percent indicated support for them at the platoon level (14 percent plus an additional 5 percent). About 47 percent of male respondents, however, said that they would support female Marines serving at the battalion level, and about 71 percent indicated that they would support them at the regiment level. These responses are notable because they indicate that the majority of respondents would support female Marines serving in GCE units below the division level (the level to which they are currently restricted under DOD policy). See figure 4.

Figure 4. Male respondents by paygrade group: Lowest level in GCE units in which you would support women (Q22)

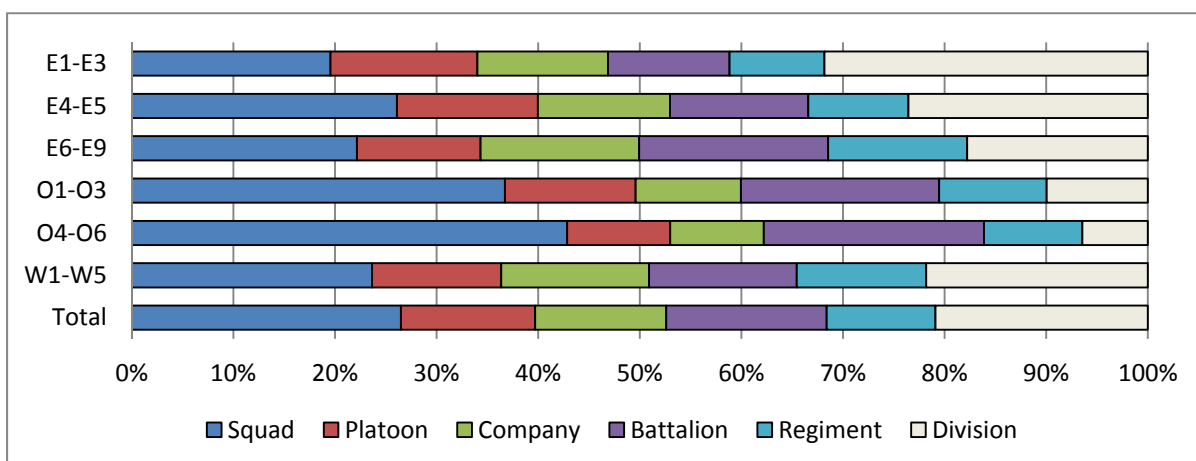


Female respondents

Among female respondents, 27 percent indicated that they would support female Marines serving at the squad level, and about 40 percent indicated that they would support them serving at the platoon level. A small majority of female respondents would support female Marines serving at the company level, and about 68 percent said that

they would support women serving at the battalion level. Consistent with responses to other questions, these responses highlight the fact that female respondents expressed considerably more favorable views about female service in ground combat units—at all echelons—than male respondents. We also note, however, that even among female respondents, a minority indicated that they supported the assignment of female Marines down to the platoon or squad levels of GCE units (see figure 5).

Figure 5. Female respondents by paygrade group: Lowest level in GCE units in which you would support women (Q22)



Other surveys and focus groups

Multiple prior surveys and focus groups have asked servicemembers whether they would prefer the current policy, the voluntary assignment of women to combat units, or the involuntary assignment of women to combat units [28-30]. We note that these studies did not ask about as many policy options as in our force survey. For example, most did not distinguish opening units from opening PMOSs or specify whether positions would be opened only to women who are physically capable of the jobs. Nevertheless, to the extent that the studies asked about the same subject matter as our force survey, their findings were generally consistent with ours.

Consistent with our force survey, men in these surveys and focus groups reported a preference for the status quo in combat exclusion restrictions, followed by a change that would allow women to volunteer for combat roles, and least preferred assigning women to combat roles involuntarily [28-31]. Also consistent with our force survey, women most preferred a change that would allow them to volunteer for combat roles, followed by the status quo, and least preferred involuntary combat assignments [28, 29, 31]. In one earlier study, however, a majority of female Marines and a plurality of female soldiers in focus groups held between 1993 and 1996 preferred that infantry units remain closed to women [30].

Potential effects on recruiting and retention

Currently, prospective Marines may join the Corps with the understanding that women cannot serve in GCE units or combat arms PMOSs. Likewise, current Marines may have made their decisions to join and remain in the Corps knowing that gender restrictions were in place. As such, changing gender restriction policies could affect the willingness of “recruitable” civilians (both male and female) to join the Marine Corps and the willingness of Marines to remain in the Corps. To estimate recruiting and retention effects of potential policy changes, we consulted prior surveys and asked additional questions in our force survey.

Recruiting

Because surveys currently provide the best available information on potential effects on recruiting, we examined existing survey data about gender restriction policies. As previously noted, however, various studies have found that stated intentions in surveys do not always track well with actual behavior [6-7].¹¹

11. As reported in the JAMRS 2009 Propensity Validation Study, only 26.4 percent of those who responded “definitely” and 12.4 percent of those who responded “probably” to a question about their intent to join the military actually enlisted in the military [32].

JAMRS surveys

We first analyzed data from the Joint Advertising Market Research and Studies (JAMRS) Ad Tracking Survey. Since January 2011, the survey has included questions about a change to current policy restricting women from serving in combat roles. Respondents are asked whether they would be more or less likely to enlist as a result of a change, and how important the policy is to their overall military service decisions.

The most prevalent answer among young men and women was that the policy prohibiting women from serving in combat roles did not affect their enlistment decisions. About 80 percent of male potential enlisted and potential officers said that the policy is either not important or neutral to their decisions to join the Corps. About 65 percent of female potential enlisted and 70 percent of female potential officers said that the policy is not important or neutral to their decisions to join the Corps.¹²

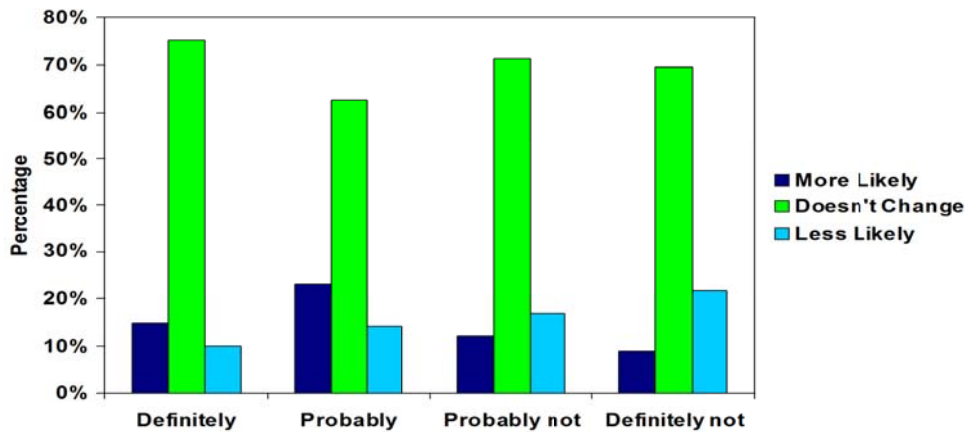
We divide the groups further based on their initial relative interest in joining the military. For purposes of interpretation, the responses of those who initially said that they would “probably not” or “definitely not” join the military should be viewed differently from those who initially said that they would “definitely” or “probably” join the military.

The JAMRS data suggest that a policy change would have a net positive effect on the potential enlisted population who said that they will “definitely” or “probably” join the military (see figures 6 and 7). A policy change would have a net negative effect on the potential enlisted populations who said that they were “probably not” or “definitely not” intending to join the military.¹³

12. We define “potential enlisted” as those with at least a high school degree, and “potential officers” as those who are either enrolled in college or already have a college degree.

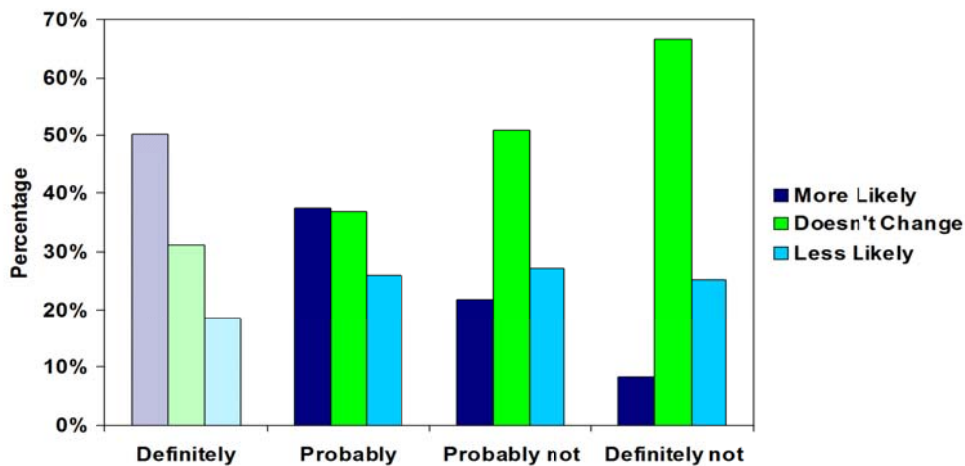
13. We note that the sample of female potential enlisted servicemembers who say that they will “definitely” join the military is very small.

Figure 6. Effect of a policy change on the male potential enlisted population’s likelihood of joining^a



a. CNA analysis of JAMRS Ad Tracking Survey waves 28 through 35 (January 2010 through December 2011).

Figure 7. Effect of a policy change on the female potential enlisted population’s likelihood of joining^a



a. CNA analysis of JAMRS Ad Tracking Survey waves 28 through 35 (January 2010 through December 2011). Hatch-marked bars indicate sample size smaller than 50 and, therefore, the inability to draw any reliable conclusions about the effects on these populations.

Among potential officer populations, results are mixed. Among male and female potential officers, the net effect appears to be positive among those who are “definitely” inclined to join the military and negative among those who will “probably” join the military. For most of these groups, however, the sample sizes are small.

Women in Combat Units survey

We also considered recruiting effects in the Women in Combat Units survey of the force, in which we asked Marines how different policies related to women's service would have affected their decisions to join the Corps [5]. We caution that our survey is retrospective because it was fielded only to current active component and Selected Reserve Marines. Our survey is uniquely valuable, however, because it asked respondents about the recruiting implications for a range of possible policy changes. Therefore, the force survey provides an opportunity to consider the ways in which different potential policies could affect recruiting differently.

If women could have volunteered to serve in combat arms PMOSs when they joined the Marine Corps, 17 percent of male Marine respondents indicated that they would not have joined the Corps compared with 5 percent of female Marine respondents. Involuntary classifications of women to combat arms PMOSs was generally viewed more negatively. Among both male and female respondents, 23 percent said that they would not have joined if female classifications to combat arms PMOSs were involuntary.

If female Marines could have volunteered for GCE unit assignments when they joined the Corps, most male and female respondents indicated that they still would have joined. Thirteen percent of male Marines and 3 percent of female Marines said that they would not have joined the Corps if female Marines could have volunteered for GCE unit assignments.

If female Marines could have been involuntarily assigned to GCE units, 17 percent of male Marine respondents indicated that they would not have joined the Corps. Similarly, 16 percent of female Marine respondents indicated that they would not have joined the Corps if female Marines could have been involuntarily assigned to GCE units.

In summary, these findings suggest that the Marine Corps may face relatively small recruiting challenges if a policy change allows female Marines to voluntarily join GCE units. The Corps could face larger recruiting challenges if a policy change opens combat arms PMOSs to women or if the Corps makes female ground combat assignments (to

PMOSs or GCE units) involuntary. The effects of other prospective policy changes likely fall within this spectrum.

Retention

As with recruiting, our best data sources for determining likely retention effects come from surveys. The most current survey information available is from the Women in Combat Units survey. Other surveys asking about retention do not focus on the Marine Corps and are 10 to 20 years old, predating the conflicts in Iraq and Afghanistan.

A few questions in the Women in Combat Units survey focused on retention. Early in the survey, we asked Marines whether they intended to continue in the Corps beyond their current service commitments; later in the survey, we asked them whether prospective policy changes would affect their continuation decisions.

When assessing possible retention-related effects of policy changes, we examined only respondents who had indicated in the beginning of the survey that they either planned to continue in the Marine Corps or were undecided about their continuation (83 percent of male respondents and 78 percent of female respondents).

Among respondents, 17 percent of male Marines and 4 percent of female Marines who initially indicated that they either planned to continue in the Corps or were undecided about continuation said that they likely would leave the Corps at their next opportunity if PMOSs were opened to female volunteers. These percentages increased, dramatically for female Marines, if PMOS classifications were made involuntarily (to 22 percent for male Marines and 17 percent for female Marines.)

Regarding GCE unit assignments, 14 percent of male Marines and 6 percent of female Marines who initially indicated that they either planned to continue in the Corps or were undecided about continuation said that, if GCE units were opened to women who volunteer, they likely would leave the Corps at their next available opportunity. These percentages increased to 17 and 13 percent for male and fe-

male respondents, respectively, if female assignments were made involuntarily.¹⁴

We also examined stated retention intentions by paygrade and rank, focusing on male Marines who originally stated that they intended to continue in the Corps or were undecided about continuation. Among these respondents, those in the E-3 and E-4 paygrades were most likely to say that policy changes would prompt them to leave the Corps at their next available opportunity. This may be viewed as particularly problematic because lance corporals and corporals constitute the bulk of the first-term reenlistment population.

Lessons from other militaries and physically demanding jobs

In conducting this study, ACMC asked us to review the policies and practices of four foreign militaries—Australia, the United Kingdom, Canada, and Israel—and two physically demanding professions—firefighting (including smokejumpers) and Special Weapons and Tactics (SWAT) policing. Our complete report on these militaries and professions can be found in [4]. Our main findings include:

- *Canada:* Allows service in all military occupations and units. The military sets physical standards according to the physical demands of occupations.
- *Australia:* Recently repealed exclusion policies. Australia is in the process of phasing in the use of gender-neutral Physical Employment Standards (PESs).
- *Israel:* Allows women to serve in non-close combat roles voluntarily. There is evidence, however, that women are sometimes removed from units when they are deployed.
- *UK:* Formally excludes women from close ground combat. However, the military allows women to serve as support personnel—including medics, clerks, and logisticians—even at the battalion level and below.

14. In the Marine Corps' ongoing Exception to Policy, 13 female officers and 25 female staff noncommissioned officers (SNCOs) have been assigned to closed GCE units at the battalion level involuntarily (i.e., through the Marine Corps' normal assignment processes).

- *Physically demanding U.S. civilian professions (SWAT, firefighters, etc.):* Prohibited from excluding women on the basis of gender. These professions typically include gender-neutral physical tests to determine whether applicants are physically capable of meeting job requirements. The tests result in relatively few women in these professions, but those who are physically able are allowed to join.

In general, we find that the foreign militaries that we studied provide for more gender integration in ground combat roles than the U.S. military. Officially, the UK's policy on gender integration appears to be similar to the U.S. military's policy. On closer inspection, however, it appears that the UK military allows for more integration in ground combat than the U.S. military because it allows women to serve in support roles at the battalion level and below. We also find that when women serve in physically demanding civilian professions or in ground combat units in other militaries, most, if not all, of the organizations institute physical screening tests to ensure that all personnel are physically able to do their jobs.

Unit cohesion and other social concerns

A common concern about introducing women into direct ground combat units is that integration would diminish unit cohesion and combat effectiveness. However, because U.S. military combat units are currently restricted to men, there is no direct evidence on the effects of gender integration on U.S. ground combat units. The only available data are from civilian studies on unit cohesion, surveys, and examinations of proxies, including gender integration in the civilian sector, non-ground-combat units, and experiences of other militaries' ground combat units. We conducted a literature review and included questions in our force survey to explore what can be learned (in advance) about the potential effects on unit cohesion of gender-integrating ground combat units.

Social science research

Sociologists and behavioral scientists often distinguish between two types of group (or unit) cohesion: social cohesion and task cohesion. These are defined as follows:

- Social cohesion refers to the emotional bonds of friendship, liking, caring, and closeness among group members. A group displays high social cohesion to the extent that its members like each other, prefer to spend their social time together, enjoy each other's company, and feel emotionally close to one another.
- Task cohesion refers to the shared commitment among members to achieving a goal that requires the group's collective efforts. A group with high task cohesion is composed of members who share a common goal and who are motivated to coordinate their efforts as a team to achieve that goal.

Several studies of cohesion in the civilian and military sectors have shown that there is a modest positive relationship between cohesion and performance [33-36]. There is an important caveat, however. Most scientific research shows that task cohesion, not social cohesion, is the type of cohesion that is important in driving performance or effectiveness. For example, a 1994 study by Mullen and Copper concluded that social cohesion measures (specifically, personal attraction and group pride) were not independently related to performance measures, but that their task cohesion metrics were [36]. In light of such studies, many in the scientific community accept that social cohesion is less relevant than task cohesion when it comes to combat effectiveness. There are some studies that suggest that social cohesion also may play a part in performance, but even these studies often found that social cohesion had smaller effects on group performance than did task cohesion [37-38].

We find nothing in the literature to suggest that gender would affect task cohesion factors. Gender does, however, appear to play a role in some of the factors that affect social cohesion, including, most notably, group homogeneity. Because a mixed-gender unit is less homogeneous than a single-sex unit (assuming that all else is equal), it is possible that gender would affect social cohesion. The long-term consequences of this diversity, however, are debatable. Some research suggests that diversity may impede group functioning [39-40]. Other research suggests that "superficial homogeneity based on race, ethnicity, and gender helps initial cohesion, but underlying values, atti-

tudes, and interests are what motivate social cohesion in the long run” [41].¹⁵

Gender integration in U.S. non-GCE units and other militaries

Non-ground-combat units

Several scientists have studied the effects of gender on cohesion in military units, specifically focusing on the U.S. Army. A few studies indicate that there might be some negative effects [42-43]. Most studies, however, have shown that women did not have significant negative effects on cohesion or performance. For example, in 1985, a study found that “cohesion is based on a commonality of experience, shared risk, and mutual experiences of hardship, not on gender” [44]. Other studies show that, although gender differences have been found to affect unit cohesion marginally, the effects are significantly smaller than those of rank, work group, generation, or leadership [45-50].

United Kingdom

In the early 2000s, the United Kingdom conducted a review of women in the armed forces [51]. The researchers conducted a literature review on combat effectiveness and cohesion. The team found that “there was some evidence from the literature that the inclusion of small numbers of women adds to the difficulty of creating the necessary degree of cohesion.” They noted that “it might be easier to achieve and maintain cohesion in a single sex team.” The researchers went on, however, to say that, under normal conditions and given proper management and training, “the presence of women in small units does not affect performance detrimentally.” The researchers also conducted a field experiment to measure small-group cohesion. The team concluded that “there is nothing to suggest that the presence of females either harmed or enhanced cohesion” [52]. The study’s sample size, however, was limited. The researchers also noted

15. This may be why military units, which often are quite diverse, are nevertheless often considered cohesive units. It also may be why racial integration, gender integration in non-ground-combat units/occupations, and the repeal of “Don’t Ask, Don’t Tell” apparently have not been overly problematic (in the long run, if not the short term) for the U.S. military.

that they could not determine whether the results would be applicable to actual ground combat situations.

Following this review, the UK's Secretary of State for Defence determined that the available evidence (or lack thereof) was not sufficient to conclude that gender integration would not harm unit cohesion under actual ground combat conditions. In the absence of sufficient evidence, and because military leaders continued to be concerned about unit cohesion and the grave risks of failure in combat situations, UK officials decided to maintain gender restrictions [53].

From 2009 to 2010, the UK Defence Department conducted another review of its women in service policies in light of experiences in Iraq and Afghanistan [54]. Again, however, UK leaders concluded that "the research's conclusions were mixed" and "the consequences of opening ground close-combat roles to women were unknown" [54]. Consequently, in November 2010, UK leaders decided to maintain the policy excluding women from ground close-combat roles.

Canada

As we discuss earlier, the Canadian military allows women to serve in all occupations and units. Canadian researchers have not specifically studied the effects of gender integration on unit cohesion, but several studies suggest that Canada faced some initial gender integration challenges with regard to recruiting, retention, and servicemember attitudes. In the early years of gender integration (the 1990s), women left the Canadian forces at higher rates than men. The difference between male and female attrition rates was greatest in trades that were untraditional for women, such as combat arms [55]. Although not necessarily applicable to women currently in the Canadian forces, a 1994 qualitative investigation showed that women left the services because of (a) a lack of supervisor support, which was exacerbated by supervisor discrimination and harassment, (b) cumulative stresses that resulted from combinations of discrimination based on gender, maternity, family status, and language, and (c) a lack of control over, and perceptions of commitment to, career [55]. A 1997 study revealed additional areas of concern [56]:

- There was a perception that instructors had negative attitudes toward women. Because few women passed training or remained in the combat arms environment, it was felt that wom-

en were not capable or motivated enough to be in combat arms.

- Male junior combat arms officers in training expressed a view that women could not be effective leaders because they did not have a commanding presence.
- Some men felt that there was inconsistent enforcement of physical standards, and some complained of double standards. Examples included the retention of women who did not pass standards, the (informal) lowering of battle school standards for women, instructors treating women differently than men (e.g., being more lenient or being afraid to discipline them), and favoritism toward women (e.g., women were asked more frequently than men if they needed bathroom breaks).

Studies of more recent experiences appear to suggest improvements. Studies commissioned in 2004 to support the Canadian Army Campaign Plan found that overall attitudes about gender integration were positive. Acceptance of women, however, was lowest in occupational combat units [57].

Findings from the Women in Combat Units survey

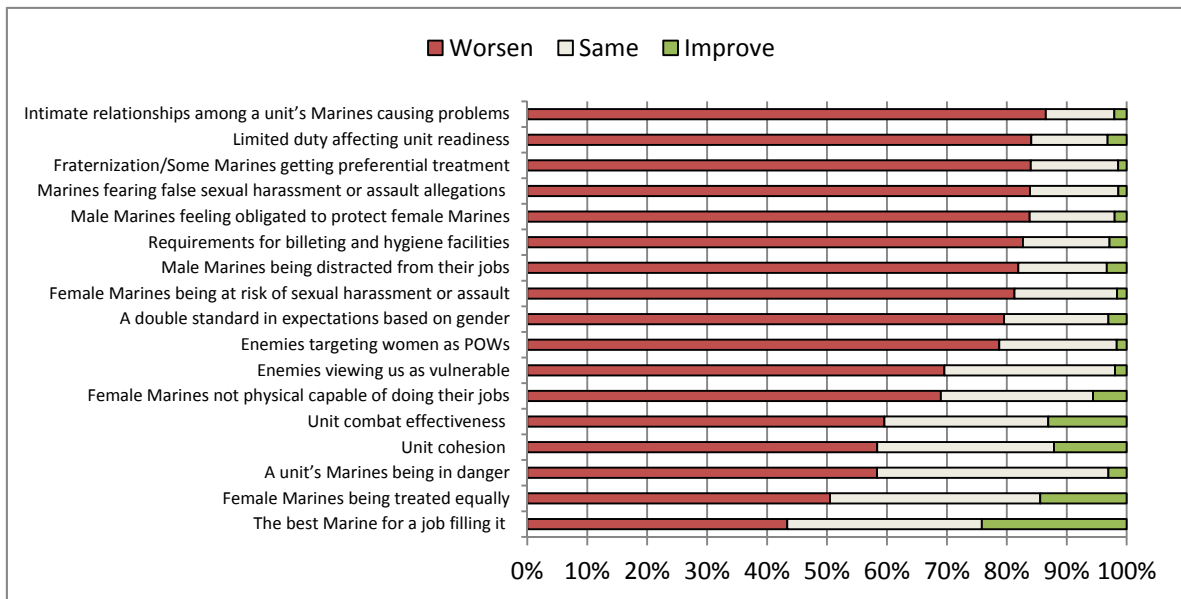
The Women in Combat Units survey of the force asked participants to provide opinions about 17 potential concerns¹⁶ related to opening GCE units¹⁷ to female Marines, including unit cohesion and unit combat effectiveness [5]. For 16 of the potential concerns, over 50 percent of male respondents thought conditions would worsen. Likewise, about 58 percent of male respondents thought unit cohesion would worsen if women were allowed to be assigned to GCE units, and 60 percent thought that gender integration would cause unit combat effectiveness to worsen. We note that, although these concerns were shared by the majority of male respondents, they were considerably less prevalent than most other concerns; of the 17 concerns, they were the 13th and 14th most prevalent. We also note, how-

16. We also asked about prospective benefits of gender integration.

17. We also asked about concerns and benefits related to opening combat arms PMOSs to women. Respondents were somewhat more concerned about combat arms PMOS assignments.

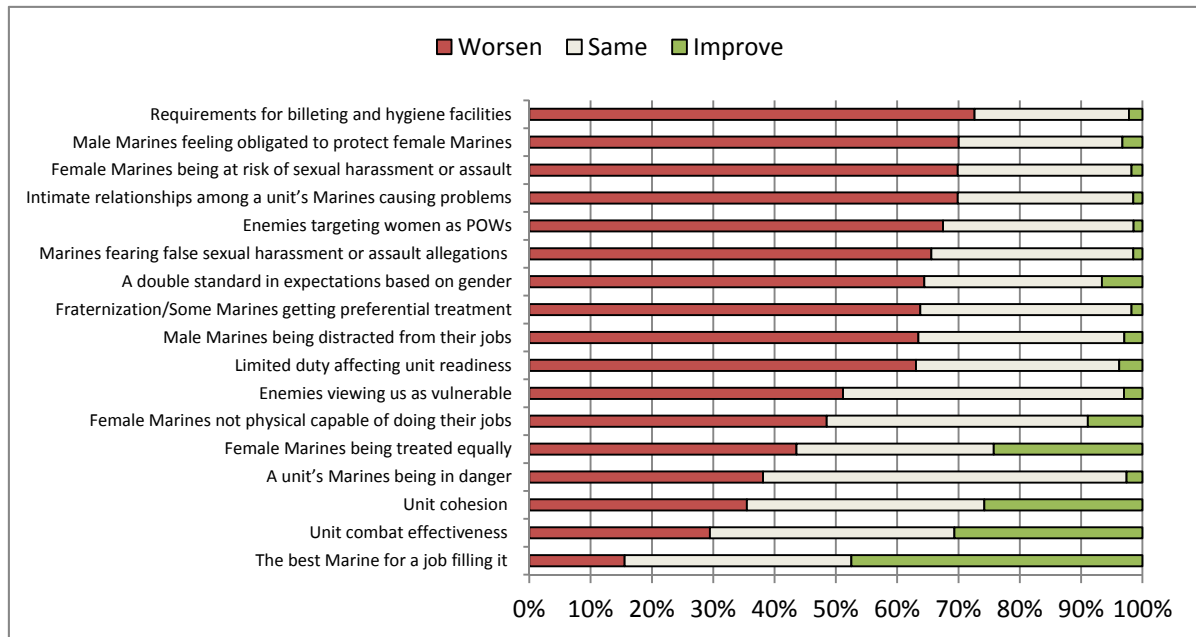
ever, that some of the male Marines' top concerns could arguably be related to cohesion. Male respondents' top five concerns included intimate relationships between Marines, limited duty affecting unit readiness before deployment, fraternization/some Marines getting preferential treatment, Marines fearing false sexual harassment or assault allegations, and male Marines feeling obligated to protect female Marines (see figure 8).

Figure 8. Male respondents: Anticipated concerns about assigning female Marines to closed GCE units (Q27)



For female respondents, unit cohesion and unit combat effectiveness were the 15th and 16th most prevalent concerns, respectively; about 35 percent thought that unit cohesion would worsen, whereas 26 percent thought that cohesion would improve. Similarly, 29 percent of female respondents thought that combat effectiveness would worsen, whereas 31 percent thought that it would improve. The female respondents' top five concerns included requirements for billeting and hygiene facilities, male Marines feeling obligated to protect female Marines, risk of sexual harassment or assault, intimate relationships between Marines, and enemies targeting women as POWs (see figure 9).

Figure 9. Female respondents: Anticipated concerns about assigning female Marines to closed GCE units (Q27)



Fraternization, sexual harassment, and sexual assault

In considering the possible unit cohesion implications of assigning women to ground combat units, some commentators have expressed concerns about potential increases in fraternization, sexual harassment, or sexual assault. Note that these also were among the top concerns of our survey respondents. Given that ground combat units are the "tip of the spear" for the Marine Corps and given the concern that increases in fraternization, sexual harassment, or sexual assaults could harm unit cohesion and combat effectiveness of these essential units, Marine Corps leaders asked us to compare incidence rates in gender-integrated units with rates in all-male units.

We spoke with staff in the Marine Corps' sexual assault prevention and legal departments. We found that data are not available to conduct this type of analysis. Marine Corps sexual assault data are stored in the Sexual Assault Incident Response Database (SAIRD). Although the database includes data fields for victims' and offenders' units, the data tend to be inputted at high unit levels, such as "II MEF" or "Camp Lejeune." The fields are rarely completed with the type of data that would allow us to discern whether either the victim or the of-

fender was in a mixed-gender or all-male unit. In addition, because SAIRD data are anonymous, no other data are available from which we could obtain more precision about victims' and offenders' units.

We also spoke with officers from the Marine Corps Judge Advocate division to determine whether they had more detailed unit information on sexual assaults. Although their case data were more detailed than those in SAIRD, their database is still new. It does not yet include enough cases to draw conclusions about relative incidence rates between all-male and mixed-gender units.

With regard to fraternization, again we found data necessary for analysis to be lacking. Fraternization is handled by the military justice system as an Article 92 Orders Violation, rather than a discrete charge. Although the Marine Corps Judge Advocate Division can identify a few dozen cases of fraternization, in general, its database does not identify which Orders Violation cases are based on fraternization allegations and which cases are based on other types of violations.

Issues to address *if* the Marine Corps lifts restrictions

Our analysis is intended to inform Marine Corps leaders on key issues to consider in deciding whether to lift gender-based restrictions. Ultimately, the decision must be made by Marine Corps and DOD leaders, but, *if* the Corps and DOD were to decide to open ground combat service to women, our analysis indicates that several issues should be addressed before fully implementing the policy change.

Injury prevention

As we discussed earlier, female Marines are injured at high rates relative to male Marines. If female Marines are assigned to GCE units and combat arms PMOSs—which presumably have greater physical demands than the units and PMOSs to which female Marines are currently assigned—female Marines might suffer disproportionately higher injury rates. Therefore, it would be useful for the Corps to develop mitigation strategies. Our research suggests that women who are sufficiently physically capable are injured at rates more comparable to those of their male counterparts. This suggests that some type of physical screening could help limit injuries. Additional physical training also might help mitigate injuries, but additional research

may be necessary to determine what types of training would be most effective.

Unit readiness

Our literature review indicates that the majority of women were unable to meet the physical requirements of ground combat in foreign militaries or certain physically demanding professions in the United States. If it also is the case that the majority of female Marines would be unable to meet the physical demands of ground combat service, then simply assigning women to ground combat units or combat arms PMOSs could lead to an unacceptably large number of billets being filled by Marines who are physically unable to perform their duties. Consequently, unit readiness and combat effectiveness would suffer. To avoid this outcome, the Corps may need to develop mitigation strategies (such as physical screening or training programs) to ensure that sufficient numbers of Marines are likely to be able to meet the physical demands of their jobs.

Retention

Results from our force survey suggest that lifting ground combat restrictions could lead to retention challenges, particularly for those in the E-3 to E-4 population (who make up the bulk of the first-term reenlistment population). To meet its endstrength goals and to ensure that it retains high-quality personnel, the Marine Corps could benefit from a better understanding of the retention implications of changing ground combat restriction policies.

Our force survey provided some of the needed information and can suggest potential mitigation strategies. For example, the survey found that some potential policy changes are likely to have greater retention consequences than others. Specifically, among both male and female respondents, more Marines said that they would leave the Corps if women were involuntarily assigned to ground combat than if they were to be voluntary assigned.

More information would be useful, however, to determine the extent of the likely retention challenges and the effectiveness of potential mitigation strategies. For example, given that the Corps requires only a fraction of its first-term Marines to reenlist, the Corps may find it useful to determine whether any prospective policy change would

likely cause enough of a problem that it would be unable to meet its retention goals. The Corps also could investigate whether Marines who would choose to leave the Corps because of a policy change tend to be higher-quality Marines (who the Corps would otherwise like to retain) or lower-quality Marines. If the Corps then finds that retention is likely to be a significant problem, it could develop mitigation strategies. Depending on its research findings, the Corps may find it useful to choose some prospective policy changes over others, to implement policies along a particular timeline, or to educate the force about how policy changes are likely to affect them.

Recruiting

Our force survey suggests that some potential policy changes (including involuntary PMOS classifications or involuntary GCE unit assignments) could deter some women from joining the Corps. Currently, given the relatively small female accession missions, the Corps has not found it necessary to devote considerable time or resources to recruiting women. In addition, MCRC stakeholders report that the percentage of female applicants who are “walk-ins” is notably higher than for male applicants. If women are deterred from joining, the Corps may need to develop strategies to ensure that it remains able to recruit sufficient numbers of qualified women to meet its current accession missions.

In addition, because of the increased likelihood of injuries to women in ground combat units and combat arms PMOSs, the Corps may find that, if combat assignments are opened to women without any corresponding changes to accession standards, screening practices, or training programs, female Marines will medically attrite from the Corps at higher rates than they currently do. Accordingly, the Corps may deem it necessary to increase its female accession missions.

Finally, to increase the likelihood of succeeding in ground combat and to reduce the risk of injuries, the Corps may find it valuable to actively recruit women who are more physically fit. This may necessitate a change to accessions standards, training programs, or the Marine Corps’ female recruiting strategy.

Entry-level training

Although men and women have very similar programs of instruction (POIs) for recruit training and share a POI at OCS, there are differences in the physical demands of their training. In recruit training, for example, men carry about 10 pounds more than women during most conditioning hikes. Men's resistance training weights also are heavier than women's weights (e.g., 25-pound vs. 35-pound kettle bells). Likewise, at OCS, for example, male officer candidates often are required to lift more weight and/or perform more repetitions at exercise stations than female officer candidates. In addition, the female obstacle course has lower bars than the male course, and women use a step to surmount some obstacles.

When the Corps reviewed male and female training differences in the past, it found that some differences were necessary to account for women's average lower initial physical fitness levels. To reduce injuries and attrition rates, instituting some differences in the physical requirements of training were effective mitigation techniques. Moreover, the differences in physical training requirements may have been considered less problematic because women could not be assigned to combat arms PMOSs or GCE units.

As DOD and the Marine Corps consider more physically demanding roles for women, however, the Corps may, once again, need to reexamine the differences in male and female physical training. The Corps may find it necessary to modify some portions of training to ensure that female Marines reach (and maintain) strength and physical fitness levels necessary for follow-on training and ground combat assignments.

Career competitiveness

There is broad agreement that strong performance in combat helps to advance a Marine's career. Fitness Reports (FitReps) formally note combat service, and subject matter experts agree that those who evaluate performance tend to give higher marks for combat service than for other types of service. If removing gender-based restrictions results in more combat service for women, a policy change could increase female Marines' promotion opportunities.

Physical fitness, however, also is an important part of the Corps' evaluation process. Currently, the Marine Corps PFT includes different events for men and women, and the Corps gender-norms PFT and CFT scores to allow the average female Marine to receive the same PFT/CFT score as the average male Marine.¹⁸ In the process of analyzing prospective policy changes, the Corps has considered implementing various gender-neutral physical tests for male and female Marines. In fact, the Marine Corps recently announced that, beginning in 2014, female Marines will be required to complete at least three pull-ups to pass the PFT (the same as the male minimum standard). Scoring, however, will continue to be gender-normed [58].¹⁹ As we discussed earlier, existing research suggests that female Marines are, on average, not as strong as male Marines. If, in the process of changing ground combat policies, the Corps implements either gender-neutral scoring or introduces gender-neutral physical tests that are beyond the capabilities of most female Marines, then lifting gender restrictions could ultimately harm career progression prospects for female Marines. This issue requires further analysis and mitigation strategies to ensure that policy changes do not unintentionally harm female Marines' career prospects and reduce the gender diversity of the Corps' leadership.

Marines' social concerns

Our survey indicated that Marines share a variety of concerns about sexual assault, harassment, fraternization, and other issues potentially related to the prospect of lifting ground combat exclusion policies. If the Corps decides to integrate GCE units and closed PMOSs, the Corps' leadership may benefit from first carefully reviewing and addressing these concerns.

18. Currently, the female PFT includes a flexed arm hang and the male PFT includes pull-ups.

19. Female Marines, for example, will be able to earn 75 points on the PFT for completing 5 pull-ups. In contrast, male Marines will continue to earn 25 points for completing 5 pull-ups.

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Conclusions

Our work on the subject of prospective changes to gender-based service restrictions has resulted in important insights in the following areas:

- The physiological differences between men and women
- Women’s interest in ground combat
- Marines’ opinions about prospective policy changes and associated benefits and concerns
- Possible effects on recruiting, retention, and unit cohesion
- Lessons from other militaries and physically demanding professions.

Still, as the specifics of proposed changes become clearer, more analysis could be done to determine how changes to current policies could affect the Corps and how other recruiting, retention, manpower management, and training processes might have to adapt to support any changes.

That said, research cannot definitively determine whether the current combat exclusion policies should be changed or what may be the full implications of any changes. Military judgment, an assessment of relative risk, and conceptions of “fairness” and “equality” must ultimately play a role in this decision.

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