

Emerging Issues In USMC Recruiting: Comparing Relative Attrition Risk Among Marine Corps Recruits

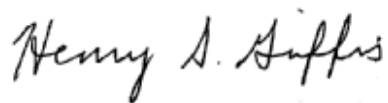
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A handwritten signature in black ink that reads "Henry S. Griffis". The signature is written in a cursive style with a clear, legible font.

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Executive summary

Background

With the ongoing operations in Iraq and Afghanistan, the Armed Forces are facing challenging recruiting conditions. During similar times in the past, several Services have lowered quality goals to meet mission. This action results in an increase in the share of recruits who historically have higher bootcamp attrition rates than others.

Despite a tough recruiting environment, the Marine Corps has been successful at meeting or exceeding its quality goals. Nonetheless, data from the first half of FY06 show a modest rise in bootcamp attrition. Since bootcamp attrition affects endstrength and attrites are costly to replace, we examine the recruit characteristics that are associated with the completion of bootcamp. This information is valuable to the Marine Corps because changes in the recruit mix may have implications for future bootcamp attrition. Furthermore, knowing the relative attrition risks of groups of recruits can help recruiters to better assess the likelihood that potential recruits will become successful Marines. Although we concentrate on Marine Corps recruits, the characteristics associated with successful Marines are likely to be applicable to successful members of other Services.

Approach

We use historical attrition data to compare bootcamp attrition risk among various groups of Marine Corps recruits who differ by characteristics observable at the time of enlistment. We rank the attrition risk of recruits based on various combinations of the following characteristics: gender, educational background, Armed Forces Qualification Test (AFQT) category, age at accession, accession season, whether the recruit met the weight-for-height retention standard, and whether the recruit signed his or her contract as a high school

senior. We also separate recruits by the amount of time that they spend in the Delayed Entry Program (DEP). The premise is that groups of recruits with lower historical attrition rates pose lower future attrition risk.

Findings

In general, we find that the recruits, both male and female, who pose the *lowest* attrition risk:

- Sign contracts as seniors,
- Ship in June through September or October through January,
- Are high quality (i.e., Tier I and Category I-IIIAs), *and*
- Meet the weight-for-height retention standard.

In addition, our results highlight the potential for reducing attrition by recruiting more in the senior market and emphasizing physical fitness at DEP events.

Introduction

As the Global War on Terrorism continues, the Armed Forces are struggling to recruit the right number and type of people to maintain the force. In fact, some components (the Army Reserve and Navy Reserve, for example) missed their FY05 recruiting goals and continue to miss monthly goals in the current fiscal year. Despite this challenging environment, the Marine Corps has been meeting or exceeding its active-duty recruiting mission.

This success, however, has not been costless. Over the last several fiscal years, the Marine Corps has had to draw more heavily from its pool of enlistees in the Delayed Entry Program (DEP).¹ Ideally, Marine Corps Recruiting Command (MCRC) would like to start the fiscal year with a DEP pool of about 50 percent. Although it started FY05 with a DEP of 52 percent, that pool had been drawn down to 43 percent by the beginning of FY06.

As the pool of recruits available in the DEP has fallen, the Marine Corps has increasingly looked to direct ships as a way to avoid shipping shortfalls. But recruits with little or no DEP time historically have graduated from the Marine Corps Recruiting Depots (MCRDs) at lower rates than others, meaning that increases in their relative share are likely to lead to increases in bootcamp attrition.

In fact, statistics show a modest rise in bootcamp attrition in the first half of FY06 relative to the first half of FY05. Although this half-year rate generally falls within historical norms, the rise in attrition makes it particularly important that the Marine Corps understand which recruit characteristics are associated with successful transitions into the Corps. Marine Corps recruiters are especially interested in this

1. The DEP is a pool of enlistees who have signed contracts but are waiting to ship to bootcamp. These people (called “poolees”) may stay in the program for up to 12 months.

information since they try to access those with the best chance of becoming Marines. In fact, recruiters do not truly receive credit for their contracts until their recruits have graduated from bootcamp. As a result, they have the incentive to find potential recruits with the lowest attrition risk.

The data currently available won't allow us to determine the cause of the increase in attrition in the first half of FY06. We can, though, examine historical attrition data to compare bootcamp attrition risk among various groups of Marine Corps recruits who differ by characteristics observable at the time of enlistment. This information is critical to understanding how changes in the recruit mix might affect future bootcamp attrition.

We start with a brief discussion of trends in bootcamp attrition. Then, we describe our data and methods of analysis. Finally, we present our results and draw conclusions.

Trends in bootcamp attrition

Increases in bootcamp attrition are cause for concern—both because attrition is costly and because it requires subsequent increases in the recruiting mission. In addition, it is unlikely that today’s challenging recruiting environment will improve much in the near future.

Year-to-date attrition

Table 1 shows year-to-date (YTD) attrition rates for FY02 through FY06. They are calculated as attrites in the period divided by accessions in the period. The October–March attrition rate for FY06 allows us to get an early read on the eventual FY06 rate. At 14.9 percent, it shows the first evidence of a modest increase in bootcamp attrition. However, an increase in the October–March attrition rate does not necessarily imply an increase in attrition for the entire year. For example, a comparison of FY04 and FY05 shows that the October–March attrition rate was higher in FY05, but the total FY05 attrition was lower than in FY04.

Table 1. Year-to-date and accession season attrition rates^a

	FY02	FY03	FY04	FY05	FY06
Total	11.8	10.6	10.4	10.0	n/a
October–March	14.1	13.9	12.7	14.3	14.9
Accession season ^b					
ONDJ	12.9	13.5	12.2	12.7	13.2
FMAM	18.2	14.2	14.2	16.7	n/a
JJAS	8.4	7.3	7.7	6.1	n/a

a. Source: Attrition report from TECOM, includes both male and female recruits.

b. ONDJ = October, November, December, and January;

FMAM = February, March, April, and May;

JJAS = June, July, August, and September.

Although these data are useful for gauging current attrition conditions, they do not allow us to understand which recruit characteristics are associated with higher attrition because these data do not follow individual recruits over time. As noted earlier, however, information on recruit characteristics and how they are associated with success is particularly important to Marine Corps recruiters because they try to access those with the best chance of becoming Marines. In order to follow individual recruits over time, we examine cohort attrition.

Accession cohort attrition

We present bootcamp attrition rates by fiscal year accession cohort in table 2. Cohort attrition is defined as a loss from either MCRD Parris Island or MCRD San Diego in the first 12 months of service.² For FY05 accessions, our dataset allows us to observe 12 months of service only for those recruits who came in during October through March.

Table 2. Cohort attrition rates^a

	FY02	FY03	FY04	FY05
Total	12.4	10.4	10.5	n/a
October–March	13.9	12.5	11.4	12.7
6-month attrition rate ^b	12.1	10.1	10.1	10.6

a. Source: CNA cohort files, includes both male and female recruits.

b. Defined as a loss from either MCRD Parris Island or MCRD San Diego in the first 6 months of service.

Table 2 shows an increase in bootcamp attrition for October through March accessions in FY05, although the increase is not as large as that suggested by the figures in table 1. In addition, table 2 suggests that FY05 cohort attrition for October through March accessions falls within historic norms. However, this measure of cohort attrition may miss more recent trends picked up by the YTD rate.

2. Although bootcamp consists of the first 3 months of service for most recruits, we follow recruits for 12 months to allow for attrition of those who are set back or remediated. See [1] and [2] for discussions of the pros and cons of computing attrition in this manner.

One way to use cohort attrition while still capturing more recent trends is to track the cohort for only 6 months.³ The bottom row of table 2 shows 6-month attrition rates for the entire FY05 cohort. As with the October–March attrition rate, the 6-month attrition rate shows an increase in attrition in FY05—from 10.1 percent in FY04 to 10.6 percent in FY05. As was the case with YTD attrition, cohort attrition shows evidence of a modest increase in the most recent period, although still falling within historical norms.

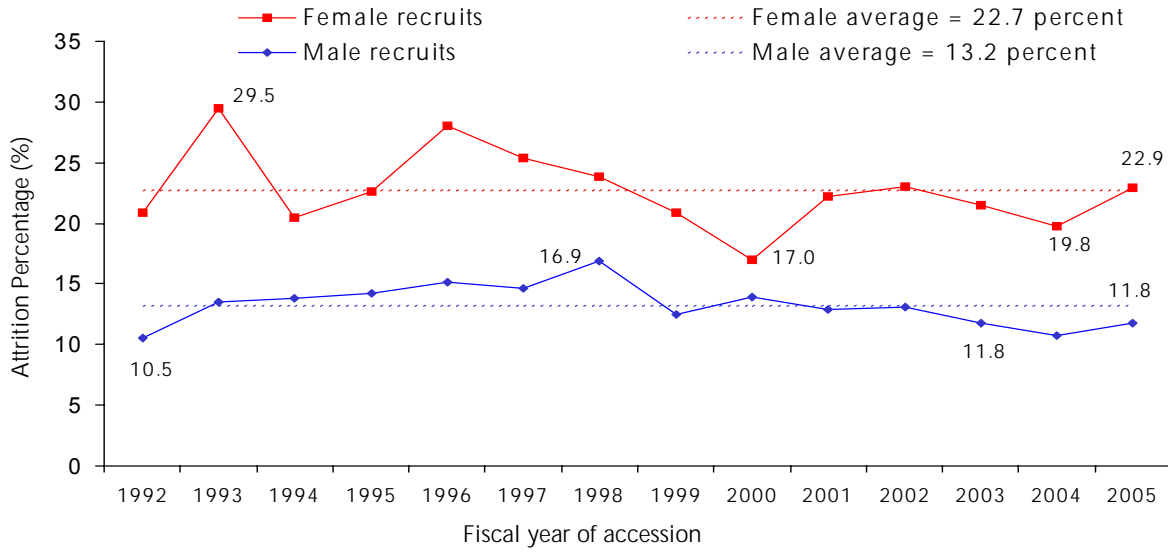
Bootcamp attrition by gender

One characteristic that has always been associated with differences in bootcamp attrition is gender. Figure 1 presents the cohort attrition rates for men and women who accessed in October through March for FY92 through FY05. We see that attrition rates for men and women differ; in fact, rates for women are often double those for men. In the early- to mid-1990s, bootcamp attrition generally increased for both male and female recruits. Since the late-1990s, attrition for October–March accessions has been declining. In the first half of FY05, however, we see that attrition has increased again.

The rise in cohort attrition rates for male and female recruits who accessed during the first half of FY05 parallels the attrition increases seen in tables 1 and 2. Combining this with preliminary evidence suggesting a similar situation for FY06, it is more important than ever to understand which characteristics are associated with successful transition into the Marine Corps.

3. Although following recruits for 12 months yields a better measure of true attrition, following recruits for only 6 months is still useful for trend analysis and allows us to use the entire FY05 cohort.

Figure 1. Average bootcamp attrition rates for male and female recruits who accessed in October through March, by accession cohort^a



a. Source: Authors' tabulations of CNA's cohort files. Male losses are from either MCRD Parris Island or MCRD San Diego; Female losses are only from MCRD Parris Island (since all female recruits go to Parris Island).

Determinants of bootcamp attrition

Numerous studies have examined which recruit characteristics are associated with bootcamp attrition. Standard regression analyses indicate that—in addition to gender—mental group, education level, accession season, age at accession, meeting the weight-for-height retention standard, and time in the DEP are strong determinants of successful completion of bootcamp. Regression analyses try to isolate the effect of any one of these characteristics, holding all others constant.⁴

Recruits, however, consist of “bundles” of characteristics, not isolated characteristics. For example, a recruit may be a high-quality, 18-year-old, high school senior who is available to report to bootcamp in August.⁵ To a recruiter, he/she is a bundle of characteristics, not just a test score, an education level, or a ship date. For this reason, we analyze the attrition of recruits grouped by their observable characteristics. The analysis is patterned after that done by the authors of [6].

Methodology

Using accession cohort data, we rank the attrition risk of recruits based on various combinations of characteristics observable at the time of accession and on their subsequent DEP participation level. The premise is that groups of recruits with lower historical attrition rates pose lower future attrition risk. The observable recruit characteristics we use include educational background (Tier), AFQT category, age at accession, accession season, whether the recruit met the weight-for-height retention standard, and whether the recruit signed

4. See [3], [4], and [5]. Also, appendix A contains our regression results, which confirm previous findings in our data.

5. High-quality recruits are high school diploma graduates (or high school seniors who will be graduates at the time of accession) who score above 50 on the Armed Forces Qualification Test (AFQT).

his or her contract as a senior. We categorize recruit characteristics and the level of DEP participation as follows:

- Time in DEP
 - DEP for less than 3 months (DEPLT3): shipped fewer than 3 months after signing contract
 - DEP for greater than or equal to 3 months (DEPGE3): shipped at least 3 months after signing contract
- Accession season
 - Shipped in ONDJ
 - Shipped in FMAM
 - Shipped in JJAS
- Educational background or tier
 - High school diploma graduates, undergraduate and/or graduate degree holders, and professional nursing degree holders (TIER I)
 - Adult education diploma, 1-semester-college recruits (TIER I-OTHER)⁶
 - Home-schoolers, alternative credential or certificate holders, and non-high-school-diploma graduates, as defined by OSD (TIER II/III)
- Mental group (AFQT category)
 - AFQT score of 50 and above—Categories I, II, and IIIA (I-III A)
 - AFQT scores below 50—Categories IIIB and IV (IIIB-IV)
- Contracted as a senior
 - Signed contract as a senior and was a high school diploma graduate at accession (SENIOR)
 - All other statuses (NOT SENIOR)
- Weight-for-height retention standard
 - Met the weight-for-height retention standard (NOT OVERWEIGHT)

6. Although these recruits are considered Tier I, research shows that they have significantly higher attrition rates than other Tier I recruits. Therefore, we analyze them separately. See [7].

- Did NOT meet the weight-for-height retention standard (OVERWEIGHT)

- Age group

- 17-19 years of age at accession (17-19 yr)
- 20 years of age or older at accession (20+ yr).

These categories yield 288 possible groups of recruits.

We recognize that other characteristics are correlated with bootcamp attrition that aren't included in this analysis. For example, race and ethnicity or program of enlistment have been found to be associated with attrition in previous studies (see [3]). In addition, there is evidence that the time of the month in which a contract was signed is associated with DEP attrition—that is, those who sign contracts toward the end of the month have higher DEP attrition (see [8]). We chose not to include such characteristics because doing so would have made the groups too small to analyze meaningfully. Furthermore, since a number of the groups we did create are groups that recruiters already target, recruiters can easily match our analysis to their own strengths and weaknesses in recruiting from the various groups.

Data

To examine bootcamp attrition, we used accession cohort data from CNA's Street-to-Fleet enlisted database.⁷ Our analysis timeframe starts with FY92 because we wanted to include whether the recruit was contracted as a senior.⁸ Since we need to observe a recruit for at least 12 months before we can determine whether he or she attrited, our analysis period ends with March 2005 accessions. Therefore, we examine 339,843 male and 23,800 female accessions with 4-year initial enlistment contracts between FY92 and March 2005.⁹

7. See [9] for a comprehensive description of that database.

8. We do not have these data before FY92.

9. We limit our analysis to recruits signing 4-year contracts for tractability. Out of the 433,881 recruits in the FY92–March 2005 period, 364,890 (or 84.1 percent) signed 4-year contracts.

Descriptive statistics

Table 3 presents the number and share of male and female recruits in each of our categories. It shows that there is considerable variation across men and women within categories. Considering these differences and those shown in figure 1, we analyze attrition separately for male recruits and female recruits.

Table 3. Number and share of recruits by category (FY92–March 2005)^a

	MALE RECRUITS		FEMALE RECRUITS		ALL RECRUITS	
	Count	Share (%)	Count	Share (%)	Count	Share (%)
<i>All accessions</i>	339,843	93.5	23,800	6.5	363,643	100.0
Time in DEP						
DEPLT3	132,252	38.9	10,159	42.7	142,411	39.2
DEPGE3	207,591	61.1	13,641	57.3	221,232	60.8
Accession season						
ONDJ	113,603	33.4	7,866	33.1	121,469	33.4
FMAM	74,822	22.0	7,026	29.5	81,848	22.5
JJAS	151,418	44.6	8,908	37.4	160,326	44.1
Educational background						
Tier I	317,826	93.5	22,922	96.3	340,748	93.7
Tier I-OTHER	9,356	2.8	494	2.1	9,850	2.7
Tier II/III	12,661	3.7	384	1.6	13,045	3.6
AFQT category						
I-III A	207,572	61.1	16,157	67.9	223,729	61.5
IIIB-IV	132,271	38.9	7,643	32.1	139,914	38.5
Contracted as a senior						
SENIOR	149,756	44.1	9,109	38.3	158,865	43.7
NOT SENIOR	190,087	55.9	14,691	61.7	204,778	56.3
Accession age						
17-19 yr	242,504	71.4	17,416	73.2	259,920	71.5
20+ yr	97,339	28.6	6,384	26.8	103,723	28.5
Weight-for-height retention standard						
NOT OVERWEIGHT	277,496	81.7	21,106	88.7	298,602	82.1
OVERWEIGHT	62,347	18.3	2,694	11.3	65,041	17.9

a. We drop 520 recruits from the sample of recruits with 4-year contracts between FY92 and March 2005 because they are missing data for at least one of the categories of interest.

Table 3 also shows the share of all recruits falling into each category for the entire FY92–March 2005 period. To understand how cohorts may have changed over time, figure 2 compares the share of *male* recruits in each category for the FY92–FY01 data period with those from FY02 through FY04 and from FY05.¹⁰

Figure 2. Share of male recruits in each category: FY92–FY01 vs. FY02–FY04 vs. FY05

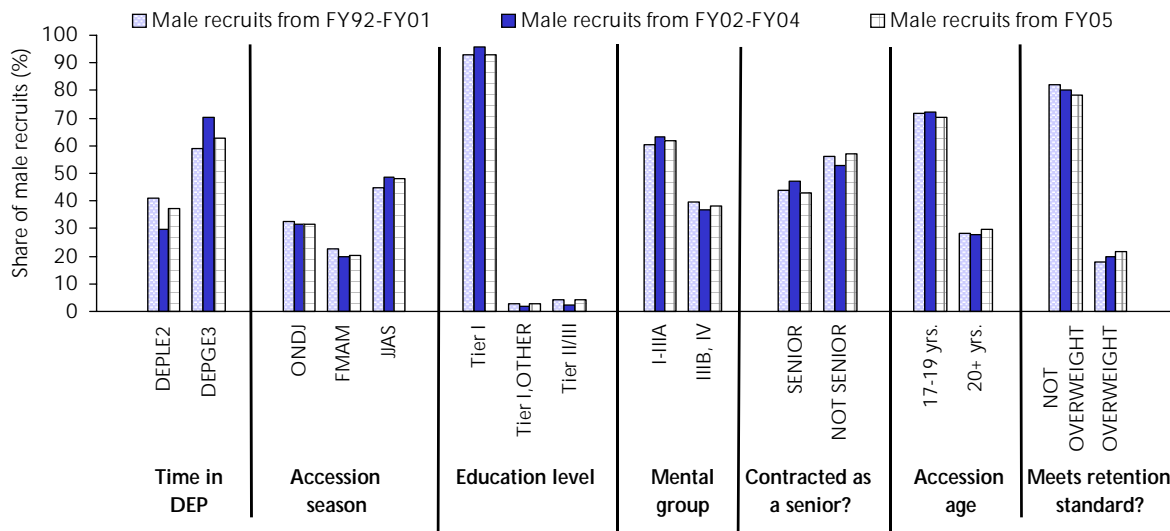


Figure 2 shows that male recruit characteristics in recent time periods (FY02–FY04 and FY05) vary from those in earlier years (FY92–FY01). In fact, many of these differences are relatively large and statistically significant. For example, the share of male recruits with 3 or more months in DEP in FY02–FY04 is 7 percentage points higher than FY05 and 11 percentage points higher than FY92–FY01. The observed differences in average recruit characteristics could have driven the decrease in attrition we see in FY02–FY04. In addition, the attrition

10. Men account for over 93 percent of all Marine Corps recruits in the FY92–March 2005 period. We do not believe these patterns would be significantly different for female recruits. We use *all* male FY05 recruits in figure 2; to do otherwise would not be an apples-to-apples comparison.

increase in FY05 could be driven by the increase in the share of Category IIIB-IVs and of recruits who do not meet the weight-for-height retention standard relative to FY02–FY04. As noted earlier, however, recruits are bundles of these characteristics, so it is the interaction of these characteristics that ultimately drives attrition. We now analyze bootcamp attrition by bundles of recruit characteristics.

Historical bootcamp attrition rates by group

Male recruits

Recall that there are 288 possible groups into which the 339,843 male recruits could fall. We present results for groups that had at least 500 accessions over the FY92–March 2005 period.¹¹ Even with this restriction, the groups we concentrate on account for over 94 percent of male accessions (312,683 of 339,843). There are 78 groups out of a possible 288 that have over 500 accessions during the analysis period, and two-thirds of these have at least 500 accessions in the FY00–March 2005 period.

The tables that follow present historical attrition rates for the 78 groups on which we focus. Tables are separated by time in DEP and, within a table, groups are separated by accession season. We display the results in this fashion because, although recruits in the DEPLT3 category are spread relatively evenly across ONDJ, FMAM, and JJAS, over half of the male recruits in the DEPGA3 category ship in JJAS. Furthermore, since almost two-thirds of the male recruits who ship in FMAM are in the DEPLT3 category, it seems logical that separating recruits by time in DEP and accession season would be most useful to recruiters.

11. We use this cutoff to ensure that the bundles of characteristics that we analyze are ones that recruiters would routinely see. We observe male recruits in 225 of the 288 groups, and 110 of the 225 have fewer than 200 accessions over the entire period (the 110 groups represent 7,097 recruits, or 2.1 percent of male recruits). Another 37 groups have 200 to 500 accessions for the period, totaling 19,143 recruits.

Male recruits with little time in DEP

Table 4 presents the rankings for those recruits who spent less than 3 months in DEP (DEPLT3). Shading highlights groups that have historical bootcamp attrition rates that fall below average (12.5 percent). The table shows the group (i.e., the list of recruit characteristics), the number of accessions for the group, the number of separations for the group (bootcamp attrites), and the attrition rate over the period. In addition, the table lists the share of DEPLT3s represented by the group, which serves as an indicator of how often recruiters access people with the listed characteristics. The last column of the table lists the “Ranking,” which is the position of the group in the list of 78 groups sorted by attrition rate. In the first line of table 4, for example, a “Ranking” of 10 means that a 10.3-percent attrition rate for the group is the 10th lowest attrition rate (of the 78 groups).

Less than one-quarter of male recruits with little DEP time fall into groups that have historical bootcamp attrition rates below the average rate for all male recruits. This is not surprising; numerous studies have shown the importance of time in DEP. However, the majority of these DEPLT3 recruits (over 56 percent) accessed during JJAS when recruits usually are more successful.

Of course, time in DEP is not the only determinant of attrition. In fact, the group ranked second overall—with an attrition rate of 8.2 percent—consists of DEPLT3 recruits who:

- Accessed during JJAS,
- Were Tier I, Category I-IIIAs,
- Signed a contract as a senior,
- Met the weight-for-height retention standard, *and*
- Were 17 to 19 years old.

Lastly, regardless of accession season and despite little time in DEP, high-quality male recruits who meet the weight-for-height retention standard and who are 17-19 years old pose low attrition risk.

Table 4. Historical bootcamp attrition rates for male recruits with short time in DEP^a

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPLT3s	Ranking
<i>All accession seasons</i>	122,374	17,818	14.6%	100.0%	
ONDJ accessions					
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	620	64	10.3%	0.5%	10
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	10,718	1,318	12.3%	8.8%	21
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	7,533	1,009	13.4%	6.2%	32
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	8,517	1,213	14.2%	7.0%	39
Tier I-OTHER, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	566	87	15.4%	0.5%	51
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 17-19 yr	2,274	364	16.0%	1.9%	54
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 20+ yr	2,518	437	17.4%	2.1%	60
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	5,921	1,028	17.4%	4.8%	61
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,636	305	18.6%	1.3%	67
Tier II/III, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,128	214	19.0%	0.9%	70
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	1,701	333	19.6%	1.4%	72
Tier II/III, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	715	172	24.1%	0.6%	78
<i>ONDJ total</i>	43,847	6,544	14.9%	35.8%	
FMAM accessions					
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	975	118	12.1%	0.8%	20
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	9,124	1,152	12.6%	7.5%	23
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	725	94	13.0%	0.6%	29
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	9,972	1,424	14.3%	8.1%	40
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	5,540	808	14.6%	4.5%	44
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 17-19 yr	2,075	346	16.7%	1.7%	57
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,253	213	17.0%	1.0%	59

Table 4. Historical bootcamp attrition rates for male recruits with short time in DEP^a
(continued)

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPLT3s	Ranking
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	6,766	1,226	18.1%	5.5%	65
Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	2,898	538	18.6%	2.4%	66
Tier I-OTHER, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	704	132	18.8%	0.6%	68
Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,094	218	19.9%	0.9%	73
Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	738	160	21.7%	0.6%	76
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	1,924	421	21.9%	1.6%	77
<i>FMAM total</i>	43,788	6,850	15.6%	35.8%	
JJAS accessions					
Tier I, I-IIIA, SENIOR, NOT OVERWEIGHT, 17-19 yr	4,862	398	8.2%	4.0%	2
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	3,362	344	10.2%	2.7%	9
Tier I, I-IIIA, SENIOR, OVERWEIGHT, 17-19 yr	897	95	10.6%	0.7%	11
Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	6,865	790	11.5%	5.6%	17
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	5,001	639	12.8%	4.1%	25
Tier I, IIIB-IV, SENIOR, OVERWEIGHT, 17-19 yr	675	92	13.6%	0.6%	34
Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	5,111	715	14.0%	4.2%	35
Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,234	175	14.2%	1.0%	38
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	926	141	15.2%	0.8%	50
Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	1,387	227	16.4%	1.1%	55
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	3,495	619	17.7%	2.9%	64
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	924	189	20.5%	0.8%	74
<i>JJAS total</i>	34,739	4,424	12.7%	28.4%	

a. Historical information for men with less than 3 months in DEP from FY92-March 2005 is calculated from CNA's accession cohort files. Shading indicates that the group has a below-average (<12.5 percent) historical attrition rate.

Male recruits in DEP for 3 or more months

Table 5 presents rankings for recruits who spent 3 or more months in DEP (DEPGE3). Shading highlights groups that have below-average historical bootcamp attrition rates.¹²

The table confirms that more time in DEP lowers bootcamp attrition. Almost 80 percent of the recruits with DEPGE3 are in groups that have below-average attrition rates. High-quality, 17- to 19-year-olds who meet the weight-for-height retention standard pose the lowest risk of attriting from bootcamp, and recruiters are accessing these recruits in large numbers.

Table 5 not only shows the success of recruiters in enlisting young men with the best chance of becoming Marines but also offers an area for improvement. Over 60 percent of recruits in groups with *above*-average attrition do not meet the weight-for-height retention standard. This implies that any further effort to help these recruits get physically fit while in DEP could significantly reduce bootcamp attrition. Furthermore, over half of these overweight recruits are otherwise high-quality recruits. Therefore, focusing on the physical fitness of poolees could be a “win-win” situation for MCRC.

12. Table 5 contains the same columns as table 4, except that the second column from the right shows the percentage of all recruits with 3 or more months in DEP who fall into the group.

Table 5. Historical bootcamp attrition rates for males in DEP for 3 or more months^a

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPGE3s	Ranking
<i>All accession seasons</i>	198,326	20,815	10.5%	100.0%	
ONDJ accessions					
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	13,524	1,162	8.6%	6.8%	3
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	8,562	808	9.4%	4.3%	6
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	9,022	918	10.2%	4.5%	8
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	7,252	793	10.9%	3.7%	13
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	5,296	589	11.1%	2.7%	14
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 17-19 yr	2,028	267	13.2%	1.0%	30
Tier I, IIIB-IV, SENIOR, OVERWEIGHT, 17-19 yr	2,133	281	13.2%	1.1%	31
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 20+ yr	556	78	14.0%	0.3%	36
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,412	200	14.2%	0.7%	37
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 20+ yr	2,642	381	14.4%	1.3%	42
Tier I, I-III A, SENIOR, OVERWEIGHT, 17-19 yr	2,940	424	14.4%	1.5%	43
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	4,126	604	14.6%	2.1%	45
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 20+ yr	804	119	14.8%	0.4%	48
Tier II/III, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	862	144	16.7%	0.4%	58
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	1,560	293	18.8%	0.8%	69
<i>ONDJ total</i>	62,719	7,061	11.3%	31.6%	
FMAM accessions					
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	4,386	404	9.2%	2.2%	5
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	3,714	420	11.3%	1.9%	16
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	2,398	278	11.6%	1.2%	18

Table 5. Historical bootcamp attrition rates for males in DEP for 3 or more months^a
(continued)

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPGE3s	Ranking
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	4,170	516	12.4%	2.1%	22
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	2,379	303	12.7%	1.2%	24
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,084	155	14.3%	0.5%	41
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	2,335	342	14.6%	1.2%	46
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 20+ yr	1,548	230	14.9%	0.8%	49
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	704	111	15.8%	0.4%	53
Tier I, I-III A, SENIOR, OVERWEIGHT, 17-19 yr	672	117	17.4%	0.3%	62
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	865	166	19.2%	0.4%	71
Tier II/III, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	507	104	20.5%	0.3%	75
<i>FMAM total</i>	24,762	3,146	12.7%	12.5%	
JJAS accessions					
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	51,208	4,130	8.1%	25.8%	1
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	3,422	295	8.6%	1.7%	4
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	31,024	3,031	9.8%	15.6%	7
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,984	215	10.8%	1.0%	12
Tier I, I-III A, SENIOR, OVERWEIGHT, 17-19 yr	8,508	950	11.2%	4.3%	15
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	2,816	338	12.0%	1.4%	19
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	1,527	196	12.8%	0.8%	26
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 20+ yr	721	93	12.9%	0.4%	27
Tier I, IIIB-IV, SENIOR, OVERWEIGHT, 17-19 yr	5,349	691	12.9%	2.7%	28
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 17-19 yr	737	99	13.4%	0.4%	33

Table 5. Historical bootcamp attrition rates for males in DEP for 3 or more months^a
(continued)

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPGE3s	Ranking
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 20+ yr	967	143	14.8%	0.5%	47
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 20+ yr	1,141	178	15.6%	0.6%	52
Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	594	99	16.7%	0.3%	56
Tier II/III, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	847	150	17.7%	0.4%	63
<i>JJAS total</i>	110,845	10,608	9.6%	55.9%	

a. This table presents historical information for only those male recruits with 3 or more months in DEP from FY92 to March FY05 as calculated from CNA's accession cohort files. Shading indicates that the group has a below-average (<12.5 percent) historical attrition rate.

Summary

Tables 4 and 5 show that high-quality, 17- to 19-year-olds who meet the weight-for-height retention standard pose the lowest attrition risk. The results also reinforce the importance of time in DEP and of recruiting in the senior market.

- Less than a quarter of recruits with little time in DEP are in groups that have below-average attrition rates, whereas almost 80 percent of recruits with 3 or more months in DEP are in such groups.
- In DEPLT3 groups that do have below-average attrition and include recruits who access in JJAS, more than half of the recruits signed their enlistment contracts as seniors. In addition, seniors who ship in ONDJ or FMAM but have 3 or more months in DEP have similar attrition rates, which are still well below average.

Female recruits

The 23,800 female recruits fall into 178 of the 288 possible groups. We present results for groups that have at least 200 female accessions

over the FY92–March 2005 period.¹³ This leaves us with 29 groups accounting for almost 83 percent of female accessions (19,730 out of 23,800). Tables 6 and 7 present historical bootcamp attrition rates for these 29 groups of female recruits.

The tables are separated by time in DEP and, within a table, groups are separated by accession season. Unlike male DEPLT3 recruits who are spread relatively evenly across accession seasons, female recruits with little time in DEP access disproportionately during FMAM. Similar to male recruits, however, over half of female recruits in the DEPGA3 category ship in JJAS. As before, shading indicates groups that have historical bootcamp attrition rates below the overall average for females.¹⁴

Female recruits with little time in DEP

One-quarter of all female recruits in DEP for less than 3 months attrite from bootcamp. Only those groups who ship in JJAS have attrition rates that fall below the average attrition rate for all female recruits (22.1 percent). The two DEPLT3 groups with the lowest attrition rates were contracted as seniors, although these groups represent only 7 percent of all DEPLT3s and less than 3 percent of all female recruits. It is surprising that one of these groups (JJAS, Tier 1, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 years) has the lowest overall historical female attrition rate. Furthermore, this group has the lowest attrition rate despite the fact that the group includes female recruits who are Category IIIBs and Category IVs—a characteristic that has been associated with higher attrition in the past. Regardless of mental group, though, table 6 implies that the female senior market could be a low-attrition-risk market for recruiters.

13. In order to incorporate as many female recruits as possible into our analysis, we decrease our group size criteria from 500 to 200. Out of the 178 groups we observe, 149 of them have fewer than 200 accessions over the entire FY92–March 2005 period (the 149 groups represent 4,070 female recruits, or about 17 percent).

14. Tables 6 and 7 contain the same columns as tables 4 and 5, respectively.

Table 6. Historical bootcamp attrition rates for female recruits with little time in DEP^a

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPLT3s	Ranking
<i>All accession seasons</i>	8,058	2,012	25.0%	100.0%	
ONDJ accessions					
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	959	230	24.0%	11.9%	17
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	602	156	25.9%	7.5%	21
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	620	166	26.8%	7.7%	25
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	287	89	31.0%	3.6%	29
<i>ONDJ total</i>	2,468	641	26.0%	30.6%	
FMAM accessions					
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,195	306	25.6%	14.8%	19
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	956	247	25.8%	11.9%	20
Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 20+ yr	241	63	26.1%	3.0%	23
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	730	208	28.5%	9.1%	26
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	534	160	30.0%	6.6%	27
<i>FMAM total</i>	3,656	984	26.9%	45.4%	
JJAS accessions					
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	209	29	13.9%	2.6%	1
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	367	71	19.3%	4.6%	10
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	623	125	20.1%	7.7%	12
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	371	77	20.8%	4.6%	14
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	364	85	23.4%	4.5%	16
<i>JJAS total</i>	1,934	387	20.0%	24.0%	

a. This table presents historical information for those female recruits with little time in DEP (less than 3 months) from FY92 to March 2005 as calculated from CNA's accession cohort files. Shading indicates that the group has a below-average (<22.1 percent) historical bootcamp attrition rate.

Table 7. Historical bootcamp attrition rates for female recruits with 3 or more months in DEP^a

Group	Accessions per group	Separations per group	Attrition rate	Share of all DEPGE3s	Ranking
<i>All accession seasons</i>	11,671	2,202	18.9%	100.0%	
ONDJ accessions					
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	1,260	213	16.9%	10.8%	4
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	948	172	18.1%	8.1%	6
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	527	98	18.6%	4.5%	8
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	641	125	19.5%	5.5%	11
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	479	126	26.3%	4.1%	24
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	230	70	30.4%	2.0%	28
<i>ONDJ total</i>	4,085	804	19.7%	35.0%	
FMAM accessions					
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	645	120	18.6%	5.5%	9
Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	202	42	20.8%	1.7%	15
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	498	126	25.3%	4.3%	18
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	370	96	25.9%	3.2%	22
<i>FMAM total</i>	1,715	384	22.4%	14.7%	
JJAS accessions					
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	337	54	16.0%	2.9%	2
Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	3,515	586	16.7%	30.1%	3
Tier I, I-III A, SENIOR, OVERWEIGHT, 17-19 yr	291	52	17.9%	2.5%	5
Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	1,481	271	18.3%	12.7%	7
Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	247	51	20.6%	2.1%	13
<i>JJAS total</i>	5,871	1,014	17.3%	50.3%	

a. This table presents historical information for only those female recruits with 3 or more months in DEP from FY92 to March 2005 as calculated from CNA's accession cohort files. Shading indicates that the group has a below-average (<22.1 percent) historical bootcamp attrition rate.

Female recruits in DEP for 3 or more months

As was the case for male recruits, female recruits with more time in DEP pose lower attrition risk. Although only 20 percent of DEPLT3 recruits fell into groups that had average attrition rates below the overall female attrition rate, over 85 percent of DEPGA3 recruits do. Again, the female senior market stands out; over 70 percent of DEPGA3 recruits in groups with below-average attrition rates are in groups of females who signed contracts as seniors. In addition, as with men and DEPLT3 women, women who ship in JJAS pose the lowest attrition risk. However, some groups of female recruits who ship during ONDJ also complete bootcamp at relatively high rates.

Summary

In both tables 6 and 7, the female senior market stands out as a source of recruits with low attrition risk. Recent conversations with recruiters reveal that they are well aware of the importance of recruiting in the senior market. The analyses presented here show that women in particular require attention in this market despite the fact that female accessions are a small portion of Marine Corps accessions.

In addition, unlike for male recruits, female recruits who do not meet the weight-for-height retention standard do not pose a much higher attrition risk. This could imply that DEP events need not focus on female poolees' physical fitness, but recent research by [4] finds that female recruits who scored below the median in crunches or in the 1.5-mile run had higher attrition—over 6 percentage points above average. Our results, combined with those of [4], imply that the weight-for-height retention standard likely measures characteristics beyond just physical fitness for women.

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Conclusion

In this paper, we compared groups of recruits who differ by observable characteristics at the time of enlistment to identify those groups with the lowest attrition risk.

We find that the male recruits *and* female recruits who pose the *lowest* attrition risk:

- Sign contracts as seniors,
- Ship in JJAS or ONDJ,
- Are high quality (i.e., Tier I and Category I–IIIAs), *and*
- Meet the weight-for-height retention standard.

We find that male recruits who pose the *highest* attrition risk:

- Ship in ONDJ or FMAM,
- Ship less than 3 months after signing their contracts,
- Are Tier I/Category IIIB–IVs **OR** are Tier II–III/Category I–IIIAs, *and*
- Are 20+ years of age.

We find that female recruits who pose the *highest* attrition risk:

- Ship in ONDJ or FMAM,
- Are not contracted as seniors,
- Are Tier I/Category IIIB–IVs, *and*
- Are 20+ years of age.

In general, our results highlight the importance of the senior market. Recent conversations with recruiters indicate they are aware of the decrease in the number of recruits who signed contracts as seniors in

FY05. They have since identified getting back into the senior market as a priority. In addition to trying to access more recruits from groups with low attrition risks, emphasizing physical fitness at DEP events also could reduce attrition for both male and female recruits.

There are a few caveats to this analysis. First, we are restricted to those groups in which we observe accessions. Second, as with most analyses, there may be other characteristics that are correlated with bootcamp attrition that were not included in this analysis. Third, the analysis is based on historical attrition rates, which could possibly change over time. That said, we find little variation in the relative rankings of the various groups over our time period, and our results are also comparable to those reported in [6].

Monitoring attrition and knowing the relative attrition risk of various groups is important because bootcamp attrition affects endstrength and attrites are costly to replace. In fact, a reduction in attrition of 1 percent represents a savings of about \$2.4 million.¹⁵ Attrition analysis also is useful to recruiters because they strive to access those with the best chance of becoming Marines. The groups we created based on observable characteristics have relative tradeoffs. For example, Category IIIB–IVs pose a higher attrition risk; however, compared with Category I–IIAs, they are generally easier and less time-consuming to recruit. In addition, recruiters may have comparative advantages when it comes to recruiting from various groups. Our analysis should help recruiters to determine where their time is best spent and to evaluate the likelihood that potential recruits will become successful Marines.

15. CNA accession cohort data from FY04 suggest that a 1-percent reduction in attrition would correspond to roughly 240 fewer attrites. The Department of Defense estimate of cost per recruit was just over \$10,000 in FY04.

Appendix A: Regression results

Table 8 shows the results from a standard logit regression of bootcamp attrition. The regression includes indicators for educational status, mental group, time in DEP, age, whether the recruit signed his or her contract as a senior, whether the recruit met the retention weight-for-height standard, accession season, race, and fiscal year.

Table 8. Estimated effects on bootcamp attrition:
Accessions from FY92 through March 2005^{a,b}

Independent variable	Men	Women
Tier I	-0.070 **	-0.051 **
Tier I, Other	-0.022 **	-0.033
Tier II/III	Omitted category	
Category I-III A	-0.026 **	-0.039 **
Category IIIB-IV	Omitted category	
ONDJ accession	0.008 **	0.018 **
FMAM accession	0.015 **	0.038 **
JJAS accession	Omitted category	
3 or more months in DEP	-0.018 **	-0.035 **
17-19 years of age at accession	-0.024 **	-0.020 **
20+ years of age at accession	Omitted category	
Met the retention height-for-weight standard	-0.039 **	-0.010
Signed enlistment contract as a senior	-0.012 **	-0.018 **
MCRD Parris Island	-0.001 **	NA ^c
White	Omitted category	
Black	-0.015 **	-0.041 **
Hispanic	-0.051 **	-0.088 **
Other	-0.034 **	-0.058 **

a. This table shows marginal effects from a logit regression for bootcamp attrition. The marginal effects are relative to the omitted category. Regressions also included fixed fiscal year effects. All recruits had 4-year initial enlistment contracts.

b. ** indicates statistical significance at the 5-percent level.

c. All female recruits go to bootcamp at MCRD Parris Island.

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Appendix B: Historical attrition rate rankings

Table 9 shows the complete list of historical attrition rates for male groups with more than 500 recruits during the FY92 through March 2005 period sorted in ascending order by attrition rate. Shading indicates that the group had at least 500 accessions in the last 5.5 years (FY00 through March 2005).

Table 9. Historical bootcamp attrition rates for men (FY92 through March 2005)^a

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all male accessions
Historical rates below the overall male average (12.5%)^b					
1	DEPGE3, JJAS, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	51,208	4,130	8.1%	15.1%
2	DEPLT3, JJAS, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	4,862	398	8.2%	1.4%
3	DEPGE3, ONDJ, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	13,524	1,162	8.6%	4.0%
4	DEPGE3, JJAS, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	3,422	295	8.6%	1.0%
5	DEPGE3, FMAM, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	4,386	404	9.2%	1.3%
6	DEPGE3, ONDJ, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	8,562	808	9.4%	2.5%
7	DEPGE3, JJAS, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	31,024	3,031	9.8%	9.1%
8	DEPGE3, ONDJ, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	9,022	918	10.2%	2.7%
9	DEPLT3, JJAS, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	3,362	344	10.2%	1.0%
10	DEPLT3, ONDJ, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	620	64	10.3%	0.2%
11	DEPLT3, JJAS, Tier I, I-III A, SENIOR, OVERWEIGHT, 17-19 yr	897	95	10.6%	0.3%
12	DEPGE3, JJAS, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,984	215	10.8%	0.6%

Table 9. Historical bootcamp attrition rates for men (FY92 through March 2005)^a (continued)

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all male accessions
13	DEPGE3, ONDJ, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	7,252	793	10.9%	2.1%
14	DEPGE3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	5,296	589	11.1%	1.6%
15	DEPGE3, JJAS, Tier I, I-III A, SENIOR, OVERWEIGHT, 17-19 yr	8,508	950	11.2%	2.5%
16	DEPGE3, FMAM, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	3,714	420	11.3%	1.1%
17	DEPLT3, JJAS, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	6,865	790	11.5%	2.0%
18	DEPGE3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	2,398	278	11.6%	0.7%
19	DEPGE3, JJAS, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	2,816	338	12.0%	0.8%
20	DEPLT3, FMAM, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	975	118	12.1%	0.3%
21	DEPLT3, ONDJ, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	10,718	1,318	12.3%	3.2%
22	DEPGE3, FMAM, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	4,170	516	12.4%	1.2%
Historical rates above the overall male average					
23	DEPLT3, FMAM, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	9,124	1,152	12.6%	2.7%
24	DEPGE3, FMAM, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	2,379	303	12.7%	0.7%
25	DEPLT3, JJAS, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	5,001	639	12.8%	1.5%
26	DEPGE3, JJAS, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	1,527	196	12.8%	0.4%
27	DEPGE3, JJAS, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 20+ yr	721	93	12.9%	0.2%
28	DEPGE3, JJAS, Tier I, IIIB-IV, SENIOR, OVERWEIGHT, 17-19 yr	5,349	691	12.9%	1.6%
29	DEPLT3, FMAM, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	725	94	13.0%	0.2%
30	DEPGE3, ONDJ, Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 17-19 yr	2,028	267	13.2%	0.6%
31	DEPGE3, ONDJ, Tier I, IIIB-IV, SENIOR, OVERWEIGHT, 17-19 yr	2,133	281	13.2%	0.6%

Table 9. Historical bootcamp attrition rates for men (FY92 through March 2005)^a (continued)

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all male accessions
32	DEPLT3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	7,533	1,009	13.4%	2.2%
33	DEPGE3, JJAS, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 17-19 yr	737	99	13.4%	0.2%
34	DEPLT3, JJAS, Tier I, IIIB-IV, SENIOR, OVERWEIGHT, 17-19 yr	675	92	13.6%	0.2%
35	DEPLT3, JJAS, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	5,111	715	14.0%	1.5%
36	DEPGE3, ONDJ, Tier I, I-IIIA, SENIOR, NOT OVERWEIGHT, 20+ yr	556	78	14.0%	0.2%
37	DEPGE3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,412	200	14.2%	0.4%
38	DEPLT3, JJAS, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,234	175	14.2%	0.4%
39	DEPLT3, ONDJ, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	8,517	1,213	14.2%	2.5%
40	DEPLT3, FMAM, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	9,972	1,424	14.3%	2.9%
41	DEPGE3, FMAM, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,084	155	14.3%	0.3%
42	DEPGE3, ONDJ, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	2,642	381	14.4%	0.8%
43	DEPGE3, ONDJ, Tier I, I-IIIA, SENIOR, OVERWEIGHT, 17-19 yr	2,940	424	14.4%	0.9%
44	DEPLT3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	5,540	808	14.6%	1.6%
45	DEPGE3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	4,126	604	14.6%	1.2%
46	DEPGE3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	2,335	342	14.6%	0.7%
47	DEPGE3, JJAS, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	967	143	14.8%	0.3%
48	DEPGE3, ONDJ, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 20+ yr	804	119	14.8%	0.2%
49	DEPGE3, FMAM, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	1,548	230	14.9%	0.5%
50	DEPLT3, JJAS, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	926	141	15.2%	0.3%
51	DEPLT3, ONDJ, Tier I-OTHER, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	566	87	15.4%	0.2%

Table 9. Historical bootcamp attrition rates for men (FY92 through March 2005)^a (continued)

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all male accessions
52	DEPGE3, JJAS, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 20+ yr	1,141	178	15.6%	0.3%
53	DEPGE3, FMAM, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	704	111	15.8%	0.2%
54	DEPLT3, ONDJ, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 17-19 yr	2,274	364	16.0%	0.7%
55	DEPLT3, JJAS, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	1,387	227	16.4%	0.4%
56	DEPGE3, JJAS, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	594	99	16.7%	0.2%
57	DEPLT3, FMAM, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 17-19 yr	2,075	346	16.7%	0.6%
58	DEPGE3, ONDJ, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	862	144	16.7%	0.3%
59	DEPLT3, FMAM, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,253	213	17.0%	0.4%
60	DEPLT3, ONDJ, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	2,518	437	17.4%	0.7%
61	DEPLT3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	5,921	1,028	17.4%	1.7%
62	DEPGE3, FMAM, Tier I, I-IIIA, SENIOR, OVERWEIGHT, 17-19 yr	672	117	17.4%	0.2%
63	DEPGE3, JJAS, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	847	150	17.7%	0.2%
64	DEPLT3, JJAS, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	3,495	619	17.7%	1.0%
65	DEPLT3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	6,766	1,226	18.1%	2.0%
66	DEPLT3, FMAM, Tier I, I-IIIA, NOT SENIOR, OVERWEIGHT, 20+ yr	2,898	538	18.6%	0.9%
67	DEPLT3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 17-19 yr	1,636	305	18.6%	0.5%
68	DEPLT3, FMAM, Tier I-OTHER, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	704	132	18.8%	0.2%
69	DEPGE3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	1,560	293	18.8%	0.5%
70	DEPLT3, ONDJ, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,128	214	19.0%	0.3%
71	DEPGE3, FMAM, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	865	166	19.2%	0.3%

Table 9. Historical bootcamp attrition rates for men (FY92 through March 2005)^a (continued)

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all male accessions
72	DEPLT3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	1,701	333	19.6%	0.5%
73	DEPLT3, FMAM, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,094	218	19.9%	0.3%
74	DEPLT3, JJAS, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	924	189	20.5%	0.3%
75	DEPGE3, FMAM, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	507	104	20.5%	0.1%
76	DEPLT3, FMAM, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	738	160	21.7%	0.2%
77	DEPLT3, FMAM, Tier I, IIIB-IV, NOT SENIOR, OVERWEIGHT, 20+ yr	1,924	421	21.9%	0.6%
78	DEPLT3, ONDJ, Tier II/III, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	715	172	24.1%	0.2%
<i>Total</i>		320,700	38,633	12.0%	94.4%

- a. This table presents historical information for male recruits from groups that had at least 500 accessions during the analysis period as calculated from CNA's accession cohort files. A separation is defined as a loss from either MCRD Parris Island or MCRD San Diego within the first 12 months of service. Shading indicates that group had at least 500 accessions in the last 5.5 years (FY00 through March 2005).
- b. Average attrition rate for *all* male recruits from FY92 through March 2005 is 12.5%

Table 10 presents the complete list of historical attrition rates for female groups with more than 200 recruits during the FY92 through March 2005 period sorted in ascending order by attrition rate. Shading indicates that the group had at least 200 accessions over the last 5.5 years (FY00 through March 2005).

Table 10. Historical bootcamp attrition rates for women (FY92 through March 2005)^a

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all female accessions
Historical rates below the overall female average (22.1%)^b					
1	DEPLT3, JJAS, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	209	29	13.9%	0.9%
2	DEPGE3, JJAS, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	337	54	16.0%	1.4%
3	DEPGE3, JJAS, Tier I, I-IIIA, SENIOR, NOT OVERWEIGHT, 17-19 yr	3,515	586	16.7%	14.8%
4	DEPGE3, ONDJ, Tier I, I-IIIA, SENIOR, NOT OVERWEIGHT, 17-19 yr	1,260	213	16.9%	5.3%
5	DEPGE3, JJAS, Tier I, I-IIIA, SENIOR, OVERWEIGHT, 17-19 yr	291	52	17.9%	1.2%
6	DEPGE3, ONDJ, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	948	172	18.1%	4.0%
7	DEPGE3, JJAS, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	1,481	271	18.3%	6.2%
8	DEPGE3, FMAM, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	646	120	18.6%	2.7%
9	DEPGE3, ONDJ, Tier I, IIIB-IV, SENIOR, NOT OVERWEIGHT, 17-19 yr	527	98	18.6%	2.2%
10	DEPLT3, JJAS, Tier I, I-IIIA, SENIOR, NOT OVERWEIGHT, 17-19 yr	367	71	19.3%	1.5%
11	DEPGE3, ONDJ, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	641	125	19.5%	2.7%
12	DEPLT3, JJAS, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	623	125	20.1%	2.6%
13	DEPGE3, JJAS, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	247	51	20.6%	1.0%
14	DEPLT3, JJAS, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	371	77	20.8%	1.6%
15	DEPGE3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	202	42	20.8%	0.8%
Historical rates above the overall female average					
16	DEPLT3, JJAS, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	364	85	23.4%	1.5%
17	DEPLT3, ONDJ, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	959	230	24.0%	4.0%
18	DEPGE3, FMAM, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	498	126	25.3%	2.1%
19	DEPLT3, FMAM, Tier I, I-IIIA, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	1,195	306	25.6%	5.0%

Table 10. Historical bootcamp attrition rates for women (FY92 through March 2005)^a (continued)

Ranking	Group	Accessions per group	Separations per group	Attrition rate	Share of all female accessions
20	DEPLT3, FMAM, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	956	247	25.8%	4.0%
21	DEPLT3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	602	156	25.9%	2.5%
22	DEPGE3, FMAM, Tier I, I-III A, SENIOR, NOT OVERWEIGHT, 17-19 yr	370	96	25.9%	1.6%
23	DEPLT3, FMAM, Tier I, I-III A, NOT SENIOR, OVERWEIGHT, 20+ yr	241	63	26.1%	1.0%
24	DEPGE3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	479	126	26.3%	2.0%
25	DEPLT3, ONDJ, Tier I, I-III A, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	620	166	26.8%	2.6%
26	DEPLT3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 17-19 yr	730	208	28.5%	3.1%
27	DEPLT3, FMAM, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	534	160	30.0%	2.2%
28	DEPGE3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	230	70	30.4%	1.0%
29	DEPLT3, ONDJ, Tier I, IIIB-IV, NOT SENIOR, NOT OVERWEIGHT, 20+ yr	287	89	31.0%	1.2%
<i>Total</i>		19,730	4,214	21.4%	82.9%

a. This table presents historical information for female recruits from groups that had at least 200 accessions during the analysis period as calculated from CNA's accession cohort files. A separation is defined as a loss from MCRD Parris Island within the first 12 months of service. Shading indicates that the group had at least 200 accessions in the last 5.5 years (FY00 through March 2005).

b. Average attrition rate for all female recruits from FY92 through March 2005 is 22.1 percent.

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