Timing of stress fracture in soldiers during the first 6 career months: a retrospective cohort study

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Timing of stress fracture in soldiers during the first 6 career months: a retrospective cohort study

Context: Stress fractures (SF) are injuries that can result from beginning new or higher volume physical training regimens. The pattern of clinical presentation of SF over time after individuals start a new or more demanding physical training regimen is not well defined in medical literature.

Objective: Report trends in the clinical presentation of stress fractures over the first six months of soldiers’ time in the service.

Design: Retrospective Cohort study

Setting: This study was conducted using medical encounter and personnel data from U.S. Army soldiers during the first 6 months of their career.

Participants: U.S. Army soldiers beginning their careers from 2005-2014 (N=701,027).

Data Collection and Analysis: Weekly SF numbers and incidence were calculated overall, as well as by sex, over the first 6 months of military service.

Results: SF diagnoses (N=14,155) increased steeply in weeks 3 and 4, with a peak in the overall incidence of SF diagnoses occurring during weeks 5-8. Although clinical incidence of stress fracture generally decreased beyond 8 weeks, incident lower extremity stress fractures continued to present for over 20 weeks. The hazard ratio (HR) for SF among women compared to men was 4.14 (95% CI = [4.01, 4.27]).

Conclusions: Across the 6-month study period, women showed over 4 times greater hazard for stress fracture. The results also suggest that health care providers should be particularly vigilant for stress fractures within 3 weeks after the beginning of a new or higher intensity exercise regimen. The incidence of SF may continue to climb for several weeks. Even as stress fracture
incidence declines, it should be noted that these injuries may also continue to appear clinically
even several months after a change in activity or training.

**Key Words:** stress fracture, overuse injury, military, tactical athlete
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Stress fractures occur in populations suddenly increasing participation in repetitive physical activities, such as is seen in athletes at the beginning of a new sporting season and in military recruits entering initial military training. Stress fractures are thought to occur when repetitive loading of bone results in microscopic fatigue damage that may accumulate with continued loading in the absence of adequate time for bone tissue self-repair. The tibia is reportedly the most common site of stress fracture in athletes and military personnel, followed by other bones of the lower extremities, including the fibula, metatarsals, femur, and pelvis. While men beginning a new training regimen experience rates of stress fracture as high as 7-10%, female endurance athletes and military service members have a higher risk than their male counterparts, with reports of stress fracture rates as high as 20% in active female populations. During the first 10 weeks of military training, a time of greater than customary physical training for most trainees, risk of stress fracture has been reported to be 4 times greater in women than in men.

While stress fracture is an injury of concern in those beginning a new training regimen, the clinical presentation of stress fractures over time across a population beginning a new or more demanding physical training regimen is not well defined in the medical literature. For new soldiers, the first 10 weeks of a career are typically the “basic training” phase, with more advanced military training in subsequent weeks and months. After that varying period of training, soldiers transition into the physical and operational training activities of their first permanent station unit. This transition into military life may represent a change in lower
extremity loading and impact activities that could contribute to stress fractures. Clinicians may understand the risk of stress fractures and be able to offer anecdotal evidence as to the timing of stress fractures seen in their various clinical populations. However, data are not readily available in peer reviewed literature describing the trend over time of the clinical presentation of stress fracture injuries following initiation of novel, higher intensity, or longer duration exercise regimens.

The U.S. Army, which transforms recruits into soldiers through the process of initial military training, represents a large population of individuals who are susceptible to stress fractures due to beginning a novel or higher volume training regimen. Studying this population allows for characterization of the timing and location of stress fractures in individuals at high risk of injury due to a change or increase in physical training. Therefore, the purpose of this study was to describe the overall and weekly incidence of lower extremity stress fracture injuries over the first 6 months of soldiers’ service within the U.S. Army.

Methods

This was a retrospective cohort study using data from the Total Army Injury and Health Outcomes Database (TAIHOD). The TAIHOD is a data repository that includes medical encounter data and personnel data on all active duty U.S. Army soldiers and exists for the purpose of conducting epidemiologic research within the Army. The dataset for this retrospective cohort study was constructed using demographic and service-time data from soldiers’ personnel records and diagnosis codes from medical encounter data. Personnel data came from the Defense Manpower Data Center (DMDC) and medical encounter data came from the Military Health System Medical Repository (MDR). This study was approved by the
Institutional Review Board (IRB) of the U.S. Army Research Institute of Environmental Medicine (USARIEM).

Participants

The population studied was U.S. Army soldiers who entered onto Active duty from 1 January 2005 through 31 December 2014 (N=819,681). The entire population was examined, where stress fractures cases were identified from medical encounter data in order to establish the weekly proportion of soldiers who were diagnosed with stress fractures. Incident stress fractures were identified using International Classification of Diseases Ninth Revision (ICD-9) codes. For outpatient visits, an incident case was defined as an initial ICD-9 code from the following list:

- 733.93 (stress fracture of tibia or fibula)
- 733.94 (stress fracture of the metatarsals)
- 733.95 (stress fracture of other bone)
- 733.96 (stress fracture of femoral neck)
- 733.97 (stress fracture of shaft of femur)
- 733.98 (stress fracture of pelvis)
- 733.99 (other stress fracture)
- 733.14 (pathologic fracture of neck of femur)
- 733.15 (pathologic fracture of other part of femur)
- 733.16 (pathologic fracture of the tibia or fibula)

followed up with a second code from the list at least 14 but no more than 90 days from the service date of the initial code. The reason for inclusion of pathologic fracture codes is because staff from medical treatment facilities may have become accustomed to using those codes prior to the availability of stress fracture codes, and continued to use those codes. Given that it is unlikely to see actual pathologic fractures within this population, the inclusion of these codes helps to capture stress fractures and is unlikely to confound the data.

This methodology and use of these diagnoses codes is similar to that of previous studies using this type of data and was used to account for confirmation of the injury after initial differential diagnosis, since it can take weeks to confirm
stress fractures using imaging modalities,\textsuperscript{28} and follow-up care will continue for weeks or months after a stress fracture is identified. For inpatient visits, a single entry from the ICD-9 codes listed above was sufficient to be defined as an incident case, as confirmation of the injury necessitated more involved inpatient management. Stress fracture diagnoses were sorted by location according to the specificity allowed by the ICD-9 codes. The location designations were: tibial and fibular, metatarsal, femoral neck, femoral shaft, pelvic, and unspecified/other. The category of “unspecified/other” is based on stress fracture diagnosis codes that did not specify a location or indicated “other” bone in the code. The location of the stress fracture was derived using the second coding (confirming diagnosis), except in the case of inpatient diagnosis of stress fracture, where only a single code was present.

Quantitative and Qualitative Assessment

Since the bulk of stress fractures occur at the beginning of soldiers’ careers, as they acclimate to initial military training and unit physical training, the first 6-months of service were examined in weekly increments to determine stress fracture numbers and incidence. Overall weekly incidences of stress fractures were calculated for all soldiers and separately for males and females. The incidence was defined by the proportion of soldiers in the Army with a clinical diagnosis of a stress fracture within the respective week of their career. The timing of the stress fracture was determined based on the number of weeks that the soldier had served on active duty; injuries were tallied based on the week of service with respect to the first day of a soldier’s active duty service. To determine the weekly incidence proportion for stress fractures, the total number of soldiers experiencing a stress fracture diagnosis during a given week of service was divided by the total number of soldiers in the Army during that career week. The number of soldiers in
the denominator was based on the actual count of soldiers in the Army during the respective week of service. Any soldiers who had left the Army prior to that week were not included in the calculation of weekly incidence. The resulting proportion was then multiplied by 1,000 to calculate the weekly epidemiologic incidence of stress fractures per 1,000 soldiers. The temporal presentation of stress fracture injuries were examined from graphical representation of stress fracture numbers and incidence proportion. Stress fracture numbers by region and by year were also tabulated. In addition to the descriptive statistics on the incidence of stress fractures, a hazard ratio (HR) was calculated comparing the hazard for incident lower extremity stress fractures in women compared to men, and survival curves were also produced.

**Results**

A total of n=701,027 soldiers (n=586,412 [83.7%] male, n=114,615 [16.3%] female) were included over the 10-year study period. Within the first 6 months of soldiers’ time in the Army, 14,155 incident lower extremity stress fractures were identified. The demographic characteristics for soldiers included in this study are provided in Table 1. The incidence of stress fractures and the 95% confidence intervals (CI) for soldiers in the first 6 months of service were 20.19 (95% CI = [19.86, 20.52]) per 1,000 soldiers, with men having an incidence of 13.71 (95% CI = [13.42, 14.01]) per 1,000 and women having an incidence of 53.33 (95% CI = [52.03, 54.64]) per 1,000. The weekly number and incidence of stress fractures is shown in Figure 1 (incidence and confidence bounds are shown in Appendix 1). Higher overall and weekly incidences of stress fractures were seen in women, but a higher raw number of stress fractures were seen with men (Figure 1 and Table 1). Women showed 4 times greater hazard for developing an incident stress fracture than men over the first 6 months of service, with a
HR=4.14 (95% CI = [4.01, 4.27]). Survival curves were also produced (Figure 2). The location-specific diagnoses for stress fractures is presented in Table 2. The number and incidence of stress fractures annually over the study period is presented in Table 3.

Although stress fracture diagnosis occurred during weeks 1 and 2 of soldiers’ careers, stress fracture diagnoses began to increase steeply beginning in week 3. Stress fracture incidence peaked from the 5th through 8th weeks (Figure 1) of service, with the highest point estimates of incidence observed during the 7th and 8th weeks. The point estimates in weeks 7-8 were 1.73-1.74 (95% CI = [1.63, 1.84]) per 1,000 soldiers overall, 1.19-1.20 (95% CI = [1.10, 1.29]) per 1,000 men, and 4.54-4.58 (95% CI = [4.14, 4.98]) per 1,000 women. A decline was seen in diagnoses during weeks 9 and 10, with a spike in diagnoses occurring in week 11. Stress fracture diagnoses steadily decreased over the remainder of the 6-month period.

**Discussion**

Stress fracture diagnoses began to increase steeply during the 3rd and 4th weeks after initial entry into the Army, with the peak weekly incidences of medical encounters for stress fractures seen from the 5th through 8th weeks of service. These first several weeks of a soldier’s career represent the period of basic combat training, where physical training and military-specific activities may be novel or with greater frequency than prior to entry into the service. It appears that the weekly incidence of clinically recorded stress fractures steadily increased over the first 8 weeks of this period. While the weekly incidence of stress fractures decreases beyond the 8th week of service, it is important to note that incident stress fractures are still seen beyond the 20th week of service. This initial, approximately 10-week period of basic combat training is largely standardized for soldiers. Beyond 10 weeks, soldiers may enter Advanced Initial
Training (AIT) or other military training programs, and that phase of training can vary greatly, from a few weeks to a several months, depending on the military occupational specialty of the soldier. After initial military training, soldiers typically transition into the physical and operational training activities of their first permanent station unit. While the bulk of stress fractures are seen during basic combat training, these data show that bone stress injuries can occur beyond that period and even when soldiers are no longer trainees.

After the peak of clinical encounters for incident stress fractures around week 8, there is a steep decrease for the next two weeks, followed by another increase around the 11th week of service. This second spike in clinical encounters is likely due to reluctance to report an injury at the end of initial basic training periods (9-10th weeks), where motivation to endure pain and graduate out of the basic training environment may be high, although this remains to be demonstrated through direct evidence. This type of under reporting of injuries to avoid duty restrictions that could negatively affect job performance has been previously reported in soldiers. Following graduation of the basic phase of training, soldiers may report injuries that have failed to show symptomatic improvement with a short period of relative rest, as they continue on to more specific military occupational training. This trend holds clinical importance because it shows that people developing stress fractures, with a gradual onset of pain, may feel that they are able to endure the symptoms in order to achieve a short-term physical goal. The closing of training periods may also include culminating events that add greater physical stress at the end of training and further stimulate the development of stress injuries in at-risk individuals. This observation is supported by a study of stress fractures in Royal Marine Recruits that show greater numbers of stress fractures around the time of the more physically demanding training events, and that the peak number of stress fractures coincided with those events when they were
rescheduled to a different time in training. There were no data in this study on reporting patterns or physical activity of soldiers at the time of injury, but these explanations are plausible given supporting evidence elsewhere in medical literature. Potential underreporting of pain associated with stress fractures is an important factor to consider in people who are susceptible to stress fractures, such as military personnel or endurance athletes, when they are close to a training goal or athletic competition.

These data suggest that heightened awareness of stress fractures as a differential diagnosis for individuals with lower extremity pain may be warranted around the 3rd week of entry into a new training program, although there are smaller numbers of individuals who may present with stress fractures earlier than the 3rd week. The period of the greatest increase and highest incidence of lower extremity stress fractures appeared 3-8 weeks after beginning a regimen of novel and/or increased weight bearing and impact activities in this military population. The number and incidence of stress fractures decreased over time after the peak period, but did extend into the 6th month (20+ weeks) of service. This suggests that there are people who may develop stress fractures more slowly, perhaps based on intrinsic physiologic factors, and present as cases after a longer exposure period.

The reasons for development of stress fractures in as little as 2 to 3 weeks into training are unclear, given that this leaves little time from the start of training to move along the stress fracture etiological pathway. The pathophysiology of stress fractures has been suggested to arise from the consequences of heightened repetitive loading of bone tissue, which includes generation of bone fatigue damage, increased bone remodeling that targets this damage for removal, resultant porosity, and a positive feedback cycle of damage, repair, and porosity until fracture. It is highly unlikely that these physiologic processes would be completed in 1-2 weeks of
training, and therefore, it is plausible that soldiers diagnosed with stress fractures early in training may have self-selected to begin physical training prior to arrival at basic training in order to prepare for the physical challenges ahead. These hypotheses remain to be tested, and the results could have important implications for recommendations related to the timing of physical preparation prior to military entry or athletic competition.

The higher incidence of stress fracture in women seen in this study is consistent with the findings of a study using similar data to examine stress fracture incidence in basic trainees, and is also consistent with the summary findings of a systematic review of literature that reported generally higher incidence of stress fractures in female military members and athletes. Across the 6-month study period, women showed greater than 4 times the hazard for developing a stress fracture compared to men (HR=4.14, 95% CI = [4.01, 4.27]), which is consistent with the findings from previous studies that have used medical encounter data to compare stress fracture between male and female soldiers during basic training. The yearly incidence rate of stress fractures (Table 3) varied slightly over the study period in a pattern similar to the fluctuations reported in a previous study looking at stress fracture rates in service members. There are many potential explanations for the yearly variations stemming from recruitment policies, yearly variations in the recruit population, policy variations, or world events that alter unit training or unit mission. Overall, the incidence of stress fractures in women are significantly higher than in men from year to year across the 10 years of this study, with women showing a four times greater hazard for incident stress fractures compared to men.

Consistent with the increased hazard of stress fracture in women compared to men, the survival curves (Figure 2) showed a much steeper impact of these injuries in female soldiers compared to male soldiers. This highlights the impact of these injuries in the potential for lost
training and duty days in women compared to men during the first 26 weeks of their careers. While women showed higher incidence of clinical presentation of stress fractures in this study, men accounted for more incident stress fractures in this study than women due to the much higher percentage of men (83.7%) in the Army than women (16.3%). From the perspective of screening or differentially diagnosing these injuries, it is beneficial for clinicians to understand that incidence of stress fractures is substantially higher in women than men. However, from the perspective of the impact of this injury within the Army, it must be noted that men present clinically with these injuries in higher numbers than women. That is an important point to consider in this heavily male population, and may be a point of consideration for clinicians serving other populations that may be skewed with respect to distribution of the sexes.

There are several limitations of this study which should be mentioned. Since the study was conducted using medical encounter data, there is the potential for coding errors from providers or medical coders. Any errors in coding should be rare and randomly distributed, and should not be a significant source of bias. Due to the lack of clinical notes, elements of the diagnosis such as clinical exam findings or imaging results are not available. Therefore, the diagnostic criteria among providers are not known. It is also probable that diagnostic criteria and follow-up varied among providers. That is reflective of clinical practice for this musculoskeletal condition and should not significantly impact the overall results of the study. The largest individual diagnostic category in the study was “unspecified/other,” which has also been reported in a previous study using this type of data. This category likely represents less common stress fractures at bones such as the tarsals, patella, or sesamoids, as well as coding of stress fracture as a general injury diagnosis on the part of providers or coders who selected a non-specific stress fracture code in the electronic medical records system. The category of
unspecified/other was included in the location-specific categories to thoroughly present the data to readers. Since the diagnoses were obtained from clinical encounter data, the results of this study should not be assumed to be empirical evidence on the timing of physiologic processes underlying stress fractures. Clinical presentation is often due to multiple factors, such as patients’ pain tolerance and motivation, which can vary among individuals and may not reliably coincide with the stages of pathophysiology between individuals. That does not detract from the significance of the findings of the timing of clinical presentation of stress fractures in this study, as patients present clinically at various phases of pathophysiology for musculoskeletal stress injuries. Providers can still gain an understanding of the timing of clinical presentation of stress fractures in general from the results of this study. Despite the limitations of this study, the large study size and the inclusion of data from the entire U.S. Army over a 10-year period provides a useful depiction of the clinical presentation patterns of lower extremity stress fractures in an adult population beginning a novel or higher intensity physical training program.

The results from this study can be used to guide future prospective clinical and physiologic research examining bone health and stress fracture pathophysiology. Specifically, large scale cohort studies during initiation of physical training in soldiers, in which bone metabolism and microarchitecture are studied, can help elucidate the physiologic process underlying clinical presentation of stress fractures and help identify potential preventative measures. The results from this study may also be used to educate clinicians who will care for military members or other populations of individuals who will begin a period of increased physical activity, particularly involving loading of the lower extremities. Understanding the timing of clinical presentation of stress fractures and other injuries may aid in planning for medical support to at-risk populations.
Conclusion

The clinical incidence of lower extremity stress fractures increased substantially approximately 3 weeks after beginning U.S. Army military training and increased for up to 8 weeks into training. Although clinical incidence of stress fracture tended to decrease beyond 8 weeks, incident stress fractures continued to present for 20 or more weeks following military entry. These observations may help guide military healthcare providers in terms of clinical practice for suspicion of stress fracture in service members, and could also have implications for sports medicine practitioners caring for members of the general public who have begun a novel physical training in regimen.

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Table 1. Participant Characteristics. Demographic variables are provided for soldiers who sustained a stress fracture during the first 6 months of their military career (Cases) compared to those who did not sustain a stress fracture (Non-cases). Numbers and column percentage are provided for each variable, except for age and body mass index (BMI), which are expressed as mean and standard deviation (SD).
Table 2. Incident stress fractures during the first 6 months of service in the Army for all Soldiers from 2005-2014. The percentage is the column percent for the specified location.
Table 3. Yearly stress fracture incidence over the study period from 2005-2014. The total number of incident stress fractures and incidence per 1,000 Soldiers is provided, as well as the number and incidence per 1,000 male and female soldiers is provided.
Figure 1. Weekly numbers and incidence of stress fractures (per 1,000 soldiers) over the first 26 weeks (6 months) of service in the Army. Pane A represents the number of stress fractures per week of service, and pane B represents the weekly incidence. Numbers and incidence are depicted for all soldiers (solid line) and separately for male (dashed line) and female soldiers (dotted line).
Figure 2. Survival curve for incident lower extremity stress fractures over the 6-month study period. The hazard ratio (HR) for lower extremity stress fractures in women versus men was HR=4.14, with 95% confidence interval [4.01, 4.27].
Appendix 1. Incident stress fracture diagnoses during the first 26 weeks of military service. The number and the incidence per 1,000 soldiers with 95% confidence interval (95% CI) are shown.
Table 1. **Participant Characteristics.** Demographic variables are provided for Soldiers who sustained a stress fracture during the first 6 months of their military career (Cases) compared to those who did not sustain a stress fracture (Non-cases). Numbers and column percentage are provided for each variable, except for age and body mass index (BMI), which are expressed as mean and standard deviation (SD).

| Stress Fracture Status | Cases (n=14,155) | Non-cases (n=686,872) |
|------------------------|------------------|-----------------------|
| Sex                    |                  |                       |
| Male                   | 8,042 56.8%      | 578,370 84.2%         |
| Female                 | 6,113 43.2%      | 108,502 15.8%         |
| Age, mean and (SD)     | 21.8 (3.5)       | 21.1 (3.2)            |
| Range (min, max)       | (17, 34)         | (17, 34)              |
| BMI, mean and (SD)     | 23.9 (3.4)       | 24.7 (3.5)            |
| Range (min, max)       | (17.76, 33.5)    | (18.0, 34.4)          |
Table 2. Incident stress fractures during the first 6 months of service in the Army for all Soldiers from 2005-2014. The percentage is the column percent for the specified location.

| Location of Fracture | Total (n=14,155) | Male (n=8,042) | Female (n=6,113) |
|----------------------|------------------|----------------|------------------|
| Tibia/Fibula         | 3,978 (28.1%)    | 2,805 (34.9%)  | 1,173 (19.2%)    |
| Metatarsal           | 1,429 (10.1%)    | 1,109 (13.8%)  | 320 (5.2%)       |
| Femoral Shaft        | 466 (3.3%)       | 290 (3.6%)     | 176 (2.9%)       |
| Femoral Neck         | 1,432 (10.1%)    | 737 (9.2%)     | 695 (11.4%)      |
| Pelvis               | 1,331 (9.4%)     | 295 (3.7%)     | 1,036 (16.9%)    |
| Unspecified/Other    | 5,519 (39.0%)    | 2,806 (34.9%)  | 2,713 (44.8%)    |
Table 3. Yearly stress fracture incidence over the study period from 2005-2014. The total number of incident stress fractures and incidence per 1,000 Soldiers is provided, as well as the number and incidence per 1,000 male and female soldiers is provided.

| Year | Total Cases | Total Denominator | Total Incidence | Male Cases | Male Denominator | Male Incidence | Female Cases | Female Denominator | Female Incidence |
|------|-------------|-------------------|-----------------|------------|------------------|---------------|--------------|-------------------|-----------------|
| 2005 | 1671        | 65475             | 25.52           | 886        | 54398            | 16.29         | 785          | 11077             | 70.87           |
| 2006 | 1605        | 74484             | 21.55           | 949        | 61729            | 15.37         | 656          | 12755             | 51.43           |
| 2007 | 1735        | 71275             | 24.34           | 1020       | 59462            | 17.15         | 715          | 11812             | 60.53           |
| 2008 | 1428        | 78854             | 18.11           | 849        | 65837            | 12.90         | 547          | 12811             | 42.70           |
| 2009 | 1515        | 72304             | 20.95           | 834        | 60605            | 13.76         | 681          | 11698             | 58.22           |
| 2010 | 1445        | 75361             | 19.17           | 884        | 63154            | 14.00         | 568          | 12207             | 45.96           |
| 2011 | 1497        | 64865             | 23.08           | 850        | 54348            | 15.64         | 647          | 10517             | 61.52           |
| 2012 | 982         | 65512             | 14.99           | 564        | 55363            | 10.49         | 418          | 10149             | 41.19           |
| 2013 | 1250        | 73214             | 17.07           | 627        | 61418            | 10.21         | 623          | 11796             | 52.81           |
| 2014 | 1027        | 59683             | 17.21           | 558        | 49979            | 11.16         | 469          | 9703              | 48.34           |
Appendix 1. Incident stress fracture diagnoses during the first 26 weeks of military service. The number and the incidence proportion per 1,000 Soldiers with 95% confidence interval (95% CI) are shown.

| Week | Number | Rate  | 95% CI       |
|------|--------|-------|--------------|
| 1    | 66     | 0.09  | 0.07, 0.12   |
| 2    | 296    | 0.42  | 0.38, 0.47   |
| 3    | 731    | 1.05  | 0.98, 1.13   |
| 4    | 1086   | 1.57  | 1.48, 1.66   |
| 5    | 1192   | 1.74  | 1.64, 1.84   |
| 6    | 1115   | 1.64  | 1.54, 1.73   |
| 7    | 1164   | 1.73  | 1.63, 1.82   |
| 8    | 1160   | 1.74  | 1.64, 1.84   |
| 9    | 965    | 1.46  | 1.37, 1.55   |
| 10   | 764    | 1.17  | 1.08, 1.25   |
| 11   | 850    | 1.31  | 1.22, 1.40   |
| 12   | 735    | 1.14  | 1.06, 1.22   |
| 13   | 671    | 1.05  | 0.97, 1.13   |
| 14   | 582    | 0.92  | 0.84, 0.99   |
| 15   | 524    | 0.83  | 0.76, 0.91   |
| 16   | 427    | 0.69  | 0.62, 0.75   |
| 17   | 337    | 0.54  | 0.49, 0.60   |
| 18   | 329    | 0.53  | 0.48, 0.59   |
| 19   | 235    | 0.38  | 0.33, 0.43   |
| 20   | 237    | 0.39  | 0.34, 0.44   |
| 21   | 201    | 0.33  | 0.29, 0.38   |
| 22   | 163    | 0.27  | 0.23, 0.31   |
| 23   | 152    | 0.25  | 0.21, 0.30   |
| 24   | 91     | 0.17  | 0.14, 0.21   |
| 25   | 62     | 0.16  | 0.12, 0.20   |
| 26   | 20     | 0.08  | 0.05, 0.12   |