Center for Military Readiness
— Policy Analysis —
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# New British Ministry of Defence Review Paper Shreds Case for Women in Ground Close Combat (GCC)

## Background & Overview

The **British Ministry of Defence (MoD)** has released a new report setting forth data and findings that make the case for exempting military women from assignments in **Ground Close Combat (GCC)** units. These are "tip of the spear" fighting teams such as the **infantry**, **armor**, **artillery**, and **Special Operations Forces** that deliberately attack the enemy. [1]

The 29-page December 2014 report, which highlights physiological differences, cohesion, and related factors having an effect on **combat effectiveness (CE)**, strengthens the case for continuing policies that the British military affirmed in 2002 and 2010. [2]

The British report explicitly defines Ground Close Combat and its demanding physical requirements, but the clarity of these statements is obscured by unsupported statements suggesting that some gender-integration problems described in the report could be "mitigated." [3]

The result is a conflicted document, but compelling facts and findings still prevail. When compared to empirical evidence regarding physical differences and risks discussed in the same document, recommended "mitigations" look like wishful thinking, not science-based analysis.

The report admits, *"[I]f the steps necessary to mitigate the risks are **grossly disproportionate in terms of time, resources and cost," lawful exclusion may have to remain in place."*** (p. 5, #18d) This is an understatement that should have used the word "will" rather than "may."

Still, the report reveals weaknesses in attempts to soft-peddle empirical evidence in the same document. For purposes of clarity and comparison, the **Center for Military Readiness** (CMR) has prepared this analysis of arguments on both sides of the issue.

- **Section A** provides excerpts of information that is most relevant to the debate in the **United States** as well as the **United Kingdom**.

- **Section B** analyzes various comments and recommendations on how to "mitigate" problems and risks described in the 2014 review paper.

Every use of the word "mitigate" in the MOD report pinpoints a problem, not an advantage. There are no benefits balancing the weight of costs and risks that detract from combat readiness and effectiveness. The burden of proof is on advocates of unprecedented changes affecting military effectiveness. The case for women in direct ground combat still has not been made.

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# Section A

***Higher Risks and Costs Do Not Justify Assignments of Women to Ground Close Combat***

If policies follow the facts, **direct ground combat (DGC)** units that engage in deliberate offensive action against the enemy should remain all-male. Officials in the **United States** as well as in Britain should give serious consideration to statements addressing the following subjects addressed in the 2014 Ministry of Defence report. (Original spellings are retained and emphasis is added throughout.)

**1. Definitions.** It is important to understand definitions of and characteristics of direct ground combat units such as the infantry. Missions of these fighting units go beyond the experience of being "in harms' way" in war zones, exposed to incident-related or contingent combat. The British report is refreshingly free of imprecise language suggesting that today's ground combat missions are not as physically demanding as they always have been, and will be in the future.

- **Combat Effectiveness (CE)**: "*In the context of this review, CE has been defined as*: '*The ability of a GCC team to carry out its assigned mission, role or function. The cohesion of a GCC team is a vital factor in its CE.'* (p. 2, #10*)*

- ***" 'The GCC Roles** are considered to be* 'those roles that are primarily intended and designed with the purpose of requiring **individuals on the ground to close with and kill the enemy.' "** (p. 2, #10)

- **Combat: The primary purpose of military forces.** *"Combat and the requirement to retain the ability **to close with and kill the enemy**, sets the context for this review.* ***When dismounted, this includes the requirement to deploy on foot over difficult terrain, carrying substantial weight, to engage in close quarter fighting, recuperate in the field and then do the same again repeatedly over an extended period."*** (p. 2, #11)

- **The nature and character of conflict.** *"This report recognizes that the nature of conflict is immutable; GCC will remain an intense, visceral and **unavoidably physical activity. Violent death, injury, all-pervading concussive noise, horror, fear, blood and high levels of emotion are common themes.** Combat exposes inadequacies and applies **manifold stresses** at individual, team and organizational levels. These stresses are likely to occur repeatedly throughout combat operations and require high levels of both mental and physical endurance."* (p. 2, #12)

**2. Workstrand outcomes**[to determine differences between combat roles].

- ". . . CE (Combat Effectiveness) was central to the review. Workstrands assessed as critical to the decision were **cohesion** (the basis for maintaining the exclusion in previous studies); and **physiology** (the area providing the newest objective evidence.)

- *"[Several workstrands] concluded that: the performance of women on the frontline in recent operations was comparable to that of their male counterparts in **CS (combat support)** and **CSS (combat service support) roles**.*

- *"They have experienced the intensity of combat on the frontline but by virtue of their employment,* ***women have not been in incidents where they have deliberately closed with and killed the enemy."*** (p. 3, #16)

**3. Poll of troops.** *"The internal poll (**10,943** replies to a non-targeted electronic poll of service personnel) on whether women should serve in GCC roles found **54% against, 34% for** and **12% unsure**; these findings were reflected in numerous focus groups and interviews."* (p. 3, #16)

**4. Combat effectiveness.** ***"The review studied 21 factors** that contribute to CE, of which **physiology and cohesion** are the most relevant."*

- "The review assessed that one of the factors will be improved by inclusion of women; seven neutral or multi-directional, **eleven are likely to have a negative impact on CE** and in **two the impact was unknown**. [4]

- ***"In three of eleven negative factors, mitigation would be a significant challenge: these are survivability, morbidity, and deployability, much of which are predicated by physiology.*** (p. 3, #17) **(**Details of these assessments are at Annex C, pages C-7 through C-9.)"

**5. Physiological differences.** ***"**The review has achieved a considerably **better understanding of the physiological differences** between men and women in the military. This is due to **significant improvements in the accuracy of data available** and the fact that the female cohort is both larger and more representative than that available to previous studies.*

- ***"In general, women have smaller hearts, about 30% less muscle, slighter skeletal structure and wider pelvic bones, resulting in less explosive power and upper body strength."*** (pp. 3-4, #18)

**Key findings are below:**

**a. Physical capability.** ***"**The physiological differences between the sexes **disadvantage women in strength-based and aerobic fitness tests by 20 to 40%;** so for the same output **women have to work harder than men.***

- *"Despite the differences, there will be some women, amongst the **physical elite,** who will achieve the entry tests for GCC roles. But these women will be more **susceptible to acute short term injury than men**: in the Army's current predominantly single sex initial military training, women have a **twofold higher risk of musculoskeletal (MSK) injury**.*

- *"The roles that require individuals to carry weight for prolonged periods are **likely to be the most damaging**.*

- *"The current physical training regime for ground close combat roles is optimised for a male cohort; the training **has been proven to be effective** in the most demanding of operational environments."* (p. 4, #18a)

- *"Adult women are typically **shorter** (~17%), **lighter** (~16%), have **less muscle** (~30%), **more fat** (~28%) and **smaller bones** than men. These differences are underpinned by the actions of sex hormones released in puberty. Women also have **smaller hearts**, **lower oxygen carrying capacity of the blood** (hemoglobin concentrations) and **different muscle***

***composition***. *These anatomical and physiological characteristics* ***disadvantage women*** *in physical performance."* (Annex B, p. B1, #3) [5]

- *"Female recruits perform at a* ***significantly lower level*** *than men on physical performance tests and military occupational tasks. . .* ***the heavier the load carried, the greater the decrement."*** (Annex B, p. B1, #4, #5)

**b. Morbidity and deployability.** ***"Morbidity is the incidence of disease or injury*** *in a cohort of the population. Research indicates that the physical demands of GCC roles could result in* ***chronic long term risks to the health of women employed in GCC roles***.

- *"For instance;* ***regular periods of energy deficit, which occurs during periods of high energy expenditure, such as robust training and operations, can affect both reproductive and skeletal health.***

- ***". . .****Furthermore, the demands of the GCC roles are unique; for instance, the experiences of elite endurance athletes are* ***inherently different*** *in that* ***athletes are not required to meet the requirements of high readiness*** *or to optimise their fitness levels to meet the requirement of* ***unforeseeable contingent operations***.

- *". . . On recent operations women experienced a* ***15% to 20% higher rate of Disease Non-Battle Injury (DNBI).*** (p. 4, #18b)

- *"The high and unaccustomed physical demands of initial training are associated with increased risk of Musculoskeletal injury (MSK) injury in recruits. The overall risk of MSK injury is higher for women, reaching* ***seven fold*** *in some studies of British Army training."* (Annex B, p. B1, #6) [6]

- **Trauma.** ***"****In spite of these interventions and with the majority (88%) of female recruits carrying 15 kg in training:* ***the rate of trauma and overuse lower limb MSK remains two-fold higher in women*** *and the rate of* ***hip and pelvic stress fractures is ten-fold higher in women*** **(2.8 per 1000** ***vs.*** **28.1 per 1000 trainees)**." (Annex B, p. B2, #9)

- **Stress fractures.** ***"****The rate of hip and pelvic stress fractures in men during the* ***Combat Infantryman's Course (CIC)*** *is* ***25.3 per 1000*** *trainees. The risk of hip and pelvic stress fractures to women should they undertake the CIC is estimated to be* ***250 per 1000 trainees (or 1 in 4 female Infantry trainees)***." (Annex B, p. B2, #10)

- **Load carriage**. *"US research in a deployed population showed that* ***a women's risk of injury increases five-fold*** *if the heaviest weight carried is* ***> 25% of body weight***. *The loads carried in some GCC units would* ***significantly exceed*** *this."* (Annex B, p. B2, #11)

c. **Survivability and lethality.** ***"****Survivability in combat is, in part,* ***predicated by physiology***. *The* ***Infantry Battle School*** *and* ***Defence Science & Technology Laboratory (DSTL)*** *have conducted a number of* ***qualitative studies*** *into load carriage, examining impacts on lethality and survivability.*

- *"These studies suggest that the relative strength of women, compared to men, when carrying the combat load are likely to result in the* ***early onset of fatigue. This is likely to result in a distinct cohort with lower survivability in combat.***

- *"Similar research points to a **reduced lethality rate**; in that **combat marksmanship degrades as a result of fatigue** when the combat load increases in proportion to body weight and strength.*

- ***"The risks regarding survivability are therefore relative; these are about biology rather than character."*** (p. 4, #18c)

- **Numbers.** ***"4.5%** of women enlisting in the British Army are able to achieve all three [physical employment] standards, compared with **90%** of all men qualifying for **non-Infantry/RAC** occupations. **Figures for the Royal Marines will be substantially lower since the physical standards are more demanding**."* [7] (Annex B, p. B2, #14)

- **Upper body strength.** ***"**Women exhibit disproportionately lower strength on the single lift, with **5.4%** achieving Infantry / RAC standards. Lifting involving upper body strength is a principal (88% of all tasks) manual handling task of the British Army*." (Annex B, p. B2, #15) [8]

- **Gender free.** ***"**At present validated **'gender free'** employment standards to monitor the suitability of women to perform GCC roles **do not exist in the Field Army**."* (Annex B, p. B2, #17) [9]

d. **Medico legal implications.** ***"The severity of the physiological impacts on women may be such that Defence is required to retain an exemption from women serving in some or all GCC roles, most notably those that are dismounted."*** (p.5, #18d)

- *"To include women in GCC roles without further scientific review and the examination of **whether any such risks to them could be reduced could expose Defence to significant legal risk of personal injury claims** (either under the common law of negligence and/or breach of statutory duty).*

- *"If this research demonstrates that the steps necessary to mitigate the risks are **grossly disproportionate in terms of time, resources and cost, lawful exclusion may have to remain in place."*** (p. 5, #18d)

- ***Commando Training**. The **Institute of Naval Medicine (INM)** has collated a substantial store of data concerning the physiological impact of Command Training on male recruits. . .For a **RMGS [Royal Marines General Service]** recruit to have **at least a 50% chance** of successfully completing RM Commando Training in its current form, they should possess [certain minimum] standards at the start of training. [10] (Details are in Annex B, p. B2, #19)*

- *[P]oor aerobic fitness, low body mass and low bone strength are **risk factors for stress fracture injury,** which would be **more prevalent in female trainees compared to males** . . . Further, **as yet unknown risks** to females undertaking GCC roles are likely. . . [and] a higher rate **(more than 60%)** of medical discharge for females compared with males would be anticipated."* (Annex B, p. B3, #20)

- **Downgrading and discharge.** ***"**Overall, female military personnel have a higher percentage of **downgrading (excluding pregnancy) than men by about 10%."*** (Annex B, p. B3, #23)

- **Pregnancy.** *"British female soldiers have a **greater risk of MSK injury during the first 12 months postpartum than before pregnancy**. The reversible bone loss associated with pregnancy takes up to **24 months postpartum** to fully recover. **Undertaking strenuous training with heavy loads during this period will increase the risk of skeletal injury."*** (Annex B, p. B3, #24)

- **Health risks.** *"...Whilst women **have not been employed in GCC roles**, research may indicate that the more extreme of these roles could have an impact on **reproductive function and bone health**. The immediate risk is **stress fracture injury** with training, and potential chronic risks may include **irreversible bone fragility and infertility**."* [11] (Annex B, p. B4, #26)

- **Post Traumatic Stress Disorder.** *"British female soldiers present with mental health problems more frequently than male soldiers (**15%** among women compared with **6.8%** among men), but fewer serving women report PTSD. . . PTSD is a specific mental health diagnosis that is presented more frequently amongst combat troops. It is hypothesised that women exposed to direct combat may suffer a **higher rate of PTSD than their male counterparts . . .**"* (Annex B, p. B4, #29)

**6. Cohesion.** *"The judgement on whether cohesion is reduced in mixed-gender teams remains finely balanced. There is empirical data to suggest that **competence, leadership and collective training** are key determinants in effective integration. (p. 5, #19)*

- *"The basis of the retention of the exclusion in both 2002 and 2010 was the potential impact of gender-mixing in small teams in GCC environments. . . [I]t was the view of military judgement that **under conditions of high intensity close quarter battle, team cohesion** is of such significance that the employment of women in this environment would represent **a risk to CE and no gain in terms of CE to offset it.** (Annex D, p. D-1, #2)*

- *". . .**[N]o substantial evidence has been identified to challenge the findings of the 2002 or 2010 studies and their findings remain valid**." (Annex D, p. D-1, #3)*

- **Function of Unit Cohesion.** *"Cohesion is reliably associated with performance, including CE. It has an effect on group performance, rather than individual performance and also has a positive effect on job satisfaction, retention, well-being and discipline. Cohesion has an important buffering effect on unit stress whereby the negative relationship between stressful conditions and performance will be less where there is high cohesion."* (Annex D, p. D-1, #4)

- **Relationship between cohesion and CE.** *"Newer evidence continues to support the assumption that cohesion is a key determinant of unit performance, but **the causation partly goes from performance to cohesion, rather than the reverse."*** [12] (Annex D, p. D-2, #5)

**7. Gender and safety culture.** *"There is a clear link between gender and safety culture. When women work in male dominated jobs, where behaviours normally associated with toughness and strength are generally preferred, **women may need to act like men to fit in**, rather than having their different needs and capabilities recognised. The attitudes towards women at all levels within an organization will have an impact on safety."* (Annex D, p. D-2, #10)

*1.* **GCC recruiting.** *"Analysis of recent female Army entrants indicates that **4.5%** passed to the physical standards required to start infantry training.*

- *"**Recruiting Group (RG)** judges that approximately **10 entrants a year** will join the Infantry and **approximately 20** will join the **RAC (Royal Armored Corps)**.*

- *"Figures for the **RAF Regiment** are comparable with the Infantry and the RMGS estimate that up to **six women** could pass training annually. Based on the number of male candidates that fall out during training (which tend to be lower than female rates), this would result in **about 60 women serving in the Infantry and 150 in the RAC after 24 years** (the length of a full career)."* (p. 5, #20)

- The report added, ***"[Pass figures] for the Royal Marines will be substantially lower since the physical standards are more demanding."*** (Annex B, p. B2, #14)

**Conclusion:**

For purposes of clarity and comparison, the Center for Military Readiness has separately analyzed a number of statements in the 2014 British Ministry of Defence Report that speculate about ways to "mitigate" the problems listed above. **Section B** of this CMR Policy Analysis is posted on the CMR website, **www.cmrlink.org**.

The international discussion regarding women in land combat should view these issues as matters of national security, not social policy. Data and findings about human physiology presented in the MoD report are very important, but the full range of controversies make an even more convincing case for maintaining sound personnel policies in the United States and all allied forces. To show true respect for our women in uniform, members of Congress should consider all the facts and codify sound policies that support both women and men in the combat arms. ■

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1. Women in Ground Close Combat (GCC) Review Paper – 01 December 2014, available at: https://ww.gov.uk/government/uploads/system/uploads/attachment_data/file/389575/20141218_WGCC_Findings_Paper_Final.pdf.

2. Posted in the "Essential Resources" section of the CMR website www.cmrlink.org are previous MoD reports published in 2002 and 2010. The 2014 MoD report does not change current policies exempting women from GCC units, but it calls for further study of research being done in the American armed forces. **President Barack Obama** has ordered administrative repeal of all women's exemptions from combat arms units by January 2016, unless the various services ask for exceptions based on current research initiated in the **Marine Corps** and **Army**.

3. The contradictions appear to be the result of an **"Equality Analysis"** that was done prior to the report's release last December, in order "*to ensure that the outcome does not have a **disproportionate impact** on those in the Protected Characteristics groups."* (p. 3, #15) That phrase is often used in litigation demanding gender diversity quotas.

4. The sole factor judged to be "positive" was "Collective Work Experience," with the comment, *"Collective work experience will mitigate the effects of diversity in team cohesion."* The comment reflects confusion about differences between gender and racial diversity. Racial differences are only skin deep, and irrational prejudice was mitigated faster in the military than in the civilian world due to shared experiences in battle. Differences related to gender, however, are profound and related to physiological factors that are important for mission accomplishment and survival in battle. Annex C charted seven "Neutral or Multi-directional" factors, all of which were speculative and debatable (with the exception of "Courage.") The remaining six included Task Commitment, Discipline, Motivation & Group Commitment, Courage, Peer Support, Collective Social Experience, and Morale. The eleven factors likely to have a negative impact were Skill-Based Credibility, Male/Female Interaction, Concept of Protection (meaning, *"Males are biologically predisposed to protect*

*females"*), Survivability/Lethality, Deployability, Sexual Relationships, Physical Capability, Mental Health, Morbidity, Critical Mass & Tokenism, and Bullying, Harassment, & Discrimination. Unknown factors were: Controlled Aggression and Mental Resilience. Balancing all 21 factors on a metaphorical scale leads to a logical conclusion: lawful exemption of women from ground close combat assignments should remain in place. (Annex C, pp. C-7 through C-9)

5. *"Female recruits perform at a significantly lower level than men on physical performance tests and military occupational tasks. On average, decrements are: a) 19% vertical jump test; 25% explosive power14; and 41% maximal dynamic lift strength, and b) 31% single lift; 13% jerry can carry. Women have disproportionately lower upper body strength than men (~40%) compared to the lower limbs (~20%) and perform to a significantly lower standard than men on loaded marching tasks. This is in the range of 11 to 38%; the heavier the load carried, the greater the decrement."* (Annex B, p. B1, #4, #5)

6. **Aerobic fitness.** *"The greater risk of MSK injury in women is generally attributed to their lower aerobic fitness on entry to training. Anatomical features, including shorter stature and wider pelvis, may also predispose women to a greater risk of hip and pelvic injuries."* (Annex B, p. B1, #7)

7. **Physical Employment Standards.** *"The Physical Selection Standards for Recruits (PSS(R)[established in 1998] (single lift, jerry can carry and 1.5 mile run) have been validated against three Representative Military Tasks (lifting, carrying, marching) across all military occupations. . . The Physical Entry Standards for Recruits are **highest for the GCC**."* (Annex B, p. B2, #12)

8. **Fitness tests (FT).** *"Employment standards in the Field Army are assessed using the Annual FT, a single loaded march performed over 8 miles in 2 hours; the load varies by occupation. The Infantry carry the heaviest load of 25 kg."* (Annex B, p. B2, #17)

9. Strength deficiencies described above were determined with gender-normed (also known as "gender-fair") requirements and scores. It is therefore reasonable to expect that performance gaps would be even larger if tests were "gender-free" or "gender-neutral," as they are described in the United States.

10. **Commando Training.** *"The Institute of Naval Medicine (INM) has collated a substantial store of data concerning the physiological impact of Commando Training on male recruits. INM has analysed this data, considered previous studies and provided advice on the likely physiological impact of Commando Training on females16. For a RMGS recruit to have at least a 50% chance of successfully completing RM Commando Training in its current form, they should possess at the start of training: a. An aerobic fitness (assessed from maximum oxygen update, VO2max) of more than 51 ml.kg-1min-1; b. Body mass should be 70 kg or heavier; c. Body Mass Index (BMI) should fall between 23 – 29 kg.m-2; d. Percentage body fat should be between 7% – 15%; e. Maximum calf girth greater than 36 cm; f. Thigh girth greater than 48 cm."* (Annex B, p. B2-B3, #19)

11. **Infertility.** *"It is hypothesised that menstrual changes commonly reported during US initial military training of longer duration (1 year) may occur with periodic chronic exposures to austere Infantry operational and training conditions, with possible risk of infertility and impaired bone health."* (Annex B, p. B4, #28)

12. Unlike academic discussions comparing "social" and "task" cohesion, the 1992 **Presidential Commission on the Assignment of Women in the Armed Forces** recognized two types of cohesion that are essential for combat effectiveness. Vertical cohesion is the bond between commanders and the troops they lead, while horizontal cohesion is *"mutual trust and dependence for survival."* Cohesion is not about being liked or working on shared tasks in a civilian professional setting. Commission Finding 2.5.1 describes it as follows: **Characteristics of Cohesion**. Cohesion is the relationship that develops in a unit or group where (1) members share common values and experiences; (2) individuals in the group conform to group norms and behavior in order to ensure group **survival** and goals; (3) members lose their personal identify in favor of a group identity; (4) members focus on group activities and goals; (5) unit members become totally dependent on each other for the completion of their mission or **survival**; and (6) group members must meet all standards of performance and behavior in order not to threaten group **survival**." (Presidential Commission Report, p. C-80)

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