

# Integrating women into ground close combat roles: an opportunity to reflect on universal paradigms of arduous training

Karl E. Friedl <sup>1</sup>, Robert M. Gifford <sup>2</sup>

At a stroke, opening infantry roles to women has introduced a biological dimorphism among soldiers, with profound implications at every level, from metabolism and endocrinology, to fitness and strength, to psychology and ethnography.<sup>1,2</sup> As women begin to pioneer these roles, medical officers and policymakers the world over might pause to question our traditional rites of passage into the military: why are soldiers trained to breaking point?

The personal view of Lt Col Fieldhouse and Dr O’Leary<sup>3</sup> helpfully contrasts Israel Defense Forces (IDF) policy with the UK’s recent full integration of women into ground close combat (WGCC) roles. This comparison is salutary for the many nations now introducing WGCC, which may have upheld the IDF as a ‘gold standard’ in this domain. Musculoskeletal injury rates were higher among women than men (even though women were employed in less elite roles); however, retention rates were high among IDF women, perhaps relating to motivation for combat roles.<sup>3</sup> A rigorous scientific process has recently been used to develop physical employment standards (PES), but not to develop compressed physical training. Injuries caused by compressed training do not appear with the same high incidence in subsequent military careers.<sup>4</sup> Training paradigms, typified by idioms like ‘breaking down to build up’, are common to many nations but have evolved without (as far as we are aware) any evidence of improved length of service or prevention of adverse outcomes for men, at whom they are directed. Such paradigms may be even less suited to women.

When the IDF created the Caracal Battalion with new combat roles for women in 2004, they immediately put

women through standard male training and incurred a 30% stress fracture prevalence; with a little more military medical consultation, this was halved in the following year (personal communication). Several years later, rates remained tenfold higher for women than for men in the same training (21.0%, 95% CI 16.2% to 26.5% vs 2.3%, 95% CI 0.3% to 8.2%).<sup>5</sup> In reality, IDF WGCC policy is more nuanced than the UK and many other nations (likely a reflection of Israel’s unique geopolitical circumstances); however, the basic tenets of training are generalisable. Fieldhouse and O’Leary<sup>3</sup> identified incongruity between physical and cognitive outcomes of IDF WGCC training, which highlights the disconnect between how training of the body and mind has historically been considered.

The highest priority in preparing today’s recruits to become soldiers is not just to achieve physical robustness but to concurrently instil core values, ethics and self-management skills, bringing young men and women with a wide variety of educational and experiential backgrounds to a common level of expected behaviours and personal responsibility.<sup>6</sup> The future warfighter is likely to rely more on cognitive than corporeal dominance to defeat his or her enemy (Figure 1). A new training paradigm should therefore seek to create

a culture which considers recruits’ fitness of mind and body simultaneously, moving towards ‘smart fitness’ without losing the concept of a fitness culture.

Aerobic fitness is associated with improved cognitive function and military task performance.<sup>7</sup> The cerebral benefits of exercise, including stimulating dopaminergic centres to reduce apathy and increase motivation, highlight its importance for military training, not to mention increases in brain-derived neurotrophic factor and insulin-like growth factor 1, with all the important benefits to brain resilience.<sup>8</sup> ‘Cyber-soldiers’ of the near future will benefit from fitness training which will give them a competitive edge for decision making in highly stressful conditions.

Sleep restriction is a rite of passage for military training, but there is mounting evidence that this is contrary to learning and memory retention, work performance due to critical lapses in attention, musculoskeletal remodelling and repair, and military task performance.<sup>17,9</sup> A recent study in British recruits demonstrated a fourfold increase in upper respiratory tract infection rates for individuals taking less than six hours of sleep per night.<sup>10</sup> Since sleep is important for mental and physical fitness, perhaps we should reconsider the role of tiredness during training and do more to protect sleep.

Building resilience necessitates impactful psychological stress, but not all stress contributes to advantageous training. An external locus of control (feeling unable to influence one’s circumstances) is associated with low self-esteem, reduced hippocampal volume, adverse endocrine responses to stress (especially among women), and manifold adverse work and health-related outcomes in the long term.<sup>11-13</sup> Such outcomes among

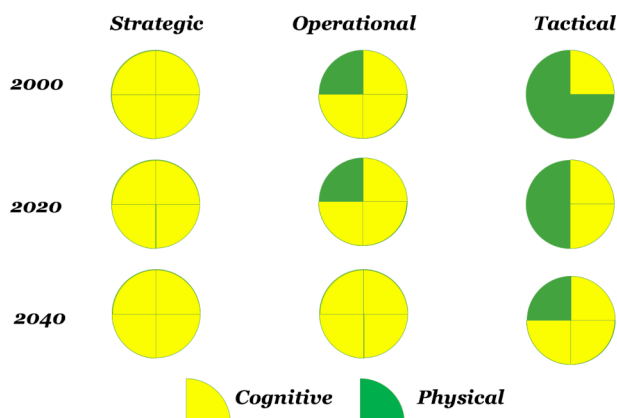


Figure 1 Cognitive and physical components of current and predicted future warfighters (courtesy of Dan Billing and Graham Fordy<sup>21</sup>).

<sup>1</sup>Science & Technology Office, US Army Research Institute of Environmental Medicine, Natick, Massachusetts, USA

<sup>2</sup>Academic Department of Military Medicine, RCDM, Birmingham, UK

Correspondence to Karl E. Friedl, US Army Research Institute of Environmental Medicine, Natick, Massachusetts, USA; karl.e.friedl3.civ@mail.mil

recruits may not need to be induced in order to ‘manage their expectations’. As a counterpoise to an externalised locus of control, trainers could consider mindfulness training. Experiences from France and the UK have shown a number of ways in which mindfulness training not only improves physiological adjustment to stress but could protect against the consequences of psychological trauma exposure in future deployments.<sup>14 15</sup>

We would argue the time is nigh for arduous training to be afforded the same evidence-based redesign as PES. The dramatic change from ‘business as usual’ created by the current pandemic has created necessary space for innovation and the opportunity to accelerate implementation of changes, for example, more effective virtual training and gaming challenges for a millennial generation of recruits.<sup>16 17</sup> Innovations could similarly be harnessed to move from current attritional training approaches to more holistic ‘battlemind’ (ie, battlespace-facing, mind and body focused) training. Holistic training would be more equitable, mitigating unnecessary physiological disadvantages for women. Sex disparities in physical fitness and injuries could become irrelevant—artefacts of a bygone era—while embracing the complementarity of the sexes would greatly increase the cognitive strength of the fighting force. For example, women demonstrate greater awareness of risk than men,<sup>18</sup> which translates into lower rates of environmental heat illness.<sup>19</sup>

Many such changes are already afoot. When Army-wide physical fitness testing recommences in the USA following the initial pandemic response, the Army Combat Fitness Test will be the new test of physical fitness, and the old test that emphasised running will be abandoned. As training programmes centre on what is tested, this six-component test will cause training programmes to become more varied and appropriate to relevant principles of physical training, including strength and agility.<sup>20</sup> Likewise, following new UK PES for ground close combat roles, the Soldier Conditioning Review is the metric for evaluating physical fitness, which is focused on whole-body fitness rather than running ability. These will provide an opportunity to re-evaluate skills and fitness levels that are required

and sustainable in subsequent Army service. Modernised physical training based on scientific principles, along with integrated concepts of training sleep discipline and mindfulness skills, could prove to be the greatest human performance enhancers yet applied to warfighters.

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**ORCID iDs**

Karl E. Friedl <http://orcid.org/0000-0002-3134-8427>  
Robert M. Gifford <http://orcid.org/0000-0002-6248-6400>

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