Consideration of Ethical Implications in Generating Super Soldiers

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Responsibility of Army to Soldier

- 1) Do no harm to The Soldier whether intentionally or by ignorance
- 2) Preserve the Mental and Physical Wellness of the soldier from accession to normalized old age (life span to 100 anticipated)
- 3) Acknowledge that the Soldier can not give informed consent. In a command environment
Individual Autonomy vs Homogeneous Group Needs

• Individual capabilities vary: therefore need extensive training to achieve a standard of physical/cognitive performance enabling success of mission.

• Dietary supplements, pharmaceuticals and physical supports that have a transient effect on Soldier (days)Performance are ethically reasonable.

• This is current state, not Super Soldier related.
When do Ethical Concerns Arise

• 1) At the point where physical/structural modifications to the healthy human being results in long term (years) non reversible changes (e.g. Limb amputation, neural degeneration, long term muscle atrophy)

• 2) At the point where long term cognitive/psychological/behavioral changes are induced by physical modifications

• 3) When long term adverse consequences (30 or more years after separation) occur from the modification experienced by Super Soldier from Army directives
Known Adverse Outcomes from Invasive Modifications of Humans

• 1) Receptor up or down regulation seen following pharmaceutical treatment with anticholinergics (tardive dyskinesia)

• 2) Infections/gliosis/bleeds following deep brain stimulation for managing Parkinson Syndrome (seen in about 20% of persons with Parkinson Syndrome)

• 3) Psychiatric and pain responses following limb amputation (e.g. Oscar Pistorius-high performer)
Justification for Major Invasive Modification

• 1) Permit partial recovery of function in a patient with major health problems (e.g. movement disorders like Parkinsons, brain injury recovery with implanted electrodes)

• 2) The requirement is full consideration of COST/BENEFIT to the patient. All procedures have a cost. How much does the patient benefit
Particular Considerations for Military Applications

• 1) Our Soldiers are physically and mentally at a high state of wellness.

• 2) Soldiers are active between 18-40 years of age. This means we must not compromise their function for 60 years after separation from Army. Fiscal, social, and ethical issues

• 3) What justification can be given for extreme invasive manipulation?
Potential Arguments for Extreme Modification

Potential Positives
• 1) Increased survival of operator
• 2) Increased mission completion
• 3) Parity with adversary

Negative aspects
• 1) Survival of legs amputees likely higher than that following major invasive brain treatment. E.g. Singularity notion
• 2) Devastating consequences of limb amputation and cognitive loss on public perception of Army actions
• 3. Increased Expectations of Commander may create higher risk for Soldier; therefore no increase in survival
Ethical rules from NATO Sofia: less than total war

1. Is the intervention truly informed and voluntary?

2. Is the intervention safe for the individual and the operational environment? Operational environment meaning collateral damage, threat to friendly forces, and the like.

3. Is the intervention consistent with “safe” use as determined by science? For example, on label doses and use of pharmaceuticals.

4. Has due diligence been applied in that all other alternatives have been exhausted. This is mostly a leadership issue in employment of soldiers and equipment in battle. Are there other tactics, strategies, techniques or procedures that could be applied to meet the end state?