

M-4 TTS (Therapeutic Trigger Simulator)

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Invented by SGT Christopher Burcalow at the Evans Army Community Hospital, the M-4 TTS (Therapeutic Trigger Simulator) is a representation of a combat rifle modeled after the M4, and is an invention that relates generally to a method and apparatus for the rehabilitation of damaged fingers and in particular to a trigger device replicating that typically found in firearms.

The function of the M4 TTS is to simulate the action of pulling the trigger which is accomplished when the TTS is attached to the BTE (Baltimore Therapeutic Equipment) machine. This machine has the ability to operate in concentric/eccentric modes, which means that when the trigger is pulled, it automatically returns to the starting position allowing for infinite trigger pulls. The BTE machine allows for various resistances to be used. The patient could start out pulling the trigger with no resistance and slowly build up the strength to pull it through the actual pounds it takes to operate an average rifle. The TTS also works stand alone without being attached to the machine to simulate the weight and feel of a rifle. Soldier can work on positioning, rotating the various knobs, and pulling the charging handle.

All in all, the vision for the M4 TTS was to provide a cheap and space effective way to simulate the use of a rifle, eliminating lengthy time expensive trips to the post weapons simulator, keeping the hospital security personnel happy by not having a weapon in the hospital, and allowing the soldier to build up confidence in a private, one on one setting.

The military medical use for this invention is to improve finger strength with a functional meaningful task versus rote exercises. Most upper extremity therapy has been proven to be more effective if patients with decreased functional performance participate in activities that are meaningful and purposeful. This is a tenant of much of the treatment occurring in the Army with upper extremity amputee/injuries. Soldiers have more "buy-in" to the therapy if it includes a component that simulates tasks they wish to return to. For an infantryman, pulling a trigger on the weapon is paramount to returning prior function.

The invention will be used primarily in upper extremity rehabilitation for temporary or permanent injury / amputation and work hardening. Even with a partial finger amputation (up to 2 out of 3 joints) the residual finger could still be used or other fingers could be strengthened to complete the task.

A prototype exists and there is an obvious potential licensee (BTE - Baltimore Therapeutic Equipment). All of the Occupational Therapy clinics in the ARMY's five MEDCENs have a BTE machine and many smaller clinics have this equipment.

Commercially, the TTS has the ability to be used in any occupational therapy, physical therapy, or rehabilitation setting. Virtually every Occupational Therapy practice has a BTE in their inventory. This machine is the bread and butter of rehabilitation. As an attachment to the BTE, the TTS would be an invaluable tool for any therapist. The TTS could be used in vocational rehabilitation with civilians who are peace officers, or anybody else who operates any kind of weapon. Anybody could use it if one of their leisure skills was hunting. The shell models the M4 but it can be interchanged to whatever type of rifle or handgun the clinic chooses is most suited for the patient.