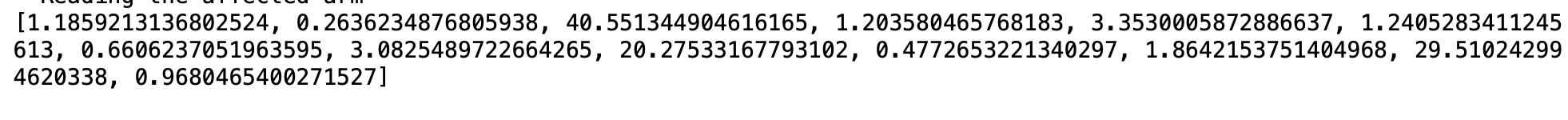
**Here is the Scatter plot with linear fit for M2 values and Therapist assessed MAL scores.**

**A graph of a graph with blue dots

Description automatically generated with medium confidence**

**The computed M2 values for affected arm are:   
**

**Pros of Using Accelerometer measures over FMA and MAL:**

1) Accelerometer measurements provide objective and quantifiable data on arm activity, allowing for a more accurate assessment of movement intensity and duration compared to conventional approaches like the Fugl-Meyer Assessment (FMA) and Motor Activity Log (MAL) (Noorkõiv et al., 2014).

2) FMA and MAL test in controlled settings, but accelerometers capture arm activity in a real-world, unstructured setting, providing valuable insight into a person's habitual home performance over multiple days (Bhatnagar et al., 2020).

3) Accelerometers can be used remotely to monitor arm function throughout a rehabilitation intervention. while FMA and MAL need in-person evaluations.

**Cons When Using Accelerometer measures over FMA and MAL:**

1) Some correlations between accelerometer measurements and clinical tests may be disrupted by disproportionately high use of the nonparetic arm. This can affect the accuracy of the measurements and their correlation with functional outcomes (Bhatnagar et al., 2020).

2) Accelerometers are relatively newer, so more studies are needed to prove their efficiency, whereas FMA and MAL have been traditionally used and studied for a longer period.

**Scenario:**

If a person is a young stroke survivor, who is interested in VR games. Then the therapist can introduce a virtual reality (VR) game designed to aid arm rehabilitation. The FMA and MAL methods can be used bi-weekly at the clinic to track the patient progress in standard motor tasks and gauge his/her perception of arm usage. Simultaneously, the patient can wear an accelerometer tracking M2 values during his/her daily VR gaming sessions at home. The data from the accelerometer helps adjust the VR game's difficulty and motions, ensuring the patient getting optimal therapeutic benefit (Kim et al., 2018).

This constant stream of data is a reflection of macro-cognition in action; the patient’s cognitive processes are harnessed through engagement with complex, goal-oriented tasks within the VR environment. Distributed cognition is evident as both patient and therapist share the cognitive load through the interplay of VR experiences and clinical assessments. This approach creates a feedback loop where data analysis directly informs the personalization of therapy.

**References**

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