



# 認知症リスク

北里大学医療衛生学部  
リハビリテーション学科作業療法学専攻

鈴木誠

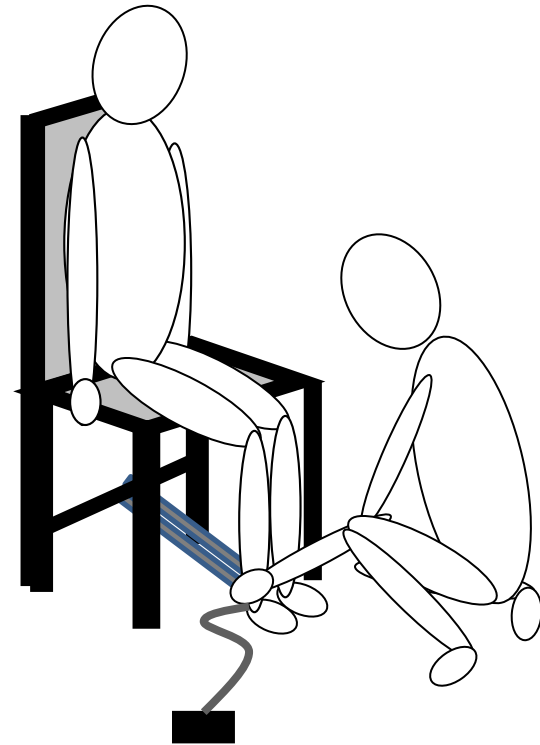
# 認知症者の筋力は測定できるの？

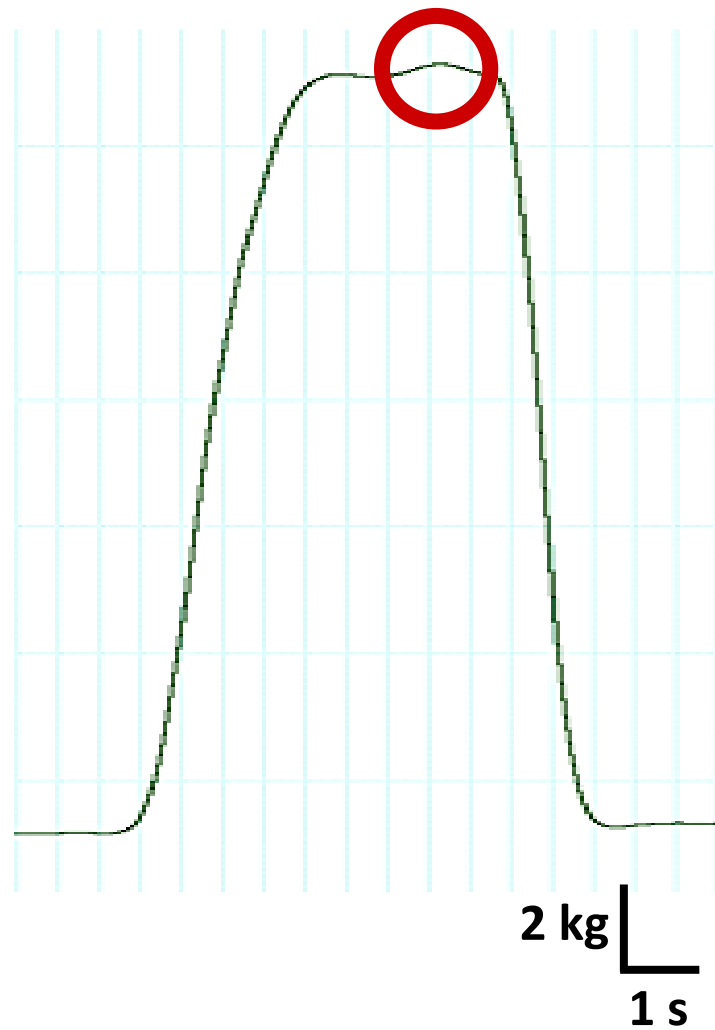
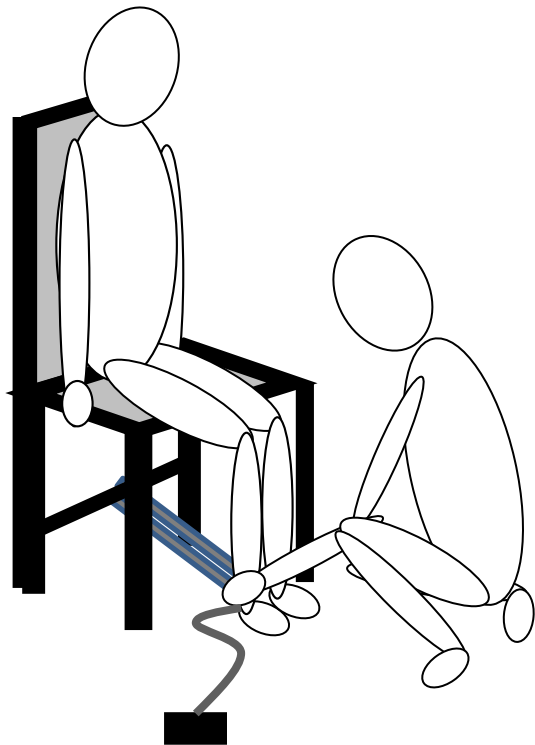
認知症者の筋力は生活動作と関連するの？

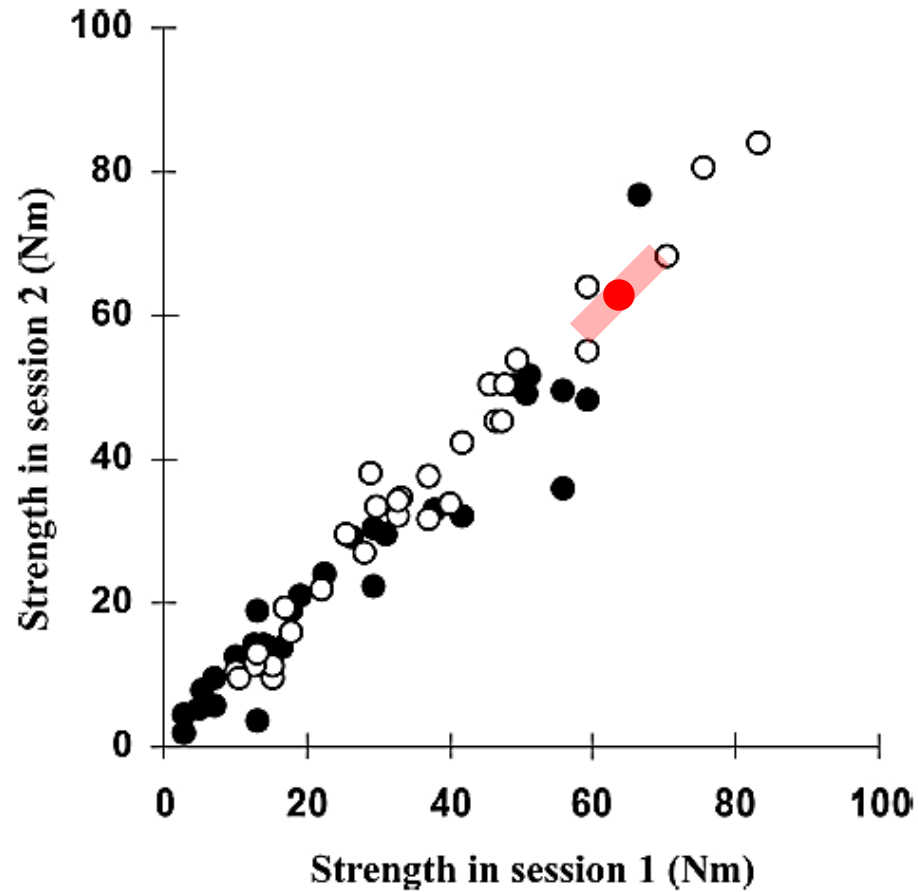
認知症者にトレーニングして効果があるの？



μTas F-100 アニマ







● : MMSE score  $\leq$  10点

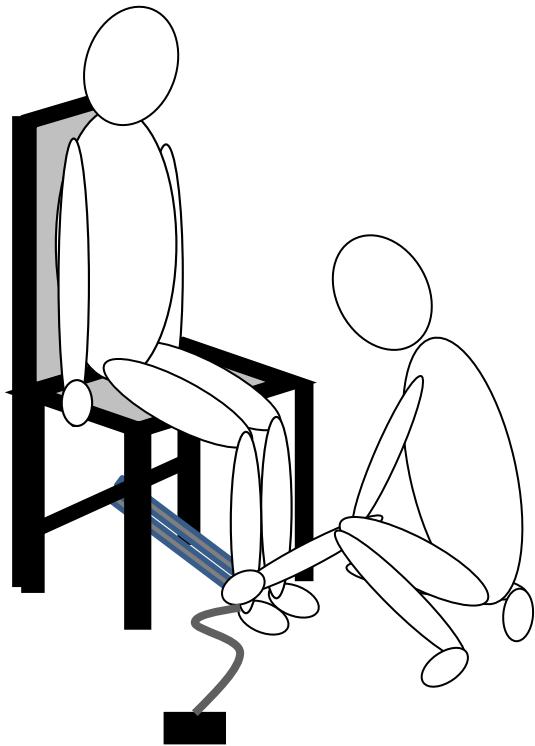
○ : MMSE score  $>$  10点

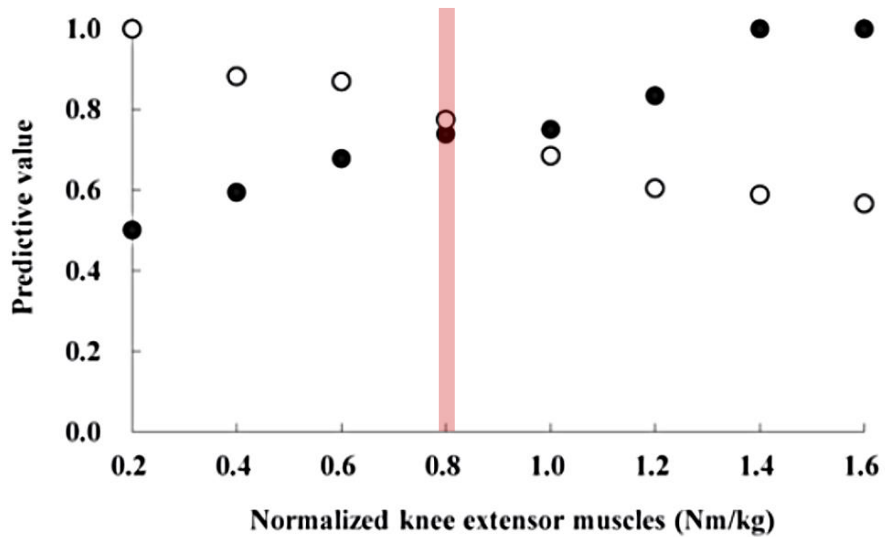
■ : 80歳代健常平均 $\pm$ 標準偏差

認知症者の筋力は測定できるの？

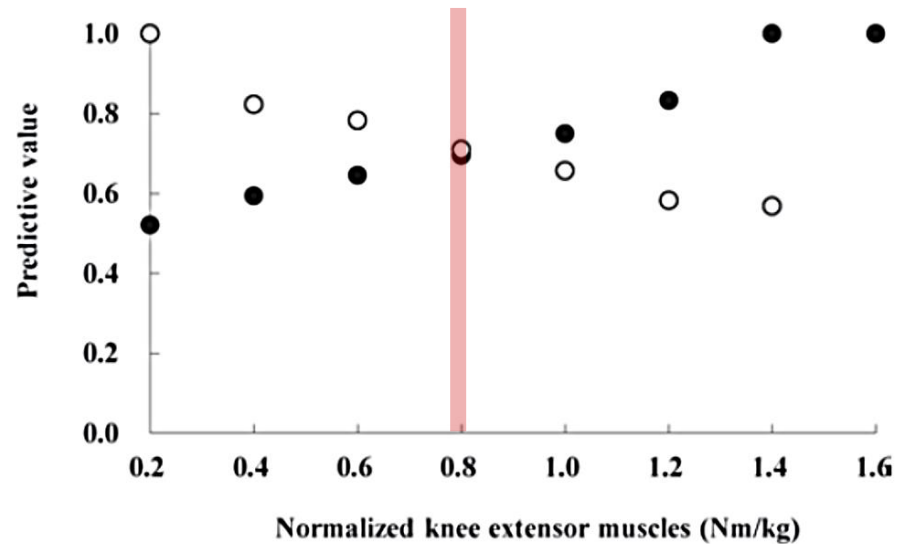
**認知症者の筋力は生活動作と関連するの？**

認知症者にトレーニングして効果があるの？

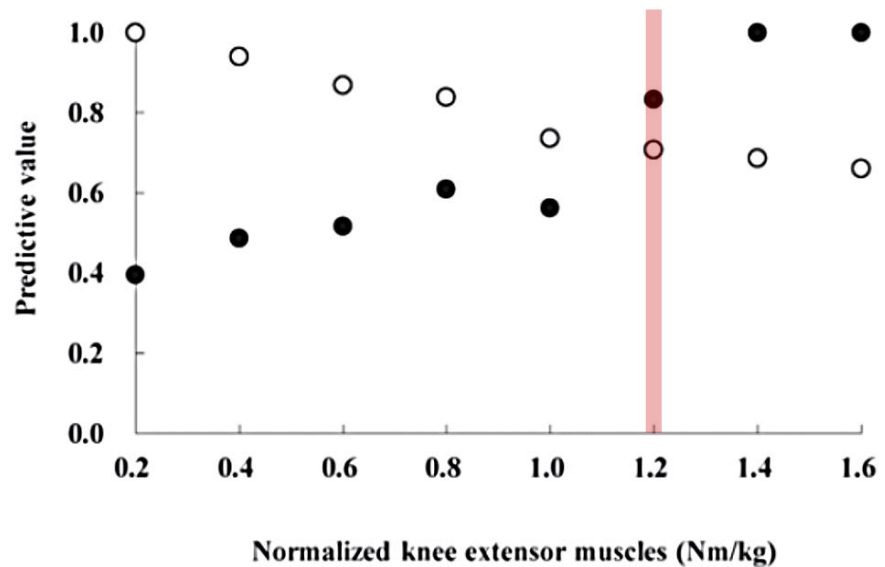




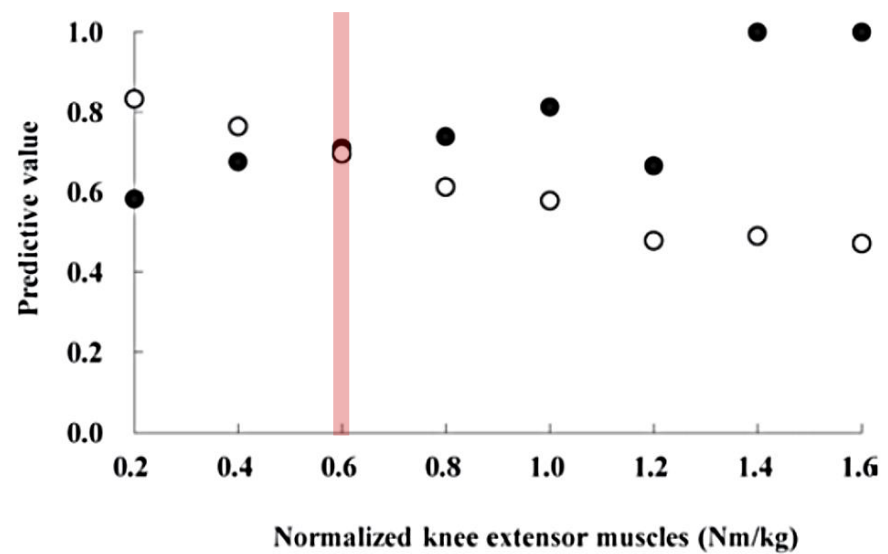
A. Predictive value for dressing lower body performance



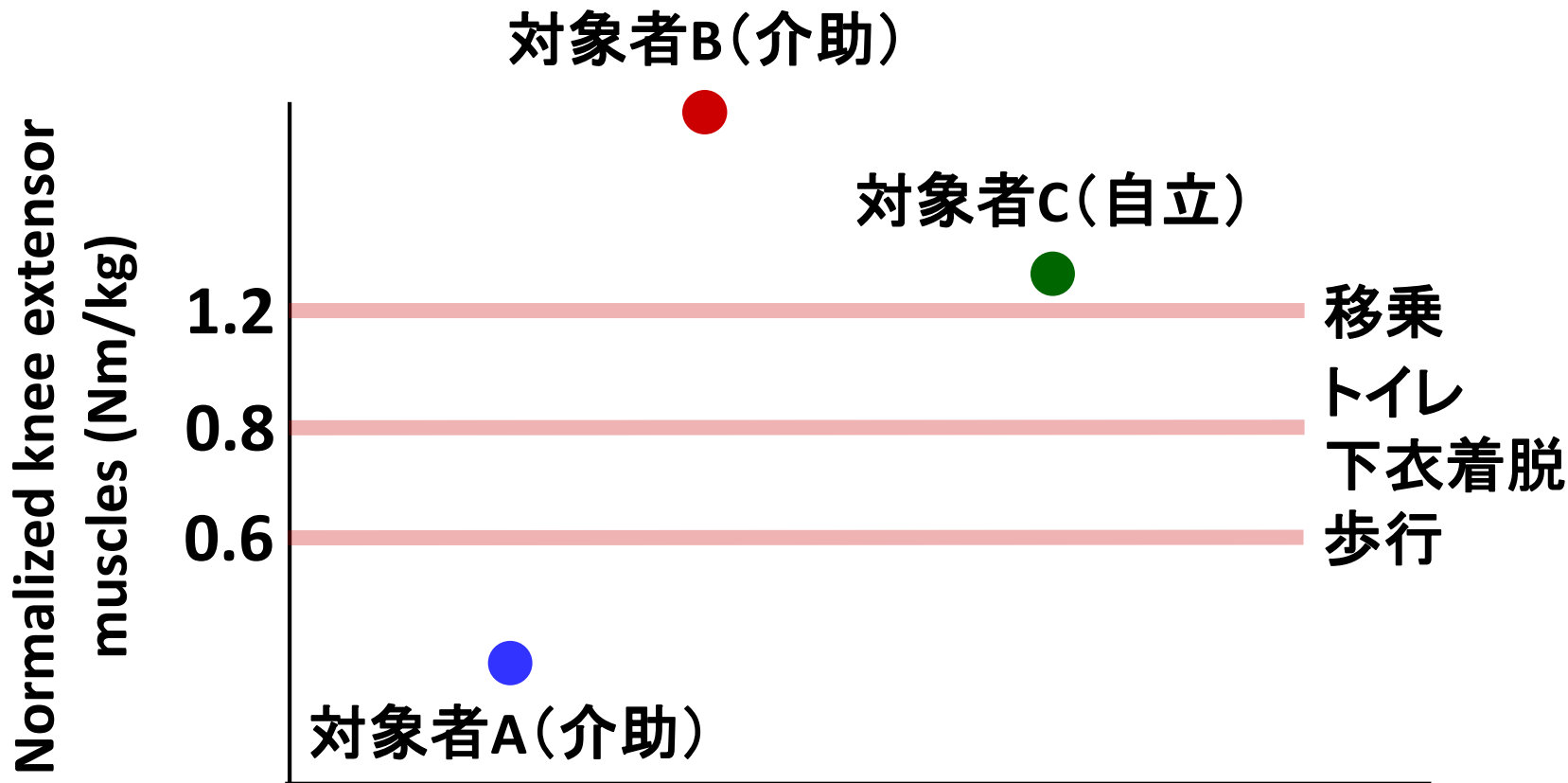
B. Predictive value for toileting performance



C. Predictive value for transfer performances



D. Predictive value for gait performance



対象者A: 筋力トレーニングが重要

対象者B: 行動スキルを学習させる練習が重要

対象者C: 予防的な筋力トレーニングが重要

認知症者の筋力は測定できるの？

認知症者の筋力は日常生活に関連するの？

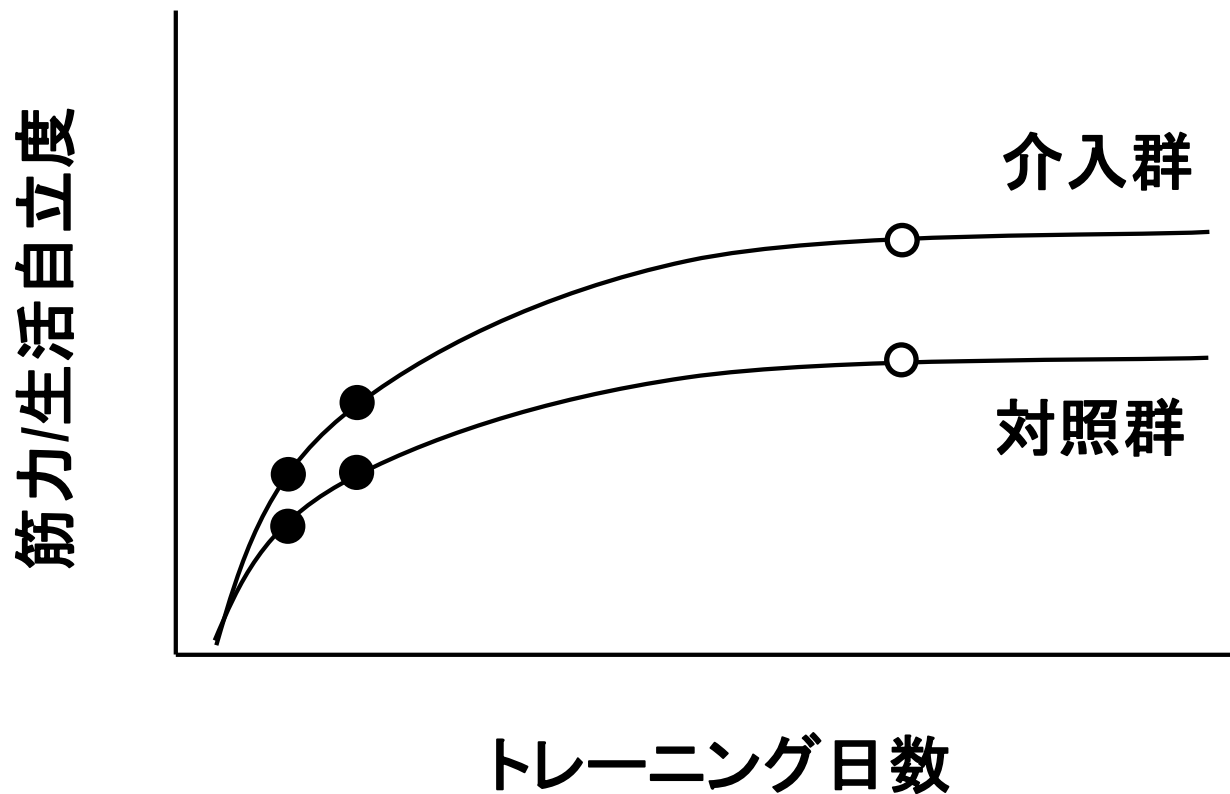
認知症者にトレーニングして効果があるの？

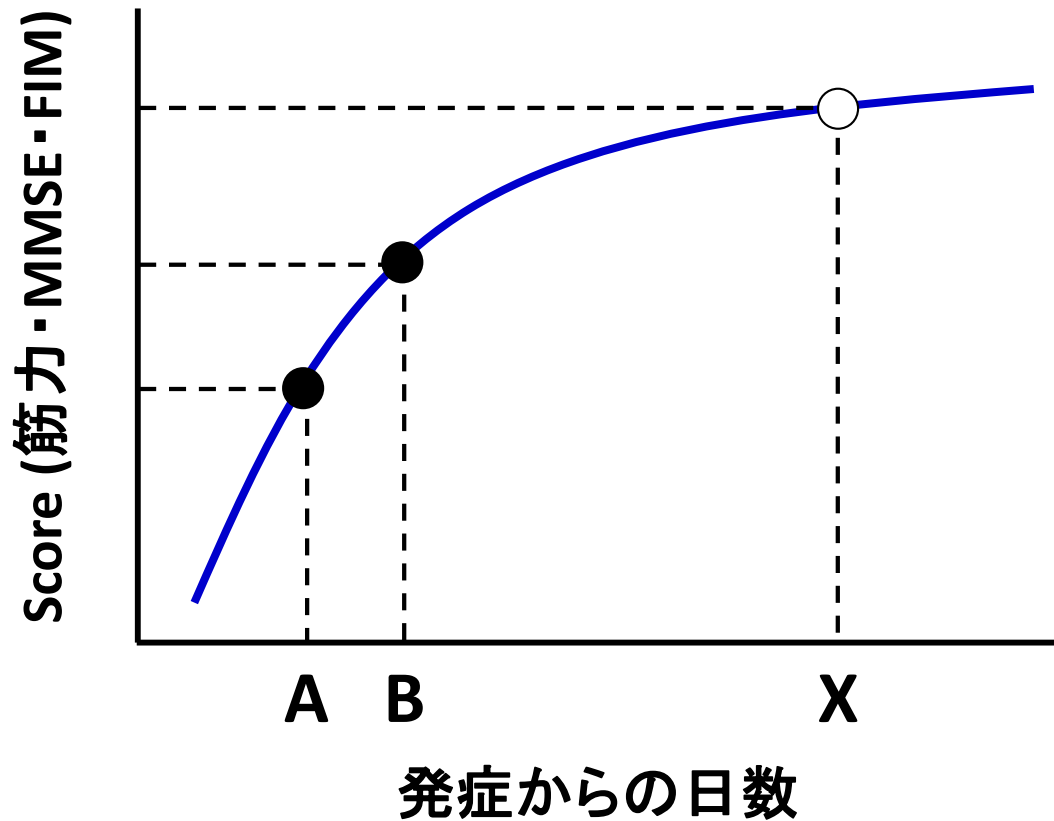




## 仮説

初期のスロープから筋力・生活自立度の予後を予測できる



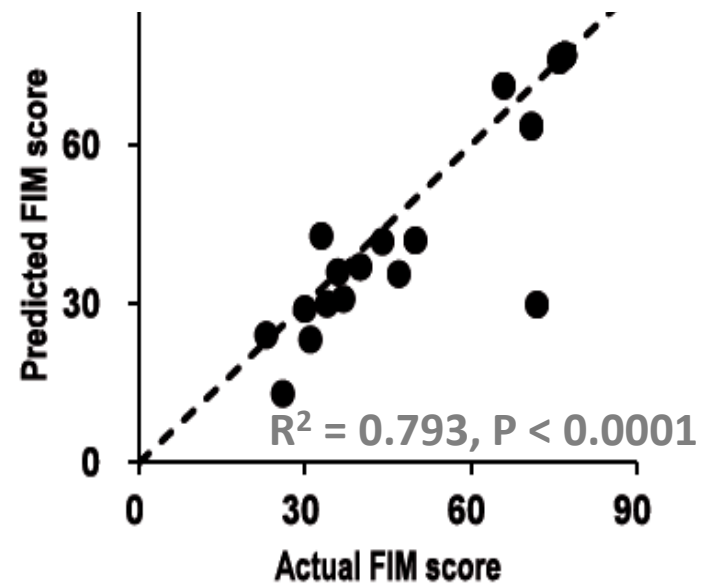
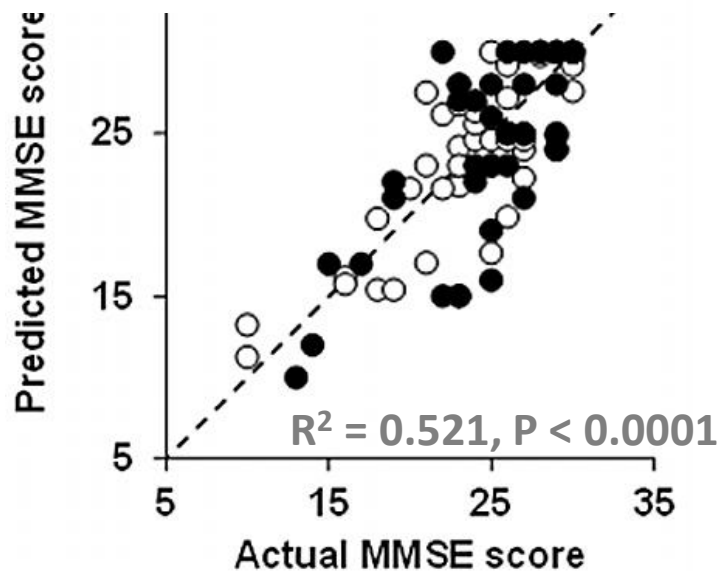
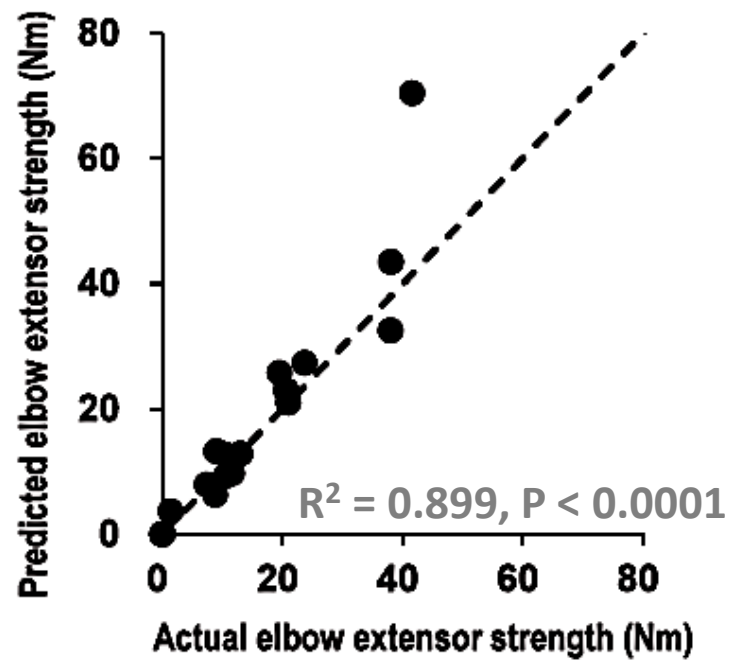
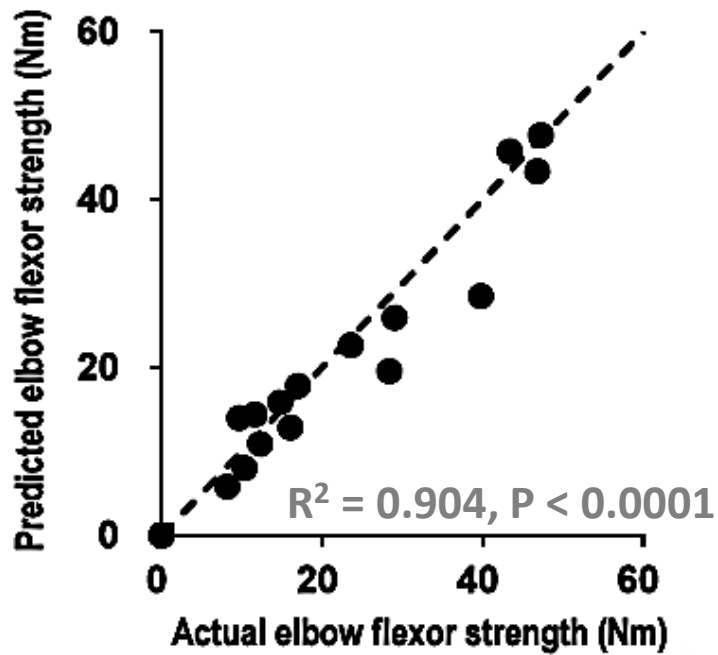


a)  $\text{Score} = a + b \ln (\text{Days})$

b)  $\text{Score} = b \ln (\text{Day B}) - b \ln (\text{Day A}) = b \ln \left( \frac{\text{Day B}}{\text{Day A}} \right)$

$$b = \Delta \text{Score} \left[ \ln \left( \frac{\text{Day B}}{\text{Day A}} \right) \right]^{-1}$$

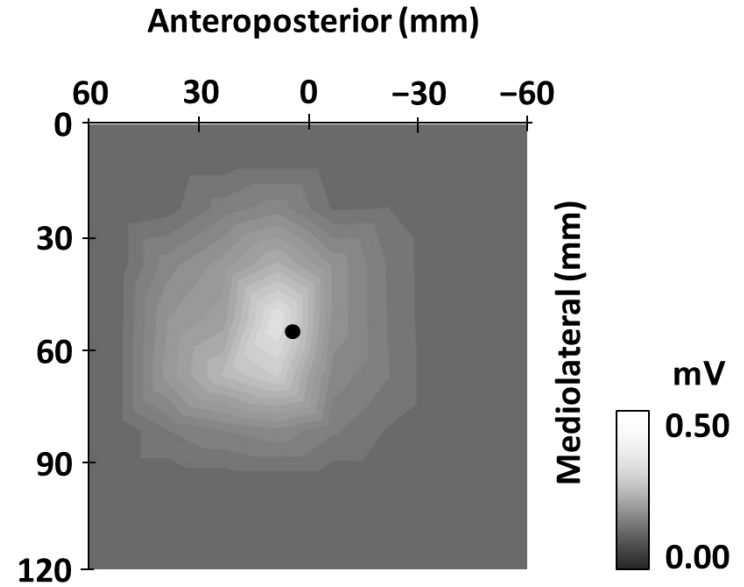
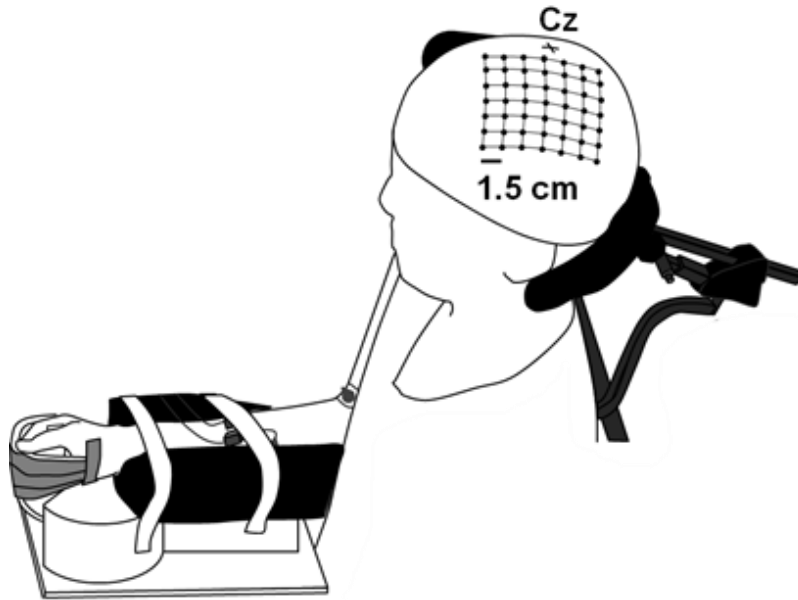
c)  $\text{Predicted Score} = \text{Score} (\text{Day A}) + b \ln \left( \frac{\text{Day X}}{\text{Day A}} \right)$



Suzuki M, et al. J Rehabil Med 2011; 43: 935-943

Suzuki M, et al. PloS One 2013; 8: e53488

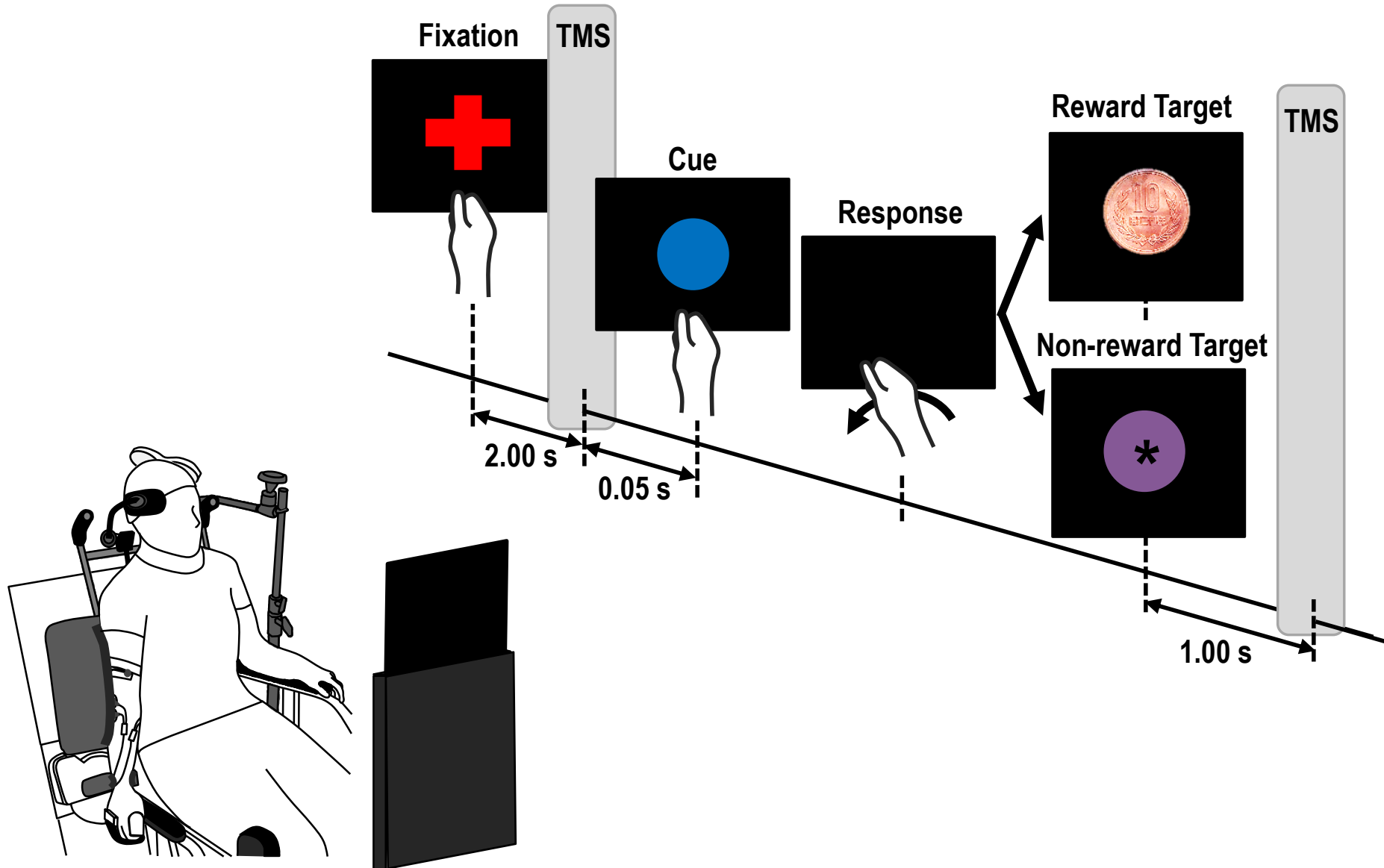
# 脳興奮性を高める報酬条件は？



Magstim 200<sup>2</sup> ミユキ技研

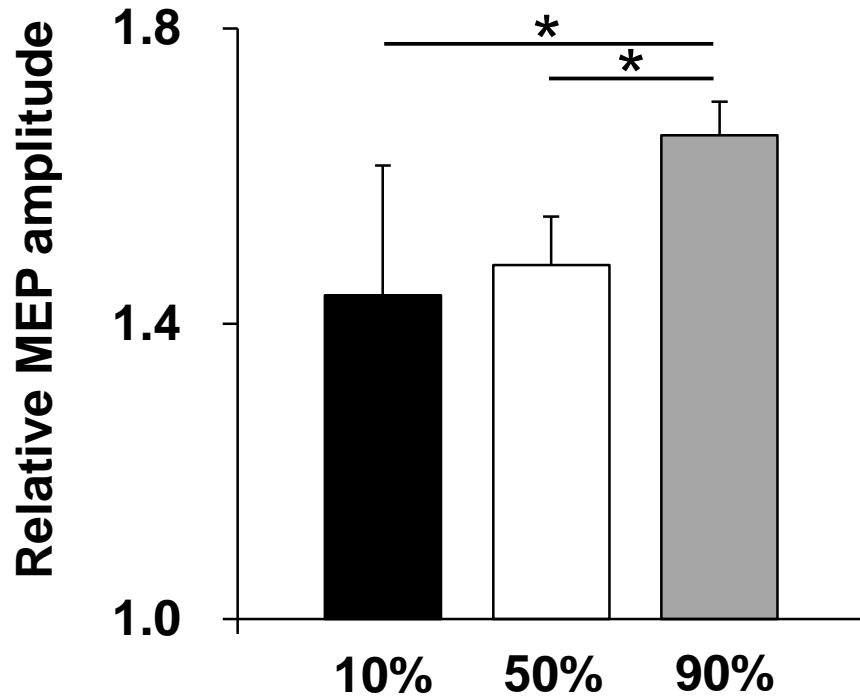


# 脳興奮性を高める報酬条件は？

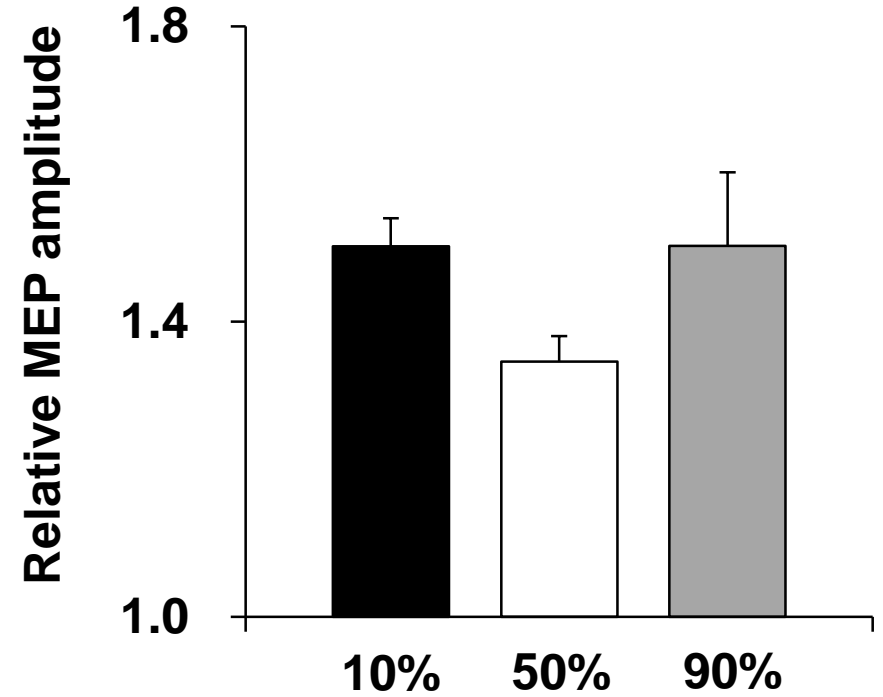


## After reward stimulus

### Reward



### Nonreward

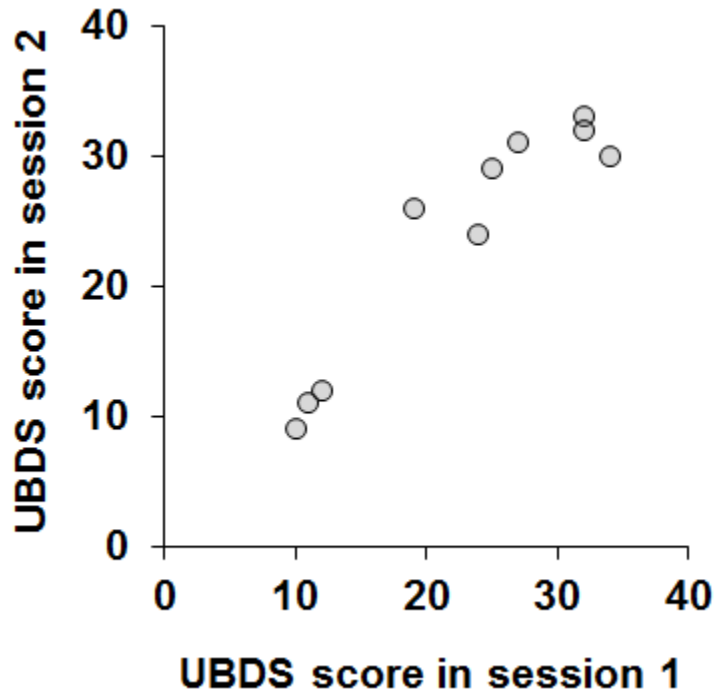


Relative MEP amplitude: FCR/ECR muscle

# Upper-body dressing scale.

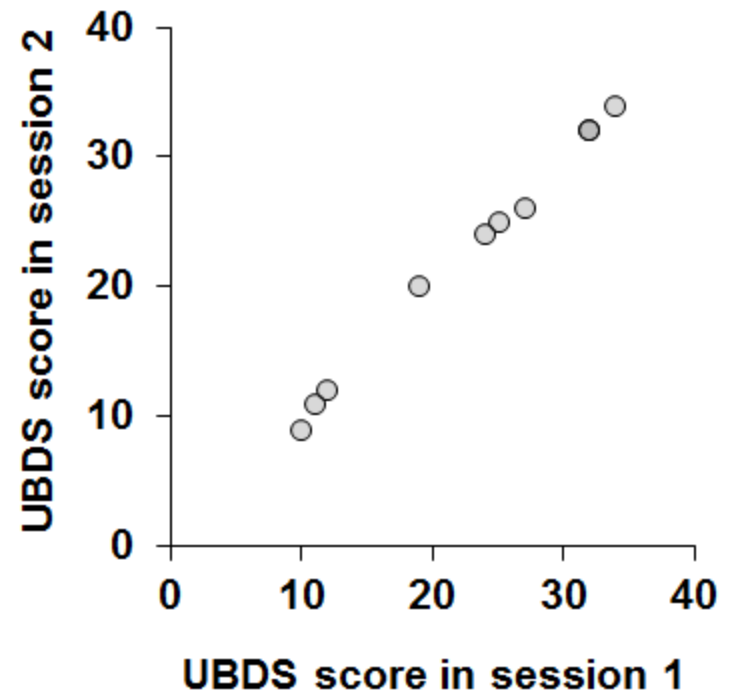
| Actions   | Cues  | Actions   | Cues  |
|---|---|---|---|
| <b>paralytic hand pass the sleeve</b>                                 | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> | <b>healthy hand pass the sleeve</b>   | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> |
| <b>the sleeve is pulled up beyond the elbow joint</b>                 | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> | <b>the collar is arranged</b>   | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> |
| <b>the sleeve is pulled up beyond the shoulder joint</b>              | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> | <b>the buttons are fit</b>  | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> |
| <b>the shirt is pulled across back to the opposite shoulder joint</b> | 1. Non-cue <input type="checkbox"/><br>2. Verbal cue <input type="checkbox"/><br>3. Modeling <input type="checkbox"/><br>4. Tapping <input type="checkbox"/><br>5. Guiding <input type="checkbox"/> | <b>Total score</b> <input type="text" value=" / 35"/><br><b>Time</b> <input type="text" value=" sec."/> |   |

## Intra-rater reliability



ICC 0.971 (P < 0.0001)

## Inter-rater reliability



ICC 0.999 (P < 0.0001)

Suzuki M, et al. Arch Phys Med Rehabil 2006; 87: 1496-1502

Suzuki M, et al. Am J Phys Med Rehabil 2008; 87: 740-749

Endo A, Suzuki M, et al. Occp Ther Int in press