

Presence of Reduced Functional Independence in Patients with Prolonged Immobilisation warrants the Development and Implementation of a Tailored Exercise Plan

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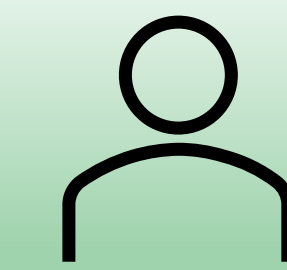
Background/Aims:



Patients who undergo diabetic foot (DF) intervention often endure a period of immobilisation and reduced weight bearing. In the DF cohort, this has an impact on muscle power, weight management and functional independence.

The aim of this pilot study was to establish whether this impact could be offset with the introduction of a tailored exercise programme alongside optimal medical treatment (OMT).

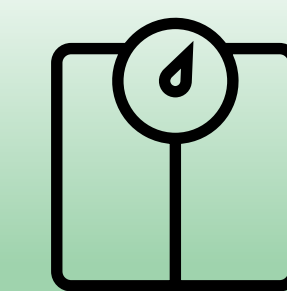
Methods: - Participant:



- 67-year-old gentleman
- T2DM, chronic leg ulcers
- 87.5kg with BMI of 28.25
- First stage Charcot reconstruction on 27/01/26. WB for transfers only

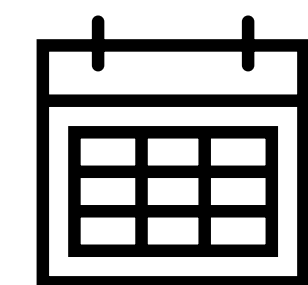


Measurements:

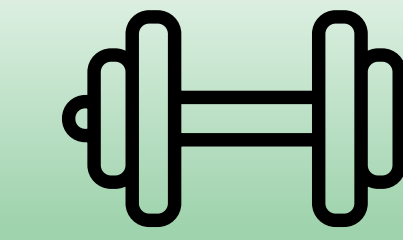


- Manual muscle testing (MMT)
- Modified Barthel Index
- Weight (kg)
- HbA1c

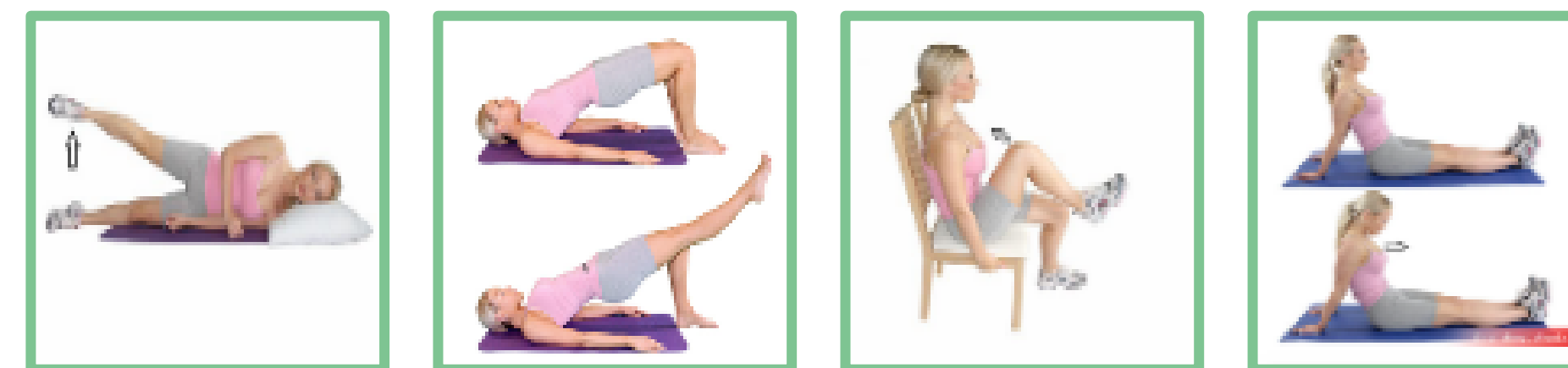
At 0, 3, 5 months



Intervention:



- Provision of tailored, progressive exercise programme by **physiotherapist (PT)**
- Assessment from **PT** at 0, 3, 5 months with exercise progression when necessary



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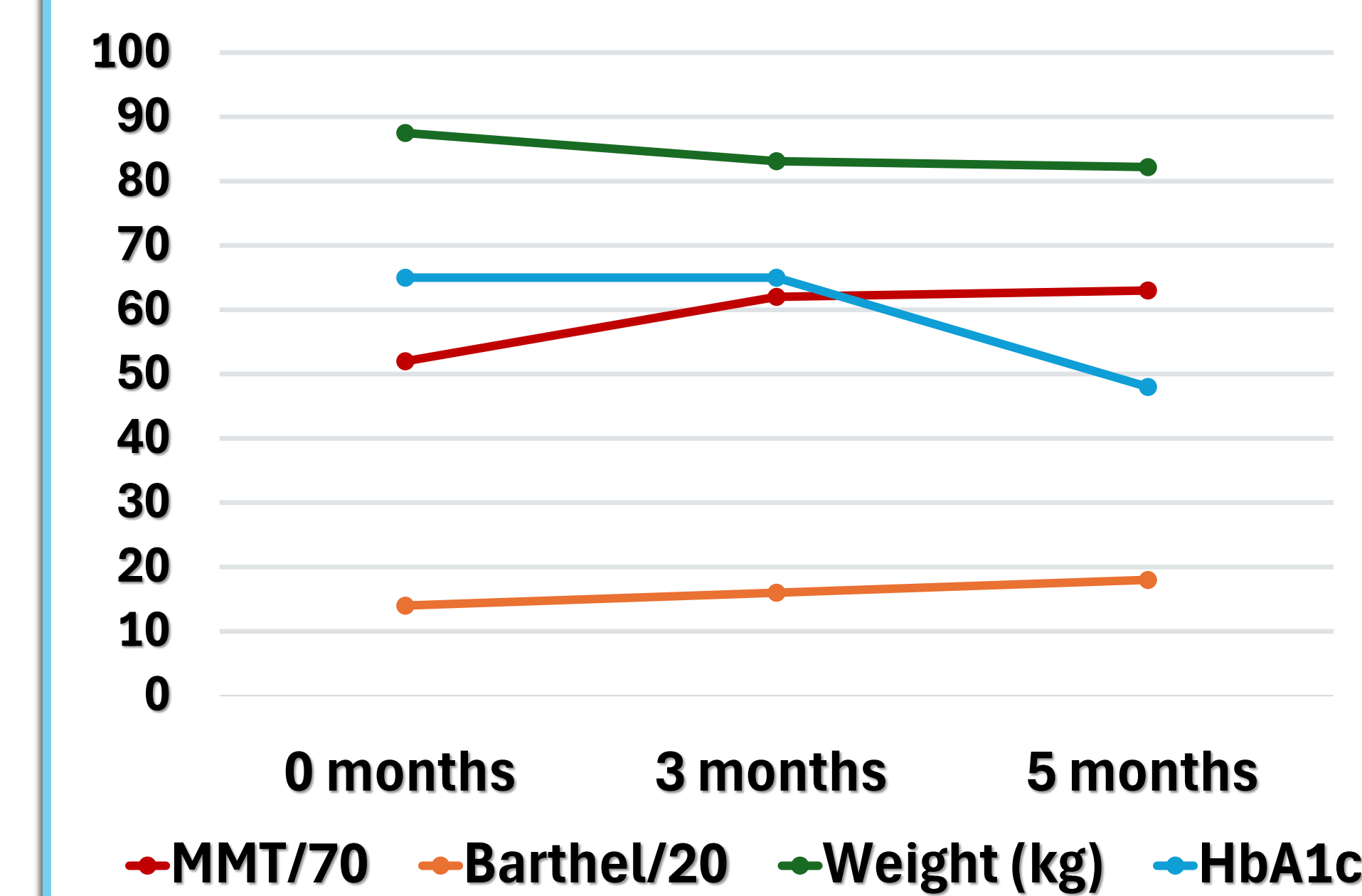
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Appendix 2 – Exercise prescription chart

This exercise prescription chart will guide you on which exercise you should be completing and how frequently. Your physiotherapist will add to this sheet and circle parts of it as necessary.

Exercise	Sets/Reps	Per day	TheraBand
1 – Tricep dips	 x2	x3 x5	Yellow Red
2 – Elbow extension	 x2	x3 x5	Yellow Red
3 – Elbow flexion	 x2	x3 x5	Yellow Red
4 – Ceiling punch	 x2	x3 x5	Yellow Red
5 – Hip/knee flexion	 x2	x3 x5	Yellow Red
6 – Knee extension (lying)	 x2	x3 x5	Yellow Red
7 – Bridge	 x2	x3 x5	Yellow Red
8 – Seated march	 x2	x3 x5	Yellow Red
9 – Knee extension (sitting)	 x2	x3 x5	Yellow Red
10 – Straight leg raise	 x2	x3 x5	Yellow Red
11 – Clamshell	 x2	x3 x5	Yellow Red
12 – Straight leg abduction	 x2	x3 x5	Yellow Red

Results:



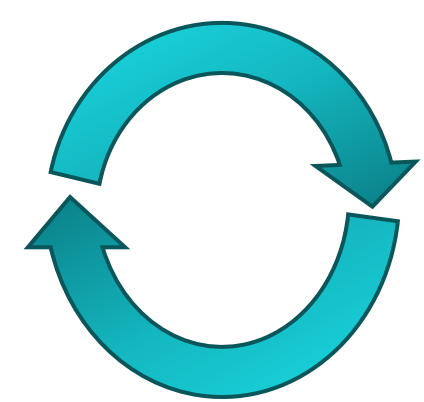
- MMT** ↑ **21%**
- Barthel** ↑ **29%**
- Weight** ↓ **6%**
- HbA1c** ↓ **26%**

Discussion:



This pilot study suggests **a tailored exercise programme may help mitigate the effects of prolonged immobilisation following DF intervention.** These findings are consistent with existing evidence showing that exercise can improve muscle quality, strength, mobility, metabolic health, and functional performance in people with diabetes. Given the recognised relationship between diabetes, muscle loss, and declining function (Fig 1), **early PT intervention may be of benefit to this cohort.**

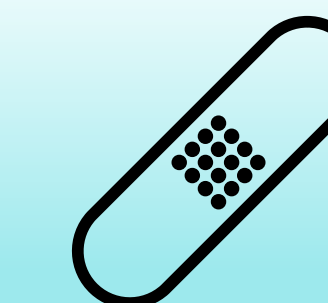
T2DM ↑ the risk of muscle loss



Muscle loss ↑ the risk of T2DM

Figure 1:
The vicious cycle of TDM and skeletal muscle atrophy

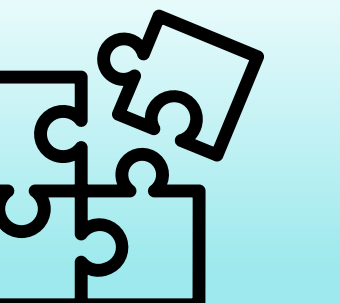
Limitations:



- Small sample size (N=1)
- No qualitative measure
- No control

Participant 2
became ineligible

Conclusions:



- Tailored exercise programme alongside OMT can improve outcomes in immobilised DF patients
- More data needed across larger sample size
- Likely to be an expanded role for **PT** in DF clinic at KCH