Electronic supplementary information

A novel exercise prehabilitation programme in patients scheduled for elective colorectal surgery: a pilot and feasibility randomised controlled trial.

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| Resistance Circuit 1 | Ankle ROM | Reps  | Total Sets | % HRR | Medial gluteal activation | Reps  | Total Sets | % HRR | T spine mobility | Reps  | Total Sets | % HRR | Shoulder function | Reps  | Total Sets | % HRR |
|---------------------|-----------|-------|------------|-------|---------------------------|-------|------------|-------|-----------------|-------|------------|-------|------------------|-------|------------|-------|
|                     | Seated heel/toe mobilisation | 15-20 | 9 | N/R | Band resisted sit to stand | 8-12 | 33 | 35-45 | Seated/standing postural variations | 12-15 | 18 | 20-25 | Lying scapular setting | 15-20 | 8 | 10-20 |
|                     | Ankle mobilisation | 15-20 | 156 | 30-60 | Side lying bent leg hip abduction | 8-15 | 84 | 30-50 | Lying t-spine mobilisation | 8-12 | 72 | 35-45 | Band pull aparts | 8-12 | 119 | 25-65 |
|                     | Sit to stand | 8-12 | 39 | 20-45 | X-band walks | 8-12 steps | 90 | 40-70 | Foot raised thoracic extension | 8-12 | 60 | 50-65 | Band resisted external rotations | 8-12 | 51 | 25-65 |
|                     | Hip flexor ROM | Reps  | Total Sets | % HRR | Gluteal activation | Reps  | Total Sets | % HRR | Whole kinetic chain | Reps  | Total Sets | % HRR | Core control | Reps  | Total Sets | % HRR |
|                     | Standing hip flexor stretch | 3 x 15-30 s | 62 | 35-55 | Bilateral lying gluteal bridge | 8-12 | 93 | 30-45 | Kettlebell swing | 8-15 | 24 | 50-90 | High kneeling band anti-rotation | 8-12 | 50 | 40-60 |
|                     | Lying hip flexor stretch | 3 x 15-20 s | 7 | N/R | Cook hip lift | 8-12 | 34 | N/R | Push press | 8-12 | 83 | 55-80 | Band resisted side shuffles | 8-12 | 89 | 40-80 |
|                     | Split squat | 8-12 | 65 | 60-75 | Shoulders elevated bilateral gluteal bridge | 8-12 | 9 | 70 | | | | Suitcase carry | 10-20 metres | 9 | N/R |
|                     | | | | | | | | | | | | Ball passes | 8-12 | 55 | 30-40 |

%HRR: minimum and maximum value recorded as % of HRR (values do not include all patients; N/R: Heart rate not recorded for this exercise in any patients.
N.B. Values for heel walking, rear foot elevated split squat, foot elevated single leg gluteal bridge & shoulders elevated unilateral gluteal bridge not included as they were not performed

**Supplementary Table 1:** Combined total number of sets performed and number of reps [range] per set from resistance circuits one & two in the PREHAB group (n = 10).
Supplementary Table 2. Summary of clinical outcomes.

|                           | Standard care (n=11) | Prehabilitation (n=10) | Median difference (95% CI) |
|---------------------------|----------------------|-------------------------|---------------------------|
| **Length of stay**        | Median (IQR)         |                         |                           |
|                           | 8 (5)                | 10 (7)                  | 1                         |
|                           | [6; 27]              | [5; 12]                 | -3; 6 days                |
| **Patients with complications** |                     |                         |                           |
|                           | 4 (36%)              | 3 (30%)                 |                           |
| **Adverse events**        |                      |                         |                           |
| Related                   | 0                    | 0                       |                           |
| Unrelated                 | 0                    | 1                       |                           |
**Supplementary Table 3.** Changes in health related quality of life following prehabilitation or standard care in colorectal surgery.

|                  | Baseline* | Pre-operative* | Change† |
|------------------|-----------|----------------|---------|
| **EORTC QLQ-C30** |           |                |         |
| PF               | P         | 86.7 [66.7; 100]| 93.3 [60; 100]| 0.0 [-10.0; 16.7] |
|                  | S         | 100.0 [86.7; 100]| 100.0 [53.3; 100]| 0.0 [-16.7; 0.0] |
| RF               | P         | 100.0 [66.7; 100]| 100.0 [66.7; 100]| 0.0 [0.0; 16.7] |
|                  | S         | 100.0 [83.3; 100]| 100.0 [83.3; 100]| 0.0 [0.0; 8.3] |
| EF               | P         | 83.3 [58.3; 100]| 75.0 [50; 100]| 0.0 [-20.8; 8.3] |
|                  | S         | 100.0 [50; 100]| 100.0 [58.3; 100]| 0.0 [-8.3; 4.2] |
| CF               | P         | 83.3 [83.3; 100]| 83.3 [83.3; 100]| 0.0 [-16.7; 8.3] |
|                  | S         | 100.0 [83.3; 100]| 100.0 [83.3; 100]| 0.0 [0.0; 8.3] |
| SF               | P         | 83.3 [33.3; 100]| 66.7 [16.7; 100]| 0.0 [-16.7; 8.3] |
|                  | S         | 100.0 [66.7; 100]| 100.0 [100]| 0.0 [0; 16.7] |
| GHS              | P         | 83.3 [33.3; 91.7]| 83.3 [33.3; 100]| 8.3 [-8.3; 16.7] |
|                  | S         | 66.7 [16.7; 83.3]| 83.3 [33.3; 100]| 8.3 [4.2; 16.7] |
| **HADS**         |           |                |         |
| A                | P         | 4.0 [0; 10]| 8.0 [0; 11]| 2.0 [0.0; 5.5] |
|                  | S         | 2.0 [0; 7]| 3.0 [0; 10]| 0.0 [-1.5; 1.5] |
| D                | P         | 2.0 [0; 7]| 2.0 [1; 9]| 0.0 [-1.0; 3.5] |
|                  | S         | 2.0 [0; 6]| 1.0 [0; 4]| 0.0 [-1.0; 0.0] |

P: Prehabilitation; S: Standard Care. *Median [min-max]; †Median [95% CI]; PF: Physical functioning; RF: Role functioning; EF: Emotional functioning; CF: Cognitive functioning; Social functioning; GHS: Global health; A: Anxiety; D: Depression.