

## Appendix - Additional file 1

*Table S1: Therapy session procedure*

|                       | Number of exercises                                                                                                |
|-----------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Warm-up</b>        | 2 exercises (Tab. 2)                                                                                               |
| <b>Main exercises</b> | 4 exercises, one from each therapy block (Tab. 3 or Tab. 4)<br>organized as circuit training with 4 YOLii monitors |
| <b>Cool-down</b>      | 2 exercises (Tab. 5)                                                                                               |

*Table S2: Warm-up exercises*

|                                             |
|---------------------------------------------|
| Weight shift right / left                   |
| Weight shift front / back                   |
| Steps on the spot                           |
| Toe stand                                   |
| Heel stand                                  |
| Walking on the spot while lifting the heels |
| Walking on the spot while lifting the knees |

*Table S3: Main exercises for patients following hip arthroplasty*

|                 | resistance band                  | core stability / floor                           | stepper                           | balance pad                 |
|-----------------|----------------------------------|--------------------------------------------------|-----------------------------------|-----------------------------|
| <b>basic</b>    | hip extension, standing position | modified dead bug, arms isolated, heels on floor | tap on stepper                    | weight shift on balance pad |
| <b>advanced</b> | higher resistance                | modified dead bug, legs 90° flexed in the air    | stand on tiptoes                  |                             |
| <b>basic</b>    | hip flexion, standing position   | flex and stretch legs in supine position         | step ups                          | steps on balance pad        |
| <b>advanced</b> | higher resistance                | supine toe taps                                  | step before and behind            |                             |
| <b>basic</b>    | hip abduction, standing position | bridging                                         | step side to side                 | repetitive one-legged stand |
| <b>advanced</b> | higher resistance                | modified bridging, one leg stretched             | jump side to side                 | maintain one-legged stand   |
| <b>basic</b>    | hip adduction, standing position | hip abduction in supine position                 | dynamic hip flexion and extension | squat on balance pad        |
| <b>advanced</b> | higher resistance                | hip abduction in lateral position                |                                   |                             |

Table S4: Main exercises for patients following knee arthroplasty

|                 | weight cuff                                    | core stability / floor                           | stepper                                    | balance pad                 |
|-----------------|------------------------------------------------|--------------------------------------------------|--------------------------------------------|-----------------------------|
| <b>basic</b>    | hip abduction and adduction, standing position | modified dead bug, arms isolated, heels on floor | tap on stepper                             | weight shift on balance pad |
| <b>advanced</b> | more weight                                    | modified dead bug, legs 90° flexed in the air    | stand on tiptoes                           |                             |
| <b>basic</b>    | knee flexion and extension, standing position  | one-legged cycling in supine position            | step ups                                   | steps on balance pad        |
| <b>advanced</b> | more weight                                    | cycling in supine position                       | step before and behind                     |                             |
| <b>basic</b>    | hip flexion and extension, standing position   | bridging                                         | step side to side                          | repetitive one-legged stand |
| <b>advanced</b> | more weight                                    | modified bridging, one leg stretched             | jump side to side                          | maintain one-legged stand   |
| <b>basic</b>    | repetitive one-legged stand                    | crunches                                         | dynamic hip and knee flexion and extension | squat on balance pad        |
| <b>advanced</b> | more weight                                    | Side crunches                                    |                                            |                             |

Table S5: Cool-down exercises

|                                     |
|-------------------------------------|
| Stretching of the adductor muscles  |
| Stretching of the hamstring muscles |
| Stretching of the quadriceps muscle |
| Stretching of the calf muscles      |