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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Old Sitting – Exercise Description | Name | Type | IMUs Position | Data stream used | Recordings | Algorithm | Platform Integrated | Metrics | Comments |
| 1 | While focusing on a word placed at eye level and arms’ length, turn your head left and right always trying to keeping the target in focus. One minute. | Maintaining Focus -Head rotation | quaternions | Head  Back | Head | Right to Left Normal | OK | OK | * Number of Movements * Pace * Mean Movement Range (average of angular distance) * Standard Deviation Movement Range (variability) * Mean Movement Duration * Standard Deviation Movement Duration |  |
| 2 | While focusing on a word placed at eye level and arm’s length, move your head up and down always trying to keeping the target in focus. One minute. | Maintaining Focus -Head up and down | quaternions | Head  Back  Left  Right | Head | Normal  Big Range  Fast | OK | OK | * Number of Movements * Pace * Mean Movement Range (average of angular distance) * Standard Deviation Movement Range (variability) * Mean Movement Duration * Standard Deviation Movement Duration |  |
| 3 | Sitting down with feet firmly on the ground. Bend over as if to pick up an object off the floor. Return to upright and repeat. 5 repetitions | Active Trunk Rotation | quaternions | Head  Back  Right  Left | Back | Normal  Very Low  Eye open  Eye Closed  Fast | OK |  | * Number of Movements * Pace * Mean Movement Range (average of angular distance) * Standard Deviation Movement Range (variability) * Mean Movement Duration * Standard Deviation Movement Duration * Peak acceleration * Movement symmetry | To be tested |
|  | **New Sitting – Exercise Description** | **Name** | **Type** | **IMUs Position** |  | **Recordings** |  |  |  |  |
| 1 | While seated, move your upper body clockwise in circular motions. Focus on engaging your core muscles and feel free to use your hands for additional support. Start with small circles at a slow speed. | Trunk rotation | quaternions | Head  Back | Back(??) | Right  (Normal, Quick, Slow)  Left  (Normal, Quick, Slow) | OK | OK | * Number of Movements * Pace * Mean Combined Range (yaw) * Standard Deviation Combined Range (variability) * Mean Duration * Standard Deviation Duration |  |
| 2 | Place your unaffected foot underneath your affected foot. Then, use your foot to assist your affected foot up. Then release back down. Perform a total of 15 repetitions for affected leg only. | Assisted toe raises | quaternions | Head  Back  Right  Left | Left  Right | Fast  Normal  Slow | OK for 1 | OK | * Number of Movements * Pace * Mean Combined Range (yaw) * Standard Deviation Combined Range (variability) * Mean Duration * Standard Deviation Duration | required 2nd imu |
| 3 | Point your toes and lift your heels off the ground. Then place your feet back down flat on the floor and repeat. You should feel this in your calf muscles | Heel raises | quaternions | Left  Right | Left  Right | Normal  Slow  Small Raise | OK for 1 | OK | * Number of Movements * Pace * Mean Combined Range (yaw) * Standard Deviation Combined Range (variability) * Mean Duration * Standard Deviation Duration | required 2nd imu |
| 4 | Start by lifting your affected leg up into your chest, and then place it back down onto the floor. Then repeat on the other leg, alternating back and forth. Do a total of 20 to 30 repetitions for each leg. | Seated marching on the spot | quaternions | Head  Back  Right  Left | Left  Right | Normal  Fast  Slow | OK for 1 |  | * Number of Movements * Pace * Mean Combined Range (yaw) * Standard Deviation Combined Range (variability) * Mean Duration * Standard Deviation Duration * Symmetry (differences between mean mean ranges) * Peak Acceleration (highest acceleration achieved during a specific movement) | required 2nd imu  **error: in the metrics of 2nd imu**  line 346-347 |
| 5 | Sit with back straight, head in an upright position with feet hip width apart and placed firmly on the ground. | Sit to stand | quaternions | Head  Back  Right  Left | Head  Back  Right  Left | Normal  Fast  Slow |  |  |  |  |
|  | **Old Standing – Exercise Description** | **Name** | **Type** | **IMUs Position** |  | **Recordings** |  |  |  |  |
| 1 | Stand with feet hwa-fct, eo-ec. Try to maintain your balance in this position for one minute | Maintain Balance HWA/FCT | quaternions | Back  Left  Right | Back? | FCT eye closed  FCT eye open  HWA eye closed  HWA eye open |  |  | Pressure??   * posture deviation (Degrees of deviation from upright posture) * displacement (Displacement from the center of gravity) * balance loss (Frequency and duration) | To be updated |
| 3 | Stand with fnwa/fct. Bend over as if to pick up an object off the floor/cupboard. Return to upright and repeat. 5 repetitions | Bending over | quaternions | Back  Left  Right | Back? | FCT floor  FCT cupboard  FNWA floor  FNWA cupboard | OK |  |  | Control |
| 4 | Stand with fnwa. Turn to face the opposite direction. 3 repetitions to the left and 3 repetitions to the right. | Swivel turning | quaternions | Back  Left  Right | Back  Left  Right  ??? | Right to Left  Left to Right  Right and Left |  |  | Steps?? |  |
|  | **New Standing – Exercise Description** | **Name** | **Type** | **IMUs Position** |  | **Recordings** |  |  |  |  |
| 1 | Slowly shift your weight to your right foot and lift your left foot slightly off the ground. Hold for up to 30 seconds or as long as you can while maintaining good form. Try to keep tall posture and avoid leaning over. Then return to your starting position. Repeat 5 times on each side. | Lateral weight shifts | quaternions | Back  Left  Right | Left  Right | Left- up  High-up  Very High for both | OK |  |  | Control |
| 2 | Sway forward from your ankles just until you feel pressure under your toes and change direction to sway backwards just until you feel pressure under your heels. Continue to sway forward and back as above for one minute, twice a day. | limits of stability training anteroposterior direction | quaternions | Back  Left  Right | Back? | Backward  Forward  Forward to Backward | OK |  |  | Control |

\*Exercise 1OldStanding is the same with 2nd (difference is foam)

\*\*Exercise 3NewStanding require camera but I have data with previous version of platform.