

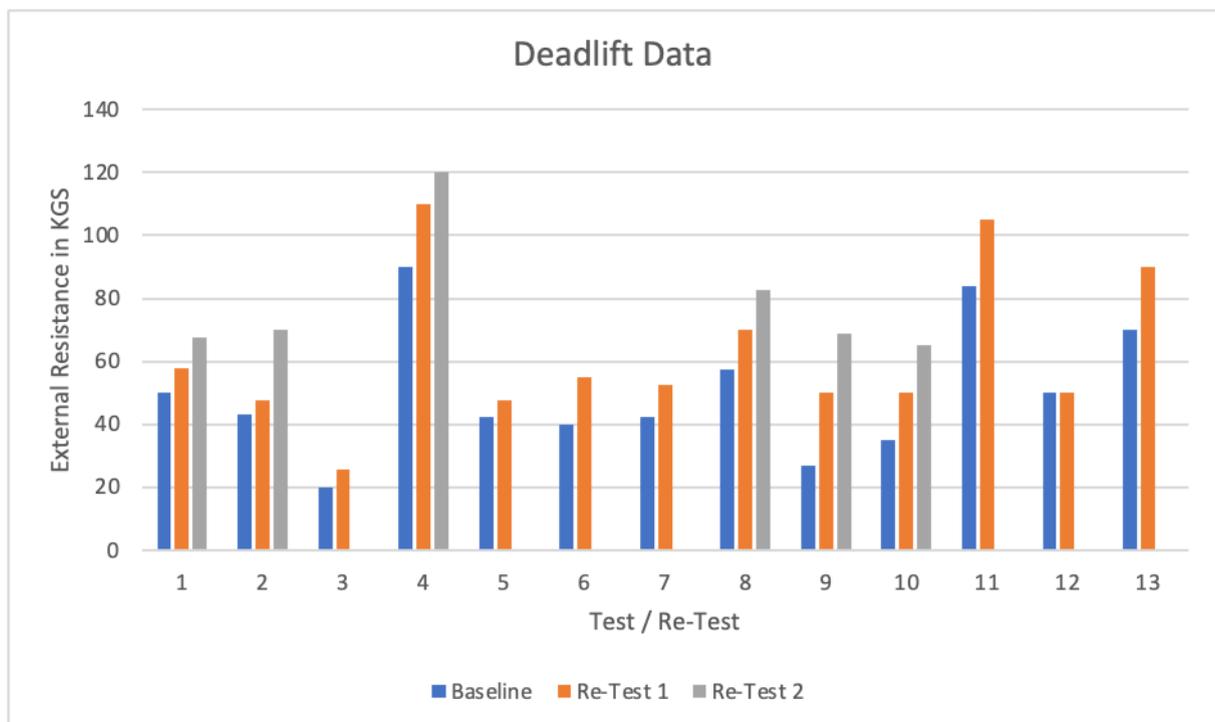


## Review of Implementation to date

Compiled: 17/12/2021 by Dr Colin Robertson

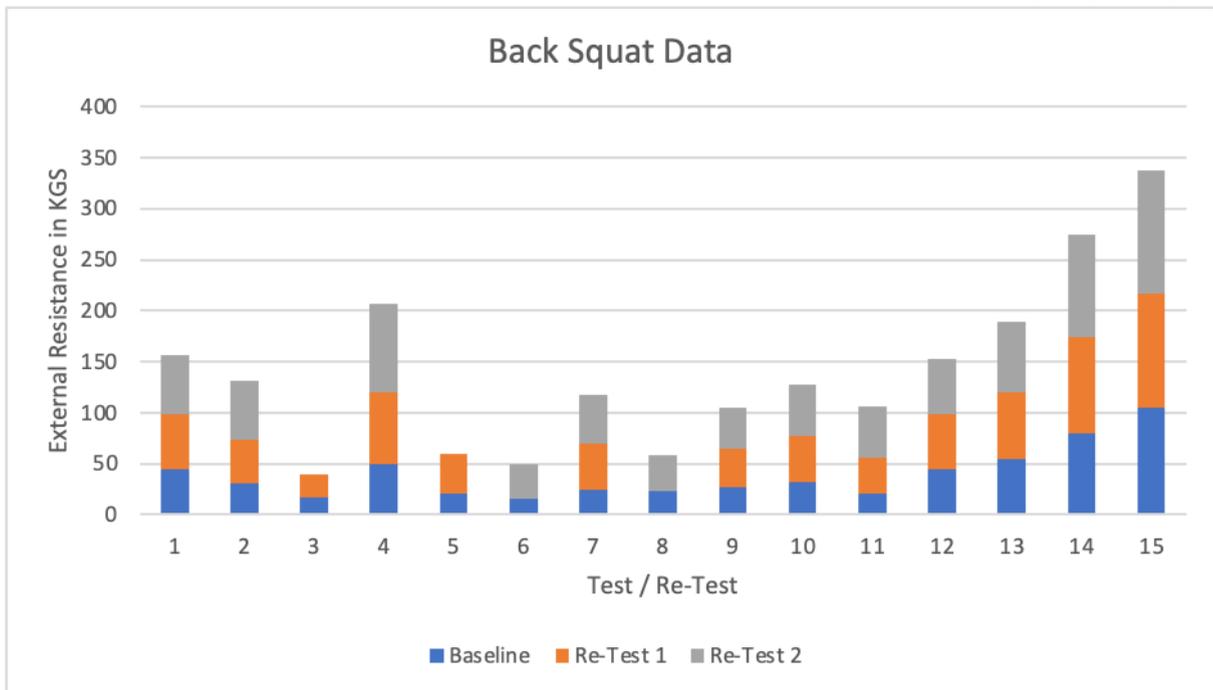
The following data represents the progress that has been made by participants of the Battle Cancer Program, across six locations, and includes on those data whereby the individual has completed a Baseline assessment and at least one Re-test session. The exercises used to monitor progress are the Deadlift, Back Squat, and Strict Press (shoulder press). This is due to the wider acknowledgement, amidst the peer-reviewed literature, that these movements provide a thorough insight regarding overall functional and physical strength, and likewise physical independence. Also, these movement tasks align neatly with standardised methods of exercise capacity and progression as seen amongst non-clinical (or non-post-cancer) groups, and the driving motivation behind the Battle Cancer Program is to detach people from the medical definition they have been burdened with and engage them in exercise training for vitality, health, and life. By adopting performance means of monitoring we engage people in a forward-facing program of physical rehabilitation that blends seamlessly into fitness.

## Results:



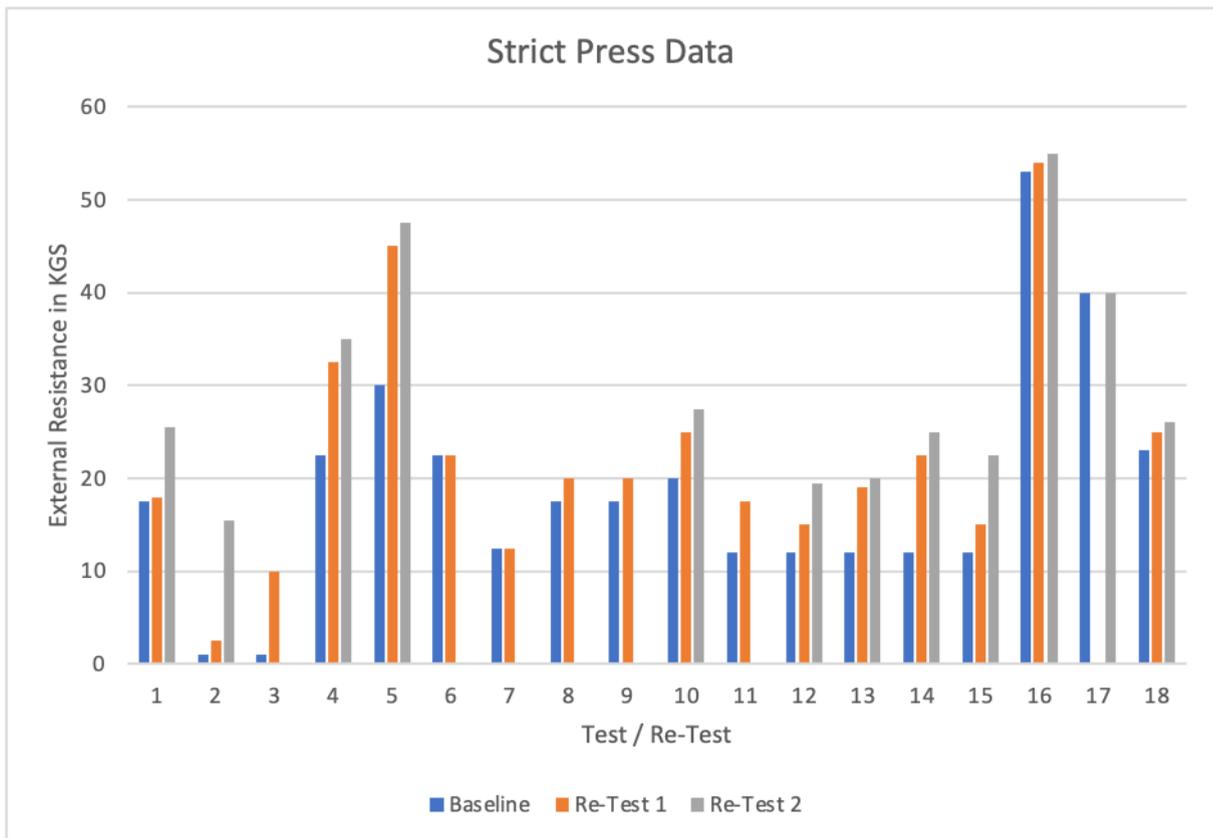
**Fig 1:** Data for progress made with the Deadlift exercise: over 12-weeks where only two measures are represented, and over 24-weeks where three measures are represented.

The largest measure of improvement, expressed as % change, for this movement was 156%, the lowest measure of improvement (smallest meaningful change) was 12%, and the average improvement across the full cohort was **57%**.



**Fig 2:** Data for progress made with the Back Squat exercise: over 12-weeks where only two measures are represented, and over 24-weeks where three measures are represented.

The largest measure of improvement, expressed as % change, for this movement was 150%, the lowest measure of improvement (smallest meaningful change) was 14%, and the average improvement across the full cohort was **64%**.



**Fig 3:** Data for progress made with the Strict Press exercise: over 12-weeks where only two measures are represented, and over 24-weeks where three measures are represented.

The largest measure of improvement, expressed as % change, for this movement was 1450%, the lowest measure of improvement (smallest meaningful change) was 4%, and the average improvement across the full cohort was **130%**.

**Table 1:** Baseline Assessment Re-Test Data

	Average Increase	Highest Increase
Sit and Reach (cm)	8.5	17
Shoulder Mobility (degrees)	8.5	45
Grip Strength (%)	12	53
Peak Flow (%)	8	43

### Analysis of Findings

Across the data presented here it is clear to see that consistent physical progress has been made by the participants of the Battle Cancer Program. However, some caution should be exercised when interpreting these data.

Firstly, the noticeably high largest measurements of % change clearly account for two fundamental components: 1. The individual's low level of strength at outset, and 2. The expected neurological facilitation that takes place during the initial 8 – 12-weeks of

commencing a new exercise regime. However, recognising these two aspects does not dismiss nor diminish their relevance. What is evidenced here, consistently, is that fundamental components of physical rehabilitation and development are taking place, and such individuals are transforming from quite a considerable low state of physical ability and fatigue, into greatly improved states of physical wellness and robustness.

Secondly, the average measure of improvement across the cohort is clearly influenced by the high-scoring outliers. However, even when these outliers are removed from the equation, we still observe improvements of 54%, 52%, and 42% respectively, which are far more aligned with the expression of change more typically observed amongst non-clinical rehabilitating populations.

Thirdly, even the smallest expressions of change (12%, 14%, and 4% respectively) represent a measure of smallest meaningful change in the context of the three exercises included here. In real-world terms, these values represent individuals who can, by the 12 and 24-week stage, control complex multi-joint movements (two of which are whole-body) against a greater external load/resistance. This has significant implications regarding physical independence, reduction of risk of falling, and the development of a foundation of function upon which they can build more confidently as their exercise journey progresses.

Lastly, the data contained in Table 1 shows how the developments achieved through exercise have had a direct, and positive, impact on the functional and capacity measures. This is, perhaps, some of the most compelling data and outcome of this program, for it is only when we can evidence how the benefits of exercise carry-over into aspects of daily function that we can legitimately state that there is a wider benefit to be experienced for taking part.

## **Summary**

The main observation that can be drawn from this data is that progression across the board is consistent, and that every participant experiences measurable change over the course of the 12-weeks, and the measure of progression is far more aligned with non-clinical populations than it is with those who are undergoing rehabilitation.

It is also important to note that compliance with the program is excellent, with 84% of those who commence the program completing the initial 12-weeks.