RUN REVOLUTION:
FINDINGS OF THE TARANAKI PILOT PROGRAMME 2021-22

By Hayden Shearman, MPhil, of TempoFit
With oversight from Julia Casadio, PhD

Executive Summary

Run Revolution (RR) is a new fun-first, 5-week, in-school running and exercise programme that uses running, walking and related exercise to empower, inspire and equip Intermediate-aged Kiwis to build a lifelong love of movement and exercise. In 2021 and 2022, TempoFit conducted a pilot programme to gauge the effectiveness of RR to:

- Improve children's' perceptions toward running and exercise,
- Improve the likelihood of participating in running and exercise,
- Improve participants' physical fitness.

Students completed Pre and Post-Programme Surveys and contributed to the study by tracking their own physical fitness metrics.

RR delivered average improvements in Maximum Sprint Speed of 0.89kph or 4.10% (going from 21.72 to 22.61kph), Standing Long Jump of 5cm or 3.01% (going from 1.64m to 1.69m), and average Rating of Perceived Exertion (RPE) when considering a five-minute run of 8.1% (moving from 5.82 out of 10 to 5.10—10 being super hard and 1 easy). Those students who had large increases in Maximum Sprint Speed were also more likely to express that they knew how to improve their running (correlation of 0.52) and felt their running had improved in RR (0.46). This suggests that gaining improvement in sprint speed and witnessing that improvement through testing and tracking can improve your experiences of RR.

All 10 questions about attitudes towards running and exercise/sport improved on average from the Pre-Programme Survey to the Post Survey. Those specifically related to running improved more with a 6.78% average improvement in agreeing to statements like *I like running* and *I know how to improve my running* (this percentage improvement represents a 0.27 positive shift as measured along the scale of -2 being strongly disagree and +2 strongly agree). Positive overall changes were found in 61% of respondents, while 20% were negative. For those statements related to general exercise and sport there was a 3.53% average improvement in attitudes. Positive overall changes were found in 51% of respondents, while 29% were negative.

After RR, students had a slight average increase in self-initiated exercise frequency, moving from an average of 2.96 to 3.09 on a 1-to-4 scale where 4 is *Most days*, 3 *A few times a week*, 2 *Once or twice a week*, or 1 *Never*. This saw 73.2% say they did self-initiated movement *Most days* or *A few times a week* Post-RR, as opposed to just 64.3% Pre-RR—a 13.8% increase in the number of students.

Overall, 93.2% of participants reported at least one positive change to their attitudes, knowledge, and/or behaviour around exercise across 12 survey questions (n=59). The 6.8% who did not have any positive change represents a unique challenge. Similarly, of that 93.2%, 8.5% only had one positive change out of 12 questions. So, there is a group of 15.3% who do not look like they gained much from the programme.

The Post-Programme Survey asked students five questions regarding their experiences of RR, such as whether they are more likely to exercise because of RR or whether they prefer RR over traditional school cross training. No students said they preferred traditional school cross country training over RR, however, the other four questions included some negative responses. 70% of respondents had combined-average positive experiences, while 17% were negative on average and 13% were neutral/unsure (n=110). The average combined experiences of RR was a positive rating of 0.45 (out of a scale from -1 to +1).

The positive average increases across all metrics of attitudinal, fitness and behavioural outcomes—as well as participants' overall positive experiences—is highly encouraging and suggests the programme has great potential to realise its goal of contributing towards the lifelong love of movement and exercise. However, there was a consistent group of between 9 and 19% of students who did not gain the same positive experiences and effects as the vast majority of students. For this group we need to do more research to understand their needs and RR will most likely need to provide an alternative or more-tailored offering for this group.

Background

From the hundreds of adults and children TempoFit has coached, we know anecdotally (and from personal experience) that the school cross country can be a traumatising experience for many school students. When it forms such a key role in a school's activity calendar, when it is using such an accessible and foundational means of movement (in running), and the main form of exercise for adolescents aged 10-18 (Sport NZ, 2018) why is running in schools so traumatising and could alternative to traditional school cross country training be offered?

Run Revolution (RR) seeks to address this. It is a new 5-week, in-school running and exercise programme that harnesses the accessible movement of running and walking to empower, inspire and equip Intermediate-aged Kiwis to build a lifelong love of movement and exercise. It was developed by coaching company TempoFit Ltd and from 2023 going forward will be delivered long-term through the charity Run For Your Life NZ.

The pilot programme included four Taranaki schools in 2021 and 2022: Ōākura in terms 3 and 4 of 2021 (split over two terms as a result of Covid lockdowns), Highlands in term 4 2021, Ōmata in term 1 2022 and Inglewood in term 3 2022. The programme evolved from school to school as we gathered data and feedback on what was working and what was not. We also encountered multiple challenges as a result of Covid-19 including delayed and interrupted programme delivery, high level of student absences from school, some loss of data (completed surveys going missing during a lockdown and term break), and reduced capacity for schools to engage with some aspects of the original programme (such as focus groups and utilising some students as "research assistants").

Despite these setbacks, we had great anecdotal feedback from all four piloted schools (from teachers and students). However, looking at the data provides a more objective understanding of the programme's impact and areas in which it can be improved.

The Run Revolution programme consists of three in-class sessions over the five weeks, making 15 sessions in total. Students are given a workbook to record measurements and to broaden the educational aspects of the programme. Two sessions per week consist of a short warm up jog, a drills/agility circuit, a technique lesson and a running game, challenge or relay where the emphasis is on skill execution and fun. The third session in the week is the Party Run which is a go-at-your-own-pace run that progresses from 9 minutes in week one to 12, 15, and then 18 minutes in week four, culminating in a 3k or 5k completion run in the final session. The Party Run includes music, obstacles, run zones and walk zones, some themed runs and sausage sizzles, and a time for stretching, breathwork and mindfulness—the emphasis is always on keeping it social, going at your pace and feeling like you could have gone further if you had to, thus striking an optimum balance between challenge and achievability.

Our original research questions for this pilot programme were focused on the changes in behaviour and perceptions towards exercise and movement and also on the physical outcomes of participants' fitness:

- **Attitudes:** To what degree did this programme improve children's' perceptions toward running and exercise?

- **Behaviour:** To what degree did TempoFit's in-school running programme improve the likelihood of participating in running and exercise?
- **Physical Outcomes:** What effects did the programme have on participants' physical fitness?

Methodology

Every student was asked to fill out a survey at the beginning (Pre-Programme Survey) and end (Post-Programme Survey) of the programme. In total we had 244 students complete at least one survey. The Pre and Post surveys both asked students to strongly agree, agree, disagree or strongly disagree with a range of statements relating to a student's attitudes towards exercise and running (including likes, anxieties, knowledge and motivations).

The Pre and Post Surveys also asked students to note the approximate frequency (most days, a few times a week, once or twice a week, never) that they moved or exercised within the contexts of organised sport, school PE, active transport and self-initiated exercise/active play.

The Post Survey also asked students to reflect on their experiences of Run Revolution, whether they: preferred it over traditional school cross country training, would recommend it to a friend, felt their running had improved, enjoy running and exercise more because of the programme, and are more likely to exercise. The Post Survey also asked students what they liked and what they would change about the programme.

Finally, as part of the RR programme, all students measured their standing long jump, maximum sprint speed in kilometres per hour (KPH), and resting heart rate both at the start and end of the programme. For some schools, we also recorded bounds for distance and rate of perceived exertion (RPE) for a five-minute run.

Methodological Limitations

As mentioned above, some completed surveys were lost from Ōākura School during lockdown and term break. Furthermore, the high level of school absences and congestion of the school calendar during the Covid era meant the number of students who completed *both* the Pre and Post Surveys were limited to just 59. In particular, our final and largest school, Inglewood Primary had a large school sports trip in the final week of the programme (which was also the final week of term), so we were unable to get data from these students, rendering the Inglewood Post Survey data severely biased. Therefore, to make sure we were comparing like with like, comparisons between Pre and Post Surveys were limited to the 59 students from Ōākura, Highlands and Ōmata who completed both surveys. Furthermore, as Inglewood was the only school we asked about activity frequency in relation to organised sport, school PE and active transport, we had to disregard this information in terms of Pre and Post comparisons and just focus on the reported activity levels for self-initiated active play/exercise that we asked all schools.

In saying this, the 159 students who completed Pre Surveys and the 210 students who completed at least one physical fitness test, provide interesting data to further understand the characteristics of the students we were working with.

Finally, around a third of participants had never found or measured their own heart rate, which was surprising and a signal that more needs to be done on education in this area, but, as a result, the data gathered was unreliable so hasn't been used in our below findings. Similarly, the bounds for distance measure was such a new movement for many students that we removed it from the programme. Thus, standing long jump, maximum sprint speed and RPE were the only physical fitness metrics we use in the findings below.

Results & Discussion

Overall, 93.2% of participants reported at least one measurable positive change to their exercise attitudes, knowledge, and/or behaviour across 12 survey questions (n=59).

The 6.8% who did not have any positive change represents a unique challenge. Similarly, among that 93.2%, 8.5% only had one positive change out of 12 questions. So, there is a group of 15.3% who do not look like they got much out of the programme. However, this small group had a combined average of 0.21 on a scale of -1 to 1 (disagree to agree) when answering the five questions on whether their Run Revolution experiences were positive (for reference purposes, the average for all respondents was 0.51). This suggests some level of subjective enjoyment of the programme that may not have sunk down into actual positive changes in attitudes and behaviours for this small group.

Furthermore, across all 12 survey questions there is a cohort ranging between 9 and 29% of students who regressed on any given metric.

Attitudes Towards Running

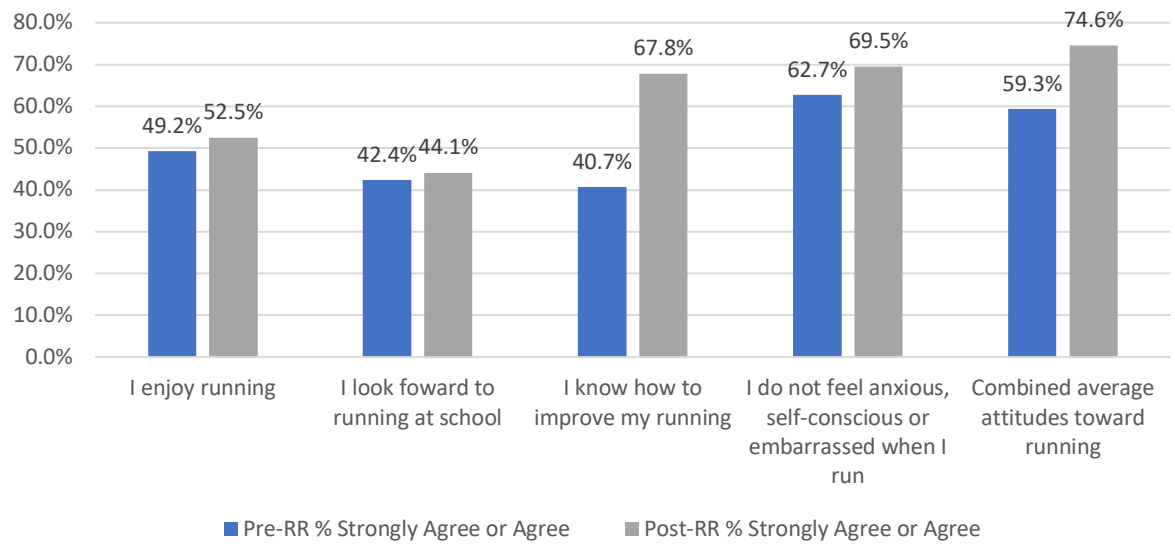
All four statements regarding attitudes towards running had improved averages from Pre to Post, with a combined improvement in attitudes to running of 6.78% (or a 0.27 positive shift as measured along the scale of -2 is strongly disagree and +2 strongly agree). These average percentage changes for the running related statements were as follows:

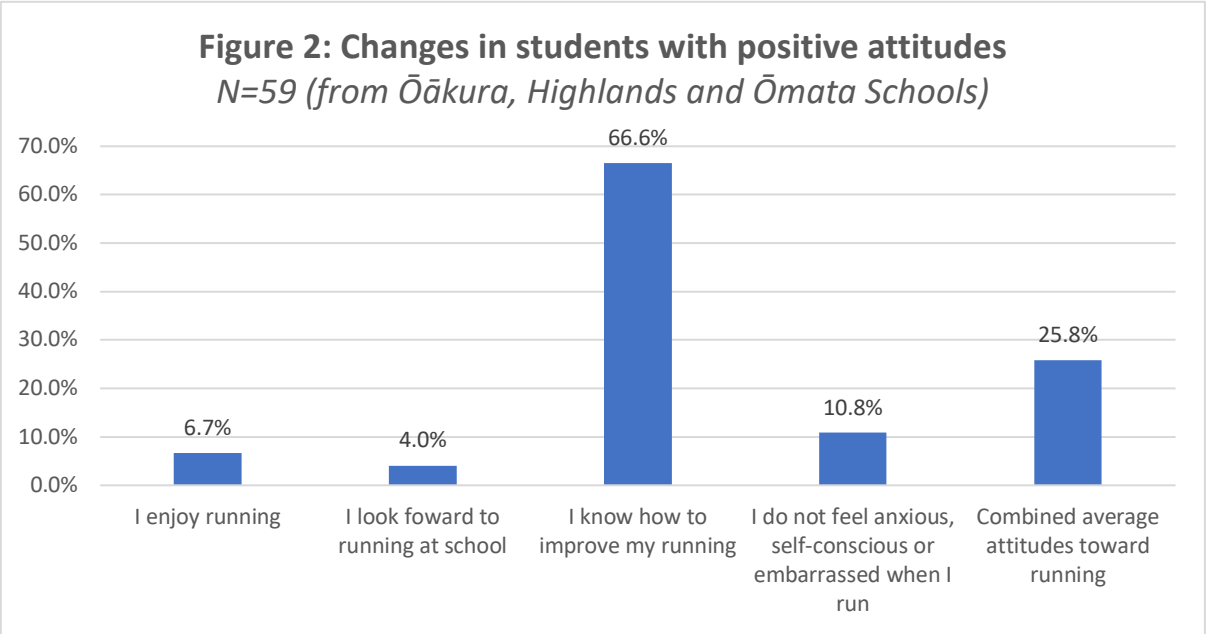
- *I enjoy running*: 4.7% increase
- *I look forward to running*: 6.0% increase
- *I know how to improve my running*: 13.6% increase
- *I do not feel anxious, self-conscious or embarrassed when I run*: 3.0% increase

Positive overall changes were found in 61% of respondents, while 20% were negative.

Figure 1: % of Respondents with Positive Attitudes Towards Running

N=59 (from Ōākura, Highlands and Ōmata Schools)





Figures 1 and 2 demonstrate how each of these positive shifts in attitudes towards running took place, with increased knowledge in how to improve your running leading the way with a two-thirds increase. In Figure 1, although it is a small change, it is encouraging to see a slight majority of respondents (52.5%) saying they enjoy running after the programme. Likewise, the increase in those expressing that they do not have anxieties towards running is encouraging (incidentally, 15% of respondents still expressed anxieties after the programme with the remaining 15% neutral).

Attitudes Towards General Exercise and Sport

Although some improvements were very small, all six statements regarding attitudes to general exercise and sport had improved averages from Pre to Post, with a combined improvement in attitudes of 3.53% (or a 0.14 positive shift as measured along the scale of -2 being strongly disagree and +2 strongly agree). These average percentage changes for the general exercise and sport related statements were as follows:

- *I enjoy playing sport*: 0.4% increase
- *I like how I feel after exercise*: 0.9% increase
- *I am motivated to exercise in my own time*: 3.0% increase
- *I wish I had more opportunities to exercise in my own time*: 5.5% increase
- *I know how to improve my fitness*: 10.6% increase
- *Each day I make sure I include some movement/exercise*: 0.9% increase

Positive overall changes were found in 51% of respondents, while 29% were negative.

Figure 3: Changes in students with positive attitudes

N=59 (from Ōākura, Highlands and Ōmata Schools)

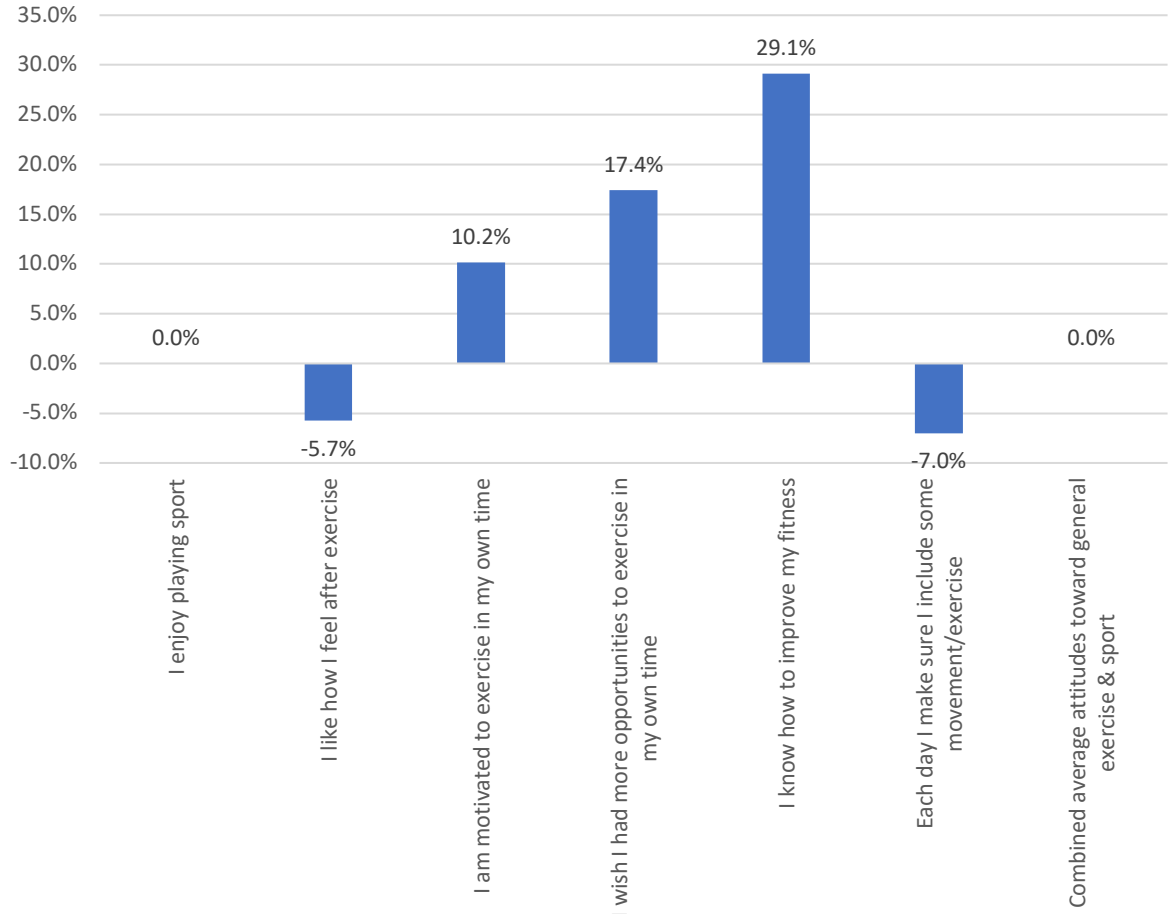
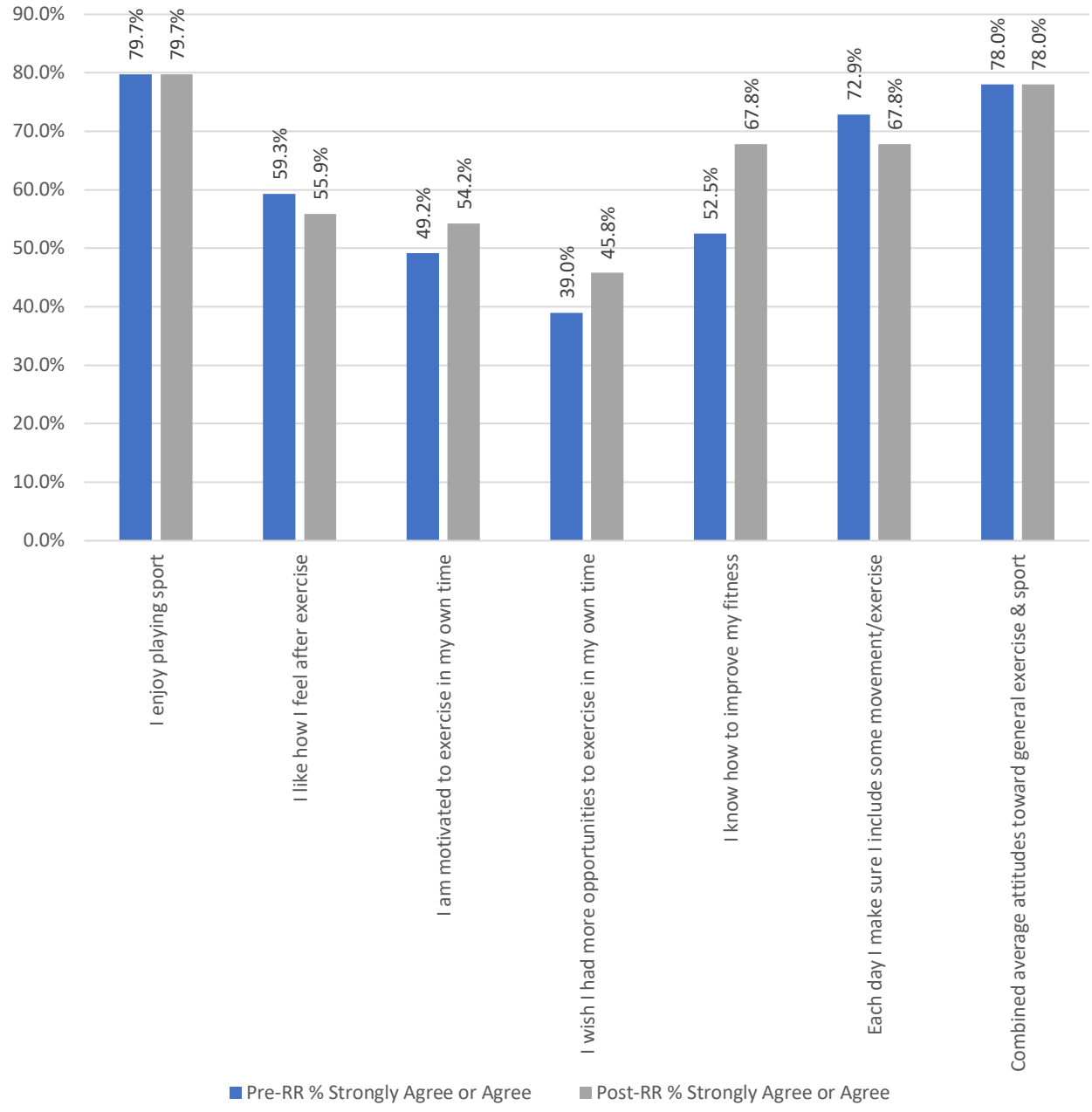


Figure 4: % of Respondents with Positive Attitudes Towards General Exercise & Sport

N=59 (from Ōākura, Highlands and Ōmata Schools)



Figures 3 and 4 demonstrate how each of these positive shifts in attitudes towards general exercise and sport took place, with increases in *I know how to improve my fitness* leading the way with a 29% increase and *I wish I had more opportunities to exercise in my own time* not far behind with a 17% increase in those agreeing or strongly agreeing with the statement. The mixed results of *I like how I feel after exercise* and *Each day I make sure I include some movement/exercise* is concerning (with increased averages of 0.9% a piece, but decreased percentages of students with positive attitudes, dropping -5.7% and -7.0% respectively). The

negative results and weak positive shift in overall average possibly demonstrates that the programme needs to emphasise positive reflection after sessions for the former issue and encourage self-initiated movement more for the latter issue (although this latter issue is somewhat counterbalanced by the encouraging increase in *I am motivated to exercise in my own time*).

The lack of change in *I enjoy playing sport* is not a big issue as this was not a key outcome of the programme—RR being more focused on running and movement in general. As such, the lower overall average change in combined attitudes toward general exercise and sport when compared to those toward running suggests that the programme succeeded in promoting running more so than general exercise and sport.

Behaviour: Activity Levels

We asked students to rank how often they participated in self-initiated movement/exercise (i.e. exercise or active play outside of school PE, transport or organise sport) on a 1-to-4 scale where 4 is *Most days*, 3 *A few times a week*, 2 *Once or twice a week*, or 1 *Never*.

The Pre-Programme average was 2.96 and the Post-Programme average 3.09, representing a positive shift of 0.13 or 4.2% of the scale (n=56). This saw 73.2% say they did self-initiated movement *Most days* or *A few times a week* Post-RR, as opposed to just 64.3% Pre-RR—a 13.8% increase in the number of students. This positive shift in the overall average was achieved by 30% of participants improving their self-initiated exercise frequency, 18% regressing, and the remaining 52% staying the same.

Participants in Run Revolution were encouraged to do small at-home challenges and exercises/stretches, so this encouragement may have contributed to the small increase in self-initiated exercise. Perhaps if this at-home aspect of the programme was emphasised more we could get a greater effect, and perhaps if we had a more in-depth post-programme resource for constructing long-term self-initiated exercise (like a "write your own training plan/challenge" tool or online resources) this could lead to more positive changes in the long run.

Physical Outcomes

The following analysis includes those students who did both the Pre and Post measures (in some schools this was not possible as, for example in Ōākura, students alone were collecting their own data in their workbooks, and this data was lost during lockdown and term break—for future schools we recorded the data as well):

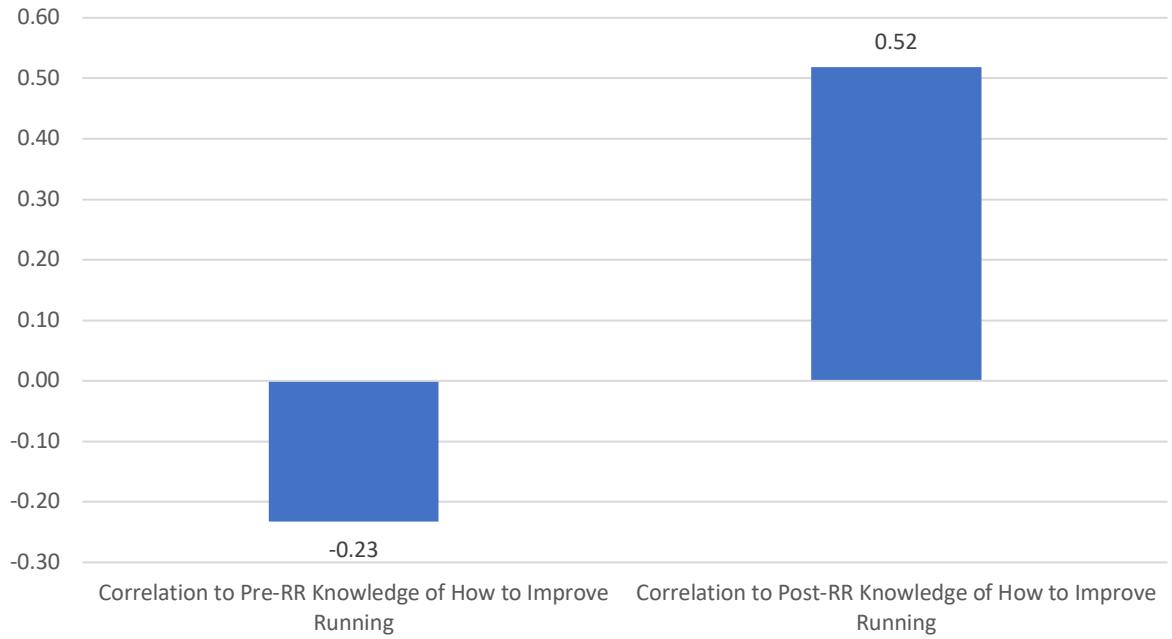
- **Standing Long Jump:** Improved on average by 5cm from 1.64m to 1.69m, an improvement of 3.01%. (n=39)
    - 66.7% improved their long jump, 30.8% decreased
- **Maximum Sprint Speed:** Improved by 0.89kph from 21.72 to 22.61, an improvement of 4.10%. (n=77)
    - 81.6% improved their max speed, 14.5% decreased
- **Resting Heart Rate:** Increased from 73.43 to 73.51 (a 0.10% increase). However, the data collection had too many variables with children taking their own pulse and a high variability in conditions (temperature and time of day) and level of activity beforehand. Plus, a 0.10% is likely not to be meaningful.

At TempoFit, we view a standing long jump as a good mark of general athleticism and does tend to correlate well with running speeds (our Pre RR tests showed a strong correlation of 0.60 between Max Speed and Standing Long Jump) and having positive relationships with running and general exercise/sport (correlations of 0.41 and 0.35 respectively). The RR programme included jumping and hopping movements as part of an agility/drills circuit students do twice a week, so it is encouraging to see the 3% increase. However, the sample size of just 39 when comparing Pre to Post is too small to draw any firm conclusions as to correlations with other programme outcomes.

The sample size for change in Maximum Sprint Speed is much larger (n=77) so is more appropriate for understanding what may lead to greater improvements in sprint speed. The students that improved their max speed were, Pre-RR, more likely to look forward to running at school (moderate correlation of 0.44), were more motivated to exercise in their own time (0.50) and had more support at home to exercise (0.31). They were also somewhat more likely to have longer existing standing jumps (0.31), which, although this correlation isn't particularly strong, could suggest that a programme to work on agility and jumping strength before embarking on running could be beneficial for maximising the chances of developing speed.

In the Post Survey results there were noticeable correlations between improvement in Max Speed and expressing a positive experience at RR (across all measures with a correlation of 0.39, and especially feeling your running has improved with a correlation of 0.46) as well as positive changes from Pre to Post Surveys in attitudes towards running (0.26), general exercise/sport (0.21) and knowing how to improve your running, which actually turned around massively in the programme from an inverse relationship of -0.23 Pre-RR to a good positive relationship Post-RR of 0.52 (see Figure 5 below). This reinforces the theory that, regardless of where your Max Speed is before the programme, if you can improve it during RR, witness it improving through the gathering of data, and understand why it is improving, you will have better outcomes in RR.

Figure 5: Correlations between *Change in Max Speed* and *I know how to improve my running*
n=77



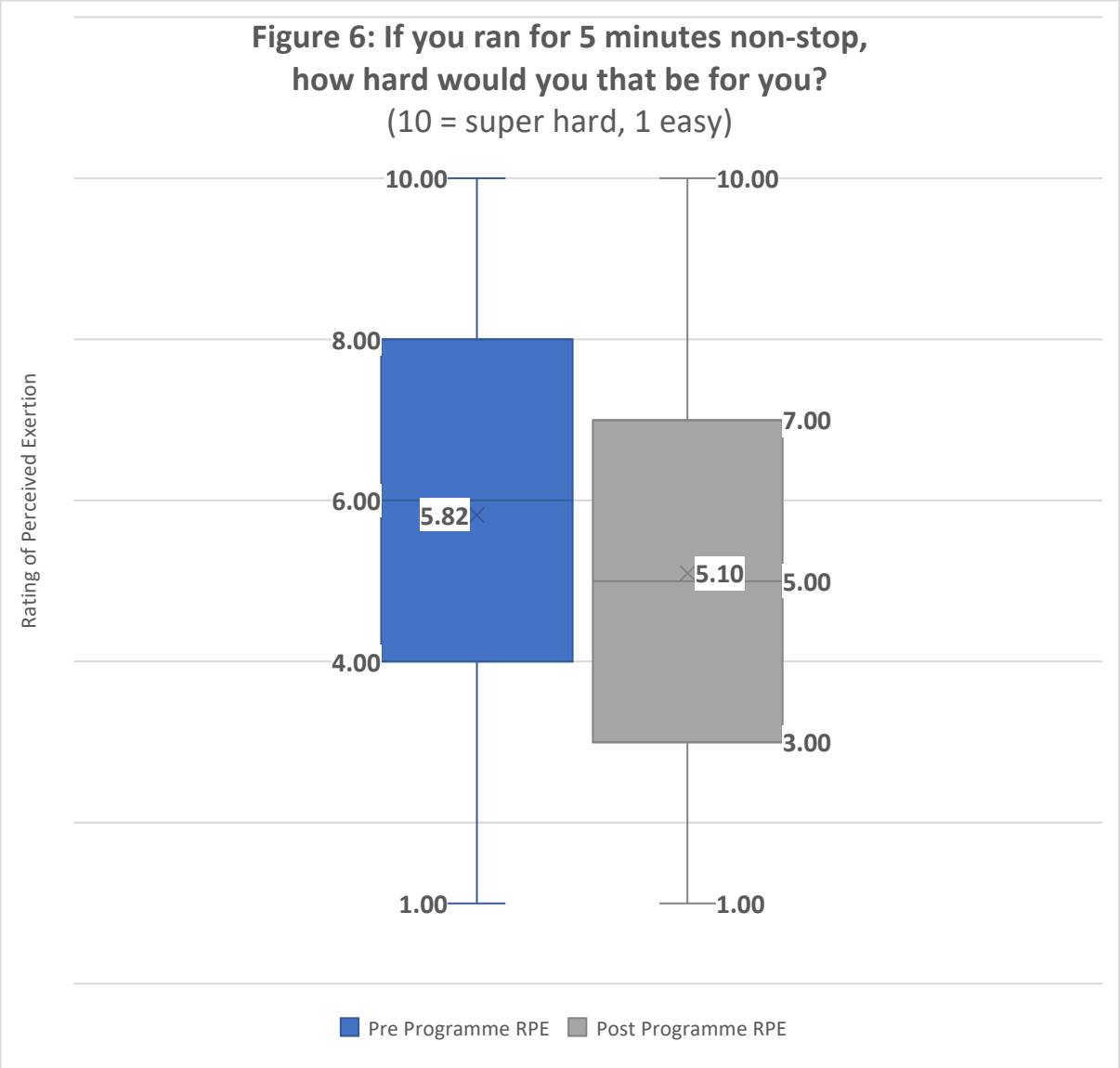
In past programmes that TempoFit have run with children and adults we typically see average improvements in fitness metrics of around 1% per week of new exercise. So 5% over a 5-week period could be expected. However, we would expect this to be lower in schools as students are not voluntarily participating in the programme so won't have the same commitment to training as someone who has paid to do a programme. Furthermore, the RR programme was not designed to maximise physical fitness development, but to provide enough stimulus that students can be motivated by seeing the results of their exercise in the data.

RPE

The rating of perceived exertion question we asked students in the Pre and Post Surveys was "If you ran for 5 minutes non-stop, how hard would that be for you?" where 10 is super hard and 1 is easy, so we would like to improvements to lower RPEs over the course of RR.

As shown in the graph below (which shows mean by the small x, median, and lower and upper quartiles), there was an 8.1% improvement in average RPE moving from 5.82 out of 10 (10 being super hard and 1 easy) to 5.10 out of 10 (n=31). 45% of students improved their RPE, 29% got worse, 26% stayed the same.

Those with Pre RPEs of 7-10 had a higher average improvement of 2.58 which is 28.7% further along the continuum from hard toward easy, to average 6.0 down from 8.5 (n=12). Also, those with low Pre RPEs were more likely to regress. These two factors suggest that RR introduced some reality checking to those at the extreme ends of the RPE scale.



Those with overall positive attitudes to running and general exercise/sport in the Pre Survey had a greater average improvement in RPE than the rest of the population, moving from 5.11 to 3.36—a 1.75 rating shift or 19.4% improvement (n=14).

While we would like all young people to feel comfortable that they could complete a 5-minute run, we're not sure that 1 out of 10 is the optimal response because running non-stop for 5 minutes should always be harder than walking for the same period. So, perhaps a rating of 2-4 is around ideal, and it is therefore encouraging to see those with very high RPE Pre-RR see their rating move down on average by the end of the programme. Two interesting future research questions would be, firstly, to confirm if there is an ideal RPE range, or change in RPE, in terms of its likelihood to lead to long-term increased running and other activity levels, and, secondly, to look at changes in run times (say, for example, over 500m) when asked to run at an RPE of 2 to 4 out of 10.

Programme Feedback

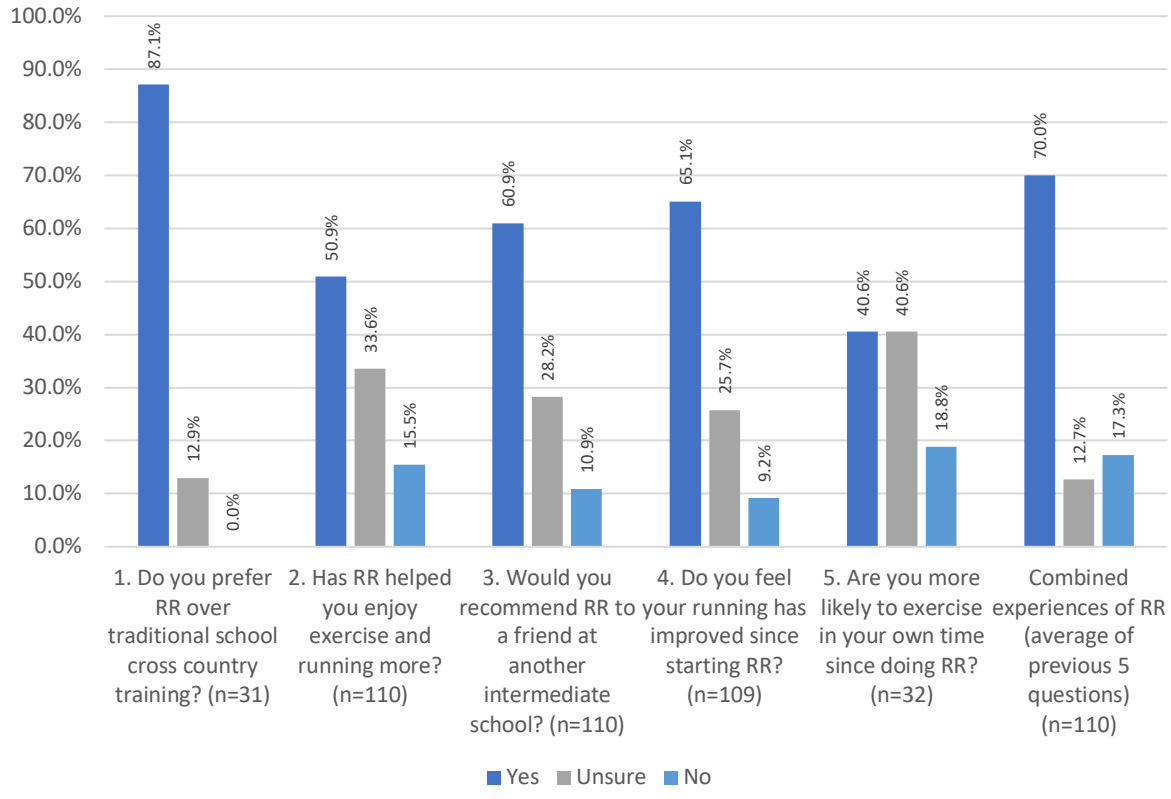
We asked students five about their Run Revolution experiences:

1. 87% of respondents say RR is better than traditional school cross country, while 0% say they prefer traditional school cross country, 13% unsure (n=31)
2. 51% say RR has helped them enjoy exercise and running more, 16% have not, 33% are unsure (n=110)
3. 61% say they would recommend RR to a friend, 11% would not, 38% unsure (n=110)
4. 65% believe their running has improved since starting RR, 9% say it has not improved, 26% are unsure (n=109)
5. 41% say they are more likely to exercise in their own time since completing RR, 19% say they are not, 40% are unsure (n=32)

70% of respondents had positive experiences on average across the five questions, while 17% were negative on average and 13% were neutral/unsure (n=110). The average combined experiences of RR was a rating of 0.45 (out of a scale from -1 to +1).

Figure 7: Run Revolution Participant Feedback

From the Post-RR Survey



It is difficult to read into the "unsure" responses and for future surveys we will remove this as a response.

From question 1, it is clear that RR is superior to traditional school cross country training in the minds of the large majority of students. However, there is a high correlation in the way these five questions are answered, which tells us there is a group of between 9-19% of respondents who did not have positive experiences in the programme. It would be great to run some focus groups with these student groups to further understand their experiences

and needs. Perhaps an alternative modality within the RR programme could be useful that students can opt-in to and is more focused around walking as opposed to running and more heavily incorporates stretching, breathwork and mindfulness.

Highlights and Suggestions

The most common highlights raised by respondents across the spectrum of whether their experiences were positive or not were the Party Runs (the "easy paced" social runs we ran once a week supported with music, obstacles and were often themed, such as the "Fluro Run"); the variety of movement with drills, stretches and other challenges; being able to "go at your own pace"; and the relays and running games. Here are some example responses:

- "That we got to go at our own pace and not feel pressured to succeed at a level that we can't achieve"
- "The relay game & money game"
- "The sponge race and the jumping exercise. Also that you can choose what level you run at."
- "The fact that I had the chance to walk and go at my own pace during the Party Run"
- "I quite liked going outside a lot. And the sponge activity, it was a fun and active activity to keep us exercised."
- "Sponge bob speedy pants really because it involved water"
- "I liked how chilled out it was, especially the Party Run"
- "The diversity between the different activities"

Those students who said they had overall positive experiences at RR were also more likely to say they enjoyed and want more fast sprinting and races (including time trials and other fitness tests), liked the longer runs, liked the feeling of getting tested and getting a good workout, and enjoyed the opportunity to improve fitness. For example:

- "The fun run because it really pushed my running fitness"
- "Timing 100 metre run because I like getting the time and adrenalin"
- "More fun relays after a hard session"
- "I like doing the party runs and doing sprints because that got me to push my limit"
- "Slowly picking up the speed on 200m laps because it was pretty fun and I ran pretty fast"
- "After you finished each session I felt really good and I liked the feeling"
- "Sprinting fast. Felt nice."
- "We could learn new running techniques and get better at running while enjoying ourselves with our friends"

Those students who said they had overall negative experiences at RR were also more likely to say they enjoyed and want more social time with friends in the Party Run, being outdoors, the music, and learning about your body and technique.

- "Getting to do exercise with my friend and learning new things"
- "Party Run with all your friends"
- "I got an opportunity to go outside"
- "I enjoyed the starting course (drills) cause it was fun and after a while I got really good at it. And to exercise with friends."
- "Party run with all your friends"

- “That whilst we ran we got to listen to music”

Overall suggestions and ideas tended to centre around more games and relays, while some people wanted more technical aspects (like technique, heart rate and recording data), more stretching, more sport-related running, and more autonomy to either do more or less running. Many students who had overall positive experiences in RR said not to change anything. For example:

- “Don't change anything. It was really good.”
- “More games and competitions like relays”
- “Doing more cadence” (a running technique cue)
- “I would like more long distance running”
- “Stretching more after running”
- “More time”
- “I feel like maybe repeating some of the activities”
- “Games”

Pre-Programme Analysis

Finally, we also looked at the relatively large dataset (n=155) of those who completed the Pre-RR Survey to see if we might be able to find any groups of students in order to see if there are some characteristics that could increase the likelihood that they won’t enjoy running or have anxieties toward it. (Unfortunately, the dataset of those who completed both the Pre and Post Surveys is just too small to break into groups.)

Figure 8 demonstrates the relationship between a participant’s combined attitudes towards running and their combined attitudes towards general exercise and sport. As you can see there is a correlation between the two but there are some students who like one and not the other. Figure 9 breaks this down further by grouping those with positive averages on both measures together as Sporty Runners, those with negative average attitudes to running but positive to general exercise and sport as Sporty Non-Runners, and so on. Those who had any neutral average were considered to be negative.

Table 1 shows that Sporty Runners are more likely to have further Standing Long Jumps and Max Sprint Speeds, while Non-Sport Non-Runners are least likely on both counts. Sporty Runners are more likely to be male. The Non-Sporty Non-Runners are least likely to look forward to running at school, while the most anxious group towards running are actually the Sporty Non-Runners and the least anxious the Non-Sporty Runners (note: a negative rating for question 10 is a good thing). Sporty Runners have a much higher frequency of self-initiated exercise and a lower Pre-RR RPE for a five minute run, while Non-Sporty Non-Runners have the poorest averages on both counts.

In future RR studies, we would like to make sure we have bigger Post RR datasets in order to track these groups through the programme. In particular, because Max Sprint Speed, RPE for a five-minute run and Standing Long Jumps look like they are related to pre-existing dislikes toward running and lower exercise frequency, it would be interesting to see if these measures could be used as screening mechanisms in order to tailor the programme to meet the needs of different groups of students.

Figure 8: Comparing views towards running to those views towards general exercise & sport

(from Pre-Programme Surveys) n=155

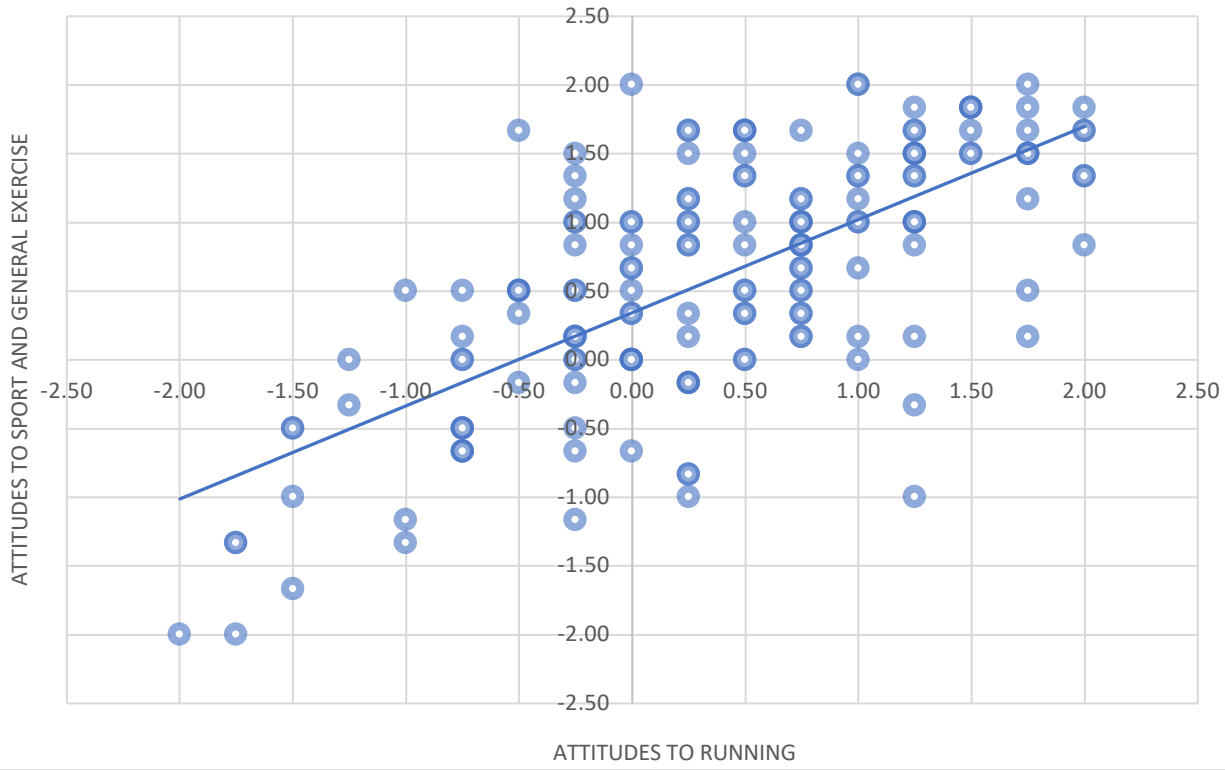


Figure 9: Groupings of Pre-Programme Students

(based on the combination of Running and Sport/Exercise orientated questions) n=155

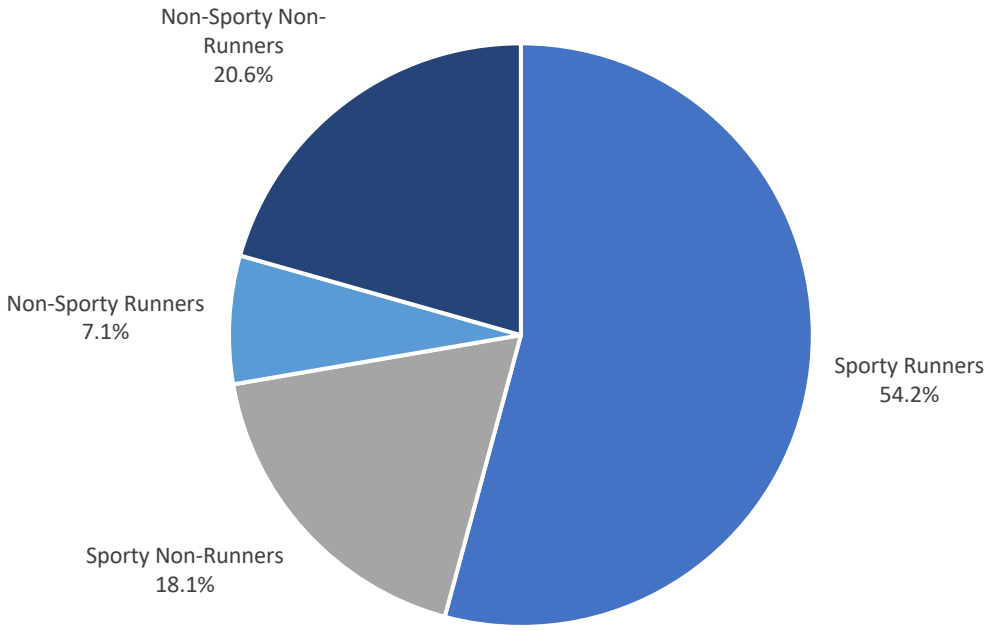


Table 1: Run Revolution Pre-Programme Groupings Based on Combined Attitudes to Running and to General Exercise/Sport

		Grouping Means					
	Question/Measure	**Sporty Runners**	**Sporty Non-Runners**	**Non-Sporty Runners**	**Non-Sporty Non-Runners**	**Total**	**Notes**
	n=155	***84***	***28***	***11***	***32***	***155***	
Fitness Measurements	Standing Long Jump (m)	1.67	1.53	1.56	1.33	**1.59**	
	Max Speed (KPH)	22.15	20.91	21.33	20.47	**21.59**	Using a speed radar app.
	Resting HR (BPM)	70.60	76.56	72.11	77.91	**73.34**	The reliability of the heart measurements is not great as many students had never taken their pulse and classes had varying levels of prior activity before taking the resting HR.
Demographics	Age	11.93	11.82	11.55	11.84	**11.93**	
	Gender (1 = male, 2 = female, 3 = non-binary)	1.37	1.50	1.55	1.53	**1.49**	
Attitudes to Running and Movement	1. I enjoy playing sports	1.68	1.25	0.80	-0.38	**1.12**	For each statement, say whether you Strongly Agree/Always (2), Agree/Sometimes (1), Unsure (0), Disagree/Not Very Often (-1), Strongly Disagree/Never (-2) (Note: For all questions a positive response demonstrates a good relationship to running or exercise/sport, except Q10 which is the inverse—a positive answer shows greater anxiety, self-consciousness or embarrassment.)
	2. I enjoy running.	1.07	0.07	0.45	-0.81	**0.46**	
	3. I like how I feel after exercise.	1.24	0.86	-0.18	-0.50	**0.71**	
	4. I look forward to running at school	0.99	-0.82	-0.09	-1.53	**0.06**	
	5. I am motivated to exercise in my own time.	0.99	0.43	-0.73	-1.09	**0.34**	
	6. I wish I had more opportunities to exercise.	0.69	0.18	-1.00	-0.91	**0.15**	
	7. I know how to improve my fitness.	0.98	0.36	-0.45	-0.56	**0.45**	
	8. I know how to improve my running.	1.04	-0.04	0.18	-0.81	**0.4**	
	9. Each day I make sure I include some movement/exercise.	1.30	1.29	-0.82	-0.31	**0.81**	
	10. I feel anxious, self-conscious or embarrassed when I run.	-0.93	0.33	-1.64	0.06	**-0.55**	
	11. Outside of school, my family/household help me exercise.	0.67	0.54	-1.18	-0.84	**0.2**	
Combined Attitudes (from Q1-10)	Combined views towards running	1.01	-0.28	0.55	-0.80	**0.37**	Combining questions 2, 4, 8 and the inverse of 10.
	Combined views towards general exercise & sport	1.14	0.73	-0.41	-0.63	**0.59**	Combining questions 1, 3, 5, 6, 7, 9 and does not include 11.
	Combined views towards running and exercise	1.07	0.22	0.07	-0.71	**0.48**	The average of Combined Running and General Exercise & Sport.
How many times per week?	A. Do organised sport	2.61	2.60	1.63	1.63	**2.29**	How many times per week? (Daily or Most days = 4, A few times a week = 3, Once or twice a week = 2, Not very often or Never = 1)
	B. Do school PE	3.26	2.93	3.50	2.81	**3.11**	
	C. Walk, bike or skateboard/scooter to school.	2.68	2.00	2.25	2.00	**2.39**	
	D. Do exercise or active play at home.	3.13	3.07	2.25	2.38	**2.91**	
	Combined activity levels (average of A, B, C and D)	2.91	2.65	2.41	2.20	**2.68**	
Self-Led Movement	Combined active play (4=daily, 1=never or not very often)	3.24	2.96	2.55	2.19	**2.95**	This is a combination of D and another question asked to just one school asking how often they do self-led exercise or active play.
RPE	If you ran for 5 minutes non-stop, how hard would you that be for you? (10 = super hard, 1 = easy)	4.27	5.27	5.88	6.88	**5.13**	

Note: Those with neutral averages (i.e. Equalling zero) were considered to be negative for the purposes of grouping students according to this two-factor grouping.

Conclusions & Considerations

We gathered a lot of data from this pilot programme in order to understand how Run Revolution improved:

- children's' perceptions toward running and exercise,
- the likelihood of participating in running and exercise,
- participants' physical fitness.

The key takeaways for our team as we transfer ownership of Run Revolution over to the charity Run For Your Life are as follows:

- **Overall:** While all 14 metrics that we tracked improved on average (led by big increases in knowing how to improve running and fitness), there were some metrics that only improved marginally and a cohort of students ranging between 9 and 29% who regressed on any given metric.
- **Perceptions:** Those toward running improved encouragingly (6.78% average improvement) and those toward general exercise and sport to a lesser degree (3.53% average improvement).
- **Behaviour Change:** On a 1-to-4 scale where 4 is *Most days*, 3 *A few times a week*, 2 *Once or twice a week*, or 1 *Never*, the average self-initiated exercise frequency shifted up from 2.96 to 3.09, representing a positive shift of 0.13 or 4.2% of the scale (n=56). This saw 73.2% say they did self-initiated movement *Most days* or *A few times a week* Post-RR, as opposed to just 64.3% Pre-RR.
- **Physical Fitness:** Maximum sprint speed increased on average by 0.89kph or 4.10% (going from 21.72 to 22.61kph), standing long jump by 5cm or 3.01% (going from 1.64m to 1.69m), and average rating of perceived exertion (RPE) when considering a five-minute run improved by 8.1% (moving from 5.82 out of 10 to 5.10—10 being super hard and 1 easy).
- **Non-Responders:** There is a group of between 9-19% of students who did not express the same positive experiences in RR as the vast majority of students, and for this group we need to do more research and most likely provide an alternative or more-tailored offering.
- **Fitness Tracking:** Tracking improvements in running speed seems to be a great way to ensure positive outcomes in the programme, which emphasises the need to bring running in from the sports field to the classroom to further digest and understand how the body is responding to the training. Perhaps RPE and standing long jump could also be used as training feedback and progress tracking tools.
- **Fun:** Keeping it fun and varied with games, relays, technique and drills, learning opportunities, challenges and social Party Runs seems to be key for most students.
- **Beyond School:** The at-home features of RR seemed to help improve self-initiated exercise frequency and this feature could be expanded in future.
- **Reflection:** Spending more time in post-session reflection could help students to be more likely to enjoy the way they feel after exercise.
- **Screening:** Standing Long Jump, Max Sprint Speed and RPE for a 5-minute run look like they could work as screening tools for tailoring future versions of RR to better meet

the needs of each student, however further data is required to see how the various groups of students respond to the programme.

- **Overall:** The RR programme had positive outcomes and experiences for the majority of students and no students preferred traditional school cross country training over RR, so the programme has significant potential—especially once we have incorporated the above changes—to positively impact many young Kiwis' lives.