

Demonstration Program Report



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The content of this document is for information purposes only and serves to report the success of the COPD ConnEx demonstration program that was carried out between the months of March 2021 to September 2022.

Information gathered during this program will help to aid any future developments and modifications to the COPD ConnEx exercise, education and lifestyle program and ensure that it is appropriate, relevant, and acceptable to this population.

All medical and personal data have been kept confidential and will remain anonymous.

We wish to thank the generous support and efforts of the Lung Health Foundation and BC Lung Foundation for making this demonstration program possible.

This report was written by WillKin Health and prepared for the Lung Health Foundation and BC Lung Foundation.

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12-Week COPD Exercise and Education Program

This represents Phase one (Induction) of the full COPD ConnEx program (one weekly session for 12 weeks).

Phase two (Maintenance) is 1 session biweekly for 6 months

Phase three (Independence) is 1 monthly check-in session for 3 months.

This format fosters intrinsic motivation toward independent lifestyle management.

A one-on-one, home-based exercise and education program via ZOOM

WillKin Health's COPD ConnEx program comprises 12 weekly ZOOM one-on-one sessions of 45 minutes. Each session is a combination of research-based exercise, lifestyle education, behavior change and breathing/relaxation techniques. The program aims to serve as a bridge prior to, or following clinic pulmonary rehabilitation promoting long-term self-management of COPD. It is also an option for those living in remote areas with less or no access to pulmonary or exercise rehabilitation programs.

Designed for patients with all levels of COPD

For those with mild to moderate COPD, the program aims to prevent digression of physical and mental health and motivate a positive, active lifestyle. Given its strict protocol and framework, the program can also suit those with more severe (Gold stage 3) COPD.

4 Pillars for Success

1. Functional and appropriate exercise
2. Lifestyle education
3. Behaviour change tools
4. Breathing techniques to allow more activity

Structure

12 weekly sessions

Week 1

ASSESSMENTS (PSYCHOLOGICAL & PHYSICAL)

Week 2 to 11

EXERCISE AND EDUCATION

Week 6

GROUP MOTIVATIONAL ZOOM SESSION (KIN AND COUNSELLOR)

Week 12

RE-ASSESSMENT

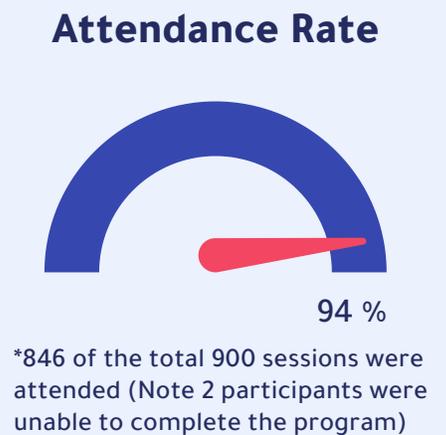
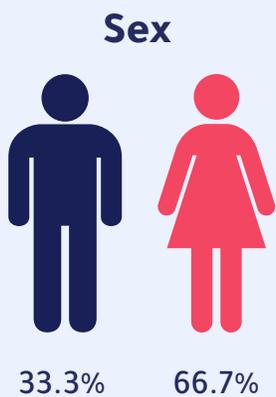
A program success survey was also carried out throughout, to monitor self-efficacy, program acceptance and feasibility.



Mouvement. Santé. Inspirer
Movement. Health. Inspired

COPD ConnEx Demonstration Program

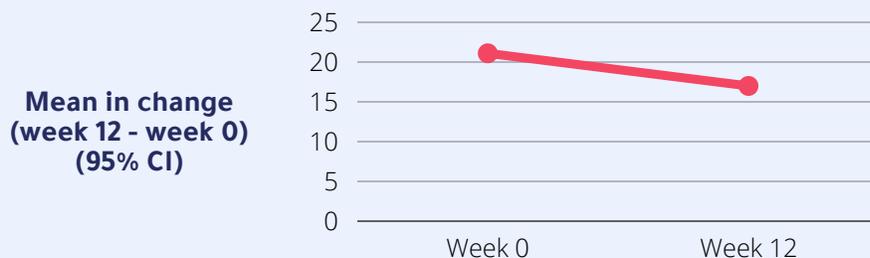
Full report with data aggregated from Ontario and BC.
73 of 75 participants completed the program



*For more information on demographics, refer to Appendix I

General Improvement | COPD Assessment Test (CAT)

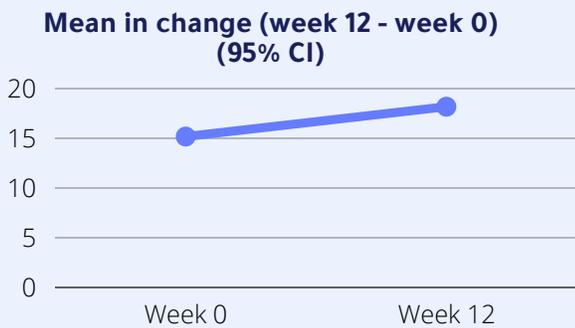
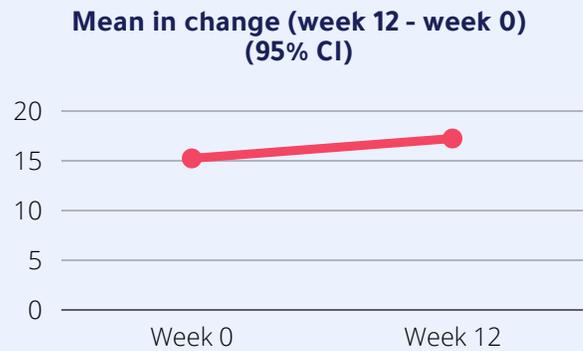
The CAT score indicates the severity of the impact of COPD on an individual's life. The higher the total, the greater the impact. Based on our preliminary results, from weeks 0 to 12, the total CAT score decreased by an average of 3.52 points (N=73, p<0.001*), thus indicating a reduction of the impact of COPD on the participants' lives.



Individual Physical Assessment Results

1 Minute Sit-to-Stand (1-Min STS)

The purpose of the 1-Min STS is to assess exercise capacity and leg muscle strength. It is reliable, valid and responsive in patients with COPD. An improvement of at least three repetitions is consistent with physical benefits. From week 0 to week 12, our results indicated an average increase in total repetitions of 2.12 (N=73, p <0.001*).

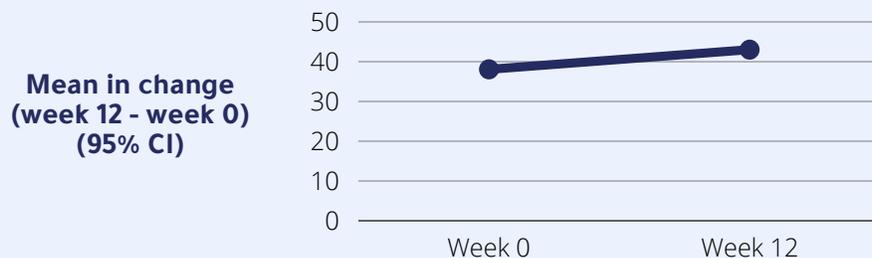


Arm Curl Test

The arm curl test measures upper body strength and endurance by counting the total number of controlled arm curls that can be performed in 30 seconds. From week 0 to week 12, our results showed an average increase of 2.80 curls (N=73, p <0.001*), indicating a significant increase in functional fitness.

Lower Extremity Functional Scale (LEFS)

The LEFS is a measurement of the level of disability a person experiences on a daily basis related to lower extremity function. A higher total score indicates good results of the "Treatment", a lower total score, therefore indicating a greater disability. From week 0 to week 12, our results showed an average increase in total LEFS score of 4.84 points (N=73, p <0.001*).

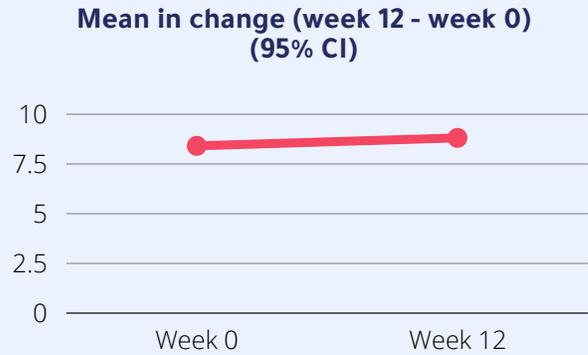


*The data shows that the test results were statistically significant for the participants in the COPD ConnEx program. It is important to note that the trend of increases in positive results in the COPD ConnEx program for physical, mental, or subjective assessment is meaningful and beneficial.

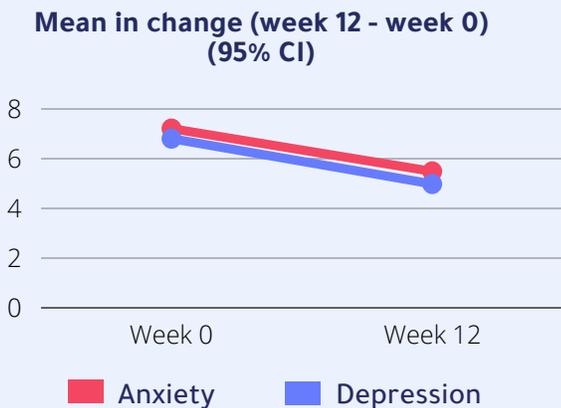
Individual Physical Assessment Results

Short Physical Performance Battery (SPPB)

The SPPB evaluates lower extremity function and mobility in older adults by assessing balance, gait speed, and sit-to-stands. Over the course of 10 weeks (week 1 initial assessment to week 12), our results indicated an average increase in final SPPB score of 0.80 (N=73, p=0.023).



Psychological Questionnaire Results



Hospital Anxiety and Depression Scale (HADS)

The HADS questionnaire is used to detect states of anxiety and depression and provides separate total scores for both anxiety and depression, where a score of 0-7 is "Normal", 8-10 is "Borderline abnormal", and 11-21 is "Abnormal". From week 0 to week 12, our results showed an average decrease in both anxiety and depression of 1.65 (N=73, p=<0.001*) and 1.73 (N=73, p=<0.001*) respectively, with all scores remaining in the "Normal" category.

Program Success Survey

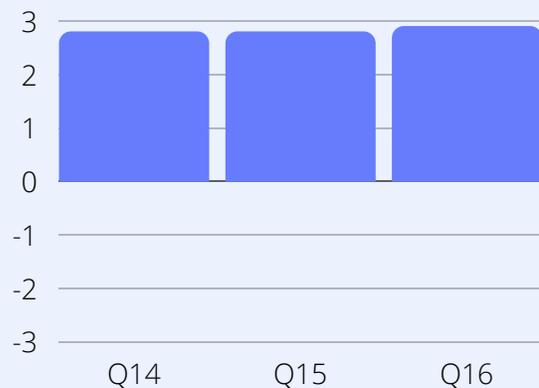
At the end of our 12-week program, we asked the participants the following questions to better understand how they felt about the COPD ConnEx program as well as the impact it had on them. We had positive results across the board!

"On a scale of - 3 (Strongly Disagree) to + 3 (Strongly Agree)..."

Q14 - Would you now feel more comfortable receiving or partaking in online help and services?

Q15 - Were you happy with the structure of the program?

Q16 - Are you more likely to incorporate a healthier routine in your life now that you have been a part of the program?



Program Success Survey | Week 12

“On a scale of - 3 (Strongly Disagree) to + 3 (Strongly Agree)...”

Q4 - Have the exercises helped you feel more confident becoming more physically active?

At the end of the program, participants felt more confident in becoming physically active

Q7 - Do you feel adequately supported by the program?

Participants felt very supported by the program

Q9 - Have you found the exercises were explained well and therefore easy to carry out independently?

Participants felt the exercises were explained to them properly and they were able to carry them out on their own

Q10 - Do you think this program has helped you feel stronger, physically and mentally?

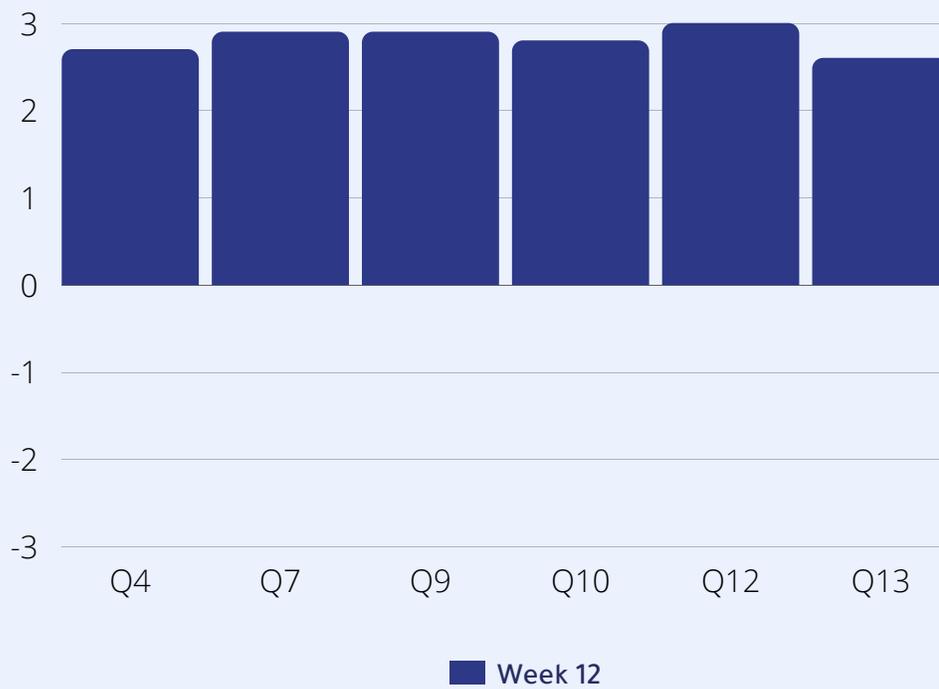
After completing the program, participants felt mentally and physically stronger

Q12 - Are you satisfied with the quality of instruction given to you in the program?

Participants were all extremely satisfied with their instructor

Q13 - Do you think your health has improved during this program?

Participants felt their health was improving and didn't feel like it was deteriorating (important!)



Here's a bit more about what our participants had to say...

“ “ This program gave me the exercises that I can stay consistent with. There's no way I can go into a gym because of my back and my breathing. So having someone meet me online every week, gave me the push to keep consistent. I feel better while doing the exercises. Before I was taking small steps up the stairs and now, I am able to go up one step at a time, with ease. These are all pluses that I couldn't do before the program.

I feel better, mentally, and physically. Because the program showed me that I can accomplish more, and I have more energy after my session.

- Christine ” ”

“ “ My kinesiologist was a great instructor, making sure I see her doing the exercise from different views, and watching and correcting my form. She answered all my questions. such as what is this exercise for? How does it help me etc. I loved the one-on-one basis of the class.

I believe the exercises helped a lot. I really like that they were developed to fit my needs and disabilities. - Lori ” ”

“ “ COPD ConnEx came to me at a perfect time! I was really motivated to feel better. I really love the one-on-one sessions; it was a great motivator. I knew I would go into every session ready to improve my next set of exercises. Everyone needs a program like this in their lives. I am still using the program every day.

I feel mentally better, and I can complete things in the house, I couldn't and didn't want to accomplish. I now have the physical and mental energy to accomplish small projects around the house.

-John ” ”

Appendix I

Table 1. Baseline characteristics of the participants

	N	Total
Sex, n(%)		
Male	75	25 (33.3)
Female	75	50 (66.7)
Age (year)	74	69.9 ± 8.9
Weight (Kg)	63	81.8 ± 26.1
Height (cm)	64	167.2 ± 11.2
BMI (kg/m ²)	63	29.3 ± 9.5
Primary Diagnosis, n(%)		
COPD	75	66 (88.0)
ACOS	75	1 (1.3)
COPD/ACOS	75	6 (8.0)
Severe Asthma	75	1 (1.3)
Asthma	75	1 (1.3)
Smoking status, n(%)		
Current smoker	73	13 (17.8)
Former	73	56 (76.7)
Never	73	4 (5.5)
Smoking packing years	71	33.2 ± 18.0
Any Comorbidities, n(%)	75	60 (80.0)
FEV ₁ , L	64	1.3 ± 0.6
FEV ₁ , predicted%	64	50.1 ± 19.1
FVC, L	60	2.4 ± 0.8
FVC, predicted%	58	76.5 ± 21.1
FEV ₁ /FVC, %	55	54.4 ± 16.8
GOLD stage		
Mild	70	5 (7.1)
Moderate	70	28 (40.0)
Sever/very sever	70	37 (52.9)
SpO ₂ _Rest%	71	94.2 ± 2.5
MRC (scale 0-4), median (Q1, Q3)	75	2.0 (2.0, 3.0)
MRC≥2, n(%)	75	60 (80.0)
Home_supplemental_O ₂ , n(%)	75	27 (36.0)
History_Falls_Dizziness, n(%)	75	20 (26.7)
Walking_Aids, n(%)	75	21 (28.0)
Previously_Active, n(%)	75	47 (62.7)
Sedentary before program, n(%)	75	36 (48.0)

Data are presented as mean ± sd unless otherwise specified;