LIVELY Physical Activity Intervention in COPD

Background and Outline of Intervention



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Background of the LIVELY Physical Activity Intervention in COPD

Physical activity guidelines for healthy adults recommend at least 150 minutes of physical activity per week, or 10,000 steps per day^{1,2}. In respiratory conditions the guidance remains unclear. 7000 steps per day has been suggested for populations with respiratory conditions. However, this may not be realistic in patients with severe respiratory conditions³. Physical activity guidelines recognise that some physical activity is better than none.

Research has shown that the physical activity levels of patients with chronic respiratory disease do not meet the current guidelines. Studies exploring PA in COPD demonstrated that patients lead a largely inactive lifestyle; the average daily time spent in sedentary behaviour was 645 and 676 minutes and average daily step counts were 3,495 and 5115 steps^{4, 5, 6}.

There is strong evidence that physical inactivity is associated with decreased survival, poorer health related quality of life and increased healthcare utilisation in chronic respiratory disease^{7, 8, 9, 10}. Therefore, the overall aim of the LIVELY Physical Activity Intervention in COPD (LIVELY in COPD) is to work towards the physical activity guidelines taking into consideration the severity of the patient's condition and symptoms. By planning and monitoring the amount of steps they take each day, patients will be encouraged to increase the amount of time they spend walking at moderate intensity (rating 3 on BORG scale).

¹ O'Donovan, G., Blazevich, AJ., Boreham, C., et al. (2010) The ABC of physical activity for health: a consensus statement from the British Association of Sport and Exercise Sciences. J Sports Sci, 28(6):573-91.

Tudor-Locke, C., Bassett, DR. (2004). How many steps/day are enough? Preliminary pedometer indices for public health. Sports Med, 34(1):1-8.

Tudor-Locke, C., Washington, TL., Hart, TL. (2009) Expected values for steps/day in special populations. Prev Med, 49:3-11. ⁴ O'Shea, OM., Bradley, JM., McDonough, SM., et al. (2015) Patterns of physical activity in patients with COPD in Northern Ireland. Irish Thoracic Society winter meeting 2015.

Troosters, T., Sciurba, F., Battaglia, S., et al. (2010) Physical inactivity in patients with COPD, a controlled multi-centre pilot study. Respir Med, 104(7):1005-1011.

⁶ Park, SK., Richardson, CR., Holleman, RG., et al. (2013) Physical activity in people with COPD using the National Health and Nutrition Evaluation Survey dataset (2003-2006). Heart and Lung, 42:235-240.

Waschki, B., Kirsten, A., Holz, O., et al. (2011) Physical activity is the strongest predictor of all-cause mortality in patients with COPD: a prospective cohort study. Chest, 140:331-42.

³ Garcia-Rio, F., Rojo, B., Casitas, R., et al. (2012) Prognostic value of the objective measurement of daily physical activity in patients with COPD. Chest, 142:338-46.

⁹ Watz, H., Waschki, B., Boehme, C., et al. (2008) Extrapulmonary effects of chronic obstructive pulmonary disease on physical activity: a cross-sectional study. *Am J Respir Crit Care Med*,177:743-51. ¹⁰ Garcia-Aymerich, J., Lange, P., Benet, M., et al. (2006) Regular physical activity reduces hospital admission and mortality in

chronic obstructive pulmonary disease: a population based cohort study. Thorax, 61:772-8.

There is evidence that physical activity interventions in patients with COPD, have demonstrated some effect on the physical activity levels of patients¹¹. The minimal important difference (MID) in physical activity in patients with COPD immediately after pulmonary rehabilitation is 600-1100 steps per day¹². Considering that most patients with chronic lung disease typically exhibit low levels of daily activity it is important to recognise that relatively small increases in physical activity could potentially be effective in generating important health benefits¹³.

LIVELY in COPD considers guidelines for physical activity/walking and behaviour change strategies of the COM-B model¹⁴.

The behaviour change strategies embedded in LIVELY in COPD include:

- Setting an overall walking (or functional) goal
- Providing information on the consequences of behaviour in general and for the individual and (pro/cons) of being more active (any risks of not being more active)
- Discussing barriers to physical activity
- Building self-efficacy by focusing the patient's attention on areas they have been able to do well and their achievements.
- Planning behaviour using action and coping plan
- Recording daily steps with pedometer
- Reviewing planned and actual walking behaviour each week with clinician by reviewing diary and pedometer daily step count and provide feedback
- Rewarding success/effort
- Encouraging social support, walking with friends/family or walking to meet somebody

¹¹ Wilson, J., O'Neill, B., Collins, EG., et al. (2014) Interventions to Increase Physical Activity in Patients with COPD: a comprehensive review. *Journal of COPD*, 12(3):332-43.

¹² Demeyer, H., Burtin, C., Hornikx, M., et al. (2016) The minimal important difference in physical activity in patients with COPD. *PLoS ONE* 11(4):e0154587.

¹³ Minton, J., Dimairo, M., Everson-Hock, E., et al. (2013) Exploring the relationship between baseline physical activity levels and mortality reduction associated with increases in physical activity: a modelling study. *BMJ Open* 3(10):e003509.

¹⁴ Michie, S., van Stralen, MM., West, R. (2011) The behaviour change wheel: A new method for characterising and designing behaviour change interventions. *Implementation Sci*, 6:42.

How could health professionals integrate the LIVELY Physical Activity Intervention in COPD into clinical practice?

LIVELY in COPD provides health professionals with one approach which could be used to support patients with COPD to meet physical activity guidelines. It could be delivered as a stand-alone intervention, in conjunction with pulmonary rehabilitation to support the delivery of the aerobic component and/or following pulmonary rehabilitation as a maintenance programme.

Who can use this intervention to deliver physical activity to patients with COPD?

Any healthcare professional involved in delivering care to patients with COPD can deliver LIVELY in COPD.

A training package has been developed that could be delivered upon request by the team who developed the intervention. For futher details on the training please see contact detail on Page 12.

Patient Population: Which patients with COPD are likely to respond/ may not be suitable for the intervention?

LIVELY in COPD may be best suited for patients with COPD who:

- Would like to increase their level of physical activity
- Are confident to complete physical activity supported with weekly clinician contact
- Are medically able to complete physical activity unsupervised.

LIVELY in COPD may not be suitable for patients who:

- Are already highly active/meet the guidelines for physical activity For example, greater than 12500 steps per day -see Toolkit)
- Have severe symptoms.
- Are not medically able to complete physical activity unsupervised. For example, unstable angina, neurological, spinal or skeletal dysfunction affecting ability to exercise.

Materials to Support Delivery of the Intervention

The Health Professional guide - includes the following parts:

- **Background and Outline of Intervention:** summary of the background and underlying theory of intervention, the target patient population and the materials and delivery of the intervention
- Health Professional Consultation Scripts: Each consultation contains the following sections:
- How to prepare for the consultation
- Consultation script which guides the HP step by step through the delivery of the consultation
- Consultation plan worksheets for the health professional to record the consultation
- Health Professional Toolkit: additional supplementary information and tools
 to support the delivery of the intervention. For example:
- o potential assessment tools
- strategies for overcoming potential barriers to walking
- o advice on addressing potential complaints due to walking,
- an alternative time-based walking intervention if the patient does not have access to a pedometer

The Patient Manual "My Walking Plan" includes

 an overview of the intervention and the benefits of walking, weekly step diaries and a walking plan

Delivery of the LIVELY Physical Activity Intervention in COPD

Delivery (Refer to the flowchart in Figure 1): LIVELY in COPD has been designed to enable you to help the patient, over a 12 week period (usually 6 weeks face-to-face contact and 6 weeks telephone contact), to plan and monitor their weekly walking activities. It is designed to be used alongside a range of materials which are available in the "Toolkit" section

Weekly PA consultations: Each week (see figure 1- flow diagram) the PA consultation will be conducted according to the consultation instructions and script and the information relevant to each patient will be recorded on the PA Consultation Plan for the patient. These weekly consultations will occur face-to-face with the patient for the first 6 weeks, followed by telephone consultations from week 6-12 (unless individual circumstances prevent this).

The patient will have specific materials relating to the Physical Activity Intervention including a diary to record their weekly walking goals and an action and coping plan (see the patient manual called "My Walking Plan").

Resources Required to Deliver the Intervention

- The resources and materials required to deliver each appointment are summarised in the "Preparation prior to Appointment" section of the Consultation Template for each appointment. These include: patient consultation plan, toolkit items, patient manual, stop watch, oxygen saturation monitor, BORG breathlessness scale, oxygen cylinder for a patient on LTOT as applicable.
- 2. Method of measuring step count: There are many ways to measure step count including pedometers and smart phone APPs¹⁵.

Before the patient begins the intervention contact the patient to ask them if they currently use a pedometer/smart phone APP:

- If the patient has a pedometer/smart phone APP remind them to bring this to their first appointment.
- If the patient does not have a pedometer/smart phone APP ask if they wish to purchase one, OR check if your site provides a pedometer.
- If a pedometer/smart phone APP cannot be provided, use a time-based walking programme. An example of a time-based walking programme is provided in the 'Health Professional Toolkit'.

¹⁵ The recommended pedometer for this programme is the YAMAX Digiwalker, which can be purchased online (approx. £18). This has important characteristics: 7 day memory, calculates steps, distance and time walked, easy to use buttons. Other cheaper alternatives are available; make the patient aware these others may have disadvantages e.g. no 7 day memory therefore relying on the patient to record their own steps at the end of each day. Many smart phones have free APPs which record step counts. They do not need wifi/3G to work. They have to be carried with the patient in their pocket/or handbag to record steps. The accuracy of these has not been reviewed and considerations include whether there is any movement that is not walking recorded e.g. in a car. **The important thing is that the patient has something to use to measure their step count.**

Figure 1: Delivery of the LIVELY Physical Activity Intervention inCOPD

LIVELY Physical Activity (PA) Intervention Appointment Pathway

Preparation in advance of Physical Activity Consultation/Appointment 1: Review the patient's chart and use the Physical Activity Consultation instructions, script and toolkit to prepare in advance for the Physical Activity Consultation. Contact the patient to discuss method for measuring step count.

Physical Activity Consultation/Appointment 1: Physical Activity Consultation with patient. Familiarisation of pedometer and step diary. Patient is provided with information e.g. via the Living Well with COPD (LWWCOPD) for PR booklet. Managing breathlessness educational component (usually) covered. Arrange face-to-face appointment one week from now.

Appointment 2: Physical Activity Consultation with patient and initial progress reviewed. Self-Efficacy Walk, Step Goal setting, action & coping plan. Arrange the next face-to-face appointment one week from now.

Appointment 3-5: Patient progress reviewed & issues addressed. Follow-up Physical Activity advice given. Revisit step goal and agree new goal and action plan with patient. Educational component covered – COPD self-management action plan & medications (appointment 5 usually). Arrange next face-to-face appointment one week from now.

Appointment 6: Patient progress reviewed & issues addressed. Follow-up Physical Activity advice given. Revisit step goal and agree new goal and action plan with patient. Hand over to telephone support (as appropriate) and arrange telephone follow-up for one week from now. *

Appointment 7-11: Patient progress reviewed & issues addressed. Follow-up Physical Activity advice given. Revisit step goal and agree new goal and action plan with patient. Hand over to/continue telephone support and arrange telephone follow-up for one week from now. *

Appointment 12: Patient progress reviewed & issues addressed. Review progress of overall programme and the personal goal. Continuing Physical Activity advice will be given. Walking goal for 3 months will be set and an action and coping plan developed. Patient will be provided with a summary of their barriers and solutions and local resources for maintaining PA. Discuss follow up as appropriate to individual site.

* See advice in toolkit flow diagram 3, on what to do if patient requires additional face-to-face contact post week 6.

Notes

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