Office for Health Improvement & Disparities

Physical activity and long COVID webinar

Yorkshire and the Humber 15/12/2021

ADPH Yorkshire and the Humber

Time	Agenda item	Who
1500-1505	**Welcome**	**Timothy Howells** *Health and Wellbeing Support Manager, Office of Health Improvement and Disparities, DHSC*
1505-1515	**Update on the Y&H long COVID report**	**Lewis Smith-Connell**, *Health and Wellbeing Programme Manager, Office of Health Improvement and Disparities, DHSC*
1515-1530	**Launch of the new Y&H physical activity and long COVID report**	**Timothy Howells** *Health and Wellbeing Support Manager, Office of Health Improvement and Disparities, DHSC*
1530-1545	**Physical activity and long COVID in Leeds**	***Leeds City Council, Leeds Community Healthcare NHS Trust and CAWS group***
1545-1600	**Physical activity and long COVID in East Riding of Yorkshire**	***East Riding of Yorkshire council and Nuffield Health***
1600+	**Q&A**	*All*

Long COVID

Lewis Smith-Connell, *Health and Wellbeing Programme Manager, Office of Health Improvement and Disparities, DHSC*

Understanding Long Covid in West Yorkshire

Using a Post Acute Covid-19 model

Lewis Smith-Connell

Office for Health Improvement & Disparities

Background

- Long Covid interest emerged out of Covid-19 response, nationally interest was growing in understanding the long term impact of Covid, particularly cases where people were not recovering even a year after initial infection.
- Some areas, including Leeds, were forerunners setting up services before national attention was taking notice
- NHSE began to bring together regional representatives for Long Covid and started to develop a loose spec and funding envelope for assessment centres. A care pathway started to emerge
- Shortly after PHE (as was) set up a regional leads network, primarily of healthcare public health specialists who worked with data to provide needs assessments and other support to services and commissioners
- Assessment funds came through ~82 assessment centres across the country, around June/July funds were secured for treatment – to increase capacity in existing services or to develop new services.

Definition

- Clinically this syndrome has been captured by NICE, SIGN and RCGP guidelines[2] which detail the effects of Covid as distinguished into three stages:
  - Acute Covid-19 infection – symptoms consistent with Covid-19 during the first 4 weeks following infection
  - Ongoing symptomatic Covid-19 – signs and symptoms of Covid-19 beyond 4 weeks but less than 12 weeks following infection, during this period the patient is no longer contagious
  - Post-Covid-19 Syndrome (or Post-Acute-Covid-19 Syndrome) – Signs and symptoms that develop during or after infection that continue for more than 12 weeks which are not explained by alternative diagnosis, during this period the patient remains non-contagious

References
1. How and why patients made Long Covid (nih.gov)
2. NG188 Covid-19 rapid guideline: managing the long-term effects of Covid-19 (NICE)

How common is Long Covid?

- The main source used for overall national prevalence for Long Covid is the ONS[1]. The ONS data set uses self reports by people completing the Covid Infection Survey (CIS).
- Another study; the Real-time Assessment of Community Transmission (REACT-LC), a government funded research programme reviewing Covid antibody presence as part of efforts to understand how far the virus has spread.

ONS estimates *1.26%*[1] of people living in private households have self-reported Long Covid symptoms at least 12 weeks following infection. Of those reported to have had Acute Covid *13.7%*[2] went on to experience at least one symptom lasting over 12 weeks

REACT-LC estimates *5.75%* of people in the community in England have self-reported Long Covid symptoms at least 12 weeks following infection.

- Both of these estimates are self reported

References:
1. Prevalence of Long Covid symptoms and COVID-19 complications (Sept) (ONS)
2. Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK (Apr) (ONS)
3. Persistent symptoms following SARS-CoV-2 infection in a random community sample of 508,707 people (Imperial REACT-LC)

Further reading:
- Prevalence of ongoing symptoms following coronavirus (COVID-19) infection in the UK (ONS) [updated dataset 09/2021]
- PHE LKIS modelling (not online, available by request to LKIS only)

Referrals and activity North East and Yorkshire

- Up to the end of September NE&Y received 6939 referrals with the bulk (81%) from primary care and some (~13%) from secondary care.
- The vast majority of referrals were accepted (92%) and 2/3 have completed assessment
- Time between referral and assessment does take time (~79% wait over 42 days)

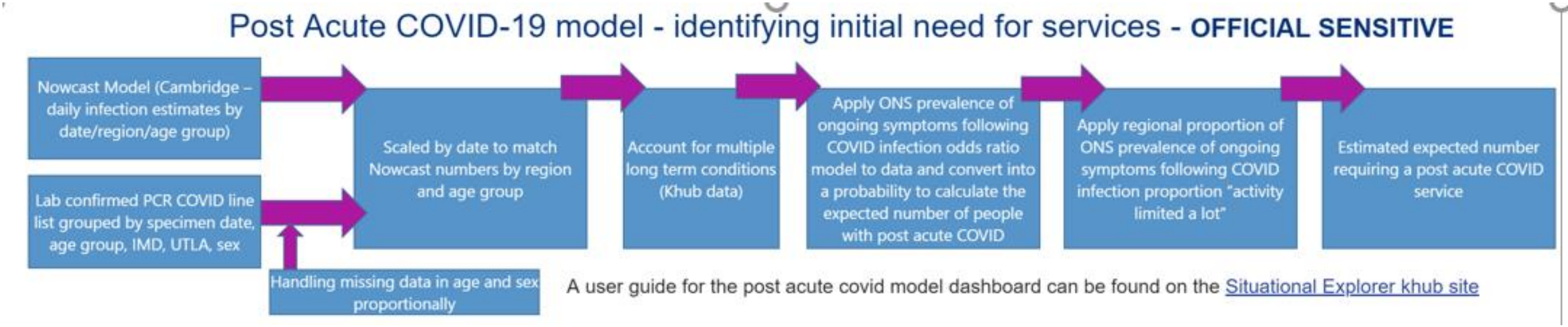
Who is referred?

- **Sex** – females account for 56%, unknown/not known account for 9.6%
- **Ethnicity** – 73% are white, 19.8% unknown/not reported, 3.9% Asian, 1.8% other ethnic group, 1.4% mixed ethnicity and 0.8% Black.
- **Age group** – 45-54 25%, 55-64 24%, 35-44 17%, bell chart distribution across ages

Cross match with predictions

- **Sex** – closely matches expected 55.88% female
- **Ethnicity** – predictions do not currently review ethnicity
- **Age group** – 35-49 (26%) age group, followed by 25-34 (21%), and 50-69 (25%) again following a loose bell chart distribution
- **Deprivation** – We do expect a linear distribution for deprivation with the most deprived having the highest rate (IMD 1 ~25%) decreasing with each quintile to the least deprived (IMD 5 16%) Currently this data is not recorded by assessment centres

The Demand Model



Model Assumptions

- The definition used for the model is “signs and symptoms that develop during or after an infection consistent with Covid-19 which continue for more than 12 weeks and are not explained by an alternative diagnosis”. Which is pulled from the NICE definition with NG 188
- The model uses the ONS estimate of ongoing symptoms for 12+ weeks. The ONS logistic regression model is built on but does not include effects such as mass vaccination and changes to Covid treatment protocols which may have changed since that model was published in May 2021.
- As a proxy measure for those requiring support services the metric for people who have their activity limited lot by their post-acute Covid symptoms pulled from the ONS Prevalence of ongoing symptoms following covid-19 infection (activity limitation).
- Line list data is scaled to match regional and age distributions in the Nowcast estimated infections. This assumes that acquisition of cases is consistent between different genders and IMD.

- Health / disability status is estimated in the model based on population data. This assumes that the categories used in this data are representative of the categories used for the ONS logistic regression, and that there are no extraneous biases in case acquisition or infection for these groups.
- In cases where age and / or sex are missing from the line-list data previous distributions for that region are imputed.
- The impact of hospitalisation has not been considered, and so differences in the incidence and severity of Long Covid for this group is not accounted for.
- For both the ONS infection survey and the Nowcast data the median value has been used, this does not take into consideration the variation in this data.
- The model is built around presenting need for recovery at 12 weeks post infection and does not take into consideration any presentations beyond this period.

Other models

NHS analytics hub

- Data on service activity, demographics, diagnostic tests and onward pathways

Passive surveillance

- Not yet in motion
- Use of electronic health records to passively monitor all those that flag as having Covid-19 (Primary care and potentially tests where matched to person such as PCR)
- Longitudinal cohort study comparing those with Acute covid but no presentation of symptoms vs those that later present with a list of symptoms associated with Long Covid (even if Long Covid code not used)

Launch of the new Yorkshire and the Humber physical activity and long COVID report

https://www.yhphnetwork.co.uk/links-and-resources/physical-activity-inequalities/the-coronavirus-pandemic/

Timothy Howells, *Health and Wellbeing support manager, Office of Health Improvement and Disparities, DHSC*

Introduction

- Low levels of physical activity are a major public health challenge
- The pandemic has amplified these challenges and increased inactivity
- 1.9% fall in active adults (710,000) (2.3% fall in children) and 2.6% rise in inactive adults (1.2m)
- Increase in sedentary time due to implications of Non-Pharmaceutical Interventions
- Disproportionate with greater inequalities among; Ethnic minority groups, Women, children and young people, disabled people, older adults and people with Long Term Health Conditions, LGBTQ+, those living with SMI.
  https://www.yhphnetwork.co.uk/links-and-resources/physical-activity-inequalities/

COVID19 infection

- Emerging causal link between physical inactivity and more severe COVID19 infection and a heightened risk of dying.

- Physical activity “enhances the first line of defence of the immune system, and increases the potency of vaccination” [1]

- Short of vaccination and following public health safety guidelines such as social distancing and mask use, engaging in regular [physical activity] may be the single most important action individuals can take to prevent severe COVID-19 and its complications, including death [2]

- Breaking up sedentary time, may optimize metabolic health and immune health [3]

Deconditioning

Wider impacts of COVID-19 on physical activity, deconditioning and falls in older adults

- 32% of older adults were inactive (March to May 2020) up from 27% (March to May 2019)

- Forecast increase of 3.9% more people having at least one fall per year (110,000 people)

- Plausible that long COVID will lead to further deconditioning in some older adults

Physical activity and long COVID – What does the research say?

Multiple reviews, RCTs, Cohort studies and case reports

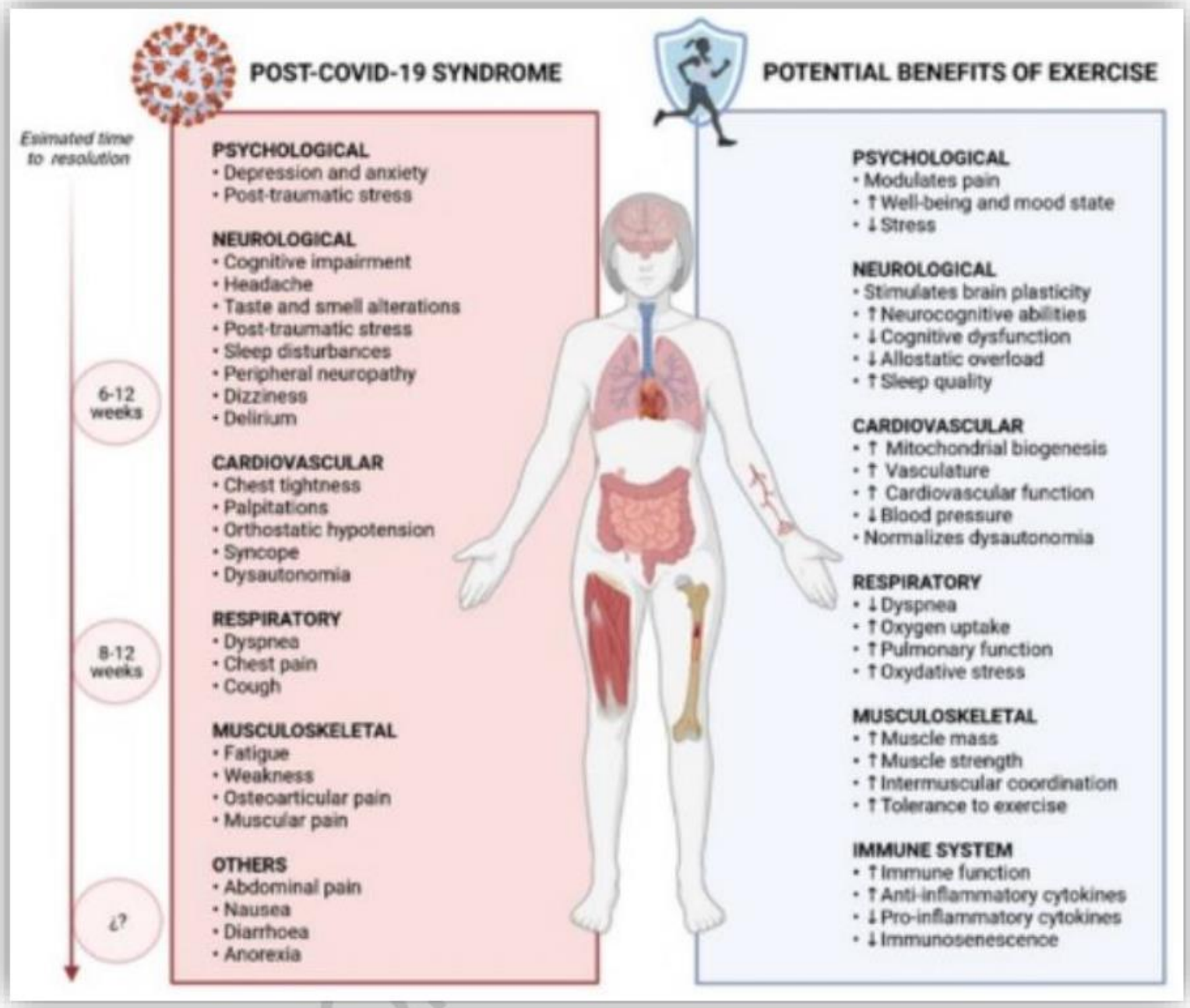
- "Exercise, early mobilisation and multicomponent programmes may improve recovery following ICU admission for severe respiratory illness" [1]

- HBE (*Home Based Exercise*) or OBE (*Outdoor Based Exercise*) models can be a potent strategy to mitigate the progress of infection, and a coadjutant therapy for COVID-19" [2]

- "There is sufficient evidence suggesting that tailored and supervised exercise training may be an effective multisystemic therapy for post-COVID-19 syndrome" [3]

- Low intensity exercise, including e.g. Yoga and interval training over high intensity aerobic exercise [4,5]

- Physical activity might be protective against neurocognitive impairment/fatigue symptoms after COVID-19 [6]


POST-COVID-19 SYNDROME
POTENTIAL BENEFITS OF EXERCISE
Esimated time to resolution
6-12 weeks
8-12 weeks
¿?
PSYCHOLOGICAL
• Depression and anxiety
• Post-traumatic stress
NEUROLOGICAL
• Cognitive impairment
• Headache
• Taste and smell alterations
• Post-traumatic stress
• Sleep disturbances
• Peripheral neuropathy
• Dizziness
• Delirium
CARDIOVASCULAR
• Chest tightness
• Palpitations
• Orthostatic hypotension
• Syncope
• Dysautonomia
RESPIRATORY
• Dyspnea
• Chest pain
• Cough
MUSCULOSKELETAL
• Fatigue
• Weakness
• Osteoarticular pain
• Muscular pain
OTHERS
• Abdominal pain
• Nausea
• Diarrhoea
• Anorexia
PSYCHOLOGICAL
• Modulates pain
• ↑ Well-being and mood state
• ↓ Stress
NEUROLOGICAL
• Stimulates brain plasticity
• ↑ Neurocognitive abilities
• ↓ Cognitive dysfunction
• ↓ Allostatic overload
• ↑ Sleep quality
CARDIOVASCULAR
• ↑ Mitochondrial biogenesis
• ↑ Vasculature
• ↑ Cardiovascular function
• ↓ Blood pressure
• Normalizes dysautonomia
RESPIRATORY
• ↓ Dyspnea
• ↑ Oxygen uptake
• ↑ Pulmonary function
• ↑ Oxydative stress
MUSCULOSKELETAL
• ↑ Muscle mass
• ↑ Muscle strength
• ↑ Intermuscular coordination
• ↑ Tolerance to exercise
IMMUNE SYSTEM
• ↑ Immune function
• ↑ Anti-inflammatory cytokines
• ↓ Pro-inflammatory cytokines
• ↓ Immunosenescence

Theoretical model

Long COVID symptom presentation

- Relapsing remitting presentation is consistent with those with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome [1]

- Exercise is a way of managing post exertional malaise to maintain progress and prevent deterioration of condition but it is important that this is based around **person centred energy management** as per the most recent NICE guidance on Myalgic Encephalomyelitis (ME) [2] – not graded exercise

- Peak in fatigue, brain fog, muscle aches and flu like symptoms after around 34-48 hours after exertion. This peak can lead to a return or exacerbation of symptoms. [3]

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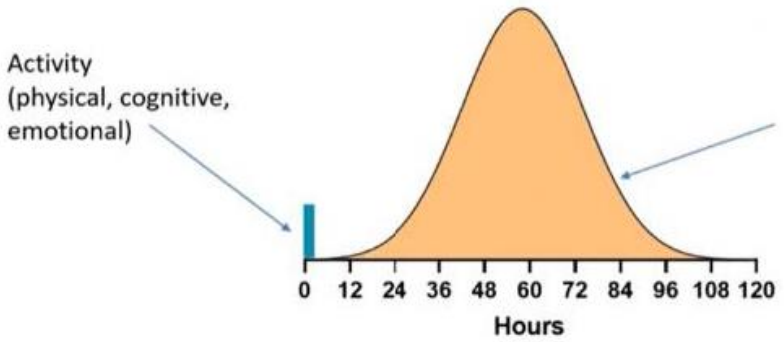
Post-exertional malaise/ Post-exertional symptom exacerbation



Symptoms:
Exhaustion
'Brain fog'
Muscle aches/pains
Disturbed sleep
'Flu like' symptoms
Headaches

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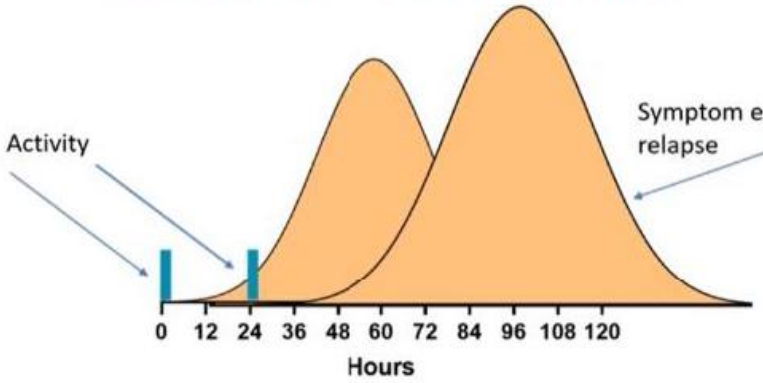
Post-exertional malaise/ Post-exertional symptom exacerbation – cumulative effect



Summary

- Physical inactivity is linked to increased severity and risk of mortality from COVID19 infection

- Being regularly active is a protective factor which can reduce the risk (Hospitalisation and death) of COVID19 infection.

- Emerging evidence also suggests that sedentary behaviour and excess sitting time has a heightened risk of COVID19 infection.

- People who experience worse COVID19 infection, including hospitalisation, are more likely to experience greater long COVID symptoms.

- Physical activity should play a role in recovery from long COVID.

- Ethnic minority communities have been disproportionately affected by the COVID19 pandemic and therefore it is plausible that these communities will also be disproportionately affected by long COVID*. Also likely to experience greater inequalities in physical activity participation, therefore these compounding factors should be carefully considered when viewing the recommendations of this report.

- Similar disproportionate affect of COVID19 and lower levels of physical activity are also seen among disabled people, those with LTHCs and older adults and likely to experience disproportionate impact of long COVID*.

*modelled data not available

Recommendations

Physical Activity should be seen as an important integrated part of long COVID pathways for all levels of severity of post COVID symptoms.

- Not enough vs too much – Importance of person centred energy management
- Local messaging should prioritise the role of physical activity and the COVID19 pandemic (Infection and long COVID) and https://www.yourcovidrecovery.nhs.uk/your-wellbeing/getting-moving-again
- Opportunity to upskill healthcare and non healthcare professionals (e.g. Community champions, wellbeing prescribers etc..) with knowledge of the role of physical activity in relation to the pandemic

https://www.yhphnetwork.co.uk/media/106314/physical-activity-training-offer-november-21-master-2.pdf

- Opportunity to review physical activity contracts, local physical activity strategies, active lifestyle programmes and the role of traditional exercise referral programmes*

Recommendations – Continued

- The risk of further deconditioning of older adult with long COVID should be considered in referrals to services and long COVID pathways
- NHS partners and the wider healthcare system should encourage the roll out of the “Physical Activity Clinical Champions” (PACC) programme https://movingmedicine.ac.uk/
- Workplaces should consider the implications of long COVID, especially post exertional malaise, on absenteeism and presenteeism. Also an opportunity for workplaces to consider the role of increasing physical activity and reducing sedentary behaviour for staff to help with recovery from long COVID and to protect them against future COVID19 infection. (Vax vs Unvax)

Physical activity and long COVID - Leeds

Leeds City Council, Leeds community healthcare and NHS trust and the CAWS group

Physical activity and long COVID – East Riding of Yorkshire

East Riding of Yorkshire and Nuffield Health

More information

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