



Return to work after long COVID: Evidence at 8th March 2021

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Scientific evidence about COVID-19 is vital to inform decision making by HSE, across Government, and healthcare and other professionals involved in the national response to the pandemic. This report describes a study to consider the scientific evidence on the impact of ‘long COVID’ on work, the workplace and return to work interventions. Long COVID is the illness that affects people who have symptoms for at least 12 weeks after the onset of infection. An international expert group contributed to the study. This scientific evidence is relevant to aspects of policy led by various Government Departments and agencies and is not specific to HSE.

The report summarises the evidence in the published scientific literature to 8 March 2021 on the impact of long COVID on work, the workplace, and return to work interventions. The researchers identified only seven published studies and highlight the global lack of evidence. The symptoms with the greatest impact on work and return to work appear to be fatigue, cognitive dysfunction such as difficulty concentrating and memory loss, and changes in taste and smell. In addition, this limited evidence suggests that a significant proportion of people with long COVID experience depression and anxiety. The report also reviews transferable evidence on interventions for other illnesses where some symptoms are similar, such as ME/CFS. The researchers make initial recommendations for guidelines to facilitate long COVID patients to return to work. They note that: these guidelines are in line with existing Faculty for Occupational Medicine (FOM) guidance and HSE information; and working is generally good for health. The national and global scientific evidence about COVID-19 continues to develop rapidly.

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Information and resources for the public are provided on the NHS website about:

[Supporting your recovery after COVID-19](#)

and

['The long-term effects of coronavirus \(long COVID\)'](#)

(accessed 30 November 2021.)

Return to work after long COVID: Evidence at 8th March 2021

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Key messages

This report aims to provide insight on the impact of long COVID on work and return to work. We know that some people recovering from COVID-19 still experience symptoms weeks or even months after their infection, which can impact on their daily functioning, including their ability to work. The report summarises the evidence in the published scientific literature to 8 March 2021 on the impact of long COVID on work, the workplace and return to work interventions. It also reviews transferable evidence for other illnesses and interventions where symptoms are similar. The findings are:

- There is a lack of published research on the impact of long COVID on work and return to work due to the recency of the pandemic. This study identified only seven relevant published studies after screening 2,545 publications. There is a global need for large and long-term cohort studies with mixed methods (qualitative and quantitative) in order to better understand the long-term consequences of COVID-19.
- Based on this limited evidence, the long COVID symptoms that seem to have the greatest impact on work and return to work are fatigue, cognitive dysfunction (such as difficulty concentrating and memory loss), and changes in taste and smell.
- There is currently no agreed scientific definition of long COVID. We therefore suggest using the UK National Institute for Health and Care Excellence (NICE) guidelines to define long COVID.
- Return to work for an individual with long COVID often needs involvement of several stakeholders: the recovering worker, employer, line manager, and health or occupational health professionals.
- Established good practice for return to work for other illnesses with similar symptoms is that the primary goal should be progressive, adaptive, and appropriate return to work and support at work (job retention), as working is generally good for health.

Our findings are in line with the return to work guidance published by the Faculty of Occupational Medicine (FOM) and information published by the Health and Safety Executive (HSE).

Executive summary

Background

Since the beginning of the COVID-19 pandemic, there have been more than 120 million cases and almost 2.8 million deaths globally, as of March 2021. Based on current scientific knowledge, we know that some people recovering from COVID-19 still experience symptoms such as fatigue, fever and cognitive dysfunction for weeks (5% to 36% of people) or even months (5% to 15% of people) after their infection. This is commonly referred to as long COVID. Long COVID is potentially a serious illness, with broad negative consequences for the individual suffering from it, as well as at the societal level. In addition, financial and employment consequences are arising and elevated levels of sickness absence and presenteeism are to be expected.

Aims

1) Provide insight in the current available literature of long COVID and its impact on work and 2) return to work. 3) To identify any current gaps in the literature supporting return to work. 4) Complement the data with transferable findings from studies related to other respiratory infections and interventions targeting symptoms similar to those present in long COVID. 5) Depending on the outcome of (3) formulate recommendations for any additional guidance to facilitate long COVID individuals to return to work.

Method

To identify and summarise the existing literature regarding the impact of long COVID on work, the workplace, and return to work interventions, we searched several databases. The inclusion criteria were: articles that studied the long-term effects of a COVID-19 infection (signs and symptoms for greater than 12 weeks) and articles that studied the impact on work and/or return to work of workers with long COVID. To find transferable findings from related diseases, we performed a narrative review of this literature. We used published documents to formulate initial recommendations for guidance to facilitate long COVID individuals to return to work.

Findings

We screened 2,545 articles, but our literature search identified only seven articles about the impact of long COVID on work and return to work. Preliminary findings from these articles found that symptoms that seemed to have the greatest impact on work and return to work were fatigue, cognitive dysfunction (such as difficulty concentrating and memory loss), and changes in taste and smell. In addition, individuals with long COVID experienced problems returning to work or were unable to return. Return to work interventions included working reduced hours, flexitime or working from home, moving to a role with lower physical or mental strain, and phased returns. Relapses could occur for those who returned to work, triggered by mental strains and stress.

Discussion

There is a global lack of published research on the impact of long COVID on work and return to work. The limited current literature shows that long COVID is having an impact on work and return to work, but more research on this topic is needed at an international level. In addition, the seven published articles study different groups of workers using a range of methods: this makes it difficult to generalise the results to all workers. Moreover, there is no agreed definition of long COVID among the different authors about long COVID and different terminology (for example 'long haulers' and 'chronic COVID') and definitions are used interchangeably.

The clinical presentation of long COVID, however, can share some similarities with other conditions with similar symptomology, most notably with Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS). More research on the impact of ME/CFS on work is already available and important lessons can be learned from this research. For example, despite the benefits of physical exercise in the general population, we infer from the research on these other conditions, that it will be important to consider whether or not physical exercise might be detrimental for patients suffering from long COVID if post-exertional malaise is present. If the presence of post-exertional malaise is confirmed, pacing and activity management might become the priority of the recovery programme. However, we stress that at this time (8 March 2021) further research on ME/CFS is also ongoing internationally, and the optimal approaches to support recovery of these patients is itself evolving and

changing as more evidence becomes available. For example, NICE is reviewing their guidelines on the best approach to the diagnosis and management of ME/CFS following the publication of a draft updated guideline on 10 November 2020 for consultation.

In addition, the limited current literature suggests that a large proportion of individuals suffering from long COVID show high rates of depression, anxiety, and post-traumatic stress disorder (PTSD). These psychological and emotional problems may also significantly impact work and return to work. Perceived social stigmatization, both for (long) COVID and psychological and emotional problems, warrant a return to work in a safe environment with social support (within and outside the workplace), to reduce mental stress.

For both ME/CFS and PTSD, cognitive-behavioural therapy could be considered by an individual as part of return to work, but the current evidence about its effectiveness is conflicting and suggests that its effectiveness may vary depending on the individual's response.

Guidelines on return to work

Return to work for individuals with long COVID is complex and will differ for each individual. We recommend the following return to work guidelines which are in line with the existing guidance published by the Faculty of Occupational Medicine (FOM) ('Guidance for healthcare professionals on return to work for patients with long COVID' [accessed 08/03/2021](#) and 'Guidance for managers and employers on return to work for employees with long COVID', [accessed 08/03/2021](#)) and HSE information ('Managing sick leave and return to work', [accessed 08/03/2021](#)).

- Health professionals are involved with return to work advice as soon as possible.
- Early contact by the employer with the absent employee – within the first two weeks from the onset of the absence is recommended as a good practice.
- Involvement of all stakeholders (for example the health or health care professional and employer) in the reintegration process of the recovering worker with long COVID.
- A progressive, adaptive, and appropriate return to work is the primary goal since an individual does not need to be 100% fit to return to work. In order to maximise

the job retention, we recommend that occupational health professionals, where available, play an active role in the return to work.

- Working is generally good for health and this also applies for workers suffering from long COVID. Return to (adapted) work needs to be prepared and can be an effective part of the rehabilitation.
- The occupational health professional, where available, should develop a close and trustful relationship with all stakeholders to initiate a return to work. The worker with long COVID should be allowed to be actively involved in (re)designing his/her work.
- The work of the individual with long COVID is adequately and appropriately adapted where possible. Therefore, there is the need for extended information on the job, tasks, physical and mental demands of the job.
- A return to work plan for individuals with long COVID could include: a phased return, flexible work, time off for rehabilitation and medical appointments, fatigue management strategies, adapting work tasks, etc.

Conclusion

Long COVID can have a significant impact on daily functioning, including the individual's ability to return to work. Return to work for an individual with long COVID is likely to require the involvement of several stakeholders, for example recovering worker, employer, line manager and where available occupational and other health professionals). In line with established good practice, the primary goal should be a progressive, adaptive and appropriate return to work, which supports the individual's job retention, as good work is good for health. These findings are in line with the existing guidance by FOM and HSE information on return to work.

At the time of this review (8 March 2021), there is a lack of published research on the impact of long COVID on work and return to work. Large and long-term cohort studies with mixed methods (qualitative and quantitative) are needed at an international level to better understand the long-term consequences of COVID-19 and the impact on the return-to-work process.

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1. Introduction

Since the beginning of the COVID-19 pandemic, there have been more than 120 million cases and almost 2.8 million deaths, globally (to 29 March 2021) (1). In the UK there were more than 4.3 million cases and almost 150,000 deaths (to 28 March 2021) (2). In Belgium (location of the authors of this work), to date there have been more than 870,000 cases and almost 23,000 deaths (to 28 March 2021.) (3).

1.1 COVID-19 symptoms

Although more data is needed to elucidate the global epidemiology of COVID-19, early reports estimated that the large majority (over 80%) of confirmed COVID-19 cases are mild, inducing rapidly resolving symptoms such as cough, sore throat, low grade fever, difficulty breathing, and general fatigue (4). In such patients, the initial immune response combining cytokine release and antiviral interferon activation result in successful COVID-19 virus suppression (5). However, another 10%-15% can develop more severe symptoms such as pneumonia, acute respiratory distress, or multisystem organ failure (4). Evidence of neural involvement (dizziness, confusion, epilepsy, cerebral strokes, ataxia), cardiovascular damage, renal failure, gastrointestinal infection (and accompanying symptoms such as abdominal pain, nausea, and vomiting), hepatic and pancreatic injuries have been observed (5).

1.2 COVID-19 recovery times

Severe symptoms of an infection seem to be more prevalent in those individuals with pre-existing health issues like diabetes, hypertension, and cardiovascular diseases or psychiatric disorders (6). Having an underlying health issue in combination with having (multiple) symptoms during the acute phase of the infection could also lead to a slower recovery from COVID-19 (7). Based on current scientific knowledge, we know that a large proportion of people recovering from COVID-19 can still experience symptoms weeks or even months after their infection. In addition, it is not only patients who had a severe COVID-19 infection who can experience a slow recovery; this can also be the case for those who only experienced a mild infection. It is estimated that 5 to 36% of patients still experience symptoms 4 to 12 weeks after their infection, and 5 to 15% experience symptoms lasting longer than 12 weeks (8, 9). Most common long-term symptoms are generalised symptoms, e.g. fatigue or

fever, neurological impairments like headache or memory problems and respiratory symptoms like cough and shortness of breath (10-12).

1.3 Definition of long COVID

Although this persistent condition in people recovering from COVID-19 has been gaining more attention in research recently (13), little scientific literature is currently available. Another finding of this research is the lack of an agreed definition for those experiencing persistent symptoms following COVID-19 infection. Terms like “long COVID”, “chronic COVID”, “long haulers”, “post-COVID-19-syndrome”, “post-COVID-19-illness” and “long term effects of COVID-19” are all being used.

In this report, we chose to use the National Institute for Health and Care Excellence (NICE) to define long COVID (10). They define long COVID as symptoms that continue or develop after acute COVID-19, this includes both ongoing symptomatic COVID-19 symptoms (symptoms from 4 to 12 weeks) and post-COVID-19-syndrome (symptoms past 12 weeks). The latter is defined as signs and symptoms that develop during or following an infection consistent with COVID-19 which continue for more than 12 weeks and are not explained by an alternative diagnosis (10). The NICE definition describes that the condition usually presents with clusters of symptoms, often overlapping, which may change over time and can affect any system within the body. It also notes that many people with post-COVID-19-syndrome can also experience generalised pain, fatigue, persisting high temperature and psychiatric problems (10).

1.4 Potential consequences of COVID-19 and long COVID

Nevertheless, the impact of COVID-19 and long COVID on one’s general health can be significant and can challenge normal functioning. Taken together, it has become clear that long COVID can be a serious illness, with broad negative consequences on the person suffering from it, as well as at the societal level. In addition, financial and employment consequences may arise and elevated levels of sickness absence and presenteeism are to be expected (10). Finally, mental ill-health issues due not only to the illness itself, but also to prolonged social isolation and teleworking are rapidly raising to worrying levels (14).

Though these negative consequences in the future seem likely, very limited research has focussed on assessing the impact of long COVID on work and sickness absence, or to the possible interventions to assist individuals with long COVID to recover and return to work (RTW). We observe that long COVID patient groups formed quickly in the UK and elsewhere and have helped to drive recognition of the condition.

1.5 Report aim

In this report, we aim to provide insight into the current available literature and guidance on long COVID and its impact on work and RTW. In addition, relevant information can be retrieved from conditions and illnesses that share some clinical or pathophysiological features with long COVID, such as autoimmune and respiratory diseases, post-traumatic stress syndrome (PTSD), depression, anxiety, and chronic fatigue syndrome. These conditions are generally better understood, and a variety of strategies (ranging from workplace re-organisation to psychological and rehabilitative treatments) have been proposed, considered, and in some cases implemented.

The information gathered will allow us to identify measures and actions that can be taken to facilitate long COVID individuals to safely and promptly RTW, as well as to provide relevant stakeholders with recommendations on how to implement these measures.

1.6 Research objectives

The objectives of the research are:

- 1) Identify and summarise the existing literature regarding the impact of long COVID on work, the workplace and sickness absence;
- 2) Identify and summarise the existing literature on workplace interventions to assist individuals with long COVID RTW and reintegrate to the workplace;
- 3) Identify any existing gaps in data collection regarding long COVID's effect on work, the workplace and sickness absence, as well as interventions for RTW after long COVID;
- 4) Complement the data with transferable findings from studies related to other conditions with symptoms similar to those present in long COVID;

- 5) Depending on the outcome of (3) formulate brief initial recommendations for guidance in relation to possible intervention approaches to help identify workers with long COVID who could RTW and how to achieve this in a supportive and evidence-based way.

2. Methods

2.1 Methods - Review of the literature

To identify and summarise the existing literature regarding the impact of long COVID on work, the workplace, and RTW interventions, we searched Pubmed, Scopus, Embase, Cochrane CENTRAL, Cochrane CDSR, clinicaltrials.gov, bioRxiv and medRxiv for publications fitting the following conditions:

- (i) Long COVID (Coronavirus OR Betacoronavirus OR Coronavirus Infections OR COVID-19 OR chronic COVID OR long hauler OR post-acute COVID OR post COVID syndrome OR post COVID illness OR long term effects of COVID)
- (ii) Work related (workplace OR job site OR work site OR return to work OR back to work OR absenteeism OR sick leave OR sickness absence OR sick day OR illness day OR disability leave OR occupational health OR reintegration)
- (iii) Documents written/published in English after 2019.

The search was conducted on 8 March 2021. The full search string can be found in the Appendix.

To select relevant articles COVIDENCE review software was used (figure 1).

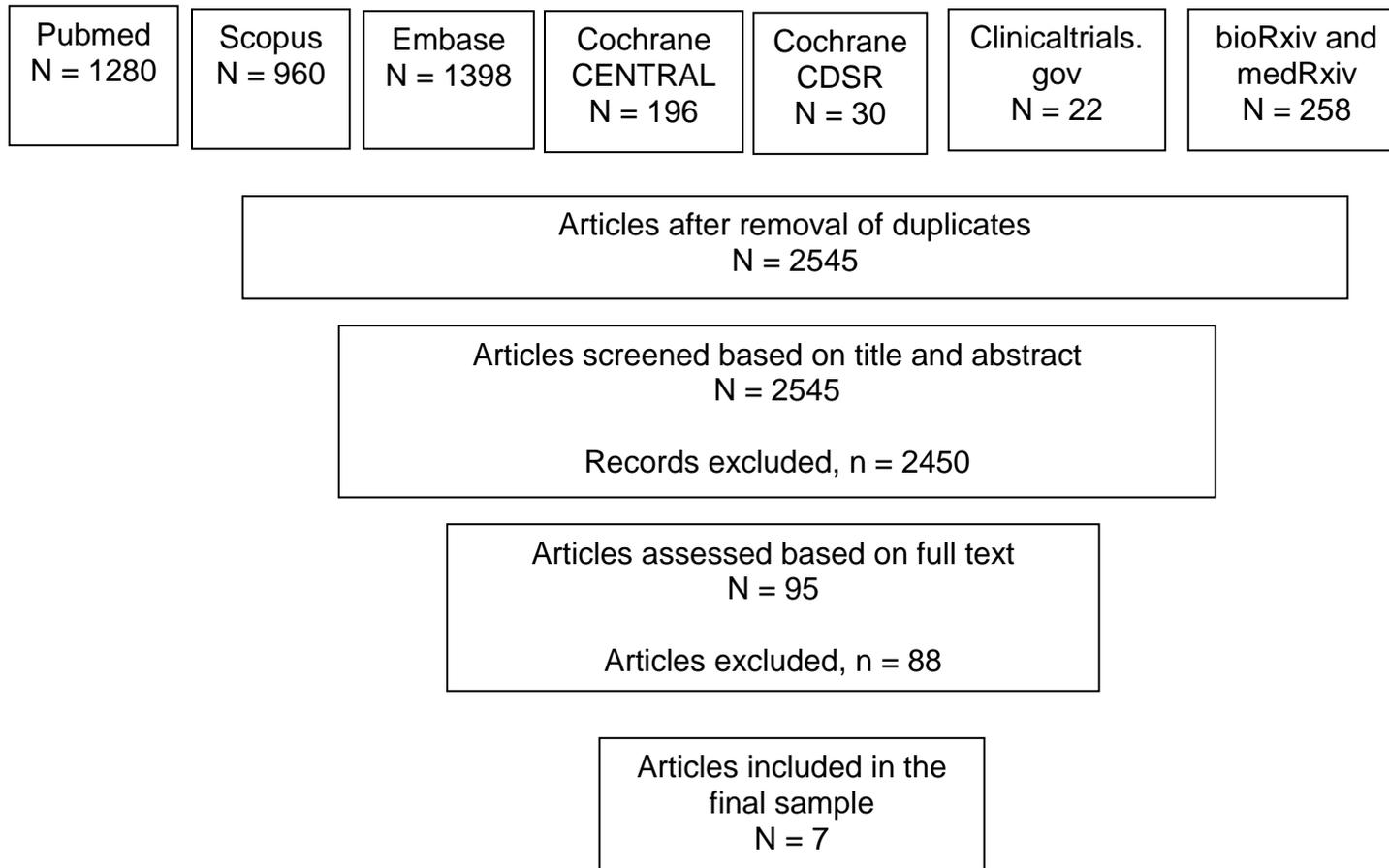


Figure 1. Selection procedure of the articles

A team of six reviewers performed the screening. After removal of duplicates, documents were screened based on title and abstract by two independent reviewers. Articles were excluded when both reviewers rejected the paper. In the next step, full texts were read by two reviewers and were included in the final sample when the following inclusion criteria were met:

(i) Articles that focused on long COVID

Due to the absence of an international consensus about the definition of long COVID, we followed the NICE definition of long COVID (10) as signs and symptoms of COVID-19 from 4 to 12 weeks (ongoing symptomatic COVID 19) and signs and symptoms that continue for more than 12 weeks (post-COVID-19 syndrome). For this review, we focused on the long-term effects and only included articles with signs and symptoms beyond 12 weeks.

(ii) Articles that focused on the impact on work and/or RTW of workers with long COVID.

Articles about the impact of the pandemic on work and RTW, the symptoms of individuals with long COVID, articles that used a different definition of long COVID etc. were excluded. The final sample for data extraction consisted of seven articles.

2.2 Methods - Narrative review: transferable findings on conditions with similar symptomology

We performed a non-systematic search of the literature for conditions with symptoms similar to those present in individuals with long COVID. Most notably, conditions with similar symptomology were ME/CFS and psychological problems and disorders, like depression, anxiety and PTSD.

2.3 Methods - Guidance to facilitate long COVID individuals to return to work

To formulate brief initial recommendations for guidance in relation to possible intervention approaches to guide workers with long COVID RTW, and to do this in a supportive and evidence-based way, we used the already published documents - Guidance for healthcare professionals on RTW for individuals with long COVID and Guidance for managers and employers on facilitating RTW of workers with long COVID (15, 16), HSE information on for return to work (17), and the principles of Disability Management (18).

3. Results of the review of the literature

3.1 Articles identified

Our search of the literature identified seven articles about the impact of long COVID on work and RTW (Table 1 and 2). Four articles were pre-prints and thus not yet peer reviewed. The other three articles were published in BMJ Open, Health and Quality of Life Outcomes, and Psychiatry Res. Five articles reported on the impact of long COVID on work, one article about the impact on RTW, and one article about the impact on both work and RTW.

3.2 Reported Symptoms

Long COVID symptoms that have been reported most in the literature are fatigue (98%), dyspnoea (93%), and headache (91%) (12, 19), but the symptoms that seem to have the greatest impact on work and RTW are fatigue, cognitive dysfunction, memory loss, and changes in taste and smell.

3.2.1 Watson et al.

Watson et al. (20) performed a qualitative study using posts and comments from the “AbScent Covid-19 Smell and Taste Loss” moderated Facebook support group covering 9000 users. Even after six months, some members felt the effect of taste and smell changes on their professional life, especially for those who partly relied on their nose to do their job (for example. nurses, food writers, cooks).

3.2.2 Davis et al.

Davis et al. (21) reported that 88% of participants in an international web-survey experienced cognitive dysfunction and memory loss, which had a great impact on their work (e.g. working reduced hours). Because of this, 86% of working respondents felt mildly to severely unable to work. Two thirds of the individuals with persistent fatigue six months post COVID-19 infection required a reduced work schedule or were unable to work (22).

3.2.3 Other studies

Other studies showed an impairment in work, absenteeism, and presenteeism (23), changes in the scope of their work, and losing their job (24, 25).

3.3 Working patterns and accommodations for return to work

An international web-based survey with 3762 participants from 56 countries reported that at least 45% of the working respondents were working remotely. It enabled respondents to take breaks when necessary and saved them the physical exertion of commuting to work. Other accommodations at work, like flexitime or moving to a role with lower physical or mental strain, and phased returns were necessary. For those who returned to their job, relapses occurred, triggered by the mental exertion and stress of work (21). An expert panel of multi-professional clinicians discussed the essential components of a rehabilitation recovery programme for COVID-19. The impact on employment was rated highly, including advice on returning to usual employment, where to get financial support advice, and advice on returning to alternative employment (26).

3.4 Additional pre-print

An additional pre-print was published online after we performed our search string (March 26th 2021) also fitted the inclusion criteria for our review. Ziauddeen et al. (27) recruited 2250 participants with a median duration of illness of 7.7 months through long COVID support groups and social media (Twitter and Facebook). 10% reported working reduced hours, 19% reported being unable to work (out of which 88% was reported to be solely due to COVID-19 illness (other reasons were other illness, COVID restrictions, combination), and 22% reported being made redundant or having taken early retirement. The most common reported reason for working reduced hours was COVID-19 illness (97%). 66% reported taking time off sick (median of 60 days). 38% reported a loss of income due to illness.

Table 1. Impact of long COVID on work

Author	Type of study	Population	Long COVID	Assessment of work	Results
Kedor (22)	Prospective observational	Patients (n=42, median age 36,5; 29 female) with persistent fatigue and other symptoms following mild to moderate COVID-19 (Germany)	Symptoms six months post infection diagnosed by PCR or serology	Bell disability scale (disability and daily physical function)	The majority of patients were severely impaired in daily live with a Bell disability score ranging from 15 to 90 (100 refers to healthy). Patients with a score of 30–50 are able to perform light work 2–5 hours a day (n=28). Patients with a Bells score of 20 (n=3) are confined to bed most of the day. About two thirds of patients require a reduced work schedule or are unable to work.
Machado (23)	Cross-sectional survey	Adult subjects (n= 1939, 85% women, 46±11 years) member of an online panel and two Facebook groups for subjects	Adults with confirmed and presumed COVID-19. The time from onset of symptoms to the day of the	The Work Productivity and Activity Impairment (WPAI) questionnaire	Subjects classified as experiencing 'slight', 'moderate' and 'severe' functional limitations based on the Post-COVID-19 Functional status (PCFS) scale presented an impairment in work/absenteeism/presenteeism and usual activities. No differences were

Author	Type of study	Population	Long COVID	Assessment of work	Results
		with COVID-19 with persistent symptoms. (The Netherlands and Flanders (Belgium))	participation was on average 79 ± 17 days.		found regarding impairment in work and usual activities between subjects classified as experiencing 'negligible' and 'no' functional limitations.
Davis (21)	International web-based survey	3762 respondents from 56 countries (78,9% women, between the age of 30 and 60)	27% had lab confirmed diagnosis of COVID-19. 96% reported symptoms beyond 90 days and 65% after 180 days.	Free text boxes in the questionnaire to comment on the impact on work.	Of unrecovered respondents who worked before becoming ill, only 27,3% were working as many hours as they were prior to becoming ill, compared to 49,3% of recovered respondents. Nearly half 45,6% of unrecovered respondents were working reduced hours, and 23,3% were not working as a direct result of their illness. This included being on sick leave, disability leave, being fired, quitting, and being unable to find a job that would accommodate them. Overall, 45,2% of respondents reported requiring a reduced

Author	Type of study	Population	Long COVID	Assessment of work	Results
					<p>work schedule compared to pre-illness. 22,3% were not working due to their health conditions. 88% experienced either cognitive dysfunction or memory loss, with 86,2% of working respondents feeling mildly to severely unable to work.</p>
Watson (20)	Qualitative study	9000 users of the AbScent Covid-19 Smell and Taste Loss moderated Facebook support group (Majority from the UK and USA)	Group members reported taste and smell changes lasting more than six months.	Facebook posts and comments with passive and active content analysis of user-generated text	<p>The effect of taste and smell changes on professional life for those who partly relied on their nose to do their job (e.g. nurse, food writer) an essential tool had gone missing rendering them professionally less effective: "I can't detect faeces, urine, blood, infected wounds, flatus or any bodily functions. As a nurse, I have lost one of my most important tools - my sense of smell often tells me more than I can see. Professionally, anosmia makes things so much more difficult."</p>

Author	Type of study	Population	Long COVID	Assessment of work	Results
Menges (25)	Population-based prospective cohort study	431 adults (median age was 47 years and 214 (50%) were female). (Switzerland)	Adults with PCR confirmed COVID-19 infection with symptoms at least six months after the infection.	Online survey	186 (44%) individuals stated having had temporary or permanent changes in the scope of work. Among those that incurred a change in the scope of work, 20 (11%) individuals reported having financial difficulties due to the change in work conditions. Overall, 49 (12%) participants reported to have had a reduced income due to infection or isolation, which primarily affected the younger age groups.
Poyraz (24)	Cross-sectional	284 patients (mean age was 39,7 and 49,8% females) who received care at the hospital in Istanbul (Turkey).	Patients with probable (12%) and confirmed diagnosis of COVID-19. Duration of Covid-19	Questions about employment in an online websurvey	Of the 202 working subjects, 19 subjects (9,4%) reported that they were still on temporary disability leave (as termed in Turkey), and 28 subjects (13,8%) reported that they lost their jobs. 27 subjects (13,3%) started working from home or paid infrequent office visits.

Author	Type of study	Population	Long COVID	Assessment of work	Results
			symptoms was 14-116 days.		

Table 2. Impact of long COVID on return to work

Author	Type of study	Population	Long COVID	Assessment of return to work	Results
Davis (21)	International web-based survey	3762 respondents from 56 countries (78,9% women, between the age of 30 and 60)	27% of the participants had lab confirmed diagnosis of COVID-19. 96% of the participants reported symptoms beyond 90 days and 65% after 180 days.	Free text boxes in the questionnaire to comment on the impact on work.	At least 45% of working respondents were working remotely, and it was noted how critical this was to respondents' continued ability to work. Teleworking enabled respondents to take breaks when necessary and saved them the physical exertion of commuting to work. Respondents mentioned asking for other accommodations at work like flexitime or moving to a role with lower physical or mental strain. Even with telecommuting, phased returns, and other accommodations, respondents commented on how difficult it was for them to work full or part-time, but described their financial need to do so. Respondents described taking months of leave before going back to work either full-time or at reduced hours. Further, there were respondents who indicated that they tried to go back to work for

Author	Type of study	Population	Long COVID	Assessment of return to work	Results
					<p>several weeks but then relapsed or were unable to complete their work satisfactorily. For those who returned to their job, respondents reported experiencing relapses triggered by the mental exertion and stress of work, often needing to go back on leave.</p>
Singh (26)	Online survey	Expertise of multi-professional clinicians (n=1031), 84% female, 32% of the health care workers had respiratory specialism) on a rehabilitation intervention for patients	A rehabilitation program 6-8 weeks post-rehabilitation	Questions on advice on return to work and employment as part of the rehabilitation (closed questions and free text box).	<p>The essential components that reached consensus of an assessment at 6–8 weeks post episode/hospital are mood (93%), quality of life (92%), and fatigue (92%). Advice with respect to returning to work (73%) and financial support (72%) were not rated as highly.</p> <p>The essential components of a rehabilitation recovery programme for COVID-19 included advice on returning to usual exercise habits (93%), community exercise schemes (91%) etc. The impact on employment was also rated highly, including advice on returning to usual</p>

Author	Type of study	Population	Long COVID	Assessment of return to work	Results
		recovering from COVID-19 (United Kingdom and others)			employment (87%), where to get financial support advice (75%) and advice on returning to alternative employment (74%).

4. Discussion

4.1 Review of the literature

The literature search only identified seven articles about the impact of long COVID (symptoms beyond 12 weeks) on work and RTW. Although they all show that long COVID can have an impact on work and RTW, more research on this topic is needed.

4.1.1 Definition of long COVID and terms found in the literature

First, in the literature different terms are used such as long COVID, post-COVID syndrome, long haulers, chronic COVID etc., which makes it difficult to ascertain if the studies are referring to the same condition. We followed the NICE (10) definition of long COVID as signs and symptoms that develop after a COVID-19 infection and last for more than 12 weeks and are not explained by an alternative diagnosis. In a recent rapid guideline from NICE, a distinction was made between acute COVID-19 (signs and symptoms of COVID-19 for up to 4 weeks), ongoing symptomatic COVID-19 (signs and symptoms of COVID-19 from 4 to 12 weeks), and post-COVID-19 syndrome (signs and symptoms that develop during or after an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis). Long COVID includes both ongoing symptomatic COVID-19 and post COVID-19 syndrome (10). In the current literature, the timing of assessment of chronic symptoms remains heterogeneous and unstandardised. Due to uncertainties about its pathophysiology and the duration of the disease, the definition of long COVID may be subject to modification, in the light of emerging evidence (28).

4.1.2 Impact on work and return to work

Second, no articles were found that studied the impact of long COVID on work and RTW as a main objective. Data about work and RTW was collected from different questionnaires (Bell Disability Scale (22), Work Productivity and Activity Impairment questionnaire (23)), open questions, and comments/quotes in Facebook groups. No articles were found describing a validated screening tool for long COVID to assess the impact on work and RTW. Validation of such a screening tool would require research to standardise the data collection and qualitative research with focus groups/interviews.

4.1.3 Study type and respondents

Third, most of the studies used web-based surveys or recruited individuals through social media (20, 21, 23, 25). Respondents were predominantly white, female, and of higher socio-economic status, and thus not a representative sample of the population.

4.1.4 Areas of research interest

Large and long-term cohort studies with mixed methods (qualitative and quantitative) would be helpful to better understand the long-term consequences of COVID-19. These studies could include heterogeneous populations, with both hospitalised and non-hospitalised individuals, individuals who have been admitted to Intensive Care and individuals who have not been admitted, individuals with mild to severe symptoms, individuals from a range of high-income, low-income, and middle-income countries, ethnic and demographic factors must also be considered during recruitment.

To compare results from different studies an international definition of long COVID is necessary. New and validated questionnaires are needed to standardize data collection. Digital services and systems should be able to collect data on symptoms in real time. Multidisciplinary, multicentre, and multinational collaborations and approaches to data collection are required (29).

We suggest that areas of research interest for the international research community are as follows.

- Research questions
 - To understand the barriers and facilitators/enablers (those relating to the individual and those relating to their job) of (a sustained) RTW in workers with long COVID
 - To determine which factors influence a successful and sustained RTW
 - Based on previous research on conditions with similar symptomology, what candidate interventions could be tested in workers with long COVID
- Large and long-term cohort studies
- Mix of qualitative and quantitative methods

- Validated questionnaires
- Focus groups/in depth interviews
- Recruitment: through occupational health professionals (e.g. occupational physician), patient organizations, COVID related groups on social media platforms etc.
- Use NICE guidelines to define long COVID
- Population
 - Individuals with confirmed/suspected COVID-19 (positive PCR test, antibody test, or based on symptoms)
 - Individuals with mild to severe symptoms
 - Individuals who were hospitalized or in the intensive care unit
 - Diverse Ethnicity
 - Diverse socio-demographic factors
- Return to work interventions
 - Based on the existing FOM guidance and HSE RTW information
 - Interventions used in conditions with similar symptomology

4.2 Narrative review: transferable findings on conditions with similar symptomology

4.2.1 Long COVID symptoms

As previously noted, the range of symptoms reported by individuals with long COVID is wide and not limited to respiratory symptoms (30). Around a third of individuals with long COVID show evidence of cardiac impairment for instance (31). Individuals with long COVID also report neurological and cognitive problems, as well as anxiety, trouble sleeping, and persistent pain (32). In general, the most prevalent symptom reported by individuals is persistent fatigue (31).

4.2.2 Similarities with other conditions: ME/CFS

This clinical presentation shares similarities with other conditions, most notably with ME and CFS (33). ME/CFS is a complex syndrome characterised by persistent fatigue, widespread pain, neurological symptoms and cognitive abnormalities (33).

4.2.3 Post-exertional malaise

The cardinal symptom of ME/CFS is arguably post-exertional malaise – a worsening of symptoms following even minimal physical or mental exertion (34). In patients with ME/CFS, worsening of symptoms after exertion can start even 48 to 72 hours after exertion and last for several days (34). Preliminary findings on long COVID suggests that post-exertional malaise is highly prevalent; 70% of these patients report it, and it is exercise that triggers it (31).

4.2.4 ME/CFS aetiology

In addition, though the aetiology of ME/CFS has yet to be elucidated, there has long been an interest in the link between ME/CFS and viral infections (35, 36). Specific research on the prevalence of viral infection in patients with ME/CFS is lacking, but up to 50% of patients identify an infection at the start of their symptoms. Given these similarities, it is reasonable to assume that knowledge accumulated over the last 30 years on ME/CFS can provide information that may be applied to the management of individuals with long COVID. However, we stress that further research on the most effective way to support recovery of ME/CFS patients is also ongoing internationally, and guidelines for this are therefore evolving and changing as more evidence becomes available.

4.2.5 Potential role of exercise and physical activity

One reflection is that it is important to consider the role that exercise, and physical activity might cover in individuals with long COVID. In the general population, as well as in many clinical populations, regular physical activity shows broad beneficial effects and it is strongly recommended (37). This includes patients with mental ill-health conditions, persistent pain, cardiorespiratory problems, and cancer (38-41). Exercise is widely known to improve cognitive and psychological complaints, reduce the prevalence of chronic conditions, and decrease mortality (38-41). Most international guidelines recommend 150 minutes per week of moderate physical activity. Exercise is a powerful tool that can be used to reduce disability and improve quality of life, and it should be implemented as part of a healthy lifestyle whenever possible (38-41).

4.2.6 Post-exertional malaise: consequences, assessment and recovery

However, the presence of post-exertional malaise might represent an important exception. For instance, some evidence suggests that post-exertional malaise might in fact hinder the beneficial effects of exercising and have detrimental consequences on the patient, often lasting for days or weeks (34). A careful assessment is to be recommended. One way to assess post-exertional malaise is to use the DePaul Symptom Questionnaire (42). The questionnaire has been developed as a tool to assess patients with ME/CFS in a comprehensive manner.

Several specific questions target post-exertional malaise to physical or mental challenge and provide the clinician with a detailed characterisation of a patient's complaints. If the presence of post-exertional malaise is confirmed, pacing and activity management becomes the priority of the recovery programme. Pacing refers to a self-management strategy that aims to dose one's energy levels, plan moments of activity and rest, and prioritise those activities that are more important for the patient.

4.2.7 Exercise-based interventions where post-exertional malaise ruled out

If, however, post-exertional malaise has been ruled out, exercise-based interventions can be proposed with more confidence, even though a careful and complete assessment is always recommended. Training load should be increased gradually, and sufficient time should be given to the patient to adapt to new and more demanding activities. In general, a specific, patient-centred rehabilitation approach is vital in individuals with long COVID, to plan a shared programme with the individual, set aims and expectations, and manage symptoms, time, and activity (43).

4.2.8 Return to work and ME/CFS

Regarding RTW, literature on ME/CFS is scarce. However, the few articles that have been published on the issue are in line with what is stated above. A recent review shows that patients receiving graded exercise as treatment do not restore their ability to work (44). On the contrary, the best prognosis is associated with a forced period of rest in the initial phase of the disease, and with an adapted/reduced workload (44). In addition, receiving sickness benefit seems to be a factor that promotes RTW (45). Evidence on the effectiveness of cognitive-behavioural therapy is conflicting. Some

authors show that it might be cost-effective (46), while others suggest that it does not help in going back to work (44).

The reason for such discrepancy might rely on the included sample. ME/CFS is highly heterogeneous and there will likely be at least a subgroup of people that might benefit from psychological therapies. This seems to be especially true if psychological therapies are included in a multidisciplinary programme and focus on acceptance and commitment strategies (45). Additionally, as already noted above, we stress that further research on the most effective way to support recovery of ME/CFS patients is also ongoing internationally, and guidelines for this are therefore evolving and changing as more evidence becomes available. For example, NICE is reviewing their guidelines on the best approach to the diagnosis and management of ME/CFS following the publication of a draft updated guideline on 10 November 2020 for consultation (47).

4.2.9 Psychological and emotional problems

The current pandemic has also triggered significant psychological and emotional problems. Around 40% of individuals with long COVID show high rates of depression, anxiety and PTSD (48). Two main risk factors seem to be female gender and perceived social stigmatisation after the diagnosis (48).

Similar prevalence was observed in previous coronavirus epidemics Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) where patients reported psychiatric comorbidities lasting more than six months in over 40% of the patients who were hospitalised (49). A significant concern is related to the fact that psychiatric comorbidities affect not only individuals with long COVID, but the general population as well (50). While many might not have contracted the infection themselves, other situations like the illness or death of a significant other, the continuous exposure to detailed information on the pandemic, as well as physical and social isolation, are potentially affecting broadly the population (50).

Other stressful situations are related to the work domain (51). Many have been experiencing employment or income loss, while others have been struggling with working from home while taking care of children or relatives in poor health. This has dramatically increased the prevalence of substance use and suicidal ideation (52, 53). In this situation, work becomes central in many ways. It is not only the first and

often only income source for most families, but it also becomes a way to reduce social and physical isolation, reduces the stress of working while taking care of children or relatives.

4.2.10 The potential effect of return to work

Returning to work can by itself represent an effective way to reduce mental stress (54) as good work is good for health. In addition, enhancing the control that the worker can exert on the situation, as well as fostering regular physical activity show moderate positive effect on reducing depressive symptoms and anxiety (55). Such findings may provide information that could be applied to workers suffering from long COVID.

5. Guidance to facilitate individuals with long COVID to return to work

5.1 Quick intervention in the event of incapacity for work

According to general occupational health principles (56) we know that:

- 1) After three months of sick leave, the probability of returning to work is approximately 50% (after one year that probability already drops to 20%). As approximately one in ten COVID patients still experiences symptoms after 12 weeks, this may be of relevance (57).
- 2) 80% of the workers who are on sick leave for more than six weeks seek for help in RTW (58).
- 3) The first four to six weeks are crucial for a successful RTW (59).

5.1.1 Implications

Therefore, **early contact with the absent worker – within the first two weeks from the onset of the absence is recommended as a good practice**, depending on the specific situation of the worker (60).

The **line manager** is often the first point of contact. How they interact during this first contact with the absent worker can have a huge impact on whether there is a possibility in RTW and this remaining sustained.

In large enterprises, this first contact might be made by an occupational health professional. They may work internally within their own organisation or externally as a provider. Their responsibilities can include (but are not limited to) expediting, coordinating and facilitating the RTW of persons with injuries, illnesses and disabilities in a range of settings (61).

5.2 Involvement of all stakeholders in the reintegration process

5.2.1 Recovering worker with long COVID

Using NICE guidelines (10) there are three stages of illness after infection with COVID-19. The acute COVID-19 phase, were signs and symptoms of COVID-19

occur for up to 4 weeks, the ongoing symptomatic COVID-19 phase, where signs and symptoms are still present in week 4 up to week 12, and finally the post-COVID syndrome, when the signs and symptoms that develop during or after an infection consistent with COVID-19, continue for more than 12 weeks and are not explained by an alternative diagnosis. Our guidelines focus on the last group.

Patient groups express an urgent call for rehabilitation, research, and recognition (62). Rehabilitation means the need for support, multidisciplinary treatment as well as financial support and help returning to work. At this time, the UK Industrial Injuries Advisory Council finds that evidence is currently too limited in quality and quantity to justify prescription of COVID-19 as a risk of occupation (63).

The recovering worker plays an important role in their own rehabilitation: when evaluating their impaired ability to work, they need to consider the characteristics of the job. The recovering worker is advised to prepare an answer on the next questions(15):

- What is your occupation description, and what is your job load physically and mentally?
- Do you do your work alone or in a team?
- What are your hours of work?
- How do you travel to work?
- What are according to you, possible obstacles for RTW?
- What are according to you, possible interventions that will be necessary for RTW?

5.2.2 Employer/line manager

It should not be forgotten that the pandemic has been, and still is, difficult for employers too. The impact has been recognised on several levels (64). Firstly, in many countries, the lockdown has hit some sectors particularly hard, with the complete or partial closure of activities. There was also an important impact on the organisational level: the need to provide remote working where possible and the need to provide a safe environment for workers and customers. They also had to deal with more sick leave and workers needing to isolate, and with more administration e.g. for technical unemployment (losing your job temporarily because some sectors had to close due to COVID-19, e.g. the hospitality sector). Also emotionally, there can be an impact: e.g. when they had to wind down part of their

activities, lay off workers or lost workers who died from COVID-19. For employers, the practical steps described in the guidance for managers and employers on facilitating RTW we referred to for workers with long COVID can be advised as guideline.(15, 16, 65)

5.2.3 Occupational Health Professionals

Occupational Health Professionals (OHPs) recognise that, in the context of prolonged illness, returning to work too soon, or to a full workload, may be initially difficult to achieve. Therefore, it is important that the focus of the support is on a sustained RTW. OHPs can also play a key role in matching the evolving capability of the worker with the requirements of the job.

Where the worker has access to an OH professional, the latter can advise on many aspects of long COVID. They can assess workers in order to identify the impact of their symptoms on their functional capacity and work, and provide independent advice on staff unable to work due to ill health, and how to reduce individual and organisational sickness absence. OH professionals are also able to contribute to an individualised workplace risk assessment with the recovering worker with long COVID.

5.2.4 Health Professionals

Primary and secondary care health professionals will also be involved potentially in the care of the long COVID patient. As there is no simple test for diagnosing long COVID, and more than 200 symptoms have been recorded, health professionals of different specialities will be involved in the care of the worker.

There are already several guidelines describing the wide range of associated symptoms seen in long COVID. NICE has produced a document with practical steps for health professionals - the Guidance for healthcare professionals on RTW for individuals with long COVID (15, 60). The British Medical Journal website also has a useful set of long COVID resources (66). Guidelines are also available in other countries, for instance in Belgium (where the authors are based), Haute Autorité de Santé (HAS) published a document with quick answers for health professionals dealing with individuals with prolonged symptoms, especially for professionals working in primary care (65).

5.3 A progressive, adaptive, and appropriate return to work and support at work

Some long COVID individuals may still struggle with day-to-day activities even when they RTW. It is important to know that they may work effectively despite significant illness or disability, on the condition they are provided with suitable support in the workplace. **A quick and appropriate RTW** is the primary goal since an individual does not need to be 100% fit to RTW (67). However, some individuals with long COVID might be pushed back to work because for financial or social reasons (62). **To maximise the job retention we recommend that, where an OHP is involved, they can play an active role in the RTW** (see above for the various tasks). Together with their knowledge of the workplace they can provide appropriate advice that helps facilitate a RTW for individuals with long COVID (15, 62).

For employers for businesses that have not got access to occupational health professionals the advice provided in the guidance for managers and employers on facilitating RTW of workers with long COVID (15, 16) would be helpful.

5.4 Recognition that the workplace is normally the most effective place for reintegration

Work plays a key role in the dynamic construction of health and work and could foster physical and mental health associated with social wellbeing (64). This relates to the concept that work is central to the lives of individuals and the construction of society (64). Good work is good for health (68), for individuals suffering from long COVID, return to work even if modified is likely to be an effective part of their rehabilitation.

However, **RTW needs to be appropriately managed**: an important characteristic of a successful RTW is a personalised approach compliant with the individual's needs alongside the management of relevant risks in the workplace. This individual approach is necessary as everyone is different and will require different levels of support.

Important steps in the RTW preparation and support (69, 70)

- Stay in touch while worker is absent from work
- Prepare for the worker's return

- Hold a RTW conversation
- Provide support during the early days of the RTW
- Provide ongoing support and review regularly

5.5 Consultation and communication between all parties involved at all stages of the process

Many stakeholders (worker with long COVID, employer, line manager, OHPs, health professionals) may be involved in the reintegration process.

By **developing a close and trustful relationship with all parties**, the OHP, where available, will be able to assist with RTW. Where work is modified to support RTW for individuals with long COVID the employer must review the relevant risk assessments, involving the individual is likely to be beneficial in this process.(64).

Once RTW is arranged, follow up of the worker, and communication with the line manager and is important.

5.6 Return of workers to the highest possible level of work functioning

The return of workers to the highest possible level of work functioning with attention to the following hierarchy:

- Same task / job, same employer;
- Modified task / similar job, same employer;
- Alternative task / new job, same employer;
- Adapted task / similar job, different employer;
- Alternative task / new job, different employer

The work of the individual with long COVID should first be understood to be appropriately modified (64). Therefore, there is the need for information on the job, tasks, physical and mental demands of the job. This information can be collected from the worker, the line manager, the HR department and the OHPs. Modifications are to be made individual, but ideally, possible adaptations could be discussed in advance and should be embedded in a broader RTW policy. Adaptations can be divided as follows:

- Temporary vs permanent
- Aimed at increasing the work capacity of the worker (= person-oriented) vs aimed at reducing the workload (= work-oriented)
- Curative vs preventive (for example when a worker indicates that an imbalance arises between workload and work capacity)

5.7 A phased return to the work in terms of tasks and time

There are lots of possible work adaptations or small changes that can make it easier for returning workers to manage their health and their work (71). They are listed in table 4. OHPs see that the best outcomes are achieved when the line manager and worker are both involved in the discussion which workplace modifications are possible in the specific situation (15, 16, 61).

Table 4: Possible work adaptations to facilitate RTW

Type of adjustment	Description	Details
Working hours	Working less hours a day	Possible increase to the original working schedule
Working hours	Working less hours a week (shorter days, days off between workdays)	Possible increase to the original working schedule
Working hours	Taking more/different breaks or rest periods	Possible increase to the original break periods
Working hours	Alterations to the timing of work	Starts, finishes, breaks Alternations to shift work e.g. consider suspending late/early shifts and/or night duty
Working hours	Alterations to shift work e.g. consider suspending late or early shifts and/or night duty, so the individual works when at their best.	Not applicable
Tasks	Less tasks	Omit specific tasks that cause problems. Fewer tasks than normal within a time. More time to complete usual tasks and not to work to tight deadlines.

Type of adjustment	Description	Details
Tasks	Other tasks	Leave out or add secondary tasks. If main tasks are omitted or added another function will arise
Organisation	Change the organisation of work	Make other working agreements, introduce other forms of consultation
Organisation	Changing the team composition	Working with other or more colleagues, redistributing tasks among team members
Workplace	Material work adjustments	Aids for lifting or moving around, adjustable table, adjustment of computer work
Workplace	Another workplace	Telework, other department
Guidance	Regular checks with the manager	Follow-up of the RTW e.g. to indicate whether more or less assistance is needed, discuss the workload and task distribution, etc.
Guidance	External coaching	Follow-up of the RTW by the stakeholders (OHPs/ HR)
Guidance	Organising practical guidance and access to work	To improve the performance of the job e.g. arranging commuter traffic, etc.
Guidance	Support	A buddy system Time off for healthcare appointment Not working in isolation

Type of adjustment	Description	Details
Education and training	Training of the physical load/resilience	E.g. Tilt training
Education and training	Training of the mental load/resilience	E.g. dealing with work pressure, trauma processing
Education and training	Training skills	For own function of for a new function
Education and training	Professional retraining	For a new job

Principles of a good RTW plan for individuals with long COVID (65)

A phased return may help with easing a worker into the workplace when fatigue, cognitive function problems and deconditioning (e.g. functional losses following a period of inactivity) remain an issue. Furthermore, it may be helpful to acknowledge and accept that recovery may be slow. Phased returns can be adapted as time goes on, which may be many weeks or months (21, 22).

Flexible work arrangements could include working remotely or a combination of remote work and office-based work, adjusting work hours to avoid travelling at peak times. **Working remotely** was often a helpful adaptation for the RTW of the long COVID individual but this will also vary depending on the work undertaken as to whether this is possible (21, 24).

Introducing **fatigue management strategies** such as regular rest breaks, temporarily reducing workload, help with prioritisation of tasks and encouraging gradual increases in activity (21, 26).

Adapting work tasks, for example reducing or adjusting physical work for someone experiencing lung symptoms/shortness of breath. Due to anosmia some professional tasks could become much more difficult or even impossible for individuals with long COVID (20).

5.8 Individual reintegration within a broader absenteeism and personnel policy

Long COVID is a new illness and many people can be unaware that they had COVID-19 or that their symptoms are due to long COVID. Almost 70% of people with long COVID are unable to work at all or to their previous capacity, even seven months post infection (21). Nevertheless, RTW principles are not different for this group of absent workers and support in returning to work should be given to all those who need it.

5.9 Conclusion

Long COVID can have a great impact on daily functioning, including work and RTW. RTW for an individual with long COVID often needs involvement of several stakeholders (recovering worker, employers, line manager, health professionals, and where available occupational health professionals). The primary goal should be support at work (job retention), or progressive, adaptive, and appropriate RTW, as good work is generally good for health. Articles on the impact of long COVID on work and RTW are scarce. Large and long-term cohort studies with mixed methods (qualitative and quantitative) would help to better understand the long-term consequences of COVID-19 and its impact on work.

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Appendix: Literature review databases and search terms

Pubmed

"Coronavirus"[Mesh:NoExp] OR "Betacoronavirus"[Mesh:NoExp] OR "Coronavirus Infections"[Mesh:NoExp] OR "COVID-19"[MeSH] OR "post-acute COVID-19 syndrome" [Supplementary Concept] OR COVID[tiab] OR COVID19[tiab] OR COVID[ad] OR COVID19[ad] OR coronavirus*[ad] OR "corona virus*" [ad] OR coronavirus*[tiab] OR "corona virus*" [tiab]

AND

(2019/12[PDAT]:3000/12[PDAT])

AND

("Workplace"[Mesh] (workplace[MeSH Terms]) OR "Return to Work"[Mesh](return to work[MeSH Terms]) OR "Absenteeism"[Mesh] (absenteeism[MeSH Terms]) OR "Sick Leave"[Mesh] (sick leave[MeSH Terms]) OR (workplace*[tiab]) OR "work place*" [tiab] OR "job site*" [tiab] OR "jobsite*" [tiab] OR worksite*[tiab] OR "work site*" [tiab] OR ("return to work" [tiab] OR "back to work" [tiab]) OR (absenteeism [tiab]) OR ("sickness absence" [tiab]) OR ("sick leave" [tiab]) OR "sick day*" [tiab] OR "illness day*" [tiab] OR "disability leave" [tiab] OR "Occupational Health" [Mesh] OR "occupational health" [tiab] OR "reintegration" [tiab] OR "re-integration" [tiab])

Embase

'Betacoronavirus'/exp OR 'betacoronavirus*':ti,ab OR 'coronavirus disease 2019'/de OR 'coronavirus disease* 2019':ti,ab OR 'Coronavirus infection'/de OR 'coronavirus infection*':ti,ab OR 'COVID-19':ti,ab OR 'COVID':ti,ab OR 'post-acute COVID-19 syndrome':ti,ab OR 'COVID19':ti,ab OR 'coronavirus*':ti,ab OR 'corona virus*':ti,ab

AND

'workplace'/de OR 'workplace*':ab,ti OR 'work place*':ti,ab OR 'jobsite*':ti,ab OR 'job site*':ti,ab OR 'work site*':ti,ab OR 'worksite*':ti,ab OR 'return to work'/de OR 'return to work':ti,ab OR 'back to work':ti,ab OR 'occupational health'/de OR 'occupational health':ti,ab OR 'absenteeism'/de OR 'absenteeism':ti,ab OR 'medical leave'/de OR

'medical leave':ti,ab OR 'sick leave':ti,ab OR 'sick day':ti,ab OR 'illness day':ti,ab OR 'disability leave':ti,ab OR 'sickness absence':ti,ab OR 'reintegration':ti,ab OR 're-integration':ti,ab

AND

Filter on English and 2020 onwards

Scopus

TITLE-ABS("betacoronavirus*") OR TITLE-ABS("Coronavirus disease* 2019") OR TITLE-ABS("coronavirus infection*") OR TITLE-ABS("Covid-19") OR TITLE-ABS("COVID") OR TITLE-ABS("Post-acute COVID-19 syndrome") OR TITLE-ABS("COVID19") OR TITLE-ABS("Coronavirus*") OR TITLE-ABS("Corona virus*")

AND

TITLE-ABS("Workplace*") OR TITLE-ABS("Work place") OR TITLE-ABS("jobsite*") OR TITLE-ABS("job site*") OR TITLE-ABS("worksite*") OR TITLE-ABS("Work site*") OR TITLE-ABS("return to work") OR TITLE-ABS("back to work") OR TITLE-ABS("occupational health") OR TITLE-ABS("absenteeism") OR TITLE-ABS("medical leave") OR TITLE-ABS("sick leave") OR TITLE-ABS("sick day") OR TITLE-ABS("illness day") OR TITLE-ABS("disability leave") OR TITLE-ABS("Sickness absence") OR TITLE-ABS("reintegration")

AND

(LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR , 2020)) AND (LIMIT-TO (LANGUAGE , "English"))

CENTRAL and CDSR

Search Name: HSE Covid19

Last Saved: 08/03/2021 17:59:36

Comment: #42 retrieved 1296 results; #43 retrieved 226 results

ID Search

#1 MeSH descriptor: [Workplace] explode all trees

- #2 MeSH descriptor: [Return to Work] explode all trees
- #3 MeSH descriptor: [Absenteeism] explode all trees
- #4 MeSH descriptor: [Sick Leave] explode all trees
- #5 (workplace*):ti,ab,kw
- #6 ("work place"):ti,ab,kw
- #7 (job site*):ti,ab,kw
- #8 (jobsite*):ti,ab,kw
- #9 (worksite*):ti,ab,kw
- #10 (work site*):ti,ab,kw
- #11 ("return to work"):ti,ab,kw
- #12 ("back to work"):ti,ab,kw
- #13 (absenteeism):ti,ab,kw
- #14 ("sickness absence"):ti,ab,kw
- #15 (sickness absence):ti,ab,kw
- #16 ("sick leave"):ti,ab,kw
- #17 ("sick day*"):ti,ab,kw
- #18 ("illness day*"):ti,ab,kw
- #19 ("disability leave"):ti,ab,kw
- #20 ("Occupational Health"):ti,ab,kw
- #21 MeSH descriptor: [Occupational Health] explode all trees
- #22 (reintegration):ti,ab,kw
- #23 ("re-integration"):ti,ab,kw
- #24 MeSH descriptor: [Coronavirus] explode all trees
- #25 MeSH descriptor: [Betacoronavirus] explode all trees

- #26 MeSH descriptor: [Coronavirus Infections] explode all trees
- #27 MeSH descriptor: [COVID-19] explode all trees
- #28 (post-acute COVID19 syndrome):ti,ab,kw
- #29 post COVID-19 syndrome
- #30 (COVID):ti,ab,kw
- #31 (COVID19):ti,ab,kw
- #32 (COVID-19):ti,ab,kw
- #33 COVID
- #34 COVID19
- #35 COVID-19
- #36 coronavirus*
- #37 corona virus*
- #38 (coronavirus*):ti,ab,kw
- #39 (corona virus*):ti,ab,kw
- #40 #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11
OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21
OR #22 OR #23
- #41 #24 OR #25 OR #26 OR #27 OR #28 OR #29 OR #30 OR #31 OR #32 OR
#33 OR #34 OR # 35 OR #36 OR #37 OR #38 OR #39
- #42 #40 AND #41
- #43 #40 AND #41 with Cochrane Library publication date Between Dec 2019 and
Dec 2021

Clinicaltrials.gov

Separate search for every long COVID related term, with the option “adults (18-65)”

“long covid” – 8 studies

“chronic covid” – no results

“long hauler” – 4 studies

“post covid syndrome” – 1 study

“post covid illness” – no results

“post acute covid” – 5 studies

“long term effects of covid” – 4 studies

bioRxiv and medRxiv

Separate search for every long COVID related term

“long covid” – 108 results

“chronic covid” – 14 results

“long hauler” – 37 results

“post covid syndrome” – 22 results

“post covid illness” – 1 result

“post acute covid” – 36 results

“long term effects of covid” – 40 results

Scientific evidence about COVID-19 is vital to inform decision making by HSE, across Government, and healthcare and other professionals involved in the national response to the pandemic. This report describes a study to consider the scientific evidence on the impact of 'long COVID' on work, the workplace and return to work interventions. Long COVID is the illness that affects people who have symptoms for at least 12 weeks after the onset of infection. An international expert group contributed to the study. This scientific evidence is relevant to aspects of policy led by various Government Departments and agencies and is not specific to HSE.

The report summarises the evidence in the published scientific literature to 8 March 2021 on the impact of long COVID on work, the workplace, and return to work interventions. The researchers identified only seven published studies and highlight the global lack of evidence. The symptoms with the greatest impact on work and return to work appear to be fatigue, cognitive dysfunction such as difficulty concentrating and memory loss, and changes in taste and smell. In addition, this limited evidence suggests that a significant proportion of people with long COVID experience depression and anxiety. The report also reviews transferable evidence on interventions for other illnesses where some symptoms are similar, such as ME/CFS. The researchers make initial recommendations for guidelines to facilitate long COVID patients to return to work. They note that: these guidelines are in line with existing Faculty for Occupational Medicine (FOM) guidance and HSE information; and working is generally good for health. The national and global scientific evidence about COVID-19 continues to develop rapidly.