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***Roofeh D, Barratt SL, Wells AU, Kawano-Dourado L, Tashkin D, Strand V, Seibold J, Proudman S, Brown KK, Dellaripa PF, Doyle T, Leonard T, Matteson EL, Oddis CV, Solomon JJ, Sparks JA, Vassallo R, Maxwell L, Beaton D, et al. Outcome measurement instrument selection for lung physiology in systemic sclerosis associated interstitial lung disease: a systematic review using the OMERACT filter 2.1 process. Seminars in Arthritis and Rheumatism. 2021; [epub ahead of print]. https://doi.org/10.1016/j.semarthrit.2021.08.001**

Abstract: OBJECTIVE: The Outcome Measures in Rheumatology (OMERACT) is a research organization focused on improving health care outcomes for patients with autoimmune and musculoskeletal diseases. The Connective Tissue Disease-Interstitial Lung Disease (CTD-ILD) Working Group on Lung Physiology is a group within OMERACT charged with identifying outcome measures that should be implemented in studies of patients with CTD-ILD. The OMERACT Filter 2.1 is an evidence-based algorithm used to identify outcome measures that are truthful, feasible, and able to discriminate between groups of interest. Our objective was to summate evidence (published literature, key opinion leader input, patient perspectives)

that would influence the CTD-ILD Working Group's vote to accept or reject the use of two measures of lung physiology, the forced vital capacity (FVC) and the diffusion capacity of carbon monoxide (DLco) for use in randomized controlled trials (RTCs) and longitudinal observational studies (LOSs) involving patients with systemic sclerosis associated ILD (SSc-ILD). METHODS: Patient Research Partners (those afflicted with SSc-ILD) and the CTD-ILD Working Group on Lung Physiology were polled to assess their opinion on the FVC and DLco in terms of feasibility; the CTD-ILD Working Group was also queried on these instruments' face and content validity. We then conducted a systematic literature review to identify articles in the SSc-ILD population that assessed the following measurement properties of FVC and DLco: (1) construct validity, (2) test-retest reliability, (3) longitudinal construct validity, (4) clinical trial discrimination/sensitivity to detect change in clinical trials, and (5) thresholds of meaning. Results were summarized in a Summary of Measurement Properties (SOMP) table for each instrument. OMERACT CTD-ILD Working Group members discussed and voted on the strength of evidence supporting these two instruments and voted to endorse, provisionally endorse, or not endorse either instrument. RESULTS: Forty Patient Research Partners reported these two measures are feasible (are not an unnecessary burden or represent an infeasible longitudinal assessment of their disease). A majority of the 18 CTD-ILD Working Group members voted that both the FVC and DLco are feasible and have face and content validity. The systematic literature review returned 1,447 non-duplicated articles, of which 177 met eligibility for full text review. Forty-eight studies (13 RCTs, 35 LOSs) were included in the qualitative analysis. The FVC SOMP table revealed high quality, consistent data with evidence of good performance for all five measurement properties, suggesting requisite published evidence to proceed with endorsement. The DLco SOMP table showed a lack of data to support test-retest reliability and inadequate evidence to support clinical trial discrimination. There was unanimous agreement (15 [100%]) among voting CTD-ILD Working Group members to endorse the FVC as an instrument for lung physiology in RCTs and LOSs in SSc-ILD. Based on currently available evidence, DLco did not meet the OMERACT criteria and is not recommended for use in RCTs to represent lung physiology of SSc-ILD. The OMERACT Technical

Advisory Group agreed with these decisions. CONCLUSION: The OMERACT Filter 2.1 was successfully applied to the domain of lung physiology in patients with SSc-ILD. The FVC was endorsed for use in RCTs and LOSs based on the Working Group's vote; DLco was not endorsed

Andersen LP, Elklit A, and Pihl-Thingvad J. Work-related violence and organizational commitment among health care workers: does supervisor's support make a difference? International Archives of Occupational & Environmental Health. 2021; 94(7):1645-1657.
https://doi.org/10.1007/s00420-021-01749-0
Abstract: INTRODUCTION: Work-related threats and violence are major occupational hazards, with potentially serious consequences for both victims and the organization that employs them. Only a few studies have prospectively examined the mitigating effect of social support from supervisors on organizational commitment following exposure to work-related violence and threats. OBJECTIVE: This study aimed at examining the effect of immediate supervisor's support on affective commitment within 1, 3, 6 and 12months after exposure to violence and threats. METHODS: After exposure to work-related violence and threats, the employees received a questionnaire within the first month and after 3, 6 and 12months. Right after the incident, 398 employees filled out the questionnaire, and 138 employees answered the questionnaire at all four time points. Prospective associations and mean differences between groups were calculated using linear mixed models. RESULTS: Employees receiving very high levels of social support from supervisors immediately after being exposed to work-related violence or threats had a significantly higher level of organizational commitment across all four time points when compared to the group experiencing middle/low levels of support. Furthermore, at 1- and 3-month follow-up employees receiving very high levels of social support from supervisors following work-related violence and threats reported significantly higher levels of commitment than did the group with high levels of social support from supervisors. CONCLUSION: Organizations should enhance the availability of social support from supervisors for employees experiencing work-related violence and threats. Training of supervisors to be very much concerned about

employees exposed to work-related violence may be of critical importance to both the health and work outcomes of employees

Boudigaard SH, Schlunssen V, Vestergaard JM, Sondergaard K, Toren K, Peters S, et al. Occupational exposure to respirable crystalline silica and risk of autoimmune rheumatic diseases: a nationwide cohort study. International Journal of Epidemiology. 2021; 50(4):1213-1226.
https://doi.org/10.1093/ije/dyaa287 [open access]
Abstract: Background: Exposure to respirable crystalline silica is suggested to increase the risk of autoimmune rheumatic diseases. We examined the association between respirable crystalline silica exposure and systemic sclerosis, rheumatoid arthritis, systemic lupus erythematosus and small vessel vasculitis. Methods: In a cohort study of the total Danish working population, we included 1 541 505 male and 1 470 769 female workers followed since entering the labour market 1979-2015. Each worker was annually assigned a level of respirable crystalline silica exposure estimated with a quantitative job exposure matrix. We identified cases of autoimmune rheumatic diseases in a national patient register and examined sex-specific exposure-response relations by cumulative exposure and other exposure metrics. Results: We identified 4673 male and 12 268 female cases. Adjusted for age and calendar year, men exposed to high levels of respirable crystalline silica compared with non-exposed showed increased incidence rate ratio (IRR) for the four diseases combined of 1.53 [95% confidence interval (CI): 1.39-1.69], for systemic sclerosis of 1.62 (1.08-2.44) and rheumatoid arthritis of 1.57 (1.41-1.75). The overall risk increased with increasing cumulative exposure attained since entering the workforce [IRR: 1.07 (1.05-1.09) per 50 µg/m3-years]. Female workers were less exposed to respirable crystalline silica, but showed comparable risk patterns with overall increased risk with increasing cumulative exposure [IRR: 1.04 (0.99-1.10) per 50 µg/m3-years]. Conclusions: This study shows an exposure-dependent association between occupational exposure to respirable crystalline silica and autoimmune rheumatic diseases and thus suggests causal effects, most evident for systemic sclerosis and rheumatoid arthritis.

Ding R, Dardas A, Wang L, and Williams A. Improving the workplace experience of caregiver-employees: a time-series analysis of a workplace intervention. Safety and Health at Work. 2021; 12(3):296-303.
https://doi.org/10.1016/j.shaw.2020.12.003
Abstract: BACKGROUND: Rapid population aging in developed countries has resulted in the working-age population increasingly being tasked with the provision of informal care. METHODS: An educational intervention was delivered to 21 carer-employees employed at a Canadian University. Work role function, job security, schedule control, work-family conflict, family work conflict, and supervisor and coworker support were measured as part of an aggregated workplace experience score. This score was used to measure changes pre/post intervention and at a follow-up period approximately 12 months post intervention. Three random intercept models were created via linear mixed modeling to illustrate changes in participants' workplace experience across time. RESULTS: All three models reported statistically significant random and fixed effects intercepts, with a positive coefficient of change. CONCLUSION: This suggests that the intervention demonstrated an improvement of the workplace experience score for participants over time, with the association particularly strong immediately after intervention

Dolev N, Itzkovich Y, and Fisher-Shalem O. A call for transformation: Exit, Voice, Loyalty and Neglect (EVLN) in response to workplace incivility. Work. 2021; 69(4):1271-1282.
https://doi.org/10.3233/WOR-213548
Abstract: BACKGROUND: Interrelations between incivility and its precursors or consequences, as well as the role of these interrelations in employees' reactions to incivility are still poorly understood. OBJECTIVE: The purpose of the present study was to assess different reactions to workplace incivility while identifying specific and individual-based appraisals and emotions associated with these reactions. METHOD: A qualitative research approach using semi-structured in-depth interviews, with a sample of 42 employees in a beverage manufacturing corporation in Israel to capture employees' voices regarding their incivility experiences. RESULTS: Analysis of the interviews indicated four reaction-categories: (1) Exit; (2) Voice; (3) Loyalty; and (4) Neglect, in line with

the theoretical EVLN model for describing reactions to stressful conditions. In particular, the interviews revealed a dynamic reaction process and suggested that intentionality of reaction provides a third, new dimension. Additionally, an underlying emotional process rooted in appraisals and aroused emotions was evident in each of the reactions. CONCLUSIONS: Organizations that wish to reduce incivility events may wish to examine the emotions of targets of incivility, explore the underlying appraisals associated with these emotions, and be mindful of the dynamic and highly individual reaction processes involved

Dorner TE, Mittendorfer-Rutz E, Helgesson M, Lallukka T, Ervasti J, Pazarlis K, et al. Diagnosis-specific work disability before and after lumbar spine decompression surgery: a register study from Sweden. International Journal of Environmental Research and Public Health. 2021; 18(17):8937.
https://doi.org/10.3390/ijerph18178937 [open access]
Abstract: Low back pain (LBP) patients undergoing lumbar spine decompression surgery (LSDS) often suffer from multi-comorbidity and experience high work disability. This study aimed to identify diagnosis-specific work disability patterns in all LBP-patients before and after LSDS during 2008-2010, that were aged 19-60 years and living in Sweden (n = 10,800) and compare these patterns to LBP-patients without LSDS (n = 109,179), and to matched individuals without LBP (n = 472,191). Work disability days (long-term sickness absence (LTSA), disability pension (DP)) during the three years before to three years after the cohort's entry date were identified by generalised estimating equations. LBP-patients undergoing LSDS had higher overall work disability during the three years following surgery (LTSA: 23.6%, DP: 6.3%) than LBP-patients without LSDS (LTSA: 19.5%, DP: 5.9%), and those without LBP (LTSA: 7.9%, DP: 1.7%). Among patients undergoing LSDS, the prevalence of work disability due to dorsopathies increased from 20 days three years before surgery to 70 days in the year after and attenuated to 30 days in the third year following surgery. Work disability for other diagnoses remained stable at a low level in this group (<10 days annually). LBP-patients undergoing LSDS have an unfavourable long-term work disability prognosis, primarily due to dorsopathies. Decompression

surgery seemed to restrict further inclines in work disability in the long run

Grytnes R, Nielsen ML, Jorgensen A, and Dyreborg J. Safety learning among young newly employed workers in three sectors: a challenge to the assumed order of things. Safety Science. 2021; 143:105417.
https://doi.org/10.1016/j.ssci.2021.105417

Guler MA, Guler K, Guneser Gulec M, and Ozdoglar E. Working from home during a pandemic: investigation of the impact of COVID-19 on employee health and productivity. Journal of Occupational & Environmental Medicine. 2021; 63(9):731-741.
https://doi.org/10.1097/JOM.0000000000002277
Abstract: Objective: To determine ergonomic problems when working from home during the COVID-19 pandemic with regard to musculoskeletal pain, sleep conditions, physical activity, resting, equipment, and productivity. Methods: In this cross-sectional study, office workers who switched to working from home during the COVID-19 pandemic participated in an online survey (n = 194). The data were interpreted using descriptive and multivariate regression analysis. Results: A significant increase in back pain was revealed (P < 0.001). Significant weight gain was observed (P < 0.001) connected to a decrease in physical activity and an increase in the consumption of junk food. Despite the negative health impact, participants self-reported an increase in productivity. Conclusion: The self-reported productivity was higher during the working from home, but a declining trend in employee health can be observed including low back pain and weight gain.

Henmi M, Hattori S, and Friede T. A confidence interval robust to publication bias for random-effects meta-analysis of few studies. Research Synthesis Methods. 2021; 12(5):674-679.
https://doi.org/10.1002/jrsm.1482
Abstract: In meta-analyses including only few studies, the estimation of the between-study heterogeneity is challenging. Furthermore, the assessment of publication bias is difficult as standard methods such as visual inspection or formal hypothesis tests in funnel plots do not provide adequate guidance. Previously, Henmi and Copas (Statistics

in Medicine 2010, 29: 2969-2983) proposed a confidence interval for the overall effect in random-effects meta-analysis that is robust to publication bias to some extent. As is evident from their simulations, the confidence intervals have improved coverage compared with standard methods. To our knowledge, the properties of their method have never been assessed for meta-analyses including fewer than five studies. In this manuscript, we propose a variation of the method by Henmi and Copas employing an improved estimator of the between-study heterogeneity, in particular when dealing with few studies only. In a simulation study, the proposed method is compared to several competitors. Overall, we found that our method outperforms the others in terms of coverage probabilities

Kodithuwakku Arachchige SNK, Chander H, Knight AC, Burch V, and Carruth DW. Occupational falls: interventions for fall detection, prevention and safety promotion. Theoretical Issues in Ergonomics Science. 2021; 22(5):603-618. https://doi.org/10.1080/1463922X.2020.1836528

Metzendorf MI and Featherstone RM. Evaluation of the comprehensiveness, accuracy and currency of the Cochrane COVID-19 Study Register for supporting rapid evidence synthesis production. Research Synthesis Methods. 2021; 12(5):607-617. https://doi.org/10.1002/jrsm.1501 [open access]

Abstract: The Cochrane COVID-19 Study Register (CCSR) is a public, continually updated database of COVID-19 study references. The aim of this study-based register is to support rapid and living evidence synthesis, including an evidence ecosystem of COVID-19 research (CEOsys). In November and December 2020, we conducted an evaluation of the CCSR for CEOsys, measured its performance and identified areas for improvement. For the evaluation we generated a purposive sample of 286 studies from 20 reviews to calculate the CCSR's comprehensiveness (sensitivity), accuracy (correctly classified and linked studies) and currency (time to publish and process references). Our sample showed that the CCSR had an overall comprehensiveness of 77.2%, with the highest coverage for interventional studies (94.4%). The study register had 100% coverage for trial registry records, 86.5% for journal articles and

52.4% for preprints. A total of 98.3% of references were correctly classified with regard to study type, and 93.4% with regard to study aim. A total of 89% of studies were correctly linked. A total of 81.4% of references were published to the register in under 30 days, with 0.5 day (median) for trial registry records, 2 days for journal articles and 56 days for preprints. The CCSR had high comprehensiveness, accurate study classifications and short publishing times for journal articles and trial registry records in the sample. We identified that coverage and publishing time for preprints needed improvement. Finally, the evaluation illustrated the value of a study-based register for identifying additional study references for analysis in evidence synthesis.

Montero-Moraga JM, Buron A, Sala M, Santia P, Lupia M, Beltran A, et al. Impact and management of COVID-19 among healthcare workers in two acute care hospitals and two associated long-term care centres in Barcelona, Spain. Journal of Occupational & Environmental Medicine. 2021; 63(9):e586-e591.
https://doi.org/10.1097/JOM.0000000000002290
Abstract: OBJECTIVE: To describe the characteristics of COVID-19-related episodes in healthcare workers (HCW) of two hospitals. METHODS: Prospective study of HCW with COVID-like symptoms and/or who were close contacts of confirmed COVID-19. The percentage of positive PCRs among those with symptoms was calculated, and symptom's positive predictive value and negative predictive value. The characteristics of contacts were described, as well as the secondary clinical attack rate. RESULTS: We registered 1222 episodes of HCW with COVID-like symptoms; 340 (27.8%) had a positive PCR. In 885 episodes, a HCW was a close contact of a confirmed case. In 45.5% of these, the HCW had contact with another HCW. The secondary clinical attack rate of contacts of HCW was 14.5%. CONCLUSION: We found a high prevalence of disease and transmission between HCW during the first wave of the SARS-CoV-2 pandemic

Papakonstantinou D. Work disability and rheumatoid arthritis: predictive factors. Work. 2021; 69(4):1293-1304.
https://doi.org/10.3233/WOR-213550
Abstract: BACKGROUND: Rheumatoid arthritis is often associated

with work disability, a term used to describe the inability to be or to remain employed. Work disability is a common implication of rheumatoid arthritis. OBJECTIVE: This review aims to identify and analyze the predictive factors of work disability among patients with rheumatoid arthritis, as well as to group these factors into broader categories, based on the most current studies in this field. METHODS: An electronic search was conducted using Google Scholar, MEDLINE and PsycINFO databases. Eighty-six international journal articles were finally selected. RESULTS: The results suggest that occupational, personal, medical and societal factors are the main predictive categories of work disability for people with rheumatoid arthritis. CONCLUSIONS: Medical progress has had a positive effect on the development and the rates of work disability among patients with RA. Work disability is, however, not only defined by medical factors. Occupational, personal and societal factors interact with each other and affect the development of work disability in RA. The results of this review emphasize the need for medical and vocational therapy interventions, social support and state policies that target the work status of patients with RA. Future holistic research approaches to the field are required for a complete picture and concrete solutions with the aim of keeping patients with RA employed

Rollins AL, Eliacin J, Russ-Jara AL, Monroe-Devita M, Wasmuth S, Flanagan ME, et al. Organizational conditions that influence work engagement and burnout: a qualitative study of mental health workers. Psychiatric Rehabilitation Journal. 2021; 44(3):229-237.
https://doi.org/10.1037/prj0000472
Abstract: Objective: Clinician burnout in healthcare is extensive and of growing concern. In mental health and rehabilitation settings, research on interventions to improve burnout and work engagement is limited and rarely addresses organizational drivers of burnout. This study sought to elaborate on the organizational influence of burnout and work engagement in mental health. Methods: We randomly selected 40 mental health clinicians and managers who were participating in a burnout intervention and conducted semi-structured interviews to understand their views of organizational conditions impacting burnout and work engagement. Data were analyzed using a thematic analytical approach. Results: Analyses yielded three major

themes where organizational contexts might reduce burnout and increase work engagement: (a) a work culture that prioritizes person-centered care over productivity and other performance metrics, (b) robust management skills and practices to overcome bureaucracy, and (c) opportunities for employee professional development and self-care. Participants also referenced three levels of the organizational context that they believed influenced burnout and work engagement: front-line supervisors and program managers, organizational executive leadership, and the larger health system. Conclusions and Implications for Practice: Findings point to several possible targets of intervention at various organizational levels that could guide the field toward more effective ways to reduce burnout and improve work engagement. (PsycInfo Database Record (c) 2021 APA, all rights reserved)

Sato K, Sakata R, Murayama C, Yamaguchi M, Matsuoka Y, and Kondo N. Changes in work and life patterns associated with depressive symptoms during the COVID-19 pandemic: an observational study of health app (CALO mama) users. Occupational & Environmental Medicine. 2021; 78(9):632-637. https://doi.org/10.1136/oemed-2020-106945 [open access]
Abstract: Background: During the COVID-19 pandemic, many people refrained from going out, started working from home (WFH), and suspended work or lost their jobs. This study examines how such pandemic-related changes in work and life patterns were associated with depressive symptoms. Methods: An online survey among participants who use a health app called CALO mama was conducted from 30 April to 8 May 2020 in Japan. Participants consisted of 2846 users (1150 men (mean age=50.3) and 1696 women (mean age=43.0)) who were working prior to the government declaration of a state of emergency (7 April 2020). Their daily steps from 1 January to 13 May 2020 recorded by an accelerometer in their mobile devices were linked to their responses. Depressive symptoms were assessed using the Two-Question Screen. Results: On average, participants took 1143.8 (95% CI -1557.3 to -730.2) fewer weekday steps during the declaration period (from 7 April to 13 May). Depressive symptoms were positively associated with female gender (OR=1.58, 95% CI 1.34 to 1.87), decreased weekday steps (OR=1.22, 95% CI 1.03 to 1.45) and increased working hours (OR=1.73, 95% CI 1.32 to 2.26).

Conversely, starting WFH was negatively associated with depressive symptoms (OR=0.83, 95% CI 0.69 to 0.99). Conclusions: Decreased weekday steps during the declaration period were associated with increased odds of depressive symptoms, but WFH may mitigate the risk in the short term. Further studies on the longitudinal effects of WFH on health are needed.

Toccalino D, Colantonio A, and Chan V. Update on the epidemiology of work-related traumatic brain injury: a systematic review and meta-analysis. Occupational & Environmental Medicine. 2021; 78(10):769-776. https://doi.org/10.1136/oemed-2020-107005

Abstract: BACKGROUND: Traumatic brain injury (TBI) is a public health concern that can occur in a range of contexts. Work-related TBI (wrTBI) is particularly concerning. Despite overall work-related injury claims decreasing, the proportion of claims that are wrTBI have increased, suggesting prevention and support of wrTBI requires ongoing attention. OBJECTIVES: This review aimed to provide updated information on the burden and risk factors of wrTBI among the working adult population. METHODS: Medline, Embase, PsycINFO, and Cumulative Index to Nursing and Allied Health Literature (CINAHL) were searched using a combination of TBI, work, and epidemiology text words and medical subject headings. Two reviewers independently assessed articles for inclusion. Meta-analyses were conducted to estimate prevalence and mortality of wrTBI and a narrative synthesis was conducted to provide additional context. RESULTS: Pooled proportions meta-analyses estimate that 17.9% of TBIs were work-related and 6.3% of work-related injuries resulted in TBI, with 3.6% of wrTBI resulting in death. Populations of wrTBI were predominantly male (76.2%) and were 40.4 years of age, on average. The most commonly reported industries for wrTBI were education and training, healthcare and social assistance, construction, manufacturing, and transportation. Falls, being struck by an object or person, motor vehicle collisions, and assaults were the most commonly reported mechanisms of wrTBI. CONCLUSIONS: A better understanding of the epidemiology of wrTBI can inform prevention and management strategies. This review highlights existing gaps, including a notable lack of sex or gender stratified data,

to direct future investigation. PROSPERO REGISTRATION NUMBER: CRD42020169642

Webber MP, Singh A, Zeig-Owens R, Salako J, Skerker M, Hall CB, et al. Cancer incidence in World Trade Center-exposed and non-exposed male firefighters, as compared with the US adult male population: 2001-2016. Occupational & Environmental Medicine. 2021; 78(10):707-714.
https://doi.org/10.1136/oemed-2021-107570 [open access]
Abstract: OBJECTIVE: To compare cancer incidence in Fire Department of the City of New York (FDNY) firefighters who worked at the World Trade Center (WTC) site to incidence in a population of non-WTC-exposed firefighters, the Career Firefighter Health Study (CFHS) cohort, and to compare rates from each firefighter cohort to rates in demographically similar US males. METHODS: FDNY (N=10 786) and CFHS (N=8813) cohorts included male firefighters who were active on 11 September 2001 (9/11) and were followed until death or 31 December 2016. Cases were identified from 15 state cancer registries. Poisson regression models assessed cancers in each group (FDNY and CFHS) versus US males, and associations between group and cancer rates; these models estimated standardised incidence ratios (SIRs) and adjusted relative rates (RRs), respectively. Secondary analyses assessed surveillance bias and smoking history. RESULTS: We identified 915 cancer cases in 841 FDNY firefighters and 1002 cases in 909 CFHS firefighters. FDNY had: higher rates for all cancers (RR=1.13; 95% CI 1.02 to 1.25), prostate (RR=1.39; 95% CI 1.19 to 1.63) and thyroid cancer (RR=2.53; 95% CI 1.37 to 4.70); younger median ages at diagnosis (55.6 vs 59.4; p<0.001, all cancers); and more cases with localised disease when compared with CFHS. Compared with US males, both firefighter cohorts had elevated SIRs for prostate cancer and melanoma. Control for surveillance bias in FDNY reduced most differences. CONCLUSIONS: Excess cancers occurred in WTC-exposed firefighters relative to each comparison group, which may partially be explained by heightened surveillance. Two decades post-9/11, clearer understanding of WTC-related risk requires extended follow-up and modelling studies (laboratory or animal based) to identify workplace exposures in all firefighters

Young Illies M, Valentini BJ, Ingles KE, and Gilson CB. An analysis of training and vocational rehabilitation services for individuals with intellectual disability. Journal of Vocational Rehabilitation. 2021; 55(2):219-225.
https://doi.org/10.3233/JVR-211158

***IWH authored publication.**