Clinical modelling through database analysis of n
two potential poorly understood area and there are no functional mouse models or
lethal complication of SSc. The development of calcinosis cutis is a
deposits within the subcutaneous tissue, remains a challenging non-

Background/Aims
KINGDOM
Royal Free Hospital, Department of Rheumatology, London, UNITED
Jesse Jaynes, Clayton Yates, George Martin, Christopher Denton,
Ben G. T. Coumbe, Sonia N. Ahmad, Gemma Thomas,
INTERACTIONS: EFFECT OF NOVEL THERAPEUTIC PEPTIDE
Biosciences, Corbus, Servier, Arxx Therapeutics.
Roche, Bristol Myers Squibb, CSL Behring, UCB, Leadiant
GlaxoSmithKline, Bayer, Sanofi, lnventiva, Boehringer Ingelheim,
employee of GSK.
C.P. Denton:
calcium hydroxyapatite production after prolonged culture in
culture. We examined the impact that this has on the deposition of
patients with SSc (n = 4 lines) were used to stimulate MSCs in co-
the first model system utilised adipose-derived mesencyhmal stem
with and without calcinosis was attempted. In tissue culture studies,
S. Flint:
Ong:
K. Nevin:
employee of GSK.
K.E. Clark:
Disclosure
dcSSc, established dcSSc and lcSSc
reflect systemic abnormalities. Further work will utilise this cohort to
in dermal blister fluid, highlighting its potential for providing detailed
Numerous dysregulated proteins were identified in dermal blister fluid
elevated proteins in blister fluid in early dcSSc compared to HC
(ACYR61 and osteopontin). KEGG pathway analysis of the significantly
highlighted pathways including cytokine-cytokine receptor interaction,
cell adhesion molecules, MAPK signalling pathway and PI3K-AKT
inhibitor of TGF
peptide therapy which targets and repolarises activated SSc macro-
inhibitor SB431542, reduced calcium production by SSc fluid treated
compared to the culture media alone (3.9 vs 2.5, p = 0.00071),
whereas SB432542, reduced calcium production by SSc fluid treated
compared to the culture media alone (3.9 vs 2.5, p = 0.0008). The tissue fluid based model of calcinosis
demonstrated that on day 21 the blister fluid obtained from SSc
ulcerations (p = 0.0147).

P156  MYOSITIS FLARES ARE ASSOCIATED WITH REDUCED
WORK PRODUCTIVITY AND FEWER HOURS WORKED:
ILLUSTRATION OF THE FUTURE POTENTIAL OF DIGITAL
HEALTHCARE SOLUTIONS IN RHEUMATIC DISEASES

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and Hector Chinoy1,3
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UNITED KINGDOM, 2Centre for Epidemiology versus Arthritis, University of Manchester, Manchester, UNITED KINGDOM,
3Department of Rheumatology, Salford Royal Foundation Trust, Salford, UNITED KINGDOM, NIHR Manchester Biomedical
Research Centre, Manchester University NHS Foundation Trust, Manchester Academic Health Science Centre, Manchester, UNITED
KINGDOM

Background/Aims
The digital healthcare revolution provides the opportunity for clinicians
and researchers to collect useful data on a frequent and remote basis.
Work ability is impacted by many rheumatic diseases, including the
idiopathic inflammatory myopathies (IMs), however, methods to
assess the real-time impacts are limited. This study aims to explore the impact of IIM flares and symptoms upon employment using frequently collected data via a smartphone-based app.

**Methods**

The Myositis Physical Activity Device Study recruited a UK-based adult IIM cohort who completed weekly employment and flare questions via a specially designed smartphone-based app throughout a 91-day period in 2019/20. Employment-related questions were assessed every week (see Table 1 for details). Flares were reported via a weekly question. Employment variables were compared between flare and non-flare weeks using descriptive statistics. The relationship between flares and work productivity was assessed using multi-level mixed effects logistic regression modelling, adjusted for age and sex.

**Results**

Data on 13 (69% female) employed participants was analysed. A median of 5 flares were reported per patient during the three month period (IQR 3, 9). Summary employment results are displayed in Table 1. Participants reported greater impact of IIM upon employment, lower productivity and fewer hours worked during a flare week, compared to a non-flare week. There was a significant association between flares and detrimental impact upon work productivity (odds ratio [OR] 1.07, 95% confidence interval [CI] 1.03, 1.12; p < 0.01). Flares were also significantly associated with an increased number of work hours missed due to IIM (OR 1.04, 95% CI 1.01, 1.08, p = 0.02).

**Conclusion**

Our study has demonstrated that IIM flares are significantly associated with detrimental impact upon employment ability. On average, patients lost 15 hours of work a week during a flare compared to less than 2 hours outside a flare. The economic and personal impact of flares highlights the need for research in this area, with the aim of allowing early identification and instigation of treatment and possible need for supported work. Smartphone based remote monitoring of flares and other pertinent variables could enhance digital consultations, which may become more common in the post COVID-19 setting.

**Disclosure**

J.C. Williams: None. A.G.S. Oldroyd: None. W.G. Dixon: None. H. Chinoy: None.

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**Table 1:** Summary employment parameters compared between flare and non-flare weeks

| Employment parameter                          | Answer format | Whole study period (159 weeks) | Flare weeks (60 weeks) | Non-flare weeks (99 weeks) | p-value* |
|-----------------------------------------------|---------------|--------------------------------|------------------------|---------------------------|----------|
| Number of weeks' work productivity affected by IIM (%) | Dichotomous - "yes", "no" | 54 (34.0)                     | 33 (55.0)              | 21 (21.2)                 | <0.01    |
| Mean effect of IIM upon work productivity (SD) | Visual analogue scale - "Myositis had no effect on work" (0); "Myositis completely prevented me from working" (100) | 29.8 (28.6)            | 46.2 (33.3)            | 19.9 (20.0)           | <0.01    |
| Mean number of scheduled work hours per week per participant (SD) | Numerical | 33.2 (15.8)                       | 36.9 (19.33)           | 31.0 (13.0)               | <0.01    |
| Mean number of hours worked per week per participant (SD) | Numerical | 23.5 (15.1)                       | 18.86 (17.1)           | 26.23 (13.2)             | <0.01    |
| Proportion of hours worked per week due to IIM per participant / % (SD) | Calculated by research team | 73.7 (88.7)                   | 55.9 (43.2)            | 84.7 (31.1)             | <0.01    |
| Mean number of hours of weekly work missed due to IIM per participant / % (SD) | Numerical | 6.6 (16.6)                           | 14.9 (23.4)           | 1.5 (6.6)                | <0.01    |
| Proportion of hours of weekly work missed due to IIM per participant / % (SD) | Calculated by research team | 12.7% (29.5)                  | 29.2 (41.1)            | 2.6 (10.0)               | <0.01    |

SD = standard deviation * Categorical variables were compared using the Chi-squared test and continuous variables compared using the student t-test.