

1 Exercise on Referral – Symposium hosted by the Physical Activity Special Interest

2 Group of the Wolfson Research Institute for Health and Wellbeing, Durham

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19           The Physical Activity Special Interest Group of the Wolfson Research Institute for Health  
20 and Wellbeing (Durham University) hosted a symposium focussed on exercise referral schemes  
21 (ERS), on 14<sup>th</sup> October 2016 at the College of St. Hild and St. Bede, Durham, United Kingdom  
22 (UK). Exercise referral schemes typically allow health professionals, such as general practitioners,  
23 nurses and physiotherapists to refer inactive individuals with long-term health conditions to a third  
24 party leisure provider for a supervised exercise programme, with the aim of increasing physical  
25 activity levels. The symposium was lively and thought-provoking with presentations divided into  
26 two core themes: ‘Emerging Evidence for ERS’ and ‘Future Developments for ERS’.

27           Exercise referral schemes have increased in popularity since the 1990s to address society’s  
28 significant chronic disease burden, yet the future of these important programmes is uncertain.  
29 Public Health England have criticised the evidence-base for the effectiveness of ERS, owing to  
30 the sparse use of randomised controlled trials (RCTs) and substandard evaluation. Recent  
31 systematic reviews have questioned the long-term effectiveness and cost-effectiveness of ERS  
32 (Campbell *et al.*, 2015; Pavey *et al.*, 2011). The National Institute for Health and Care Excellence  
33 (NICE) have provided a number of critical points for consideration in ERS, including 1) a lack of  
34 progress in increasing the evidence-base for ERS, 2) calls for more RCTs, 3) routine evaluation  
35 data to be made available for analysis, and 4) a better understanding of what elements of current  
36 delivery influence success and for whom. In the present climate of austerity, the threat of  
37 decommissioning looms, meaning that there is an urgent need to improve knowledge and the  
38 quality of evidence about what works.

39           The following review presents some critical reflections of the symposium from a group of  
40 enthused PhD researchers, based upon three themes that emerged which are discussed in turn: the  
41 consideration of a bottom-up approach to understanding ERS; the need to promote and  
42 understand the application of behaviour change within ERS; the requirement for continuity in  
43 evaluation of ERS and translation of findings. This paper concludes by offering brief advice for

44 maximising the benefits of conferences and symposia, in particular in supporting future ERS  
45 evaluation research.

46

#### 47 **Bottom-up approach**

48 A key theme that emerged during the symposium was the need to understand the complexity  
49 of ERS, and the importance of local stakeholder knowledge. It was apparent that a focus on  
50 outcome evaluation, to the detriment of exploring why such schemes do or do not work, and in  
51 what circumstances, has resulted in NICE adopting a cautious approach in recommending public  
52 health commissioning of ERS. In order to plan and implement more effective ERS and realise  
53 potential, there is a need to define discrete subpopulations where ERS may be more effective, such  
54 as those with certain long-term medical conditions or those of a certain age group. There is also  
55 a requirement to define how and why factors identified as facilitators of engagement, such as  
56 provider and peer support, scheme location, and exercise habit facilitation (Morgan *et al.*, 2016)  
57 work for some, but not others. Arguably, a 'bottom-up' approach, which aims to include a wide  
58 range of stakeholders (for example, service-users, referring health professionals, ERS delivery staff  
59 and policy-makers) in ERS design and development, may help facilitate understanding of  
60 complexity and better implement evidence-based practice.

61 During the symposium it was suggested that there is a need to ensure a shared expectation  
62 of who ERS are suitable for and what might realistically be achieved through participation. In  
63 order to achieve standardisation of effective ERS, practitioners need to share and improve current  
64 practice through (re)design of schemes via co-production with local stakeholders including  
65 commissioners, service providers, users, and health professionals. There is a need to focus future  
66 research on the improvement of ERS delivery, with the aim of providing schemes that are  
67 appropriate for specific cohorts that ERS are known to successfully engage (for example, older  
68 participants). Moreover, there is a requirement to trial different interventions for those whom  
69 current ERS fail to engage. For instance, those under 55 years have been reported to be less likely

70 to engage with, and adhere to, current ERS (Hanson *et al.*, 2013). Alternative ERS models that  
71 focus on sport rather than physical activity are currently being tested (Gardner, 2014), but it is not  
72 yet known whether such an approach may be better suited to younger participants.

73

#### 74 **Determined to Promote Behaviour Change**

75 A consistent theme throughout the symposium was the potential role for behaviour change  
76 theory in delivering more successful ERS interventions; an area highlighted as a commissioning  
77 requirement in NICE guidance. For example, there is a wealth of evidence for the use of self-  
78 determination theory (SDT; Deci & Ryan, 1985; 2000) as a predictor for physical activity behaviour  
79 change (Teixeira *et al.*, 2012) and there is some evidence to support its use as a framework for ERS  
80 (Littlecott *et al.*, 2014). Self-determination theory promotes the cultivation of inherent enjoyment  
81 towards physical activity, and during the symposium there was much discussion about the potential  
82 to foster the three SDT constructs of competence, autonomy and relatedness within ERS through  
83 appropriately trained practitioners. Unfortunately, the application of behaviour change techniques  
84 in ERS appears to be limited in practice (Beck *et al.*, 2016; Duda *et al.*, 2014; Moore *et al.*, 2011).  
85 Therefore, the identification of promising behaviour change techniques (such as motivational  
86 interviewing, guided goal setting, problem solving and action planning) within the (re)design of  
87 interventions could lead to more successful ERS. In order to increase the likelihood of  
88 implementation fidelity, such techniques must be considered to be appropriate and feasible by  
89 practitioners. This must be combined with behaviour change specific staff training, which requires  
90 commitment of time and resource from commissioners and provider management. Although  
91 currently the embedding of such theories within ERS appears to be sporadic, we were enthused  
92 by the possibilities for improving practice and felt optimistic that this was a potentially fruitful area  
93 to focus future research.

94

#### 95 **Evaluation and Translation**

96 Evaluation of schemes was a major feature of the symposium, with lively debate about what  
97 variables should be reported. Guidance from NICE recommends that ERS collect a core set of  
98 data to be made available for evaluation purposes. Furthermore, NICE suggest that heightened  
99 effort is required to understand whether ERS are more successful for certain population  
100 subgroups, for example, those who are older and those referred due to cardiovascular disease.  
101 Mann (UK Active) presented plans for a new national database for ERS, including engagement  
102 data, well-being measures, physical activity levels and physiological measures, such as blood  
103 pressure. In contrast, Buxton (British Heart Foundation National Centre for Physical Activity)  
104 suggested that the primary aim of ERS was to change physical activity behaviour, and, given that  
105 the evidence for the health benefits of physical activity is well established, this should be the sole  
106 measure of success.

107 During the symposium two areas for future ERS research were highlighted. First, Medical  
108 Research Council (2000) guidance suggests that the widespread natural development of ERS has  
109 meant a failure to sufficiently evaluate at pilot and later stages. Therefore, factors such as poor  
110 intervention design and fidelity within ERS have not been addressed before the assessment of  
111 effectiveness via RCTs. In any case, the Medical Research Council has recommended that RCTs  
112 may not be the most appropriate way to assess complex interventions and alternative methods of  
113 evaluation should be considered (Craig *et al.*, 2008). For example, realistic evaluation (Pawson &  
114 Tilley, 1997), which includes both outcome analysis and an investigation of stakeholder  
115 interpretation of implementation, may provide a more appropriate way of understanding the  
116 ‘active ingredients’ of success within ERS. Such a mixed methods approach has already been  
117 implemented in the assessment of the Welsh National ERS (Moore *et al.*, 2013), providing insight  
118 into crucial functions of ERS implementation. Once there is a better understanding of the  
119 successful components of ERS, redesigned pilot interventions could be robustly evaluated with a  
120 focus on physical activity behaviour change.

121           Second, there are complex local factors. There may also be a disparity between what is  
122 considered as pertinent to improve the ERS evidence-base from an academic standpoint,  
123 compared to what is considered pertinent by commissioners and health professionals with regards  
124 to the recommissioning of schemes. As researchers we need to be aware of the way in which key  
125 stakeholders use research evidence within particular contexts. Therefore, researchers need to  
126 consider how to better-disseminate attractive and accessible evidence that showcases ‘what works’  
127 in a cost-effective manner.

128           These factors represent the complexity of ERS and the challenges now faced by service  
129 providers and researchers. These cannot be ignored, not least in times of heightened requirements  
130 for evaluation-informed practice and policy-making. Sharing critical perspectives, ideas and  
131 enthusiasm about ERS during the symposium meant that we left with a sense of collective  
132 responsibility and cautious optimism towards the potential for such schemes. Adopting a “*glass*  
133 *half-full perspective*”, we feel that there are opportunities to undertake research to enable the co-  
134 creation of improved, more targeted schemes. The symposium highlighted the need for those  
135 involved with ERS (commissioners, practitioners and researchers) to work together to share good  
136 practice, disseminate research beyond academic publication to improve community level impact,  
137 and support unambiguous policy-making. Importantly, we need to ensure our future ERS research  
138 is sufficiently rigorous and reflects the complexities of such schemes.

139

#### 140 **Making Conferences and Symposia Count**

141           For some of us this was our first symposium as we are at the start of our doctoral  
142 journeys. Conferences and symposia offer PhD students important enrichment to our often  
143 ‘isolated’ study. We fully recommend others speak to supervisors about attending relevant  
144 events. The opportunity and benefits which may arise from presenting to, and networking with,  
145 experts in your field cannot be underestimated. To get the most out of such opportunities it may  
146 be helpful to have a checklist of people to liaise with, or specific points you want to find out. It is

147 beneficial to use the agenda to plan your day, and to take action as a result of what you have  
148 learnt. Borne out of our enthusiasm generated by the symposium was a recognition of the need  
149 to stimulate robust conversation and advocate the potential of ERS. We opted to share our  
150 experiences by writing this review and hope that this commentary may provide a stimulus for  
151 debate around ERS more generally.

152

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### 160 **References**

- 161 Beck, F.E., Gillison, F.B., Koseva, M.D., Standage, M., Brodrick, J.L., Graham, C. *et al.* (2016).  
162 The systematic identification of content and delivery style of an exercise intervention.  
163 *Psychology & Health, 31*(5), 605-621.  
164
- 165 Campbell, F., Holmes, M., Everson-Hock, E., Davis, S., Buckley Woods, H., Anokye, N. *et al.*  
166 (2015). A systemic review and economic evaluation of exercise referral schemes in primary  
167 care: a short report. *Health Technology Assessment, 19*(60), 1-110.  
168
- 169 Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., Petticrew, M. *et al.* (2008). Developing  
170 and evaluating complex interventions: the new Medical Research Council guidance.  
171 [Electronic version]. *BMJ, 337*, a1655.  
172
- 173 Deci, E.L. & Ryan, R.M. (Eds.) (1985). *Intrinsic motivation and self-determination in human behaviour.*  
174 New York: Plenum.  
175
- 176 Deci, E.L. & Ryan, R.M. (2000). The "what" and "why" of goal pursuits: human needs and the  
177 self-determination of behaviour. *Psychological Inquiry, 11*(4), 227-268.  
178
- 179 Duda, J.L., Williams, G.C., Ntoumanis, N., Daley, A., Eves, F.F., Mutrie, N. *et al.* (2014). Effects  
180 of a standard provision versus an autonomy supportive exercise referral programme on  
181 physical activity, quality of life and well-being indicators: a cluster randomised controlled  
182 trial. *International Journal of Behavioural Nutrition and Physical Activity, 11*(10). Retrieved 4 June  
183 2017 from <https://ijbnpa.biomedcentral.com/articles/10.1186/1479-5868-11-10>

184  
185 Gardner, S. (2014). *Get Healthy Get Active. What we've learnt so far*. Retrieved from Sport England  
186 website: [https://www.sportengland.org/media/3067/](https://www.sportengland.org/media/3067/final-get-healthy-get-active-what-we-ve-learnt.pdf)  
187 [final-get-healthy-get-active-what-we-ve-learnt.pdf](https://www.sportengland.org/media/3067/final-get-healthy-get-active-what-we-ve-learnt.pdf)  
188

189 Hanson, C.L., Allin, L.J., Ellis, J.G. & Dodd-Reynolds, C.J. (2013). An evaluation of the efficacy  
190 of the exercise on referral scheme in Northumberland, UK: association with physical  
191 activity and predictors of engagement. A naturalistic observation study. *BMJ Open*, 3(8).  
192 Retrieved 4 June 2017 from <http://bmjopen.bmj.com/content/3/8/e002849>  
193

194 Littlecott, H.J., Moore, G.F., Moore, L. & Murphy, S. (2014). Psychological mediators of change  
195 in physical activity in the Welsh national exercise referral scheme: secondary analysis of a  
196 randomised controlled trial. *The International Journal of Behavioural Nutrition and Physical*  
197 *Activity*, 11(109). Retrieved 4 June 2017 from [https://ijbnpa.biomedcentral.com/articles/](https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-014-0109-9)  
198 [10.1186/s12966-014-0109-9](https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-014-0109-9)  
199

200 Medical Research Council. (2000). *A framework for development and evaluation of RCTs for complex*  
201 *interventions to improve health*. Retrieved 5 June 2017 from  
202 [https://www.mrc.ac.uk/documents/pdf/](https://www.mrc.ac.uk/documents/pdf/rcts-for-complex-interventions-to-improve-health/)  
203 [rcts-for-complex-interventions-to-improve-health/](https://www.mrc.ac.uk/documents/pdf/rcts-for-complex-interventions-to-improve-health/)  
204

205 Moore, G., Moore, L. & Murphy, S. (2011). Integration of motivational interviewing into practice  
206 in the national exercise referrals scheme in Wales: a mixed methods study. *Behavioural and*  
207 *Cognitive Psychotherapy*, 40(3), 313-330.  
208

209 Moore, G.F., Raisanene, L., Moore, L., Din, N.U. & Murphy, S. (2013). Mixed-method process  
210 evaluation of the Welsh National Exercise Referral Scheme. *Health Education*, 113(6), 476-  
211 501.  
212

213 Morgan, F., Battersby, A., Weightman, A.L., Searchfield, L., Turley, R., Morgan, H. *et al.* (2016).  
214 Adherence to exercise referral schemes by participants - what do providers and  
215 commissioners need to know? A systematic review of barriers and facilitators. *BMC Public*  
216 *Health*, 16(227). Retrieved 4 June 2017 from [https://bmcpublichealth.biomedcentral.com/](https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-2882-7)  
217 [articles/10.1186/s12889-016-2882-7](https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-016-2882-7)  
218

219 Pavey, T.G., Anokye, N., Taylor, A.H., Trueman, P. Moxham, T., Fox, K.R. *et al.* (2011). The  
220 clinical effectiveness and cost-effectiveness of exercise referral schemes: a systematic  
221 review and economic evaluation. *Health Technology Assessment*, 15(i-xii), 1-254.  
222

223 Pawson, R. & Tilley, N. (1997). *Realistic evaluation*. Thousand Oaks, CA: Sage.  
224

225 Teixeira, P.J., Carraça, E.V., Markland, D., Silva, M.N. & Ryan, R.M. (2012). Exercise, physical  
226 activity, and self-determination theory: a systematic review. *The International Journal of*  
227 *Behavioural Nutrition and Physical Activity*, 9(78). Retrieved 4 June 2017 from  
228 <https://ijbnpa.biomedcentral.com/articles/10.1186/1479-5868-9-78>