Do clinicians prescribe exercise according to clinical guidelines in patients with cardiovascular disease? Findings from the European Association of Preventive Cardiology EXPERT (EXercise Prescription in Everyday practice & Rehabilitative Training) working group survey

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INTRODUCTION

Disease-specific exercise guidelines for the secondary prevention of cardiovascular disease (CVD) are widely available.

It remains uncertain whether exercise is prescribed accordingly by clinicians to patients with multiple presentations of CVD and risk factors.

AIM

To assess the inter-clinician variance in exercise prescription for CVD (risk) patients and compare these prescriptions with prescriptions from the EXPERT (EXercise Prescription in Everyday practice & Rehabilitative Training) tool, an integrated digital decision support system for state-of-the-art exercise prescription in CVD.

METHODS

Fifty-three CV rehabilitation clinicians out of nine European countries fulfilled to prescribe exercise intensity (based on heart rate (HR)), frequency, session duration, program duration and exercise type (endurance or strength training) for the same five patient cases.

Exercise prescriptions were compared between clinicians and relations with clinician characteristics were studied. In addition, these exercise prescriptions were compared with exercise prescriptions from the EXPERT tool.

EXPERT
a tool to improve your exercise prescription

Declaration of interest
The authors declare that there is no conflict of interest associated with this publication
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RESULTS

A large inter-clinician variance was found for prescribed exercise intensity (median (interquartile range (IQR)): 83(13)% of peak HR), frequency (median (IQR): 4(2) days/week), session duration (median (IQR): 45(18) min/session), programme duration (median (IQR): 12(18) weeks), total exercise volume (median (IQR): 1215(1961) peak-effort training hours) and prescription of strength training exercises (prescribed in 78% of all cases) (see Table 1 and Figure 1).

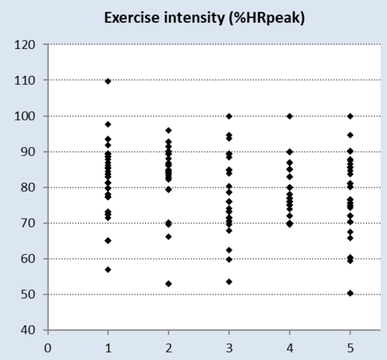
Moreover, clinicians' exercise prescriptions were significantly different from the EXPERT tool exercise prescriptions ($p<0.001$).

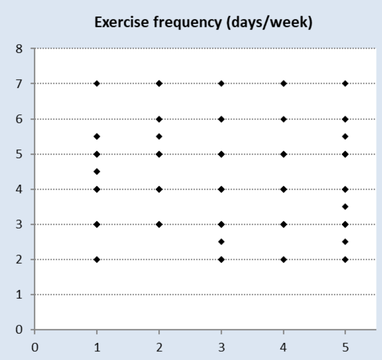
Table 1 Exercise prescriptions, as generated by clinicians, for the same 5 patient cases

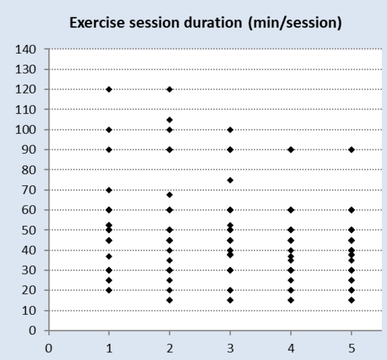
Exercise modality	Patient case					P-value between cases
	1	2	3	4	5	
Intensity (%HR_{peak})	83 (14)	85 (7)	76 (17)	78 (9)	80 (16)	0.033
Variance	87	72	92	47	122	
Frequency (days/week)	4 (2)	4 (2)	3 (2)	4 (2)	3 (2)	0.047
Variance	1.3	1.3	1.6	1.2	1.2	
Session duration (min/session)	45 (30)	50 (30)	38 (30)	45 (30)	40 (20)	0.047
Variance	367	507	392	305	258	
Program duration (weeks)	8 (50)	12 (18)	12 (9)	12 (18)	12 (17)	0.081
Variance	127	145	180	194	134	
Total exercise volume (peak-effort training hours)	1024 (1231)	1669 (3538)	1205 (1392)	1215 (4013)	1034 (1680)	0.054
Variance	2231179	7662867	3060335	5621496	2178928	
Strength training (yes/no)	41/12	38/15	45/7	35/18	48/5	0.012
Strength training (% yes)	77	72	86	66	78	

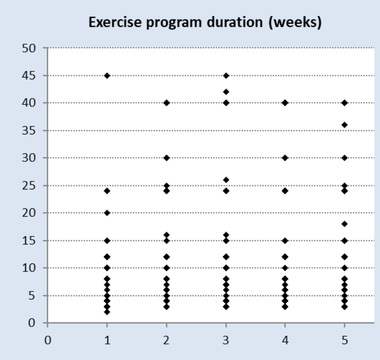
Data are expressed as median (IQR) or number of observations.
Abbreviations: HR, heart rate.

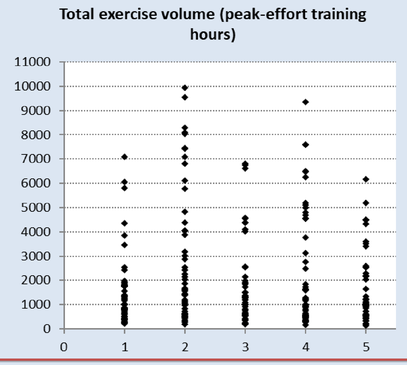
Figure 1 Inter-clinician variance in exercise prescription for the same 5 patient cases (on x-axis)











One point in these figures may reflect multiple clinicians as similar exercise modality selections may have occurred between clinicians

CONCLUSION

This study reveals a significant inter-clinician variance in exercise prescription for CVD patients, and disagreement with an integrated version of exercise guidelines, reiterating the need of decision support systems/practical tools for integrated state-of-the-art exercise prescription.