

Supplementary File 4: The behavioural change wheel

COM-B components	What needs to change	Intervention functions	BCT's	Mode of delivery
CAPABILITY				
Physical capability	Have the physical skills to improve their level of physical activity (PA) and protein intake after surgery	Enablement	Reducing barriers to increase capability	1.2 Problem solving 2.2 Feedback on behavior 2.3 Self-monitoring of behavior 4.1 instructions on how to perform Coaching by Healthcare Professional (HP) Coaching by HP + Atris app Atris app Coaching by HP + Atris app
Psychological capability	Knowing how to improve their level of PA and protein intake after surgery	Education Skills training	Educate about ways to be more physically active and about protein rich products Train cognitive skills to be able to increase the level of PA and protein intake	2.2 Feedback on behavior 2.3 self-monitoring of behavior 4.1 instructions on how to perform Coaching by HP + atris app Atris app Coaching by HP + Atris app
OPPORTUNITY				
Physical opportunity	Creating the opportunity to be physically active and to improve their protein intake in their own physical environment	Environmental restructuring	Provide cues and prompts to increase the level of PA	7.1 Prompts cues 12.5 Adding objects to the environment Atris app PAM accelerometer
Social opportunity	Creating access to support from a health professionals	Enablement	Enable patients to contact a physiotherapist or dietician	3.1 Social support Coaching by HP + Atris app
MOTIVATION				
Reflective motivation	Patients need to understand and belief the benefits of increasing PA and protein intake on their recovery	Education, enablement	Inform about the benefits of increasing their level of PA and protein intake	1.7 review outcome goals 2.2 Feedback on behavior Coaching by HP + Atris app Coaching by HP + Atris app Coaching by HP + Atris app

			Educate to create more positive beliefs about increasing PA and protein intake	5.1 Information about health consequences 2.3 self-monitoring of behavior	Atris app
	Patients need to have confidence in their ability to increase their level of PA and protein intake	Training, enablement	Train to set realistic goals.	1.1 Goal setting (behavior)	Coaching by HP + Atris app
		Persuasion, incentivisation	Let the patient feel positive about increasing their level of PA and reaching their protein targets	1.2 Problem Solving 1.4 Action planning 1.5 review behavioral goals 2.3 Self-monitoring of behaviour 3.1 Social support 8.7 Graded Tasks 10.3 non-specific reward 10.4 Social reward	Coaching by HP Coaching by HP + Atris app Coaching by HP Atris app Coaching by HP + Atris app Coaching by HP + Atris app Atris app Coaching by HP
Automatic motivation	Create established routines and habits to increase the level of PA and protein intake	Incentivisation, persuasion,	Reward patients if they continue increasing their level of PA and reach their protein targets	2.2 Feedback on behavior 2.3 self-monitoring on behavior 10.3 non-specific reward 10.4 Social reward	Coaching by HP + Atris app Atris app Atris app Coaching by HP