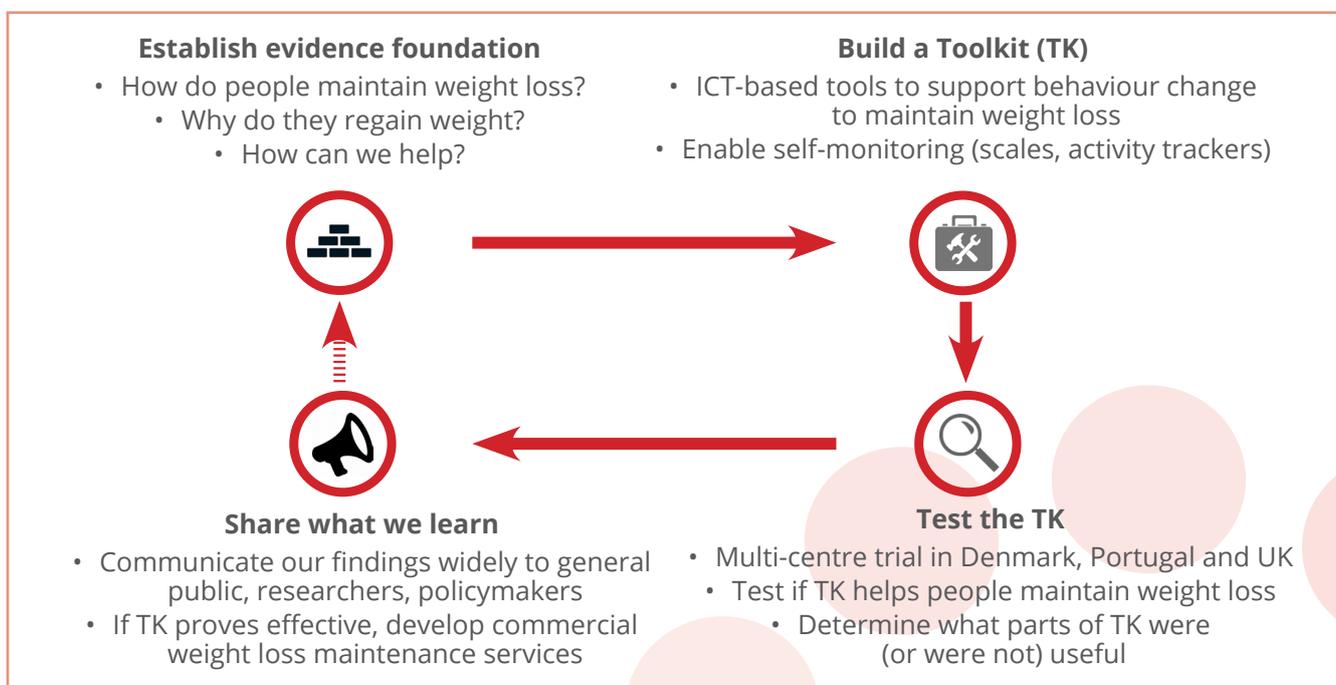


Overview from the Coordinator - Year 4

Overweight, obesity and associated diseases are major societal challenges for the health of European citizens. Most individuals can manage to lose weight, but few manage to maintain their weight loss in the long term. The key challenge in managing obesity in Europe and beyond is therefore not weight loss *per se*, but weight loss maintenance. The NoHoW project has developed a kit of IT-based tools (NoHoW Toolkit (TK)), based on a robust evidence foundation about long-term weight management and the most promising behavioural science techniques for weight loss maintenance (WLM). We are currently conducting a randomised controlled trial (RCT) in the UK (University of Leeds (UNIVLEEDS)), Denmark (RegionH (RH)) and Portugal (University of Lisbon (FMH)) to investigate the effectiveness of the TK to support long-term behaviour change related to weight loss maintenance. Over 1,600 participants have been recruited, with 12-month data collection now complete. We are also exploring commercial avenues for the NoHoW TK to provide evidence-based products and services for long-term WLM.



This report summarises progress in the fourth year of the project, including:

- completion of a longitudinal study of successful weight maintainers to better understand WLM predictors,
- on-going conduct of the NoHoW trial in the UK, Denmark and Portugal, including the successful recruitment of >1,600 participants and collection of 6- and 12-month measures,
- implementation of prediction models for individualised feedback to participants in the trial,
- continued exploitation activities through training and brokerage events, and
- on-going engagement with key stakeholders (including a NoHoW workshop at the European Congress on Obesity (ECO 2018)), media coverage, social media and patient councils.

WP1 - Evidence Foundation

AIMS

WP1 aims to understand the demographic, socio-economic, seasonal and psychological predictors, experiences, practices and support needs for WLM amongst Europeans, as well as understand the role of self-management of stress and emotions alongside self-management of energy balance behaviours in WLM. We also seek to identify predictors of successful WLM in successful weight maintainers.

ACHIEVEMENTS & ON-GOING WORK

We have added to our rigorous evidence-base of how weight is lost and maintained in Europe. Analysis of the data we collected from our longitudinal survey to identify predictors of successful WLM in successful weight maintainers from a commercial weight management programme (Slimming World™) was started and is on-going. Baseline data from a total of 3,218 participants was collected in Oct 2016, with a follow-up data from 2,227 participants at 6-months and 2,234 participants at 12-months.

We have recently published our results from qualitative interviews with weight maintainers in Denmark: *The complexity of self-regulating food intake in weight loss maintenance. A qualitative study among short- and long-term weight loss maintainers* (Pedersen, S., et al. Social Science & Medicine (2018)). The key finding was that short- and long-term weight loss maintainers had different strategies for self-regulating their food intake while maintaining weight loss. Long-term maintainers had routines that allowed more flexibility, while short-term maintainers had a less flexible, 'weight loss' mind-set.

TEAM

WP1 is led by Prof. Falko Sniehotta at the University of Newcastle (UNEW), with active participation by Dr. Elizabeth Evans (UNEW), Dr. Kirby Sainsbury (UNEW), Prof. Liisa Lähteenmäki (University of Aarhus, AU), Dr. Susanne Pedersen (AU), Prof. Pedro Teixeira (Faculdade de Motricidade Humana, FMH), Dr. António Palmeira (FMH), Dr. Marta Marques (FMH), Prof. James Stubbs (UNIVLEEDS), and Mr. Euan Woodward (European Association for the Study of Obesity, EASO).



WP2 - NoHoW Toolkit (TK)

Development of the TK was completed in the second year of the project. The TK is now being tested in the NoHoW trial. More details are available in the Year 1 - 2 Report (<https://bit.ly/2vxVsds>).

WP3/4 - Design, Set-up and Intervention Delivery

AIMS

WP3 wrapped up in year 2 with completion of the trial pilot study. WP4 is now in the final 6 months of the NoHoW RCT (recruitment, baseline and follow-up measures). The NoHoW trial is a three-centre four-arm, 2 x 2 factorial RCT. The trial tests three hypotheses: (i) the impact of self regulation and motivation, (ii) the impact of emotion regulation/stress management on WLM, and (iii) possible interactions between self regulation/motivation and emotion regulation/stress management.

ACHIEVEMENTS & ON-GOING WORK

The trial population is overweight/obese adults (> 18 years) who have lost $\geq 5\%$ of their weight in the last 12 months and had a BMI ≥ 25 kg/m² prior to weight loss. The 6- and 12 month health, biomarker, psychosocial and user experience measures has been completed and 18-months measures are ongoing. Primary outcomes are body weight and biomarkers (blood pressure, blood lipids, HbA1c and long-term cortisol levels from hair samples), assessed at 12 months. Secondary outcomes include physical activity, dietary intake, self-regulation, autonomous motivation, stress, well-being, quality of life, health economics analysis and process evaluation.

Retention to the trial has been excellent - by February 2019, only 201 participants had withdrawn from the trial, leaving 1,426 active participants in the trial.

		Emotion/stress regulation	
		YES	NO
Self-regulation + motivation	YES	SELF WEIGHING SELF REGULATE + MOTIVATE STRESS/EMOTION 4	SELF WEIGHING SELF REGULATE + MOTIVATE 2
	NO	SELF WEIGHING STRESS/EMOTION 3	SELF WEIGHT ONLY 1

TEAM

WPs 3/4 are led by Prof. James Stubbs and Dr. Cristiana Duarte (UNIVLEEDS). Trial sites in Lisbon are overseen by Prof. Pedro Teixeira and Dr. António Palmeira (FMH) and in Copenhagen by Prof. Berit Heitmann and Dr. Sofus Larsen (RH). Dr. David Nutter and Dr. Graham Horgan (JHI) developed and maintain the datahub and provide statistical expertise. Dr. Emma Foster and her team (UNEW) implemented INTAKE24 (online dietary measure) and Prof. Falko Sniehotta and Dr. Elizabeth Evans (UNEW) contributed expertise from the NuLevel trial.



WP5 - Data Management and Analysis

AIMS

WP5 is dedicated to providing a central data storage facility for all RCT data and ensuring secure storage for the project duration and a further 20 years, receiving and depositing data during the trial and making it available to researchers for analysis, developing individualised prediction models to provide feedback to RCT participants about their weight management, and conducting statistical analyses of the RCT data, including health economics analysis.

ACHIEVEMENTS & ON-GOING WORK

The secure central data storage facility (data hub) established at JHI in years 1 and 2 continues to be used to store data from the NoHoW trial. The data hub also continues to host the software associated with providing data to the TK and to trial staff, as well as hosting the TK and managing automated feedback emails to participants.

Prediction models for individualised feedback to participants in the trial have also been implemented. The aim of this feedback is to help participants manage their weight better. This feedback depends on TK and activity tracker use, on participants weighing themselves frequently and on individual level associations being detected over time between behaviour and weight change. If these conditions are met, a message is shown on the TK dashboard, such as 'Your weight management seems better at weekends.'

In addition to storing the trial data and supporting operation of the TK, WP5 is also collaborating with WP4 to conduct data cleaning activities of the baseline measures. Planned baseline analyses will explore behavioural characteristics among participants related to initial weight loss that allowed them entry into the NoHoW trial. A full statistical analysis of the 12-month data will begin in April 2019, with further analysis after completion of collection of the 18-month data in Sept 2019.

TEAM

WP5 is led by Dr. Graham Horgan and Dr. David Nutter (JHI). Prof. Berit Heitmann (RH), Dr. António Palmeira (FMH) and Prof. James Stubbs (UNIVLEEDS) provide links to the trial sites in Copenhagen, Lisbon and Leeds. As the technology developers of the TK, Dr. Johan Plomp, Dr. Elina Mattila and their team (VTT) provide essential inputs and expertise to WP5.



WP6 - Exploitation and Impact

AIMS

WP6 is dedicated to ensuring that NoHoW outputs are used to develop commercial weight loss maintenance products and services to address the obesity epidemic. This will be achieved by:

- exploring potential mechanisms to make TK v2.0 available to other commercial entities and stakeholders after the RCT is complete, and
- creating international networks of communication and practice to link and promote a new generation of WLM services.

ACHIEVEMENTS & ON-GOING WORK

Exploitation and impact have been a focus throughout the project. In WP6, we have established processes for identifying and managing intellectual property (IP) arising from the project, including the establishment of an IP sub-committee and IP register.

The NoHoW consortium continues to plan for exploitation of TK v2.0 and is currently seeking commercial partners following the departure of partner Slimming World™. The team has engaged with the EU-funded UTILE project to avail of supports to bring our innovation closer to market. Prof. Heitmann and Prof. Stubbs attended a Training and Brokerage event in Bologna in October 2018. At the meeting, they pitched the NoHoW TK to a panel of experts and gained valuable insights about the next possible steps. The TK is now also featured on the UTILE digital marketplace.

Through EASO and partner networks, we have continued to build a network of communication and practice in the area of WLM services. For example, NoHoW organised a workshop, 'Self-regulation and emotion regulation in weight loss maintenance – working toward a consensus: The H2020 NoHoW Project', at the European Congress on Obesity (ECO) 2018 meeting (May 2018).

WP6 will continue to plan and prepare for commercial exploitation of NoHoW outputs, further developing our Business Plan for making TK v2.0 available after the NoHoW RCT. Activities to grow our WLM network will also continue through a variety of mechanisms (videos, targeted communications, sponsored symposia, etc.).



NoHoW Team at ECO 2018

TEAM

WP6 is led by Prof. Berit Heitmann (RH) and involves the participation of TK developers led by Dr. António Palmeira (FMH), Dr. Marcela Matos and Cristiana Duarte (UDC), Dr. Johan Plomp and Dr. Elina Mattila (VTT), Prof. Berit Heitmann (RH) and Prof. James Stubbs (UNIVLEEDS). Dr. Graham Horgan (JHI) provides expertise in individualised prediction modelling and data management/analysis. The teams of Mr. Euan Woodward (EASO) and Mr. Ciaran Clissmann (PT) bring expertise in stakeholder engagement and exploitation planning, respectively.



WP7 - Dissemination and Communication

AIMS

WP7 focuses on outward-facing communications and dissemination of the project to a broad range of key stakeholders, including the general public, patient groups, scientific community, policy makers, health professionals, industry, consumer organisations and the media. Practical tools and engaging materials tailored to specific groups are developed to communicate the project aims and results, alongside academic publications and conference presentations. WP7 also collaborates with WP6 to develop an audience for the commercial outputs of the project.

ACHIEVEMENTS & ON-GOING WORK

Activities to date have focused primarily on communicating and disseminating the aims of the project through a variety of means, including:

- The project website (www.nohow.eu) and social media (Twitter, Facebook, ResearchGate, LinkedIn) have been actively maintained to grow our following (with over 937 followers on Twitter), building an audience for our emerging results.
- Prof. Stubbs (UNIVLEEDS) presented 'Evidence-based digital solutions for weight loss maintenance', at the ASO Yorkshire Meetings in Oct 2017 and 'Multidisciplinary approaches to addressing the challenge of weight loss and maintenance' at the University of Derby Psychology External Lecture Series in November 2017.
- The consortium hosted a well-attended symposium 'Self-regulation and emotion regulation in weight loss maintenance – working toward a consensus: The H2020 NoHoW Project' at the European Congress on Obesity (ECO2018) in Vienna on 26 May 2018.
- A number of NoHoW presentations were given at the International Society of Behavioral Nutrition and Physical Activity (ISBNPA) Annual Meeting in June 2018 - including 'Motivation and self-regulatory strategies among physical activity profiles of weight loss maintainers' by Dr. I. Santos (FMH), 'Associations between activity and physical activity motivation in short-term weight loss' by Dr. A. Palmeira (FMH) and 'Scale to assess the Goal Content for



J. Encantado, Best Poster, ISBNPA 2018

Weight Maintenance' by J. Encantado (FMH, Best Poster Award).

- Dr. Marta Marques (FMH) presented the NoHoW Toolkit at the 32nd Annual Conference of the European Health Psychology Society (21 – 25 August 2018, Galway Ireland).
- Prof. Heitmann (RH) presented 'NoHoW – Evidence-based tools for weight loss maintenance' at a dissemination meeting for the H2020-funded Feel4Diabetes project in September 2018.
- The team has also continued engagement with the mass media, securing print, radio and television coverage in Denmark and Portugal.

WP7 will continue to communicate and disseminate the project through established channels, working to further expand our audiences and reach. For example, NoHoW will again host a symposium at the ECO 2019 meeting.

TEAM

WP7 is led by Mr. Euan Woodward and Ms. Sheree Bryant (EASO) and involves the participation of all partners.



The NoHoW team would like to thank our Scientific Advisory Board (Dr. Heather Patrick, Dr. John Blundell, Dr. Ian Caterson) and Trial Steering Committee (Prof. Sharon Simpson, Prof. Lucy Yardley, Prof. Annette Kjær Ersbøll, Prof. Paul Aveyard) for their contributions to the project!

To learn more, visit us at www.nohow.eu or join the conversation on social media!

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To receive our newsletter via the EASO mailing list, email Sheree (sbryant@easo.org).