


# DEVELOPING ONLINE RESOURCES TO SUPPORT REDUCTION OF SEDENTARY BEHAVIOUR IN OLDER PEOPLE IN THE COMMUNITY

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# OVERVIEW

In this talk I will:

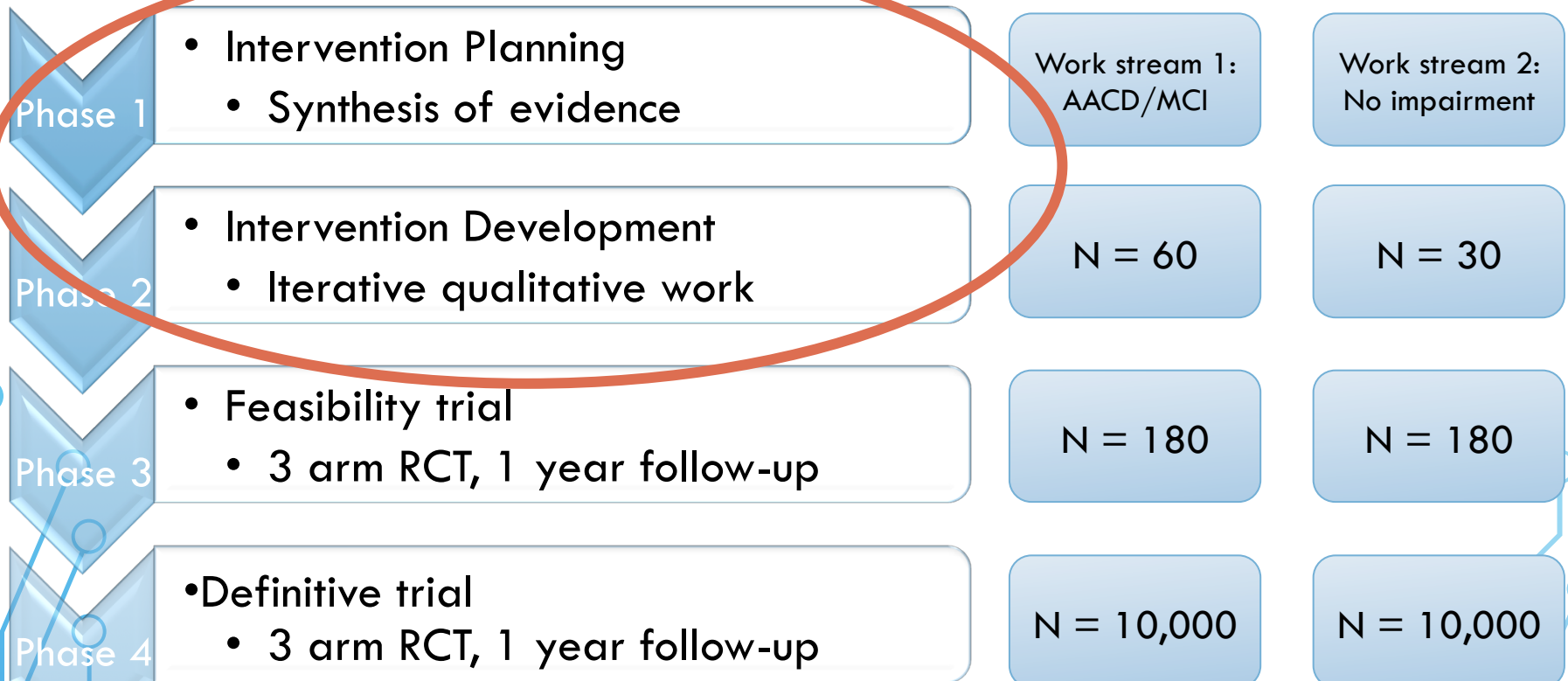
- Introduce the **RECON** trial
  - Briefly describe the **Person Based Approach** to intervention development
  - Showcase some of the PBA informed changes made to the Sedentary behaviour module to **enhance its acceptability and usability**
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# REDUCING AND PREVENTING COGNITIVE IMPAIRMENT IN OLDER AGE GROUPS (RECON)

## **Aim**

To determine whether internet based interventions for older adults (both with and without existing cognitive impairment) are effective and cost-effective means of facilitating practice of healthy behaviours (PA and diet) and cognitive exercise, in order to reduce cognitive decline/ maintain function.

# RECON: A FOUR PHASE PROGRAMME



# THE PERSON BASED APPROACH

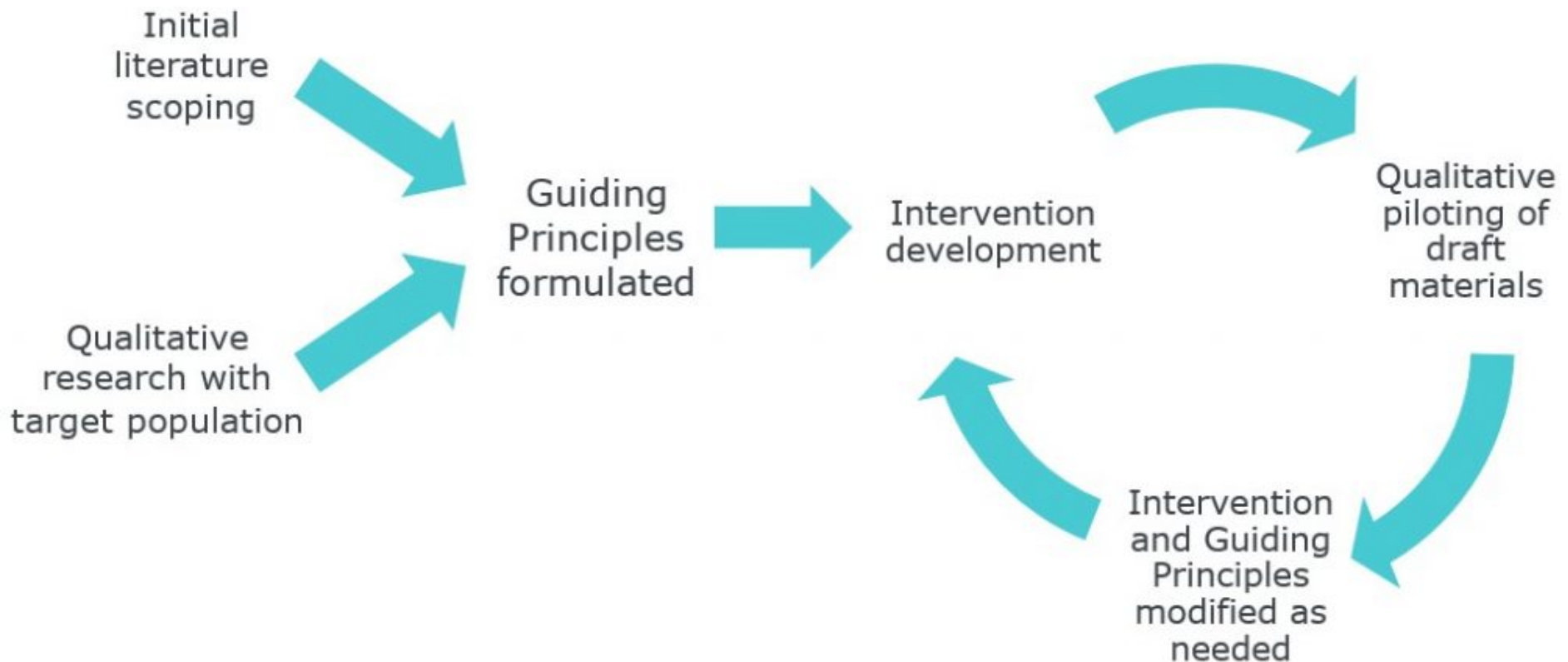
## Aim

To focus on understanding and accommodating the perspectives of the people who will use the intervention, in order to improve uptake, adherence and outcomes

## Methods

- Carry out **iterative qualitative research** with a wide range of people from the target user populations throughout the intervention development and deployment
- Identify '**guiding principles**' that can inform intervention development by highlighting key behavioural issues that the intervention must address

# PBA: AN ITERATIVE APPROACH



# INTERVENTION PLANNING: DETERMINE GUIDING PRINCIPLES

Helps developers to summarise and easily recall and refer to features of the intervention that planning has identified as important.

1. Identify **intervention design objective** (addressing key behavioural needs/challenges)

2. Identify Key (distinctive) **features of the intervention** needed to achieve the objectives

# GUIDING PRINCIPLES IN RECON

## Step 1. State Intervention Objectives:

- To facilitate practice of healthy behaviours (physical activity and healthy eating) and cognitive exercise amongst older adults in order to maintain cognitive functioning (as assessed by computerised cognitive assessment) amongst those with and without pre-existing mild cognitive impairment (MCI) or age-associated cognitive decline (AACD).
- To be a sustainable and cost-effective means of supporting the necessary behaviours for the 5 year intervention duration (allowing for possible loss of digital support/contact).



# GUIDING PRINCIPLES IN RECON

Step 2. Characterise the target population (OA's with(out) AACD/MCI):

- Least active segment of the population + **high sedentary time**
- Concerned about maintaining autonomy/independence
- More receptive to achieving positive benefits rather than risk avoidance
- Tech skills improving but still limited, e.g. smartphones
- Possible risk of limited social network BUT value social support
- Difficulties with memory, language, thinking and judgement

# GUIDING PRINCIPLES IN RECON

## Step 3. Outline key design objectives and intervention features:

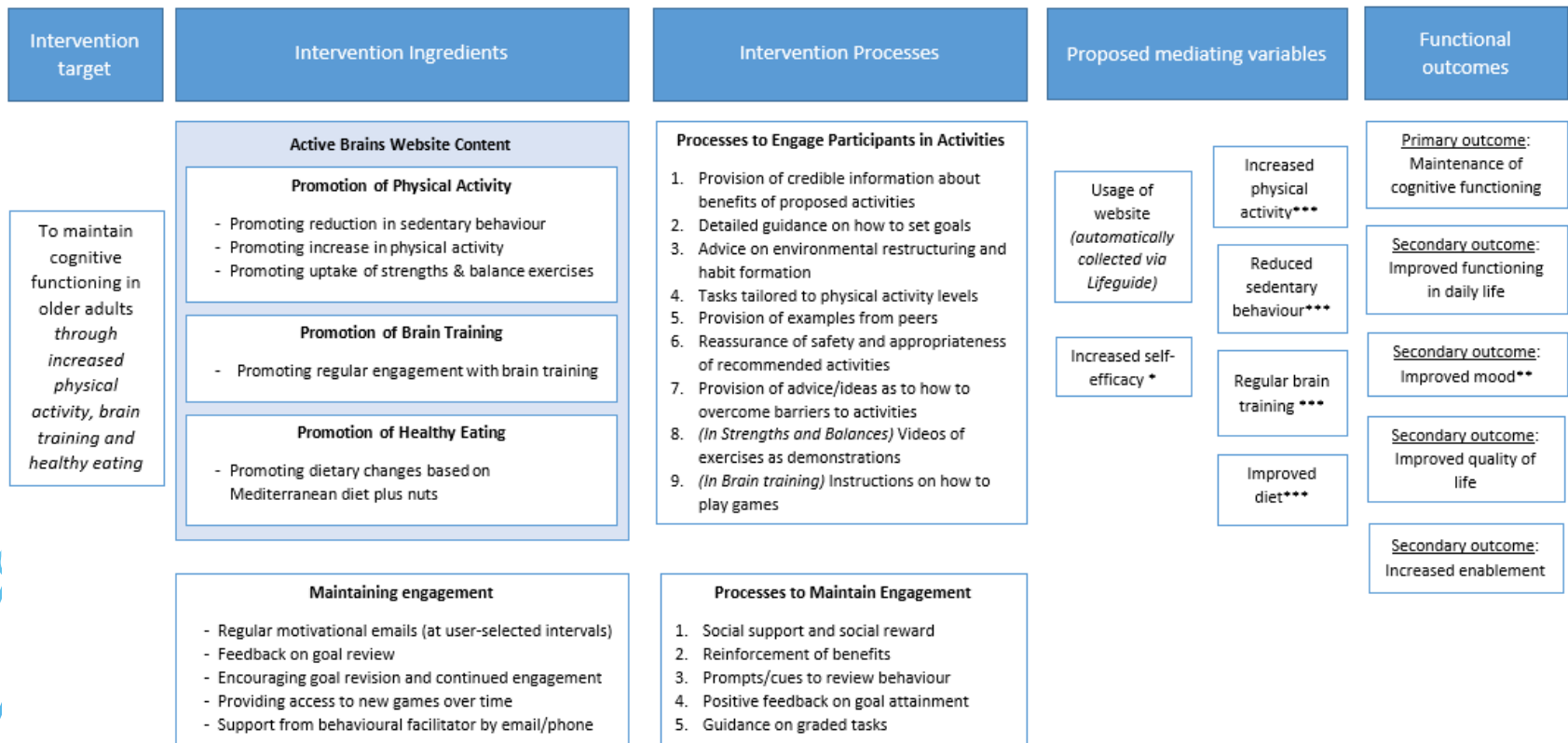
Key Design Objective	Intervention Feature(s)/ Design
Minimise cognitive load and dependence on technology	<ul style="list-style-type: none"><li>• Clear and simple layout, language and navigation procedures</li><li>• Support provided for cognitive self-regulation (e.g. planning, reminders, prompts for periodic short-term and long-term self-monitoring)</li><li>• Utilising non-cognitive/non-digital means of sustaining behaviour (habit formation, environmental restructuring)</li><li>• Options to print/ save key reference documents/ instructions wherever possible.</li><li>• Link to existing non-digital sources of advice/ support where appropriate, including peer/ family support if possible</li></ul>
Positive framing and promoting immediate-term QoL benefits	<ul style="list-style-type: none"><li>• Framing activities in terms of benefits for: strength, balance, pain (especially musculoskeletal), mood, sleep, enjoyment, general quality of life.</li><li>• Referring to benefits for Brain Health rather than reduction in dementia risk</li></ul>
Catering for highly heterogeneous population (capabilities and preferences)	<ul style="list-style-type: none"><li>• Tailoring of content to offer options for levels/ types of activities, with steer towards those with best evidence and most likely to be beneficial for user (based on baseline-assessed need and capability, e.g. activity levels, comorbidities, BMI)</li><li>• Provision of carefully graded activities with very gradual increases from low activity baseline and help with concerns and barriers for those lacking confidence or capability</li></ul>

# INTERVENTION PLANNING: THEORETICAL MODELLING

PBA used alongside theoretical modelling to check whether likely behavioural determinants or intervention components have been overlooked

- Use **planning tables** to systematically document the planning process to select and organise target constructs, intervention functions and BCTs.
- Use **logic models** identify hypothesised processes of change based on existing theory and evidence

# INTERVENTION PLANNING: THEORETICAL MODELLING RECON



\*Self-efficacy likely to be increased through engagement with, and successful completion of, activities – which may in turn increase engagement

\*\*Mood likely to be improved likely to be increased through engagement with, and successful completion of, activities – which may in turn increase engagement

\*\*\* These are being proposed as mediating variables as they are the actions through which we assume the functional outcomes will be achieved. In the grant, it indicates intent to measure "food frequency and physical activity, including assessment of sedentary time". For brain training, I kept it at regular brain training (which could be indicated through usage data; not sure if it's better to put "improved scores on brain training games"

# INTERVENTION DEVELOPMENT

Further inductive qualitative research essential to gain insight into whether all intervention components are comprehensible, acceptable, feasible, easy to use, motivating, enjoyable, informative and convincing

## Methods

1. Think aloud studies to elicit range of target users' reactions to every element of the intervention!
2. Allow users to try intervention for a few weeks, keep diaries -- retrospective interviews about experiences

# RECON INTERVENTION DEVELOPMENT

## The RECON Intervention:

- Created using the open source LIFEGUIDE software
- Week 1 Participants start with Active Lives content
  - (Aerobic PA, Strength and Balance and Sedentary Time)
- Week 5 Brain Training exercises unlocks
- Week 9 Healthy eating module unlocks
- After 6 months the participant receives minimal booster content

# STUDY 1: THINK ALOUD INTERVIEWS

Ask participants to use the intervention and say out loud any thoughts that come to mind

Good for accessing immediate reactions to intervention content (particularly adverse reactions!) and observing how an intervention is used

## TIPS

- Use neutral prompts: “what are you thinking now?”
- Ask about content, not the page
- Use non-verbal cues to judge when to prompt/interrupt
- Encourage critical comments – position the participant as expert
- Take notes

# RECON THINK ALOUD INTERVIEWS

**Problem:** Negative, judgemental description of the module:

*"The "sitting less" I don't like that. That's a little bit like 'how much do you drink?'..."*

**Solution:** Change title of section to 'breaks from sitting'

**Problem:** Unclear instruction:

*"...'Tick those activities you often do.' Does it not need to say, 'when sitting or lying down'? Is that what it means 'cause it, it's not fully clear?'"*

**Solution:** Change text to clarify that users tick when they do these things while sitting or lying

## Sitting Less Homepage

Here you can find resources to help you spend less time sitting or lying down

You can revisit pages you have seen before, and find out more about the benefits of sitting less. Just click the links on the right.

You have a goal set for **Sitting Less** right now. You can see your goal by selecting **My Goals**.

ActiveBrains

Active Lives  
Breaks from Sitting



### When do you sit or lie down?

Sometimes, we sit or lie down because we need a rest or because we enjoy it. But sometimes we do it out of habit or boredom, and we don't notice how much we are doing it.

Here is a list of common activities that people do sitting or lying down.

Tick those activities you often do by clicking the boxes. You can also write in other activities you often do.

Do you...	Watch TV	<input type="checkbox"/>	Visit family or friends	<input type="checkbox"/>
	Read the paper, a magazine or book	<input type="checkbox"/>	Rest when feeling tired or in pain	<input type="checkbox"/>
	Talk on the phone	<input type="checkbox"/>	Wait for a bus, train or plane	<input type="checkbox"/>
	Use the internet or computer	<input type="checkbox"/>	Wait to see a doctor or nurse	<input type="checkbox"/>
	Do a crossword or puzzle	<input type="checkbox"/>	Other (please type in)	<input type="text"/>
	Knit or sew	<input type="checkbox"/>	Other (please type in)	<input type="text"/>
	Fold laundry	<input type="checkbox"/>		

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Click **Next** to learn about breaking the habit of sitting!

Next



# RECON THINK ALOUD INTERVIEWS

**Problem:** Suggested ways for breaking up sitting not all feasible

*“Leave your bedtime book on the kitchen table. I don’t get that one.”*

**Solution:** Adapt the suggestions to ensure they are credible and realistic

**Problem:** Planning options don’t marry up with identified sedentary activity to change:

*“I’m reading through an awful lot of stuff here... and a lot of them just don’t go with the pre-selected goals”*

**Solution:** Tailor the list of options to align with the goal.

ActiveBrains

Active Lives Breaks from Sitting

Get yourself moving at home


The best way to get yourself up and moving is to place things you need further away from where you usually sit or lie down.

**Ideas:**

- Put the TV remote on the mantelpiece or next to the TV
- Put your drink on the mantelpiece or in the kitchen
- Leave your phone in the hall or on a table further away from you
- Leave your bedtime book or magazine on the kitchen table
- Keep snacks in the kitchen so you get up when you want them
- Put the tea and coffee further away from the kettle

[Click here to read Sue's story about moving more.](#)

[Click here for ideas on how to get moving at work.](#)



My goals

It's easier to meet goals if you **plan how you are going to fit them into your daily life**. For each activity, you can pick an option to help you fit it into your life, or write your own plan in the text box.

When I watch TV in the evening, I will

When I have an appointment with a doctor or nurse, I will

Put my book or magazine in the kit ▾ Other

Select a plan

Put my drink out of reach

Put my book or magazine in the kitchen during the day

Keep the phone in another room

Ask someone else to stand and move with me

Put a note on the bathroom mirror to remind me to stand up

Put a note on the kettle to remind me to stand

Set an alarm on my phone to go off once a day

Set an alarm on my computer to remind me to stand up

Get a drink of tea/water from the kitchen during an advert break

Get a drink of tea/water from the kitchen at the end of a TV show

Put a note next to appointment time/date

Put a note on or with my travel ticket

Ask someone else to remind me

Keep snacks or drinks on a table away from my desk

Keep the TV remote on the mantelpiece

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# RECON THINK ALOUD INTERVIEWS

## Other generic design changes:

- **Bold or blue text** looks like hyperlinks
- Lost navigation by not seeing clickable buttons
- Pictures or images distract from the content

## Insight into thoughts and feelings about sedentary behaviour:

- Individuals prioritising sedentary behaviour module as it sounds more accessible than strength and balance or getting active
- People understand that sitting is passive behaviour and need prompts to 'break the habit'.

## NEXT STEPS FOR RECON...

- Complete think aloud study with new end users after modifications have been made.
- Full 3-week prototype of intervention using diaries and retrospective semi structured interviews in 20 users with MCI/AACD and 10 without.
- Finalise website for feasibility trial

# SUMMARY

- RECON is a multiphase programme developing and testing an online intervention for preventing cognitive decline
- The systematic PBA is used across all phases of intervention planning and development and involves iterative qualitative work with target end users
- This process has provided us with invaluable insight into the needs, preferences, thoughts and feelings of end users in relation to the sedentary behaviour component of RECON.

# THANK YOU

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And you, for listening 😊