

The psychology of Exercise and Physical Activity

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INTRODUCTION: EXERCISE PSYCHOLOGY

- Exercise psychology is primarily concerned with the application of psychology to increase exercise participation and motivational levels in the general public.
- Some psychologists work in sport and exercise psychology.
- Sport psychologists aim to work with, and improve the performance of, both elite athletes and amateur participants in both team and individual sports.
- Importance of psychology knowledge when working with others / clients

Lifestyle impacts upon health...

- What behavioural factors do you think are associated with longevity (whilst retaining a good QOL)?
- 25-year study of 2357 men.
- Potentially modifiable biological and behavioral factors were associated with exceptional longevity of 90 or more years.
 - Smoking, diabetes, obesity, and hypertension significantly reduced the likelihood of a 90-year life span.
- **Vigorous exercise substantially improved it.**
- Adverse factors associated with reduced longevity and poorer functional status in elderly years.
 - Smoking,
 - Obesity
 - Sedentary lifestyle

Yates, et al., (2008) Arch Intern Med

<http://archinte.jamanetwork.com/article.aspx?articleid=413931>

Q. What motivates individuals to:

- Start exercising?
 - Why did you start exercising?
- Adhere to exercise?
 - What makes you keep going back...
- Try again after failure?

Combined Impact of Health Behaviours and Mortality

20,244 men and women aged 45–79yrs (no disease at baseline) 1993–1997, living in the UK - followed up to 2006.

4 health behaviours

- not smoking,
 - not being physically inactive,
 - having a moderate alcohol intake (1–14 units a week),
 - having a high fruit and vegetable intake (as indicated by plasma vitamin C level)
-
- Inversely related with mortality over an average 11y follow-up.
 - Decreased mortality risk with increased number of positive health behaviours.
 - Those who scored four (+ve HB's) reduced mortality risk by 25% compared to those who scored zero
 - Equivalent to approximately 14y difference in chronological age.

Khaw et al., (2008)

<http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.0050012>

Trends... The bigger picture.

What is going on?

What are we dealing with?

Where do we start?

National Survey for Wales April 24 – March 25

- **94%** of people reported 2 or more healthy behaviours, a similar level to 2022-23.
- Welsh Government public health policy focuses on five healthy behaviours:
 - not smoking
 - not drinking above guidelines
 - being a healthy weight
 - eating 5 portions of fruit or vegetables
 - being active
- 34% of people reported 4 or 5 of these healthy behaviours, a similar figure to 2022-23.
- 10% of people said they were smokers, compared with 13% in 2022-23. This continues a gradual downward trend over recent years.
- 17% of people said they did not drink alcohol, while 15% drank more than the guideline maximum of 14 units per week.
- 36% of people were a healthy weight and 62% were overweight or obese, based on self-reported weight and height.
- 33% of people said they ate 5 or more fruit and vegetable portions the previous day.
- 59% of people said they were active for at least 150 minutes the previous week, which meets weekly activity guidelines.

Task provided last week

Discussion: What is going on? Recap

- Identify any differences by:
 - Sex
 - Age
 - Areas of deprivation
 - Local health board
 - Over time? Year.

Summary Table: Health-related lifestyle behaviours - summary of key variables, adults aged 16 & over (a) (per cent)

	Smoker	E-cigarette user	Weekly alcohol consumption above 14 units	Ate 5 portions fruit & veg	Active 150 minutes in week	Active less than 30 minutes in week	Overweight or obese	Obese	Fewer than 2 healthy behaviours
All aged 16+	18	7	19	25	53	33	61	25	10
By sex:									
Men	18	7	25	23	58	30	67	26	12
Women	17	6	14	27	49	36	55	24	8
By age:									
16-44	21	9	15	26	59	28	54	23	9
45-64	19	7	24	25	54	33	69	29	13
65+	10	2	17	23	43	41	60	23	8
By WIMD deprivation quintile (age-standardised):									
Quintile 1 (most deprived)	26	9	13	19	49	41	67	33	12
Quintile 2	21	7	17	21	46	39	59	26	12
Quintile 3	17	7	19	28	57	31	60	26	10
Quintile 4	14	6	20	26	56	29	58	21	9
Quintile 5 (least deprived)	11	5	24	30	60	26	57	20	7
By Local Health Board (age-standardised) (b):									
Betsi Cadwaladr	18	6	18	26	55	31	55	20	9
Powys	15	4	20	27	61	26	56	19	8
Hywel Dda	18	6	20	23	55	30	61	25	12
Swansea Bay	17	7	20	21	50	33	61	25	10
Cwm Taf Morgannwg	19	7	16	22	42	47	64	27	12
Aneurin Bevan	18	7	17	20	55	31	65	29	10
Cardiff & Vale	14	7	22	32	57	29	56	20	8
By year:									
2016-17	19	7	20	24	54	32	59	23	10
2017-18	19	7	18	23	53	34	60	22	10
2018-19	17	6	18	24	53	33	59	23	10
2019-20	18	7	19	25	53	33	61	25	10

National Survey for Wales, 2019-20

a) See definitions in bulletin for explanations of age-standardisation and socio-demographic factors

b) Figures for LHBs are based on two years of data combined (2018-19 and 2019-20)

So why are we as a nation, not adhering to the recommended advice? ...

Why are we not more physically active as a nation?

- Barriers despite knowledge...

Physical activity benefits for adults and older adults

-  **BENEFITS HEALTH**
-  **IMPROVES SLEEP**
-  **MAINTAINS HEALTHY WEIGHT**
-  **MANAGES STRESS**
-  **IMPROVES QUALITY OF LIFE**

REDUCES YOUR CHANCE OF

Type II Diabetes	-40%
Cardiovascular Disease	-35%
Falls, Depression and Dementia	-30%
Joint and Back Pain	-25%
Cancers (Colon and Breast)	-20%

What should you do?

For a healthy heart and mind

To keep your muscles, bones and joints strong

To reduce your chance of falls

Be Active

Sit Less

Build Strength

Improve Balance

VIGOROUS



RUN



SPORT



STAIRS

MODERATE



WALK



CYCLE



SWIM



TV



SOFA



COMPUTER

BREAK UP SITTING TIME



GYM



YOGA



CARRY BAGS



DANCE



TAI CHI



BOWLS

MINUTES PER WEEK

75 OR 150

VIGOROUS INTENSITY

(BREATHING FAST
DIFFICULTY TALKING)

MODERATE INTENSITY

(INCREASED BREATHING
ABLE TO TALK)

OR A COMBINATION OF BOTH

Something is better than nothing.

Start small and build up gradually:
just 10 minutes at a time provides benefit.

MAKE A START TODAY: it's never too late!

18/02/16

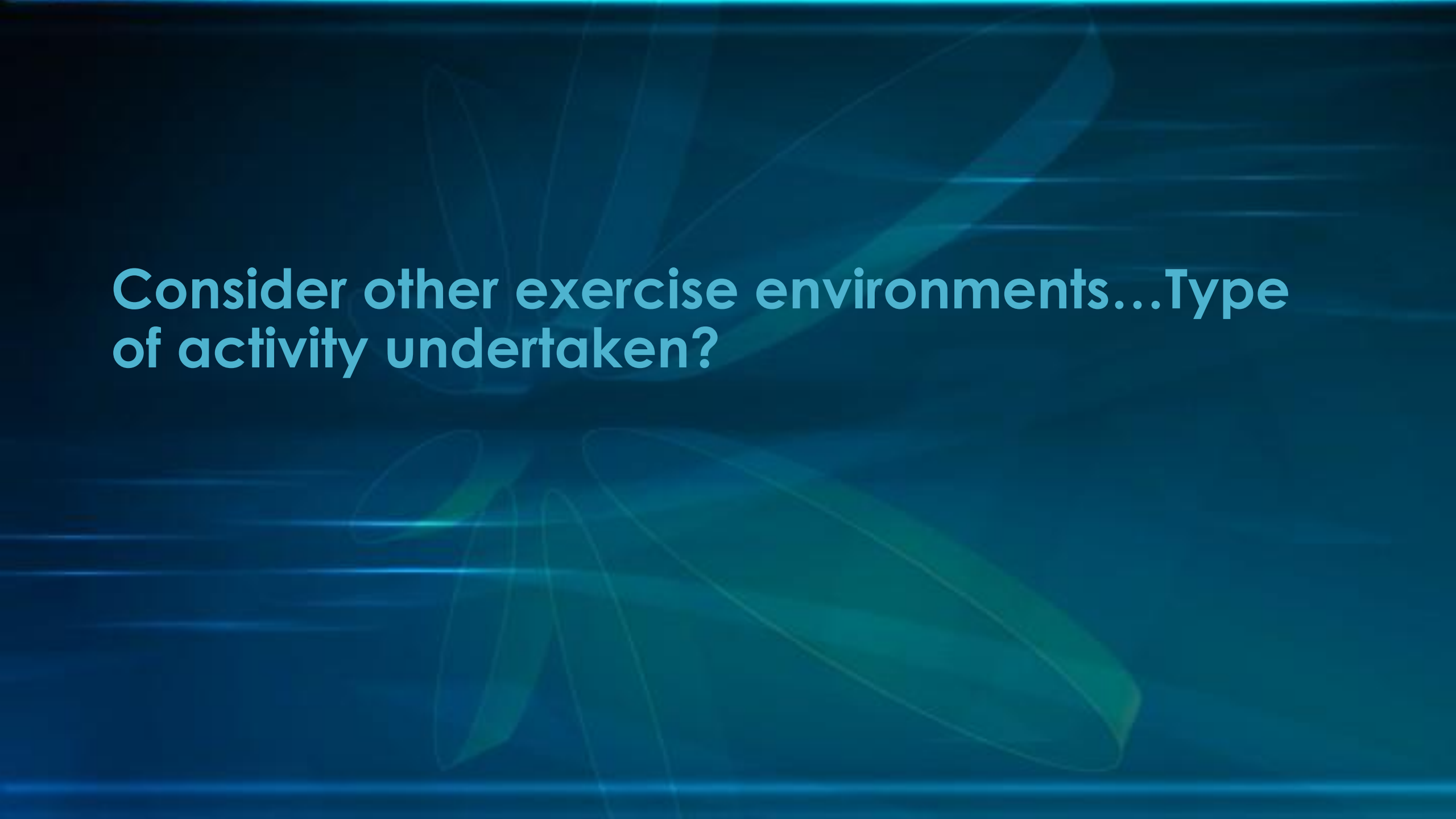
UK Chief Medical Officers' Guidelines 2011 **Start Active, Stay Active:** <http://bit.ly/startactive>

Task: Evaluation of an exercise setting

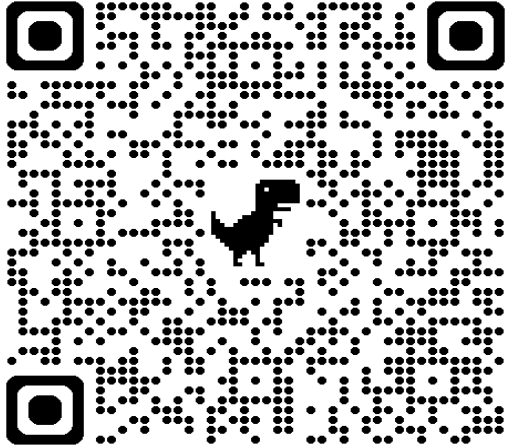
- **Choose an exercise facility of your choice...**
- E.g. University fitness suite / leisure centre / your local gym / swimming pool / group exercise sessions – e.g. boot camps
 - You may go and look at the campus facilities.
- Imagine that a client is planning to start exercising and this is their chosen option.
- **Make a note of the positive aspects and barriers to using the facilities** for a client group of your choice.
 - You may have someone specific in mind – this is fine.
- Put yourself in THEIR position and then consider the environment.
- Age? / chronic disease? / obese? / new to exercise?
- **Don't just think about the gym or exercise space itself! What else is important....(e.g. changing rooms / parking / access / cost)**

What did you find / identify?

- Client group of your choice?
- **The positive aspects?**
- **Barriers to using the facilities?**



**Consider other exercise environments...Type
of activity undertaken?**



Task: Barriers to exercising

(Talk to those around you):

Individually, identify what (if anything) prevents you (or other people you know) from exercising on a regular basis? Include sport and physical activity...

- There may be one...or many barriers that you can identify.
- These may be real or perceived.
- They may seem small / trivial...
- If they prevent you from exercising they are important!
- **List these...**
 - Discuss this information with others on your programme.
- Add the information gathered to the link below – also on the module Teams page / Moodle.
- <https://padlet.com/aconnaughton/task-bmsh4303-25-26-barriers-to-exercise-and-physical-activi-cx3b6vecuzot09km>

Measuring barriers to exercise...

- Benefits / Barriers Scale
- Issues with this.

Q. What motivates individuals to:



- Start exercising?
 - Why did you start exercising?
- Adhere to exercise?
 - What makes you keep going back...
- Try again after failure?

Many aspects to consider for adherence...

- Two examples.
- Intensity of activity
- Group factors

Effects of prescribing moderate versus higher levels of intensity and frequency. Adherence to exercise prescriptions

- Perri et al. (2002)
- Sedentary adults (N = 379) were randomly assigned to walk 30 min per day at a frequency of either 3-4 or 5-7 days per week, at an intensity of either 45%-55% or 65%-75% of maximum heart rate reserve.
- Analyses of **exercise** accumulated over 6 months showed greater amounts completed in the higher frequency ($p < 0.01$) and moderate intensity ($p < 0.05$) conditions.
- Analyses of percentage of prescribed **exercise** completed showed greater **adherence** in the moderate intensity ($p < 0.05$) condition.
- Prescribing a higher frequency increased the accumulation of **exercise** without a decline in **adherence**,
- Prescribing a higher intensity decreased **adherence** and resulted in the completion of less **exercise**.

HIIT current trend...Implications?

Groupness and adherence in structured exercise settings. Spink (2010)

- This study examined the relationship between groupness and self-reported **exercise adherence**.
- **Exercise** participants (N = 86) recalled a structured setting where they had been active with others during the last six months.
- Groupness - i.e., common fate, mutual benefit, social structure, group processes
- Indicators of self-reported **adherence** where participants recall of frequency (times/month) and percent attendance in a specified structured **exercise** setting.
- Groupness was positively related to self-reported **adherence** explaining 20% of the variance in **adherence**.
- These findings provide preliminary support for the idea that perceiving a collection of **exercise** participants as being more like a group may be associated with **adherence** in a structured **exercise** setting.
 - Practical implications for exercise provider?

Exercise adherence and determinants

- What motivates individuals to make transition from sedentary to regular exercise? Still largely unknown
- Very early research - Sallis et al. (1986). 1400 adults with battery of determinants. Comparison made.
- **Characteristics:**
 - Exercise self efficacy. Succeed at vigorous exercise programme
 - Knowledge of what constitutes a healthy lifestyle
 - Knowledge (importance & value)
 - Perception (self control)
 - Attitudes (value and importance)
 - Initial condition

These are STILL supported by recent research today...

Task from last week...Discuss

Practical task:

Take part in an (indoor or outdoor) exercise session of your choice (this could be a walk / run / online HIIT session / bootcamp / resistance training / cycling).

Qualitative - in no more than 200 words - record how you feel 10 minutes before and 20 minutes afterwards.

**What enables
someone to
progress from
being
sedentary to
a regular
exerciser?**

Exercise behaviour
change is studied.

Models / theories /
hypotheses

Theory of exercise behaviour

- Models of human behaviour
- Transtheoretical Model (Prochaska & DiClemente, 1986; Prochaska & Marcus, 1994).
- Individuals pass through 5 dynamic stages in adopting long term healthy exercise behaviour.
- Interventions – processes of change.
- Importance of knowing stage (Gorely & Gordon, 1995).
- Stages of Exercise Scale (Cardinal, 1995) interventions.

Stages of change

Concept of stages
– represents
temporal
dimension

Falls between
traits and
states – states
can be
stable and
dynamic

Stages
labelled:

- Pre-contemplation
- Contemplation
- Preparation
- Action
- Maintenance
- *Termination*

The Transtheoretical model

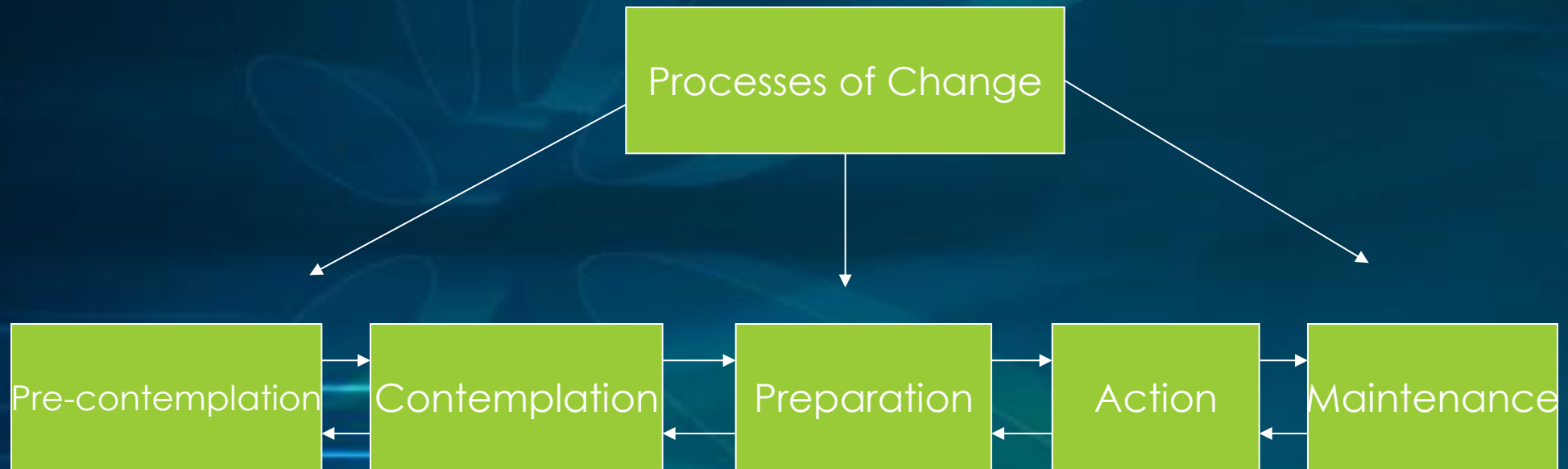


Figure 1: Stages of change

Pre-contemplation

- Individuals do not intend to change high risk behaviours – 6 months
- E.g. smokers (Prochaska & Marcus, 1994) precontemplation – 2 years
 - As a group, precontemplators view pro's of their risk behaviour as greater than the con's (Velicer et al. 1985)
- Individuals may be at this stage due to:
 - Uninformed of long term consequences
 - Demoralised about ability to change
 - Defensive due to social pressure

Contemplation

Seriously intend to change in next 6 months

2 years – stable

Chronic contemplators

Pro's and con's are about equal – hence ambivalence

Preparation

Intention to take action in near future – usually the next month.

Have plan of action – some activity and behaviour modification in past year.

Not reaching criterion levels.

Intentional and behavioural criteria.

Downside of risk behaviour seen as greater than the pro's.

Not a stable stage.

Overt behavioural changes have occurred in the last 6 months.

Busiest stage – most processes of change being used.

Least stable stage – relapse.

Smoking example – action criterion = stopping smoking.

Stages of change model originated from changing smoking behaviour (Marcus & Owen, 1992).

Action

6 months after the criterion has been met until risk of reverting has terminated.

Period of continued change although fewer processes needed to prevent relapse.

Maintenance

Termination

- No temptation to engage in old behaviour – 100% self efficacy in all previously tempting situations.
- Can formerly sedentary individuals reach termination? Are they at risk of relapse? Debated.
- Does the termination stage exist for exercise? (Fallon & Hausenblas, 2001)
- Partial support for termination stage for exercise behaviour.
- Significantly more self efficacy to overcome barriers to exercise than the maintenance group

Intervention issues

Majority of behaviour change research and behaviour change interventions are designed for individuals prepared for action

Small percentage at risk are at the action stage

Match intervention to stage of change

Table 3. Stages of Change Model

<i>Stage</i>	<i>Definition</i>	<i>Potential Change Strategies</i>
Precontemplation	Has no intention of taking action within the next six months	Increase awareness of need for change; personalize information about risks and benefits
Contemplation	Intends to take action in the next six months	Motivate; encourage making specific plans
Preparation	Intends to take action within the next thirty days and has taken some behavioral steps in this direction	Assist with developing and implementing concrete action plans; help set gradual goals
Action	Has changed behavior for less than six months	Assist with feedback, problem solving, social support, and reinforcement
Maintenance	Has changed behavior for more than six months	Assist with coping, reminders, finding alternatives, avoiding slips/relapses (as applicable)

Autonomy

Relatedness

Competence

**Basic
Psychological
Needs Theory**

Autonomy



The need to experience activities as self-endorsed and enacted by choice



What activities do you CHOOSE to do?

Relatedness



The need to feel close, connected, and cared for with important others



What exercise environments do you feel comfortable in?

Competence



The need to interact effectively within an environment



Demonstrating competence.



How do we know if we are competent?

How to judge success?



How do you know that you are achieving in your chosen exercise sessions / PA / sports?

**Task: Think about
the activities you
do in relation to
the following...**

- **Autonomy**
 - The need to experience activities as self-endorsed and enacted by choice
- **Relatedness**
 - The need to feel close, connected, and cared for with important others
- **Competence**
 - The need to interact effectively within an environment

**Task: List your
motives for
taking part in
PA / SPORT /
Exercise**

Why do you / or would you
exercise?

Make a note of all the
motives you have.

Some may be more
important than others
however all are relevant.

Task: EMI-2 (links on Moodle)

- 2. Download and complete the following inventory

Paper copies provided to those at the lecture...

- Exercise Motivations Inventory - 2 (EMI-2) <http://exercise-motivation.bangor.ac.uk/emi/emidownloads.php>
- Download the scoring sheet.
- Exercise Motivations Inventory - 2 (EMI-2) Scoring Sheet <http://exercise-motivation.bangor.ac.uk/downloads/emi2key.pdf>
- For the EMI-2 you will need to add up what you have circled for each of the items in each of the subscales (e.g. stress management = questions 6, 20, 34, 46) and then divide this by the number of items in that subscale (4). Revitalisation requires you to add up what you have circled for questions 3, 17 and 31 (and then divide this by 3 as there are 3 items).
- Rank the motives (subscales) from highest to lowest.
- Make a note of your top motives and the lowest ranked motives.

Correlates of Exercise and Physical Activity

Introduction:

- Correlates / variables for which there are reproducible associations or predictive relationships.
- Not cause and effect factors
- Useful in supporting / rejecting further theories of behaviour change (to be covered in the upcoming weeks)...
- E.g. no consistent association between physical activity behaviour and perceived social pressure to exercise (subjective norm)
- TRA implications!
- Exercise SE differs between sedentary, novice , regular exercisers = TTM model – strengthens this.

Why correlates?

- Identifies inactive sections of the population...
- Why is this useful?
- E.g. impact of living in a rural environment / low income – justification.
- Adaptable variables that influence behaviour change
- Several aspects consistently appear in the research.

Personalised interventions...

- Understanding the characteristics that influence PA in populations will allow personalised interventions.
- Adaptable variables may differ in importance between groups...(e.g. social support may be more important for certain groups)
 - Motivation
 - Social support
 - Self-efficacy
 - Perceived barriers
 - Perceived benefits
 - Enjoyment of activity
 - Processes of change
 - Intention to exercise
 - Lower intensity of exercise
- Correlates associated with adoption / early adherence / maintenance can inform selection of strategies to implement at different times in long term interventions.

Self evaluation ...

In pairs, I would like you to discuss the following topics. This can be in relation to yourself OR to someone you know (keep anonymous).

- Motivation to exercise
- Social support
- Self-efficacy
- Perceived barriers
- Perceived benefits
- Enjoyment of activity
- Intention to exercise
- Lower intensity of exercise

Task: Motivation for different populations

– summary of studies

1. What has been published in relation to reasons for taking part in physical activity / exercise / sport for the following populations? Include motivation and barriers to exercise...
2. What else is likely to have an impact upon activity levels?
3. What do you as practitioners need to know?
4. Pick one (different one) per group.
 - Physical education in school setting
 - Youth sport – different sports
 - University students – male / female / non-standard
 - Adults – male / female / past experience / parent / employment
 - Elderly – health status / past experience / anticipated regret
 - Chronic disease – range of conditions

You may consider geographical location / physical environment / other issues when looking at the research.

E.g. Rasinaho et al. (2006)

- Community-dwelling adults ($N = 645$) age 75–81 years questionnaire about their motives for and barriers to physical exercise / interview questions on mobility limitation.
- Those with severely limited mobility more reported poor health, fear and negative experiences, lack of company, and an unsuitable environment as barriers to exercise
- More often than those with no mobility limitation.
- Those with severely limited mobility emphasised disease management as a motive for exercise,
- Those with no or moderate mobility limitation emphasised health promotion and positive experiences related to exercise.

Practical implications of these findings???

Practical implications...

You are working with someone who does not currently exercise. What can be done to modify the following to enable them to be more active?

- Motivation to exercise
 - Social support
 - Self-efficacy
- Perceived barriers
- Perceived benefits
- Enjoyment of activity
- Processes of change
- Intention to exercise
- Lower intensity of exercise

Measurement of motivation?

- How can we go about this?
 - BREQ2 – examined this year...
 - What else is out there?
 - Different types of methods?
-
- Identify 2 different ways of measuring motivation to take part in PA / Exercise / Sport.
 - Be prepared to discuss these

Strategies to Enhance Adherence

INTRODUCTION TO HEALTH AND EXERCISE PSYCHOLOGY
ALISON CONNAUGHTON

Strategies to Enhance Adherence to Exercise

- Environmental approaches
- Reinforcement approaches
- Goal setting and cognitive approaches
- Decision making approaches

Environmental approaches

- Prompts

Goal setting and cognitive approaches

- **Goal Setting**
- Process / Performance / Outcome
- Short / Medium / Long term / Dream goal...
- Principles of GS.

Decision making approaches



Personal Decision Balance Sheet

- Gains to self

- .
- .
- .

- To Important others

- .
- .
- .

- Approval of others

- .
- .
- .

- Self approval

- .
- .
- .

- Losses to self

- .
- .
- .

- To important others

- .
- .
- .

- Disapproval of others

- .
- .
- .

- Self disapproval

- .
- .
- .

Social support approaches

- Programmes that included the leader, the class, a buddy, and family members.
- Class attendance and social support charts kept.
- Participants with social support showed better attendance than those in a control group.
- Team building exercises to build cohesiveness.
- Small social support groups increased attendance and improved exercise behaviour.

Evaluating Exercise Programmes

Introduction

- Interview
- Exercise Log – App / Book
- Register
- Questionnaire
- Contract
- Focus group

Strengths and limitations of the above...

Task:

- You have been working with a 25yr old woman and have designed her an exercise programme. This is based on her desire to lose weight. She has recently moved 100 miles to live in a different town and has a limited social network.
- After 6 weeks you now need to assess how things are going and address any changes that need to be made.
- How are you going to go about gathering this information?
- Outline the areas and type of questions that you would use in this situation.

Working within your scope of practice...

- When to refer clients to other professional?