

What is the association between increasing physical activity and life satisfaction or wellbeing? And specifically what can we expect if someone who is currently sedentary succeeds in becoming more active?

Research shows that previously inactive individuals who increase their physical activity levels, even modestly, demonstrate significant gains in life satisfaction and wellness scores.

Abstract

Increasing physical activity is linked with measurable gains in life satisfaction and overall wellbeing. In several randomized trials and observational studies, formerly sedentary adults reported higher quality-of-life scores, enhanced mood, and reduced depressive symptoms when they increased their activity. For example, one study of sedentary adults recorded a rise in a wellness evaluation score from 64% to 75% over four weeks, while another found dose-dependent improvements in quality-of-life domains (all but pain) over six months among postmenopausal women.

Sustained increases in physical activity appear to be important for maintaining benefits. Some studies noted that when daily activity declined, improvements in subjective wellbeing and mental health diminished, whereas interventions that led to consistent activity yielded quality-of-life gains that persisted from eight months to as long as 15 years. Group-based and daily life-integrated interventions that emphasized social support and goal-setting also correlated with better psychological adaptation and adherence. Together, these findings suggest that even modest increases in physical activity can enhance life satisfaction and wellbeing among previously inactive individuals.

Paper search

Using your research question "What is the association between increasing physical activity and life satisfaction or wellbeing? And specifically what can we expect if someone who is currently sedentary succeeds in becoming more active?", we searched across over 126 million academic papers from the Semantic Scholar corpus. We retrieved the 480 papers most relevant to the query.

Screening

We screened in papers that met these criteria:

- **Population Age:** Were all study participants adults (aged 18 or older)?
- **Activity Transition:** Did the study measure baseline activity levels AND examine participants transitioning from a sedentary to more active lifestyle?
- **Population Activity Level:** Were the study participants from the general or sedentary population (not exclusively elite athletes or highly active individuals)?
- **Intervention Type:** Did the study examine a physical activity intervention (including structured programs, lifestyle interventions, aerobic or resistance training)?
- **Intervention Duration:** Was the intervention duration at least 4 weeks?
- **Intervention Frequency:** Did the study examine sustained behavior change (not just acute effects of single exercise sessions)?

- **Outcome Measures:** Did the study measure life satisfaction, wellbeing, or quality of life using validated instruments?
- **Study Design:** Was the study design either interventional (RCT, quasi-experimental) or longitudinal observational?

We considered all screening questions together and made a holistic judgement about whether to screen in each paper.

Data extraction

We asked a large language model to extract each data column below from each paper. We gave the model the extraction instructions shown below for each column.

- **Study Design:**

Identify the type of study design used. Specify whether it is:

- Randomized controlled trial
- Experimental study
- Observational study
- Longitudinal study

If multiple design elements are present, list all. Look in the methods section for explicit description of study design. If design is not clearly stated, use the study's methodology to infer the most appropriate classification.

- **Participant Characteristics:**

Extract the following details:

- Total sample size
- Age range or mean age (with standard deviation)
- Gender distribution
- Initial physical activity status (sedentary, low active, etc.)
- Specific population characteristics (e.g., students, older adults)

If information is incomplete, note "insufficient information". If ranges or multiple groups are reported, include all relevant details. Prioritize reporting of mean/median values with measures of variability.

- **Physical Activity Intervention:**

Describe the physical activity intervention in detail:

- Type of physical activity (e.g., aerobic, stretching, sport)
- Frequency of activity (times per week)
- Duration of each session (minutes)
- Total intervention period (weeks/months)
- Setting of activity (supervised, unsupervised, group, individual)

If multiple intervention groups exist, extract details for each group separately. Be precise about quantitative details. If any aspect is unclear or not fully reported, note "not specified".

- **Motivation and Intervention Approach:**

Identify:

- Motivation strategy (positive, negative, or no specific motivation)
- Theoretical framework used (if mentioned, e.g., Self-Determination Theory)
- Type of intervention support (counseling, referral, structured program)

Extract verbatim quotes or specific descriptions that explain the motivational approach. If multiple approaches are used, describe each distinctly.

• **Outcome Measures:**

List all outcome measures related to life satisfaction, wellbeing, or psychological health:

- Specific scales used (e.g., Satisfaction With Life Scale, PANAS)
- Specific constructs measured (life satisfaction, happiness, anxiety, positive/negative affect)
- Measurement time points (baseline, post-intervention, follow-up periods)

Include the exact name of each scale, its scoring method, and any significant changes reported. If multiple outcomes were measured, list all in order of primary importance.

• **Follow-up and Sustainability:**

Extract:

- Duration of follow-up periods
- Changes in outcomes at different follow-up time points
- Evidence of sustained effects or relapse

Note any statistically significant changes or lack thereof. If follow-up data shows different patterns from immediate post-intervention results, highlight these differences. Use exact numerical data when available.

Results

Characteristics of Included Studies

Study	Study Design	Population Type	Activity Measurement Method	Wellbeing Measures	Full text retrieved
McAuley et al., 2000	Randomized controlled trial, Longitudinal	Older adults, formerly sedentary	No mention found	Happiness, satisfaction with life, loneliness (no mention of scales)	No

Study	Study Design	Population Type	Activity Measurement Method	Wellbeing Measures	Full text retrieved
Barwais et al., 2013	Randomized controlled trial, Experimental, Longitudinal	Sedentary adults (office workers, students)	7-day Sedentary and Light Intensity Physical Activity Log, International Physical Activity Questionnaire	Wellness Evaluation of Lifestyle inventory	Yes
Martin et al., 2009	Randomized controlled trial, Experimental, Longitudinal	Sedentary post-menopausal women	Short Form-36, supervised lab sessions	Short Form-36 (physical and mental quality of life)	Yes
Van Hoecke et al., 2014	Randomized controlled trial, Longitudinal	Sedentary older adults	Self-report physical activity questionnaire	Louvain Well-Being Scale, State-Trait Anxiety Inventory	Yes
Bowen et al., 2006	Randomized controlled trial, Longitudinal	Sedentary middle-aged women	No mention found	Mental Health and General Health scores (no mention of scale)	No
Groessl et al., 2019	Randomized controlled trial, Longitudinal	Sedentary older adults at risk for mobility disability	400m walk, Short Physical Performance Battery	Quality of Well-Being Scale	No
Broekhuizen et al., 2016	Randomized controlled trial, Longitudinal	Inactive older adults (60-70 years)	Accelerometer	RAND-36 health survey	Yes
Chater et al., 2022	Longitudinal, Observational	Inactive adults at risk for cardiovascular disease/low wellbeing	International Physical Activity Questionnaire	Warwick-Edinburgh Mental Wellbeing Scale, EuroQol-5D-5L	Yes
Nicolucci et al., 2021	Randomized controlled trial, Longitudinal	Inactive adults with type 2 diabetes	Accelerometer	World Health Organization-5, Short Form-36	Yes

Study	Study Design	Population Type	Activity Measurement Method	Wellbeing Measures	Full text retrieved
Lundqvist et al., 2017	Observational, Longitudinal	Physically inactive adults with metabolic risk	Self-report	Short Form-36	Yes
Morris, 2008	Experimental, Longitudinal	Sedentary middle-aged women	Stanford Physical Activity Questionnaire	Short Form-36 (vitality), Positive and Negative Affect Schedule	No
Kangasniemi et al., 2015	Randomized controlled trial, Observational (cross-sectional), Longitudinal	Physically inactive adults (randomized controlled trial), active/less active (cross-sectional)	Accelerometer, self-report	Mindfulness, psychological flexibility, depressive symptoms (no mention of scales)	No
Freak-Poli et al., 2014	Observational, Longitudinal	Sedentary employees	Pedometer	World Health Organization-5 Well-being Index	Yes
Mitchell-Miland et al., 2025	Randomized controlled trial, Experimental, Longitudinal	Overweight adults with prediabetes/metabolic syndrome	No mention found	EuroQol-5D-3L, EuroQol Visual Analogue Scale	No
Jepsen et al., 2015	Observational, Longitudinal	Severely obese adults	Accelerometer	Short Form-36, Obesity-Related Problems, life satisfaction (single item)	Yes
Oostrom et al., 2012	Observational, Longitudinal	Adults 26-70 years, various activity patterns	No mention found	Short Form-36-like survey	No
Błońska, 2022	Experimental, Randomized controlled trial, Longitudinal	Sedentary/low-active students	No mention found	Satisfaction With Life Scale, Positive and Negative Affect Schedule	Yes

Study	Study Design	Population Type	Activity Measurement Method	Wellbeing Measures	Full text retrieved
Edmunds et al., 2013	Longitudinal, Mixed methods, Observational	Low-active employees	No mention found	Satisfaction with life, positive/negative mood (no mention of scales)	No
Lemola et al., 2021	Experimental, Longitudinal	University staff, low-moderate activity	Device, self-report	Life satisfaction (3 items), Positive and Negative Affect Schedule, Pittsburgh Sleep Quality Index	Yes
Friedrich & Mason, 2017	Observational, Longitudinal	Adults with mental health conditions	International Physical Activity Questionnaire	World Health Organization Quality of Life-BREF, Rosenberg Self-esteem	Yes
Nguyen et al., 2024	Observational, Longitudinal	Middle-aged women (Australian Longitudinal Study on Women's Health cohort)	Self-report	Short Form-36 (Physical Component Summary, Mental Component Summary)	Yes
Bergum et al., 2024	Randomized controlled trial, Longitudinal, Observational	Adults at high cardiovascular disease risk	Self-report	World Health Organization-5	Yes
Shaffer, 2021	Observational, Longitudinal	Older adults	Physical Activity Scale for the Elderly	Brief Inventory of Thriving	No
Mundell et al., 2024	Randomized controlled trial (sub-study), Longitudinal	Adults with psychological distress	Fitbit	Kessler-10, Generalized Anxiety Disorder-7, Patient Health Questionnaire-9	No

Study	Study Design	Population Type	Activity Measurement Method	Wellbeing Measures	Full text retrieved
Moxley et al., 2024	Experimental	Sedentary middle-aged adults	Activity tracker	Beck Depression Inventory-II, Beck Anxiety Inventory	No

Study Design:

- 13 studies used a randomized controlled trial design.
- 11 studies used an observational design.
- 7 studies used an experimental design.
- 24 studies were longitudinal.
- 1 study used mixed methods.
- Studies could be counted in more than one category; study design categories were not mutually exclusive.

Activity Measurement Method:

- 9 studies used device-based or performance-based activity measurement (e.g., accelerometer, pedometer, Fitbit, activity tracker, 400m walk/Short Physical Performance Battery).
- 11 studies used self-report measures (e.g., International Physical Activity Questionnaire, physical activity questionnaire, Stanford Physical Activity Questionnaire, Physical Activity Scale for the Elderly).
- 2 studies used both device-based and self-report methods.
- We did not find mention of the activity measurement method in 7 studies.

Wellbeing Measures:

- Short Form-36 (including RAND-36 and Short Form-36-like) was the most common wellbeing measure, used in 7 studies.
- World Health Organization-5 was used in 3 studies.
- EuroQol-5D (including EuroQol-5D-5L, EuroQol-5D-3L, EuroQol Visual Analogue Scale) was used in 2 studies.
- Positive and Negative Affect Schedule was used in 3 studies.
- Life satisfaction was measured in 3 studies (using Satisfaction With Life Scale or single/multiple items).
- Other wellbeing measures (each used in 1 study) included: Warwick-Edinburgh Mental Wellbeing Scale, Wellness Evaluation of Lifestyle, Louvain Well-Being Scale, State-Trait Anxiety Inventory, Quality of Well-Being Scale, Obesity-Related Problems, World Health Organization Quality of Life-BREF, Rosenberg Self-esteem, Brief Inventory of Thriving, Kessler-10, Generalized Anxiety Disorder-7, Patient Health Questionnaire-9, Beck Depression Inventory-II, Beck Anxiety Inventory, and Pittsburgh Sleep Quality Index.
- We did not find mention of the specific wellbeing scale in 4 studies, though wellbeing was measured.

Effects of Physical Activity on Wellbeing

Immediate Effects

Study	Activity Level Change	Wellbeing Metrics	Duration of Effect	Population Group
McAuley et al., 2000	Increase in physical activity (aero-bic/stretching)	Increase in satisfaction with life, decrease in loneliness	Improved during 12-month intervention, declined at 6-month follow-up	Older, formerly sedentary adults
Barwais et al., 2013	Increase in light, walking, moderate, vigorous physical activity; decrease in sedentary time	Increase in Wellness Evaluation of Lifestyle score (64% to 75%)	4 weeks	Sedentary adults
Martin et al., 2009	Dose-dependent increase in physical activity	Increase in Short Form-36 quality of life (all domains except pain)	6 months	Sedentary postmenopausal women
Van Hoecke et al., 2014	Increase in physical activity (varied interventions)	Increase in well-being, decrease in trait anxiety	10 weeks, 1 year; relapse at 2 years	Sedentary older adults
Bowen et al., 2006	Increase in moderate-vigorous physical activity	Increase in Mental Health, General Health scores	3 months	Sedentary middle-aged women
Groessl et al., 2019	Physical activity intervention vs. health education	Slower decline in quality of life	2.6 years	Sedentary older adults at mobility risk
Broekhuizen et al., 2016	Increase in moderate-to-vigorous physical activity (Internet-based)	Increase in RAND-36 emotional/mental health	3 months	Inactive older adults
Chater et al., 2022	Increase in physical activity (+1331 METs), decrease in sitting	Increase in Warwick-Edinburgh Mental Wellbeing Scale (short-term), increase in EuroQol-5D-5L	3 months (wellbeing), 12 months (physical activity)	Inactive adults at cardiovascular/mental risk

Study	Activity Level Change	Wellbeing Metrics	Duration of Effect	Population Group
Nicolucci et al., 2021	Increase in physical activity (counseling)	Increase in World Health Organization-5, Short Form-36 Physical and Mental Component Summary, decrease in depression	3 years	Inactive adults with type 2 diabetes
Lundqvist et al., 2017	Increase in physical activity (Physical Activity on Prescription)	Increase in Short Form-36 (multiple domains)	6 months	Inactive adults with metabolic risk
Morris, 2008	Increase in physical activity (workshops)	Increase in vitality (Short Form-36), decrease in negative affect	4–44 weeks	Sedentary middle-aged women
Kangasniemi et al., 2015	Increase in physical activity (Acceptance and Commitment Therapy plus feedback)	Increase in self-efficacy, planning, acceptance	3–6 months	Physically inactive adults
Freak-Poli et al., 2014	Increase in steps (pedometer)	Increase in World Health Organization-5 (+3.5 units), sustained	4 months, 8 months	Sedentary employees
Mitchell-Miland et al., 2025	Increase in moderate-to-vigorous physical activity or decrease in sedentary time	Increase in EuroQol Visual Analogue Scale, EuroQol-5D-3L	6, 12 months	Overweight adults, prediabetes/metabolic syndrome
Jepsen et al., 2015	Increase in physical activity (lifestyle)	Increase in Short Form-36 Physical and Mental Component Summary, Obesity-Related Problems, life satisfaction	6 weeks; partial maintenance at 2 years	Severely obese adults

Study	Activity Level Change	Wellbeing Metrics	Duration of Effect	Population Group
Oostrom et al., 2012	Became active	Increase in physical functioning, vitality, general health	10 years	Adults 26–70 years
Błońska, 2022	Increase in physical activity (various, 3 times per week)	Increase in Satisfaction With Life Scale, increase in positive affect, decrease in negative affect	6 weeks	Sedentary/low-active students
Edmunds et al., 2013	Increase in physical activity (workplace)	Increase in satisfaction with life, increase in positive mood	6 months	Low-active employees
Lemola et al., 2021	Increase in steps (app)	Increase in life satisfaction, positive affect, sleep	3 months; not sustained at 12 months	University staff
Friedrich & Mason, 2017	Increase in football physical activity	Increase in World Health Organization Quality of Life-BREF, self-esteem (6 months)	6, 12 months	Adults with mental health conditions
Nguyen et al., 2024	Consistent physical activity (guidelines)	Increase in Short Form-36 Physical Component Summary (+3 points), no effect on Mental Component Summary	15 years	Middle-aged women
Bergum et al., 2024	Increase in physical activity (multimodal)	Increase in World Health Organization-5 (5.06 points), not significant after adjustment	3 years	High cardiovascular disease risk adults
Shaffer, 2021	Increase in walking (Walk With Ease)	Increase in Brief Inventory of Thriving (quality of life)	6 weeks	Older adults

Study	Activity Level Change	Wellbeing Metrics	Duration of Effect	Population Group
Mundell et al., 2024	Mixed physical activity change	Decrease in depressive symptoms, decrease in distress (associated with increased physical activity)	8 weeks	Adults with psychological distress
Moxley et al., 2024	Increase in moderate-to-vigorous physical activity (4 weeks)	Decrease in depression (27.6%), increase in anxiety associated with physical activity goal	4 weeks	Sedentary middle-aged adults

Summary of Immediate Effects:

- 13 studies reported quality of life outcomes (including Short Form-36, EuroQol-5D, World Health Organization Quality of Life, Brief Inventory of Thriving, etc.).
- 17 studies reported mental health outcomes (including depression, anxiety, distress, negative/positive affect, self-esteem, vitality, mood, sleep, loneliness).
- 7 studies reported wellbeing scales (such as Warwick-Edinburgh Mental Wellbeing Scale, World Health Organization-5, Wellness Evaluation of Lifestyle, Satisfaction With Life Scale).
- 4 studies reported life satisfaction.
- 1 study reported self-efficacy, planning, or acceptance.
- 2 studies reported physical functioning, vitality, or general health.

Duration of Effects:

- 12 studies reported effects at 3 months or less.
- 8 studies reported effects at more than 3 months to 6 months.
- 8 studies reported effects at more than 6 months to 1 year.
- 4 studies reported effects at more than 1 year to 3 years.
- 2 studies reported effects at more than 3 years.
- 3 studies noted relapse, decline, or only partial maintenance of wellbeing effects at follow-up.
- 1 study explicitly stated that effects were not sustained at longer-term follow-up.
- All studies reported a duration of effect based on available data.

General Patterns:

- Most studies (as reported in the included studies) found improvements in at least one wellbeing or mental health outcome following increased physical activity.
- Some studies (3 out of 25) reported relapse or decline in effects over time.
- In studies where only the abstract was available, findings are based on abstract-level data.

Long-term Effects

Study	Activity Level Change	Wellbeing Metrics	Duration of Effect	Population Group
McAuley et al., 2000	Initial increase in physical activity, then decline	Wellbeing gains relapsed at 6-month follow-up	12 months + 6-month follow-up	Older adults
Van Hoecke et al., 2014	Initial increase in physical activity, then relapse	Wellbeing gains relapsed at 2 years	2 years	Sedentary older adults
Groessl et al., 2019	Slower quality of life decline with physical activity	Quality of life declined in all, but less in physical activity group	2.6 years	Sedentary older adults
Chater et al., 2022	Sustained increase in physical activity, sitting decreased	Wellbeing gains not sustained at 12 months	12 months	Inactive adults at cardiovascular/mental risk
Nicolucci et al., 2021	Sustained increase in physical activity	Sustained increase in World Health Organization-5, Short Form-36, decrease in depression	3 years	Inactive adults with type 2 diabetes
Jepsen et al., 2015	Initial increase in physical activity, then return to baseline	Physical Component Summary partly maintained, Mental Component Summary/life satisfaction relapsed	2 years	Severely obese adults
Oostrom et al., 2012	Became active	Sustained quality of life gains at 10 years	10 years	Adults 26–70 years
Nguyen et al., 2024	Consistent physical activity	Sustained increase in Physical Component Summary at 15 years	15 years	Middle-aged women
Bergum et al., 2024	Sustained increase in physical activity	World Health Organization-5 gains not significant after adjustment	3 years	High cardiovascular disease risk adults
Lemola et al., 2021	Physical activity gains not sustained	Wellbeing gains relapsed at 12 months	12 months	University staff

Study	Activity Level Change	Wellbeing Metrics	Duration of Effect	Population Group
Freak-Poli et al., 2014	Steps increase sustained	World Health Organization-5 gains sustained at 8 months	8 months	Sedentary employees

Summary of Long-term Effects:

- Activity Level Change:
 - 6 studies reported sustained increases in physical activity (including "consistent physical activity," "steps increase sustained," or "became active").
 - 3 studies reported an initial increase in physical activity followed by decline, relapse, or return to baseline.
 - 1 study reported physical activity gains were not sustained.
 - 1 study reported a slower decline in quality of life with physical activity, but not a sustained increase.
- Wellbeing Outcomes:
 - 4 studies found sustained wellbeing or quality of life gains.
 - 5 studies found wellbeing or quality of life gains relapsed or were not sustained at follow-up.
 - 1 study found quality of life declined in all groups, but less in the physical activity group.
 - 1 study found wellbeing gains were not significant after adjustment.
- Duration of Effect:
 - 3 studies had follow-up durations of 12 months or less.
 - 6 studies had follow-up durations between more than 12 months and less than 5 years.
 - 2 studies had follow-up durations of 5 years or more.
- Sustained Physical Activity and Wellbeing Together:
 - 4 studies reported both sustained increases in physical activity and sustained wellbeing/quality of life gains (Nicolucci et al., Oostrom et al., Nguyen et al., Freak-Poli et al.).
 - 1 study reported sustained physical activity but wellbeing gains were not sustained (Chater et al.).
 - 1 study reported sustained physical activity but wellbeing gains were not significant after adjustment (Bergum et al.).
- We did not find sustained wellbeing gains in studies where physical activity increases were not maintained, as reported in the included studies.
- We did not find information on the sustainability of physical activity or wellbeing for any studies outside these 11.

Thematic Analysis

Psychological Adaptation

Theme Category	Main Findings	Supporting Evidence	Implementation Context
Psychological adaptation to activity	Increased physical activity leads to improved mood, vitality, self-efficacy, and reduced negative affect; cognitive changes (acceptance, planning) mediate sustained behavior	Morris, 2008; Kangasniemi et al., 2015; Błońska, 2022; Mundell et al., 2024	Workshops, Acceptance and Commitment Therapy-based interventions, student leisure activity, lifestyle therapy
Dose-response and threshold effects	Greater increases in physical activity yield greater wellbeing gains; even modest increases benefit the least active	Martin et al., 2009; Nguyen et al., 2024; Barwais et al., 2013	Randomized controlled trials, large cohort, wearable-based interventions
Mental health domain specificity	Physical health quality of life often improves more than mental health; some studies show no effect on Mental Component Summary	Nguyen et al., 2024; Jepsen et al., 2015	Longitudinal cohort, lifestyle intervention

Distribution of Supporting Studies:

- Psychological adaptation to activity: 4 studies (Morris, 2008; Kangasniemi et al., 2015; Błońska, 2022; Mundell et al., 2024)
- Dose-response and threshold effects: 3 studies (Martin et al., 2009; Nguyen et al., 2024; Barwais et al., 2013)
- Mental health domain specificity: 2 studies (Nguyen et al., 2024; Jepsen et al., 2015)
- 8 unique studies across all themes, with one study (Nguyen et al., 2024) supporting two themes.

Implementation Contexts:

- Workshops, Acceptance and Commitment Therapy-based interventions, student leisure activity, lifestyle therapy/intervention, randomized controlled trials, large cohort studies, wearable-based interventions, and longitudinal cohort studies.
- Lifestyle therapy/intervention was mentioned in two themes.
- No themes were supported by more than 4 studies, and no studies supported all three themes.

Social and Lifestyle Integration

Theme Category	Main Findings	Supporting Evidence	Implementation Context
Social support and group dynamics	Social relations, group-based activity, and peer support enhance wellbeing and adherence	McAuley et al., 2000; Edmunds et al., 2013; Friedrich & Mason, 2017	Group exercise, workplace interventions, football for mental health
Integration into daily life	Interventions that fit into daily routines (e.g., walking, step goals, app-based) are more sustainable	Lemola et al., 2021; Broekhuizen et al., 2016; Chater et al., 2022	App-based, internet, community programs
Motivation strategies	Positive motivation, autonomy support, and goal-setting are effective; negative motivation less so	Van Hoecke et al., 2014; Błońska, 2022; Chater et al., 2022	Self-Determination Theory-based coaching, motivational interviewing, student interventions

Theme Distribution:

- Social support and group dynamics: 3 studies
- Integration into daily life: 3 studies
- Motivation strategies: 3 studies
- 8 unique studies cited as supporting evidence for these themes.
- One study (Chater et al., 2022) was cited in support of two different themes; all other studies were cited in support of only one theme each.

Implementation Contexts:

- Each theme was associated with three unique implementation contexts.
- No overlap in implementation contexts between themes.
- No theme was supported by more than 3 studies, nor any study cited in more than 2 themes.

Sustainability Factors

Theme Category	Main Findings	Supporting Evidence	Implementation Context
Sustainability of effects	Benefits often diminish after intervention/support ends; ongoing engagement is key	Van Hoecke et al., 2014; Lemola et al., 2021; Jepsen et al., 2015	Randomized controlled trials, app-based, lifestyle interventions
Relapse and maintenance	Relapse common without booster sessions or continued support; some maintain gains long-term	McAuley et al., 2000; Chater et al., 2022; Oostrom et al., 2012	Older adults, community programs, cohort studies

Theme Category	Main Findings	Supporting Evidence	Implementation Context
Individual differences	Non-depressive, more motivated, or socially supported individuals sustain gains better	Kangasniemi et al., 2015; Morris, 2008	Acceptance and Commitment Therapy-based, workshop interventions

Distribution of Supporting Studies:

- Sustainability of effects: 3 studies (Van Hoecke et al., 2014; Lemola et al., 2021; Jepsen et al., 2015)
- Relapse and maintenance: 3 studies (McAuley et al., 2000; Chater et al., 2022; Ostrom et al., 2012)
- Individual differences: 2 studies (Kangasniemi et al., 2015; Morris, 2008)
- 8 unique studies cited, with no overlap between themes.

Implementation Contexts:

- Randomized controlled trials, app-based interventions, lifestyle interventions, older adults, community programs, cohort studies, Acceptance and Commitment Therapy-based interventions, and workshop interventions.
- No missing information for supporting studies or implementation context in the table.

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