

Behaviour Change for Physical Activity

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Executive Summary

This report provides a comprehensive evidence-based overview of physical activity and behaviour change, with a particular focus on local authority strategies and applications within the West Midlands and Coventry. It demonstrates that increasing physical activity is not simply a matter of awareness, but requires targeted, theory-driven interventions that address structural, psychological, and social barriers to behaviour change.

Physical activity is defined as any bodily movement requiring energy expenditure and includes occupational, domestic, transport, and leisure domains. It differs from structured exercise, which is planned and goal-oriented. Regular participation in physical activity delivers substantial physical and psychological benefits, including reducing all-cause mortality risk by up to 30%, lowering the incidence of chronic diseases such as cardiovascular illness, diabetes, and certain cancers, and improving mental health outcomes including stress, depression, and cognitive decline.

Despite these benefits, participation levels remain suboptimal. National data shows 64.6% of adults and 49.1% of children in England meet recommended activity levels, with marked inequalities across socioeconomic groups, age, and geography. The West Midlands performs below the national average, with particularly low activity levels in urban and deprived areas such as Birmingham and the Black Country. Coventry reflects this mixed picture, with improving adult activity rates (approximately 61.9%) but persistent inactivity in deprived wards and among certain demographic groups. These disparities highlight the urgent need for targeted, place-based interventions.

The report emphasises that effective interventions must be grounded in behavioural science. Behaviour change is defined as the systematic modification of actions, habits, and attitudes, requiring clear specification using frameworks such as AACTTT to ensure measurable and targeted outcomes. Central to this approach is the COM-B model, which identifies three essential conditions for behaviour change: capability, opportunity, and motivation. This model illustrates that individuals may fail to engage in physical activity not due to lack of awareness, but because of environmental constraints, limited confidence, or competing priorities.

Complementary frameworks such as the Health Belief Model and the Transtheoretical Model further explain how beliefs, perceived barriers, and readiness to change influence behaviour. Self-efficacy and barrier reduction are highlighted as critical drivers of sustained physical activity, while stage-based approaches ensure interventions align with an individual's readiness to engage.

The report also identifies Behaviour Change Techniques (BCTs) as the practical “active ingredients” of successful interventions. Techniques such as goal setting, action planning, self-monitoring, feedback, and problem-solving are shown to translate intention into sustained behaviour, particularly when combined and aligned with theoretical models.

Case studies from UK local authorities demonstrate the real-world application of these principles. Initiatives such as Swindon’s “Beat the Street” gamification programme, Wolverhampton’s digitally targeted “WV Gets Active” campaign, South Essex’s bike loan scheme, and Derbyshire’s GP-led “Teachable Moments” intervention highlight how combining behavioural theory with local infrastructure can significantly increase activity levels, reduce inactivity, and improve health outcomes. These interventions consistently address key barriers such as cost, access, and motivation while delivering strong social and economic returns. Overall, the report concludes that increasing physical activity at a population level requires a shift from generic health messaging to targeted, theory-driven interventions embedded within local systems. By leveraging behavioural science, local authorities can design effective, scalable programmes that reduce health inequalities, improve wellbeing, and generate long-term economic value.

Background – Introduction to Physical Activity

How do we define physical activity?

Physical activity is any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity is frequently misunderstood as exercise performed exclusively within the context of sports or gym settings. However, there are four domains of physical activity including:

1. Occupational – movement performed whilst working a job, such as lifting, building or walking between desks.
2. Domestic/household – everyday chores such as cleaning, gardening, vacuuming, or washing dishes.
3. Transportation – active commuting to get from place to place such as walking or cycling to a destination.
4. Leisure time – recreational movements completed for enjoyment such as sports, dancing, and play (for young people or children).

Physical activity vs. Exercise

Physical activity and exercise are terms which are frequently used interchangeably within work and literature. However, they represent different concepts as outlined in the table below.

Attribute	Physical activity	Exercise
Definition	Any movement using skeletal muscles and energy	A specific subcategory of physical activity.
Structure	Can be spontaneous, incidental, or unplanned	Planned, structured, repetitive, and intentional.
Primary goal	Accomplishing a task, travelling, or basic living.	Improving or maintaining physical fitness and health.
Examples	Carrying groceries, taking stairs, walking a dog.	Weightlifting, running, swimming, football.

According to the World Health Organisation (WHO), physical activity is also defined by the amount of effort, which is required to completed it, rated by levels of intensity:

- **Light Intensity:** Minimal exertion that does not noticeably change your breathing or heart rate, like casual strolling or typing.
- **Moderate Intensity:** Effort that warms the body, speeds up the heart rate, and makes you breathe faster. You can still talk normally but cannot sing. Examples include brisk walking or cycling.
- **Vigorous Intensity:** High exertion that causes rapid breathing and a sharp rise in heart rate. You cannot say more than a few words without pausing for a breath. Examples include running or fast swimming.

What is the impact of physical activity for physical and psychological health?

Meeting physical activity guidelines reduces the risk of all-cause mortality by up to 30%. Extensive medical data from the World Health Organisation (WHO) and the UK Chief Medical Officers (CMO) demonstrates that regular movement acts as both a preventative measure and a clinical treatment for numerous chronic conditions.

Physical Health Impacts

Regular physical activity acts as a systemic treatment that alters cellular, metabolic, and cardiovascular functions.

- **Cardiovascular System:** Lowers blood pressure, improves lipid profiles, and reduces the risk of coronary heart disease and stroke by 20% to 35%.
- **Metabolic Health:** Increases insulin sensitivity and glucose uptake, reducing the risk of developing Type 2 diabetes by up to 40%.
- **Oncology:** Lower rates of cellular inflammation and regulated hormone levels decrease the risk of colon cancer by 30% and breast cancer by 20%.
- **Musculoskeletal Strength:** Weight-bearing exercise preserves bone mineral density, reducing the risk of hip fractures in older adults by 38% to 68%.
- **Immune Function:** Regular, moderate-intensity exercise enhances immune surveillance and lowers the severity of respiratory infections.

Psychological and cognitive health impacts

Movement triggers immediate neurochemical changes and long-term structural adaptations in the brain.

- **Mood Regulation:** Stimulates the release of endorphins, serotonin, and dopamine, which provides an immediate reduction in symptoms of acute stress.
- **Depression and Anxiety:** Clinical trials show regular exercise is as effective as psychotherapy or pharmacotherapy for mild-to-moderate depression, lowering risk by 20% to 30%.
- **Cognitive Decline:** Delays the onset of dementia and cognitive impairment by expanding the volume of the hippocampus, which handles memory and learning.
- **Sleep Quality:** Regulates circadian rhythms, resulting in deeper slow-wave sleep and shorter sleep onset latency.

Physical Activity: The data

National physical activity figures show that 64.6% of adults and 49.1% of children in England are classified as 'physically active'. These figures stem from the most recent data tracking periods through 2025, primarily sourced via the Sport England Active Lives Survey and published within the Office for Health Improvement and Disparities (OHID) Fingertips Tool.

Adult physical activity (aged 19+)

Adult guidelines recommend at least 150 minutes of moderate-intensity activity (or 75 minutes of vigorous activity) per week, alongside strength exercises on at least 2 days.

- **Active** (150+ minutes/week): 64.6% of the adult population.
- **Inactive** (<30 minutes/week): 21.8% of adults are classified as entirely inactive.
- **Gender Gap:** Men remain more likely to be active (approximately. 66%) compared to women (approximately. 61%).
- **Age Trends:** Activity drops significantly in younger adults (ages 16-34). However, notable long-term growth has been recorded among older adults aged 55-74 and 75+.

Children and young people physical activity (Aged 5-16)

The UK Chief Medical Officer guidelines recommend that children and young people achieve an average of at least 60-minutes of moderate to vigorous physical activity daily across the week.

- **Active** (60+ minutes daily): 49.1% of children meet the full daily recommendation.
- **Fairly Active** (30-59 minutes daily): Roughly 22.7% of children.
- **Less Active** (<30 minutes daily): Roughly 30.1% (over 2 million children) fail to get even a half-hour of daily exercise.
- **Common Activities:** Active play (64%), active travel like walking or cycling to school (61%), and team sports (58%) are the top methods of movement. Team sports dramatically increase in popularity as children enter secondary school.

Socioeconomic and regional disparities

- **Deprivation:** Physical activity drops as regional deprivation increases. Only 54% of people in lower socio-economic groups are active, compared to 72% in the least deprived areas.
- **Ethnicity:** Individuals from White British and Mixed ethnic backgrounds consistently record the highest activity levels, while Black and Asian ethnic groups trend below the national averages.
- **Local Variances:** Adult activity ranges widely by local authority-stretching from under 55% in areas like Wolverhampton and Blackpool up to over 75% in places like Richmond upon Thames and Brighton.

West Midlands Local Authority data

The West Midlands tracks below the national average for physical activity, with roughly 63% of adults and 44.3% of children classified as active. This places the region among the least active territories in England.

Data compiled by the Office for Health Improvement and Disparities (OHID) and the Sport England Active Lives Survey highlights vast disparities across individual local authorities within the West Midlands

Local Authority adult activity breakdown (aged 19+)

Adult metrics record the percentage of residents achieving at least 150-minutes of moderate to vigorous activity per week.

High-performing local authorities

- **Solihull:** Consistently leads the West Midlands urban authorities, with over 66% of adults recorded as physically active.
- **Stratford-on-Avon & Shropshire:** These more rural, affluent local authorities trend above the regional curve, frequently eclipsing 68% adult activity.

Low-performing local authorities (The Black Country & urban centres)

- **Wolverhampton:** Approximately 55.8% of adults are active, while 32.9% are entirely inactive (less than 30 minutes of weekly movement).
- **Sandwell & Walsall:** These boroughs rank among the lowest in England. Inactivity in Walsall lingers near 30%, roughly costing the local health economy £33 million annually.
- **Birmingham:** Around 58% to 60% of adults are active. Because of its massive population, the city has a high density of inactive residents, prompting the launch of the Birmingham Physical Activity Strategy.

Children and young people local disparities (aged 5-16)

Children's statistics track those achieving an average of 60+ minutes of daily physical activity. Regionally, child activity is at 44.3%, falling significantly behind the 49.1% national baseline.

- **The Urban Deficit:** Children in highly urbanised, high-deprivation areas like Coventry, Birmingham, and Sandwell face the steepest barriers, averaging less than 42% activity rates.
- **Wolverhampton's Outlier Success:** Through aggressive local interventions, Wolverhampton captured a statistically significant 12.5% increase in child activity, elevating their active children threshold to 41.9% while sharply dropping their "less active" percentages.

Coventry physical activity data

Coventry is in the middle of a strategic shift to increase physical activity, driven by its 2026-2031 'City of Movement' strategy and major Sport England funding. While historical data flagged Coventry as one of the more inactive areas in England, recent local initiatives have begun closing the gap, notably increasing active travel and lowering adult inactivity levels.

Adult participation and inactivity

Recent datasets from the Sport England Active Lives Survey and local reports show a mixed but improving landscape for adult physical activity in Coventry:

- **Active Adults:** Roughly 61.9% of adults in Coventry are classified as physically active (achieving 150+ minutes of moderate activity per week).
- **Inactive Adults:** Around 21.4% to 27.9% of adults are classified as completely inactive (less than 30 minutes of activity per week).
- **Age Demographics:** Inactivity levels among 55-74-year-olds dropped dramatically from 41.5% down to 28%. However, the 35-54 and 55-74 groups remain key target demographics for local intervention due to persistent pockets of high inactivity.
- **Active Travel:** Walking and active transit have risen, with 35% of Coventry adults participating in active travel at least twice every 28 days - tracking higher than the England average of 33%.

Children and inequalities

Physical activity data in Coventry points toward a steep social gradient, though youth engagement is showing strong positive trends.

- **Children and Youth:** Encouragingly, local metrics from the Coventry City of Movement Strategy 2026-2031 show that significantly more children and young people are regularly active in Coventry compared to regional and national averages.
- **The Socioeconomic Gap:** Inactivity remains significantly higher among lower social status demographics and deprived neighbourhoods. This strongly correlates with the city's higher-than-average childhood obesity levels (nearly 40% of Year 6 pupils are overweight or obese).
- **Disability Representation:** More disabled residents are physically active in Coventry compared to national trends, showing lower inactivity rates than the broader UK average for this demographic.

Infrastructure and strategic funding

To address ongoing health disparities, Coventry City Council has committed to substantial infrastructure investment:

- **Facility Investment:** Over £100 million has been poured into local leisure assets. This includes the 25-metre pool at Centre AT7, the state-of-the-art The Wave Waterpark, the 50-metre pool at the Alan Higgs Centre, and the University of Warwick's Sport and Wellness Hub.
- **Proximity to Fitness:** Approximately 95% of Coventry's population now lives within 1 mile of a health and fitness facility boasting 20+ stations.

- **Sport England Place Partnership:** Coventry was selected to benefit from Phase 2 of Sport England's Place Investment, migrating into the "Active Coventry Partnership" to dismantle structural and environmental barriers to fitness.

The most inactive and 'priority' wards for physical activity behaviour change work

Strategic data from the Coventry Physical Activity Partnership isolates specific urban pockets with the highest concentrations of completely inactive residents (those doing less than 30 minutes of movement per week).

- **Foleshill & Longford Wards:** Data consistently identifies Foleshill as a primary hotspot for physical inactivity. It strongly correlates with low socioeconomic environmental factors, a lower-than-average consumption of healthy foods and low local childhood immunisation uptake.
- **St Michael's Ward:** Embracing the city centre, this ward has been heavily targeted in recent local policy due to intense health inequality metrics, prompting a major expansion of local street-level interventions.
- **Willenhall (Binley and Willenhall Ward) & Canley (Wainbody Ward):** Both areas are designated as high need. Environmental tracking reports indicate that while local green spaces and parks are nearby, physical activity is frequently restricted by resident concerns regarding neighbourhood safety and time constraints.
- **Radford & Henley Wards:** These represent the latest expansion zones for Sport England's Place Investment due to rising inactivity trends flagged in localised household surveys.

An introduction to behaviour change

What is behaviour change?

Behaviour change is the process of modifying an individual's (or populations) actions, attitudes, habits, and behaviours. Behaviour change initially stemmed from Health Psychology – with behaviours being modified to protect health and wellbeing. However, the theories and models can be widely applied to a variety of contexts including:

- Public Health policy
- Place and business (organisational)
- Environment and sustainability.

To change a behaviour, it is important to define the specific behaviour. General goals such as “being healthier” or “improving performance” are not behaviours. It is recommended to use a framework such as the AACTTT Framework to define and specify the behaviour. The ACCTTT Framework incorporates:

- **Action** – the precise, observable physical or cognitive movement that an individual must complete. (for example: recycling, physical activity, running, walking)
- **Actor** – identifies the exact individual or group expected to complete the action. Clearly defining the individual/group ensures accountability. (For example: an employee, a specific target population, a patient)
- **Context** – specifies the physical environment, situation, or setting where the behaviour takes place. The context influences behavioural cues. (For example: at a park, in a household)
- **Target** – the object, person, or system which the action is directed towards. It answers what or who receives the action. (For example: a reusable water bottle, a physical activity app)
- **Time** – definition of the exact schedule, trigger point, or timeframe for the action. It helps to set the deadline or routine. (For example: every Monday at 09:00 am, 3 times per week on Monday, Wednesday and Friday evenings)
- **Type** – specifies the nature of the behaviour change required. It clarifies whether the individual needs to start, stop, or modify an action. (For example: initiating a new behaviour, increasing the frequency of an existing behaviour, or stopping an unwanted unhealthy behaviour).

It is essential to ensure the use of behaviour change models, theories, and techniques when designing a behaviour change intervention for any behaviour. Behaviour change models and theories improve intervention effectiveness by shifting design from guesswork to an evidence-based process. Therefore, instead of relying on intuition or broad educational campaigns, practitioners use theories to diagnose exactly why a behaviour is/is not happening, map out precise mechanisms of change, and accurately measure outcomes.

The reason	How does it work?	An example
Diagnostic precision (targeting the right drivers)	Theories act as a diagnostic lens to identify the specific psychological, social, and environmental factors driving a specific problem.	If a population is not exercising, an intervention might intuitively offer educational brochures. However, applying the COM-B model might reveal that people already have the knowledge (Capability) and desire (Motivation), but lack safe public spaces (Opportunity). The theory ensures the intervention targets the true barrier.
Matching techniques to mechanisms of behaviour	Models help to provide a structural bridge connecting a barrier directly to an active ingredient or behaviour change technique.	The Theory of Planned Behaviour establishes that "subjective norms" (what we think others expect of us) heavily dictate intentions.
Timing and segmenting interventions	Human behaviour change is a dynamic journey; not a single process. Stage-based theories help to segment the target audience journey, so that they receive the correct message/information at the correct time.	Under the Transtheoretical (Stages of Change) Model, someone in the Precontemplation stage (unaware of a risk) needs consciousness-raising data. Pushing them straight into the Action stage (i.e., signing them up for a gym membership) will fail because they have not yet rationalised the need to change.
Facilitating robust evaluation and replication	When an intervention fails or succeeds, theories can help to explain why. Theories help to map out the precise hypothesised 'pathways of change' which are tracked and monitored throughout the evaluation.	By tracking theoretical mediators like self-efficacy or perceived threat, a health agency running a vaccination campaign can pinpoint exactly where a breakdown or failure occurred. For example, discovering that a campaign successfully raised fear of a disease but failed to make people feel capable of booking an appointment.

The COM-B Model

The COM-B Model (also referred to as the Behaviour Change Wheel), is seen as the 'gold' standard for designing public health and environmental behaviour change campaigns and interventions. For the context of physical activity, the model highlights that for an individual to change their behaviour (increased physical activity levels) three key factors must align:

1. **Capability** – physical and psychological
2. **Opportunity** – physical and social
3. **Motivation** – reflective and automatic.

Capability

Capability is divided into physical skills and psychological knowledge. If a person does not feel capable, they will not participate.

Psychological Capability

Knowing how to exercise safely, understanding active guidelines, and having the mental stamina or focus to complete a workout.

- Barrier: Not knowing how to use gym equipment or how to structure a running program.
- Intervention Strategy: Provide simple, structured beginner workout plans, or offer a free orientation session with a trainer.

Physical Capability

Having the necessary physical strength, stamina, agility, or health to execute the activity.

- Barrier: Chronic joint pain, low cardiovascular fitness, or physical disabilities.
- Intervention Strategy: Tailor exercises to current fitness levels, such as substituting high-impact running with low-impact swimming or seated exercises.

Opportunity

Opportunity involves external factors. A person can be highly skilled and motivated, but they will fail if their environment or social circle blocks them.

Physical Opportunity

Having the time, money, geographic access, and resources required to move.

- Barrier: Lack of local parks, expensive gym memberships, unsafe neighbourhoods at night, or working two jobs with no free time.
- Intervention Strategy: Subsidise community leisure centres, install free outdoor gym equipment in parks, or promote desk-based stretching routines for busy workers.

Social Opportunity

The cultural norms, social cues, and interpersonal relationships that influence behaviour.

- Barrier: A family culture that rewards sedentary behaviour, or a workplace where taking a lunchtime walk is stigmatised as "slacking off."
- Intervention Strategy: Create corporate step challenges to change workplace culture, or design family-focused active events.

Motivation

Motivation drives the final decision to act. It is split into conscious planning and unconscious impulses.

Reflective Motivation

Conscious decision-making, evaluating pros and cons, goal setting, and beliefs about capability (self-efficacy).

- Barrier: Believing that "exercise is boring" or thinking "I'm too old to get fit, so it won't help me."
- Intervention Strategy: Education on the immediate mental health benefits of exercise (like stress reduction) and using SMART goal-setting frameworks.

Automatic Motivation

Unconscious habits, emotional desires, impulses, and immediate feelings (like fear or pleasure) associated with the behaviour.

- Barrier: The immediate comfort of sitting on the sofa after work overrides the delayed reward of going for a run.
- Intervention Strategy: Use "temptation bundling" (e.g., watching favourite TV show while walking on a treadmill) or app-based rewards and gamification.

Example COM-B Matrix for Physical Activity in Coventry

Component	Coventry Context	Potential intervention
Psychological capability	Over 130,000 residents hold a local Go CV card, but many do not know how to leverage it for discounted physical activities. There is also a knowledge gap in utilizing newly installed outdoor gym facilities safely.	Use digital pushes via the Go CV application platform to send video tutorials showcasing how to use the outdoor gym equipment in municipal parks.
Physical capability	Low activity levels are highly concentrated within older demographics and communities which have lower socio-economic status.	Promote low-impact, structured programs such as the Foleshill Community Mile or Age UK Coventry exercise initiatives that gradually build stamina without requiring peak physical fitness
Physical Opportunity	The city has invested over £100 million in facilities like The Wave, The Alan Higgs Centre, and Centre AT7. However, a local Coventry Council public survey highlighted cost and transport links as major physical barriers to accessing them.	Scale up free, hyperlocal outdoor programs like Coventry on the Move in Parks and fund street closures via the Commonwealth Active Communities Fund to bring the physical opportunity directly to residents' doorsteps.
Reflective Motivation	A city-wide public consultation explicitly named "time" and "other commitments" as the primary motivational blockers for residents.	Shift public health messaging away from rigid, intimidating 1-hour gym sessions. Frame movement around brief, structured micro-habits, such as participating in a free Saturday morning 5km War Memorial

		Parkrun or integrating active travel into daily commutes.
Automatic Motivation	Modifying long-term, deep-seated habits requires immediate rewards to override the immediate temptation of sedentary leisure time.	Utilize the city's popular Go Parks scheme—which gamifies visiting green spaces by allowing residents to scan QR codes for points and competition—to hook automatic, reward driven motivation.

Health Belief Model

The Health Belief Model (HBM) is a psychological framework which is used to predict and explain why individuals choose to engage (or not engage) in health-related behaviours such as physical activity. The model hypothesises that a person's willingness to exercise is directly driven by their personal perceptions of health threats and the perceived value of acting. There are six core constructs of the HBM, the table below identifies the core constructs which influence an individual's decision to begin increasing physical activity.

Core Construct	Explanation	Example for Physical Activity
Perceived Susceptibility	The subjective belief regarding the risk of developing a health condition.	A sedentary adult acknowledging that they have a risk of cardiovascular disease due to inactivity.
Perceived Severity	The feelings concerning the seriousness of leaving a condition untreated.	Believing that developing Type 2 Diabetes due to poor health / lifestyle choices would severely limit career, mobility, and quality of life.
Perceived Benefits	The belief in the positive outcomes or effectiveness of the advised exercise strategy to reduce the threat.	Knowing that walking 30-minutes a day lowers blood pressure and helps to improve psychological wellbeing.
Perceived Barriers	The individual's estimation of the physical, psychological or financial costs of exercising.	Citing a lack of time, expensive gym memberships, or poor weather as hurdles to being physically active / working out.
Cues to Action	External or internal triggers that prompt the actual initiation of physical activity.	External nudge – warning from GP / doctor about being physically inactive or having a gym invitation from a friend.
Self-efficacy	The level of confidence that an individual has about their own ability to successfully execute and maintain a physical activity routine.	An individual feeling confident that they can maintain being physically active even on a busy day or during bad weather (such as winter months).

Health Psychology research highlights that certain constructs of the HBM have more efficiency within behaviour change interventions for encouraging an individual to increase their physical activity routine. These include:

- **Self-efficacy** - this is highlighted in research to be the strongest predictor of whether an individual will increase their physical activity and maintain the increased levels over a sustained period.
- **Barriers inhibit action** – high perceived barriers act as primary reason/s as to why individuals remain sedentary, even if they understand the health risks of inactivity.
- **Threat mediates intention** – perceived susceptibility and severity collectively form a “perceived high threat”. Whilst a high threat level initiates the desire to change, it still requires a high level of self-efficacy and low barriers to translate into behaviour change.

Example physical activity intervention using the Health Belief Model

Construct of HBM	Objective	Local Application	Actionable strategy
Perceived Susceptibility	Help residents recognise that low physical activity levels put them at risk for long-term health issues.	Partnership with local GP surgeries across deprived wards in Coventry to deliver personalised NHS Health Checks.	Use data showing that roughly 65% of Coventry adults are classified as overweight or obese. Messages via GPs stating: <i>"1 in 4 adults in our community face preventable heart risks due to sit-down lifestyles. Find out your score at your local hub"</i> .
Perceived Severity	Broaden the understanding of inactivity risks beyond weight, focusing on workplace absence, daily mobility, and severe illness.	Collaboration with the Midlands Engine and Coventry University to highlight how physical activity leads to musculoskeletal issues (i.e., severe back pain) and mental health absences.	Use of educational imagery in community centres showing how poor physical health directly limits an adult's ability to play with children (if they have children) and/or work comfortably.
Perceived Benefits	Reframe physical activity as an achievable lifestyle choice with immediate mental, physical, and financial benefits.	Connect the intervention to Coventry's Social Prescribing networks.	Promote immediate rewards like stress reduction, improved energy at work, and free social connection. Ensure promotional materials focus on non-gym activities, such as using the free outdoor activity routes already established by Coventry on the Move in Parks.
Perceived Barriers	Address the financial, structural, and confidence-related hurdles that stop individuals from exercising.	Target cost and facility access barriers. Over 95% of Coventry's population lives within one mile of a fitness facility, meaning the barrier is often social friction or cost, rather than distance.	Provide beginner-only, free entry points. Utilise existing local assets like CV Life venues or community centres to offer free, low-intensity, beginner cycling classes through initiatives like the Big Bike Revival.

Cues to Action	Deploy environmental and social triggers across Coventry to kickstart behavioural change.	Embed triggers into the spaces that Coventry residents visit daily.	<i>Digital</i> – send automated push notifications via localised health tracking apps. <i>Physical</i> – install prominent ‘magic mile’ or step-count markers in high deprivation neighbourhood parks. <i>Social</i> – promote a city-wide annual event, such as Sports Fest, to serve as a high-visibility call to action to join free community walking or cycling groups.
Self-efficacy	Build individual confidence so individuals feel capable of maintaining their exercise habits.	Design peer-supported, low-stake environments to encourage small behaviour change which gradually increases as success and confidence increases for physical activity.	Avoid high-intensity marketing. Implement community-led "beginner walks" and workplace bicycle user groups where residents train alongside peers with similar fitness levels. Train local volunteers to lead family-friendly, slow-paced movement sessions ("move your own way"), minimising the fear of judgment or physical failure.

Transtheoretical Model of Change (Stages of Change Model)

The Transtheoretical Model of Change (TTM) is an integrative, stage-based psychological framework designed to conceptualise and accelerate intentional behavioural change. Rather than viewing change as a single, sudden event, TTM posits that behavioural modification is a continuous, dynamic process that unfolds over time through a series of six distinct stages.

Stage	Explanation	Individuals' potential thoughts	Potential Intervention Strategy
Precontemplation	Individuals do not intend to take action in the foreseeable future (typically defined as the next six months). They are often unaware or under-informed about the negative consequences of their behaviour.	"I don't want to exercise, and I don't want to"	Raise awareness. Provide objective data on the health risks of a sedentary lifestyle and the immediate benefits of movement. Do not pressure them to join a gym.
Contemplation	Individuals intend to change their behaviour within the next six months. They recognise the benefits of changing but are highly aware of the costs, leading to a state of ambivalence that can stall progress.	"I know I should exercise, but I can't find the motivation or time"	Shift the decisional balance. Help them identify specific, personal benefits of exercise. Address practical barriers, such as finding a convenient location or low-cost options.
Preparation	Individuals intend to act in the immediate future, usually within the next month. They have typically taken some small behavioural steps or developed an action plan.	"I just bought running shoes and looked up a local yoga class schedule"	Formulate a structured plan. Encourage setting SMART goals (Specific, Measurable, Achievable, Relevant, Time-bound). Help them schedule workouts into their calendar like appointments.
Action	Individuals have actively modified their problematic behaviour or lifestyle within the past six months. This stage requires a substantial commitment of time and energy.	"I have been going to the gym three days a week for the last 2 months"	Counter-conditioning and support. Substitute sedentary cues with active ones (e.g., packing a gym bag the night before). Set up social support systems and reward milestones to keep motivation high.

Maintenance	Individuals have sustained the new behaviour for more than six months and actively work to prevent relapse.	“I have been running three times a week for a year now”	Relapse prevention. Anticipate disruptions like vacations, bad weather, or injuries. Create backup plans (e.g., home workouts) and vary the routine to prevent boredom or burnout.
Termination	Individuals have 100% self-efficacy, meaning they have no desire to return to their old habits and face zero temptation to relapse. Many individuals remain in the maintenance stage for a lifetime rather than reaching complete termination.	“Exercising is just who I am; I cannot image my life without movement”	No active intervention needed. The individual often acts as a peer mentor or support system for others.

The Transtheoretical Model of Change is highly effective for physical activity behaviour change interventions, because it rejects the ‘one size fits all’ approach, and recognises that individuals start their behaviour change journey’s at vastly different levels of psychological readiness. The model also works well for physical activity due to:

- *Preventing premature intervention failures:* Traditional programs often fail because they give action-oriented advice (like a complex gym routine) to individuals who are still in the contemplation or precontemplation stage. The model ensures interventions match the user’s current mindset.
- *Providing realistic, incremental milestones:* In physical activity, moving from sedentary to running 5Ks overnight is rarely sustainable. The model re-defines success; getting a sedentary person to simply think about exercising (moving from precontemplation to contemplation) is counted as a measurable, successful step forward.
- *Effectively normalises and manages relapse:* Physical activity routines are easily disrupted by illness, weather, or busy schedules. The model treats relapse as a normal part of the cyclical learning process rather than a definitive failure, which helps individuals restart without losing motivation.
- *Integrates cognitive and behavioural shifts:* The model uses cognitive strategies (like learning about health risks) to motivate people early on, then shifts to behavioural strategies (like tracking steps or setting rewards) once they are ready to move.
- *Enhances retention and engagement:* When participants receive educational materials, app notifications, or coaching tailored to their specific stage, they feel understood rather than pressured, leading to significantly lower dropout rates.

Behaviour Change Techniques

Behaviour Change Techniques (BCTs) are the ‘active ingredients’ of an intervention designed to alter, redirect, or stop an individuals’ specific actions. They represent the smallest, observable, and replicable components that can independently drive change. The Behaviour Change Taxonomy (v1) catalogues 93 distinct BCTs which are split into 16 thematic groups. The 93 BCTs are systematically clustered based on how they influence psychological and environmental determinants of behaviour. According to the Theory and Techniques Tool, BCTs work by directly modifying specific ‘Mechanisms of Action’ - the internal psychological pathways that govern what individuals do.

For a BCT to successfully work, it must be strategically aligned with the specific barrier an individual faces. For instance, if an individual lacks self-efficacy (the belief in their own capability), providing information about health consequences will fail. Instead, techniques like demonstration of the behaviour or graded tasks (breaking a goal down into small, easy steps) must be used to target and enhance that specific self-belief.

Behaviour change techniques (BCTs) are highly effective at increasing physical activity when they directly target an individual's specific motivational and capability barriers. Research demonstrates that interventions using structured BCTs consistently outperform generic advice ("exercise more") by transforming abstract intentions into concrete, habitual physical movement.

Research highlights that the most effect BCTs for physical activity include

- **Goal setting** – defining a precise, measurable physical milestone
 - Example: committing to walk briskly for 30-minutes, five days a week, rather than simply aiming to ‘walk more’.
- **Action planning** – specifying the exact environmental context, timing, and execution strategy.
 - Example: setting an ‘if-then’ plan – “If it is Monday at 07:00am, then I will job around the local park”
- **Self-monitoring of behaviour** – recording physical outputs to provide tangible, real-time data.
 - Example: using a smartwatch or a paper log to track daily step counts, active minutes, or heart rate zones.
- **Feedback on behaviour** – receiving objective, external data or evaluation regarding workout performance.
 - Example: an automated app notification stating, “you achieved 100% of your aerobic target this week”
- **Problem-solving (barrier identification)** – anticipating disruptions to an exercise routine and mapping out alternative strategies.
 - Example: planning to use a home workout video if heavy rain prevents an outdoor run.

The power of strategic combinations

In physical activity interventions, BCTs rarely work in isolation. Research shows that combining BCTs with other behaviour change theories creates a powerful impact for encouraging behaviour change and sustainable habit formation.

Mapping BCTs to physical activity barriers

An example of BCTs working in conjunction behaviour change theories includes BCTs with the COM-B Model.

COM-B model component	Barrier – underlying cause	Physical Activity BCT	Practical Application
Physical Capability	Lack of fitness or physical strength	Graded tasks	Start with 5-minute walks' increase by 2-minutes daily
Psychological Capability	Not knowing how to safely exercise	Instruction on how to perform the behaviour	Providing a video tutorial on proper techniques
Physical Opportunity	No access to a gym or fitness equipment	Restructuring the physical environment	Placing a yoga mat in the home as a visual cue
Social Opportunity	Friends or family discourage exercise	Social support (practical and emotional)	Finding a local running or sports group, or an accountability partner
Reflective Motivation	Forgetting to work out or low confidence	Action planning / self-monitoring	Setting phone alarms, and logging active minutes
Automatic Motivation	Finding exercise boring or unpleasant	Incentive (reward) / material reward	Only watching a favourite TV programme whilst walking on a treadmill.

Local Authority Case Studies: How do Local Authorities use behaviour change for physical activity interventions, campaigns, and communications?

Local authorities hold the keys to community health through infrastructure, social care, and public services. However, traditional public health messaging ("exercise more") rarely creates lasting change on its own.

Gamifying Active Travel – Swindon Borough Council ('Beat the Street')

In autumn 2021, Swindon Borough Council funded "Beat the Street," a six-week, town-wide game designed to tackle low physical activity rates, reduce traffic congestion, and improve public health.

The council placed contactless RFID "Beat Boxes" on streetlamps and furniture across the borough. Residents were given free smartcards or key fobs. Participants scored points for their local schools, workplaces, or community teams by walking, cycling, rolling, or running between boxes (which had to be tapped in sequence to calculate distance).

Theoretical Behaviour Change Framework

The campaign avoided passive public health messaging ("you should walk more") and instead applied the COM-B Model and Nudge Theory to reshape the local environment:

- **Physical & Social Opportunity (COM-B):** The council positioned boxes across both affluent and highly deprived wards (such as Penhill and Pinehurst), making active travel accessible to all. Leaderboards created a shared local purpose, embedding movement as a normalized social activity.
- **Psychological Capability (COM-B):** The game framework lowered entry barriers. It did not require gym memberships or athletic skills, showing residents that their existing daily commutes (like the school run) counted as exercise.
- **Automatic Motivation (Nudge Theory):** The project used gamification elements such as points, micro-rewards, virtual badges, and school competition to trigger dopamine loops. This flipped active travel from a chore into a fun, rewarding habit.

Campaign Effectiveness and Scale

The mass participation framework achieved significant community penetration across Swindon:

- **Total Reach:** 29,367 residents actively played the game, representing 14% of the total Swindon population.
- **Total Active Mileage:** Participants logged a combined 319,875 miles of active travel over the six-week period.
- **Peak Utility:** 34% of all activity occurred directly between 8:00–9:00 AM and 3:00–4:00 PM, proving that the intervention successfully replaced car journeys during the daily school run and work commute.

Key Results and Health Outcomes

Data compiled from thousands of pre- and post-game participant surveys verified deep, lasting behaviour change across the borough.

Physical Activity Shifts

- Activating the Inactive: 63% of adults and 32% of children who were classified as "completely inactive" before the game became active participants.
- Population Inactivity Drop: Overall adult physical inactivity across Swindon decreased by 5%.
- Meeting National Guidelines: The proportion of adults successfully hitting the Chief Medical Officer's recommendation of 150 minutes of exercise per week increased by 9%.

Mental Health & Wellbeing Gains

- Reduction: Participants reported measurable decreases in baseline anxiety levels following the six-week intervention.
- Happiness Boost: Post-game reporting indicated enhanced community connection, elevated daily mood, and improved overall life satisfaction.

Economic and Social Value for Local Authorities

An independent assessment of "Beat the Street" programs using the HM Treasury Green Book guidelines shows that this model generates £30 of social and economic value for every £1 invested by a local council. By permanently moving a percentage of the population out of inactivity, the campaign directly mitigates long-term financial pressures on local adult social care, type 2 diabetes treatments, and regional NHS services.

Critical analysis – behavioural, structural and ethical considerations

"Beat the Street" in Swindon is a highly effective short-term public health intervention, but critical thinking reveals a sharp contrast between its immediate gamified engagement and its long-term structural viability. While the Swindon Borough Council intervention successfully turns the physical environment into a giant game to boost active travel, its heavy reliance on extrinsic motivation creates systemic challenges for long-term behaviour change.

The behavioural considerations – Extrinsic vs. Intrinsic motivation

- The "Novelty Effect": The game creates a sharp spike in physical activity through extrinsic rewards like points, leaderboards, and prizes.
- The Cliff-Edge Drop: Critical appraisal of this intervention informs that when the six-week game phase ends, the external prompt is removed. Without a deliberate transition to intrinsic motivation, such as personal enjoyment or autonomy, activity levels risk minimising back to baseline.
- The App Transition: Initiatives like the Active Swindon Challenge app try to bridge this gap, but apps rarely replicate the intense, collective "buzz" of the live community game.

Data reliability and the 'cheating' vulnerability

- Self-Reporting Bias: Post-game evaluation data showing that "63% of inactive adults became active" heavily relies on self-reported surveys. This introduces significant social desirability bias.
- Gaming the System: The intervention is hindered by mechanical vulnerabilities. In Swindon, reports surfaced of parents driving their children between "Beat Boxes" or tapping cards from car windows to collect more points.
- Skewed Metrics: When driving replaces walking, the data metrics (miles recorded) become artificially inflated, directly undermining the core active travel goals.

Socio-economic and structural limitations

- The Universal vs. Targeted Friction: While designed as a universal population intervention, Beat the Street struggles to overcome deeper structural health inequalities on its own.
- Infrastructure Barriers: Gamification cannot solve a lack of safe cycling lanes, poorly lit paths, or heavy traffic. If a neighbourhood feels unsafe or lacks proper pedestrian infrastructure, a flashing sensor on a lamppost will not create permanent active travellers.
- The Digital/Physical Divide: Vulnerable groups, including those with limited mobility or certain disabilities, may find physical interaction with fixed lamp post sensors less accessible.

Digital Targeting for Priority Groups – Wolverhampton City Council ('WV Gets Active')

Prior to the intervention, the City of Wolverhampton faced some of the highest physical inactivity levels in England, a crisis exacerbated by COVID-19 pandemic lockdowns. Over a third of the adult population achieved less than 30 minutes of movement per week.

In 2021, the council launched "WV Gets Active," a free six-week app-based physical activity programme tailored specifically to low-income, inactive residents. Rather than deploying broad public health posters, the council combined micro-targeted digital advertising campaigns with a gamified smartphone app tracking steps and low-intensity movement at an individual pace.

Theoretical Behaviour Change Framework

The intervention explicitly relied on the COM-B Model and Social Identity Theory to reach groups traditional marketing missed.

- **Psychological Capability (COM-B):** The program removed the complexity of starting a fitness schedule. The smartphone app broke down larger fitness benchmarks into bite-sized, personalised daily progression feedback. It taught participants how to build a routine without requiring special sports facilities or gyms.
- **Social & Physical Opportunity (COM-B):** Organisers capitalised on digital infrastructure by using localised, hyper-targeted Facebook ad campaigns. Ads targeted specific, low-socioeconomic wards and filtered out individuals already exhibiting high exercise rates.
- **Social Identity (This Girl Can principles):** Marketing imagery deliberately moved away from idealised fitness bodies. By leveraging local imagery and language, it matched the principles of Sport England's "This Girl Can" campaign, framing exercise as normal, inclusive, and achievable for everyday residents.

Campaign Effectiveness & Scale

The digital targeting methodology demonstrated how a local authority can tightly control and funnel its recruitment to hit exact public health target.

- **Precision Recruitment:** Over 500 residents initially registered. After screening out non-residents and highly active people, 412 verified inactive individuals entered the pilot cohort.
- **The Facebook Funnel:** Micro-targeted Facebook campaigns served as the single most effective vector, generating over 70% of all registrations from disadvantaged, high-priority council wards.
- **Reaching the Hardest-to-Engage:** The campaigns successfully bypassed traditional sporting biases, securing a heavy demographic skew of over 85% female participants, with approximately 60% falling within the critical 35–54 age bracket.

Key Results & Health Outcomes

By using behavioural design over a fixed 6-week arc, the pilot proved that a digital-first approach could shift hard-to-reach demographics into sustainable habits.

Physical Activity Shifts

- **Habit Formation:** The blended method of localised recruitment paired with real-time digital app tracking successfully assisted a priority cohort in establishing a permanent walking and lifestyle habit.
- **Target Inactivity Reduction:** A significant portion of the cohort progressed from doing under 30 minutes of physical movement a week to sustaining active habits.
- **Persistence Patterns:** Evaluation data revealed that self-motivated users who persevered through the first few weeks experienced compound benefits from the daily micro-feedback loops delivered through their phones.

Strategic Implications for Local Authorities

The project provided clear evidence for future strategy development, showing that app-based and digitally targeted public health solutions can successfully engage groups historically underrepresented in sports and leisure centres.

Economic and Social Value for Local Authorities

Targeted digital interventions provide local authorities with a massive return on investment by shifting funding away from expensive open-ended mass-media campaigns into hyper-local prevention. By moving inactive demographics, specifically women in lower socio-economic areas, into active daily routines, councils directly address the steep long-term adult social care costs associated with non-communicable diseases, type 2 diabetes management, and physical frailty.

Critical analysis – behavioural, digital and ethical considerations

The "WV Gets Active" programme, commissioned by Wolverhampton City Council in partnership with Active Black Country and designed by The Behaviouralist, represents a sophisticated, behavioural-science-backed approach to public health. By utilising digital targeting and the LGA Behavioural Insights Programme to reach physically inactive residents in low socio-economic areas, it bypassed traditional, broad-network marketing.

However, critical analysis reveals that while digital targeting narrows the focus to specific demographics, it introduces structural biases, algorithmic bottlenecks, and equity dilemmas that challenge long-term public health goals. A critical evaluation of this intervention focuses on key digital, behavioural, and ethical dimensions.

The digital exclusion paradox

- The "Fourth Utility" Barrier: While the initiative assumes universal digital accessibility, local strategies note distinct gaps in full-fibre connectivity within the city. Labelling digital access as a 'fourth utility' means those without it are completely cut off from public health services.
- The Bandwidth Divide: Targeting low socio-economic groups via digital applications assumes these priority populations have the modern devices, data packages, and literacy needed to engage with continuous behavioural tracking.

- **Compounding Inequality:** Relying strictly on a digital pipeline risk worsening health inequality, as the most deeply isolated or economically deprived residents are often those most affected by digital exclusion.

Algorithmic echo chambers and selection bias

- **Demographic Skewing:** Evaluation data for WV Gets Active revealed a strong registration skew toward women aged 35-54. While this successfully captured a historically underrepresented group, it highlights a structural failure in reaching other vital demographics, such as isolated older adults or younger people.
- **The Optimisation Trap:** Digital ad algorithms optimise for 'lookalike' audiences who are most likely to click or download an app. In a public health context, this means the system automatically targets the 'easiest to convert' individuals within a priority postcode, leaving the truly inactive and underserved populations unengaged.
- **The Illusion of Reach:** High digital impression or download metrics can create a false sense of security for policymakers, masking a lack of deep engagement among the most vulnerable communities.

Behavioural limitations of an 'app-centric' intervention

- **Friction Overload:** To register for the digital components of council leisure services, users must navigate mandatory requirements like valid email registrations and digital direct debit set-ups. For marginalised priority groups, these administrative barriers cause significant drop-offs before any physical activity even begins.
- **The Missing Physical Link:** Digital prompts cannot overcome real-world physical barriers. A hyper-targeted digital notification encouraging an individual to move does nothing to improve poor local transport, a lack of green spaces, or safety concerns in deprived wards.
- **Extrinsic Saturation:** App notifications and digital badges act as external motivators. Behavioural science dictates that once app fatigue sets in or notifications are muted, physical activity patterns quickly collapse back to baseline levels unless intrinsic habits have been formed.

Overcoming Cost Barriers – South Essex Active Travel (SEAT) ‘Forward Motion’

The South Essex Active Travel (SEAT) partnership addressed a major barrier to employment and health in disadvantaged areas: transport poverty. Low-income residents, jobseekers, and young apprentices frequently turned down job interviews, education placements, or healthcare appointments due to the high costs of public transport or car ownership.

To bridge this gap, the consortium launched the ForwardMotion Bike Loan Scheme. The program targeted individuals in priority economic wards, providing free loan packages featuring a bicycle, e-bike, or e-trike for up to one month. To ensure a seamless transition, loans included essential safety gear (helmets, locks, lights) and free cycle training.

Theoretical Behaviour Change Framework

The SEAT framework recognised that changing long-term travel habits requires more than simply giving people information. It systematically addressed the COM-B Model to remove practical friction.

- **Physical Opportunity (COM-B):** The scheme directly addressed financial exclusion. The upfront purchase cost of a high-quality bicycle or e-bike is a major barrier for low-income households. By providing the vehicle and safety gear entirely for free, the council safely injected active travel options into the residents' physical environment.
- **Physical & Psychological Capability (COM-B):** Many participants lacked the confidence or road skills to commute safely. SEAT paired the free equipment with personalized cycle training, route planning assistance, and basic bike maintenance workshops. This built the practical skills and confidence needed to ride on public roads.
- **Reflective Motivation (COM-B):** By positioning the trial over a full month, participants experienced the immediate daily benefits of active travel - such as saving money on bus fares and arriving at work feeling energised. This positive hands-on experience shifted their mindset, helping them view cycling as a permanent, viable transport option.

Campaign Effectiveness & Scale

The SEAT ForwardMotion hub demonstrated how targeted local transport schemes can successfully reach high-priority residents.

- **Targeted Demographics:** The initiative successfully engaged thousands of commuters across South Essex, focusing heavily on jobseekers, low-income workers, and apprentices traveling to local enterprise zones.
- **Vehicle Diversity:** The inclusion of e-bikes and cargo e-trikes expanded the scheme's reach. This allowed older residents, individuals with minor mobility issues, and those with longer commutes (over 5 miles) to comfortably take part.
- **High Completion Rates:** The structured intake process, combining a physical bike fit with safety training, ensured high participant commitment, resulting in extremely low equipment drop-out or loss rates during the loan windows.

Key Results and Health Outcomes

Data captured from participant tracking and follow-up surveys confirmed that the scheme successfully turned a short-term trial into long-term lifestyle changes.

Active Travel and Transport Habit Shifts

- **Permanent Commuting Shifts:** 31% of all participants permanently swapped their car or bus commutes for active cycling travel.
- **Long-Term Bike Ownership:** 75% of participants went on to buy a bicycle or e-bike of their own after their loan period ended, utilising local cycle-to-work schemes or interest-free purchase options.
- **Access to Employment:** Over 40% of job seeking participants reported that the free bike loan directly helped them access new employment or training opportunities that were previously out of reach due to poor public transport links.

Physical and Environmental Health Gains

- **Daily Physical Activity:** Inactive participants naturally built an extra 30 to 60 minutes of cardiovascular exercise into their normal working day.
- **Congestion and Emission Reductions:** Swapping short car journeys for cycling removed tons of carbon emissions from congested South Essex corridors, directly improving local air quality.

Economic and Social Value for Local Authorities

The SEAT ForwardMotion model delivers exceptional value by linking transport, public health, and economic development budgets. Every commuter who shifts from a car to a bicycle reduces local road maintenance costs and eases traffic congestion.

More importantly, by helping job seekers secure employment and keeping low-income residents physically active, the council lowers long-term social care demands, reduces health inequalities, and injects economic productivity directly back into the local community.

Critical analysis – behavioural, financial, and structural considerations

The South Essex Active Travel (SEAT) ‘Forward Motion’ initiative, a collaborative intervention by Essex, Southend-on-Sea, and Thurrock Councils funded by the Department for Transport, directly addresses the physical and financial hurdles of commuting. By providing subsidised or free bicycle loans, complimentary maintenance, and targeted public transport support, the scheme explicitly targets cost as a barrier to physical activity and job access.

However, critical analysis reveals that while removing up-front capital costs drives short-term equity, it does not automatically eliminate long-term financial vulnerabilities, systemic infrastructure deficiencies, or structural economic shifts. A critical evaluation of the ‘Forward Motion’ intervention exposes several core behavioural, financial, and structural frictions.

The capital vs. operational cost misconception

- **Upfront Relief:** The project successfully eliminates the primary financial barrier for low-income participants by providing access to cycles, free repairs, and safety equipment.
- **The Tail-End Cost Trap:** Critical analysis shows that while a bike loan or maintenance voucher is temporarily free, the ongoing operational costs of cycling remain. Low-

income commuters face recurring expenses for puncture fixes, replacing worn brake pads, and specialised wet-weather gear.

- The Risk of Abandonment: If an individual cannot afford a £20 tyre replacement three months after the intervention, the bicycle becomes useless. Free temporary access fails to build long-term resilience against systemic poverty.

Micro-subsidies facing public transport inflation

- The Commuter Imbalance: Forward Motion provides personalised travel planning and occasional multi-modal public transport incentives to encourage people to reduce the use of their cars.
- The Fare Hike Bottleneck: These micro-incentives run directly into a macroeconomic barrier such as escalating bus and rail fares. Temporary travel advice cannot compete with long-term public transport inflation.
- Systemic Failure: If an active travel scheme requires a bus or train to complete a multi-modal journey, the ongoing daily cost of the ticket will eventually outpace any short-term behavioural prompt, driving individuals back to cheaper, older private vehicles.

The secure infrastructure tariff

- The Theft Tax: Lower-income individuals face a disproportionately high risk of cycle theft due to a lack of secure home or workplace storage.
- Paying for Safety: To counteract this, Forward Motion manages secure cycle parking facilities at local rail stations. However, these facilities carry an annual fee ranging from £20 to £96, or transition to a daily/monthly app-based charge after initial trials.
- The Equity Paradox: Placing a subscription tariff on secure parking introduces a new financial barrier. The individuals who cannot afford to have a bike stolen are priced out of the infrastructure meant to protect it.

Derbyshire 'Teachable Moments' Physical Activity Intervention

The 'Teachable Moments' initiative, embedded within the Live Life Better Derbyshire (LLBD) service, is a targeted public health intervention designed by Derbyshire County Council. Grounded in the Health Belief Model (HBM), the program trains frontline primary care clinicians (GPs, nurses, and healthcare assistants) to utilise routine medical consultations as a psychological cue to action.

When patients present with chronic illnesses or borderline biometric markers, clinicians deliver Very Brief Advice (VBA) to amplify the patient's perceived susceptibility and severity regarding inactivity. Patients are immediately referred to the integrated LLBD pathway, where personalised support directly lowers perceived barriers and builds long-term self-efficacy through structured, low-intensity exercise plans.

Key Results and Health Outcomes

The intervention successfully converts clinical friction into long-term behavioural change, generating over 3,200 annual referrals for high-risk, inactive individuals. Key longitudinal health outcomes include:

- **Sustained Weight Management:** Program participants achieved an average weight loss of 18.2 kg at the two-year mark, proving the intervention's efficacy over standard short-term diets.
- **Disease Management:** Evaluations show measurable improvements in glycaemic control (HbA1c levels), blood pressure reduction, and reduced musculoskeletal pain.
- **Mental Well-being:** Participants reported significant increases in self-reported mental well-being scores, driven by enhanced functional mobility and reduced social isolation.

Economic Value for Local Authorities

The "Teachable Moments" model delivers a highly cost-effective framework for local government by shifting funding from acute care to primary prevention.

- **Reduced Healthcare Demand:** Shifting inactive patients into community exercise routines resulted in a measurable reduction in repeat GP appointments and local hospital admissions for exacerbations of chronic conditions.
- **High Return on Investment (ROI):** By utilising existing primary care infrastructure for referrals, the council minimised marketing and recruitment costs, yielding a highly favourable cost-per-outcome ratio compared to traditional community gym voucher schemes.
- **Workforce Productivity:** Improved physical conditioning among working-age participants directly correlates with reduced sickness absence and lower presenteeism rates across the county.

Social Value and Health Equity

The intervention drives significant social capital across Derbyshire's most vulnerable populations.

- **Targeting Health Inequalities:** By embedding the recruitment process directly within GP surgeries, the program bypasses the "inverse care law," successfully reaching low-

income and under-served demographics who rarely engage with voluntary public health campaigns.

- **Community Integration:** The physical activity pathways utilise local leisure centres, parks, and community hubs, revitalising civic spaces and fostering peer-led social support networks.
- **Sustainable Independence:** For older adults and individuals with long-term disabilities, the gains in physical literacy and self-efficacy directly translate to prolonged independent living, reducing the long-term social care burden on the local authority.

Critical analysis – behavioural, financial, and structural considerations

The Derbyshire ‘Teachable Moments’ approach, often integrated into the county's Live Life Better Derbyshire service and primary care networks capitalises on specific health milestones or medical diagnoses. By embedding physical activity referrals into moments when patients are highly receptive to change (e.g., following a type 2 diabetes diagnosis, a minor cardiac event, or a routine health check), it effectively leverages clinical urgency.

However, critical analysis reveals that while capitalizing on a "teachable moment" drives an intense spike in short-term motivation, it introduces systemic vulnerabilities regarding behavioural longevity, institutional pressure, and socioeconomic equity. A critical analysis evaluates this framework across key behavioural, clinical, and ethical dimensions.

The vulnerability of crisis-driven motivation

- **The Decay Curve:** The strategy relies heavily on the Health Belief Model's ‘cues to action’. While fear or a health shock sparks immediate compliance, this extrinsic shock and motivation decreased over time. As the initial panic of a medical diagnosis subsides, motivation drops, risking a quick return to sedentary habits.
- **The 12-Week Drop-Off:** The council provides individualised support over a 12-week framework. Critical evaluation shows that if an intervention fails to actively move a participant from crisis-driven fear to positive intrinsic motivation (like stress relief or social connection) within those 12 weeks, long-term adherence ends once clinical oversight ends.

Clinical bottlenecks and ‘very brief advice’ limitations

- **The Time-Poor Clinician:** Frontline healthcare staff are expected to deliver Very Brief Advice (VBA) to trigger these teachable moments. In an overstretched NHS environment, general practitioners and nurses rarely have the capacity to deliver high-quality, empathetic behavioural coaching during short appointments.
- **The Scripted Referral:** If the intervention devolves into a rushed, checkbox exercise (for example "you need to exercise more, here is a leaflet"), the psychological impact of the teachable moment is completely lost. It fails to address the deep-seated emotional barriers to movement and/or physical activity.
- **Adviser Dependency:** The pathway relies on transitioning patients to local physical activity advisers. A major structural vulnerability is the disconnect that occurs between the initial medical consultation and the patient's first community-based session, leading to significant dropouts.

The ethical implications of capitalising on medical vulnerability

- The Coercion Paradox: Delivering a lifestyle intervention immediately after a distressing medical diagnosis can blur the line between supportive guidance and clinical coercion. Patients may agree to an exercise plan simply out of acute anxiety rather than a genuine willingness to change their behaviour. This will have a negative impact on long-term or sustainable behaviour change.
- Internalised Stigma: For lifestyle-related illnesses, framing physical activity as a retroactive cure during a crisis can accidentally reinforce patient shame. This internal stigma often acts as a psychological barrier, causing individuals to avoid community exercise spaces altogether.

Key literature and signposting

If you would like to read more surrounding this topic or want to know more about any of the models explored within this report, please see below for key literature.

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