

CYCLOS Erasmus +

Cycling for Inclusion

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Cycling knowledge

Cyclos Guide

Green Mobility and its Benefits for Disadvantaged Youths

Module 1

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MODULE OVERVIEW

Module 1	**Green Mobility and its Benefits for Disadvantaged Youths**
Summary	This module explores green mobility with a strong focus on cycling as an inclusive, accessible and empowering activity for disadvantaged youths. Green mobility is increasingly recognised as a key strategy for improving public health, reducing environmental impact and supporting social equity (European Commission, 2020; WHO, 2018). However, not all young people benefit equally from sustainable mobility opportunities. Social, economic and personal barriers can significantly limit participation. This module examines cognitive, cultural, emotional, social and economic disadvantages and explains how cycling can help address these barriers by improving wellbeing, strengthening social connections and increasing independence and access to education, employment and community life (UNICEF, 2021; Bauman et al., 2012).
Learning Outcomes	● Understand what green mobility is and why it is important for young people and communities ● Recognize different types of disadvantage that may affect youths' daily lives and mobility ● Explain how cycling can support physical health, emotional wellbeing and social inclusion ● Reflect on how cycling can increase independence and opportunities for participation
Key words #hashtags	#greenmobility #cycling #youthinclusion #disadvantage #wellbeing #sustainability #participation #empowerment

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INTRODUCTION

Green mobility refers to transport solutions that reduce environmental harm while promoting healthier and more liveable communities. Walking, cycling and public transport are central elements of this approach and are strongly supported by European sustainability and climate policies (European Commission, 2020). For young people, mobility is directly linked to independence, access to education, employment, social life and personal development. However, disadvantaged youths often experience multiple barriers that restrict their ability to move freely and safely.

These barriers may include limited financial resources, lack of safe infrastructure, social exclusion, low self-confidence, language difficulties or learning challenges. When mobility is restricted, participation in community life, sports and educational opportunities is also reduced, increasing the risk of isolation and inequality (UNICEF, 2021; OECD, 2018).

Cycling offers a practical and affordable way to address some of these challenges. It is not only a means of transport but also a form of physical activity that supports mental wellbeing, reduces stress and improves overall health (WHO, 2018; Biddle & Asare, 2011). Cycling can help young people feel more confident, connected and capable. This module highlights how cycling can become a tool for inclusion, empowerment and social participation, particularly for youths facing different forms of disadvantage.

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1. Green Mobility and its Benefits for Disadvantaged Youths

This chapter provides an in-depth exploration of green mobility and examines how different forms of disadvantage affect young people's access to safe, sustainable and inclusive mobility. Mobility is not only a practical issue but also a social determinant of health and participation. Limited mobility can reduce access to education, employment, recreation and social networks, thereby reinforcing cycles of inequality (Lucas, 2012; OECD, 2018).

1.1 What is Green Mobility?

Green mobility refers to transport systems that minimise environmental damage while improving quality of life. Active mobility, especially cycling and walking, is recognised as a key strategy to reduce greenhouse gas emissions, air pollution and traffic congestion (European Commission, 2020). Urban environments that support cycling have been associated with lower pollution levels and improved public health outcomes (Götschi et al., 2016).

Beyond environmental impact, green mobility is closely linked to social sustainability. Access to safe and affordable transport allows individuals to participate in social, educational and economic life. When sustainable mobility options are unavailable or inaccessible, disadvantaged groups are disproportionately affected, leading to increased social inequalities.

1.2 Environmental Impact of Green Mobility and the Role of Cycling

Transport is one of the main sources of greenhouse gas emissions in Europe and globally. Road transport in particular contributes significantly to carbon dioxide (CO_2) emissions, air pollution and noise, especially in urban areas (European Environment Agency, 2022). Young people are growing up in a context where climate change, extreme weather events and environmental degradation are increasingly visible, making sustainable mobility not only a technical issue but also a generational concern.

Private car use remains dominant in many regions, but it is associated with high energy consumption, traffic congestion and poor air quality. Air pollution has been linked to respiratory diseases, cardiovascular problems and reduced quality of life, disproportionately affecting low-income communities that often live in more polluted areas (WHO, 2021). Promoting active mobility such as cycling can therefore contribute both to environmental protection and to health equity.

Cycling produces no direct emissions and requires far fewer resources than motorised transport. Studies show that shifting short urban trips from cars to bicycles can significantly reduce CO_2 emissions and improve air quality (European Commission, 2020; Götschi et al., 2016). In addition, cycling reduces traffic congestion and noise pollution, making cities more liveable and safer for all residents, including children and young people.

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Encouraging young people to adopt cycling as part of their daily mobility can also support the development of pro-environmental attitudes and behaviours. Adolescence is a key period for the formation of long-term habits. Engaging in green mobility practices helps youths connect personal choices with broader environmental outcomes, strengthening their sense of responsibility and agency in relation to sustainability challenges (OECD, 2020). In this way, cycling becomes not only a transport option but also a practical expression of environmental citizenship.

For disadvantaged youths, participation in green mobility initiatives can be particularly empowering. It allows them to contribute positively to their communities and the environment, challenging stereotypes that sustainability is only a concern for more privileged groups. Inclusive cycling programs therefore have the potential to combine environmental awareness with social inclusion, linking ecological transition with social justice.



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1.3 Mobility as a Social Determinant of Inclusion

Mobility plays a critical role in shaping life opportunities. Research highlights that access to reliable and affordable mobility is essential for accessing education, employment and social services (Lucas, 2012). For young people, independent mobility supports autonomy, identity formation and social integration.

When young people lack access to safe mobility, they may become isolated from peers and community life. This can contribute to reduced participation in sports, cultural activities and informal learning environments, which are important for holistic youth development (OECD, 2018).



1.4 Understanding Youth Disadvantage in Mobility

Disadvantaged youths may experience different, and often overlapping, forms of disadvantage that influence their confidence, access to resources and ability to participate in safe and independent mobility.

Cognitive disadvantage: learning difficulties, attention challenges or neurodevelopmental conditions can affect a young person's ability to process information, follow complex instructions or make quick decisions in dynamic environments such as traffic. This may reduce confidence in learning how to cycle or navigating public roads. Without adapted teaching methods and additional support, these youths may feel overwhelmed or discouraged from participating in mobility-related activities.

Cultural disadvantage: language barriers, migration background or experiences of discrimination can limit access to information about local mobility options and safety rules. Young people from migrant families may also be unfamiliar with cycling as a common mode of transport, especially if cycling was not part of daily life in their country of origin. Cultural expectations, including gender norms, may further restrict participation in public or mixed-gender activities, reducing opportunities to engage in cycling.

Emotional disadvantage: anxiety, low self-esteem, trauma or ongoing psychological stress can strongly influence a young person's willingness to try new activities or move independently in public spaces. Fear of failure, fear of accidents or negative past experiences can create mental barriers that prevent participation in cycling. Supportive and non-judgmental environments are especially important for helping these youths gradually build confidence.

Social disadvantage: isolation, weak peer networks or exclusion from social groups can reduce exposure to positive role models and shared activities. Young people who

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lack supportive friendships or community connections may have fewer opportunities to join group activities such as cycling. Social disadvantage can also reduce motivation, as participation is often encouraged through peer influence and a sense of belonging.

Economic disadvantage: limited financial resources can restrict access to bicycles, safety equipment, maintenance services or safe storage. Transport poverty is closely linked to broader social exclusion, as it limits access to education, training, employment and recreational opportunities. For economically disadvantaged youths, even low-cost mobility options like cycling may remain out of reach without targeted support.

These disadvantages rarely occur in isolation. Instead, they often overlap and reinforce each other, creating complex barriers to mobility and participation. For example, a young person from a migrant background may also face language barriers, economic hardship and social isolation at the same time. Such intersecting disadvantages can significantly reduce opportunities for independent movement, social interaction and personal development, increasing the risk of long-term exclusion (UNICEF, 2021; OECD, 2018).

1.5 Barriers to Green Mobility for Disadvantaged Youths

Disadvantaged youths face several barriers to engaging in green mobility, including lack of safe infrastructure, limited access to bicycles, insufficient knowledge of road safety and psychological barriers such as fear or low confidence (Götschi et al., 2016). In many urban and peri-urban areas, cycling infrastructure is unevenly distributed, with safer bike lanes and traffic-calmed zones more often found in higher-income neighborhoods.

Young people living in disadvantaged areas may therefore be exposed to heavier traffic, poorly maintained roads and a lack of secure bicycle parking, all of which reduce the perceived and actual safety of cycling. Research shows that perceived traffic danger is one of the strongest predictors of whether young people engage in active mobility (Götschi et al., 2016).

Economic constraints also play a significant role. For families with limited financial resources, purchasing a bicycle, helmet and basic safety equipment may not be a priority, especially when other essential needs compete for limited budgets. In addition, disadvantaged youths may lack access to repair services or safe storage spaces, increasing the risk of theft or damage. These material barriers can make cycling appear unreliable or inaccessible as a regular mode of transport (Lucas, 2012).

Knowledge-related barriers further limit participation. Young people who have not received cycle training or road safety education may feel unsure about traffic rules, signaling, or how to position themselves safely on the road. This uncertainty can lead to anxiety and avoidance of cycling in public spaces. Schools and community programs do not always provide equal access to mobility education, which can widen existing inequalities in confidence and competence.

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Psychological and social factors are equally important. Fear of accidents, low self-confidence, or previous negative experiences in traffic can discourage young people from trying or continuing cycling. For some youths, especially those who have experienced social exclusion or bullying, participating in visible public activities may feel intimidating. Cultural norms and gender expectations may also restrict participation, particularly among girls or young people from migrant backgrounds, where cycling may not be traditionally encouraged.

Addressing these barriers requires a holistic and inclusive approach. Infrastructure improvements, such as protected bike lanes and traffic-calmed routes, are essential but not sufficient on their own. Inclusive program design should combine access to equipment, structured training in road safety and cycling skills, and supportive learning environments where young people can practice without fear. Mentorship and peer support can help build confidence, while community-based initiatives can foster a sense of belonging and normalise cycling as an activity for everyone, regardless of background or ability. Such multi-level interventions are more likely to reduce inequalities in access to green mobility and promote long-term participation (Lucas, 2012; UNICEF, 2021).

2. Benefits of Cycling for Disadvantaged Youths

Cycling offers multidimensional benefits that extend beyond physical fitness. Research in public health, psychology and social sciences shows that regular physical activity is strongly linked to improved wellbeing, cognitive performance and social integration (WHO, 2018; Bauman et al., 2012). For disadvantaged youths, these effects can be particularly meaningful, as cycling provides both movement and meaningful participation.



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2.1 Psychological & Cognitive Benefits

Scientific evidence shows that physical activity supports brain development and cognitive functioning, particularly in young people (Hillman et al., 2008). Activities such as cycling improve blood flow to the brain, which is associated with better attention, memory and executive functioning. These improvements can be especially beneficial for youths facing learning difficulties or concentration challenges. Physical activity is linked to reduced symptoms of anxiety and depression, improved mood and better stress regulation (Biddle & Asare, 2011).

Cycling is also strongly connected to emotional wellbeing. Regular movement reduces symptoms of anxiety and depression and contributes to mood regulation (Biddle & Asare, 2011; WHO, 2018). Cycling in particular, as an outdoor and rhythmic activity, can support emotional regulation and provide a sense of freedom and release. Exposure to natural or green environments during cycling has also been associated with psychological restoration and reduced mental fatigue (Twohig-Bennett & Jones, 2018).

For disadvantaged youths who may experience stress, insecurity or low self-esteem, cycling can provide a safe and structured activity that builds confidence through gradual achievement. Learning to ride, improving endurance or completing a route can foster a sense of competence and self-efficacy. Moreover, the connection between physical activity and cognitive functioning should not be overlooked. Regular movement has been linked to improvements in attention, memory and executive functioning, which are important for learning and everyday decision-making (Hillman et al., 2008). In this sense, cycling supports not only health but also broader developmental outcomes.

2.2 Physical Health Benefits

Cycling is widely recognised as a form of moderate-to-vigorous physical activity that provides substantial health benefits across the lifespan. Regular cycling contributes to improved cardiovascular fitness, muscular strength and endurance, and healthy weight management (WHO, 2018; Green et al., 2021). For young people, establishing active habits early in life is particularly important, as physical activity patterns during adolescence often track into adulthood.

From a prevention perspective, consistent engagement in cycling has been associated with a reduced risk of chronic diseases such as cardiovascular disease, type 2 diabetes and obesity (WHO, 2018). Active transport, including cycling to school, training centres or work, allows young people to integrate physical activity into their daily routines without requiring access to organised sports facilities, which may be financially or socially inaccessible for disadvantaged youths.

For disadvantaged youths, these health effects can be especially meaningful. Young people experiencing economic hardship, social exclusion or emotional stress often

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have fewer opportunities to engage in structured recreational activities. Cycling offers a relatively low-cost and accessible way to improve physical wellbeing.

2.3 Social and Cultural Benefits

Cycling activities often take place in groups, encouraging communication, cooperation and mutual support. Participating in shared physical activities has been associated with stronger peer relationships and improved social skills (Bailey, 2006). For youths experiencing isolation or marginalisation, group cycling can provide a non-competitive and inclusive way to connect with others.

Cycling can also promote intercultural interaction. When young people from different cultural or migration backgrounds ride together, they share experiences that reduce stereotypes and build trust. Social capital theory highlights that shared activities strengthen community bonds and belonging (Putnam, 2000). This is particularly important for youths who feel excluded from mainstream activities.

Moreover, cycling in public spaces increases young people's sense of visibility and participation in community life. Improved fitness and energy levels can also positively influence school participation, concentration and overall quality of life. Feeling present and active in shared environments contributes to social inclusion and a sense of citizenship (UNICEF, 2021).

2.4 Economic and Life-Skill Benefits

Being seen by other road users is crucial, especially in low light or high-traffic conditions. Cycling is one of the most affordable forms of personal mobility. For youths from low-income backgrounds, having access to a bicycle can reduce transport costs and improve access to education, training and employment (Lucas, 2012). Mobility is a key factor in social participation, and limited transport options are strongly associated with social exclusion.

Cycling also helps develop life skills. Learning road safety, route planning and bicycle maintenance fosters responsibility, problem-solving and independence. These practical competencies can transfer to other areas of life, supporting long-term personal development. Participation in structured cycling activities can also introduce youths to teamwork, punctuality and commitment.

3. Cycling as a Tool for Social Inclusion and Empowerment

Beyond individual benefits, cycling can serve as a broader mechanism for social inclusion. Inclusive sports and physical activity programs have been shown to strengthen social integration and empowerment among disadvantaged groups

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(McNeil et al., 2017). Cycling is particularly suitable because it can be adapted to different abilities and does not require expensive infrastructure.

3.1 Empowerment and Self-Confidence

Empowerment involves gaining greater control over one's life, developing confidence and feeling capable of making decisions that influence one's future (Zimmerman, 2000). For young people, empowerment is closely linked to opportunities to act independently, experience success and be recognised for their abilities. Learning to cycle or improving cycling skills can directly support this process. Mastering a physical skill that enables independent movement in public space can significantly increase self-belief and autonomy, especially for youths who may have experienced repeated failure, exclusion or overprotection in other areas of life. The ability to move freely without constant reliance on adults or public transport can reshape how young people see themselves and their place in the community.

Cycling also provides clear and achievable milestones, such as balancing independently, navigating a route or riding longer distances. Reaching these goals through practice reinforces a sense of competence and personal agency. According to empowerment theory, such experiences of mastery are central to developing self-efficacy, defined as the belief in one's capacity to succeed in specific situations (Zimmerman, 2000). For disadvantaged youths, who may often receive negative feedback in academic or social contexts, positive mastery experiences in physical activities can play a crucial compensatory role.

Research on youth development shows that successful participation in structured physical activities contributes to higher perceived competence, improved self-esteem and greater resilience in the face of challenges (Bailey, 2006). Physical activities such as cycling also encourage perseverance, problem-solving and goal-setting, all of which are transferable skills that support broader personal development. When young people experience themselves as capable in one domain, this confidence can generalise to other areas, including school engagement, social relationships and future aspirations.

3.2 Community Participation

Cycling initiatives often involve community rides, workshops, training sessions and local events that bring together young people, volunteers, families and other community members. These shared activities create structured yet informal spaces where interaction can take place across age groups, social backgrounds and cultures. Through repeated participation, young people develop social connections, learn to cooperate with others and begin to feel recognised as active members of their community. Such collective experiences are particularly valuable for youths who may otherwise have limited opportunities for positive social engagement.

Social capital research highlights that participation in community-based activities plays a key role in building trust, reciprocity and a sense of belonging (Putnam, 2000). When young people take part in group cycling activities, they are not only engaging in physical movement but also entering a social environment where norms of

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cooperation, mutual support and shared responsibility are practiced. Over time, these interactions can strengthen both bonding social capital (connections with peers who share similar experiences) and bridging social capital (connections with people from different backgrounds), both of which are important for social inclusion.

For disadvantaged youths, being part of a cycling group can provide access to supportive relationships that may be missing in other areas of life. Positive interactions with peers, mentors and volunteers can help create a sense of safety and acceptance, which is essential for sustained participation. In addition, exposure to positive role models — such as youth workers, trained volunteers or more experienced cyclists — can broaden young people's perspectives on what they are capable of achieving. Observing others who demonstrate confidence, responsibility and community engagement can inspire similar attitudes and behaviors.

These social dynamics are crucial for long-term engagement and inclusion. When cycling initiatives become spaces where young people feel valued, connected and supported, participation is more likely to continue over time. In this way, community-based cycling activities contribute not only to mobility and health, but also to the development of social ties and a stronger sense of belonging within the wider community (Putnam, 2000; UNICEF, 2021).

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Exercise 1: Fil in the “cycling” gaps

Complete the sentences using one or two words.

1. Cycling is a _____ form of mobility that helps protect the environment.
2. Many disadvantaged youths face _____ barriers that limit their opportunities.
3. Group cycling activities can improve _____ inclusion and cooperation.
4. Cycling can help young people feel more _____ and independent.
5. Green mobility supports both physical and _____ wellbeing.
6. Economic disadvantage can reduce access to transport, sports and _____ activities.

Exercise 2: Cycling Quiz Challenge

Circle the correct answer. More than one answer may be correct in some questions. 🧠🚲

1. Why is cycling considered a “green” form of mobility?

A. It produces no direct air pollution

B. It reduces traffic congestion

C. It uses more fuel than cars

D. It helps lower carbon emissions

2. Which of the following are health benefits of regular cycling?

A. Stronger heart and lungs

B. Better mood and less stress

C. Improved concentration

D. Getting tired all the time

3. How can cycling support social inclusion?

A. It helps young people meet others

B. It can be done in groups

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C. It always requires expensive equipment

D. It can increase confidence in public spaces

4. Which of these can be a barrier to cycling for disadvantaged youths?

A. No safe bike lanes

B. Lack of money for a bike

C. Feeling shy or not confident

D. Having too many parks

5. Cycling regularly can help young people feel more:

A. Independent

B. Isolated

C. Confident

D. Connected to their community

Exercise 3 “A Day with Limits”

Imagine that for one day:

• you have no money for transport, or

• you feel unsafe moving around alone, or

• you feel excluded from social activities.

Think about:

• Where could you go?

• What would be difficult?

• How could a bicycle change this situation?

Share your thoughts with the group if you feel comfortable.

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Cycling knowledge

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Basics of cycling

Module 2

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Cycling for Inclusion

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MODULE OVERVIEW

Module 2	**Basics of cycling**
Summary	This module provides a focused overview of the CYCLOS guide by addressing three core areas: understanding individual abilities and needs, prioritizing safety, and selecting appropriate cycling instruments. It emphasizes the adaptation of both bicycles (tools) and training approaches (advice) to support young cyclists from diverse physical, sensory, cognitive and socio-economic backgrounds. Particular attention is given to disadvantaged youths, highlighting their abilities and the appropriate ways they can benefit from cycling: through the identification of disadvantages (in terms of needs) and the promotion of advantages such as health enhancement, empowerment, social participation and skill development. The module also underlines the importance of a safety-first mindset across all cycling contexts. Finally, it examines adaptive cycling instruments, demonstrating that when properly matched to individual abilities, they can offer comparable benefits to standard bicycles, reinforcing cycling as an accessible and inclusive activity for all.
Learning Outcomes	• Assessing individual abilities and needs • Providing practical advice on training • Adopting a safety-first approach • Knowing about the proper equipment • Understanding basic safety traffic rules • Learning the safety parameters for cycling • Choosing the right type of cycling instruments • Recognising how cycling instruments can differ in shape, but offer the same benefits as standard bicycles
Key words #hashtags	*#cycling #inclusion #abilities #advice #safety #equipment #rules #benefits #health #environment #transport #job #employment #CYCLOS #adaptation #training #instruments #skill #participation #empowerment #well-being #qualityoflife*

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INTRODUCTION

Cycling in the EU has increased in recent years, which can be attributed to several factors, but what is certain is that behavioral changes during COVID-19, with relevant increase in bicycle usage (Haubold, 2020) and the consistent investments in cycling by the Cohesion Fund between 2014 and 2020 contributed to this trend. However, urban transport still generates a quarter of transport-related CO_2 emissions, and 69% of road accidents occur in cities, highlighting the importance of providing citizens with additional, well-developed and connected cycling infrastructure to offer safe transport alternatives. The direct effects of climate change have brought additional challenges. In just a few years, integrating cycling development into urban “blue and green” infrastructures has become a key issue (ADR Sud-Vest Oltenia, 2022; CycleRight Interreg Europe 2021-2027).

Furthermore, regarding accessibility, it should be noted that estimates indicate over 100 million people with varying levels of disabilities live in the EU, raising the question of how cycling planning can respond to their needs as well as those of other vulnerable social groups, including elderly and women (ibid.). Vulnerable groups also include citizens with a low socio-economic status or with immigrant backgrounds, who may rely on bicycles as a primary means of transportation to reach their workplaces, additionally to markets, schools and social venues. Therefore, beyond supporting physical and mental health and protecting the environment, cycling can also enhance employment opportunities.

For these reasons, it is crucial to first assess individual abilities and needs, in such a way to guarantee the best cycling solutions for each vulnerable citizen. This module shines a light on those specific needs, while a safety-first approach emphasizes the importance of staying protected on the streets. Ultimately, selecting the right type of cycling equipment completes this journey about assessing the needs of vulnerable cyclists and/or potential cyclists, fostering safe, equitable and inclusive cycling communities.

In conclusion, the main goal of this module is understanding the main obstacles for different vulnerabilities and developing techniques to overcome them.

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1. Assessing individual abilities and needs

Many cyclists with disabilities use a standard bicycle when cycling for health reasons, the joy it brings or even for competing with other cyclists. However, depending on each individual's impairment, the bicycle may be adapted to meet personal needs (L'Étape Romania by Tour de France, 2025). But also training must be adapted for different needs and trainers/mentors should be able to recognize the abilities and specific requirements of individuals who aspire to become cyclists and belong to disadvantaged groups. These include cyclists with physical and sensory disabilities, cyclists with cognitive disabilities, cyclists with disadvantaged socio-economic status and cyclists with migrant or refugee backgrounds.

1.1 Cyclists with physical and sensory disabilities

"People with disabilities want to cycle"– proclaims the Cycling Embassy of Denmark (Aagaard Kristensen, 2024).

L'Étape Romania by Tour de France hosted the campaign *The Joy of Cycling, TOGETHER!* On August 31st 2025, Bucharest was "closed to cars and open to cyclist" for this amateur race. The campaign was dedicated to the social inclusion of cyclists with disabilities who wished to experience the thrill of the legendary race. Registration for people with disabilities was free. Any person with physical or visual impairments could join the event as a para-cyclist, provided they used appropriate equipment and specified their personal situation at the time of registration. People with disabilities took part in the same competitive races alongside other participants. With appropriate support, participants could become para-cyclists, focusing on skills and abilities celebration, combined with consistent practice; while resources and specialist assistance were offered to those determined to discover and develop their cycling journey.

Cerebral palsy, sensory impairments, spinal cord injuries, and multiple disabilities are examples of conditions that can significantly affect an individual's physical movement, coordination and motor control. These disabilities may impact balance, strength, posture and the ability to perform functional activities, often requiring tailored support, adaptive equipment, or specialised training to facilitate participation in physical activities such as cycling or other forms of exercise.

Adapted cycles offer young people with disabilities several enjoyable opportunities to participate in over-ground cycling; however, academic evidence regarding effective training approaches remains limited and long-term participation rates are still low. Research indicates that adaptive cycling interventions must be individualised and responsive to a range of needs in order to support meaningful and sustained engagement.

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The key needs of youth cyclists with disabilities include:

1. **Individualised goal setting**

Cycling interventions, in order to be more effective, can be based on each rider's personal goals, abilities and motivations.

For example, create a goal reaching game (safely structured) to increase motivation. Plan the goals together with the youths.

2. **Adapted teaching and training approaches**

Skill development is most effective when training incorporates a combination of experiential learning, goal-oriented practice, task-specific training and holistic intervention models.

3. **Access to appropriate adapted equipment**

Participation is strongly influenced by the availability of suitable adapted cycles that meet the rider's physical, cognitive, and sensory requirements.

4. **Supportive and safe environments**

Opportunities for cycling are often dependent on access to protected, traffic-free settings that promote safety and confidence.

For example, young cyclists with visual impairments (a sensory disability), especially if beginners, will require traffic-free or well-protected cycling paths, tactile markings and audible signals to navigate safely.

5. **Ongoing support and progression opportunities**

Sustained participation requires structured strategies that enable cyclists to progress beyond therapeutic or leisure-based contexts and into broader community cycling environments.

Overall, adaptive cycling is commonly perceived by providers as a therapeutic or active leisure activity. The findings emphasise the need for targeted strategies to expand access, improve inclusivity, and support the transition of adaptive cycling from occasional into everyday community participation (Carey et al., 2023).

1.2 Cyclists with cognitive disabilities

"It gives me so much joy in my day-to-day life that I can be self-reliant, mobile and recharge in nature"– Bettina Søndergaard, 42 years old, autism, anxiety, ADD and fibromyalgia, as per a testimony published online by the Cycling Embassy of Denmark (Aagaard Kristensen, 2024).

Cognitive impairment encompasses a wide range of conditions, including developmental delays, autism spectrum disorder (ASD), attention deficit hyperactivity disorder (ADHD), intellectual disabilities, acquired brain injury or stroke, and Down syndrome. Delivering effective cycle training to children and adults with cognitive

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impairments requires instructors to be thoroughly prepared and to possess a strong understanding of inclusive teaching practices.

Prior to delivering cycle training, trainers and mentors should plan sessions carefully and, where possible, identify in advance how disabled participants can be fully included within the group. Appropriate teaching approaches, communication methods, and support strategies should be agreed upon beforehand to ensure training is both effective and inclusive.

Understanding who will attend a session and recognising any specific or additional needs is essential for delivering training that is safe, well managed, effective, and enjoyable. Effective preparation enables trainers and mentors to:

- minimise unexpected challenges on the day of training;
- adapt session length, structure and teaching methods to meet individual needs;
- ensure that suitable equipment and resources are available.

In some cases, a detailed one-to-one assessment may be required to discuss the trainee's cognitive impairment and associated support needs. Where appropriate, this process should involve parents, carers, or support workers and may form part of an initial face-to-face meeting (Department for Transport UK, 2013).

Despite thorough preparation, trainers and/or mentors may occasionally encounter unexpected situations relating to participant needs. A lack of prior information should not prevent trainers from making reasonable adjustments to support inclusion. This guide, alongside the additional resources it references, provides practical strategies to help instructors respond effectively when such situations arise.

When working with young cyclists who have cognitive impairments, trainers or mentors may encounter the following key needs, which can be managed with proper approaches:

1. **Understand first individual needs**

Trainers or mentors must develop a deep understanding of each participant's specific cognitive profile in order to identify and respond effectively to their needs.

2. **Tailor communication and instructions**

Communication methods and explanations should be adapted to suit each individual's cognitive abilities, learning style and level of understanding.

For example, a young cyclist with ADHD may easily lose attention, so the trainer or mentor should maintain frequent eye contact and use clear, concise instructions when explaining cycling basics, rules and safety guidelines.

3. **Consider associated physical implications**

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Instructors should be aware that cognitive impairments may be accompanied by physical, sensory, or coordination challenges, which may affect balance, reaction time, or motor skills and should be considered when planning training activities.

For example, a youth with Down Syndrome might be particularly sensitive toward strong lighting at night, so it is important to avoid poorly adapted lighting conditions and ensure well-lit, evenly illuminated cycling paths to reduce discomfort and maintain safety.

4. **Focus on abilities rather than limitations**
    - Emphasise each participant's strengths and what they are capable of achieving rather than their limitations.
    - Tailor interventions to leverage existing skills, fostering confidence, motivation, and skill development.
    - Set meaningful and achievable goals that build competence, autonomy, and independence.
    - Challenge negative stereotypes about disability and promote positive self-perception and resilience.
    - Support lifelong engagement in physical activity by highlighting potential and capability rather than restriction.
    - Ensure public spaces, cycling tracks, and recreational facilities are physically accessible and equipped with adapted cycles when needed.

5. **Promote inclusive cycling communities**
    - Foster environments where people with disabilities can participate alongside peers without barriers to access or engagement.
    - Provide support from trained staff or volunteers who understand diverse abilities.
    - Encourage social participation, peer support, and a sense of belonging to sustain long-term engagement.
    - Promote awareness, positive attitudes, and policies that value individuals with disabilities as equal members of the cycling community.

1.3 Cyclists with disadvantaged socio-economic status

The relationship between cycling and socio-economic factors is complex (Foley et al., 2025). For example, a large-scale study in Germany on short trips found that cycling was significantly more common among individuals with higher education levels (Hudde, 2022). In contrast, a study in the UK reported that in areas with generally low cycling rates, people with lower levels of educational attainment tended to cycle more frequently (Lawlor et al., 2021). What is certain is that a bicycle is generally more affordable than a car for people with lower education levels, who often have lower incomes. However, they may face difficulties in understanding its benefits: a challenge

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that can persist even among individuals with higher education in some cases. Therefore, raising awareness of the benefits of cycling should be considered a fundamental starting point.

For youths with a disadvantaged socio-economic status, the trainers must keep in mind the individual background; and considering the potential leak of awareness of sports' benefits, the general advice would be to actively nurture interest in cycling.

1. **Explain the physical and mental health benefits**
   - Benefits should be clearly explained, to raise interest in cycling.
   - Health benefits should be promoted proactively by the social actors and the community stakeholders.

2. **Illustrate the economic advantages**
   - Youths should understand the financial benefits of cycling, including savings on fuel, public transport fares, car maintenance and parking costs.
   - Highlighting the long-term cost-effectiveness of cycling can make it a more attractive option for individuals with limited income.

3. **Merge personal advantages with environmental sustainability**
   - Besides promoting eco-friendly contributions to reduce air pollution, focus on highlighting the possibility of avoiding traffic congestion, which could be a more immediate motivation for adopting cycling as transportation.
   - Linking individual behavior to broader benefits can strengthen engagement and social responsibility.

4. **Ensure access to safe infrastructure**
   - Ensuring that cycling routes are safe and convenient is essential, including dedicated bike lanes and secure parking, to encourage regular use.
   - Safe infrastructure reduces barriers to cycling, increases confidence among new cyclists and encourages more frequent, longer trips.

5. **Build practical skills and confidence, while socializing**
   - Training programs, workshops and community support can help individuals develop cycling skills, improve road safety knowledge and build confidence.
   - Social support networks, such as local cycling clubs or community rides, can create a sense of belonging and motivate continued participation.

1.4 Cyclists with migrant or refugee backgrounds

Cyclists with migrant or refugee backgrounds often face distinct barriers to participation, including cultural restrictions and lower familiarity with bicycles, or with local cycling infrastructure. However, when appropriately supported, cycling can provide valuable opportunities for social integration, increased mobility and enhanced employment prospects. Bicycles are relatively affordable, widely accessible and easy

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to use, making them a practical and sustainable mode of transport. Access to cycling not only improves physical mobility but can also foster independence, confidence and connections within the local community. Structured programs and targeted initiatives can help overcome initial barriers and enable migrants and refugees to fully benefit from cycling as both a recreational activity and a means of social and economic participation.

Still, often more challenging might be the situation of immigrant women, as stated at the World Conference on Transport Research held in Montreal in July 2023. Women with a migrant background often exhibit different mobility behaviors compared to non-migrant women, largely due to cultural restrictions or limited access to bicycles in their countries of origin. Many were unable to learn to cycle or continue cycling as adults. Migration can alter these cultural constraints, providing women with the opportunity to learn to ride. Some non-profit organizations offer targeted cycling courses for immigrant women, although little research has evaluated participant experiences, motives, or outcomes. Qualitative interviews conducted with participants in cycling courses in Vienna and St. Pölten revealed that many women had restricted mobility in their countries of origin and were often prohibited from cycling while male relatives could do so freely. Participation in the courses improved cycling skills and enhanced women's subjective sense of safety. Furthermore, engagement in these courses appeared to foster self-determination, social integration and a greater sense of personal freedom (Stark & Gašpar, 2023).

To expand cycling opportunities for this group, programs should:

1. **Ensure culturally sensitive and inclusive course design**

Cycling programs should carefully address key contextual factors to ensure inclusivity:
(a) cultural norms must be understood and openly discussed to respect participants' backgrounds and avoid unintended exclusion;
(b) gender expectations require particular attention for immigrant women, who may face additional social or cultural challenges – cycling programs should ensure that women feel safe and supported while participating in training, creating an environment where their achievements are recognised, enabling women to build confidence;
(c) language barriers need to be successfully overcome through easy communication, translation, or multilingual instruction, creating an environment where all participants feel welcome, understood and respected.

2. **Provide access to adapted or beginner-friendly bicycles**

Offering suitable bicycles, including adapted or easy-to-use models, ensures participants can safely and confidently learn to ride.

3. **Offer safe, traffic-free environments for initial training**

Controlled, low-risk spaces allow participants to develop cycling skills (when learning) without the added stress of navigating traffic, improving confidence, competence, and safety.

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4. **Include social support mechanisms, such as peer groups or mentors**

Mentorship and peer support can provide encouragement, motivation, and practical guidance. Social networks also foster a sense of community and help participants overcome barriers to engagement.

5. **Promote integration into broader community cycling networks once skills and confidence increase**

Programs should provide pathways for participants to transition from controlled training environments to regular community cycling. This promotes independence, social inclusion, and sustained participation in both recreational and transport cycling activities.

2. Adopting a safety-first approach

Cycling is an excellent activity for health, the environment and good mood. Since it's a convenient and accessible form of physical activity, cycling can help individuals meet recommended exercise targets. Regular cycling has been shown to reduce the risk of chronic diseases such as cardiovascular disease, diabetes, and obesity, as well as lower all-cause mortality (Green et al., 2021). Beyond the physical benefits, this type of active transportation also supports mental well-being by reducing stress, improving mood and enhancing cognitive function. Additionally, it can foster social connections through group rides and community cycling events, making it a holistic activity that promotes both health and social engagement.

Nevertheless, safety always remains the top priority. Here's what you need to know to ride responsibly, whether for pleasure, for competitions, for health targets, or enjoying family rides, or simply commuting to the workplace.

2.1 Proper equipment

Helmet: the no. 1 rule

A helmet is the most important piece of safety gear for cyclists of all ages. For children, a properly fitted helmet can reduce the risk of serious head injuries by up to 45%. Helmets protect against impacts during falls or collisions and can make the difference between minor scrapes and life-threatening injuries. There are some fitting rules for the helmet.

- Ensure the helmet is **certified for cycling**: look for safety standards like CPSC (Consumer Product Safety Commission), or EN 1078 (European Standard), or equivalent.
- The helmet should fit snugly without wobbling and sit **approximately 2 fingers above the eyebrows**.

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- Adjust the straps into a **“V” shape under the ears** and fasten the buckle securely.
- Regularly check that the helmet hasn’t any kind of sustained damage; replace it after any kind of significant impact.
- Never use a second-hand helmet or a damaged helmet!

Additional Gear

- **Gloves** can protect hands during falls and improve grip.
- **Closed-toe shoes** help maintain control over the pedals.
- **Knee and elbow pads** are recommended for beginners or when riding on rough terrain.

2.2 Respecting riding rules

Following traffic rules and predictable behavior reduces the risk of accidents.

- **Ride on the right**: always stay on the right side of the road (of course, if it’s not strictly necessary otherwise) or even better, when present, stay in the designated bike lanes.
- **Respect traffic signs and signals**: stop at stop signs and respect all traffic signs, follow traffic lights, and obey lane markings.
- **Communicate intentions:** use hand signals when turning or stopping. Make eye contact with drivers and pedestrians when possible.
- **Maintain safe distance**: keep enough space from vehicles, other cyclists, and obstacles to react to sudden changes in traffic.
- **Avoid risky maneuvers**: don’t weave between cars, don’t make sudden turns without signaling.

2.3 Visibility and lights

Being seen by other road users is crucial, especially in low light or high-traffic conditions.

- **Lights**: always use white front lights and red rear lights. Make sure they are fully charged or have fresh batteries.
- **Reflective clothing**: wear reflective jackets, vests, or ankle bands to increase visibility.
- **For extra protection**: attach lights to the wheels, or other specifically designed luminous accessories to make them more noticeable.
- **Timing**: about 20% of cycling accidents happen between 6:00 PM and 9:00 PM, so extra visibility is essential during dusk and early night.

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2.4 Bicycle maintenance

A well-maintained bike is safer, more efficient, and longer-lasting.

Pre-ride checks

- Brakes: ensure they stop the bike effectively.
- Tires: check pressure and tread for grip.
- Chain and gears: ensure smooth operation.
- Steering and suspension: confirm they are responsive.

Emergency kit

- Carry a mini-pump, spare tube, and tire levers.
- Basic tools like a multi-tool can help adjust components on the go.

Routine maintenance

- Regularly clean and lubricate the chain.
- Regularly check and tighten bolts.
- Regularly inspect for cracks or wear.

2.5 Preventive behavior

Awareness and anticipation are as important as gear and technique.

- **Stay focused:** do not ride while wearing headphones or using a phone. Always watch traffic, pedestrians, and road conditions.
- **Adopt a defensive mindset**: assume drivers may not see you. Be ready to brake, swerve, or stop to avoid hazards.
- **Predictability and unpredictability**: ride in straight line when possible, signal clearly and avoid sudden swerves. But don't assume others will always do the same, so be careful.
- **Avoid distractions**: keep your hands on handlebars and your eyes on the road, especially at intersections and in traffic.
- **Adjust for environmental conditions**: slow down in bad weather, poor lighting, or uneven terrain.

The guidelines are based on recommendations already provided by the Organization for the Promotion of Alternative Transport (OPTAR Romania) & the Ministry of Regional Development and Public Administration – Romania, in 2016; and on recommendations published by AlphaMind Romania CyclingTeam, in 2026.

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2.6 Safety parameters for cycling

Proper equipment, high visibility, adherence to traffic rules, regular maintenance and defensive riding, all these factors create a strong foundation for safe cycling. Following these steps allows to enjoy the physical, mental and environmental benefits of cycling while minimizing risks. To ensure optimal safety, the following minimum spaces and distances should be considered. These are summarized in the table “Safety parameters”, which outlines the main technical rules that any good cyclist should follow.

Safety parameters	meters (m)	Additional information
a) Width of the bike and adult rider	~0.75 m	But it can be larger for corpulent persons or cargo bikes.
b) Sinuosity while riding	0.2–0.8 m	It depends on experience, luggage, bike type, or terrain.
c) Lateral distance when overtaking other cyclists	minimum 0.5 m	It depends on experience, luggage, bike type, or terrain.
d) Distance from motor traffic (cars)	minimum 1.5 m	If the maximum speed is 30 km/h and traffic calming measures are in place, this can be reduced to 1 m.
e) Space for reading road signaling and needed maneuvers	at least 25 m in advance	Turns and stops must be signaled in advance; the road administrator must ensure enough space for safe signaling, since they need to be seen.
f) Distance from nearby obstacles:	The pedal can reach 7 cm from the ground or lower during turns; therefore, the space around bike paths must be free of obstacles.	
f.1) Lateral safety	at least 0.5 m	Lateral safety space is very important as well, because near lateral obstacles could impact balance.
f.2) Curbs, verges, borders	maximum 5 cm	Curbs can serve as lane or traffic separators, but their height must be limited and without sharp edges or corners.

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Safety parameters	meters (m)	Additional information
f.3) Bike paths	2.5 m height	Bike paths must have a clear passage height, properly signalised.
g) Space needed in turns	more than in other cases	In turns, the cyclist occupies more space because they lean toward the inside of the curve.
References: Organization for the Promotion of Alternative Transport (OPTAR) and the Ministry of Regional Development and Public Administration – Romania, 2016.		

Cycling brings many benefits – from fitness and relaxation to mobility and environmental protection. By following proper equipment, safety distances and traffic rules, every ride becomes a safe and memorable moment.

Ride safely… and enjoy the journey!

3. Choosing the right type of cycling instruments

Cycling instruments can exist in multiple forms and configurations, each designed to accommodate the individual needs and abilities of the cyclist. The overall positive impacts of cycling on a standard bike have been shown to be comparable to those observed in adaptive cycling. Both forms of cycling contribute to improvements in cardiovascular fitness, muscular strength, mental well-being, and quality of life, supporting adaptive cycling as an effective and inclusive activity (Mosser et al., 2025).

3.1 Chair transporters for cycling

Chair transporters are adaptive cycling vehicles designed to safely transport individuals who remain seated in a wheelchair or specialized chair while being moved by a cyclist or power-assisted system. These systems enable participation in outdoor mobility and social activities for individuals with limited or no independent pedaling ability.

Chair transporters are especially valuable for enhancing inclusion, access to public spaces and thus, quality of life.

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3.2 Power-assisted bikes

Power-assisted bicycles are equipped with an electric motor that provides pedaling assistance, reducing physical effort while maintaining active participation. The level of assistance can be adjusted to match the rider's abilities and endurance.

These bicycles support individuals with reduced strength, balance limitations, or fatigue, and are effective tools for extending the riding distance, increasing independence and promoting regular physical activity.


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3.3 Sociable cycles (side-by-side)

Sociable cycles are bicycles designed for two or more users, allowing riders to cycle together either side-by-side or in tandem configurations. These cycles promote social interaction, shared physical activity, and communication between users, making them particularly suitable for individuals who benefit from assisted pedaling, guided steering, or social engagement.

Sociable cycles are commonly used in rehabilitation, community programs and inclusive recreation.

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3.4 Handcycles

Handcycles are human-powered cycles propelled using the arms rather than the legs. They are commonly used by individuals with lower-limb impairments and are available in recumbent, kneeling, or upright configurations.

Handcycles improve upper-body strength, cardiovascular fitness and endurance, and are widely used in rehabilitation, recreation, and competitive para-cycling.


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3.5 Tricycles (adaptive trikes)

Adaptive tricycles feature three wheels to provide increased stability and balance. They are suitable for individuals with balance impairments, neurological conditions, or those who are unable to ride a two-wheeled bicycle safely.

Tricycles can be configured with hand or foot propulsion and may include additional supports such as backrests or harnesses.

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3.6 Four-wheel cycles (Quadricycles)

Quadricycles provide enhanced stability through a four-wheel design and are often used for individuals with significant balance or coordination challenges.

They may include pedal or electric assistance and are frequently utilized, as well, in rehabilitation and assisted mobility programs.


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3.7 Recumbent bicycles

Recumbent bicycles place the rider in a reclined position with a larger seat and back support. This design reduces strain on the spine, neck, and joints while improving comfort and stability.

Recumbent bikes are particularly beneficial for individuals who have musculoskeletal conditions, chronic pain, or limited trunk control.

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3.8 Tandem adaptive bicycles

Tandem adaptive bicycles allow two riders to cycle together, typically with one rider (the pilot) controlling steering and braking, while the second rider contributes to pedaling as able.

These types of tandem bikes are often used for individuals with visual impairments, cognitive disabilities, or reduced coordination, promoting shared activity and social inclusion.


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3.9 Low-step and easy-access bicycles

Low-step or step-through bicycles are designed with a lowered frame, with the specific purpose of allowing easy mounting and dismounting.

These bicycles are suitable for individuals with limited mobility, joint stiffness, or reduced balance, increasing independence and confidence during cycling.

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ANNEX

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1. Exercise “City cycling”

Given the significant rise in cycling popularity in recent years, driven by its affordability, low maintenance costs and sustainability as a mode of transport in European cities, the European Cyclists’ Federation, in collaboration with Global Alliance of NGOs for Road Safety, published a Guide on cycling rules and good practices in 2020:

“Best Practice Guide – Safer Cycling Advocate Program”

Access the following link to explore the resource ↻
https://www.ecf.com/media/resources/2021/SCAP_BEST_PRACTICE_GUIDE_%5BWEB%5D.pdf

After exploring the integrative reading, try to answer the following questions about some article’s curiosities, as self-assessment or as part of a group discussion.

Question 1 / Page 9

What exactly are the so-called “Pedelecs” or EPACs? Do you think they have high potential for being employed for disadvantaged youths? Why?

Question 2 / Page 13

What is the “dooring” incidents phenomena? Have you ever heard of it?

Question 3 / Page 37

What kind of “tension” is created by bus-lane sharing between buses and bicycles? Is it a problem in most European countries?

Question 4 / Page 40

What are the “Cycle streets” and how do they differ from cycle-lanes? Do you believe they are a good idea to replicate more widely?

Question 5 / Page 48

Which are the two types of “bike assessment” required by the Road Worthiness Directive (Brussels, 2018)? Are they applied across all EU member states?

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2. Exercise “Mountain cycling”

Mountain cycling and adaptive technologies can come together to open a new chapter in the history of adaptive cycling: adaptive mountain biking.

Although adaptive cycling is more commonly associated with urban environments, adaptive mountain bikes can also play a meaningful role in supporting the well-being of disadvantaged young people in an inclusive and empowering way. These bikes can be customized to meet the specific needs of individuals with disabilities, while offering all the physical and emotional benefits that a ride through the heart of nature can offer…

Watch the following video, published by “Developing Mountain Biking in Scotland” in 2023, and discuss the broader potential benefits that group cycling activities in nature’s embrace, beneath the open skies, can provide for disadvantaged youths, including those with disabilities as well as other forms of disadvantage. But remember to focus on positive aspects: ways to promote their abilities and cycling advantages.

“Adapting Mountain Bike Leadership – Training to help more disabled riders experience the trails”

YouTube link ➲ https://www.youtube.com/watch?v=cGsJfEEupPo

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Cycling knowledge

Cyclos Guide

Advanced Cycling Techniques

Module 3

CYCLOS Erasmus +

Cycling for Inclusion

Project ID: 2025-1-FR02-KA220-YOU-000356369

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MODULE OVERVIEW

Module	**Advanced Cycling Techniques**
Summary	This module teaches people cycling techniques in a simple and practical way. It focuses on balance, control, braking, gear use, and safe riding in traffic. The module also helps people to understand how to choose safe roads, stay calm in busy areas, and make good decisions on the road. The activities support inclusion, confidence, and independence. Through easy exercises, videos, role-play, and maps, participants learn how to ride safely and smoothly in different real-life situations.
Learning Outcomes	• *To improve balance, control, and safe handling of the bicycle.* • *To learn how to use gears, brakes, and body position correctly.* • *To understand basic traffic rules and safe behaviour on the road.* • *To build confidence when riding in traffic or difficult situations.* • *To plan safer cycling routes and make good decisions when riding.*

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INTRODUCTION

This module was created to help people improve their cycling skills in a simple, clear, and practical way. Many people want to ride a bicycle safely but do not know how to control the bike well, use gears, brake correctly, but also the most important point is to feel confident in traffic. They often face dangerous situations or cannot choose safe routes in their neighbourhood.

This module answers these needs by offering easy activities, demonstrations, and tools to understand cycling techniques. It includes exercises for balance, posture, braking, gears, and traffic situations. It also teaches stress management and safe decision-making. The module supports inclusion by helping people feel more independent and confident.

The main goals are to help learners control their bicycle better, understand how to ride safely in traffic, and build confidence through simple, step-by-step practice.

Chapter 1 – Bicycle Control and Handling

Chapter overview

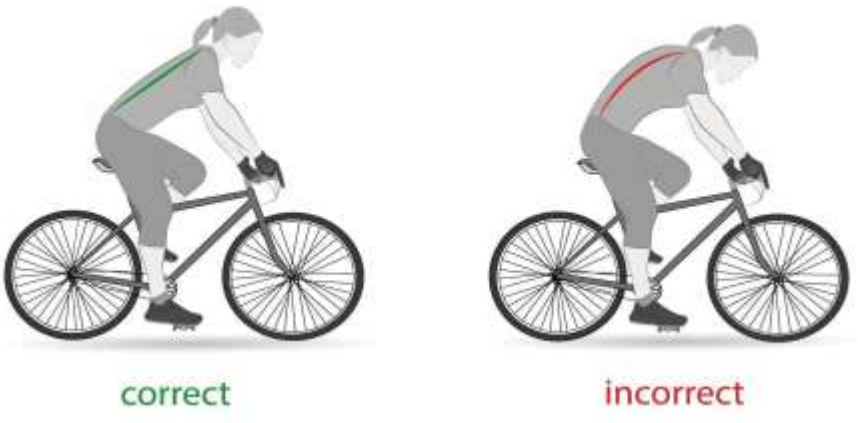
This chapter focuses on developing fundamental and advanced bicycle control skills. Participants learn how body position, balance, and coordinated movements affect stability and comfort on the bike. Through simple explanations and practical exercises, learners improve their ability to handle the bicycle smoothly in everyday situations, including low-speed riding and uneven surfaces.

Balance and Stability

Balance is the foundation of safe cycling. This image explains how balance works on a bicycle and how riders can improve it through posture.

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Practical activities should focus on slow riding, straight-line challenges, and maintaining stability when starting, stopping, or riding at low speed.

Key points:

- Looking ahead instead of down

- Keeping relaxed arms and shoulders

- Using small steering corrections

Body Position and Posture

Correct body position helps riders control the bike and avoid fatigue or pain. It is important to check saddle height, hand position, and how to shift body weight when turning or riding over obstacles. In a practical activity, participants should analyse their posture and practice adjustments to feel more comfortable and confident.

Key points:

- Neutral riding position

- Weight distribution between saddle, pedals, and handlebars

- Adapting posture for climbing, turning, and braking

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Steering and Manoeuvring

Another practical activity can introduce steering skills needed in real environments, such as narrow paths, corners, and crowded areas. Learners practice controlled turns, slalom exercises, and precise riding to improve coordination and confidence.

- Smooth steering movements

- Turning at different speeds

- Avoiding sudden or sharp corrections by anticipating the journey ahead

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Chapter 2 – Braking and Gear Use

Chapter overview

This chapter helps participants understand how to use brakes and gears effectively and safely. Correct braking and gear selection improve control, reduce risk, and make cycling more comfortable. The chapter combines simple theory with hands-on practice.

Safe and Effective Braking

Participants learn how different brakes work and how to use them correctly in normal and emergency situations.

Key points:

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- Using both front and rear brakes

- Progressive braking instead of sudden braking

- Braking before turns, not during them

Emergency Braking

This section focuses on reacting safely to unexpected situations. Through demonstrations and practice, learners improve reaction time and control while braking hard without losing balance.

Key points:

- Shifting body weight back

- Keeping arms slightly bent

- Staying calm under pressure

Understanding and Using Gears

Gears make cycling easier and more efficient when used correctly. It is important to explain when and how to change gears, especially on hills or in traffic. Participants practice choosing the right gear for different situations.

Key points:

- Changing gears before stopping or climbing

- Maintaining a comfortable pedalling rhythm

- Use lower gears when going uphill, higher gears when on flat ground or going downhill to gain speed

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IMPORTANT TO NOTE: For beneficiaries facing cognitive or learning disabilities it would be preferential to use a simple bike with limited gears

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Chapter 3 – Basic Traffic Rules for Cyclists

Learners are introduced to essential road rules, signs, and priorities relevant to cyclists.

Key points:

- Understanding signs and signals
- Respecting priorities and crossings
- Sharing the road with others

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Where are you allowed to cycle?	Where are you not allowed to cycle?
 Cycle path	 Road closed in both directions
 Cyclists excluded	 No entry in this direction
 Route for cyclists and mopeds only	 No access for bicycles or non-motor-powered invalid carriage
 Cyclists in both ways	 No access for bicycles, mopeds or invalid carriage
 Cycle path – optional	 Main highway
 Bicycle street	 Footpath
	 No access for pedestrians

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Practical exercises

Exercises will be chosen according to the availability of bikes, space etc.

A few examples of interactive exercises:

- Slalom course to improve bike control and steering.
- Slow race: improves balance and stability.
- Cyclist posture analysis helps adjust body position.
- ‘Spot the mistakes’ cycling game teaches safe vs unsafe behaviour.
- Emergency braking practice: improves safety
- Small road sign code quiz: reinforces basic rules.
- Test using gears to support efficient riding.

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Cycling knowledge

Cyclos Guide

Bike maintenance and safety checks

Module 4

CYCLOS Erasmus +

Cycling for Inclusion

Project ID: 2025-1-FR02-KA220-YOU-000356369

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MODULE OVERVIEW

Module 4	**Bike maintenance and safety checks**
Summary	This module introduces basic bicycle maintenance skills in a simple, practical, and inclusive way. Participants learn how to check their bicycle before riding using the ABC Quick Check, how to clean and lubricate key parts, and how to carry out basic fixes and maintenance. The module helps riders prevent breakdowns, improve safety, and feel more independent when using a bicycle in daily life. Activities are hands-on, visual, and adapted to different skill levels.
Learning Outcomes	*By the end of this module, participants will be able to:* ● *Perform the ABC Quick Check to ensure a bicycle is safe to ride* ● *Clean and lubricate essential bicycle components correctly* ● *Identify common mechanical problems* ● *Carry out simple fixes and basic maintenance tasks* ● *Know when to repair a bike themselves and when to ask for professional help*

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INTRODUCTION

A well-maintained bicycle is safer, more comfortable, and more enjoyable to ride. Many cyclists stop using their bike because of small mechanical problems they do not know how to fix. This module was created to give people simple and useful maintenance skills that build confidence and independence.

The module focuses on three main areas: checking the bike before riding, cleaning and lubricating important parts, and carrying out basic repairs and maintenance. All activities are designed to be easy to understand and practical, using real bicycles, pictures, and demonstrations. The module supports inclusion by reducing dependence on others and lowering barriers to regular cycling.

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Chapter 1 – The ABC Quick Check

Chapter overview

This chapter introduces the ABC Quick Check, a simple method to ensure a bicycle is safe before riding. Participants learn to identify safety issues early and prevent accidents caused by mechanical failure. **A first short video allows participants to know the correct name of their bike parts.**

A: Air

This focuses on checking tyre pressure and tyre condition. Participants learn how correct air pressure improves safety, comfort, and control using a short video.

Key points:

- Checking tyre pressure by touch or pump gauge
- Identifying worn or damaged tyres
- Understanding recommended pressure levels

B: Brakes

This section explains how to check that brakes work properly before riding. Participants practise squeezing brake levers and inspecting brake pads and cables. A short video is provided.

Key points:

- Brake levers should not touch the handlebars
- Brake pads should contact the rim or disc correctly
- Cables and hoses should be in good condition

C: Chain and Cranks

This subchapter covers checking the chain, pedals, and cranks. Participants learn how to spot loose parts and dry or rusty chains. Short videos are provided : chain, pedals.

Key points:

- Chain should move smoothly
- Cranks and pedals should be tight
- No unusual noises when pedalling

Chapter 2 – Cleaning and Lubricating the Bicycle

Chapter overview

Regular cleaning and lubrication help extend the life of a bicycle and improve performance. This chapter teaches simple routines using basic tools and products.

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Why Cleaning Matters

Participants should understand how dirt and water damage bicycle parts and how simple cleaning prevents wear and breakdowns.

Key points:

- Dirt increases friction and damage
- Clean bikes are easier to check
- Regular cleaning saves money

How to Clean a Bicycle

Regular cleaning should take place using water, brushes, and cloths.

Key points:

- Using mild soap and water
- Avoiding high-pressure water
- Cleaning frame, wheels, and visible parts of the bike

Lubrication Basics

Participants learn where and how to lubricate their bicycle correctly using a short video.

Key points:

- Lubricating the chain after cleaning
- Removing excess oil
- Never lubricating brakes or rims

Basic Fixes and Maintenance

Chapter overview

This chapter focuses on a common minor problems that cyclists can fix themselves:

Fixing a Flat Tyre

Participants learn the basic steps to repair or replace an inner tube using a short video.

Key points:

- Removing the wheel safely
- Finding the puncture
- Replacing or patching the tube

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Knowing Your Limits

Participants must understand that when a repair is too complex professional help is needed. A list of local workshops, NGOs, municipal services or charities should be provided.

Key points:

- Identifying mechanical issues
- Knowing local bike repair services
- Prioritising safety over improvisation

Practical exercises:

Using the short videos, a bike and the necessary tools, participants should try for themselves:

- Knowing your bike parts to identify a problem
- Tyre pressure check using pumps
- Cleaning and lubricating the chain
- Flat tyre repair demonstration
- Checking the pedals
- Checking the breaks

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Cycling knowledge

Cyclos Guide

Confidence on the street

Module 5

CYCLOS Erasmus +

Cycling for Inclusion

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MODULE OVERVIEW

Module	**Module 5 – *Confidence on the Street***
Summary	*This module is based on the final psychological and physical barrier in the transition from a protected environment to the chaotic reality of the street. The module combines the principles to ensure that disadvantaged young people (migrants, people with disabilities) feel like equals in traffic. The focus here is not on technique, but on positive reinforcement, the formation of skills such as patience and decision-making under stress, and maintaining calm in aggressive environments. The module does not throw participants directly into chaos; on the contrary, it works on the principle of gradually showing real-world scenarios. The module also teaches participants what to do in the event of an accident or injury so that people can provide first aid. The main goal of the module is to transform the participant from an ordinary cyclist into an urban pilot who knows his rights, is prepared for emergencies and participates as an equal member of the traffic*
Learning Outcomes	• *Strategic Positional Authority: Instead of hiding on the side of the road or squeezing into a corner for safety* • *Psychological armor and communication: Cyclists' ability to manage aggression or fear and confidently convey their rights to the other side.* • *Inclusive Navigation: The ability of people to freely navigate the city's non-accessible infrastructure (ring roads, tram lines), regardless of their level of disability (whether they use tandem or hand bikes). Also, using parks and greenways as strategic escape routes to avoid traffic.*
Key words #hashtags	*#cycling #inclusion #greenmobility #confidence #safety #streetdiplomacy*

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INTRODUCTION

Technical skills like pedaling and maintaining balance are taught in most cycling training programs, but the most crucial question is left:Will these skills, learned in a quiet environment, be enough to prevent getting stuck in actual chaotic traffic? In addition to being a place to drive a car, the streets present a number of psychological challenges for socially vulnerable groups, such as immigrants, refugees, and young people with disabilities. The experience is different even though the asphalt is the same. In heavy traffic, young people who ride flawlessly may "freeze in fear" when they hear a truck's horn approaching from behind. The goal of this module is to remove the "freezing moment" and change the participant from a passive to an active cyclist. A main barrier for vulnerable groups is excessive cognitive load. An inexperienced cyclist spends 90% of his attention simply on maintaining balance and steering the bike, leaving only 10% of his mental energy to monitor the surrounding road conditions and dangers. This imbalance poses a danger. Reversing this imbalance is the goal of this module. Making physical movements a habit is the aim. This allows the participant's mind to concentrate on evaluating the street situation rather than riding the bike. We also discuss the "Invisible Cyclist" syndrome. The majority of accidents happen when a cyclist hesitates and is unpredictable to other drivers rather than when they make a mistake. The "Assertive Predictability" technique, which we teach in this training, aims to convey to the driver that "I am here and I know what to do" before a confrontation occurs.

Needs Analysis: Studies show that the main reason why vulnerable groups refuse to ride a bike is not physical incompetence, but the lack of accessible spaces. They do not feel that they belong on the street. This module applies the "Proactive Trust" model: anticipating danger instead of reacting to it. We teach participants that street safety is not about being invisible, but about being visible and demanding your rights.

The module is based on the "Positive Reinforcement and Patience" methodology for trainers. The goal is not to plunge participants directly into chaos. Instead, the training is built around the principle of gradually introducing real-world scenarios. The module is based on three main pillars:

Visibility is a strength: Don't hide in dark corners, move and make eye contact with the driver.

Eco-Intelligence: The shortest way on the map is not always the best route for cyclists. We teach participants green routing: choosing parks and quiet streets instead of noisy and carbon-filled areas. This choice not only protects lung health, but also calms the mind by avoiding aggressive traffic

Emergency Preparedness: Teach basic first aid skills to overcome the fear of not knowing and save lives for others.

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By the end of the module, the participant should no longer be someone who says "let me pass", but an independent, self-confident individual who says "I am moving here because it is my right". Participants will strategically implement safety rules.

SREET DIPLOMACY

This chapter teaches participants to speak the language of the street fluently. Street Diplomacy is the art of moving without confrontation with drivers, but without compromising one's right to be on the road. The goal is not to form adversarial relationships in the traffic environment, but to promote cooperation based on the principles of mutual understanding. Participants must overcome psychological barriers and understand that they have the same right to move on the road as drivers. This chapter focuses more on mental preparation and choosing the right position than on technical maneuvers.

1.1 The Psychology of Fear and Positive Reinforcement

Fear of traffic is not only a physical danger, but also a serious psychological obstacle for particularly vulnerable groups (migrants, refugees or traumatized young people). A study conducted by Bikeygees e.V. with refugee women shows that in moments of fear, a person's cognitive and motor skills freeze, which increases the risk of accidents in real traffic (Bikeygees e.V., n.d.). Therefore, trainers should apply the "Positive Reinforcement" methodology. It is forbidden to criticize a participant when he makes a mistake; instead, every small success (for example, braking at the right time) should be praised.

Along with mental preparation, physical alertness is a key condition for safety. One of the most common mistakes among cyclists is wearing headphones. In traffic, danger often comes from behind and it is possible to hear the sound of an approaching car before you see it in the mirror. Therefore, this topic will be specially mentioned during the training.

The second important point is to use the bicycle's lights. Even during the day or in cloudy weather, using lighting devices makes it easier for drivers to see the opposite side. When the driver sees the light signal, he increases his attention and maintains a safe distance when maneuvering.

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One of the mistakes made by cyclists is to ride too close to the curb in order to feel safe (driving in the gutter). However, safety statistics prove the opposite. According to the Road Safety Society of Great Britain (ROSPA), approximately 10-15% of cycling accidents in urban areas are caused by the sudden opening of doors of parked cars (doors that open). For this reason, the European Cyclists' Federation (ECF) encourages cyclists to ride at least 1.5 meters away from parked cars (European Cyclists' Federation, 2022).

This process should also be linked to human rights education. According to the Council of Europe's "Compass" guidelines, young people should be explained that they have the right to use public space and move around safely (Council of Europe, 2023).



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1.2 The Art of Communication: Broadcasting Intentions

Traffic is not just rules, but interpersonal cooperation between road users. This section focuses on street diplomacy which is the ability to communicate the situation on the road without resorting to aggression. Safe cyclists do not just follow the rules, they also actively communicate with drivers.

The most effective tool for safety is human interaction. Direct eye contact at intersections or when stopped in a car forces the driver to see the cyclist and to help if necessary in an emergency. This simple action significantly reduces the risk of the driver suddenly stepping into the cyclist's path.

A confident cyclist also communicates with all his body language in advance what he is going to do.

For example, changing your body position before starting to turn or change lanes is a very powerful warning. Simply keeping your head up, looking over your shoulder, and stopping pedaling for a moment sends the message to the driver behind you, 'Be careful, I'm going to make a maneuver now.' This silent communication is very important in traffic, because the driver is aware and ready before you even start moving.

The main goal of this subchapter is to make your behavior completely clear and predictable to drivers. When drivers know exactly what to do when cycling, stress is reduced and dangerous situations are avoided. Participants are taught that being aware of their actions is not passivity; on the contrary, it is the most decisive way to ensure their own safety on the road.

2. Managing Real-World Risks

The transition from theory to practice will be in this chapter. The main goal of this chapter is to teach participants not only the driving rules, but also to predict possible mistakes of other road users. For this reason, the chapter is based on two main angels: strategic decision-making to avoid an accident and first aid awareness to manage the possible accident. The principle of simple to complex is applied in the teaching process, and participants are gradually introduced to real-world scenarios.

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2.1 Navigating Complex Intersections

Intersections are the most difficult points for cyclists. According to European Commission reports, 75% of bicycle accidents occur at intersections. The main focus of the training should be on eye contact. If cyclists cannot see the driver's eyes, they cannot see cyclists. The sequence of Look -> Signal -> Position -> Movement should be taught for each maneuver. Trainers can test the behavior of participants by simulating real-world scenarios. The goal is to be able to anticipate the mistakes of other road users and to get soft skills.

Participants will be informed about the dangers of blind spots. It is dangerous to drive on the right side of cars, especially trucks and buses, that are stopped at traffic lights. Drivers often do not look in their side mirrors when turning right, which can lead to accidents. Trainers should explain that if there is no cycle lane and the road is narrow, the safest option is to stand behind the last car. This position makes the cyclist fully visible.

Cyclists also need to be able to cross the lane at intersections. Cyclists often ride on the sidewalk, which can make it dangerous for cars to cross the intersection. Participants should learn that approaching a roundabout or narrow junction in the center of the lane is the safest option. This prevents drivers from making potentially dangerous overtaking maneuvers and ensures that the cyclist is fully visible in the driver's windshield. This helps to eliminate the problem of hiding on the side of the road.

The most difficult maneuver at intersections is the left turn position. Two different approaches can be used for this position. For experienced cyclists, a direct turn into the flow of traffic may be appropriate, but for less experienced participants, a two-stage turn - the Copenhagen turn - is recommended. In this technique, the cyclist first goes straight ahead to stop at the next corner, turns the bike to the left and continues when the traffic lights change. This method allows the participant to turn safely without stressing out in traffic.

2.2 Emergency Confidence: First Aid Awareness

An important part of street confidence is answering the question: Do I know what to do in a worst-case scenario? Although participants in this unit do not receive a full medical course, they are taught the PAS Protocol based on the recommendations of the British Red Cross (British Red Cross, 2023):

P - Protect: In the event of an accident, the first thing to do is protect yourself and the area and move bicycles out of the way.

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A - Alert: Calling emergency services (112) and report the exact location.

S - Help: Do not move the injured person; speak calmly and manage their stress (ensure they can breathe and use other breathing techniques). This knowledge boost participant's self-confidence and makes them a responsible road user.

Cyclists will learn the appropriate medical care in case of an accident:

- *Road Rashes and Burns (21% Risk): Cyclists often suffer from friction burns after slipping on the asphalt. In this case, it is not necessary to apply cream immediately, but it is necessary to lightly cover the injured area to prevent infection.*
- *Fractures (Upper Limbs): When a person falls, they reflexively throw their arms forward to protect themselves, as a result, all the impact falls on the arms and the bones are broken. If an arm is broken or bent at this time, do not try to straighten it, it is necessary to simply keep it still so that no further damage occurs until the doctor arrives*
- *Unconsciousness and Cardiopulmonary Resuscitation: In severe cases, if the rider loses consciousness and has difficulty breathing, the concept of heart massage is introduced. With a rhythm of 100-120 beats per minute, it can save a life until the ambulance arrives.*
- *Hypothermia: The risk of hypothermia is real for cyclists stranded on the road in winter after an accident or technical failure. A "gold foil blanket" should be an essential part of their kit.*



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2.3 Consistency and Co-existence

In this chapter, various strategies are applied to ensure that the skills learned are not forgotten and become part of daily life. Social integration and psychological resilience are key themes. Trainers will teach participants that they are not alone and which techniques to use in stressful situations.

3.1 Stress Management: De-Escalation Techniques

Driver aggression is one of the most common situations in urban environments. Trainers should teach participants the Power of Not Reacting. Responding to an aggressive driver only makes the situation worse. The safest way is to take a deep breath, break eye contact, and calmly continue on your way. If there is any threat, the cyclist should immediately step onto the sidewalk and wait until the driver has passed. The term de-escalation means reducing tension, preventing a fight. Let's look at possible tense situations based on real scenarios and get acquainted with the following de-escalation techniques.

When a driver sees a cyclist making a sudden move on the road (for example, a sudden turn), he is first afraid. In human psychology, fear often turns into anger (the driver starts to signal or shout). Many times, the driver gets angry when he does not understand why the cyclist in front of him is slowing down: why is he stopping? He thinks that he cannot drive. But when the cyclist signals "Stop" with his hand, the driver thinks: Oh, there must be an obstacle ahead or he will turn, so he stops in a planned way.

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3.2 The "Buddy System" for Social Integration

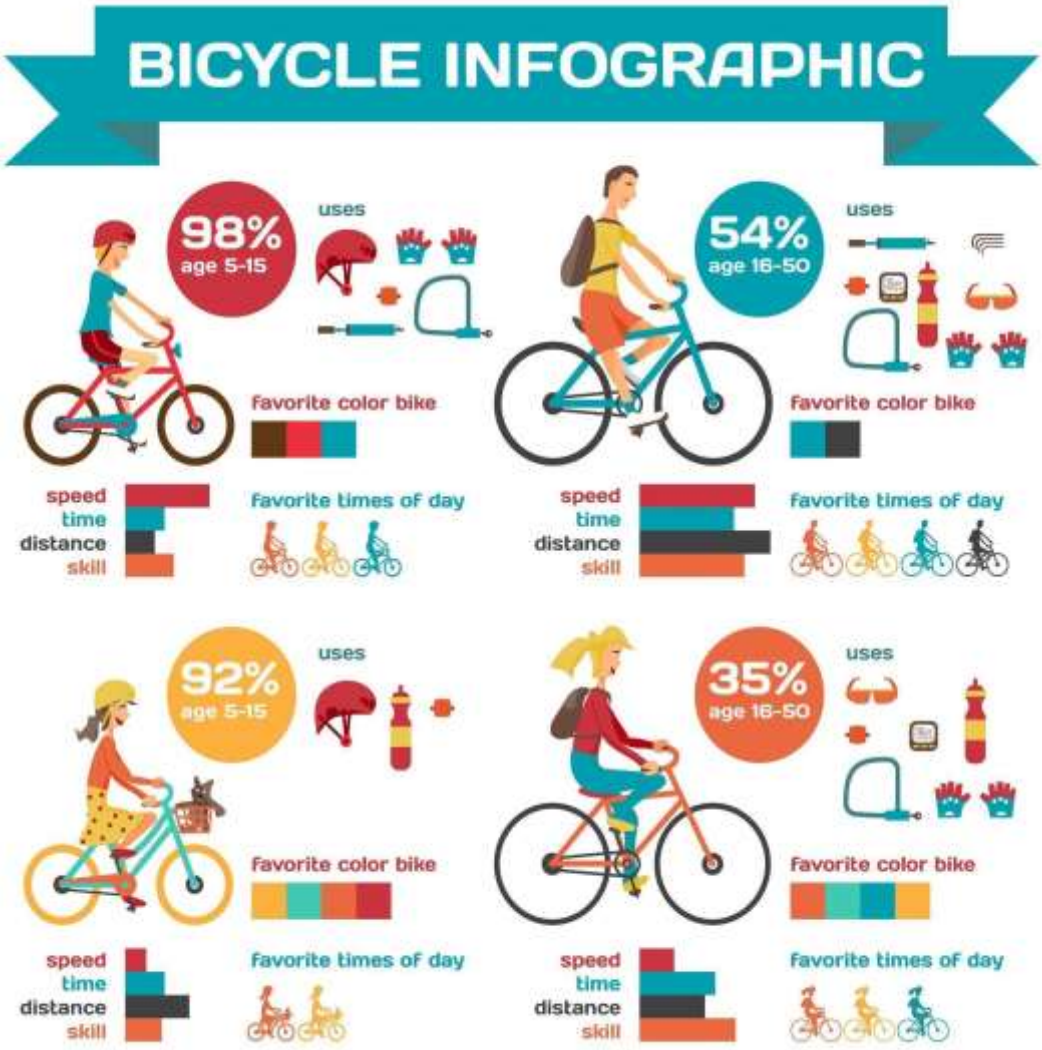
Continuity is essential to ensure that the skills learned are not forgotten. Inspired by the HUB Cycling program in Canada, this module uses the buddy system. When a person starts cycling alone, they may be afraid and discouraged by the first difficulties (for example, when a car signals or in traffic). However, when they have an experienced mentor or group with them, they feel protected, correct their mistakes immediately and enjoy the process. When cycling, it is necessary to choose parks and quiet streets, not just shortcuts. According to the World Health Organization (WHO), moving in green areas rather than between concrete buildings reduces stress and has a positive effect on mental health. According to statistics, while 98% of children aged 5-15 ride bicycles, this figure is 54% among adults (aged 16-50). The reason for this is the fear of traffic.

The "Buddy System" was created precisely to eliminate this fear. Unlike children, adults focus on "safety" rather than just riding. The mentor's job is to teach participants to apply the balance skills they learned as children in an urban environment. For beginners, not knowing what equipment (pump, lock, helmet) is essential is a barrier. Trainers help the participant make the right choice and overcome their technical ignorance. To ensure that participants become confident cyclists, the training must end with a role-changing task. At this stage, participants no longer follow the mentor; instead, they start cycling a short distance. The guidance encourages the participant not only to turn the pedals, but also to choose the right path, for example, parks and quiet streets, and to regulate the speed. The process switches person from a passive

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follower to an active leader, which is considered the final and most important psychological step to become an urban pilot



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Exercises

Answer the questions

Q1. You are cycling on a narrow street and there is no safe space for a car to pass by. Which position is then the safest?

A) Riding to the corner of the road

B) Riding on the sidewalk

C) Staying in the middle of the lane

D) Stopping and getting off the bike immediately

Correct answer: C

Q2. What should be the minimum distance when passing parked cars to avoid an opened door?

A) 0.5 meters

B) 1.0 meters

C) 1.5 meters

D) It doesn't matter if you are driving slow

Correct answer: C

Q3. Regarding the module, what should you do in case of an aggressive driver beckoning you?

A) Scream and explain your rights

B) Will not give any reaction, breathe in and out

C) Slow down and teach them driving etiquette

D) Accelerate to get away

Correct answer: B

Fill in the gaps

Complete the sentences using the following words: Intentions, Eye Contact, Blind Spot, Predictable, Pressure Reduction

If you can't see the driver's eyes in the mirror, you're probably in their _____

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(Answer: Blind Spot)

The most effective way to reduce conflict on the street is to make your driving style _____

(Answer: Predictable)

You should _____ before entering an intersection

(Answer: Eye Contact)

Hand signals are a way to convey your _____ to other road users

(Answer: Intentions)

Taking a deep breath and ignoring rude behavior is a form of conflict _____

(Answer: De-escalation)

Include links to external resources (e.g. YouTube video, article) as additional reading material + questions for self-analysis or group discussion

Real World Scenario

Research Scenario: You are waiting at a red light. The light turns green and it takes a few seconds for you to start pedaling. The car behind you is honking and revving its engine. You feel your heart rate increase and you become agitated

Assignment:

Identify the immediate risk (Physical and Emotional).

How would you apply the de-escalation strategy from Section 3?

What is the safest course of action to take to get out of the situation?

Answer Identify the immediate risks: there is both a physical risk here, where you could hurt yourself if you make the wrong move, and a high emotional risk. Panic can lead to driving at the wrong speed, which can lead to a fall

Train yourself to reduce tension: reacting too quickly creates a struggle. Take a deep breath to slow down your heart rate. Don't view the signal as a personal attack, just noise

Safest action: The cyclist should not panic but continue to pedal slowly. If the vehicle driver does not stop being a nuisance, open the right signal, go off the road and let the driver go. Your main concern is the safety of both you and the driver, not correcting them.

Group Discussion: Share your experience of a moment when you felt unprotected in traffic. What steps would you take now that you have gone through Module 5 to prevent or manage such an event?

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New Case Study: Lingering Confusion on a Roundabout Scenario: A roundabout is ahead. Your destination is exit 3 for a left turn. A vehicle is speeding in from the left. You feel like shifting towards the right side of the road to let the car pass. But this very spot places you at the crossroads of car exits.

Task: 1. Identify the situation: What makes it particularly dangerous to keep right here?

2. Decision-making: What does it mean when it is said to be the baseline in this context?

3. Action: In what way do you make it known to the driver behind you that you are going round the roundabout?

Correct Answer / Solution: The hazard was identified: Keeping to the right causes cars to cut you sharp to the exit of the roundabout creating a risk of collision. You become unnoticed to drivers approaching from other sides.

Baseline: Stay in the middle of the lane before entering the roundabout if you do not want to be overtaken.

Movement: Look at the driver on your left, make a clear hand signal, and go into the roundabout with your part when there is a space.

Passive vs. Confident Cycling

Problem	Confident Action / Solution
Hearing a car horn aggressively behind you	Stay calm, maintain your line, do not swerve to the curb.
Cycling on a narrow road with no space for cars to pass	Take the "Primary Position" (center of the lane) to prevent unsafe overtaking.
Approaching an intersection where a driver is waiting.	Make direct eye contact to ensure the driver has seen you.

The 3 Golden Rules of Communication

Always make eye contact with drivers at junctions.

Use clear hand signals 5 seconds before turning.

Use your voice ("Hello!", "Watch out!") if necessary.

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Positioning for Safety

Primary Position: Ride in the center of the lane when the road is narrow.

Secondary Position: Ride 1 meter from the curb when the road is wide.

Door Zone: Never ride within 1.5 meters of parked cars.

Managing Stress (De-escalation)

Take a deep breath if a driver is aggressive.

Do not shout back or make rude gestures.

Pull over to a safe place (pavement) if you feel overwhelmed.

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