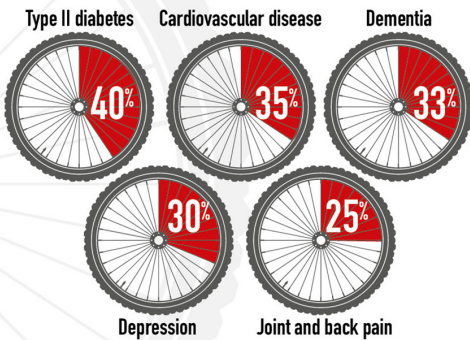


The Benefits of Mountain Biking



Being physically active reduces your risk of:



Reference: Associations of specific types of sports and exercise with all-cause and cardiovascular-disease mortality: a cohort study of 80,306 British adults. British Journal of Sports Medicine 2017

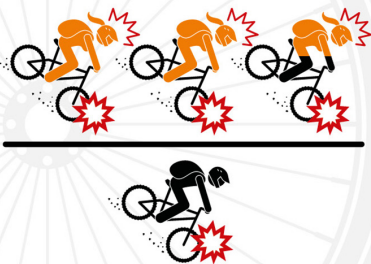
Cycling Reduces Death Rate

Regular cycling reduces your risk of dying in a given period of time by 15%, compared with a non-active population



Reference: Associations of specific types of sports and exercise with all-cause and cardiovascular-disease mortality: a cohort study of 80,306 British adults. British Journal of Sports Medicine 2017

MTB Injury Stats

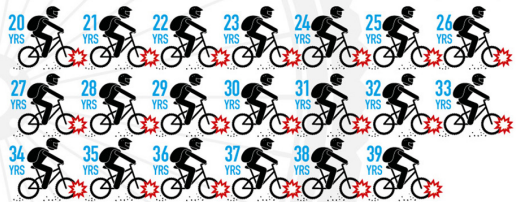


Women are 2.6 x more likely to be injured compared to men

References:
 ● Acute injuries in cross-country and downhill off-road bicycle racing. Medicine and Science in Sports and Exercise 1996
 ● Mountain Biking Injuries: A Review, British Medical Bulletin 2008

MTB Injury Stats

Young male riders between ages 20–39 years have the highest injury rate



References: ● Acute injuries in cross-country and downhill off-road bicycle racing. Medicine and Science in Sports and Exercise 1996 ● Mountain Biking Injuries: A Review, British Medical Bulletin 2008

MTB Injury Stats

Competition = 4 times more risk of injury than during training



References: ● Acute injuries in cross-country and downhill off-road bicycle racing. Medicine and Science in Sports and Exercise 1996 ● Mountain Biking Injuries: A Review, British Medical Bulletin 2008

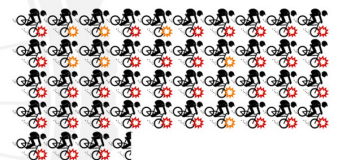
MTB Injury Stats

Injury rates are 43.4 riders per 1000 hours downhill racing

Injury rates are 3.7 riders per 1000 hours cross country



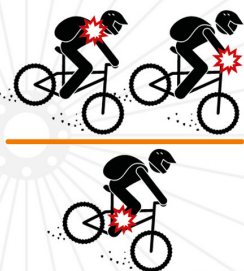
1000 hrs



1000 hrs

Reference: Mountain Biking Injuries: A Review, British Medical Bulletin 2008

MTB Injury Sites



2/3 of acute traumatic injuries affect the upper extremity

Reference Mountain Biking Injuries. Current Sports Medicine Reports 2017

How and Where Do MTB Injuries Happen



90% of mountain biking injuries are traumatic ie. due to a fall



81% traumatic injuries occur during a downhill section

Reference: Traumatic injuries in off-road bicycling. Clinical Journal of Sport Medicine 1994

The Benefits of Mountain Biking

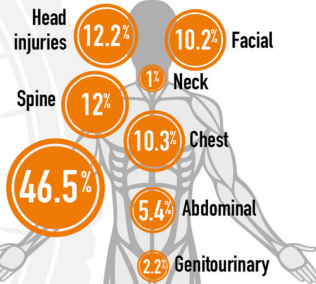


Traumatic Injuries Include

Soft-tissue abrasions, lacerations and bruises

60-75%

Injuries to bones and joints



Reference: Mountain biking injuries requiring trauma center admission: a 10-year regional trauma system experience. Journal of Trauma 2006

Elite vs Amateur Mountain Bikers

	Elite/Competitive Riders	Amateurs/Recreational Riders
% of injuries that were SEVERE	66.5%	63.4%
Bone fracture	39.9%	34.1%
Joint injury	26.6%	24.4%
Concussion	0%	4.9%

Reference: Injuries in Male Elite and Amateur Mountain Bikers: Results of a Survey. Journal of Sports Science and Medicine 2019

Impact of MTB Injuries on Participation



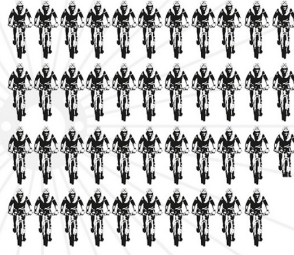
67% of recreational riders with high levels of pain continue to ride

89.6% of overuse injuries occur during training



Reference: Common Injuries in Cycling: Prevention, diagnosis and management. South African Family Practice 2014

Impact of MTB Injuries on Participation



42.8 DAYS

is the average time off cycling for severe overuse injuries

Reference: Common Injuries in Cycling: Prevention, diagnosis and management. South African Family Practice 2014

Impact of MTB Injuries on Participation

3.7 MONTHS is the average length of time overuse injury symptoms persist



Reference: Common Injuries in Cycling: Prevention, diagnosis and management. South African Family Practice 2014

Physical Therapy Can Reduce MTB Injury Rate and Impact



Correct bike set up



Fitness, conditioning, strength training



Education and nutrition



Rehabilitation and recovery

Role of Bike Fit in MTB Injury Prevention



A 5% difference in saddle height can affect knee joint kinematics by 35% and joint moments by 16% - that is the loading and shearing forces through the knee that could relate to injury.



A 10° to 15° change in anterior tilt of the saddle can eliminate or reduce low back pain in 73% of cyclists.

References: Cycling injuries of the lower extremity. Journal American Academy of Orthopedic Surgery 2007. Relationship Between Body Positioning, Muscle Activity, and Spinal Kinematics in Cyclists With and Without Low Back Pain: A Systematic Review. Sports Health 2017

Role of Strength and Conditioning in MTB Injury Prevention

Core fatigue can impact: Cycling efficiency with peak work (joules) reduced by (crucial for longer races) **43%**

Cycling performance by reducing peak torque by and power output by **33%** and **38%**

Increase ankle motion by **48%** and knee rotational motion by **54%**



All of which increase the risk of joint injury and falling

Reference: Relationship between cycling mechanics and core stability. Journal of Strength and Conditioning Research 2007