

Beyond Better.



The Problem-Solving Guide
for Pain-Free Cycling.



Beyond Better.

The Problem-Solving Guide
for Pain-Free Cycling.

developed by



Ergon enhances the enjoyment of cycling – because discomfort, performance losses, and pain shouldn't be accepted by any cyclist.

The experts at Ergon develop every bicycle component according to the "Ergon Method", where the ergonomic problem and solution is never left to chance at any stage in the process. The three departments of Ergonomics, Design and Engineering work closely together and adhere to scientific principles – developing the best possible solutions for bike-specific and physiological problems.

We only have one goal:

To make every experience on the bike Beyond Better.

Content

The Ergon Method.....8

Grip

Numb fingers or pain in the palm	12	In technical riding styles that feature strong impacts and require added bike control, muscle fatigue and pain in the forearms can quickly occur.	26
Highly sensitive fingers, often paired with pain, stiff neck, and shoulder pain	20		

Sitting

Uncomfortable sitting and numbness or pain in the genital area	36	The prostate is irritated or hurts when riding	56
Pressure pain on the outer edge of the saddle	44	Joint pain in the lower back area	62
Friction on the inside of the thigh leads to skin irritations and reduces power transmission when pedaling.	48	Unstable sitting position when riding uphill on an e-mountainbike	68

Content

Pressure on the sit bones
leads to pain.
..... 74

Pedaling

Discomfort and pain
in the knee
..... 82

When using cleats, one-
sided pain in the knee or
foot can occur.
..... 94

Numbness in the foot
..... 88

Overall Ergonomics

Ergonomic problems at the
contact points can interact to
cause widespread pain,
for example in the back,
shoulders, or knees.
..... 102

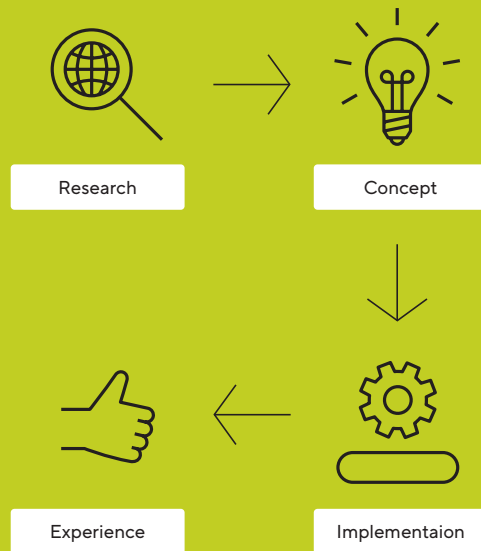
Stiffness and restricted
mobility in the neck and
shoulder area, as well as pain
in the supporting muscles
..... 106

Tension pain in the knee
or sharp pain on the inside
or outside of the knee
..... 104



What is the Ergon Method?

The Ergon Method describes our complex approach in the research and development department. It provides verifiable positive results for every problem in the specialty of cycling ergonomics. We start at the root of the problem and develop the best possible solutions with extensive technical and medical expertise.



Research

Problem Statement

- Scientific work
- Comprehensive basic research
- Detailed analysis of specific problem areas
- Collaboration with experts from medicine and sports
- 10,000+ dynamic seat pressure measurements

Concept

Development

- Transfer findings into concepts
- Build prototypes
- Intensive tests, continual improvement and refinement
- Collaboration with numerous top athletes

Implementation

Material and Variation

- Pinpoint development of the ergonomically best product for the specific needs of different riders – suitable for the intended use – as well as the sports discipline
- Durable materials for sustainable products
- Sustainable production and packaging

Experience

Better Cycling

- More enjoyment from cycling
- No pain
- Better performance
- Continual development and improvement based on feedback
- Circular economy approach

Grip



Central
contact point for
control

10

11

“I often suffer from numb fingers and pain in my hands when cycling.”



Problem

Numb fingers
or pain in the palm



Cause

When cycling, a significant proportion of the body weight is supported by the hands. The use of standard round or presumably ergonomic grips can result in high pressure points, which can irritate the ulnar nerve. Furthermore, a bent wrist can lead to a pinched median nerve and compressed blood vessels, which can lead to carpal tunnel syndrome.

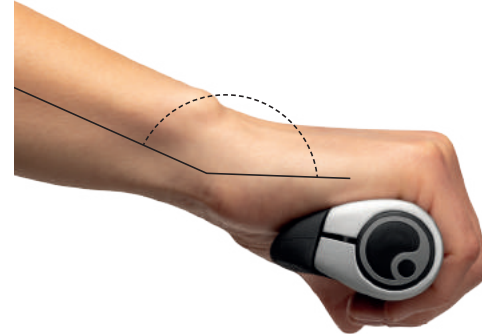
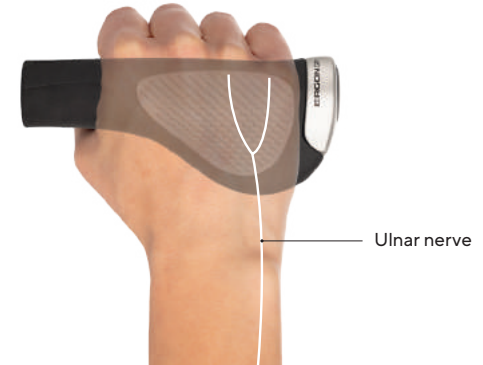
Solution

Ergon is the inventor of the ergonomic wing grip. This solution serves not only touring riders, but also athletic riders. Ergon offers grips with supportive wing solutions, ergonomic shaping, and damping features.



The contact surface of the grip has been enlarged to better facilitate the distribution of high pressure. The wing effectively prevents the wrist from over-bending. The precise use of high-quality materials provides additional damping and optimum grip comfort. Markings on the inner grip surface or clamp ensure simple and correct installation.

The wing grip enlarges the contact area for the hand. The pressure is distributed over a larger surface area, the ulnar nerve is relieved, and comfort is increased.



The wing design provides support for the hand, automatically aligning the wrist in an ergonomically optimised position.

Grip

Problem Solver

Made in
Germany



GPI Evo

- Prevents pain in the hand and wrist
- The evolution of the original comfort grip for touring riders
- Two rubber compounds of varying support and customised functional surfaces



Grip



Grip

Problem Solver



GT1

- Multiposition comfort grip for city/touring riders featuring 4 intuitive gripping positions
- Dynamic gripping by changing the hand-arm position
- Relief of the upper body
- Extra-large ergonomic wing for maximum pressure distribution and wrist support



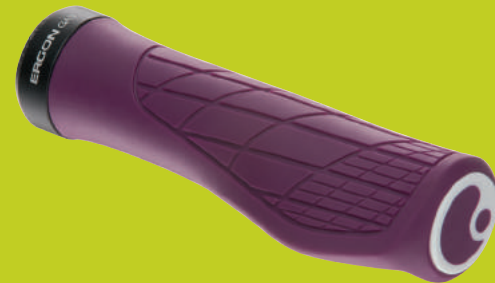
Grip

Made in Germany



GS1 Evo

- The ergonomic grip for sport and comfort
- Effectively reduces hand pain
- Designed for sporty touring and fitness bikes



GA3

- The best of both worlds – pressure relief meets freedom of movement
- MTB ergonomics with mini wing
- Super soft rubber compound – Made in Germany



“I often have pain in my hands extending into my shoulders and neck.”



Problem

Highly sensitive fingers, often paired with pain, stiff neck, and shoulder pain



Cause

Grips that do not allow the user to alter their hand position during the ride, or to distribute pressure on the hands in an ergonomic manner, lead to static grip positions and excess pressure on the hands. Furthermore, the entire supporting anatomy remains in a static position, which places additional strain on the shoulders and neck muscles.

Solution

Ergon offers numerous grips that allow dynamic gripping for relief. The GT1, for example, offers four different grip positions, which allow for reduced pressure on the hands. Ergon's bar ends also change the upper body angle and thus provide relaxation in the back/neck.



By altering the grip to different positions, the pressure is not consistently concentrated on a single area of the hands, which effectively prevents painful sensitivity. Additionally, dynamic gripping results in a change of upper body tilt, which also alleviates pressure on the back and shoulders.



Standard grip position



Thumb rest position



Palm position



Outer grip position

Problem Solver

**GT1**

- Multiposition comfort grip for city/touring riders featuring 4 intuitive gripping positions
- Dynamic gripping by changing the hand-arm position
- Relief of the upper body
- Extra-large ergonomic wing for maximum pressure distribution and wrist support

**GP3 Evo**

- Relaxes hands and back on longer rides
- Individually adjustable integrated bar end for alternate gripping positions
- No more pain in the wrists



“After a certain time, when mountain biking, I always develop pain in my forearms.”



Problem

In technical riding styles that feature strong impacts and require added bike control, muscle fatigue and pain in the forearms can quickly occur.



Cause

Grips that are too thin, without damping, lacking structural ergonomic zones, and with too large a circumference or wing, prevent efficient muscle work during technical maneuvers and powerful steering movements. This leads to premature muscle fatigue, also known as arm pump. This causes severe pain and a loss of strength in the hands and forearms due to an increase in pressure in the muscle tissue and muscle sheath, preventing sufficient blood flow to the tissue.

Solution

Ergon's Mountain bike grips offer individual shapes and textured surfaces that follow the hand's functional zones. Specially designed rubber compounds with adapted damping values ensure extended riding fun for demanding riders in all MTB disciplines.



An ergonomic, more rounded grip shape adapted to MTB use provides greater control, reduces muscle fatigue and improves both responsiveness and riding feel.



In technical mountain biking, an adapted ergonomic shape provides the optimal ratio of damping, grip, and freedom of movement.

Grip

Problem Solver



GDH Team

- Maximum control for ultimate speed
- Best ergonomics for less fatigue when riding technical downhill terrain
- Secure locked-in feeling thanks to inner and outer stops



Grip



Developed with
two-time Downhill
World Champion
Vali Höll

Grip

Problem Solver



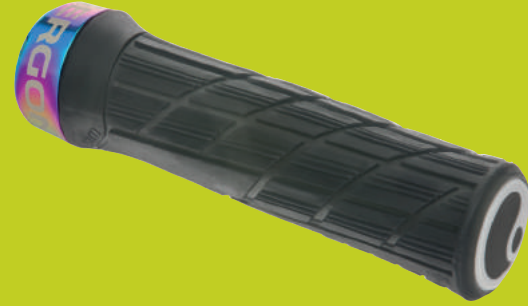
Made in
Germany

GXR

- Super light and ergonomic for XC-MTB racers
- AirCell rubber for unparalleled damping
- Grippy surface texture



Grip



GE1 Evo Factory Slim

- Full control
- Supports a race-oriented upper body/forearm posture
- Developed in the Enduro World Series

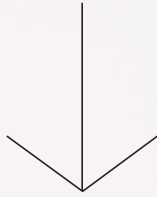


GA2

- Supersoft damping
- Maximum grip for trail riding



Sitting



Central
contact point for
comfort

Sitting

“On longer rides,
I often have a
numb feeling in
my crotch.”



Sitting

Problem

Uncomfortable sitting
and numbness or pain in the
perineal and genital area

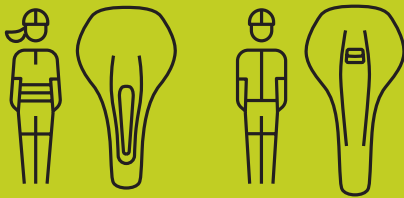


Cause

Due to the relatively small contact area of a saddle, the pressure on nerves and blood vessels in the perineal and genital area is very high. If the saddle is not ergonomically shaped – especially in the relief area – this pressure is further increased.

Solution

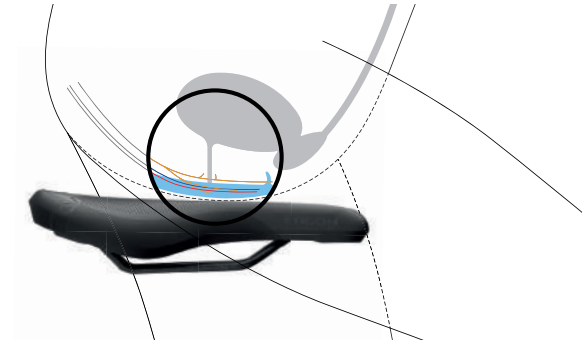
Ergon develops gender-specific solutions perfectly adapted to the respective anatomy and riding requirements. All saddles come in individual sizes and feature relieving channels, high-quality padding and low-friction surface materials.



The sensitive gender-specific perineal and genital areas are relieved of pressure. Ergon saddles are designed for dynamic sitting: the single level contact area offers the best freedom of movement for different sitting positions.

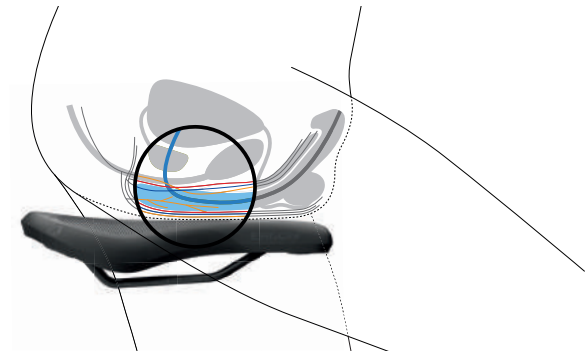
The female sitting area

Thanks to the forward position of the relief channel and the wide saddle flanks, the pressure is effectively distributed to the sit bone structures.



The male sitting area

The large, deep relief channel provides effective pressure relief in the sensitive perineal area and improves blood circulation in the penis.



Sitting

Problem Solver



Women

Made in Europe



Men

Made in Europe

SR Allroad Women & Men

- Best seating comfort for long rides and bikepacking tours
- Wider leg radius and slick side flanks for improved pedaling
- Pressure-relieving surfaces set up for athletic riding styles



Sitting



Women



Men

SMC Core Women & Men

- Relieves seat pressure on the MTB
- Prevents numbness
- Certified back-friendly



Sitting

Problem Solver



Women



Men

SF Sport Women & Men

- Specifically designed for fitness bikes
- Supportive yet comfortable padding
- Prevents numbness and seating problems



Sitting



Sitting

“Sometimes
my butt hurts
when I ride.”



Sitting

Problem

Pressure pain on
the outer edge of the saddle



Cause

Saddles that are too narrow do not offer enough contact surface to dissipate pressure; saddles that are too wide rub.

Solution

Saddles should be selected with the rider's sit bone width in mind. This way, they fit optimally to the shape of the respective pelvis, for both women and men.



The digital sit bone width measuring device, TS1 Digital, makes it easy to determine the correct saddle width. Ergon saddles are available in two widths (S/M and M/L) to cover the spectrum of sit bone widths.



It has never been easier to determine your individual sit bone width:

1. Sit down
2. Read sit bone width
3. Choose a suitable saddle (regardless of the brand)

“My thighs
chafe on my
saddle when
I ride.”



Problem

Friction on the inside of the thigh leads to skin irritations and reduces power transmission when pedaling.



Cause

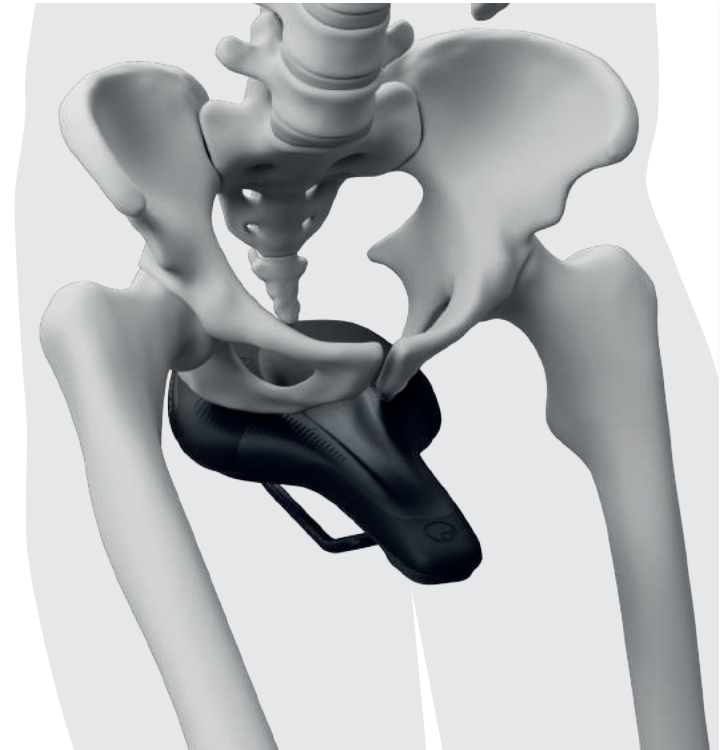
The saddle shape does not match the intended use of the bike or the riding position on the saddle.

Solution

Each application has different requirements and command its own seating positions. Therefore, specific saddle shapes are necessary to allow optimal pressure distribution and range of motion for natural pedaling movements.



Ergon saddles are designed in a complex development processes with a dedicated focus on ergonomic requirements of each respective cycling discipline. This is why there are different saddles for each discipline, optimised in terms of shape, padding and features to prevent specific problems.



A saddle not only needs to fit the gender and the respective sit bone width. The upper body position and cycling discipline influence the saddle shape as well. At Ergon, all of these are considered down to the smallest detail.

Sitting

Problem Solver



SM Downhill Pro Titanium

- The high-end saddle ridden by downhill superstars
- Developed on the DH World Cup
- Full freedom of movement, full control



SC Core Prime Men

- Relieves seat pressure in a very upright sitting position common on city and touring bikes
- Prevents numbness
- Certified back-friendly



Sitting



SR Allroad Women

- Best seating comfort for long rides and bikepacking tours
- Wider leg cut and slick side flanks for improved pedaling
- Pressure-relieving surfaces set up for athletic riding styles



ST Core Evo Women

- Relieves seat pressure on long tours
- Prevents numbness
- Tested back-friendly



Sitting

Problem Solver



SR Tri

- Revolutionary Power Position System: More speed on the bike and when transitioning to the run
- Less muscle fatigue thanks to area-specific ergonomic relief
- Project TRI: over three years of development of the SR Tri in collaboration with the world's best triathletes



Sitting

Developed in collaboration with Olympic Champion and 3-time Ironman Hawaii winner Jan Frodeno.



Sitting

“I feel pain in
my prostate
after longer
bike rides.”



Sitting

Problem

The prostate is irritated
or hurts when riding

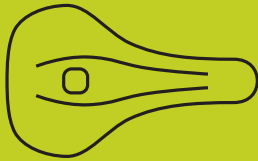


Cause

The male prostate enlarges with increasing age. This reduces the available relief area and the prostate can become irritated more quickly due to the pressure that occurs when riding a bike.

Solution

Generally, cycling does not affect the prostate. However, it is important to keep the pressure on the prostate as low as possible.



Ergon develops special men's saddles featuring a relief channel adapted to the perineal area and optimised padding. This reduces the pressure on the prostate and still enables dynamic sitting.



Large and deep relief channels in Ergon men's saddles keep the pressure on the prostate low.

Sitting

Problem Solver



SR Allroad Core Pro Carbon Men

- Authentic road bike feeling combined with maximum shock absorption
- The gravel saddle for high-end comfort on any surface
- Prevents numbness



SMC Sport Gel Men

- Deep relief channel designed specifically for the male anatomy
- Gel pads for more comfort
- Orthopedic seat foam designed for comfort on mountain bikes

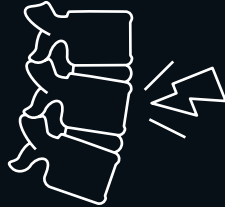


Sitting



Sitting

“When I sit on my bike, I quickly develop pain in my lower back.”



Sitting

Problem

Joint pain in the lower back area



Cause

Static activities in everyday life, like prolonged sitting, can cause tension in the lower back, spine and pelvis.

Solution

Saddles should be designed to adapt to the natural three-dimensional pedaling movement of the pelvis to ensure mobilisation of the lower back, which effectively reduces discomfort.

CORE 3D®

Natural Movement
& Shock Absorption

The Ergon CORE 3D® concept supports the natural pedal movement and thus ensures ideal movement with improved pressure distribution. The core material absorbs micro-vibrations and smaller impacts from the ground and reduces the strain on the lower back. All CORE3D® saddles are certified by Aktion Gesunder Rücken e.V. and IGR and have been tested according to the Froböse formula.



The seating surface adapts to the natural pedaling movements thanks to 3D mobility. The sit bones are relieved, the lower back is mobilized, thus pain, injuries, and unpleasant seat pressure are prevented.

Sitting

Problem Solver



SC Core Prime

Best comfort on bike tours in an upright city/touring sitting position



Sitting



ST Core Evo

Perfect comfort for demanding touring and travel cyclists



SMC Core

All-in-one seating comfort for your mountain bike



“When I ride uphill with my e-MTB, I am unstable on the saddle.”



Problem

Unstable sitting position when riding uphill on an e-MTB



Cause

Due to the motorised assist of e-MTBs, riders usually climb in a more upright position. As conventional saddles do not offer any rearward support, additional muscular engagement must be provided by the abdominal and back muscles to prevent the buttocks from sliding too far backwards on the saddle.

Solution

A special saddle shape is required for the use of an e-MTB, as conventional saddles provide little support to the rear.



Ergon e-MTB saddles have a upturned ramp at the back ensuring a stable riding position by supporting the pelvis in a comfortable way on steep, long or technically demanding uphill sections.



The ramp at the rear stabilizes the sitting position during long climbs.

Sitting

Problem Solver



SM E-Mountain Core Prime

- Prevents numbness
- Certified back-friendly
- Improves traction on uphill e-MTB rides



Sitting



“Sitting on the saddle is very uncomfortable and hurts my sit bones.”



Problem

Pressure on the sit bones leads to pain.



Cause

The hard shell of conventional saddles, which supports the seat padding, puts a lot of pressure on the soft structures underneath the sit bones. In particular, if the padding is too soft, the sit bones will sink deep into the saddle, and the rider feels the saddle shell in an unpleasant way.

A static sitting position and the resulting pressure puts too much stress on the tissue and without relief.

Solution

The correct design of the saddle padding, adapted to the intended application, ensures efficient, supportive, and thus problem-free pressure distribution. To avoid static sitting, the pelvis must be able to move and tilt freely on the saddle.

CORE 3D®

Natural Movement
& Shock Absorption

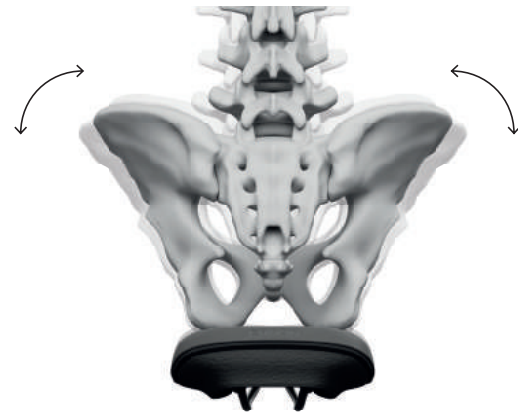
CORE HD®

Shock Absorption

The patented design of Ergon Core saddles, consisting of an ergonomic core (BASF Infinergy®) and the unique two-shell design, reduces the load on the soft structures beneath the sit bones by more than 50 percent compared to conventional saddles. The revolutionary saddle design is available as CORE 3D® for comfort-oriented riders and as CORE HD® for performance-oriented riders. In addition, a continuous, uniform saddle shape enables dynamic sitting and ensures the pelvis can assume variable positions along the entire saddle surface.



Dynamic sitting means the pelvis can move naturally and continuously over a large part of the saddle.



Ergon CORE 3D® saddles support the natural pelvic movement in all three directions when pedaling.

Sitting

Problem Solver



SR Allroad Core

- Authentic road bike feeling combined with maximum shock absorption
- The gravel saddle for high-end comfort on any surface
- Prevents numbness



78

Sitting



SC Core Prime

- Relieves seat pressure in a very upright city/touring sitting position
- Prevents numbness
- Certified Tested back-friendly



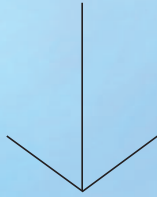
SM E-Mountain Core Prime

- Prevents numbness
- Certified back-friendly
- Improves traction on uphill e-MTB rides



79

Pedaling



Central
contact point for
power transmission

80



81

“I have knee
pain after
the ride.”



Problem

Discomfort and pain
in the knee

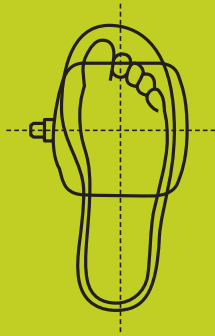


Cause

An incorrect foot position on the pedals can quickly lead to knee problems. The foot should be positioned in the direction of travel so that the heel does not rotate inwards or outwards, otherwise the muscle and cartilage structures are stressed on one side. The foot must also not rest too far forwards or backwards on the pedal.

Solution

The foot and the foot joint must be positioned correctly. The foot should not be turned too much to the outside or inside to ensure a straight leg axis.



The unique ergonomically shaped pedal surface of the Ergon PT ensures optimal foot positioning on the pedal and automatically aligns the leg axis. When pedaling, the IP soles stabilize the arch of the foot and the entire leg axis, ensuring even pressure distribution on the pedal.



IP soles stabilize the foot and improve the straight alignment of the foot-knee-hip axis.

Pedaling

Problem Solver



PT

- Intuitively improves foot alignment for touring riders
- Improved power transmission and comfort for long-distances
- Permanent riding pleasure without problems



Pedaling



IP Touring Solestar

- Less problems
- More comfort
- Stabilizes the foot



“My feet
become
numb on
long tours.”



Problem

Numbness in the foot



Cause

A pedal surface area that is too small, often in conjunction with shoes laced too tightly, the pressure on the metatarsus and the ball of the foot can be too great.

Solution

Pressure should be distributed over a large surface area which is adapted to the size of the foot.



With its different pedal sizes, the PT ensures even pressure distribution over the entire sole and arch of the foot supporting sufficient blood circulation.



The large contact area ensures optimal pressure distribution, even with everyday shoes.

Pedaling

Problem Solver



Size: S



Size: L

PT

- Intuitively improves foot alignment for touring riders
- Improved power transmission and comfort for long-distances
- Permanent riding pleasure without problems



Pedaling



“When I use my clipless pedals, I often have problems.”



Problem

When using cleats, one-sided pain in the knee or foot can occur.

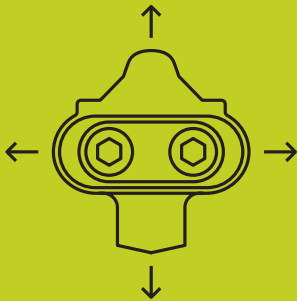


Cause

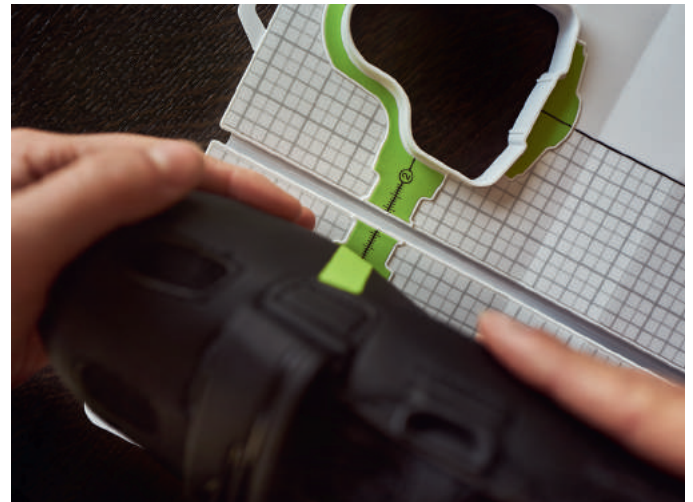
Even the smallest deviations in the adjustment of the cleats, such as different positions of the left and right foot, result in an asymmetrical pedaling movement which, in the long term, can lead to imbalances.

Solution

Precisely, ergonomically adjusted pedal cleats are important for a pleasant and effective cycling experience.



The TP1 Cleat tool ensures optimal adjustment of the cleats including: Q-factor, foot position and heel rotation. All settings can be easily and quickly transferred from one pedal to the other. The TP1 is used by some of the best World Cup teams.



Pedaling

Problem Solver



TP1 Cleat tool for all common pedal systems

- Ergonomically adjusted pedal cleats
- More performance and comfort – fewer problems



Pedaling



Overall Ergonomics

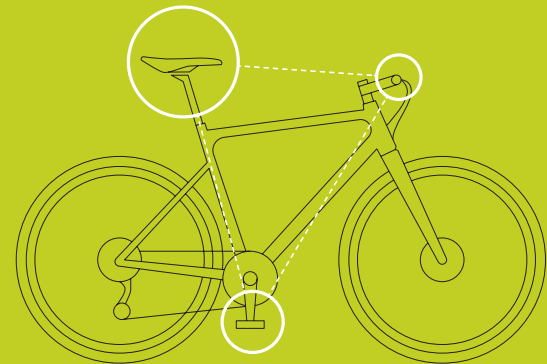


Grip, saddle, pedals –
perfect harmony
by bike fitting

100

Grips, handlebar and bar tape, saddles, and pedals must not only individually fit the rider, riding style, and bicycle type – the interconnection of all three contact points is essential for a ride with maximum comfort and best performance.

The Ergon Fitting Boxes enable ergonomically correct, application-specific adjustment of the bicycle – no prior knowledge is needed. This way, the causes of numerous problems can be eliminated.



101

“Despite using ergonomic products, I still have problems.”



Problem

Ergonomic problems at the contact points can interact to cause widespread pain, for example in the back, shoulders, or knees.



Cause 1

A bike in a stock factory set-up cannot meet the needs of every individual physiognomy.

Cause 2

For many cyclists, a too low saddle height leads to permanent tension on the patellar tendon and kneecap due to a knee opening angle that is too small. The lack of relief can lead to permanent damage to the knee joint.



Solution 1

Ergonomic products alone are not enough. Precise adjustment is also necessary to reliably solve problems. With the fitting boxes, riders can optimise their bike for their personal needs in seven simple steps.



Solution 2

The Ergon Fitting Boxes offer convenient tools for determining the individually correct saddle height.

“My knees hurt
when pedaling.”



Problem

Tension pain in the knee
or sharp pain on the inside
or outside of the knee



Cause

If the pivot point in the knee joint is not centred over the pedal axis, the load on kneecaps, cruciate and medial/lateral collateral ligaments is very high.



Solution

The setback can be adjusted by moving the saddle horizontally. It can be optimised using the Ergon Fitting Boxes, as can tilt angle and foot position on the pedals.

“I constantly have a stiff neck and pain in my shoulders.”



Problem

Stiffness and restricted mobility in the neck and shoulder area, as well as pain in the supporting muscles



Cause

An incorrect horizontal and vertical distance between the handlebars and saddle leads to a sub-optimal angle between torso and upper arm. As a result, riders will pull up their shoulders and the supporting muscles can no longer function optimally.



Solution

With the Ergon Fitting Boxes, saddle angle, position and distance between saddle and handlebars can be optimised to reduce the strain on the supporting muscles.

Problem Solver



Fitting Box for Touring, Road/Gravel or MTB

- Perform professional bike fitting yourself
- 7 simple steps to more comfort and performance
- Easy-to-follow instructions written by experts



The products presented in this guide represent only a small part of the Ergon product portfolio. The entire ergonomic selection for all bike disciplines is available at ergonbike.com.

Ergon Bike Ergonomics

RTI Sports GmbH

Am Autobahnkreuz 7

56072 Koblenz / Germany

info@ergonbike.com

Ergon® is a worldwide trademark.

All rights reserved. No part of this manual may be reproduced or duplicated in any form (print, photocopy, or storage and/or distribution in electronic form) without written permission. Reprint, inclusion in electronic databases, and other reproductions need express permission of the publisher. The contributions and illustrations contained in this manual are copyrighted. Price changes, technical changes, printing errors, and errors reserved.