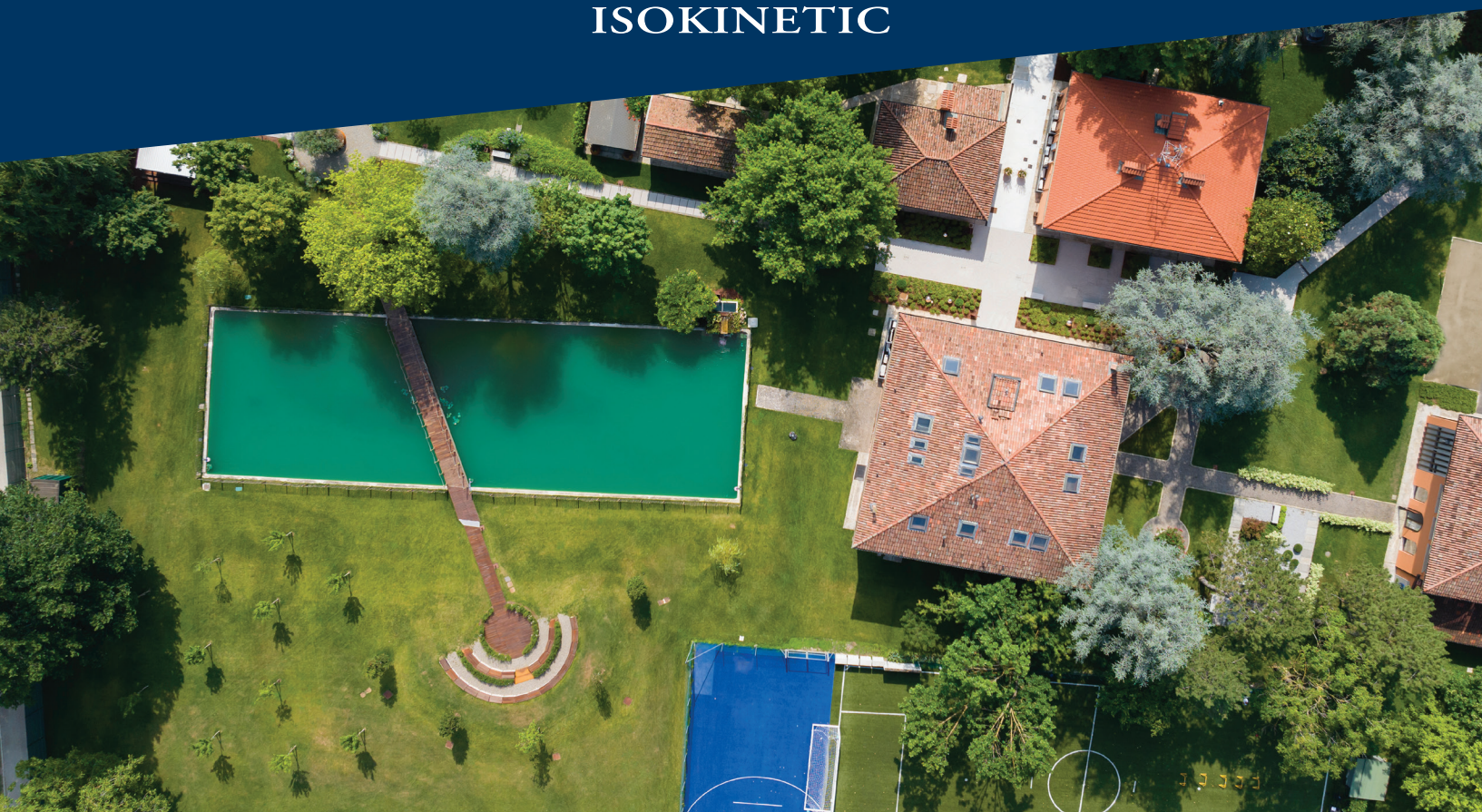


ISOKINETIC CAMPUS

BUILDING THE FUTURE OF SPORTS MEDICINE



ISOKINETIC





*Welcome to the
Isokinetic Campus*

INDEX

FOREWORD

The value of relationships, exchanges, meeting Pag. 4

ISOKINETIC CAMPUS VISION

Building The Future 7
 The five pillars of the Isokinetic Campus 8
 A green vision 10
 From Bologna to the World 13

ISOKINETIC MEDICAL GROUP

Introducing the Isokinetic Medical Group 14
 The Campus as family home for our Group 17
 History milestones 18

ISOKINETIC MISSION

Medical know-how at the core of Isokinetic 22
 The "CIAO" virtuous circle 24
 The complex galaxy of our knowledge 26

EDUCATION & RESEARCH DEPARTMENT

ERD history milestones 28
 "La sapienza è figliola della sperienza" 30
 Science and practice 32
 Ideal paths: updated protocols for patients 34
 How the Campus interact with the World 36
 The Isokinetic community 38

RESEARCH AND DEVELOPMENT

Exploring new frontiers 40
 Isokinetic Green Room 42
 Movement Analysis test 44
 Targeted neuromuscular training 45
 Relevant "domains" of patient function 47
 Muscle strength 49
 Biomechanics 51
 Neurocognitive 52
 GPS technology in on-field rehabilitation 54

SCIENTIFIC ACTIVITY

Isokinetic's contribution to the scientific debate worldwide 56
 National and International collaborations 58
 Scientific activity lines 60
 Publication of scientific papers 62
 Infographics 64
 Participation in conferences 66
 Isokinetic International Conference 68
 The Conference through the years 70

INTERNATIONAL CONNECTIONS

FIFA Medical Centre of Excellence 72
 International Connections 74
 Academic Connections 76

HUMAN RESOURCHES

Profiling and talent management 79
 Onboard training 80
 Continuous education 83
 Annual Company Meeting 86
 Career ladders 88
 Caring for our people 90

ISOKINETIC NETWORK

Bologna 92
 London 94
 Turin 97
 Milan 98
 Verona 101
 Rome 102
 Rimini 105
 Athens 106
 Virtual+ 109

ACKNOWLEDGEMENTS

110



ISOKINETIC

FIFA | MEDICAL CENTRE OF EXCELLENCE

THE VALUE OF RELATIONSHIPS, EXCHANGES, MEETING

In every learning environment, be it cultural or scientific, the fertile ground which enables us to grow and evolve is the same. It allows us to put our heart and soul into our ideas and calling while measuring our progress correcting our mistakes.

That fertile ground is the relationships and exchanges among individuals; the wisdom that elders conveyed at the Greek agorae or the Renaissance courts; Gutenberg's moveable-type printing press in Germany in the 1400s; the incredible speed of the internet. They are the means for achieving the same goal: seeking and sharing new knowledge. **The Campus provides a space for the meaningful exchanges and growth that Isokinetic wants to convey to future generations. It is a haven, a meeting place, and a launching pad for new ideas.** Situated in the countryside on the outskirts of the city, the **Isokinetic Campus is a place where experience and discovery meet and where recognition of and love for Bologna are represented.**

It's the natural consequence of the message we launched successfully twenty years ago when Isokinetic's achievements, barely sixteen years after its foundation, were presented to the city.

These years have not been in vain because they were spent conveying a scientific and business success. Our goal, which was initially directed at sports professionals, is to promote health and wellbeing, both active and mindful, for anyone in need of (medical) treatment.

So, 20 years ahead of the game, we introduced the **concept of circularity in practice: circularity in research and treatment to convey culture to improve everyday life.** The knowledge acquired during this twenty-year journey, dealing with issues linked to high-level players, has created an extensive network of academics, both Bolognese and international, and gradually brought global recognition to Isokinetic's excellence in sports medicine and more. This success has increased with the expansion of Isokinetic and the opening of clinics in Italy and elsewhere in Europe. Though constant hard work, our annual conference has become, perhaps, the most important international scientific conference in the field of sports medicine research.

Today, with the Isokinetic Campus our company enters a new phase, there are many exciting prospects in view, not only for Isokinetic but for Bologna, a city true to its identity: that of spreading knowledge, as attested to by over 900 years of our university's history.

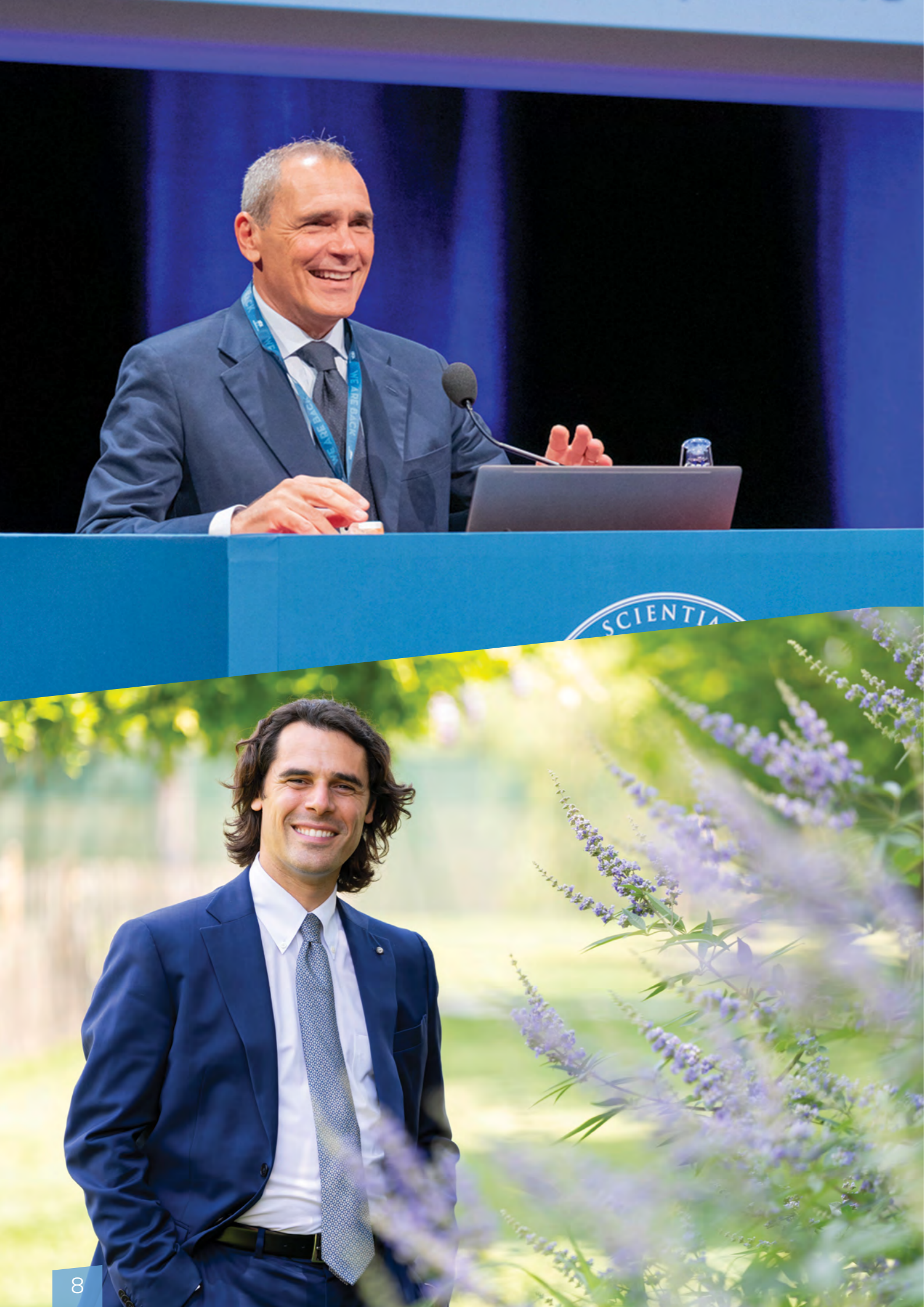
Why we have chosen to convey knowledge in a harmonious place, amid nature, in a dynamic environment where the city merges with hills and plains is quite clear. The Campus reflects the intimate nature of Bologna. Located between the Adriatic Sea and the Apennines, with the hills on its doorstep, the city is intersected by the Via Emilia, or the Aemilian Way, an ancient and lasting symbol of how we want to connect with the world. It is this innate need to connect and share that is at the heart of the Campus.

A translation from the original.

Armando Nanni

Journalist, writer and dear friend





BUILDING THE FUTURE

From the onset of our professional journey as a healthcare provider, we have always manifested a disinterested predisposition for generating and disseminating know-how. We believe in education as a means to support our internal processes but also, on a different level, the growing Sports Medicine community, which we've contributed to shaping in the few last decades.

Therefore, after over thirty-seven years of Isokinetic Medical Group history and more than twenty years of our Education & Research Department, **we decided to give our passion for cultural activities and exchanging knowledge a physical home.**

Thus, the Isokinetic Campus was formed. With its vibrant environment and green infrastructure, it adds social value capable of changing our future development.

Bearing in mind the bigger picture, the Campus was conceived as **a family home for everyone at Isokinetic but also as a place for sharing knowledge among our internal context, the academic world, and the Sports Medicine Community.**

It is the ideal setting for staging fresh cultural debates and connections for the development of Sports Medicine in our country and in the world; for inspiring the younger generations with updated educational programmes while supporting their professional growth with dedicated career ladders; for generating knowledge in the open air, favoring the creative process.

The Campus will also be strongly dedicated to research and scientific activity, offering fascinating opportunities for young fellows and students while exposing them to a culturally fertile environment.

In line with our mission and core values, we envisioned the Campus as a milestone for our future - a central structure where we could develop our know-how, strengthen the Isokinetic network, and support our growth and future development.

**Proudly Isokinetic,
dedicated to the Community.**

Francesco Della Villa
*Scientific Director
Isokinetic Medical Group*

Stefano Della Villa
*President
Isokinetic Medical Group*

THE FIVE PILLARS OF THE ISOKINETIC CAMPUS

First, we created the Isokinetic Campus as a home for our Isokinetic family, focusing on continuous education and professional growth; a meeting point between our group and the sports medicine community but also a strong asset for the future development of our company.

*Isokinetic Campus:
an investment
for our people*

BRAND INTEGRITY
AND REPUTATION

GROWTH WITH
NEW CENTRES

FAMILY HOME FOR
ISOKINETIC PEOPLE

RESEARCH AND
DEVELOPMENT

CONTINUOUS
EDUCATION

A GREEN VISION

We officially opened the Isokinetic Campus on 21st September 2024. It covers an area of 16,530 m², 11,000 of which are dedicated to gardens, paths, and outdoor learning areas for studying and sharing notes in the open air.

20% of the Campus is occupied by sports facilities and 10% by offices and designated rooms for meetings and social occasions. The Campus was created for sharing the Education and Research Department's research and experiences. It is open to staff, students, professors and visitors from universities, scientific associations, and national and international institutions alike.

*Designed for holistic
well-being*

FROM BOLOGNA TO THE WORLD

Every year, in partnership with FIFA, the Isokinetic Medical Group organises the largest football medicine conference in the world.

Over the years, the Conference has taken place in many iconic and legendary sporting venues, including Wembley Stadium in London, Camp Nou in Barcelona and iconic Cívitas Metropolitano Stadium in Madrid.

*Bringing together the
International Sports
Medicine Community*



INTRODUCING
THE ISOKINETIC
MEDICAL GROUP

Isokinetic is an International Medical Group active in field of Sports Medicine and Orthopaedic Reahbilitation with 10 Centres, recognised as FIFA Medical Centres of Excellence.



ISOKINETIC

FIFA MEDICAL CENTRE
OF EXCELLENCE

*A network of centres
recognised as FIFA Medical
Centres of Excellence.*



BOLOGNA

LONDON

MILAN

ROME

VERONA

TURIN

RIMINI

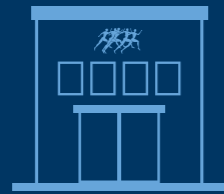
ATHENS

VIRTUAL +



1987

FOUNDATION



10

CENTRES



1

CAMPUS



1

INTERNATIONAL
YEARLY
CONFERENCE



200

PEOPLE
WORKING
TOGETHER



16.000

PATIENTS
PER YEAR



250K

HEALTH SERVICES
PER YEAR



*The Isokinetic Medical Group
is culturally driven by
the Education and Research
Department.*

THE CAMPUS AS
A FAMILY HOME
FOR OUR GROUP



HISTORY MILESTONES

- Bologna
- London
- Milan
- Turin
- Rome
- Verona
- Rimini
- Athens
- Virtual +

From early 2000 the Isokinetic Network has been developed consisting now in 10 Sports Medicine and Orthopaedic Rehabilitation Centres and one virtual clinic



NETWORK



In 2000 we founded our Education & Research Department as the cultural heart of the group

SCIENCE

FIFA MEDICAL CENTRE OF EXCELLENCE



In 2009, the Isokinetic Medical Group was awarded as the 1st Italian FIFA Medical Centre of Excellence, for the prevention, treatment and rehabilitation of injuries in football

FIFA

- 1992
- 2011 Bologna
- 2012 London
- 2013 London
- 2014 Milan
- 2015 London
- 2016 London
- 2017 Barcelona
- 2018 Barcelona
- 2019 London
- 2022 Lyon
- 2023 London
- 2024 Madrid
- 2025 Madrid

1992



Since 1992, Isokinetic Medical Group has organised an annual conference, to inspire the international sports medicine community. Over the years, the Conference has been held at many iconic stadiums, including Wembley and Camp Nou

CONFERENCE

The MAT test is a complex biomechanical evaluation test carried out in the Green Rooms to help patients by targeting specific interventions aimed to reduce the risk of injury or re-injury. As a group, we have a vast experience, having tested over 10.000 patients



MOVEMENT ANALYSIS TEST

GREEN ROOM



In 2014 the first Green Room was opened in London, and soon after at all our other Centers. The area, which is dedicated to biomechanical assessment of the lower limbs, is at the forefront of applied movement analysis

ISOKINETIC LONDON



In 2012, we opened Isokinetic London and in 2014 we launched our international flagship centre on the most famous medical street in the world: Harley Street

In 2023, at the Queen Elizabeth II Conference Centre in London, we celebrated the 30th anniversary edition of the International Conference on Football Medicine



30 YEARS OF INTERNATIONAL CONFERENCE

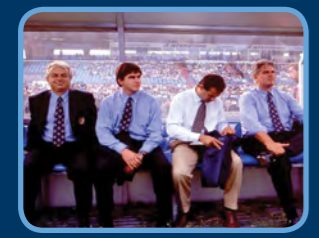
ISOKINETIC CAMPUS



In 2024 the Isokinetic Campus was launched as the main cultural asset of the company

FOUNDATION

In 1987 our president, Stefano Della Villa, founded the first Isokinetic Centre, with the vision of revolutionising sports rehabilitation



PATIENTS



We've been taking care of sports champions for over 37 years



ROOTS

FUTURE

*As a medical group,
we always hold our
patients at the centre
of everything*



MEDICAL KNOW-HOW AT THE CORE OF ISOKINETIC

From the beginning, we've put medical know-how at the core of our organisation, focusing on taking complex theoretical knowledge and turning it into practice through simple solutions. As a group, we have always invested in culture and development, constantly innovating through research and technology. The Education and Research Department is in charge of generating and disseminating knowledge in the specific field of sports medicine, advancing the state of play and updating the recovery process for our patients.

THE ISOKINETIC MISSION
To be the Medical Group recognised as a leading international model for Sports Medicine and Orthopaedic Rehabilitation, with daily pursuit of excellence for the Patient.

THE ISOKINETIC VISION
The Isokinetic Vision is the way we act through four main key-points - "excellences" - to achieve our Mission

- Excellence in knowledge
- Excellence in behaviour
- Excellence in profitability
- Excellence in reputation.



THE “CIAO” VIRTUOUS CIRCLE

CIAO in Isokinetic stands for Culture, Image, Atmosphere, and Organisation. These are the four competitive advantages that characterise our company. Isokinetic has always been driven by the desire to offer the best quality of services and invest significant resources into continuous updates of our recovery programmes. In this context, the cultural aspects are central and coordinated by the Education and Research Department.

C

C stands for **CULTURE**. The culture of our Group directly impacts healthcare quality and is the result of instruction and continuing education on behalf of every healthcare professional within our Group. Our training follows Isokinetic’s model of treatment and undergoes constant updates regarding international innovations through the Education and Research Department

I

I stands for **IMAGE**. Isokinetic’s image is created on many variables which come from both within and without. From within when we speak about the order, organisation, and tidiness of every space and every room at all of our centres. From without when we consider our medical credibility, both locally and on national and international scales; and on what is said about us in the press.

A

A stands for **ATMOSPHERE**. The atmosphere at Isokinetic Centres has a powerful effect on our patients journey to recovery. They are always received with a smile from all our staff –from doctors to receptionists to physiotherapists. The areas designated for treatment are harmonious and bright and contribute in creating a positive atmosphere, one which is both informal and joyful. With an uplifted mood, it is easier for our patients to find the motivation to strive during their treatment.

O

O stands for **ORGANISATION**. Organisation is what allows us to treat a large number of patients with a large variety of medical treatments without ever having to sacrifice quality. To best manage the activity within any given Isokinetic Centre, organisation must revolve around teamwork. Every member of our staff, be it a health professional or otherwise, focuses on improving the mechanisms and processes necessary to reach a set goal as a team.



THE COMPLEX GALAXY OF OUR KNOWLEDGE

Isokinetic Medical Group's "cultural heart" is our Education and Research Department whose primary goal is to **share KNOW-HOW across our network of centres**.

Our RESEARCH AND DEVELOPMENT activity aims to **explore the new frontiers of sports medicine**, developing new services to support clinical practice.

We feel a strong commitment to participating in SCIENTIFIC ACTIVITIES: from **organising the largest football medicine conference** in the world to **publishing papers and books**. Additionally, we have strong **INTERNATIONAL CONNECTIONS** with scientific associations and federations.

Through a focus on **high performance culture**, we challenge our whole group to pursue excellence daily and provide them with comprehensive **TRAINING and UPDATING** programmes, offering continuous education inside and outside Isokinetic. As such, the Education and Research Department is also in charge of the human resources activities of the group.

The Education and Research Department is the cultural heart of Isokinetic Medical Group.



ERD HISTORY
MILESTONES

SALUS SCIENTIA SPORT

1987

The roots of the present Education and Research Department are inextricably set in Isokinetic's history.

1992

Our first Conference dedicated to sports rehabilitation kicked off an uninterrupted series that has been bringing the scientific community together every year with the intent to disseminate and share knowledge.

2000

The Education & Research Department (ERD) was established under the leadership of Professor Giulio Sergio Roi. The ERD manages and organises the Isokinetic method, coordinating all trainings, courses, career paths, and scientific activities. It is the driving force behind the generation and dissemination of Isokinetic knowledge. The central role of the ERD has grown over the years along with international connections.

2009

The recognition of Isokinetic as a FIFA Medical Centre of Excellence marked the beginning of an enduring scientific partnership with FIFA which remains solid to this day.

2012

The Isokinetic Conference became more international, bringing its knowledge overseas for the first time to Chelsea's historic Stamford Bridge Stadium. Since then, it has been hosted by some of the world's most famous stadiums, such as Wembley, Camp Nou, and the Civitas Metropolitano in Madrid.

2013

After the experience in the USA, where he focused on the biomechanical aspects of common sports injuries with the mentorship of figures such as Bert Mandelbaum and Freddie Fu, Dr Francesco Della Villa introduced in 2016 the Green Room, dedicated to lower-limb biomechanical assessment and a holistic approach to patient care, updating our clinical activity.

2021

The leadership of the Education and Research Department was assumed by Dr Francesco Della Villa. The newly established Education and Research Department underwent a complete redesign of its spaces to embody the cutting edge of technology and culture.

2024

A new green space was planned and built: The Isokinetic Campus. Integrated with our company headquarters gardens, open air meeting rooms, and an amphitheatre inspired by the ancient School of Athens as the ideal space sharing knowledge.



Giulio Sergio Roi, specialist in Sports Medicine, besides having founded and managed the Isokinetic Education and Research Department for 20 years, is a highly cultured, multifaceted person: passionate about art, mountains, sport and good food. He has taught Biomechanics and Functional Recovery at several universities, at CONI's School of Sport and at the Italian Tennis and Padel Federation's Institute of Higher Education. A founding member of the High Altitude Sports Federation (now the International Skyrunning Federation), he has participated in numerous high-altitude Skyrunning races and international mountaineering expeditions for research and medical studies.

SALUS, SCIENTIA, SPORT.
Three meaningful words to describe the essence of our activity. Helping our patients achieve maximum level possible of health (SALUS) through the application of science (SCIENTIA) applied to sports medicine (SPORT).

“LA SAPIENZA
È FIGLIOLA
DELLA
SPERIENZA”

In Isokinetic, we firmly believe that they who know more, generally wins. Therefore, we created a philosophy of learning that holds cultural aspects at the very core of the company.

*Learning never
exhausts the mind*

*Leonardo
Da Vinci*



SCIENCE AND PRACTICE

In the modern, rapidly-changing and technology-driven world of healthcare, practitioners need to adapt quickly and translate evidence into day-to-day practice. In Isokinetic, the Education and Research Department stands as a transmission system between theoretical and practical knowledge.

EXPLORING NEW FRONTIERS

SCIENCE



ACL INJURIES



DRIVES RELEVANT SCIENTIFIC QUESTIONS

ENRICHES & INSPIRES CLINICAL ACTIVITY

UNDERSTAND

MEASURE

OPTIMISE

PRACTICE

STATE OF PLAY

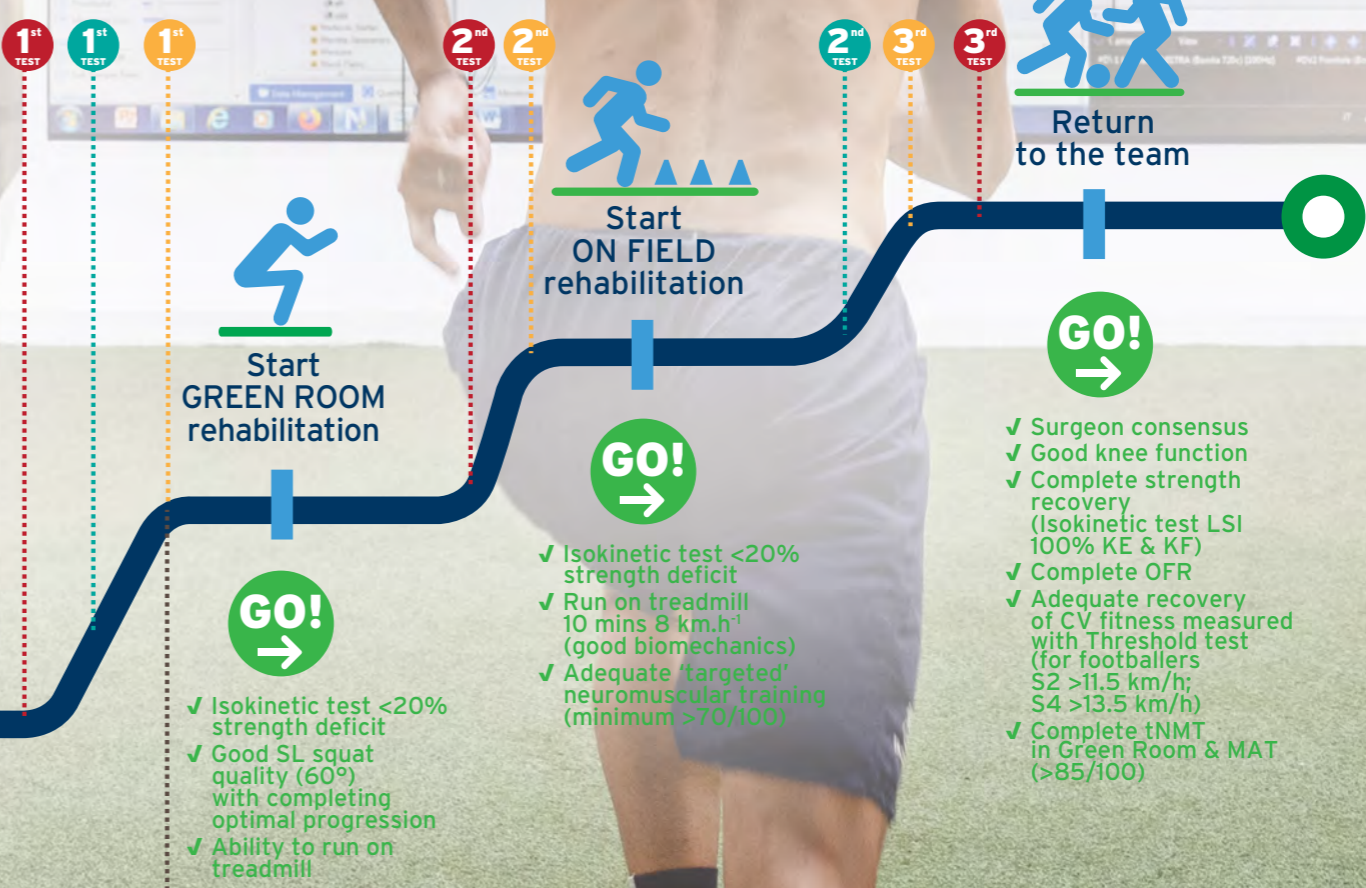


IDEAL PATHS: UPDATED PROTOCOLS FOR PATIENTS

In order to continue to provide the best service for our patients, we continuously optimise our approach by perfecting the ideal recovery paths following the most common injuries, such as ACL ruptures.

An optimised approach for better clinical outcomes

ACL INJURY



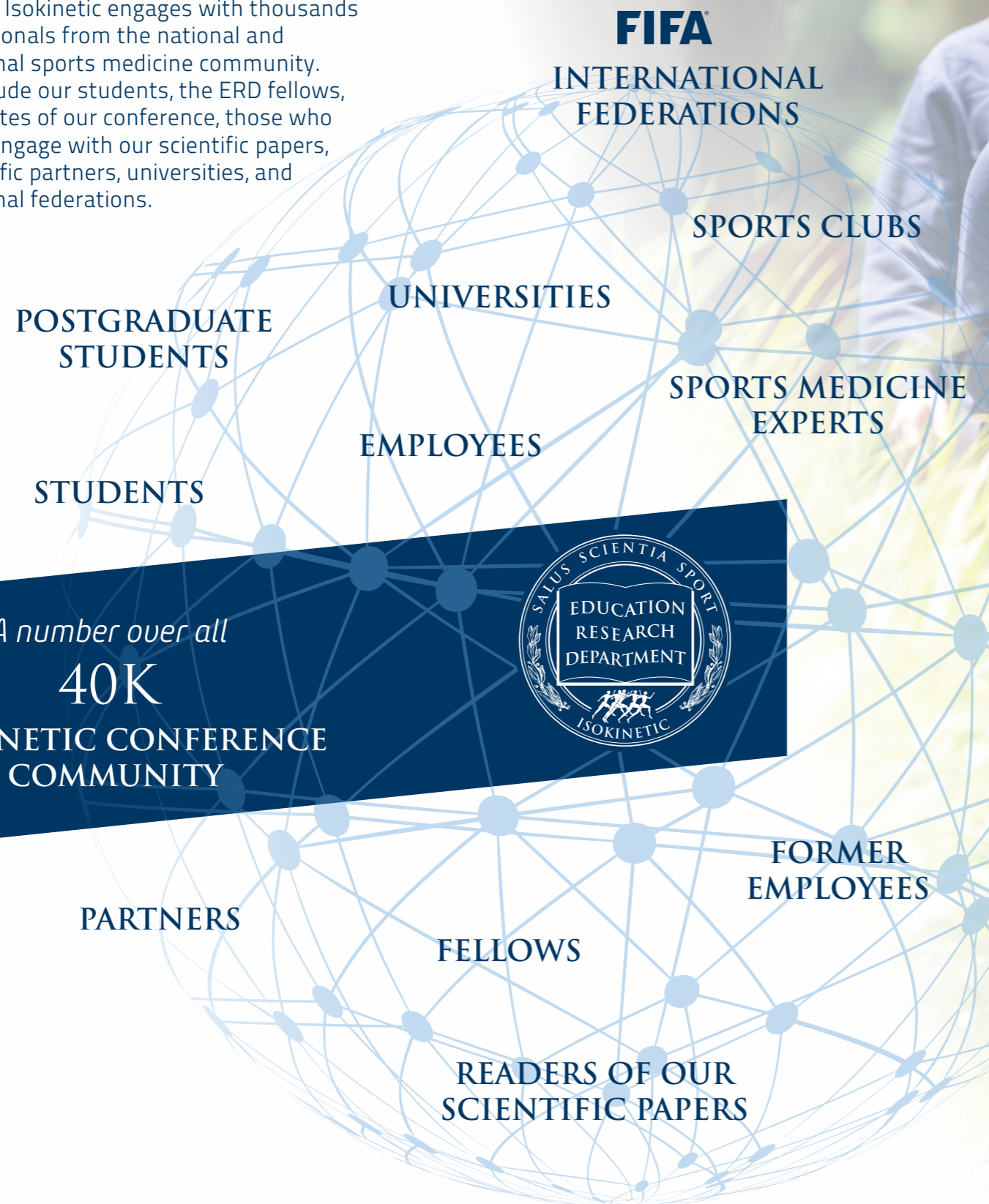
A targeted neuromuscular training program reduces the 2nd ACL Injury rate

- ✓ Surgeon consensus
- ✓ Good knee function
- ✓ Complete strength recovery (Isokinetic test LSI 100% KE & KF)
- ✓ Complete OFR
- ✓ Adequate recovery of CV fitness measured with Threshold test (for footballers S2 >11.5 km/h; S4 >13.5 km/h)
- ✓ Complete tNMT in Green Room & MAT (>85/100)

RETURN TO THE TEAM

THE ISOKINETIC COMMUNITY

Every year Isokinetic engages with thousands of professionals from the national and international sports medicine community. These include our students, the ERD fellows, the delegates of our conference, those who read and engage with our scientific papers, our scientific partners, universities, and international federations.



A number over all

40K

ISOKINETIC CONFERENCE
COMMUNITY



EXPLORING NEW FRONTIERS

Our Research and Development Department explores the new frontiers of sports medicine and orthopaedic rehabilitation, always focusing on the implementation of easier clinical solutions at the patient's service. In recent years, biomechanics and neuroscience have been at the forefront of innovation in our field and at the core of our R&D strategy.



ISOKINETIC GREEN ROOM

The development of the Isokinetic Green Room is an example of our Research and Development activity. We started by studying the medical literature and our own results, especially with reference to knee injuries. We then decided to integrate biomechanics and neuroscience in the easiest way possible. We developed the Green Room as an innovative sports medicine space, dedicated to the analysis and optimisation of complex movement patterns in the context of primary and secondary injury prevention. We implemented the Green Rooms within the entire Isokinetic Network to update our clinical strategy.



THE WHY

The Green Room was created to implement injury prevention, aiming to help the young patients to avoid a re-injury after the first ACL rupture.

*The Green Room
is not just a room
but a philosophy
of treatment*



MOVEMENT ANALYSIS TEST

A patient's first step is to examine their unique **movement profile**. Specific biomechanical testing e.g. the Movement Analysis Test, is carried out to explore each patient's movement strategies, underlying specific areas of improvement. The physician then **explains to the patient** their movement profile and any **potential risk factors** which need to be mitigated. The treating team now has important information to customise an appropriate intervention. Upon completion of the test, a **personalised neuromuscular training program** is implemented in order to permanently change the patient's movement pattern.



TARGETED NEUROMUSCULAR TRAINING

Neuromuscular training sessions are bespoke rehabilitation sessions dedicated to movement control and quality, based on the results of the Movement Analysis Test. **These sessions focus on corrective biomechanical measures** (for poor posture) and on **learning new movement sequences**. Each customised programme usually takes place between the strengthening phase and on-field rehabilitation. The goal is to improve dynamic stability and neuromuscular control, thus reducing the possibility of a severe injury.



RELEVANT “DOMAINS” OF PATIENT FUNCTION

In recent years, Isokinetic R&D have been focusing on the relevant aspects of muscle strength, biomechanics, and neuroscience alongside sports specific performance.

5 NEUROSCIENCE
& PSYCHOLOGY

4 CARDIOVASCULAR
FITNESS

2 MUSCLE STRENGTH
& POWER

3 BIOMECHANIC AND
NEUROMUSCULAR
CONTROL

1 JOINT
HOMEOSTASIS

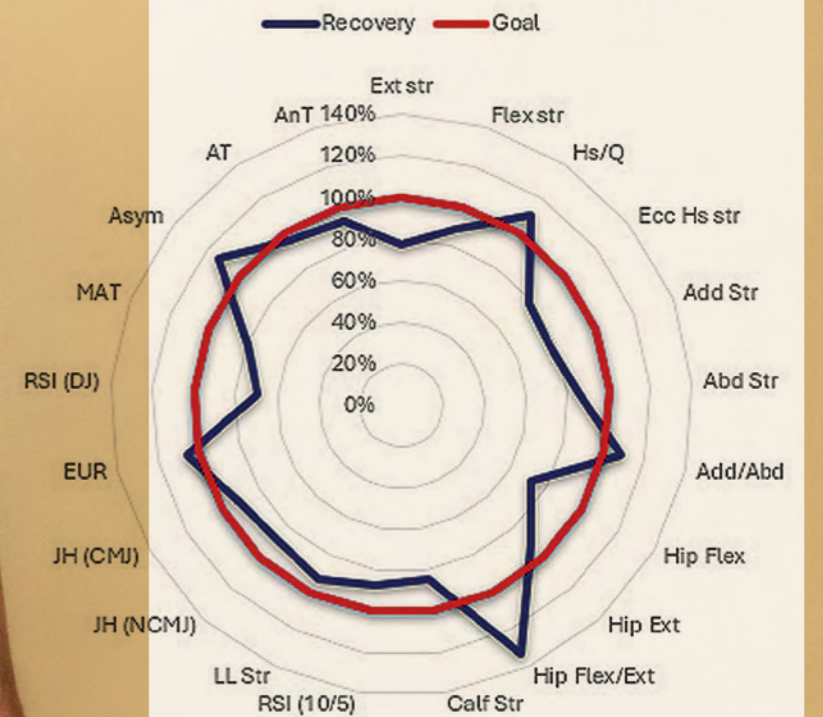
6 PERFORMANCE

MUSCLE STRENGTH

Investigating all the relevant domains of muscle strength and neuromuscular function has always been at the core of Isokinetic Medical Group (including the name of the Group). Muscle strength is the foundation of more complex physical performance and we are currently studying the most comprehensive way to guide functional recovery through constant updating, testing, and training.

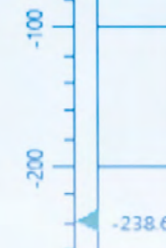
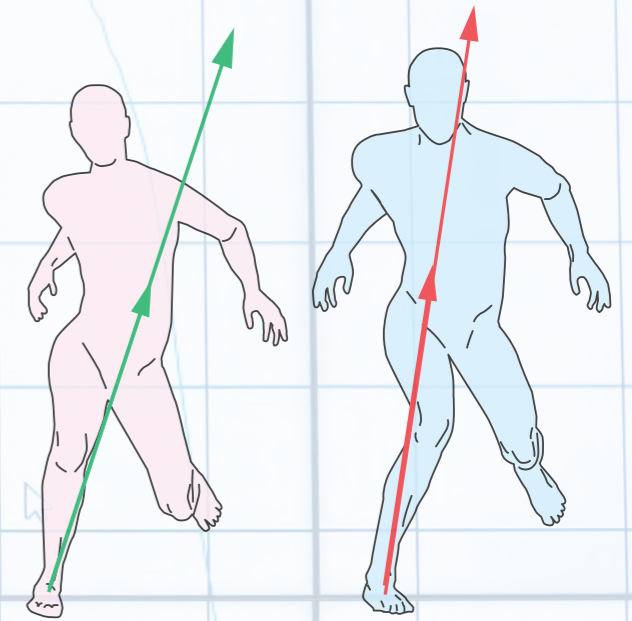


Athlete Neuromuscular Profile



BIOMECHANICS

We continue to study human movement and the biomechanics of common sports tasks involved in severe injuries, such as change of direction. Through the comprehensive study of injuries, it is then possible to identify the three-dimensional biomechanical risk factors and develop the easiest solutions for clinical practice.



60

65

70

75

80

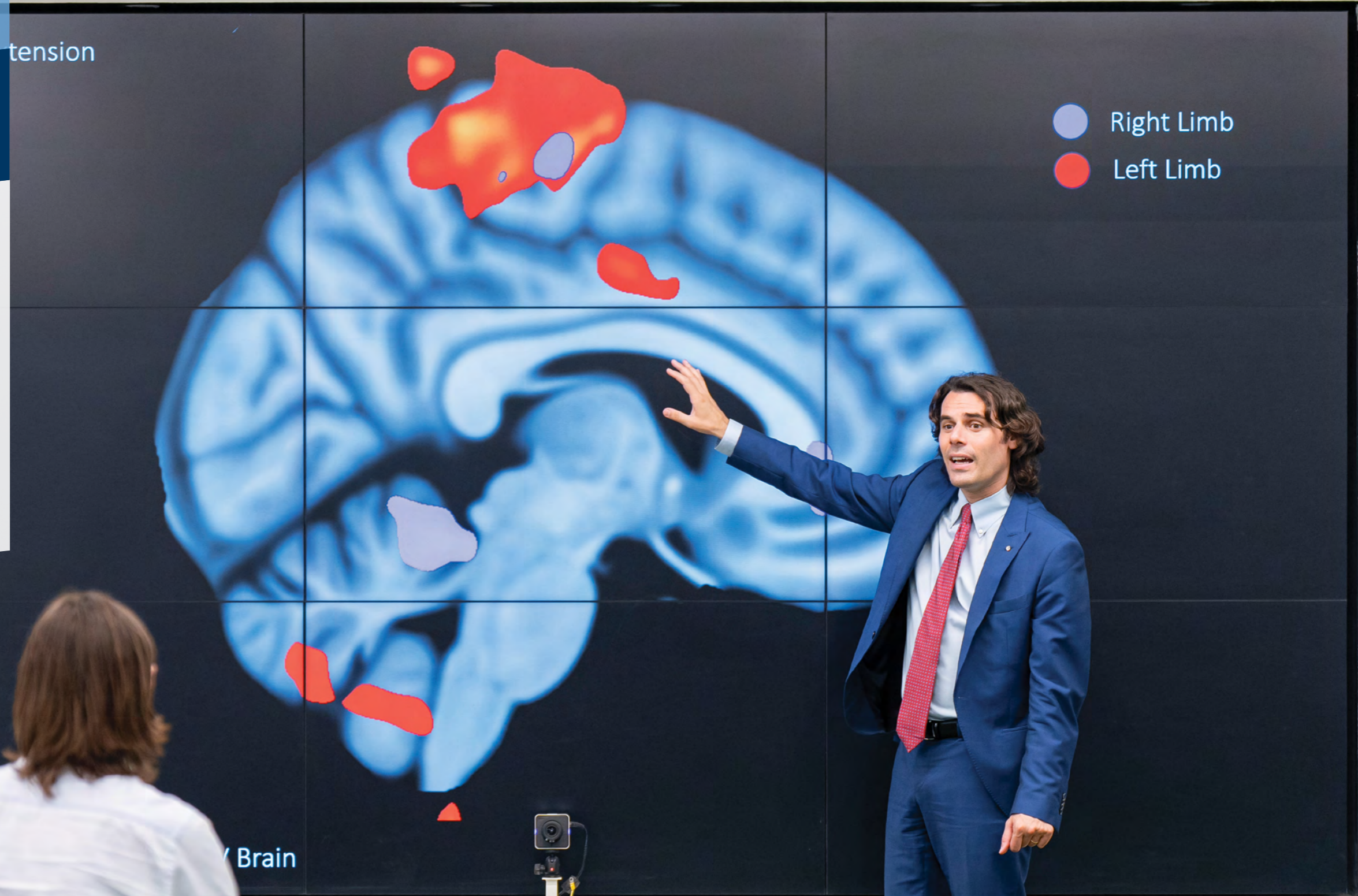
Time (

NEUROCOGNITIVE

One of the most recent breakthroughs in sports and football medicine lies in studying the brain and neurocognitive factors involved in sports injuries and recovery.

Nowadays, an ACL injury is not just considered a mechanical joint problem but also a «brain injury,» as researchers have discovered that complex central nervous system adaptations happen after the injury.

At a highly complex level, neurocognitive and behavioural factors are now studied in association to injuries.

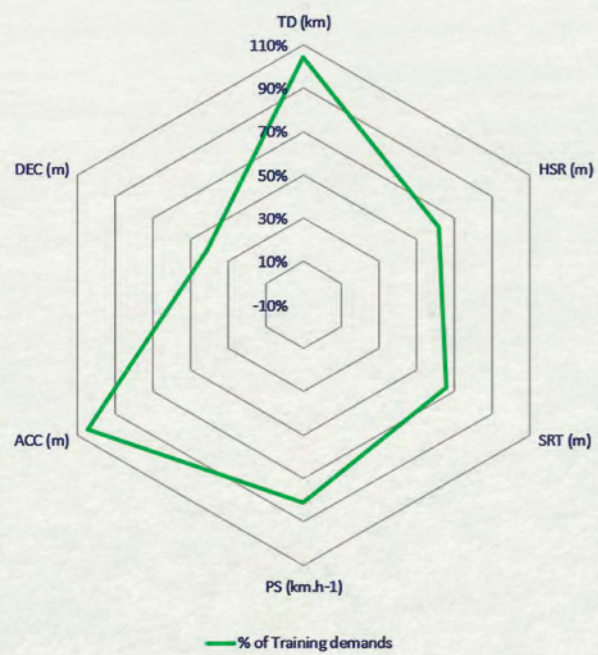


... courtesy of / Brain

GPS TECHNOLOGY IN ON-FIELD REHABILITATION

From the onset of our clinical activity, we have pushed athletes to full recovery, including a period of on-field rehabilitation (OFR).

The OFR programme has developed through the years and continues to evolve today. Wearable technologies, such as GPS devices, which provide useful information to guide return-to-play, are also being used. The Isokinetic Medical group is proud to be one of the first sports medical centres that has implemented GPS technology into practice.



ISOKINETIC'S CONTRIBUTION TO THE SCIENTIFIC DEBATE WORLDWIDE

Isokinetic Medical Group generates and disseminates know-how in the world of Sports Medicine, contributing to the scientific discussion on the most relevant topics of our field such as Anterior Cruciate Ligaments (ACL) and muscle injuries.

Our target is publishing the results of our daily work - both in primary prevention and functional recovery - in the best scientific journals, with the goal of translating into practice and having a great impact on Sports Medicine activity, both internally - for our people - and externally - for the world. We also organise our Isokinetic Conference every year (now the biggest football medicine event) and participate in dozens of national and international conferences as well.



10

AVERAGE INTERNATIONAL
PUBLICATIONS A YEAR



111

CONTRIBUTIONS
TO NATIONAL AND
INTERNATIONAL
CONFERENCES
IN THE LAST YEAR

Original research

Systematic video analysis of ACL injuries in professional male football (soccer): injury mechanisms, situational patterns and biomechanics study on 134 consecutive cases

Francesco Della Villa¹,^{*} Matthew Buckthorpe,¹ Alberto Grassi,² Alberto Nابیuzzi,¹ Filippo Tosarelli,¹ Stefano Zaffagnini,² Stefano Della Villa¹

ABSTRACT
Background A few small studies have reported on the mechanisms of ACL injury in professional male football. **Aim** To describe the mechanisms, situational patterns and biomechanics (kinematics) of ACL injuries in professional male football matches. **Methods** We identified 148 consecutive ACL injuries across 10 seasons of professional Italian football. 134 (90%) injury videos were analysed for mechanism and situational pattern, while biomechanical analysis was possible in 107 cases. Three independent reviewers evaluated each video ACL injury epidemiology (month), timing within the match and pitch location at the time of injury were also reported. **Results** 59 (44%) injuries were non-contact, 59 (44%) were indirect contact and 16 (12%) were direct contact. Players were frequently perturbed immediately prior to injury. We identified four main situational patterns for players who suffered a non-contact or an indirect contact injury: (1) pressing and tackling (n=55); (2) tackled (n=24); (3) regaining balance after kicking (n=19); and (4) landing from a jump (n=8). Knee valgus loading (n=83, 81%) was the dominant injury pattern across all four of these situational patterns (86%, 86%, 67% and 50%, respectively). 62% of the injuries occurred in the first half of the matches (n=82), injuries peaked at the beginning of the season (September–October) and were also higher at the end of the season (March–May). **Conclusions** 58% of ACL injuries occurred without direct knee contact, but indirect contact injuries were as frequent as non-contact injuries, underlying the importance of mechanical perturbation. The most common situational patterns were pressing, being tackled and kicking.

INTRODUCTION
ACL injury is a severe and concerning health issue among professional football players that causes long lay-off time.¹ Despite improved knowledge on ACL injuries and injury prevention, the rate of injuries in professional football is not declining.² Each team of 25 players can expect one ACL injury every 2 years.³ Even if 95%–100% of professional footballers return to play (RTP),⁴ the risk of subsequent knee injury,⁵ early onset of knee osteoarthritis⁶ and reduced career length⁷ are serious concerns. Understanding the situations and mechanisms which lead to ACL injuries is crucial to effectively

design specific exercise programmes to reduce their incidence. Several systematic video analysis studies of ACL injuries have been published across different sports.^{8–16} With regard to football, three additional studies have been published in the past 5 years.^{17–19} However, limitations in the study design, such as lack of systematic assessment¹⁷ and the limited number of cases with more than 30% dropout rate,¹⁸ could not provide conclusive evidence on the mechanisms of ACL injury in football.

In addition, there are gaps which need to be systematically addressed. First is the lack of focus on the perturbation type injury, which is found to be important in American football.¹⁷ Second is the lack of research detailing the biomechanical factors of ACL injuries in football, particularly concerning the role of the trunk. Finally, there is little research detailing the distribution of ACL injuries across the season, as well as within the match and on the pitch location.

As such, the purpose of this study was to describe on a large cohort of professional football players the mechanisms, situational patterns and biomechanics related to ACL injury. A further purpose was to document the distribution of ACL injuries across the match, season and pitch location.

METHODS
Injury identification and video extraction
A systematic search of online database resources was performed across 10 seasons (from 2008/2009 to 2018/2019, until December 2018) to identify ACL injuries occurring during matches in players of Italian first (Serie A) and second (Serie B) division professional football teams.

To identify ACL injuries, each season and team rosters were extracted from online databases (legaserie.it; legab.it) and single team websites. Then, each player was searched on Transfermarkt.de (Transfermarkt, Hamburg, Germany) for details on injury history. This methodology has been recently validated for identification of injuries in professional football²⁰ and was also adopted by two very recent studies on RTP after ACL injury²¹ and hip surgery²² in professional football.

Second, the same systematic single-player approach was used in additional data sources to look for other possible injuries which may have been missed, including national (eg, www.gazzetta.it; www.corriere dello sport.it) and local media.

Check for updates
© Author(s) for their respective contributions. All rights reserved. No commercial reuse. See rights and permissions. Published by BMJ.

To cite: Della Villa F, Buckthorpe M, Grassi A, et al. *Br J Sports Med* 2020;54:1423–1432.

Della Villa F, et al. *Br J Sports Med* 2020;54:1423–1432. doi:10.1136/bjsports-2019-101247



Matthew Buckthorpe, one of the pillars of our Education and Research Department, the real engine of our scientific production.

Interview

Internship

Training Onboard

SCIENTIFIC ACTIVITIES

Organisation of International Conferences

NATIONAL AND INTERNATIONAL COLLABORATIONS

Bright minds from all over the world exchange their thoughts with us in research activities, marking the course of our scientific work and contributing together to the advancement in Sports Medicine.



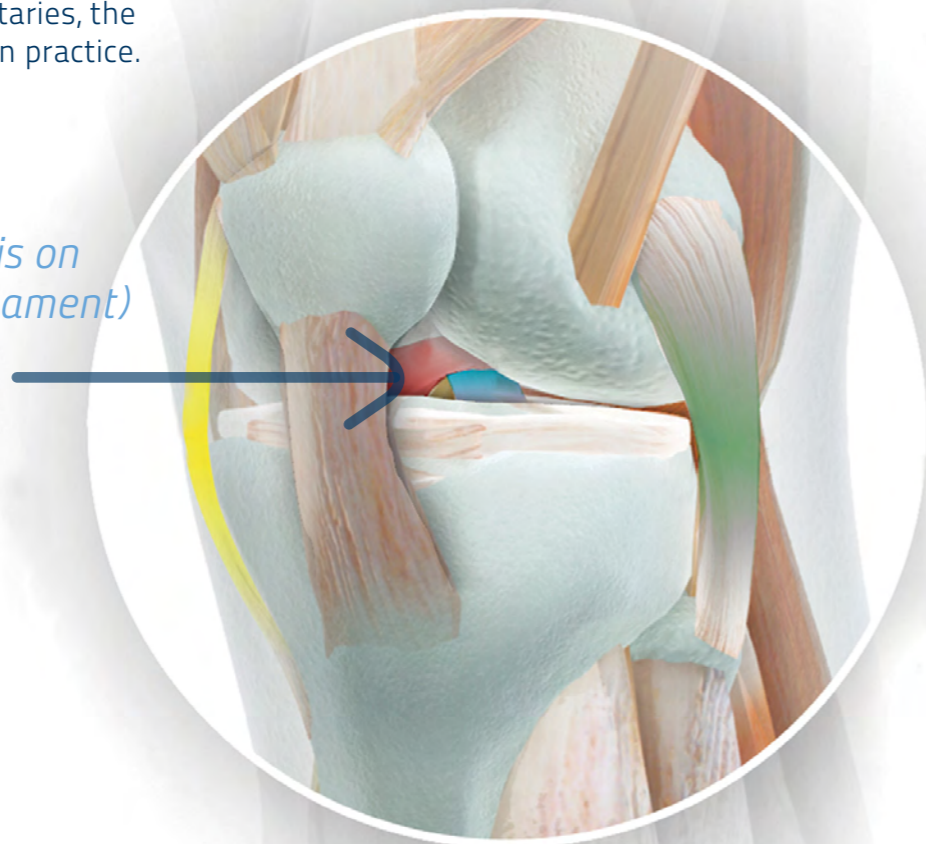
SCIENTIFIC ACTIVITY LINES

As a department and international research group, we focus on different areas («scientific activity lines») to make an impact in the Sports Medicine world.

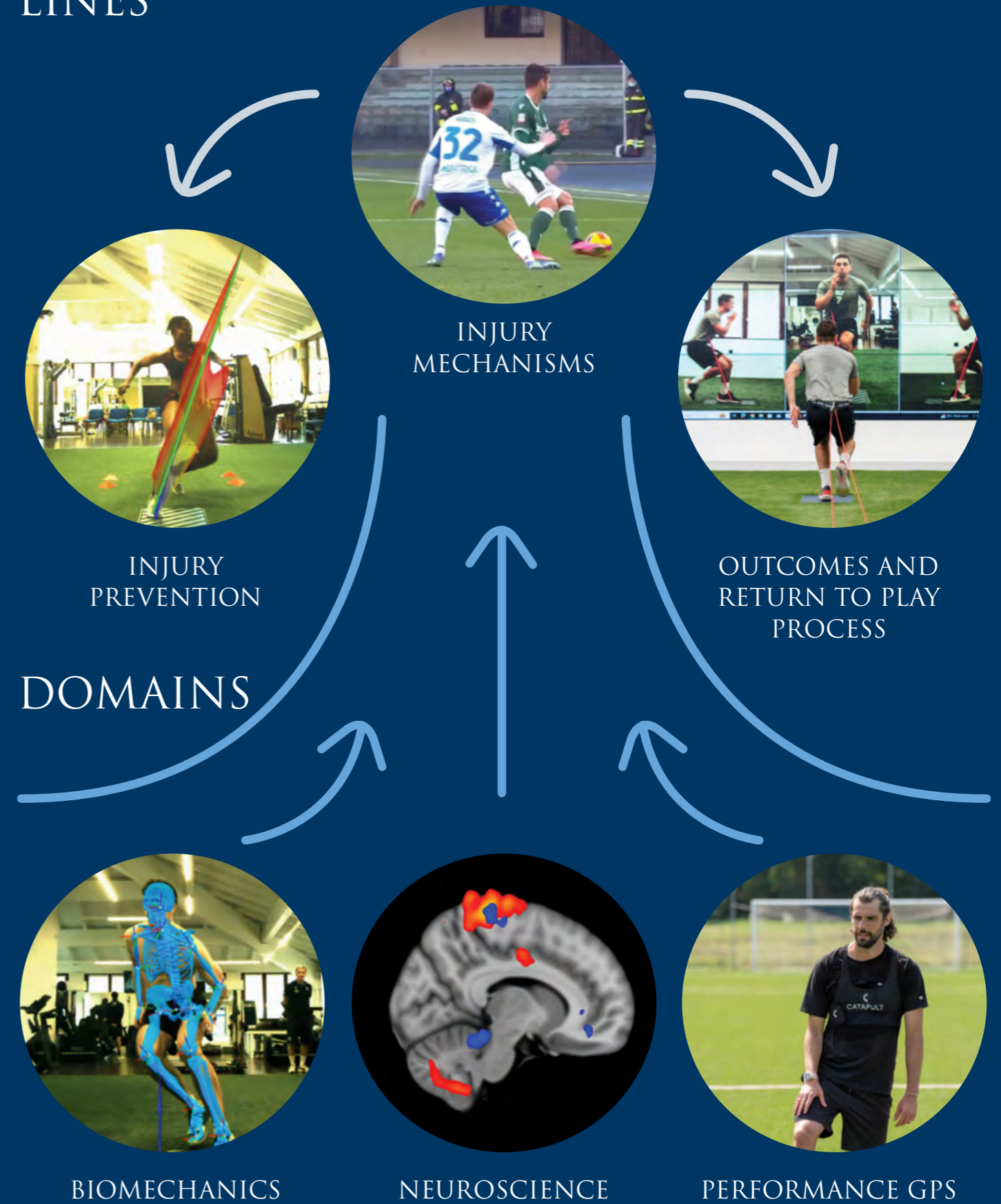
We start with a deep understanding of how sports injuries happen. **Injury mechanism lines** define the most relevant factors to be focused on in injury reduction and treatment for each specific problem.

Throughout the years, we have also developed a specific interest **in injury prevention studies**, mainly applied to football medicine and specifically implemented on young players. As a sports medicine group, our main focus is the results of our patients, so **functional outcomes** and **return-to-play** processes are the core of another line. In this context we share our methods with the community through specific clinical commentaries, the perfect way to make an impact on practice.

Our main research focus is on ACL (Anterior Cruciate Ligament) injuries.



LINES



PUBLICATION OF SCIENTIFIC PAPERS

As a group, we publish different forms of scientific papers, from original studies to clinical commentaries, targeting top sports medicine journals. Each paper is then explained in a simpler way through infographics and presentations. They are then brought to a wider community through conventional and new media.



Systematic video analysis of ACL injuries in professional male football (soccer): injury mechanisms, situational patterns and biomechanics study on 134 consecutive cases. Francesco Della Villa, Matthew Buckthorpe, Alberto Grassi, Alberto Nabuzzi, Filippo Tosarelli, Stefano Zaffagnini, Stefano Della Villa.

Anterior cruciate ligament injury mechanisms through a neurocognitive lens: implications for injury screening. Ali Gökeler, Arne Benjamin, Francesco Della Villa, Filippo Tosarelli, Evert Verhagen, Jochen Baumstiel.

Compliance in post-operative rehabilitation is a key factor for return to sport after revision anterior cruciate ligament reconstruction. Francesco Della Villa, Luca Andreoli, Margherita Ricci, Giuseppe Filardo, Jacopo Gamberini, Daniele Cammisa, Stefano Della Villa, Stefano Zaffagnini.

Infographic. High rate of second ACL injury following ACL reconstruction in male professional footballers: an updated longitudinal analysis from 118 players in the UEFA Elite Club Injury Study. Francesco Della Villa, Martin Hägglund, Stefano Della Villa, Jan Ekstrand, Markus Waldén.

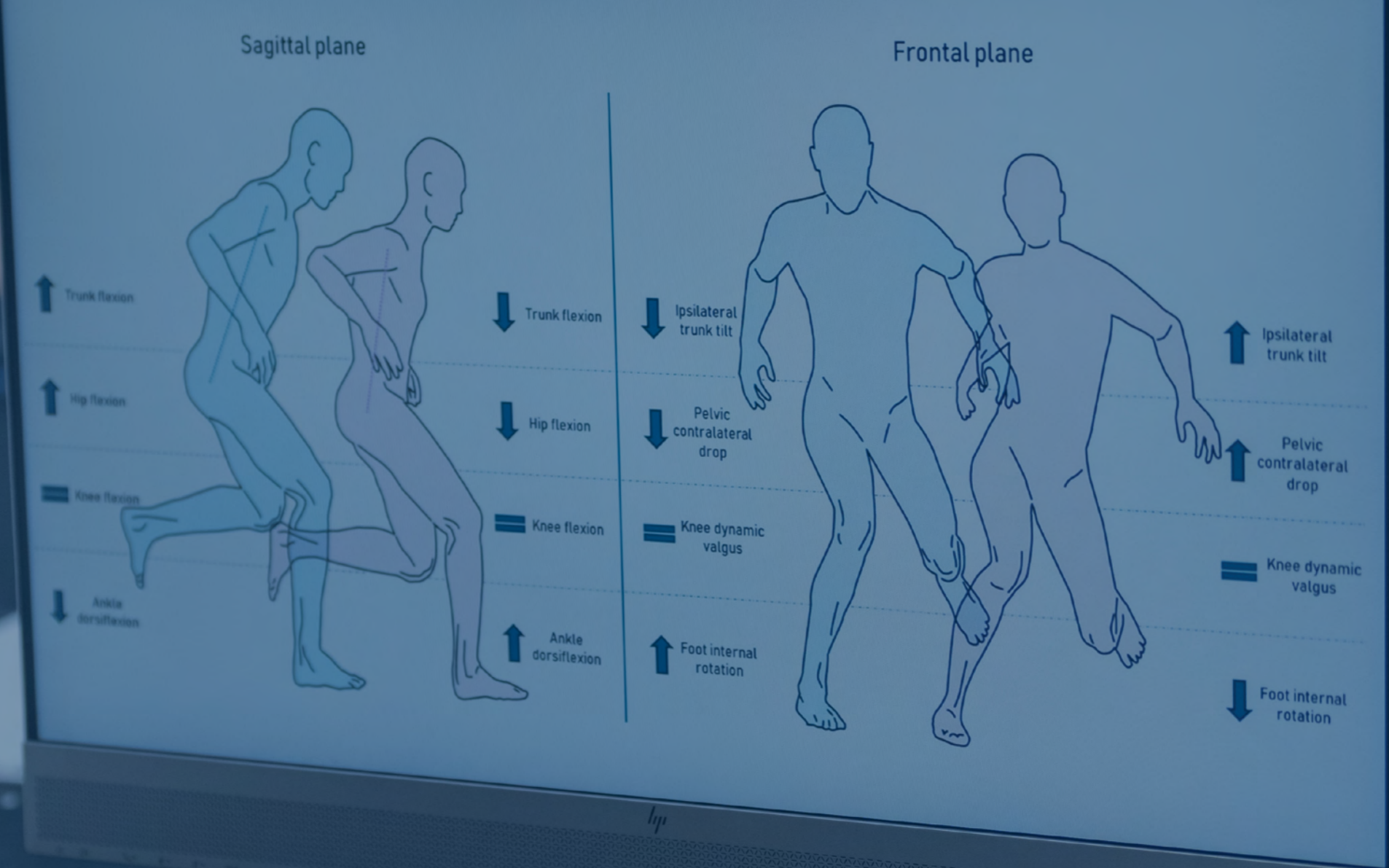
High rate of second ACL injury following ACL reconstruction in male professional footballers: an updated longitudinal analysis from 118 players in the UEFA Elite Club Injury Study. Francesco Della Villa, Martin Hägglund, Stefano Della Villa, Jan Ekstrand, Markus Waldén.

More Than a 2-Fold Risk of Contralateral Anterior Cruciate Ligament Injuries Compared With Ipsilateral Graft Failure 10 Years After Primary Reconstruction. Alberto Grassi, Luca Macchiarola, Gian Andrea Lucchi, MD, Federico Stefanini, MD, Mariapia Neri, MD, Annamaria Silvestri, MD, Francesco Della Villa, MD, and Stefano Zaffagnini, Prof.

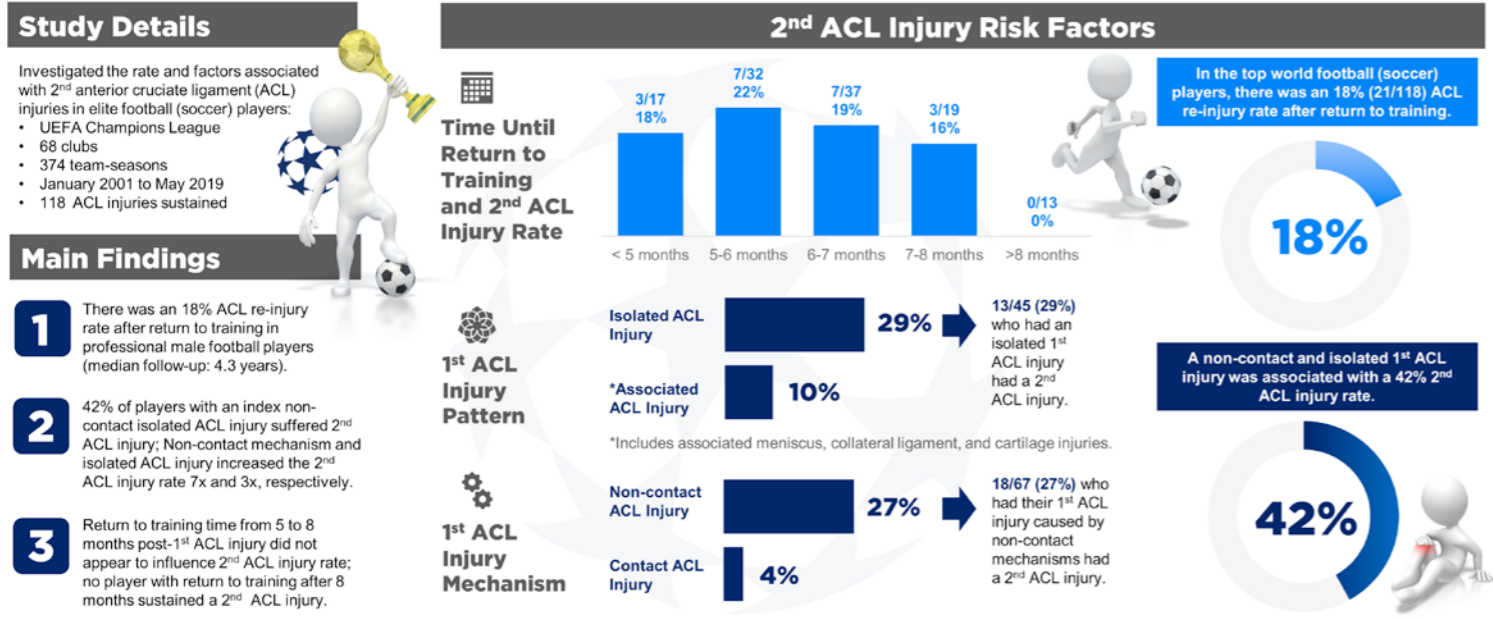
Epidemiology of Anterior Cruciate Ligament Injury in Italian First-Division Soccer Players. Alberto Grassi, MD, Luca Macchiarola, MD, Matteo Pizzini, MD, Gian Andrea Lucchi, MD, Francesco Della Villa, MD, and Stefano Zaffagnini, Prof.

INFOGRAPHICS

Effective communication is as important as rigorous research. We constantly look for the best ways to simplify papers, making them easier to read. The use of infographics in this context are, thus, a powerful tool.

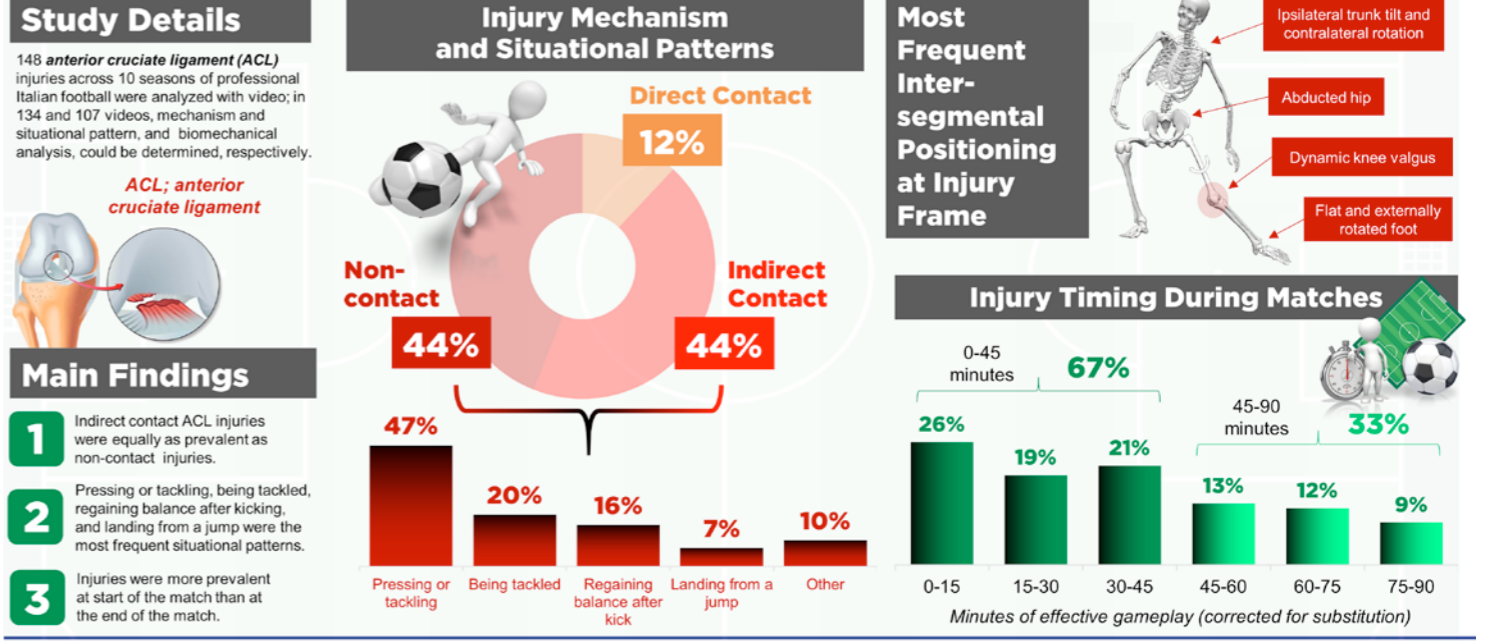


High rate of second ACL injury following ACL reconstruction in male professional footballers: an updated longitudinal analysis from 118 players in the UEFA Elite Club Injury Study



Created by Adam Virgile adamvirgile.com @AdamVirgile @AVSportSci Della Villa F, Hägglund M, Della Villa S, Ekstrand J, Waldén M 2021 High rate of second ACL injury following ACL reconstruction in male professional footballers: an updated longitudinal analysis from 118 players in the UEFA Elite Club Injury Study. *British Journal of Sports Medicine*.

Systematic Video Analysis of ACL Injuries in Professional Male Football (Soccer)



Created by Adam Virgile adamvirgile.com @AdamVirgile @AVSportSci Della Villa F, Buckthorpe M, Grassi A, Nabiuzzi A, Tosarelli F, Zaffagnini S, and Della Villa S, 2020. Systematic video analysis of ACL injuries in professional male football (soccer): injury mechanisms, situational patterns and biomechanics study on 134 consecutive cases. *British Journal of Sports Medicine*.

SCIENTIFIC
ACTIVITY

PARTICIPATION IN CONFERENCES

Every year the Isokinetic Medical Group engages in scientific debates by participating in many national and international conferences where we share our vision on sports injuries management.

Communicate with the World

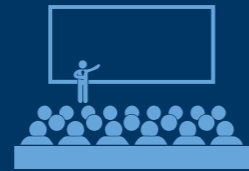


SCIENTIFIC
ACTIVITY

ISOKINETIC INTERNATIONAL CONFERENCE

The Isokinetic Conference, inaugurated in 1992, is now the largest football medicine event in the world. Every year, in partnership with FIFA Medical, we organise this landmark event for the development of the Football Medicine Community worldwide.

We bring together top-level experts in the field of sports medicine from all around the world alongside young talents, offering delegates the opportunity to share their experience and learn from the best. Thousands of sports medicine professionals, from researchers to practitioners, join the scientific discussion that we like to hold within stunning football stadiums.



2.500
DELEGATES



85
COUNTRIES



250
FACULTY
MEMBERS



98
SESSIONS



550
SCIENTIFIC
CONTRIBUTIONS



800
PAGES OF
ABSTRACT BOOK

Our partners through the years:



ATLÉTICO DE MADRID



THE CONFERENCE THROUGH THE YEARS

Since the foundation of our company, we've had an international vision which has perfectly been represented by the evolution of our conference through the years. From a national dimension to an international and worldwide perspective.

*The Isokinetic Medical Group Conference's Mission is:
"to inspire the International Sports
Medicine Community through
culture, image, atmosphere, and
organisation to do their
best to improve world health".*

 LA RIEDUCAZIONE FUNZIONALE SPORTIVA E LA RIABILITAZIONE ISOCINETICA 47 CANTIERE LAGO DI GARDA 11-14 GIUGNO COSTAVALCATELLA	 INARI DOC 1993 TEMA: LA RIABILITAZIONE SPORTIVA CONVEGNO DI RIABILITAZIONE SPORTIVA C/O Università della Facoltà di Medicina e Chirurgia dell'Università della Marche			 ATTUALITÀ NEL TRATTAMENTO DEL LEGAMENTO CROCIATO ANTERIORE: ASPETTI DI DIAGNOSI, CURA E RIABILITAZIONE	 CONVEGNO DI RIABILITAZIONE SPORTIVA C/O Università della Facoltà di Medicina e Chirurgia dell'Università della Marche	 CONVEGNO DI TRAUMATOLOGIA E RIABILITAZIONE SPORTIVA: ATTUALITÀ NEL TRATTAMENTO DELL'ARTICOLAZIONE SCAPOLO OMERALE	 CONVEGNO DI TRAUMATOLOGIA E RIABILITAZIONE SPORTIVA: ATTUALITÀ NEL TRATTAMENTO DELLE CONDROPATIE DI CAVIGLIA E GINOCCHIO
1992	1993	1994	1995	1996	1997	1998	1999
GARDA LAKE	ROME	FLORENCE	RIMINI	BOLOGNA	BOLOGNA	BOLOGNA	BOLOGNA
	 New Trends nella terapia dei menischi e dei legamenti del ginocchio	 Il ritorno allo Sport dopo la ricostruzione del LCA quando, come e perché	 Il trattamento delle lesioni cartilaginee nello sportivo	 The Rehabilitation of Sports Muscle and Ligament Injuries	 The Accelerated Rehabilitation of the Injured Athlete	 The Rehabilitation of Winter and Mountain Sports Injuries	 Health, Prevention and Rehabilitation in Soccer
2000	2001	2002	2003	2004	2005	2006	2007
BOLOGNA	BOLOGNA	BOLOGNA	MILAN	MILAN	BOLOGNA	TURIN	MILAN
	 Knee cartilage: strategies for treatment of acute patients from trauma to microarthroscopy	 Functional Outcome in ACL Reconstruction	 Health for the Football Player	 Football Medicine Strategies			 Football Medicine Strategies for Player Care
2008	2009	2010	2011	2012	2013	2014	2015
BOLOGNA	BOLOGNA	BOLOGNA	BOLOGNA	LONDON	LONDON	MILAN	LONDON
 RETURN TO PLAY	 The Future of Football Medicine	 Football Medicine Outcomes	 Football Medicine MEETS THE UNIVERSITY OF SPORT	 WE ARE BACK Football Medicine THE PLAYERS' VOICES	 30 Years Football Medicine The Pursuit of Excellence	 FOOTBALL MEDICINE BRIDGING SCIENCE AND PRACTICE	 FOOTBALL MEDICINE NEW FRONTIERS IN SPORTS MEDICINE
2016	2017	2018	2019	2022	2023	2024	2025
LONDON	BARCELONA	BARCELONA	LONDON	LYON	LONDON	MADRID	MADRID



ISOKINETIC MEDICAL GROUP

INTERNATIONAL CONNECTIONS

FIFA MEDICAL CENTRE OF EXCELLENCE

Isokinetic Medical Group was the first sports medicine and rehabilitation Centre in Italy to be recognised as a **FIFA Medical Centre of Excellence**. That was in October 2009 and it has set the benchmark in injury prevention and treatment of sports injuries in footballers ever since.



Your vision is only matched by your tremendous leadership in this field and a lot of people owe gratitude to you for providing these opportunities. The conference continues to grow in stature and truly is the biggest and the best.

FIFA 
Andrew Massey
FIFA Medical Director



FIFA Medical Centres of Excellence in the World



INTERNATIONAL CONNECTIONS

INTERNATIONAL CONNECTIONS

Each year we contribute to the activities of the most important international scientific society by participating in conferences and being active members. Examples are the European Society of Sports Traumatology, Knee surgery & Arthroscopy (**ESSKA**) and the International Society of Arthroscopy, Knee, Surgery and Orthopaedic Sports Medicine (**ISAKOS**). Through many years of scientific debates all over the world we created deep connections with overseas colleagues, mentors and friends. These true and deep relationships are one of the key factors in our development.



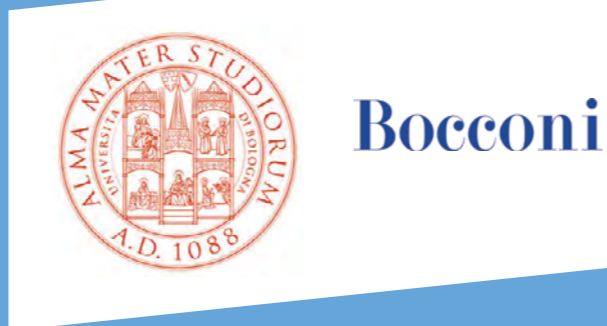
ISAKOS
International Society of Arthroscopy,
Knee Surgery and Orthopaedic Sports Medicine



*Freddie Fu (1950-2021)
a great friend of
Isokinetic, mentor
of thousands.*

ACADEMIC CONNECTIONS

Our collaborations with universities began with the University of Bologna, where many of our founding members have studied. These roots have fostered our commitment to academic excellence, hospitality, and a global perspective. Since 2000, we've expanded our partnerships to include universities across Italy, the UK, and beyond, engaging in joint research projects and educational initiatives. Our international network of universities has facilitated knowledge exchange and fostered innovation. Today, many of our team members are also university professors who contribute to the academic community.



Every year we offer hundreds of internships to students from 35 different universities

ITALY



EUROPE



USA



CV - EVALUATION



INTERVIEW



INTERNSHIP OR FELLOWSHIP



SELECTION



ONBOARD TRAINING



CONTINUOUS EDUCATION



PROFILING
AND TALENT MANAGEMENT

UNDERSTAND

MEASURE

HUMAN
RESOURCES

PROFILING AND TALENT MANAGEMENT

At the Campus we launched a national and international fellowship program where young students can engage with Isokinetic from a research or clinical perspective. They can contribute to the Education and Research Department's activities while learning in a beautiful green environment. Alongside the fellowship programme, we also organise hundreds of internships every year within the Isokinetic network. These activities can generate interesting career opportunities for the most talented and motivated students.



The Education and Research Department and the local management of our centres share the responsibility of human resources with a forward-thinking model with the Campus as an asset.

ONBOARD TRAINING

Once selected, each candidate embarks on a training path specifically designed by the Education and Research Department team. Theoretical and practical training is integrated along with a strong focus on company values, allowing for a progressive and natural integration of the candidate into the company's processes.



1.774

HOURS OF TRAINING
PROVIDED IN ONE
YEAR



7.800

HOURS OF COACHING
IN PRACTICAL
TRAINING

The «Isokinetic Titolari Course», now at its 38th edition, is the first step of onboard training. Lasting one week, this intensive learning period focuses on our core values and method.

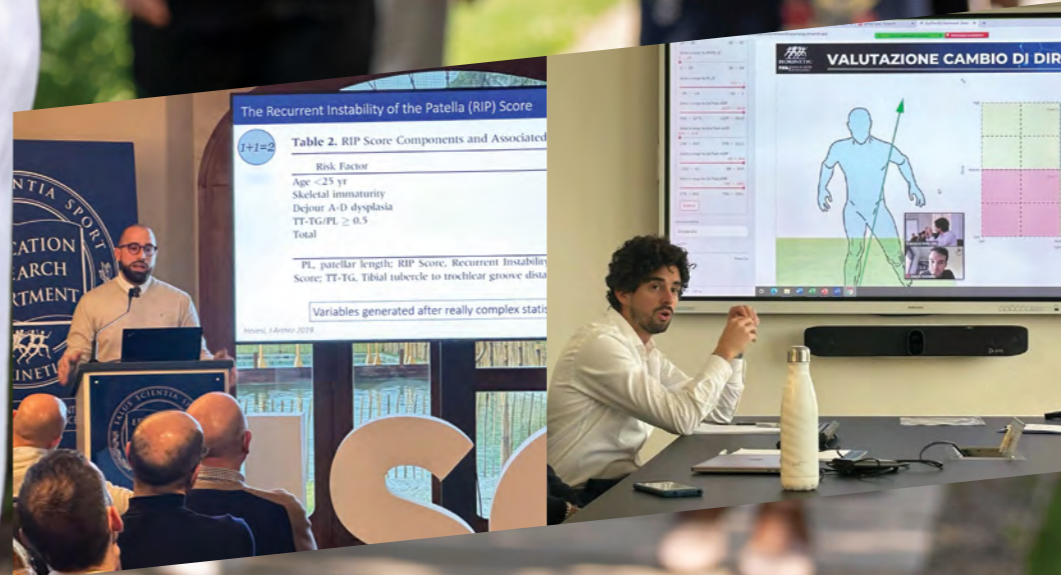
*Continuous education
and updating is at the
center of Campus life*

HUMAN
RESOURCES

CONTINUOUS EDUCATION

To guarantee constant professional development for our people, the Education and Research Department is in charge of our comprehensive updating program throughout the year. Most of these activities take place at the Campus with the goal of culturally guiding the group towards excellent patient care.

Doctor meetings are part of a specific continuous education strategy for Isokinetic Medical Group physicians. Since 2009 we've counted 44 doctor meetings, consisting of 2-3 days of intense scientific and practical discussion on the main sports injuries.



HUMAN
RESOURCES

CONTINUOUS EDUCATION

Experts from all over the world are invited to the Campus to share their knowledge during the Sports Medicine Rounds programmes or through invited lectures.

People from all Isokinetic Centres can come to the Campus to work on individual projects and benefit from the special synergy at the Campus.



ANNUAL COMPANY MEETING

The Isokinetic Company Meeting is a one-of-a-kind experience. Two amazing days of team building with our Isokinetic family to present the incoming year's strategic direction.

During the meeting, special prizes called the Isokinetic Awards are delivered to the top performers of the group.

*Sharing the strategic
direction*



*Special prizes, the
Isokinetic Awards, are
delivered to the top
performers of the group
during the Company
meeting.*

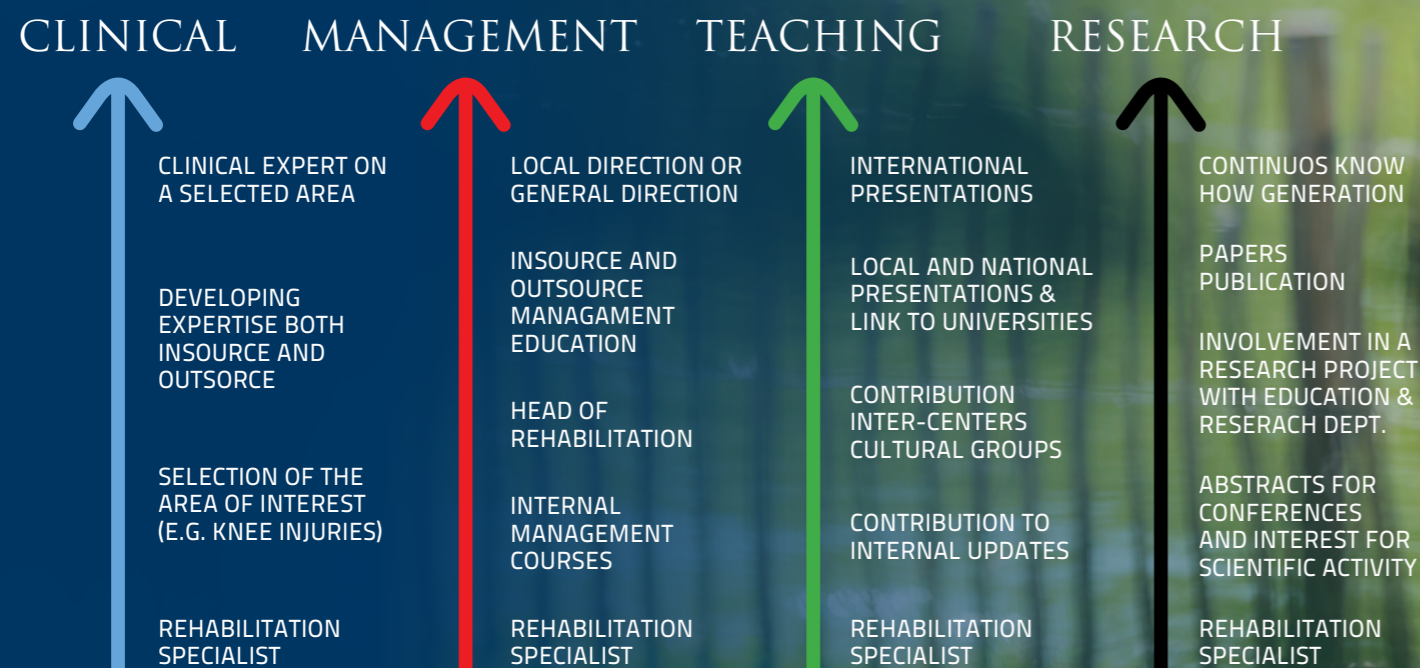


CAREER LADDERS

In Isokinetic we believe in high performance culture and we offer rewarding career paths to the best talents within our organisation. After a few years of contribution within the company, these young professionals are profiled and, depending on their individual characteristics, the best follow one of four career ladders.

CAREER LADDERS

Example for rehabilitation specialists



PROFILING OF THE CANDIDATE AFTER 3 YEARS OF CLINICAL PRACTICE IN THE GROUP

Nurturing the talents

CARING FOR OUR PEOPLE

The Education and Research Department team take care of our people through experienced team members dedicated to the various professional categories.



ISOKINETIC BOLOGNA

The new Isokinetic Center in Bologna was opened in 2004. The flagship center, situated on the Isokinetic Campus, covers an area of 2250 squared meters and is one of the largest structures dedicated to Sports Medicine and Orthopedic Rehabilitation. Equipped with the most modern technologies conceived to bring our patients back to sport, Isokinetic Bologna perfectly integrates our method in a perfectly conceived structure.



Davide Fazzini
Isokinetic Bologna Director

Davide has been working at the Bologna Centre for over twenty years. Starting in the gym as a rehabilitation specialist, after a few years as a manager of the headquarters, he is now the director in charge of the flagship Centre. Davide's is a true example of a successful career within Isokinetic.



ISOKINETIC LONDON

The first international Centre. Isokinetic became international in 2012 when we opened our first Isokinetic Centre in London.

In 2014, after two years of remodeling, we moved to the current Isokinetic London Clinic in Harley Street, the most iconic medical area in the UK and, perhaps, in the world.



Andrea Tartaglia
Isokinetic London Director

After many years growing media and entertainment brands internationally, Andrea joined the group in 2021, guiding our international flagship towards the future.





ISOKINETIC NETWORK

ISOKINETIC TURIN

The Isokinetic Centre in Turin opened in 2003. The Centre is located at the heart of the ancient Roman city, whose historical and prestigious vestiges can be seen in our structure. This iconic Centre is run by Dr. Tencone's team that started there more than 20 years ago.



Fabrizio Tencone
Isokinetic Turin Director
Manager and doctor at Isokinetic Turin since its inception, Dr Tencone is a leading Sports Medicine expert. Being the true leader of his group as he is, he has a clear vision on the future of sports medicine and Isokinetic Turin.

ISOKINETIC MILAN

The first Isokinetic Centre in Milan opened in 2001 in the historical area of via Vivaio, a prestigious area in the city centre, surrounded by Art Nouveau buildings. In 2005, we opened a second Centre in the "Navigli district" of the city. Dr. Panzeri's experienced team is now ready to expand once again. We are currently building the future of Sports Medicine in Milan with a new and prestigious centre in Gae Aulenti Square.



Andrea Panzeri
Isokinetic Milan Director

Experienced manager, former head of human resources, Andrea is the leader of Isokinetic Milan and part of Isokinetic's top management. Along with his experienced team, he has achieved important results.





ISOKINETIC
NETWORK

ISOKINETIC VERONA

Isokinetic Verona started its activities in 2004 in the beautiful setting of Valpolicella, an area renowned for its vineyards that connects Verona to Negrar. Exercise prescription has always been at the core of the activity at Isokinetic Verona, a group representing the perfect balance between young talents and experienced veterans.



Alessio Guandalini
Isokinetic Verona Director

Former manager in the healthcare sector, Alessio was born and raised in Verona. He brought his expertise and relationship skills to the group and has been in charge of the team since 2017.

ISOKINETIC ROME

Isokinetic Rome was opened in 2005 on the outskirts of northern Rome, in the Tor di Quinto area. It is immersed in the greenery of the Parco di Veio, on Via Flaminia. The Centre is situated within the facilities of Unione Rugby Capitolina. The Isokinetic Rome team is ready to write some important new pages of our history in the Italian capital.



Giovanni Maria d'Orsi
Isokinetic Rome Director

Born in the sunny city of Naples, Dr d'Orsi started working at Isokinetic Bologna as a physician in 2012 and directing for a period the Rimini Centre. A skilled doctor, he embarked on the Isokinetic Rome adventure in 2019 and has been in charge of the group ever since.



“ Il movi
è spesso in g
di sostitu
alla medic
nessuna me
può sostitu
al moviment





ISOKINETIC RIMINI

Situated between Rimini and San Marino, between the Malatesta Fortress and Mount Titano, the Rimini Isokinetic Centre, one of our most recent clinics, opened its doors in 2008 bringing our sports medicine experience and know how close to the seaside. The team is young, ambitious, and ready to catch opportunities for the future.



Roberto Acquaviva
Isokinetic Rimini Director
Roberto started as a rehabilitation specialist in Bologna in 2003. He has been in charge of the Centre since 2017 and under his direction, it has been growing steadily.



ISOKINETIC ATHENS

An exciting new international adventure in the cradle of sport history. In the shadow of the Parthenon, where the Olympics were born, Isokinetic Athens is located right inside the Olympic Village.



Kyriakos Tsapralis
Isokinetic Athens Director

A true Isokinetic man, Dr Tsapralis started working at the Bologna clinic as a young sports physician. A leader in soft skills with patients, his special touch with people is rooted in ancient Greek values. After a successful period in Bologna, he is ready to open the Athens branch.





ISOKINETIC VIRTUAL+

Virtual+ is Isokinetic's online clinic, created to offer patients a one-to-one consultation and rehabilitation service online via video call. We offer medical consultations and individual sessions, tailored to our patients' personal, logistical, and clinical needs.



Nicola Stefoni
Isokinetic Virtual+ Director
Born and raised in Bologna, Nicola started working in Isokinetic in 2008 as our corporate lawyer. His passion for digital communication have brought him to explore the frontiers of tele-medicine as the leader of Isokinetic Virtual +.

CAMPUS IN THE MAKING

The Campus has been created thanks to the hard work of the people of the Isokinetic headquarter. According to our philosophy, when we engage with a project, we are fully determined to do it at our full potential.

Giving our best and not our «normal» is part of the high performance culture that we daily teach and apply.

The Campus is a perfect example of this attitude.



Thanks to Marika Palitta, real engine of the Campus in the making. A true example of successful career into our group.

Thanks to Sara Mattioli, Editor of this book and example of the value of human capital in Isokinetic.



