

CURRICULUM VITAE

TRAINING

Born in Modena, e-mail francesco.cavani@unimore.it, office tel. 059 4224851.

He obtained his Scientific Maturity Diploma at the Liceo Scientifico Statale Wiligelmo-Modena- in July 1990 with a score of 52/60.

Enrolled in October 1990 in the first year of the five-year degree course in Biological Sciences (Physiopathology address) of the Faculty of Mathematical, Physical and Natural Sciences of the University of Modena, where he attended the Human Anatomy Section of the Department of Morphological and Medical-Legal Sciences as an internal student in the academic years 1993-94 and 1994-95.

Graduated with 110/110 cum laude in Biological Sciences from the University of Modena on 11 July 1995 with a dissertation on 'Effect of pulsed electromagnetic fields (PEMF) on the physical resistance of neo-deep bone in transcortical holes drilled in long horse bones'.

He did his postgraduate training in the 1995-96 academic year, first at the Department of Morphological and Medico-Legal Sciences, then at the Department of Animal Biology at the University of Modena.

From April 1997 to September 1997, he attended the Department of Animal Biology at the University of Modena, where he learned cytochemistry and immunohistochemistry techniques working with Prof. Enzo Ottaviani.

In June and July 1997 he attended the Experimental Haematology laboratory at the Department of Medical, Oncological and Radiological Sciences, Section of Internal Medicine, Oncology and Haematology at the University of Modena, where he learnt some molecular biology techniques such as nucleic acid extraction, RT-PCR and blotting.

From February 1998 - July 1998, on a *Fogarty International Fellowship from the National Institute of Health*, he attended the laboratory of the Neuroscience Research Institute at the State University of New York College at Old Westbury, Old Westbury, N.Y., where he investigated the effect of opioids and opiates on invertebrates and humans. In the course of these investigations, he learned techniques of computer image analysis, cell culture methodologies and nitric oxide measurement with amperometric probes. He also broadened his knowledge of molecular biology methods. This activity is documented by No. 2 publications (No. 7 and 8 on the list)

From 1 February 1999 to 30 November 2005, he held a research grant at the Department of Anatomy and Histology - Human Anatomy Section, formerly the Department of Morphological and Medico-Legal Sciences, on 'Interactions between biological systems and applied physical energies'.

Since 1 December 2005, he has been a university researcher in the Scientific Disciplinary Sector BIOS-12/A Human anatomy (ex BIO/16) at the Faculty of Medicine and Surgery of the University of Modena and Reggio Emilia and is attached to the Department of Biomedical, Metabolic and Neuroscience Sciences, - Human Morphology Section.

Since 1 June 2022, he has been Associate Professor of Human Anatomy, Scientific Disciplinary Area BIOS-12/A Human Anatomy (ex BIO/16), at the Faculty of Medicine and Surgery of the University of Modena and Reggio Emilia and is attached to the Department of Biomedical, Metabolic and Neuroscience Sciences, - Human Morphology Section.

TEACHING ACTIVITIES

During the academic year 2000-01, he was commissioned to carry out 20 hours of lectures in the field of Human Anatomy for the Degree Course in Health Planning Sciences at the University of Modena and Reggio Emilia.

During the 2001-02 academic year, he was commissioned to provide teaching support to students in the 'Human Anatomy' course for the degree course in Herbal Techniques at the aforementioned University.

During the academic years 2000-01, 2001-02, 2002-03, 2003-04, 2004-05 and 2005-06 she carried out integrative teaching activities, as envisaged by the "Regulations for the conferment of grants for collaboration in research activities" (art. 51, para. 6, L. 27 December 1997, no. 449 and DM 11 February 1998) approved by the Academic Senate at its meeting of 10 May 2000 (art. 4, para. 3), within the Faculty of Medicine and Surgery of the University of Modena and Reggio Emilia. 449 of 27 December 1997 and of the Ministerial Decree of 11 February 1998) approved by the Academic Senate at its meeting of 10 May 2000 (art. 4, paragraph 3), within the Faculty of Medicine and Surgery of the University of Modena and Reggio Emilia for the Scientific Sector BIO16 (Human Anatomy) in relation to:

- Degree Course in Dentistry and Dental Prosthetics
- University Diploma for Speech Therapist, Audiometrist, Hearing Care Technician
- School directed for special purposes for Cardiovascular Physiopathology Technicians.

From the academic year 2006/07 to the a.y.2020/21 he has been teaching Human Anatomy (4CFU) for the Degree Course in Nursing (Modena campus) at the University of Modena and Reggio Emilia.

During the academic year 2021/22 he was co-teacher (1 CFU) in the teaching of Human Anatomy (4CFU) for the Degree Course in Nursing (Modena campus) at the University of Modena and Reggio Emilia.

He also leads the Osteology exercises related to the Human Anatomy I course for the Bachelor of Medicine.

From academic year 2007/8 to 2012/13 he was a contract lecturer of the course Biomedical Sciences for the C.d.L. in Social Educator at the University Institute of Psychopedagogical and Social Sciences Progetto Uomo- didactic pole of Modena-, affiliated to the Faculty of Educational Sciences of the Salesian Pontifical University of Rome.

From A.Y. 2013/14 to A.Y. 2017/18, he was an adjunct lecturer of the course Fundamentals of Anatomy and Physiology (5 ECTS - 30 hours) for the Baccaureate (Degree) Course for Social

Educator at the Higher Institute of Education and Training Sciences "G. Toniolo" affiliated to the Pontifical Faculty of Education "Auxilium" in Rome.

From A.Y. 2016/17 to A.Y. 2017/18 he was co-teacher of Human Anatomy (4CFU) in the course of Human Anatomy in the CdL In Dentistry and Dental Prosthetics of the University of Modena and Reggio Emilia.

From the academic year 2018/19 to date, he has been the titular lecturer of the course Human Anatomy (9CFU) in the CdL In Dentistry and Dental Prosthetics at the University of Modena and Reggio Emilia.

From academic year 2020/21 to date, he has been teaching the modules of Anatomy of the Locomotor Apparatus (3CFU) and Osteology (2CFU) in the teaching of Human Anatomy I in the Medicine and Surgery Degree Course for Officer Cadets at the Military Academy of Modena.

Since the academic year 2022/23 he has been teaching the Basic Anatomy and Movement Anatomy module (4CFU) in the Occupational Therapy and Physiotherapy Lectureships at the University of Modena and Reggio Emilia.

SCIENTIFIC ACTIVITIES AND COLLABORATIONS

Since December 1993 he has collaborated, as a thesis student, on investigations into the effects of low-frequency pulsed electromagnetic fields on the bone repair process. After graduating in Biological Sciences, he continued his research mainly on the interactions between biological systems and physical energies both within the University of Modena and Reggio Emilia as a research fellow and later as a researcher, and in collaboration with other research institutes as listed below. The undersigned has always been involved in histological, histomorphometric and partly statistical analyses in all the studies in which he has participated. In addition to this main line of research, the undersigned has been involved, together with colleagues at the University of Modena and Reggio, in the study of bone metabolism in various in vivo and in vitro experimental models. Finally, especially recently, the undersigned has been interested in dental problems, both implantology and the disinfection of dentinal tubules in collaboration with private dental practices and university clinics.

The study of the interactions between biophysical systems and supporting connective tissues was conducted in collaboration with the company Igea in Carpi and the Istituti Ortopedici Rizzoli in Bologna. Investigations were conducted on animal models to assess the effect of pulsed electromagnetic fields on hydroxyapatite osseointegration, on articular cartilage in osteoarthritis models and in the transplantation of osteochondral grafts. A further field of investigation was the effects of electroporation on different tissues in animal models, for the development of the technology required to optimise the electroporation parameters themselves.

In collaboration with the companies CITIEFFE of Calderara di Reno (Bo) and IGEA of Carpi, the University of Chieti-Pescara and the University of Teramo, a study was conducted on reparative osteogenesis with electrical stimulation administered by means of an external fixator.

In collaboration with the San Raffaele Institute in Milan, studies were conducted on bone metabolism under special conditions such as cerebral infusion of leptin, sympathectomy, ovariectomy in the presence of mechanical vibrational stimulation, and in the case of immunodeficiency of the ADA-SCID type.

In collaboration with the Auxologico Institute in Milan, the company Igea in Carpi and the University of Kiel in Germany, studies were carried out on the interaction between bone and ultrasound to understand how sound waves are influenced by trabecular orientation.

In collaboration with the University of Verona, a study was conducted on the biocompatibility of a new type of porous cement for the fixation of orthopaedic prostheses.

Overall, the scientific activity is attested by over 50 extenso publications, 3 book chapters and over 50 communications at national and international congresses.

INVITED SPEAKER

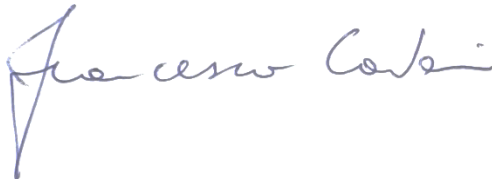
Speaker at the Round Table on: 'Physical means and reparative processes of the skeleton' at the 89th Congress of the Italian Society of Orthopaedics and Traumatology, with a paper entitled: 'Mechanisms of transduction of the physical stimulus in bone tissue', held in Naples, 27 October 2004

Speaker at the CME accredited course: 'Clinical biophysics in sports traumatology and in osteoarticular pathologies' with a paper entitled: 'Clinical biophysics: biological and methodological bases', held in Pavia, 3 February 2005 at the Policlinico san Matteo Orthopaedic Clinic, University of Pavia.

Speaker at the CME accredited course: 'Biophysics: Bone Healing and its surroundings' with the paper entitled: 'Bone tissue and its response to physical stimuli', held in Rome, 21 April 2012, at the Orthopaedic Clinic of La Sapienza University.

Speaker at the CME accredited course: "How to activate or reactivate bone healing" with the paper entitled: "Bone tissue and its response to biophysical stimuli", held in Turin, 28 June 2013 at the Orthopaedic Clinic of the University of Turin

June 2025

A handwritten signature in blue ink, reading "Francesco Colzi". The signature is written in a cursive style with a large, stylized initial 'F'.