Name	**Caroline NICOL**
Date of birth	September 18th, 1965
Family situation	Cohabiting, 1 child
Citizenship	French
Address	Institute of Movement Sciences Etienne-Jules Marey, UMR CNRS 7287, Faculty of Sport Sciences, 163 av. de Luminy, CP 910, 13288 Marseille cedex 09 FRANCE
Email	caroline.nicol@univ-amu.fr
Website	**https://ism.univ-amu.fr/**
Phone	+33 (0)6 79 77 47 01

Current position

Professor at the Faculty of Sport Sciences (FSS), Aix-Marseille University. Member of the Institute of Movement Sciences (**ISM**).

Lines of Research

Biomechanics, Neuromuscular physiology

My research focuses on the links between fundamental and applied research enriching the model of understanding of **(i) the stretch-shortening cycle** (SSC) in locomotion, **(ii) the mechanisms of adjustment/adaptation** to external perturbations (unusual high impacts vs. reduced impacts in hypogravity) or internal perturbations (structural-functional recovery following muscle damage), and **(iii) the influence of sex** (specific fatigue and/or recovery).
I am also collaborating on the detection, recognition and understanding of **EMG patterns associated with phantom movements** produced by patients with arm or forearm amputations and their evolution over time with training or fatigue.

Keywords : Neuromuscular Adjustments, Stretch-Shortening Cycle, Fatigue, Sex, Amputation

Education

1983-88	**Cursus completed in Sports Sciences and Physical Activity** (DEUG & Licence: Univ. of Nice; Master 1 & DEA: Univ Aix- Marseille II, France)
1988-92	**Ph.D. in Life Sciences** (University J. Monnet, St-Etienne), performed in Jyväskylä (Finland) under the co-supervision of Pr P.V. Komi and A. Geyssant (St-Etienne, France). Thesis entitled "Neuromuscular fatigue induced by a marathon run".
1992-93	**Post-Doctorate**, University of Jyväskylä, under the supervision of Pr P.V. Komi
2009	**Habilitation to guide studies (HDR)**. The stretch-shortening cycle: a model for studying compensatory mechanisms in case of alterations to the muscle-tendon unit.

Positions and employment

1993-94	**Teaching Assistant,** FSS, University of Aix-Marseille II (France).
1994-	**Lecturer,** FSS, University of the Mediterranean (France). **2-year secondment at the CNRS** (2000-02) in the UMR 6152 laboratory.
2009	**Lecturer - HDR**
2010-22	**Senior Lecturer - HDR**.
2012-14	**Additional position of Assistant Professor at 20%** at the Norwegian School of Sport Sciences (NSSS), Oslo, Norway.
2022-	**University Professor**

Supervision of Master and PhD students

21 Masters 1 in Sport Sciences, 20 Masters 2 and 7 PhD(s) + 3 ongoing

International scientific expertise

- **Member of 'Mechanical Aids Review Panel' (2021-) & 'Working group on Athletic Shoes' (2020-22) of World Athletic Council**
- **Section Editor 'Biomechanics and motor control' of EJSS (2015-19); Associate Editor (2008-11)**
- **Fellow (2023) & Member Scientific Committee of the European College of Sport Sciences (2000-10)**
- **International collaborations funded** by research grants from the Finnish, Danish, Slovenian and Japanese Ministries of Education, and project funded in 2004 by the European Commission (HUMOS 2)
- **Jury member** of 4 international HDR, 8 international PhD theses (5 as opponent) and 1 ECOS project
- **30 invited lectures** in international conferences, including 9 in ECSS.
- **Advanced international intensive courses** in Jyväskylä (Finland, 2002,2007), Beyrouth (Lebanon, 2010), Berlin (Germany, 2017), Marseille (France, 2000-2022); **M1/M2 courses** (Oslo, Norway, 2012-15)
- **More than 50 reviews** for BJSM, EJAP, EJSS, ESSR, Frontiers, IJSM, JAB, JAP, JB, JOB, MSSE, SJMS

Awards and Honours

- **Nicol C**., Komi P.V., Ishikawa M. (2017). The adaptive SSC: from the fatiguing runs on Earth to the rebounds on March. 35th ISBS Congress, Köln, Germany 15-19th July, 2017. **Keynote lecture.**

Research Support on current research topics

1. **The stretch-shortening cycle (SSC) in human locomotion** (Pr PV KOMI†, M ISHIKAWA 1989-)
   - Muscle-tendon interaction in elite Kenyan runners (IAAF 2010-2012)
   - In-vivo quantification of the stretch-reflex intervention (AMU & Osaka univ. 2014)
2. **SSC-type fatigue** (Pr PV KOMI, M ISHIKAWA, C. NICOL)
   - A model to study the central and reflex adjustments to muscle damage and inflammation (grants from Finnish & Japanese Ministry of Education since 1990; AMU & Decathlon 2008-11)
   - Gender influence on the functional recovery after endurance race (GDR Sport 2019-22; CNRS 2021-22)
3. **Neuromuscular adjustments and adaptations to external disturbances** (P CHAVET)
   - High impacts (European grant: Human Model for Safety Two - *HUMOS2 – 2004*)
   - Partial unweighting and reloading (Region 2013, 2019; National Space Agency 2020-23)
4. **Phantom limb movements in amputated humans** (J DE-GRAAF)
   - Characteristics of phantom upper limb mobility (ANR 2015-18, 2022-24; CNRS MI 2016-18)

Selected Peer-reviewed Publications and Patents

Total number of peer-reviewed publications	Total number of citations	H index	Total number of patents
- 59 papers in ISI journals - 15 book chapters with international editorial board	4.010	33	1

Selected Peer-reviewed Publications

1. Sainton P., **Nicol C**., Cabri J., Barthèlemy-Montfort J., Chavet P. (2016) Kinetics and muscle activity pattern during unweighting and reloading transition phases in running: Adjustments to bodyweight changes in running. *Plos ONE 11(12): e0168545*. doi: 10.1371/journal.pone.0168545.
2. Macchi R., Vercruyssen F., Hays A., Aubert G., Exubis G., Chavet P., Goubert E., Souron R., Kunimasa Y., **Nicol C.** (2021) Sex influence on the functional recovery pattern after a graded running race: original analysis to identify the recovery profiles. *Front. Physiol*. 12: 649396. doi: 10.3389/fphys.2021.649396.
3. Besson T., Macchi R., Rossi J. , Morio C.Y.M., Kunimasa Y., **Nicol C**., Vercruyssen F., Millet G.Y. (2022). Sex differences in endurance running. *Sports Med*. 52(6):1235-1257. doi: 10.1007/s40279-022-01651-w
4. Kunimasa Y., Sano K, Oda T., **Nicol C**., Komi P.V., Ishikawa M. (2022) Muscle-tendon architecture in Kenyans and Japanese: potential role of genetic endowment in the success of elite Kenyan endurance runners. *Acta Physiol. (Oxf)*. 235(2): e13821. doi: 10.1111/apha.13821.
5. Fazzari C., Macchi R., Ressam C., Kunimasa Y., **Nicol C**., Martha C., Bolmont B., Sainton P., Hays A., Vercruyssen F., Lapole T., Bossard M., Casanova R., Bringoux L., Chavet P. Neuromuscular adjustments to unweighted running: the increase in hamstring activity is sensitive to trait anxiety. *Front. Physiol*. 14: 1212198. doi: 10.3389/fphys.2023.1212198.