

## PhD POSITION

Laboratory of Metabolic Adaptations to Exercise in Physiological and Pathological conditions,  
University of Blaise Pascal, Clermont-Ferrand, France

The Laboratory of Metabolic Adaptations to Exercise in Physiological and Pathological conditions (Laboratoire des Adaptations Métaboliques à l'Exercice en conditions Physiologique et Pathologique: AME2P EA 3533), located at the University of Blaise Pascal in Clermont-Ferrand (Director: Pr. N. Boisseau) is seeking to appoint a full-time PhD candidate (36 months) starting **September-October 2015**. The AME2P laboratory is located on the Campus des Cézeaux in Clermont-Ferrand.

The research project is devoted to investigate the mechanisms explaining the lower fatigability during high-intensity exercise in children compared to adults. This finding has been attributed to a lower peripheral fatigue in children. However, the underlying mechanisms regarding the excitability of the sarcolemma, the excitation-contraction coupling and the contractile properties remain to be identified. Furthermore, the amount of peripheral fatigue could be different as a function of mechanical conditions of muscle contraction. Because of a higher musculo-tendinous compliance in children, the development of peripheral fatigue could be clearly lower in children during isometric contractions at long muscle length or during eccentric contractions. Indeed, the compliant tendon could take up a larger part of the length change in children and hence induce less muscle damage. However, direct experimental evidence for this effect remains to be identified. The implication of central factors in the difference of fatigability between children and adults should be also clarified. While no difference of central fatigue of plantar flexors was observed between children and adults, central fatigue of knee extensors was higher in children. This difference could be partly ascribed to the phenomenon of teleoanticipation (unconscious control of the CNS in adjusting the intensity of effort) but this remains to be identified in children. Experiments will be performed in children and adults and neuromuscular function will be studied strictly noninvasively using an isokinetic ergometer, surface electromyography and magnetic stimulation of the peripheral nervous system.

Applicants must hold a Master's degree in sport science, human movement science, physiology, kinesiology, nutrition or a related discipline. Experience with the assessment of human performance or muscle function is highly desirable. Experience with electrical or magnetic stimulation and electromyography techniques is appreciated but not a requirement. An ability to speak French would be advantageous but is not mandatory. Salary is competitive and includes health insurance and complete social coverage.

Deadline for application: June 20<sup>th</sup> 2015

Applicants should send a Curriculum Vitae to:

**Sébastien Ratel (PhD, Associate Professor)**

✉ [Sebastien.RATEL@univ-bpclermont.fr](mailto:Sebastien.RATEL@univ-bpclermont.fr)

**Vincent Martin (PhD, Assistant Professor)**

✉ [Vincent.MARTIN@univ-bpclermont.fr](mailto:Vincent.MARTIN@univ-bpclermont.fr)

Laboratoire des Adaptations Métaboliques à l'Exercice  
En conditions Physiologiques et Pathologiques (AME2P)  
UPRES EA 3533

24 avenue des Landais BP 80026  
63171 Aubière Cedex, France