

Endurance Training – Infographic edition [1]

Mujika I & Le Meur Y, Publisher: Inigo Mujika, 2016

A book on endurance training or a new type of scientific comics? Enter the world of Yann Le Meur, where sports science meets the art of visual communication.

Inigo Mujika is a sports scientist and high performance coach in swimming and triathlon, with extensive applied knowledge in the field of endurance sports. In 2012, he edited an excellent book, *Endurance Training, Science & Practice* [2], where he brought together some of the best in the field to discuss the most relevant topics around training theory: from planning to training response, types of sessions to quantification and monitoring, as well as medical and physiological challenges and issues in different settings and athlete groups. It is a very valuable resource and anyone with an interest in endurance sports should have a deep look into it.

However, as we all know and experience, even the best written and referenced content struggles to make it into the field of training and play. There is no point in creating knowledge through research and experience if it cannot be effectively transferred for the practitioner and his or her athletes. It is with this observation that Yann Le Meur has started creating his (now famous) infographics, a story he tells in the accompanying article in this issue. This new book covers the same chapters as the original textbook, and brings the key points in a well-balanced mixture of text and visual elements, so that coaches, athletes, students and practitioners can engage effectively with the topics. Maybe we are witnessing the start of a new type of publication, the scientific *BD* or comics (the French/Belgian *bande dessinée*). Enjoy reading and watching!

References/Références

1. Mujika Inigo, Le Meur Yann. *Endurance Training – Infographic Edition*. Mujika I, editor. Vitoria-Gasteiz, 2016. 262 p.
2. Mujika Inigo et al. *Endurance Training – Science and Practice*. Mujika I, editor. Vitoria-Gasteiz, 2012. 328 p

The book can be ordered here:
<http://bit.ly/2kuLRL7>



Un livre sur l'entraînement d'endurance, ou une nouvelle sorte de bande dessinée scientifique? Entrez dans le monde de Yann Le Meur, là où la science rencontre l'art de la communication visuelle.

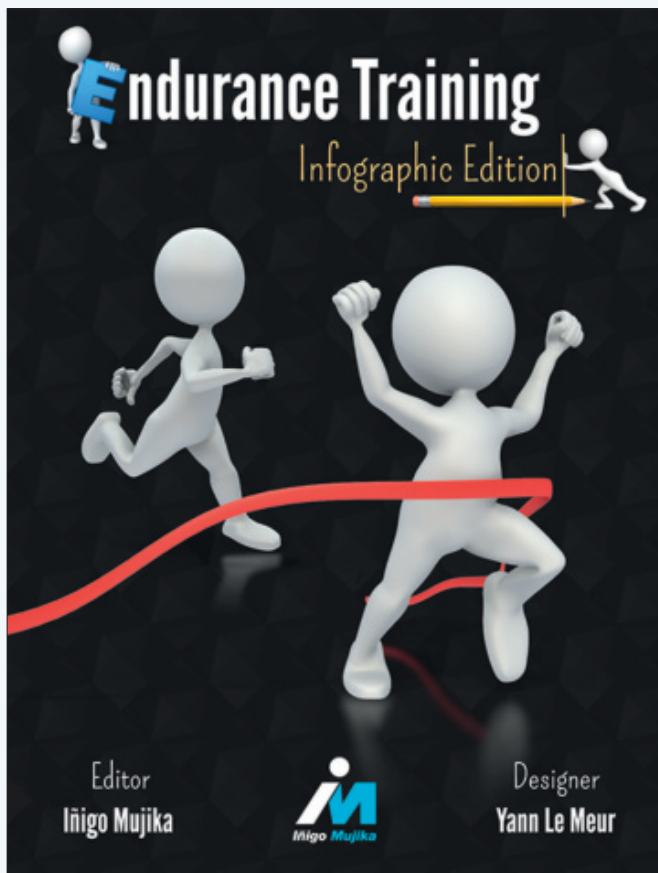
Inigo Mujika est un scientifique du sport et un entraîneur de haut niveau en natation et triathlon avec une vaste connaissance de terrain des sports d'endurance. En 2012, il a édité un excellent livre, *Endurance Training, Science & Practice* [2], dans lequel il a réuni quelques-uns des meilleurs spécialistes du domaine pour discuter des sujets les plus pertinents autour de la théorie de l'entraînement: de la planification à l'adaptation à l'entraînement, des types de séances à la quantification et au monitoring, ainsi que des challenges médicaux et physiologiques dans différents contextes environnementaux aux différents groupes d'athlètes. Il s'agit d'une excellente source d'information et toute personne avec un intérêt dans les sports d'endurance devrait s'y plonger une fois.

Toutefois, comme nous le savons tous d'expérience, même les meilleurs contenus, aussi bien écrits ou référencés qu'ils soient, peinent à se traduire dans le terrain par des applications concrètes. Quelle est l'utilité de la création de contenu par la recherche ou l'expérience s'il ne peut être transmis efficacement aux praticiens et ses athlètes? C'est en partant de cette constatation que Yann Le Meur s'est mis à créer ses (fameuses) infographies, et c'est cette histoire qu'il raconte dans l'article précédent celui-ci. Ce nouveau livre couvre les mêmes chapitres que le *textbook* original, et présente les points essentiels avec un bel équilibre entre le texte et les éléments visuels. Ainsi, les coaches, athlètes, étudiants et les praticiens sont à même d'aborder le contenu avec aisance et confiance. Peut-être sommes-nous en train d'assister à la naissance d'un nouveau type de publication, la *BD* scientifique, ou plutôt à la renaissance d'un art jadis maîtrisé par Franck Netter et ses planches d'anatomie et physiopathologie. Bien du plaisir en lisant et regardant!

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The goal in training competitive athletes is to provide training loads that are effective in improving performance. During this process athletes may go through several stages within a competitive season of periodised training



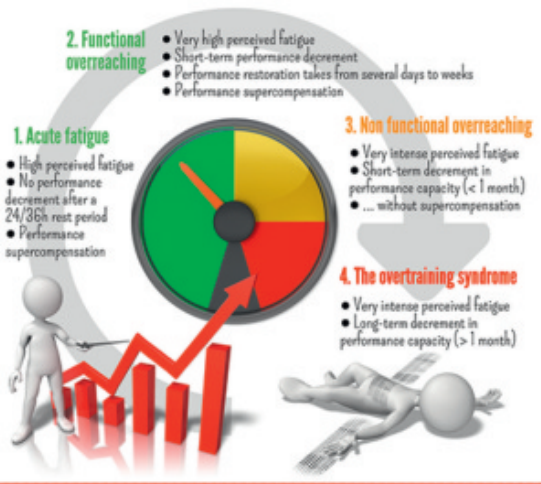
Endurance athletes enhance their sport performance by increasing their training load. As a consequence they may experience acute feelings of fatigue and performance decrements. Acute feelings of fatigue combined with adequate rest is normally followed by a positive adaptation in sport performance. Imbalances between training and recovery can occur and result in functional or nonfunctional overreaching. In most cases recovery will lead to a performance increment, therefore athletes will need a recovery period of days or weeks. On the other hand excessive chronic stress to the body can result in a state whereby athletes need to recover for months or even years

Training and overreaching

A balanced interplay between training and recovery resulting in supercompensation is of major importance for optimal performance. Elite athletes train close to their genetic performance limit and therefore sometimes an athlete crosses that limit, which leads to overreaching



The different stages of training-induced fatigue



Functional or non-functional? That is the question!

Overreaching can be subdivided in functional and non-functional overreaching. The distinction between these terms lies in the recovery period necessary after a high intensity training period. Athletes that functional overreach experience short-term performance decrements without severe psychological or other symptoms, finally resulting in an improvement of performance after recovery. If the balance between training and recovery is disrupted non-functional overreaching occurs. Both functional and non-functional overreached athletes will be able to fully recover after sufficient rest (e.g. two weeks for functional overreaching and several weeks or months for non-functional overreaching).

The overtraining syndrome

When athletes experience performance decrements, they might try to train harder and recover less in order to reach their goal. However chronic stress to the body can result in the overtraining syndrome. Athletes who suffer from the overtraining syndrome may need months or even years to completely recover, leading frequently to cessation of a (top level) sports career

Incidence

There are a wide range of definitions on the overtraining syndrome, therefore prevalence data on overtrained athletes are dispersed. Studies have reported that up to 60% of distance runners show signs of overtraining during their careers, while data on swimmers vary between 3 and 30%. If the above mentioned definitions are used, the incidence figures will probably be less high

A peak into the table of contents, and pages on overtraining, written by R. Meeusen and K. De Pauw.