

# Scottish Rugby to use chocolate defence



## University researchers & Scottish Rugby tackle the 'superfood' value of chocolate

Queen Margaret University (QMU) is teaming up with Scottish Rugby and a Scottish chocolate manufacturer to try and find out whether chocolate really has superfood value.

New university research has shown that an artisan chocolate made in Scotland has the potential to increase the reaction times of Scotland's toughest rugby players.

In addition to seeing a marked trend in reaction times of rugby players, the research also showed that iQ Chocolate has a greater antioxidant level compared to other leading chocolate brands assessed.

Stirling-based iQ Chocolate enlisted the help of QMU and 12 of Scotland's toughest rugby sevens players to put the product through robust scientific analysis and up against the extreme physical demands of these sporting giants.

The results of QMU's research has gone some way to dispel the myth that all chocolate is an unhealthy indulgence. The results of the mental function study also confirmed the rugby squad displayed a marked trend towards faster reaction times after eating the iQ brand.

With a strong research background in supporting the development of Scotland's food and drink businesses, iQ Chocolate identified QMU as the academic partner with the widest skills and knowledge for analysing the science behind its premium product.

Researchers at QMU have extensive experience of assessing the antioxidant content of a wide variety of food products, including undertaking a number of studies which have identified the nutritional and health benefits of antioxidant rich foods such as sea buckthorn and tea.

Cocoa is a very concentrated and valuable source of antioxidant in the diet, along with certain fruit and vegetables and red wine. Varying levels of antioxidants found in these everyday products can have a positive effect on heart health and mental function.

The most widely consumed source of cocoa is chocolate, which is often perceived as an unhealthy food. Most chocolate available on the market is highly refined, with high sugar and fat content, as well as relatively low cocoa content. Bearing this in mind, iQ Chocolate wanted to create a chocolate that challenged this negative image.



iQ Chocolate is a raw, organic, bean-to-bar chocolate that has a high 72% cocoa content. It is produced and formulated in a particular way to retain specifically high antioxidant level.

With help from QMU researchers, iQ Chocolate wanted to provide customers with more detailed nutritional information about the antioxidant properties of its products and its positive health benefits, especially for those people who take part in regular intense exercise and sports.

QMU and iQ Chocolate decided to test the product on the Scottish Rugby Union sevens squad. Rugby performance is influenced by physical activity levels, but also relies heavily on tactical behaviour and decision making. Since rugby is one of the most tactically complex sports, a high antioxidant intake on a regular basis, specifically before a match, offers the potential to provide additional benefits for players in terms of both physical and mental function

abilities.

QMU researchers assessed the antioxidant function of three different chocolate brands, including iQ Chocolate, to investigate the effect of each on the rugby squad's post-training mental performance. The project was a single-blinded randomised controlled trial that assessed both the speed and accuracy of the squad's mental responses.

After just a short period of chocolate consumption, the results of the mental function study confirmed the rugby squad displayed a marked trend towards faster reaction times after eating the iQ brand. These small changes could be significant in the sporting world where reaction and response time to stimuli is crucial.

The research also confirmed that iQ Chocolate has a unique and greater antioxidant level compared with the other leading chocolate brands assessed.

The potential link between high antioxidant levels and faster reaction rates revealed in the study is now allowing iQ Chocolate to better inform its customers about the nutritional content and physiological benefit of its product. Inclusion of this information on food labelling could assist and encourage consumers to differentiate between brands and help them make healthier food choices.

Dr Jane McKenzie, Academic Lead for Food & Drink Knowledge Exchange at Queen Margaret University, discussed the findings: "Cocoa rich products like chocolate are amongst the most concentrated and valuable sources of antioxidants in the diet. Antioxidants play a valuable role in maintaining good health. They can help protect cells from damage and are important in the fight against disease, as well as improved mental function.

"Our research showed that there was a trend towards greater cognitive performance amongst the Scottish Rugby Union sevens

squad after eating iQ Chocolate compared with the other brands. The results also confirmed that iQ Chocolate has a unique and greater antioxidant level.”

Dr McKenzie concluded: “Hopefully this information will be really helpful to consumers who are interested to know about the nutritional content of iQ Chocolate, especially those who regularly take part in sports.”

iQ Chocolate has developed a unique process, designed to maximise the nutritional value, all the way from the bean to the bar. Its creators Kate Hamilton and Jane Shandley are also the only women in the country making chocolate direct from the bean.

Kate Hamilton, co-founder and product innovation director for iQ Chocolate, said: “The latest scientific data from QMU is helping us develop our product range, aimed at specific sectors. Based on the findings from this research, we are extending our product offering, to include a range of bars specifically designed for athletes and other sport and exercise participants looking for a natural boost to sporting performance. We are continuing to work with QMU, as part of our drive to reposition chocolate as a naturally healthy food to be enjoyed as part of a nutritionally balanced diet.”

iQ Chocolate is now being successfully marketed as a superfood with the aim of repositioning its range of premium chocolate products as naturally healthy food. iQ Chocolate is particularly suited to the sports market, as it is fuel rich and a healthy alternative to other high energy snacks.

Scottish Rugby currently now recommends iQ Chocolate as a post match snack to its players due to its high antioxidant content.

Richard Chessor, Lead Nutritionist for Scottish Rugby said: “Maintaining cognitive performance is crucial to success in elite sport and therefore any strategies that may support the

reaction time and decision making ability of our players are incredibly valuable.

“We’ve used iQ Chocolate at Scottish Rugby for the past year as it contains a strong nutritional profile which we feel benefits our players across a number of different physical, mental and general health parameters. In particular, the superior antioxidant content of iQ Chocolate compared to rival chocolates turns it from a forbidden food to a functional food.”

A Sports Technology Award for Research (STAR) grant funding for the [iQ Chocolate](#) research was provided by the Sporting Chance Initiative – Scotland’s hub for business innovation in sport.