

# Web Appendix 2 - sports company correspondence

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## Summary

Companies contacted: 42

Replied: 27

Number providing references: 9

Number providing references for actual product(s) enquired about: 6

## Original enquiry email

Dear xxx,

I am writing on behalf of a team of researchers from the BMJ (British Medical Journal) and the Centre of Evidence Based Medicine at Oxford University. In the run up to the 2012 Olympics we are undertaking a piece of research analysing the evidence for sports health products. This will appear in the BMJ. Since we are on a very tight deadline we would appreciate your answers by the end of the week (18th May).

So far, we have used pieces of published research where possible. But we are aware that this might be the complete picture.

On your website you have listed the following references to scientific articles as evidence for

[Product names here]

Because we are trying to evaluate the evidence base across a range of products fairly, we would like to be sure that this represents a complete list of scientific articles that you have used to demonstrate how these products work.

[Found references here]

Do you think you could tell us:

If this is a complete list?

If not, what other data you have used to support your claims?

Is this published or unpublished?

If the research is published could you provide us with the relevant references?

If your research is unpublished, would you be willing to share it with us so we can fairly evaluate how your product works?

Please note, we are aiming to capture everything as accurately and fairly as we can. If you are unable to provide us with further information we will also note this in our research.

Don't hesitate to contact us for further information, but we would appreciate a prompt response.

Kind regards

## Company correspondence

### GSK

Products

Lucozade Sport

Lucozade Sport Lite

Lucozade Sport Pro Muscle protein bar

Lucozade Sport jelly Beans

Lucozade Sport Body Fuel Powder

Lucozade Sport Body Fuel Gel

MAXITONE SCULPTRESS

Maximuscle

Cyclone Maximuscle

“Focus system”: Viper Boost, Viper Boost Bar, Viper Boost Capsules, Viper Boost Gel (4 products)

“Energy system”: Viper Active, Viper Active Capsules, Viper Active Gel, Viper Active Bars, Viper Active Sachets, Creatamax Capsules, Electro Tabs (7 products)

“Recovery system”: Protrient, Ache Free, BCAAs, Immune Support, Recovermax, Sports Vitamins (6 products)

MAXIFUEL Viper Active and Recovermax

## **Company response**

Further to our conversation please find attached the information that you requested. I hope that the following information helps you with your enquiry.

All the Maxifuel and Lucozade Sport products mentioned in the attached are based on well researched ingredients and the references listed on the website provide an example for the consumer. The main ingredients in this range are carbohydrates, caffeine and protein all of which have approved EFSA health claims and a large amount of research papers to support the benefit for fuelling, focus and recovery. Attached is a more comprehensive list of references that apply to each product in turn based on the ingredients found in the formulation.

## **BMJ follow up**

Thank you for your help in sending over the references for your products. As you can imagine, asking a library to collate all these papers will take quite some time. I imagine you have PDFs all of these as a dossier already.

Do you think you could send them over? If you don't have them, we would also be grateful if you could send summaries.

We were also wondering what kind of methods you have employed to check the quality of the studies. Do you think you could share that information with us?

And lastly, do you think you could tell us which of these studies actually use your products (rather than just the active ingredient)?

If none of them do, which use the active ingredient in the same doses as contained within your products?

We would be grateful for some guidance on this.

## **Vegasport**

Products

Pre-Workout energizer

Electrolyte Hydrator

Endurance Bar

Endurance Gel

Performance Protein

Protein Bar

Recovery Accelerator

## **Company response**

I'm the Public Relations Manager for Vega and this request has just come to me. I've confirmed with our QA team that it would be possible for us to provide more information to your questions below; however, before we do so, I would like a copy of your research proposal, including the credentials of the researchers involved, name of your supervisor and a formal letter from the BMJ requesting this information with a summary of how it will be presented should it be included in the article. Depending on the nature of how this information will be published, we may require a non-disclosure agreement to be signed.

I appreciate your deadline for information is May 18; however, asking us to submit this information in four days is not feasible unless we can obtain the information above from you. Furthermore, I would like to express now that it would not be fair nor representative to suggest we are unable to provide further information as noted in your final sentence from the email below, if you cannot help meet our needs for information expressed above or extend your deadline: "Please note, we are aiming to capture everything as accurately and fairly as we can. If you are unable to provide us with further information we will also note this in our research. Don't hesitate to contact us for further information, but we would appreciate a prompt response."

The timing and nature of your request is unusual compared to other requests we've had from medical journals which typically come by way of formal letter, and thus we may need more time and information from you to help out.

Vega has great respect for the British Medical Journal and we look forward to assisting you with your research as best we can!

## **BMJ follow up**

Thanks for agreeing to provide the info.

Please find attached a letter and full research protocol, as requested.

## **Company response**

Thanks for sending the study information over. Before I go any further, I need approval from senior management. What is your absolute latest for receiving the information if it is approved?

## **BMJ follow up**

Thanks for the help. The absolute deadline will be end of the day on Thursday (your time).

## **Panache**

Panache Sports Bra (represented by Instinct PR)

### **Company response**

I've just heard back from the client to say that they don't want to share their research data at this stage.

### **BMJ follow up**

Could you confirm whether the company has research and just does not wish to share it, or whether there is no research?

Also, any reasons why they'd rather not share it would be helpful

### **Company response**

Panache does have research they're just keen to keep it to themselves at the moment. As a market leader I'm sure you understand that they wish to remain there and not openly give their research out.

### **BMJ follow up**

So, to confirm, the research is not published in any academic literature? Is it peer reviewed?

### **Company response**

I can confirm that the research that was conducted by Progressive Sports based in Loughborough is not published.

### **BMJ follow up**

Thanks for the extra info. Just a couple of more Qs to make sure I'm being thorough.

Could you explain a little more the rationale behind not publishing the research?

As you know, publishing research is standard practice in the science world, so are there specific aspects of this product or market sector besides its competitive nature that inform the decision not to publish?

Thanks for the continued help.

## **Compressport**

Product

Compressport Full Socks

### **Company response**

I don't understand why do you link the product Compressport Full Socks to the two studies done with the product Compressport R2 ?  
Could you please explain to me ?

AND

In answer to your request please find attached :

- LEDUC study in French
- LEDUC study in English (Summary)
- MENETRIER study in English

You could contact the authors if you want.

- Olivier LEDUC

- Arnaud MENETRIER :

Please be aware that these studies have been done with the R2 products.

Let me know if you need more information.

### **BMJ follow up**

Many thanks. Do you have research for Compressport Full Socks too? Specifically, research behind these claims:

1) ensures venous return and recovery; 2) improve your performance; p3) protect muscles from oscillation and impact shock waves; 4) reduces muscle damage

Do you think you could tell us:

what data and research have you used to support your claims over Compressport Full Socks?

Is this published or unpublished?

If the research is published could you provide us with the relevant references?

If your research is unpublished, would you be willing to share it with us so we can fairly evaluate how your product works?

## **Pacific Health Labs**

Products

Accelerade advanced sports drink & Hydro

### **Company response**

Please see our website at [www.pacifichealthlabs.com](http://www.pacifichealthlabs.com).

Click on each product on the right side. On each product page, you will see a tab for Studies.

Hope this helps, please keep me informed and updated on your project.

## **PE Science**

Product

Anabeta

### **Company response**

This website published an article on the extract today:

<http://ergo-log.com/spanish-chamomile-t-booster.html>

AND

The study sent this morning is a key study that you are missing from the list.

<http://www.ncbi.nlm.nih.gov/pubmed/22473789>

We are changing our writeup to gauge this new research, which actually tests serum levels of testosterone changes in the animal model. Previous studies did not test serum testosterone levels, they just tested groups taking the extract



compared to animals taking testosterone, and noted the anabolic effects with a testosterone-like effect.

The beauty of a supplement that can be anabolic without lowering, and in this case actually increasing testosterone is it gets rid of the major issue with synthetic anabolics -- HPTA suppression.

The most interesting thing about the research in the original animal studies is that in the extract group that gained an equal amount of weight compared to the testosterone group, the prostate weight gain was insignificant which is very important. Prostate weight gain is a key marker in determining how androgenic something is, whereas bodyweight gains is a key marker of how anabolic a substance can be.

This shows anacyclus may have abilities to gain body weight independent of testosterone increase. One theory is that it may increase muscle glycogen retention (or reduce muscle glycogen depletion), and it has been studied for its hyperglycemic effect in animals:

<http://www.idosi.org/ejbs/3%284%2911/4.pdf>

<http://www.academicjournals.org/jmpr/PDF/pdf2012/30%20Apr/Selles%20et%20al.pdf>

We have had hundreds of users come back to us saying that when they take 2-3 capsules of AnaBeta with a high carbohydrate meal they will get hypoglycemic feeling that they do not normally get. So it may be possible this is one of its mechanism of action, perhaps through GLUT4, but it is something we will be looking into in the future.

There has been a number of new studies on this ingredient just in the past 9-12 months, and we expect it to continue since we released the ingredient to the supplement market. If you have any questions regarding specific claims or need any specific info feel free to ask.

Also, in closing, here is one study that highlights the safety of the extract in the animal model:

<http://pharmacologyonline.silae.it/files/newsletter/2011/vol1/015.gautam.pdf>

## **New Balance**

New Balance trainers (represented by PR company SX-media

Sorry I couldn't answer your query straight away yesterday, when I didn't have the right document to hand. The claim I'm referring to is: "lighter lower to the ground ride without sacrificing cushioning".

With this in mind, please could you send us:  
what data you have used to support your claims?  
Is this published or unpublished?  
If the research is published could you provide us with the relevant references?  
If your research is unpublished, would you be willing to share it with us so we can fairly evaluate how your product works?

### **Company response**

Further to our conversation I'm afraid New Balance are unable to provide the data you are looking for on this occasion.

### **BMJ follow up**

Thanks for letting me know. Could you provide more detail as to why?

Specifically:

Is there any scientific research behind "lighter lower to the ground ride without sacrificing cushioning"?

If so, could you detail why New Balance can't provide it or point me to it online?

### **Powerbar**

Powerbar All in One, Whey isolate, Muscle up & Charger

### **Company response**

Please find attached our literature overview and science background for the PowerBar Products ALL IN ONE, MUSCLE UP, WHEY ISOLATE and CHARGER.

- a. If not, what other data you have used to support your claims? Our Product claims are EFSA based
- b. Is this published or unpublished? For the 4 products we have used published papers

- c. If the research is published could you provide us with the relevant references? => Please find attached the lit overview
- d. If your research is unpublished, would you be willing to share it with us so we can fairly evaluate how your product works? Unfortunately we are not allowed to share unpublished data's
- If you need any further product or science information please do not hesitate to contact me- I will be happy to support you!

## **Nike**

Products

Nike LunarEclipse

Nike LunarEclipse Shield

## **Company response**

Please can you let me know where you've seen the claims made that you referenced in yesterday's note-namely: the ride's perfect adapts to every stride

AND

Apologies to chase you on this but it would be great to know where you saw these claims made as I can't see them in our PR materials.

## **BMJ follow up**

Apologies for the delay - I'm waiting on colleagues and will get back to you on this. We can obviously give you a little more time, into next week. I hope to get back to you today.

AND

The ad text is available here, page 2:

<http://issuu.com/larryeder1958/docs/ao-fall-winter-2011>

The bottom right hand corner states:

Even the most innovative technology won't help much if your shoe doesn't fit. So for the Nike LunarEclipse+, we combined the soft, smooth Lunarlon cushioning runners love with the pitch-perfect stability of dynamic support. Then wrapped it

all up with the new dynamic fit system, which tailors the shoe perfectly to your foot and adapts to every stride. So the fit's personal, and the ride's perfect."

### **Company response**

"The ride's perfect"

In this context, "the ride's perfect" refers to the sensation runners feel in the smooth Lunarlon cushioning and the stability provided by the dynamic fit system.

"Adapts to every stride"

The use of "adapts to every ride" is a reference to the dynamic fit system, which is a Nike innovation. Featuring soft material that wraps the midfoot and arch from under the foot and connects to the laces, the fit system reduces the space between foot and shoe. It moves with the foot as you run, thereby providing a personal fit. This is in contrast with conventional shoe constructions that pull from the outside edge of the shoe's sole unit.

Attached is a video showing how the dynamic fit system moves with the motion of the foot. Watch the silver line drawn on the shoe in the video. It is marked on the fit system while the shoe is at rest. The exterior mesh panel has been cut away to expose the fit system. When the runner runs, that silver line pulls away from the sole unit bite line & shows how the fit system moves with the foot through the foot strike.

<<https://www.wetransfer.com/dl/oZ9zgM4J/1a7cf06fd42d161ea1f8fe7a883bee28162db3af3ce779937edf82a488560656082ed9fb3892587>>

<<https://www.wetransfer.com/dl/JTt5BM67/1ebe7e43a1d851acd721856f69c55e027ea4f2ba5005d1f060410021e879439fc6a2629738924fa>>

### **BMJ follow up**

Any idea how come these wordings weren't in your PR materials?

### **Company response**

Further to your recent enquiry, we believe that the explanation we have already provided sufficiently substantiates the claims you have questioned. I've copied our original response below.

The ride's perfect"

In this context, "the ride's perfect" refers to the sensation runners feel in the smooth Lunarlon cushioning and the stability provided by the dynamic fit system.

“Adapts to every stride”

The use of “adapts to every ride” is a reference to the dynamic fit system, which is a Nike innovation. Featuring soft material that wraps the midfoot and arch from under the foot and connects to the laces, the fit system reduces the space between foot and shoe. It moves with the foot as you run, thereby providing a personal fit. This is in contrast with conventional shoe constructions that pull from the outside edge of the shoe’s sole unit.

Attached is a video showing how the dynamic fit system moves with the motion of the foot. Watch the silver line drawn on the shoe in the video. It is marked on the fit system while the shoe is at rest. The exterior mesh panel has been cut away to expose the fit system. When the runner runs, that silver line pulls away from the sole unit bite line & shows how the fit system moves with the foot through the foot strike.

<<https://www.wetransfer.com/dl/oZ9zgM4J/1a7cf06fd42d161ea1f8fe7a883bee28162db3af3ce779937edf82a488560656082ed9fb3892587>>

<<https://www.wetransfer.com/dl/JTt5BM67/1ebe7e43a1d851acd721856f69c55e027ea4f2ba5005d1f060410021e879439fc6a2629738924fa>>

### **BMJ follow up**

Thanks for getting back to me. I just want to confirm something. There's no scientific research, published or unpublished, on which the claims and explanations draw?

## **Merrell**

Products

Merrell Barefoot: “Run”, “Train”, “Water”, “Life”, “Kids”

Correspondence

**BMJ email**

Specifically, the claims we're looking at research for are:

- 1) Helps you find the natural way you were born to run;
- 2) forefoot plate and Vibrant sole provides traction and protection for a smoother ride.

The relevant products are listed in the original email below.

### **Company response**

Having checked with the States I can confirm that our claims were taken from the work of Daniel Lieberman at the Harvard Skeletal Biology Lab and his study into Biomechanics of Foot Strikes & Applications to Running Barefoot or in Minimal Footwear.

Please see <http://www.barefootrunning.fas.harvard.edu/index.html>

I am happy to assist further if you need any more information from me and so please do not hesitate to ask

### **BMJ follow up**

Has there been any research done on the actual trainers? If so, could you send me the relevant journal papers or point me in the right direction online?

### **Company response**

We do not have any proprietary research on the trainers which we can supply. I have attached some more of the Lieberman work if of use. I have asked the PD team in the US if there is any publicly available research on Barefoot trainers generally but I have to say I am not aware of any.

AND

I have spoken with the USA and they do not know of any published research on Barefoot trainers.

### **GNC (PR Market com)**

Products

"GNC Ultra Mega Women's Vitapaks; GNC Women's Ultra Mega Active; GNC Women's Ultra Mega 50 Plus; GNC Women's Ultra Mega Menopause; GNC Ultra

Mega Green Women's Vitapak; GNC Women's Ultra Mega Joint; GNC Women's Ultra Mega Wellness Vitapak; GNC Women's Ultra Mega Energy; GNC Women's Ultra Mega Heart; GNC Ultra Mega Green Vegetarian Vitapak (9 products) "

### **BMJ follow up**

Further to our phone call, I haven't yet received any articles or a response regarding my request. The initial deadline has far passed. Would you be able to get this to me by the end of today?

### **Kinetica**

Product  
Kinetica Protein shake Supplement

### **BMJ follow up**

Specifically, we're looking for the research that supports these claims:

- 1) support and sustain lean muscle, before during or after workout
- 2) giving your body everything it needs to succeed

We've found the 7 references included below in my first email, so we'd be looking for all other data and research beyond these 7 papers, as per the questions in the original email below.

Hopefully this narrows down the scope somewhat. Could you say realistically whether you'd be able to get things to me - if not today, in the first half of next week?

### **Zip Vit Sport**

Product  
ZV7 Energy gels

## **BMJ follow up**

Could you give me an idea of when I could expect to hear more from you? By mid-week this week is best.

## **Sci-MX Nutrition**

Product  
Sci-Max (Omni MX hardcore)

## **Company response**

I have passed this on internally. If we are able to assist someone will be in touch. I shall chase up again.

## **Body Building Warehouse**

Product  
Warrior Blaze Supplement

## **Company response**

What will the research be used for and how will the industry benefit?

There's a lot of research out there which shows how effective use of sports supplementation can help individuals get into better shape safely, than with training and diet alone, however I've got to admit I've never thought the mainstream medical community a friend to our industry. In most cases the attitude seems to be "if it works, make it a medicine and restrict its sale".....which is exactly what has happened to Yohimbe (safe, effective, and now classed as a medicine), Milk Thistle (safe, effective, and now classed as a medicine), DHEA and more....

Why are you interested in that specific product and what other products are you looking at? Who is the research for and what will it be used for? Who is paying for the research?

## **BMJ follow up**



We're looking at a range of sports-related products from many companies. As mentioned in my original email, the research is for the BMJ and will be published in the same. Our work is in conjunction with the Centre of Evidence Based Medicine at Oxford University. The BMJ and the Centre are funding the research.

How will the research benefit the industry? That's hard to say until we've done the research and collected lots of references for lots of products. I wouldn't want to make conclusions about anything until we've done the research.

Can you send me the research you mention, or specific research on Warrior Blaze Supplement?

### **Company response**

What will the research be used for? How were the products selected? Can you give me a couple examples of other products you're reviewing? I'm aware that legislation is quite relaxed in the US and much less so in, perhaps, Norway. Obviously I'm in favour of freedom of choice and consumers having the right to do what they want with their own bodies, so I'm concerned any help I provide being misused to oppress this.

In terms of research, I can provide this as that product is a collection of very simple ingredients – anyone with access to the internet could do the same, and I'm happy to help if I can get a better idea of your goals.

### **BMJ follow up**

My research is for an article in the BMJ looking at the evidence for a number of sports health products. I can't say anything more than that because we don't know what the research will raise.

I don't think that any research you provide could be seen to oppress a consumer's freedom of choice. The point of research is to do the opposite, no?

As mentioned previously, this is the relevant research we've found so far, and we're hoping you can help by pointing us to further research about, or of relevance to, the Warrior Blaze Supplement.

1. Westerterp-Plantenga MS. Green tea catechins, caffeine and body-weight regulation. *Physiol Behav.* 2010 Apr 26;100(1):42-6. Epub 2010 Feb 13.  
<http://www.ncbi.nlm.nih.gov/pubmed/20156466>

## **DS**

Products

Triazole

Triazole/Activate Extreme

CRAZE

### **Company response**

The references for our products are all clearly listed at the bottom of the FAQ pages.

The blood work charts shown for Triazole and Activate Xtreme were compiled in-house, using data provided by testers - many of whom are people not involved with the company.

We are currently in the process of working out a schedule for the next 12-18 months for double-blind placebo controlled studies for our products with an outside research group. We have a completed (but unpublished) pilot-study on Triazole for safety and efficacy, and studies on Craze for both acute and long-term use are about to get underway. We are looking to get similar studies started for both Activate Xtreme and Lean Xtreme in the near future.

AND

Thanks for getting in touch with us. Very glad to see you are looking to be as accurate as possible, as Anabeta is not a product we produce! Additionally, we do not use the core ingredient for that product - anacyclus - in any of our products. Anabeta, and all of the references you cut and pasted into your email, is from a company called PES. We have no affiliation to this company, but I have ran a quick google search and found that you can contact them at this URL:  
<http://pescience.com/contacts/>

### **BMJ follow up**

Thanks for getting back to me - our dialogue shows exactly why research is important. I'll contact PES with regard to Anabeta.

Meanwhile, could you help with the rest of my enquiry, regarding your products? Specifically, Triazole, Triazole/Activate Extreme and CRAZE.

What other data you have used to support your claims about these products?

Is this published or unpublished?

If the research is published could you provide us with the relevant references?

If your research is unpublished, would you be willing to share it with us so we can fairly evaluate how your product works?

## **Pharma Blend 6HR**

PhD Nutrition Ltd

### **Company response**

Thanks for the enquiry, above is the Pharma Blend 6HR product as shown on the PhD website.

Can you show/guide me where the links to the reference articles are?

### **BMJ follow up**

I have attached a copy of our research so far, which includes some screenshots and details of the references and where they appear.

I hope that clarifies where the information has come from.

### **Company response**

Thanks for the clarification below.

At this moment in time, the website will be (as the majority of the industry is) changing quite dramatically.

Whilst sports nutrition has relied upon ingredient led research to lead product claims and labelling, it no longer can do after September 2012, when the health food claims come into action.

This means, that at this point, there are only around 200 claims that can be used to support inclusive ingredients (such as vitamins and minerals, protein etc) and any further claims- be it labelling or advertisement (web and offline) must fall within this criteria. Any product related claims outside the approve claims must then be supported with bespoke and specific product research analysis, which we are currently looking to choose a partner to work with on. Our R&D consultant is currently speaking with a number of universities for this purpose.

So, in relation to having specific product research on the product in question, we don't have any.

### **BMJ follow up**

Thanks for your help on this. I appreciate things are changing. Do you think you could help me by telling me a bit more about the changes?

You said that: "the website will be (as the majority of the industry is) changing quite dramatically and there are only around 200 claims that can be used to support inclusive ingredients (such as vitamins and minerals, protein etc) and any further claims- be it labelling or advertisement (web and offline) must fall within this criteria."

What does this mean for you as a company? Will you have to change your website and your adverts?

"Any product related claims outside the approved claims must then be supported with bespoke and specific product research analysis, which we are currently looking to choose a partner to work with on. Our R&D consultant is currently speaking with a number of universities for this purpose."

I'd love to hear more about this. Does this mean you'll have to test your product specifically or just find research to support what's in it? What are you hoping to do in future?

Where you say: "in relation to having specific product research on the product in question, we don't have any."

Have there not been any product specific tests to date?

### **TrionZ Bracelets**

#### **Company response**

#### **BMJ follow up**

### **Company response**

I have been passed your email regarding an evidence base for claims on the website regarding effectiveness. I am assuming that you are gathering any published or grey data for a systematic review? Any data that I have found is very much in the public domain and I haven't come across any grey data at this point.

I would however be very interested in your review. When are you hoping to submit to the BMJ?

### **BMJ follow up**

We are looking at identifying the research behind each claim that is made and assessing the scientific rigour with which it has been conducted. We are also keen to determine whether the research is on the product itself or constituents of the product.

If you have a list of any research that relates to the Trion Z bracelets then we would be keen to examine this, as well as any other information you might want to offer from your own research that might support or diminish the claims of their effectiveness.

We have a lot of research to assess so we would appreciate any references as soon as possible, only if you have access to them of course.

### **Company response**

### **BMJ follow up**

### **Company response**

### **BMJ follow up**

## **Zero High 5**

### **Company response**

Attached is the study from the original ZERO research. The study was not published. I will speak to the lead researcher in this and see if she can provide you any additional information.

### **BMJ follow up**

Thanks for getting back to me regarding the Zero High 5 research. I wanted to ask whether you could find out why the study you sent wasn't published? Have you had any luck contacting the lead researcher, as it might be useful to ask them this question.

### **Company response**

Sorry for not getting back to you sooner. The reason the study has not been published is because it is already well established research and the lead researcher felt that it didn't warrant publishing at the time.

### **2XU PWX compression tights**

#### **Company response**

I very much doubt that that is anything close to a complete list of academic research on the benefits of compression, which is well documented. Regarding 2XU Compression specifically, our claims are predominantly based on the last of those articles (the one on endurance cyclists), alongside ongoing research at the Australian Institute of Sport. I have attached some documents relating to the AIS studies, how the products are tested and how we use the information from the research that may be of use to you.

What will you be doing in this article exactly? Are you testing the products, or simply evaluating the existing research?

### **BMJ follow up**

Thanks for getting back to me with the references and studies. There is one in particular that we would like to investigate - it's page 24 of 29 of the RMITIAS presentation copy.pdf - do you know where we might be able to get hold of the paper that these results are from, or would you happen to have a copy that you could send?

### **BMJ follow up**

Here is what is publically available. Anything else I may have to request permissions for on your behalf.

<http://www.2xu.com/pwx/pwx-research.asp>

## **Gatorade G Series Pro**

### **BMJ follow up**

I contacted you a couple of weeks ago about a piece of research the BMJ is doing into the evidence behind claims made by sports nutrition and equipment. I have not received a reply from Gatorade so far and we are starting our assessment of evidence this week.

I wanted to give you a final opportunity to add any further evidence to the claims made about Gatorade. We are specifically interested in research that either tests Gatorade itself, or at least involves testing of the constituent components at the same quantities as they are found in the sports drinks.

If you have any research that demonstrates this then please send it by tomorrow afternoon so that we may be as fair and accurate as possible in our assessment of each product's claims.

### **Company response**

We can get you something by the end of this week,

## **K-Swiss**

### **Company response**

Is this research completely focused on training shoes or encompassing other sports equipment as well?

### **BMJ follow up**

We are looking specifically at the K-Swiss Blade Max series training shoes.

## **ProPeptide Advance**

### **Company response**

More than 20 USA and other country patents bear my name as the inventor of protein manufacturing processes and also protein applications. I have helped to formulate sports nutrition products for such giants in the industry as Met Rx (the original Met Rx products), EAS, VPX, and Weider Global Nutrition to name a few. I have also helped to formulate some of the best selling Ready-to-Drink high protein shakes in the USA. I have much experience in the sports nutrition field. Your email inquiry concerned ProPeptide Advanced, so I will limit my response to ProPeptide and its sister product Pro MR. Both products contain many ingredients in common. The main idea behind development of ProPeptide and Pro MR was the protein blend. Over the years, there has existed anecdotal evidence that consumption of larger amounts of proteins is good for athletes. The types of proteins traditionally utilized in sports nutrition have always been those that supplied the highest quality of nutrition to human beings. Consequently, those



proteins that displayed a high PER (Protein Efficiency Ratio) and, later, a high Biological Value, have always been prized as the best proteins for an athlete. When we were putting together the protein blend for ProPeptide and Pro MR, we wanted to include only those proteins that imparted the highest quality nutrition for athletes. Therefore we used a blend of the following proteins: Milk Protein Concentrate, Whey Protein, Egg White, and Hydrolyzed Whey Protein.

We settled on this particular mix of proteins because all are well recognized in sports nutrition as providing benefits to athletes. After deciding on a mix of proteins, we had to determine the proper ratio of the proteins. Just before ProPeptide and Pro MR were formulated, a landmark study was published in The Proceedings of the National Academy of Sciences (USA) in 1997 by Yves Boirie et. al. The study was performed at the European Center for Human Nutrition Research in Clermont, France. This study attempted to answer the question of which type of protein was more efficiently utilized by a young, athletically fit human body - a fast digesting protein (in this study, a native whey protein filtered directly from skim milk) or a slow digesting protein (casein in its native structure known as a casein micelle that was also filtered directly from skim milk). The results of the study caused a great uproar in sports nutrition. Those companies that had devoted themselves to selling only whey protein were upset because some of the study results seemed to show that casein was a more efficiently used protein by the body. Companies that sold products containing a mix of casein and whey proteins hailed the study results as proof that they had been right along. In truth, though, the results of the study showed that both fast and slow digesting proteins provide unique benefits to a young athletic body. Consumption of whey protein triggered a pronounced beginning of protein synthesis (the process by which the body creates new muscle tissue). Consumption of casein did not trigger protein synthesis as significantly as did whey protein, but did result in prolonged elevated amino acid levels in the bloodstream compared to whey protein. Without plentiful supplies of amino acids in the bloodstream, protein synthesis cannot occur. Therefore, the study pointed out the obvious ... that while whey protein strongly triggered protein synthesis, its effect was transitory compared to casein and while casein did not trigger protein synthesis as strongly as whey protein, its effects lasted much longer and protein synthesis was able to proceed for at least 7 hours after consumption of casein.

While most people were trying to declare one protein or the other as the victor from the Boirie study, we saw the true meaning of the results. Both proteins are of great benefit to athletes. But at what ratio? For the answer to that, we had to turn again to anecdotal evidence. We looked at human maternal breast milk and the ratio of casein to whey proteins. Maternal breast milk in all mammals is species specific ... i.e., the milk for each species contains protein ratios specific for that species. Cow's milk proteins are roughly comprised of 82% casein and 18% whey proteins. Human maternal milk is roughly 50% casein and 50% whey proteins. We reasoned that the human infant is the fastest growing stage of human development. If the ratio of 50% casein and 50% whey proteins was perfect for fast growing human infants, then it would also be ideal for promoting tissue growth and repair in athletes. So, we settled on a blend of 50% casein and 50% whey

proteins for the main part of the ProPeptide and Pro MR blend and added some egg white (always considered a superior protein for athletes due to its high biological value and high levels of sulfur containing amino acids) as well as a small amount of hydrolyzed whey protein (to get amino acids into the bloodstream even faster or a faster start to protein synthesis).

Then we had to decide on protein sources. For egg white and hydrolyzed whey protein, the choices were easy because egg white is a standard product worldwide and we were looking for a whey protein of about 20% degree of hydrolysis. For the casein source, we followed the Boirie study and decided to use only casein in its micellar form (as opposed to those products out there that also use casein or caseinates). One other finding of the Boirie study was that the prolonged, slow release of amino acids into the bloodstream from micellar casein provided a protective effect against catabolism during and after exercise. Milk Protein Concentrate is the name given to the milk protein that has been filtered straight from skim milk without addition of any chemicals to the milk or any pH adjustments. The protein resulting from the skim milk filtration process is as undenatured as one can get ... casein in its native, micelle structure and whey proteins in their native, undenatured state.

Because the milk source is bovine, the milk protein concentrate only contained 18% whey protein. In order to achieve our desired ratio of 50% whey protein and 50% casein, we had to source the ideal whey protein. That is where the Bounous and Gold paper that you referenced in your email inquiry comes into play. Gustav Bounous is a medical doctor from Montreal, Canada. He used to travel the International Dairy Federation circuit giving lectures about his medical findings for the immune supporting benefits of whey protein. To make his long story short enough for this email, Bounous noticed that some whey proteins helped his cancer and AIDS patients to recover better from treatment while others did not seem to be very effective. At a loss to understand what was going on, he approached Dr. Phil Gold at Montreal University to find out why he was experiencing a difference in whey protein benefits. Phil Gold correctly assumed that the differences were most likely due to processing variations in the whey proteins ... that some whey proteins were more chemical and/or heat denatured than others. Thus, Gold devised an experiment wherein he compared a "perfect" whey protein - made by filtering whey protein direct from skim milk with very low heat treatments - which he dubbed "Product X", to some commercially available whey proteins manufactured as a byproduct of cheese production (from New Zealand, USA, and even Europe). As a control for their experiment, they used casein ... because everyone knows that casein is not supposed to have any immune supporting properties (right? I'm being sarcastic here). The results of the study showed that Product X had a significant effect supporting the immune system while the commercially available whey proteins were not much more effective at immune support than the control casein. Over the years, whey protein purveyors worldwide have slaughtered the true meaning of the results of the Bounous and Gold study, trying to convince everyone that any whey protein will support the immune system like Phil Gold's Product X. We, however, wanted to do things right and, so, set out to find a whey protein that was low heat treated and filtered directly from skim milk. That is the whey protein with which we

formulated ProPeptide and Pro MR ... as close to Phil Gold's Product X as one can get.

Now we had our protein blend ... micellar structure casein, native, undenatured whey proteins filtered directly from skim milk, egg white and hydrolyzed whey protein. It was time to add in a few helpful ingredients. The first item we looked at was glutamine. Much has been written about the amino acid glutamine over the years. While it is a non-essential amino acid from a dietary standpoint, it is an essential amino acid in the human body ... even more essential for an athlete. It has been reported that glutamine comprises as much as 50% of the total amino acids present in the average human body. Our bodies can manufacture the amino acid glutamine from 4 or 5 other amino acids as our bodies require more glutamine. When people are under great stress (defined as people suffering from prolonged, chronic illness or hard training athletes), their bodies become depleted of glutamine. These people need to supplement their diets with additional glutamine. Published studies show that such people need a supplemental quantity of about 20 grams of glutamine per day. Then, there is the question of what form of glutamine ... L-glutamine as is commonly used in sports nutrition or peptide bonded glutamine? There are literally 100's of studies concerning efficient absorption of free amino acids versus di- and tri- peptides through the human intestinal uptake system (many of which were performed by D.B. Silk et. al.). Each of these studies concluded that di- and tri- peptides are more efficiently absorbed into the blood stream than are free amino acids, like L-glutamine, when consumed in the presence of other proteins/amino acids or even carbohydrates and fats. As confirmation of these facts, in 2003 a study published in Nutrition Journal by Preiser et. al. showed a difference in body utilization of L-Glutamine and peptide bonded glutamine. We, therefore, opted to use peptide bonded glutamine in ProPeptide and Pro MR. We add 3 to 4 grams of supplemental glutamine, in the form of peptide bonded glutamine, to every serving of ProPeptide and Pro MR.

How much protein should an athlete consume in one serving? This question stirs great debates in sports nutrition. When Met Rx was first marketed, there were nutritionists who declared that the human body wasn't capable of processing 37 grams of protein in one meal. Today, there exist sports nutrition products that exceed 60 grams of protein in one serving. We settled on our quantity of protein per serving by striving to supply only as much protein as the body can efficiently assimilate from any one meal. There have been a few studies released in the past that show that the body can only efficiently assimilate about 15 grams to 20 grams of whey protein per dose and so we set our whey protein dose at 15 grams to 20 grams per serving. Since our protein blend was to be 50% whey protein and 50% casein, we also added 15 grams to 20 grams micellar form casein per serving. Then, we added the egg white, hydrolyzed whey protein and even the protein content from the peptide bonded glutamine supplementation. That brought us to the present protein content per serving of ProPeptide and Pro MR.

We have one unique twist in ProPeptide and Pro MR ... probiotic organisms. What good does it do a body to consume large amounts of nutrients if the body cannot efficiently absorb those nutrients? Athletes, especially, have a difficult time maintaining good intestinal health. As was stated earlier, athletes are easily

depleted of glutamine because their bodies will use glutamine to restore glycogen stores after hard training and also will utilize glutamine in the energy cycle should the body run out of glucose. Glutamine plays an important role in maintaining the intestinal lining ... the site of nutrient uptake system of nutrients after digestion. It is said that the human body replenishes that intestinal lining every 72 hours. Without sufficient glutamine, the body cannot replenish and restore the lining efficiently. Therefore, we decided to include some other protective mechanism for the intestine and included probiotic organisms in ProPeptide and Pro MR. The probiotic organisms provide two benefits for athletes. One is promotion of intestinal health by killing off more harmful organisms in the intestine such as yeast and mold. Two, the probiotic organisms assist in more efficient digestion and harvesting of nutrients from all foods consumed.

Other ingredients that we add, such as salt (sodium) and potassium, serve less significant functions but are still important to sports nutrition as metabolic electrolytes. A few ingredients are added to increase the appeal of the products to consumers without adding benefit to athletes. And because the powders are dusty, it is necessary to coat the powders with a fat containing product to decrease dustiness. Lecithin has always been used for such a purpose because it is considered a healthy phospholipid and we have also added medium chain triglycerides ... because they are not readily utilized to manufacture stored fat in the body but are metabolized in the liver for energy and provide an energy punch of 9 Kcals per gram of energy as opposed to 4 Kcals of energy per gram of carbohydrate.

That, basically, gives you a brief description of the reasoning behind our formulating of ProPeptide and Pro MR. I realize that one would look at the length of this email and think that it isn't so brief, but ... trust me ... this is brief compared to what detail I could discuss about the science behind our products. I am attaching a large bibliography taken from what I have amassed over the years concerning nutritional properties of proteins and their effects on the human body.

### **BMJ follow up**

So far we have found it difficult to find references that specifically test the two products: PropPeptide Advanced and ProPeptide Protein Supplements. Would you be able to point out any research that deals with the products rather than the components of the product? Are there any references that do this or are the products using the claims made for the individual ingredients?

### **Company response**

You are correct in your assumption that we rely on the studies for each of the individual ingredients when putting together a formula for a product. I would always be skeptical of any studies that are run to "prove" the superiority of one brand over another ... the study would have been paid for by the marketing company, would likely be a biased study, and, at least in the USA, would not be considered valid by the US FDA. Met Rx and EAS both tried to run such studies and then model claims for their products based on study results but the FDA and the Federal Trade Commission disallowed both companies from structuring claims based on their "biased" studies ... mostly due to lack of a good control with which to compare. On the other hand, the FDA and FTC do allow claims to be made for individual components in a product as long as the studies are independently generated, double blind, placebo controlled studies and the methodology can pass review by a standards board.

I am attaching a copy of one last study just released this month that shows the metabolic fate of consumption of a blend of micellar casein and native whey proteins produced by filtration of skim milk. The study basically upholds previous studies such as Boirie et al. from 1997. As I stated in my 1st email to you, we based our sustained release of amino acids claim on the original Boirie study ... but there have been many confirming studies run since then, such as: Tome and Bos in 2000, Dangin et al in 2001, and LaCroix et al in 2006. Because of regulations here in the USA, we do not make claims unless we have at least 3 studies to show efficacy.

As far as proving the products themselves, we have always relied on friendly athletes to "test" the products for us. Many athletes are very aware of the metabolic effects of every product they ingest. Many have been known to keep consumption/performance diaries so that they can refer to their personal data to solve problems in the future. We have relied on their feedback before launching a product. In the case of ProPeptide and Pro MR, some sports organizations have kept their own "before and after" records of athlete performance and have praised the two products ... we have tried to convince them to share their information, but they are, understandably, reluctant to do so. The world of sports is entwined with big money these days and nobody wishes to give away their "secrets" to the competition.

## **Sports Jelly Beans**

### **Company response**

Thank you for writing. Attached is our research which I hope you'll find interesting and relevant. Please do not hesitate to let me know if I can be of further assistance.

## **Asics Gel Volt 33**

### **Company response**

As a quick answer see below:

- ASICS have our own Research and Design Centre at our Head office in Japan. This is ASICS Institute of Sport Science where we do our material testing and development, quality control, innovation and design and product testing. In order for ASICS to develop new concepts and technologies we do background research taking in to account published research, and our own research results.

The testing done in Japan if it is published is normally done so in Japanese. However some of the researchers have attended international conferences to speak about sports footwear and research. Tsuyoshi Nishiwaki and Kenta Moriyasu are two of ASICS top sports engineers in our R&D centre. We also use a lot of research gathered from Melbourne University and Simon Bartold is our International Research consultant who also has some published research.

## **Aqua Sphere Energize compression-wear**

### **BMJ follow up**

Thank you for your help in sending over the articles relating to your products. What we are looking to compile are the studies that directly test your compression-wear, rather than the studies that discuss any benefits of compression on exercise. Do you think you could send any specific research that you have? If you don't have any, we would also be grateful if you could send any summaries relating to your products specifically.

We were also wondering what kind of methods you might have employed to check the quality of any studies. Do you think you could share that information with us?

It would be useful to have the fabric manufacturers contact details, although my assumption would be that they do not conduct any testing outside of quality control. Would this be correct?

## Powerade

### Company response

Sports drinks are among the best-researched food and beverages products in the world. There is a wealth of scientific research that can be relied upon to formulate an efficacious beverage that can serve a variety of purposes.

These include:

- supply of substrate (carbohydrates),
- prevention of dehydration,
- electrolyte replacement,
- pre-exercise hydration,
- post-exercise rehydration

The Coca-Cola Company takes its responsibilities towards efficacy and claims very seriously and we work within a strict regulatory environment to ensure that all claims we make, can be fully substantiated and bring benefits to consumers.

We would refer you to the material on our website [www.poweradegb.com](http://www.poweradegb.com) which we feel clearly describes the efficacy of our lead sports drink POWERADE ION4 to our consumers, although we believe that you are probably aware of this as the list of references you have sent us, appears to be taken from this source.

Whilst this represent a thorough overview of the body of science that supports the efficacy of products such as POWERADE ION4, it is important to recognise that research in the field of sports nutrition is active and developing rapidly. As such, The Coca-Cola Company works closely with eminent experts in this field to ensure that all our products are firmly grounded in science and we make only claims which can be substantiated by scientific evidence.

In addition to the references that you have cited we can add the following reference that has been published since the last update of our website and supports our product's efficacy. These studies have either been commissioned by ourselves, or sometimes have been independently conducted using our product. In any event, all have been through a thorough peer review process. In the last 2 years we have commissioned and published the following series of studies, which have been published as one paper in the official journal of the American College of Sports Medicine.

1. Watson P, van Langen F, Quigley J and Maughan RJ. Effect of Dilute CHO Beverages on Performance in Cool and Warm Environments. *Med. Sci. Sports Exerc.*, Vol. 44, No. 2, pp. 336–343, 2012.

We would like to point out that POWERADE ION4 is an isotonic sports drink aimed at individuals taking part in intense physical exercise. It has been formulated, and is marketed, in complete accordance with Directive 2009/39/EC (recast of

Directive 89/398/EEC) relating to foodstuffs for particular nutritional uses (PARNUTS).

With regard to sports drinks, PARNUTS refers to the “Report on Composition and Specification of Food Intended to meet the Expenditure of Intense Muscular Effort, Especially Sportsmen” issued by the Scientific Committee on Food (SCF), adopted in 2000 and corrected in 2001, which was prepared at the request of the European Commission. The SCF report is the most authoritative analysis of the role and benefits of sports drinks and sets out guidelines on the composition and specification of foods and beverages intended to meet the expenditure of intense muscular effort and in particular to allow for efficient hydration. Our product has been formulated in strict compliance with these guidelines.

In addition, more recently the European Food Safety Authority has published the scientific opinion on the substantiation of claims in relation to carbohydrate-electrolyte solutions, more commonly known as sports drinks. This opinion addresses the scientific substantiation of health claims in relation to carbohydrate-electrolyte solutions and reduction in rated perceived exertion/effort during exercise, enhancement of water absorption during exercise, and maintenance of endurance performance. The scientific substantiation is based on the information provided by the Member States in the consolidated list of Article 13 health claims and references that EFSA has received from Member States or directly from stakeholders. See attachment.

As an example, in evaluating the substantiation of the efficacy of an isotonic sports drink such as POWERADE ION 4 it is essential to bear in mind that such a beverage is intended for use by a person who, as a result of engaging in sustained, high intensity exercise, has lost substantial quantities of water and minerals (electrolytes) through perspiration. A substantial body of scientific evidence, taken as a whole, establishes that for such a person, drinking an isotonic sports drink that contains not only water, but also appropriate quantities of sodium and carbohydrates, will result in his/her consuming a higher volume of fluid, and retaining it better, than if he/she drank plain water alone. In other words, under such circumstances an appropriately formulated isotonic sports drink, such as POWERADE ION4, “hydrates better than water.”

The extract from the website that demonstrates our scientific basis, is as follows:

When you're exercising hard and desperately need a drink, it's natural to head for the nearest bottle of water. But although it'll quench your thirst, it isn't always the best way to rehydrate your body during or after exercise. Here's why:

- Water doesn't have adequate minerals and carbohydrates. 4,7,9,10-16, 19-20, 26
- Water shuts down the thirst receptors prematurely, before you've replaced the fluid your body has lost through sweat. 1,3,9,12,20,21
- Water doesn't have flavour. 1-3,21,25



- Water doesn't have the performance benefits of a sports drink. 5,6,8,12-16,20-25
- Therefore, sports drinks have the advantage of containing sodium which helps your body retain and use the fluid you've drunk more effectively, as well as carbohydrates to help recover muscle fuel stores.
- Sports drinks are specially formulated to replenish both fuel and mineral needs to help you sustain physical and mental performances at your best.

We would direct you to the website <http://www.poweradegb.com/hydration-and-performance/hydration/water-is-not-enough> to view this information (including the references cited) and the sports context in which it is presented.

Finally I would add that we have a European Scientific Advisory Board on Sports Science and Nutrition composed of academics and practical experts in the field, and this Board advises us on all aspects of sports science and nutrition which may or may not be in the public domain at that time, but it is always our intent to publish any research outcomes in support of our products.

### **BMJ follow up**

Thank you for your help in sending over the references for Powerade. As you can imagine, asking a library to collate all the papers we have received will take quite some time. I imagine you have PDFs of all of these as a dossier already: if that is the case then would you be able to send them over? If you don't have them, we would also be grateful if you could include any summaries.

We were also wondering what kind of methods you have employed to check the quality of the studies. Do you think you could share that information with us?

And lastly, do you think you could tell us which of these studies actually uses the Powerade drinks? If none of them do, which studies use the active ingredient in the same doses as contained within Powerade? We would be grateful for some guidance on this.

### **Company response**

As promised here is some additional information that I think will help you.

As I explained in our discussion, as sports drinks are classified as foods, the regulations that govern foods are in play here rather than ones that govern other materials. As such there is no need to conduct clinical trials, as the SCF report that we talked about, has set compositional standards for drinks such as Powerade

ION4. The findings of the SCF were then further evaluated by EFSA (European Food Safety Authority) who are the competent authority to scientifically substantiate evidence and indeed claims. In our conversation we talked about the scientific evaluation of the evidence. In it is our view that having been reviewed by both SCF and EFSA, the body of evidence has been assessed as scientifically robust by the highest possible authority.

I have previously sent you the EFSA review but I now include pertinent extracts from both the SCF report and the EFSA review. Plus I attach the full SCF report as promised.

Extracts from the EU Scientific Committee for Foods (SCF) - Report of the Scientific Committee on Food on composition and specification of food intended to meet the expenditure of intense muscular effort especially for sportsmen (SCF/NUT/SPORT/5 Final 2001).

Council Directive 89/398/EEC on foodstuffs intended for particular nutritional uses, as amended by Council Directive 1999/41/EC, foresees the adoption, by the Commission, of a specific directive on foodstuffs for particular nutritional uses intended to meet the expenditure of intense muscular effort and especially for sportsmen. In order to prepare this specific directive the Commission asked the Scientific Committee for Food (SCF) for advice on the nature, the essential composition where necessary, and any other specific requirements concerning the labelling and the appropriate use of such foodstuffs. The Committee reviewed the scientific literature in the area of sport nutrition as well as a number of consensus reports that were prepared by various sport organisations and came to the conclusion that the concept of a well-balanced diet is the basic nutritional requirement for athletes. Nevertheless, taking the aspects of intense muscular exercise in consideration such as intensity, duration and frequency as well as specific constraints like time and convenience, individuals can benefit from particular foods or food ingredients beyond the recommended dietary guidelines for the general population. As the increased energy need of these individuals is the most apparent difference, the food intake is higher. This can lead to differences in food choice and eating pattern as well as gastro-intestinal distress. Specially adapted nutritious foods or fluids may help to solve specific problems so that an optimal nutritional balance can be reached. These beneficial effects are not only limited to athletes who are taking regular intense prolonged muscular exercise, but are also intended for other target groups, for example for occupational jobs with hard physical work or with extreme environmental conditions, as well as for individuals with irregular physical high intensity or fatiguing leisure time activities. In relation to these general considerations, four food categories have been identified, reviewed and where applicable, essential requirements were formulated.

Carbohydrate-electrolyte solutions (C.E.S.):

The two factors that have been considered to contribute most to the onset of fatigue in exercise are the depletion of the body's carbohydrate reserve and the onset of dehydration, as a consequence of the loss of water and electrolytes in sweat. Compared to water as a control drink, a substantial body of scientific

evidence supports the suggestion that during prolonged exercise drinks containing carbohydrates and electrolytes, in particular sodium, improve the performance.

The optimum carbohydrate concentration in the drink depends on a number of factors, among others the need for water (hot/cold conditions) and the intensity and type of exercise (gastrointestinal absorptive capacity, osmolality (rate of gastric emptying as well as water absorption in the small intestine), type of carbohydrate simple vs. polymers). Therefore a range from 80-350 kcal (335 - 1470 kJ) CHO/1000ml CES drink is advised. The only electrolyte added to drinks consumed during exercise that is known to confer physiological benefit is sodium. A sodium concentration of 20-50 mmol/l (460 - 1150 mg/l) will stimulate carbohydrate and water uptake maximally in the small intestine and will help to maintain extracellular fluid volume.

End of extract from the SCF report  
EXTRACT FROM EFSA OPINION

These guidelines have been taken into account and in effect by the EFSA Scientific Opinion on the substantiation of health claims related to carbohydrate-electrolyte solutions and reduction in rated perceived exertion/effort during exercise (ID 460, 466, 467, 468), enhancement of water absorption during exercise (ID 314, 315, 316, 317, 319, 322, 325, 332, 408, 465, 473, 1168, 1574, 1593, 1618, 4302, 4309), and maintenance of endurance performance (ID 466, 469) pursuant to Article 13(1) of Regulation (EC) No 1924/2006.

Following a request from the European Commission, the Panel on Dietetic Products, Nutrition and Allergies was asked to provide a scientific opinion on a list of health claims pursuant to Article 13 of Regulation (EC) No 1924/2006. This opinion addresses the scientific substantiation of health claims in relation to carbohydrate-electrolyte solutions and reduction in rated perceived exertion/effort during exercise, enhancement of water absorption during exercise, and maintenance of endurance performance. The scientific substantiation is based on the information provided by the Member States in the consolidated list of Article 13 health claims and references that EFSA has received from Member States or directly from stakeholders.

The food which is the subject of the health claims is carbohydrate-electrolyte solutions. The Panel considers that carbohydrate-electrolyte solutions are sufficiently characterised in relation to the claimed effects.

Ø Enhancement of water absorption during exercise

The claimed effects are “water and electrolyte balance”, “rehydration”, “nutrient absorption”, “hydration”, “better/faster fluid delivery with a combination of carbohydrates than with glucose alone”, “electrolyte balance/rehydration”, “potassium/water/electrolyte-balance; diuretic”, “ergogenic role in sports and exercise”, and “contains essential electrolytes for better recovery”. The target population is assumed to be active individuals performing endurance exercise.

The Panel considers that an enhancement of water absorption during exercise may be a beneficial physiological effect.

The evidence provided by consensus opinions/reports from authoritative bodies shows that glucose electrolyte solutions with an osmolality which is isotonic or slightly hypotonic with respect to plasma (i.e. 200-330 mOsm/kg water) maximise the rate of water uptake.

The Panel concludes that a cause and effect relationship has been established between the consumption of carbohydrate-electrolyte solutions and an enhancement of water absorption during exercise.

The Panel considers that in order to bear the claim a carbohydrate-electrolyte solution should contain 80-350 kcal/L from carbohydrates, and at least 75 % of the energy should be derived from carbohydrates which induce a high glycaemic response, such as glucose, glucose polymers and sucrose.

In addition, these beverages should contain between 20 mmol/L (460 mg/L) and 50 mmol/L (1,150 mg/L) of sodium, and have an osmolality between 200-330 mOsm/kg water.

The target population is active individuals performing endurance exercise.

#### Ø Maintenance of endurance performance

The claimed effects are “endurance; increased endurance capacity; increased endurance performance; delayed fatigue” and “endurance in heat”. The target population is assumed to be active individuals performing endurance exercise. The Panel considers that maintenance of endurance performance is a beneficial physiological effect.

The evidence provided by consensus opinions/reports from authoritative bodies shows that there is good consensus on the role of beverages containing carbohydrates and electrolytes (in particular sodium) in maintaining performance during prolonged endurance exercise, relative to plain water.

The Panel concludes that a cause and effect relationship has been established between the consumption of carbohydrate-electrolyte solutions and maintenance of endurance performance.

The Panel considers that in order to bear the claim a carbohydrate-electrolyte solution should contain 80-350 kcal/L from carbohydrates, and at least 75 % of the energy should be derived from carbohydrates which induce a high glycaemic response, such as glucose, glucose polymers and sucrose.

In addition, these beverages should contain between 20 mmol/L (460 mg/L) and 50 mmol/L (1,150 mg/L) of sodium, and have an osmolality between 200-330 mOsm/kg water.

The target population is active individuals performing endurance exercise.

END OF EXTRACT

Thus you can see, that under these provisions, if you have an appropriately formulated product, the benefits are sufficiently characterised to make relevant claims.

So you can understand how Powerade ION4 fits into the compositional standards I present to you the following summary.

Composition

Minimum quantity specified

Powerade ION4

Maximum quantity specified

Carbohydrate

At least 75% of the energy from metabolisable carbohydrate

3.9g glucose and fructose

Sodium

460 mg/l

510 mg/l

1150 mg/l

Energy

80 kcal/l

160 kcal/l

350 kcal/l

Osmolality

200 mOsm/kg water

275 mOsm/kg water

330 mOsm/kg water

Thus you can see that we are authorised to make claims for carbohydrate-electrolyte drinks.

I additionally wanted to clarify the testing of Powerade ION4. Whilst there is no explicit requirement to do this, given the compositional standards I have described, the work that we have conducted with researchers does contribute to the body of evidence and has given us assurances to the efficacy of our products. The paper by Watson, Shirreffs and Maughan that I have already sent is a good example of this. You will see that we used a number of variants to establish the efficacy of the level of carbohydrate and sodium that our product contains. We could not use the commercially available product as this would have not been possible in the experimental design but the functional ingredients were those used in our formulation and you will see in the acknowledgement ('The study was carried out in relation to the product Powerade and was funded in part by the Coca-Cola Company') that this was conducted in support of our development programme.