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AVRIO INSIGHT

Avrio Ventures is a venture capital firm that supports the development of Canadian commercialization and growth stage industrial bioproducts, nutraceutical ingredients and food technology companies into world-class organizations.

WHAT'S NEW AT AVRIO

To comment on this edition, please contact the editor at support@avriovenures.com. For the French version, [click here](#).

We're moving!

The Calgary office of Avrio Ventures will be moving as of July 6, 2009. We look forward to serving you from our new location at:

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All other contact info will remain unchanged.

To download updated v-cards, [click here](#).

FEATURE ARTICLE

Omega-3s: A little goes a long way

Over the past five years, an impressive body of research has built up showing the numerous benefits of ingesting omega-3 fatty acids. Several recent studies have shown that some of these benefits may be reaped by eating as little as one meal of fatty fish per week. Others claim that two or more servings should be the minimum for a healthy diet.

So how much omega-3 does one need?

Currently there are no established recommended daily allowances (RDA) for essential fatty acids. Guidelines are available, such as those published recently by [Health Canada](#) for pregnant women, and the [recommendations](#) (based on adequate intake levels) for the general public range from 500-1400mg/day based on age and gender.

"The dose-response issue is complicated," says Marc St. Onge, President of Nova-Scotia-based [Ascenta Health Ltd](#), "and there may be a limited response beyond a certain threshold." He indicates that consumers should pay more attention to the ratio of omega-6 to omega-3 fatty acids in their diets. He suggests that since it is unlikely that consumers will decrease their omega-6 consumption, an increased intake of omega-3s will help balance the ratio and prevent the bioaccumulation of long-chain fatty acids implicated in inflammation and auto-immune diseases.

Nutrient claims don't reflect current research

In 2004, the [Food and Drug Administration](#) (FDA) moved to allow products that contain 32mg of EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) omega-3s per serving to claim to be an "excellent source". This was based on the adequate intake level of 160mg/day established by the US [Institute of Medicine](#) (IOM).

Fast forward to 2007, when the FDA proposed a [rule](#) to abolish this claim because there is no established benchmark omega-3 RDA for general public health. Almost all the research in this area has related to specific conditions. While the FDA should reach a decision by the end of this year, nutrient claims will remain valid until 2012, which is the earliest possible date for regulatory changes.

Clarification needed for consumer

The [Global Organization for EPA and DHA Omega-3](#) (GOED) is petitioning the IOM to establish an RDA for omega-3s. Adam Ismail, Executive Director of GOED, says, "We're hoping that within three years we can convince them to revise reference intakes for EPA/DHA, which would then make this whole issue a moot point."

He contends that, "consumers need access to a point of reference that those [nutritional] claims provide in order to understand what's a meaningful dosage of omega-3." He suggests that 500mg/day of EPA and DHA is widely considered the norm in the scientific community, but would like to see the IOM come up with their own recommendations in order to establish credibility.

One serving per week

Several recent studies have shown that you don't need a lot of omega-3s to derive specific benefits for the heart, eyes and prostate. In the following three studies, researchers found that only one serving of fatty fish per week was needed to achieve significant health benefits, and in some cases, more servings did not confer any additional advantages.

Heart health

In one of the largest studies ever conducted on the connection between omega-3s and heart health, the diets of almost 40,000 Swedish men between the ages of 45 and 79 were followed between 1998 and 2004 and the results published in the April 2009 issue of [European Heart Journal](#). It was found that one portion of fatty fish consumed per week was enough to lower the risk of developing heart failure by 12 per cent, although this result was not statistically significant when compared to men who ate none or very little.

Omega-3 supplements dramatically lower risk

Additionally, the researchers looked at nutrient analysis per day. For those men who consumed 0.36 grams of marine-derived omega-3 fatty acid capsules (the middle amount in the study), the risk of heart failure dropped significantly by 33% when compared to those who had none or very little (0.15-0.22g/day). Men who consumed the most fatty acids (0.46g/day or 0.71g/day) had the same risk factor as those with the lowest consumption.

Both analyses (number of servings of fish per week and nutrient intake) showed no benefit on the development of heart failure at levels of two or more servings of fish a week and above, or 0.46-0.71 g/day of marine omega-3 intake.

Conclusions drawn from the nutrient-intake analysis were considered more reliable than the rough measure of number of servings of fish per week, as it was adjusted for total energy intake and age. According to the researchers, "portion sizes varied quite dramatically by age."

Eye Health

The May issue of [Archives in Ophthalmology](#) included an Australian study that examined the link between age-related macular degeneration (AMD) and diet. Patients who ate one serving of fish per week and had lower intakes of linoleic acid, an unsaturated omega-6 fatty acid, had a reduced risk of developing AMD. The researchers suggested that this was likely due to a decrease in the quantities of metabolic products that contribute to inflammation, which can be caused by higher omega-6 to omega-3 ratios.

More isn't necessarily better

No reduction in risk was observed for more than one serving of fish a week, which "could suggest a threshold effect," the researchers said. Eating nuts showed a similar benefit, as one to two servings per week was also associated with reduced risk of the disease.

The researchers noted that another study showed high vegetable intake to be associated with low risk of macular degeneration, so their results "could therefore reflect other aspects of healthy diets and healthy behaviors associated with frequent fish consumption, such as high fruit and vegetable intake, and should be interpreted with caution."

Prostate cancer

Omega-3s provide a protective effect against advanced prostate cancer, according to a study published in [Clinical Cancer Research](#). Researchers discovered that men who consumed the highest amount of fish-derived omega-3s had a 63 percent reduced risk of aggressive prostate cancer when compared to those with the lowest amount.

Fishing for consumer acceptance

Getting enough omega-3s into our diet can be tough, especially if eating fish isn't an option. Advances in processing have all but eliminated the fishy taste and odour of marine-derived oils, but consumers still balk at the large capsules, and many don't like the oily texture.



Ascenta's advantage

[Ascenta Health Ltd.](#) is the leading specialty essential fatty acids manufacturer in Canada and the category leader in the Canadian independent channel. In the fall of this year, Ascenta will be launching a new product that will be the most consumer-friendly source of active EPA and DHA in the market. The supplement is a stabilized fish oil and water emulsion that has a creamy, almost dairy-like consistency. The new formulation will lend itself well to the incorporation of new flavours, appealing to both adults and kids.

Kid-friendly omega-3s needed

A recent [University of Guelph](#) study is the first to directly measure the dietary

intake of fatty acids by young children (aged 4-8), and found that only 22 per cent received the suggested amount of long-chain omega-3 fatty acids DHA and EPA. These nutrients have long been known to play a key role in the development of the brain and nervous tissues.

Omega-3 market continues to grow

A report on the omega-3 industry by market research firm [Packaged Facts](#) predicts that fish-derived EPA/DHA will be the oil of choice for food and beverage fortification. They believe that the market is far from saturated, and growth will remain strong at 32% compound annual growth rate (CAGR) to 2012 when sales are expected to reach \$8 billion. During the same time period, they predict that the ALA market will decline by 17% as companies switch to formulations using EPA/DHA oils.

Market analysts [Frost and Sullivan](#) agree, predicting a CAGR of 23.6% in the European market by 2014. They are optimistic about continued growth despite the challenge of overcoming legislative rules that restrict nutrient content claims on omega-3 products.

The future is bright

The omega-3 market is currently operating under a triumvirate of dynamic parameters, namely increased public awareness of omega-3 health benefits, an extensive body of substantiated research, and an avid consumer base willing to purchase omega-3 products. Innovations in product formulations offer a wider variety of enriched foods and supplement types than ever before. Whether fish is for dinner once a week or supplements are taken daily, omega-3s offer an inexpensive and effective path to good health.

Stay tuned

The next issue of Avrio Insight will take an in-depth look at the controversies surrounding the explosive omega-3 industry, including sustainability issues and alternatives to fish-derived omega-3s.

COMPANY PROFILE – AVRIO VENTURES (TORONTO & MONTREAL)

Toronto Office - John Kennedy CA, Director

John Kennedy is a Director at Avrio Ventures and runs the Toronto office, covering the area from Windsor to the East Coast, and portions of the West. He has expertise in a wide variety of areas including food processing and wholesaling, oilseed crushing, equipment manufacturing, and bio-energy and bio-based materials.

John brings to Avrio over 20 years of operational and corporate finance experience in the structuring and negotiation of acquisitions, divestitures and debt and equity financing with both private placements and market transactions. He combines sophisticated analytical, due diligence and capital raising skills with post investment management and a global perspective on exit opportunities.

John has served on several Boards as either a Director or a regular Board advisor, including Bento Nouveau, Canada's largest wholesaler and retailer of Sushi

products, and Canada's third largest pork producer. Prior to joining Avrio Ventures, John was CFO of the publicly listed NBS Technologies and Unique Broadband Systems. Before that, John held various senior financial positions at Brookfield Properties Corporation including VP Finance of Brookfield, and CFO of BPO Properties, a publicly traded subsidiary of Brookfield.

Montreal Office - Denis Boyer AGR, Director

Denis Boyer is a Director at Avrio Ventures and covers Eastern Canada from Avrio's office in Montreal. Denis' expertise in the food processing and agricultural industries is a strong contribution to Avrio's success with nutraceutical, cosmeceutical and food technology companies.

Denis brings more than 20 years of agricultural investing and operational experience to the Avrio team. His network within the food and agricultural technology sectors not only yields many prospective investment opportunities but also allows us to add value to our investees in these sectors by facilitating synergistic business relationships.

Denis' career experience includes positions as an Investment Manager with FCC Ventures, an Investment Adviser with SGF Soquia, Manager of Agriculture and Food Processing Accounts with the Royal Bank, and a Sales Analyst with BMO. In these positions he has successfully managed loan and equity portfolios, providing term debt, subordinated debt and equity financing to fund acquisitions, expansions, provide working capital and restructure debt.

BUSINESS BRIEFS

June 8, 2009

Lignol Energy Corporation announced it has completed the first end-to-end production of cellulosic ethanol from its fully integrated industrial-scale biorefinery pilot plant in Burnaby, British Columbia. [full story...](#)

June 4, 2009

Quebec-based Neptune Technologies & Bioresources Inc. announced that it has signed an agreement with Bayer Healthcare, LLC for the commercialization of Neptune proprietary products in the United States. [full story...](#)

June 3, 2009

The International Journal of Naturopathic Medicine makes its debut. [full story...](#)

June 1, 2009

The Saskatchewan government signed a letter of intent with Iogen Corp. to redevelop a Prince Albert pulp mill as a cellulosic ethanol plant. [full story...](#)

May 19, 2009

Harper government launches \$1billion Clean Energy Fund for the development and advancement of clean energy technologies. [full story...](#)

May 13, 2009

Gold Leaf Awards honour Canadian Biotech innovation who have demonstrated leadership, innovation and financial success in 2008. [full story...](#)

May 13, 2009

Botaneco Specialty Ingredients Inc., has been notified that a repayable contribution of up to \$3,630,000 was approved by Agriculture and Agri-Food Canada under their Agri-Opportunities program. [full story...](#)

May 11, 2009

The Organic Trade Association awards Canadian the Organic Leadership Award. [full story...](#)

May 4, 2009

SemBioSys Genetics, Inc. obtains up to \$1.5 million in funding from AVAC. [full story...](#)

UPCOMING EVENTS

June 22-23, 2009

Probiotech 2009, addressing developments in probiotics and prebiotics, will be held in Nantes, France.

[More information](#)

July 1-3, 2009

The **8th International Bio Forum and Bio Expo Japan** will be held concurrently with **Bio Venture** in Tokyo, Japan.

[More information](#)

July 1-3, 2009

The **4th International Dietary Fibre Conference** will take place in Vienna, Austria.

[More information](#)

July 14-15, 2009

Biomass '09: Power, Fuels, and Chemicals Workshop will take place in Grand Forks, ND.

[More information](#)

July 19-20, 2009

The **6th Annual World Congress on Industrial Biotechnology & Bioprocessing** will be held in Montreal, Quebec.

[More information](#)

August 27-28, 2009

Nutracon Asia is a high-level conference for the health and nutrition industry held concurrently with Natural Products Expo Asia in Hong Kong, China.

[More information](#)

August 31-September 4, 2009

The **4th Annual Bioenergy Conference and Exhibition** will take place in Jyvaskyla, Finland.

[More information](#)