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MUSHROOMS AND HEALTH GLOBAL INITIATIVE BULLETIN

An ISMS Global Initiative to increase the worldwide consumption of mushrooms through the collection, evaluation and dissemination of scientifically validated information.

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NEWS FROM THE INITIATIVE

Mary Jo Feeney

The Bulletin provides ideas on how to communicate mushroom research.

Making the Bulletin more useful – Online Survey Results

Thanks to those of you who took our online short survey on how to increase the usefulness of the Bulletin. Of those responding:

- 78% read the Bulletin regularly
- 61% share the Bulletin with colleagues
- 13% post/share the Bulletin on websites
- 35% do not share the Bulletin
- 70% find the research abstracts very useful
- 61% refer back to the MHGI website for the Bulletin
- 74% find the reports from different countries on how to communicate nutrition research very useful

We are considering your suggestions on how to make the Bulletin more useful going forward. Since the Bulletin is the main tool of the Mushrooms and Health Global Initiative to position it as the recognized global science and communications site for those seeking credible information on the nutrition and health benefits of mushrooms, a key finding of the survey was that readers find reports from the different countries “very useful.” These reports begin on page 3 of this issue.

Be sure to send what’s happening in your country to info@mushroomsandhealth.com.
Agaricus bisporus can improve balance and memory in rats


The authors state that the decline in brain function during normal aging is partly due to the long-term effects of oxidative stress and inflammation. Several fruits and vegetables have been shown to possess antioxidant and anti-inflammatory properties. This study investigated the effects of dietary mushroom intervention on mobility and memory in aged Fischer 344 rats. The investigators hypothesized that daily supplementation of mushroom would have beneficial effects on behavioral outcomes in a dose-dependent manner. Rats were randomly assigned to receive a diet containing either 0%, 0.5%, 1%, 2%, or 5% lyophilized white button mushroom (Agaricus bisporus); after 8 weeks on the diet, a battery of behavioral tasks was given to assess balance, coordination, and cognition. Rats on the 2% or 5% mushroom-supplemented diet consumed more food, without gaining weight, than rats in the other diet groups. Rats in the 0.5% and 1% group stayed on a narrow beam longer, indicating an improvement in balance. Only rats on the 0.5% mushroom diet showed improved performance in a working memory version of the Morris water maze. When taken together, the most effective mushroom dose that produced improvements in both balance and working memory was 0.5%, equivalent to about 1.5 ounces of fresh mushrooms for humans. Therefore, the results suggest that the inclusion of mushroom in the daily diet may have beneficial effects on age-related deficits in cognitive and motor function.

Sunlight and D2 production – Dose-response


In this study, the researchers investigated the dose response effect of UV-B irradiation from sunlight on vitamin D2 content of sliced Agaricus bisporus (white button mushroom) during the process of sun-drying. Real-time UV-B and UV-A data were obtained using a high-performance spectroradiometer. During the first hour of sunlight exposure, the vitamin D2 content of the mushrooms increased in a linear manner, with concentrations increasing from 0.1 μg/g up to 3.9 ± 0.8 μg/g dry weight (DW). At the subsequent two measurements one and 3 h later, respectively, a plateau was reached. Two hours of additional exposure triggered a significant decline in vitamin D2 content.
**Sunlight and D2 production – Dose-response continued**

Sunlight can increase D2 in mushrooms comparable to levels found in fatty fish.

The vitamin D2 content increased significantly to 2.2 ± 0.5 μg/g DW (P< 0.0001), which is equivalent to 17.6 μg (704 IU) vitamin D2 per 100 g of fresh mushrooms. This amount is comparable to levels found in fatty fish like the Atlantic salmon. The authors note: “This is particularly interesting for vegetarians, because all other dietary sources of vitamin D are of animal origin.”

**Trametes Versicolor and bone in animals**


The researchers investigated the effects of *Trametes versicolor* (L.:Fr.) Pilát (TVP, also known as Yunzhi) on bone properties in diabetic rats. Forty-five 8-week old male Wistar rats were fed either a chow diet (control) or a high-fat diet throughout the study period of 28 days. Animals in the high-fat-diet group were injected with nicotinamide and streptozotocin to induce diabetes mellitus (DM). The DM rats were divided into a group receiving distilled water (vehicle) and another group receiving TVP at 0.1 g/kg weight by gavage. Relative to the vehicle group, TVP gavage lowered postprandial blood sugar (225 ± 18 mg/dL for TVP vs 292 ± 15 mg/dL for vehicle, p< 0.001) on day 26. Compared to the vehicle group, TVP mitigated DM-induced bone deterioration as determined by increasing bone volume of proximal tibia (22.8 ± 1.4% for TVP vs 16.8 ± 1.3% for vehicle, p= 0.003), trabecular number (p = 0.011), and femoral bone strength (11% in maximal load, 22% in stiffness, 14% in modulus, p< 0.001), and by reducing loss of femoral cortical porosity by 25% (p< 0.001). The authors state that their study demonstrates the protective effect of TVP on bone properties was mediated through, in part, the improvement of hyperglycemic control in DM animals.

**NEWS FROM AUSTRALIA**

Glenn Cardwell

**Melbourne mushroom tour**

As the mushroom lovers enjoyed lunch they witnessed a cooking demonstration.

Two mushroom tours were offered to bloggers, nutrition students and health professionals in Melbourne, Victoria. As the first tour in April was so popular, we decided to offer a second tour in June. Leaving the Prahran Markets, a bus took eager foodies to the local Bulla mushroom farm, the first visit to a mushroom farm for most of them, before returning to the markets for a mushroom-themed lunch. As the mushroom lovers enjoyed lunch they witnessed a cooking demonstration, later having a chat with Damien Pike, the longest-serving mushroom seller at the market. He has been at Prahran Market for 30 years!

Anna Webster & Alice Zaslavsky make mushroom soup and more.
Sydney mushroom class

Thirty dietitians and food bloggers attended a cooking class by well-known TV chef Janelle Bloom. Naturally, mushrooms were the hero of each dish. The event was held at Casa Barilla, an Italian cooking school in Sydney. Immediately following was a class on ‘How to take great food photos with just your phone’, suitable to upload to Instagram and other social media sites. Food stylist, Annette Forrest, gave some clever and simple tips based on her many years of preparing dishes for cookbook photography.

Farm tours & cooking classes are still loved by nutrition experts and food bloggers.

CheckUP

Mushrooms have had a three year relationship with CheckUP, a medical education group that conducts one-day conferences for nurses, health professionals and health administrators. For events held in June and August we arranged a tasting booth inside the conference room, which means everyone experiences the mushroom aroma just before they hear about their health benefits. It is a simple way to get our message to key opinion health leaders in Queensland.

US researcher visits Australia

Researcher Dr. Shiuan Chen visited Adelaide, South Australia, and took time out to chat with the media about his research on mushrooms and their positive influence on breast and prostate cancer. He had interviews with both newspaper and radio stations. None of the radio interviews were short, indicating a deep local interest in cancer prevention and food.

“Both breast and prostate cancer are hormone dependent cancers, and mushrooms have the ability to suppress these hormones, androgens and estrogens. We have focused on the white button mushroom because it is the most common mushroom we eat,” he said during his visit for the Endocrine Society of Australia.

Dr. Chen is a professor and chair of the Department of Cancer Biology, City of Hope Beckman Research Institute in the US. He was accompanied by Dietitian Glenn Cardwell who added an Australian perspective to the interviews. After lung cancer, prostate and breast cancer are the second most common cancers in Australia for men and women.

US mushroom researcher generates publicity in Australia.

Kara Lydon

Academy of Nutrition and Dietetics Annual Food and Nutrition Conference & Expo (FNCE)

The Mushroom Council (Council) hosted an intimate influencer dinner for 27 media, blogger, and supermarket registered dietitians during the annual FNCE conference in Nashville, Tennessee. Celebrity Chef Maneet Chauhan hosted the Council at her new Nashville restaurant and created a customized menu highlighting The Blend and the versatility of mushrooms. Dietitians were briefed on The Blend, mushroom nutrition research, vitamin D in mushrooms, and nutrition resources available for dietitians.

New nutrition resources for dietitians

The Council has been busy building a robust resource library for registered dietitians and nutrition professionals to help support education, activation, and create mushroom ambassadors:

- **Mushroom Nutrition at a Glance**: A quick holistic overview of the nutrition benefits of mushrooms.
- **Vitamin D Fact Sheet**: An overview on mushrooms as a source of vitamin D
- **The Better-For-You Blend**: A summary of the benefits of the meat and mushroom Blend
- **Retail/Supermarket Dietitian Toolkit**: A resource specifically tailored to supermarket dietitians to support efforts at retail.
Resources

Be sure to visit the Mushrooms and Health website www.mushroomsandhealth.com. Send what's happening in your country to communicate the benefits of mushrooms to consumers, shoppers, households, doctors, health professionals and the media to info@mushroomsandhealth.com.

Note: The Bulletin provides links to other sites for your convenience and information. These sites contain information created, published, maintained or otherwise posted by organizations independent of the Initiative which does not endorse, approve, certify or control these sites and does not guarantee the accuracy of the information contained on them.

Initiative Project Team

- Greg Seymour, President, ISMS; General Manager AMGA, Australia; Project Manager, Mushrooms and Health Global Initiative
- Bart Minor, President, Mushroom Council, United States
- Mary Jo Feeney, Mushrooms and Health Global Initiative Operations Manager, Bulletin Editor, United States
- Glenn Cardwell, Accredited Practising Dietitian, Nutrition Impact P/L, Australia
- Chris Rowley, Communications Consultant, Australia
- Juan Valverde, Food Science Programme Manager, Monaghan Mushrooms Group, Ireland
- Kara Lydon Registered Dietitian, Mushroom Council, United States

Strategic Communications Group

Members of the Strategic Communications Group strengthen the Initiative’s communication capability and develop a local public relations presence in each country/market that is participating in the project. Members of this group help facilitate stories about mushrooms and health appearing in their local media, monitor mushroom nutrition and health research, liaison with scientists, media and other influencers, and provide feedback to the Initiative.

They include:
- Stefanie Delbeke – Belgium
- Elizabeth O’Neil Meurehg – Canada
- Kent Stenvang – Denmark
- Franz Schmaus – Germany
- Annemieke Bouwmeester – Netherlands
- Jose Antonio Jimenez Hernandez – Spain
- Stephen Allen – United Kingdom