

NUCLEOTIDES IN MEDICINE AND SPORT “HEALTH AND NUTRITION TODAY”

ROBERT PASTORE HOSTING MARK CONNELL
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Dr. Robert Pastore, Ph.D. is a consulting nutritionist in New York City, where he works with many hospitals, surgeons and primary care physicians to provide nutritional advice as part of a patient care team. He is one of the unusual Ph.D. nutritionists who see patients in clinical practice rather than doing research. This allows him to approach each case scientifically, and in doing so he has been deemed by his health care colleagues to be a "biochemical detective".

Dr. Pastore has Ph.D.'s in both human nutrition and biochemistry. Dr. Pastore maintains his currency with new developments in the field through active participation in the American College for Advancement in Medicine, the National Association of Nutritional Professionals and the American College of Nutrition. He is a Certified Nutrition Specialist, as a result of having served an internship at the Hospital for Joint Diseases in New York City,



under the auspices of the Certification Board of Nutritional Specialists.

Dr. Pastore hosts a popular weekly radio show, "Health and Nutrition Today" which originates in New York and is heard around the country.

Robert Pastore: Hello everybody and welcome to "Health and Nutrition Today". I'm your host Dr Robert Pastore and as I mentioned last week, I'm going to have this great guest on. Well, I actually do. So let's talk a little bit about who he is and then he'll be talking live, because guess what, Mark Connell the Founder and President of Nu Science Labs, Inc. is live in the studio, not on the phone, but sitting directly across from me in the studio. I'm so happy to have him with us. He is a brilliant man, who is going to help us talk about one of my favorite new supplements, which is **nuBound**.

Now, you all know that I'm very difficult to please with specific supplements in nutrition. I'm a big believer in

Propax. I like specific brands and I have actually really started to adore **nuBound** in my clinical practice. I'm using it for peri-surgical reasons, and we'll discuss that more in the program.

But Mark Connell, the President and Founder of Nu Science Labs is going to talk to us about the science behind **nuBound** and its applications in sport.

For example, they've got a great tag line in their pamphlet, it says: Recover Faster, Train Harder, Perform Better

So ladies and gentlemen, I introduce to you Mark Connell. Welcome Mark.

Mark Connell: Robert thank you very much. It's a real pleasure to be here in New York and in the studio today.

RP: Thank you Mark. It's a pleasure to have you here. Please tell us a little bit about the story behind **nuBound**.

MC: Sure, absolutely The story of **nuBound** begins not in the US, but over in Asia. I've worked with an Asian-based pharmaceutical manufacturer for the last dozen years. A number of infectious diseases have come up in Asia over the last several years including bird flu, SARS and a number of infectious diseases like the annual new strains of flu. So we got together and decided to look for a nutritional supplement that could boost the immune system of our customers. That's something that everyone in Asia needs.

With that goal, I began a search the world over looking for promising supplements. At the end of the search I had identified a manufacturer in Europe who produced a very interesting product—one that forms the core of **nuBound**—that was based upon nucleotides, the building blocks of DNA and RNA. This product showed

great promise for boosting the immune system. So we picked the product up for Asia.

And in the course of my due diligence I had noted something more in the research—that the product also showed great benefit for boosting the recovery of athletes. Not only was it good for the immune system, it would also help athletes in their recovery after exercise.

RP: Absolutely, and I believe that there was a clinical study that you found after you had identified this active ingredient. Can you tell us about this please?

MC: Certainly, the study you mentioned was conducted by Dr. Lars McNaughton, an exercise physiologist based at the University of Hull in England. Dr. McNaughton completed his graduate studies at the University of Oregon, a place with a great athletic heritage, and the home of Steve Prefontaine and Alberto Salazar.

Lars McNaughton did a study looking at nucleotide supplementation by endurance athletes. Briefly, the study tested athletes prior to and following exercise to establish baseline values of two common indicators of exercise stress—salivary immunoglobulin and cortisol.

Then the subjects were given a nucleotide supplement (or a placebo) on a double blind basis for 60 days, after which he brought them back in and tested them again for the two indicators.

What McNaughton found were highly significant results for both increased immune system response and faster recovery.

RP: That's a critical aspect for an athlete. So they found a reduction in cortisol levels in addition to an improvement in immune system response.

MC: Absolutely, as an athlete myself--I ran three marathons in 2006--

RP: How many people in our listening audience can say they ran three marathons? I'm proud of you! Great job!

MC: Thanks--as an athlete, I looked at it and said here's something I can use in my own life. I started using the product and said, absolutely this is helping me.

RP: And I want to make it clear to the listening audience that the active component used in that study is the same ingredient used in **nuBound**.

MC: Yes, it's an identical formulation.

RP: What's funny is how Mark and I got together. Again, everybody who listens to the show knows that I'm a tenacious researcher and that I'm always scouring the journals and I found a study that looked at peri-surgical benefits from nucleotide supplementation.

And I get referred patients to me by many medical doctors throughout the US, and within New York, some difficult cases, cases where a patient is getting ready for surgery and they want me to do everything I can from a nutritional perspective, as a doctor of nutrition, to address the patient's health and their concerns. To get them ready to have their surgeries heal appropriately and prevent infection. And I found this amazing published paper on the immune enhancing effects and tissue restoring effect using nucleotide supplementation.

So I did some research on nucleotide supplements and the best product I found with regard to doses, safe doses that I can use, which Mark and I will discuss later, I found **nuBound**.

I started using it in various cases -- an ex-athlete prepping for surgery, an older person who was never athletic for the last 25 years, but needed it for surgery. So, my end of the spectrum was not originally from an athletic perspective.

Now I definitely am using it as part of my core program with athletes, absolutely core. Right from the beginning when I see an athlete in my clinical practice, I think its important that they start using **nuBound**.

I've found a tremendous increase in my own health using **nuBound** and I can vouch for its ability to keep the immune system strong. I was also drawn to the research Mark was presenting from a peri-surgical perspective.

Mark, by the way was trained as a biochemist and has worked in the pharmaceutical industry for over a dozen years. I think, Mark, that biochemistry is our first language and we could just go nuts talking about research for two hours, but I promise you we won't do that today.

Mark has looked at some of the exciting research that started on nucleotides... So Mark I'll turn it over to you.

MC: Thanks. The standard view in physiology was that the body produced its own nucleotides and there was no need to add them in the diet. That for years was the traditional view and nobody thought twice about dietary sources of nucleotides.

What happened back about thirty years ago, was that a New York physician, a Dr. Benjamin Franks, began to question this view. He said that this doesn't always seem to be the case. There are conditions where the body is under metabolic stress or where the body is undergoing rapid growth where an exogenous, dietary source of nucleotides could be beneficial to folks. He was one of the first researchers to look into this issue.

What's happened since he was doing his work in the early/mid 1970s is that there has been a real explosion of research including several dozen studies quantifying the benefits of dietary nucleotide supplementation for immune system support in hospital patients.

One of the interesting clues was the finding that human mother's milk has a high level of nucleotides. That is one of the reasons mother's milk is superior for newborns, because the nucleotides help support the infant's immune system.

RP: Absolutely. And it's interesting that the Physician's Desk Reference (PDR) actually acknowledges this. There's a section on nucleotides and nucleic acids in the PDR and they show the mechanism of action of nucleotides has been demonstrated to have an effect on a number of immune system functions and intestinal health.

When patients are under incredible stress the PDR says that there may be an increased need for nucleotides. And supplementation may actually be the best way.

So if you'd like to talk to Mark or myself about nucleotides and clinical research or anything in the field of clinical nutrition, please feel free to call us at 212-868-0975.

When Mark and I were talking about this show today, we wanted to make sure that we gave the listening audience a great, well-rounded perspective with regard to **nuBound** and nucleotides, how its used in clinical research and the beneficial outcomes.

We already covered how there's this incredible stress reducing response. There's a very important immune system increase that's critical, and there's peer reviewed research to back that up.

What's also important to note is the dosing. Mark would you like to start our discussion regarding dosing from the nucleotide perspective?

MC: Sure. What we did when we designed the **nuBound** supplement, was to make sure that what we had was safe and that the dosages wouldn't cause any problems in the general public using this supplement without clinical supervision.

And I'll ask Robert to address later the types of problems that might arise from taking larger doses on an unsupervised basis.

What we did was to create a product that with a four capsule per day dosage provides about 115 mg of dietary nucleotides (ie, the four capsules we recommend for normal consumption). I mentioned earlier Dr. Franks, who was a pioneer in the field of nucleotide supplementation. This is the dosage he recommended.

What we suggest is that athletes take four capsules per day as the normal dosage. When an athlete is under particular stress, you can safely double that dosage to eight capsules per day. An example of this stress might be when an athlete is tapering their training prior to a big event and wants to make sure they have fully recovered from the stresses/injuries during their training, or similarly, following a marathon or other big event, when they need to recover.

RP: Absolutely. What Mark's saying is based on clinical research. You can actually increase the healing response and that's key. You can also support the immune system.

If you've ever logged on to my web site, www.pastoreformulations.com, you know that I wrote a paper regarding plant sterols and sterolins and how they modulate the immune system.

And I cover a research paper on how marathoner runners, following a marathon actually have a white blood cell count, specifically a T cell count, that can be equivalent to that of an AIDS patient. They can have incredibly profound drops in their immune system functioning and a product like **nuBound** seems to

come to the rescue and help them. And its based on clinical science.

Another very important thing with regard to dosing, and a reason I felt so comfortable with **nuBound**, as opposed to other nucleic acid/nucleotide supplements, was the dosing. How safe Mark was at choosing the correct dose. Because it gives me, as a doctor of nutrition, wiggle room to use larger doses when I feel its warranted specifically for that person, understanding that patient's case, having the medical team and me work together to get the right dosage for that patient. Where I will use very large quantities in certain cases, and its not for the regular public to go off and do that. Its important that it's discussed with a professional in my field, to make sure they are using the right dose.

nuBound makes me feel happy and safe, because people can take the dose right off the bottle and be very safe. In certain cases of uric acid increase or if you have gout, you probably would not be wise to use a nucleic acid or nucleotide-based supplement, unless again you are under the supervision of your doctor. You want to make sure to stay well hydrated.

At the dosages used by Mark, it's a very safe product. As a practitioner I'm so happy that you put 120 capsules in a bottle because that makes my life easier. In peri-surgical patients I use very large doses of this product. But again, under my supervision, the surgeon's supervision, and the supervision of the primary care physician, so we're really watching and monitoring the patient. Because everybody who listens knows that I'm a real stickler for these things.

So if you'd like to talk to Mark and myself about anything in the field of clinical nutrition as well as nucleotide research, please feel free to call at 212-868-0975.

Mark lets cover a little more about the clinical research. Do you have other studies you'd like to talk about?

MC: Sure I would, but first let me digress for a moment and return to your mention of the Physician's Desk Reference, the PDR, and talk about conditions of metabolic stress or rapid growth, its now recognized that the body requires nucleotides to meet its requirements

RP: That's actually an amazing point.

MC: It is. And when you think about an athlete in a training program, that's actually the definition of what they are doing. They are using exercise to put their body under metabolic stress, and the reaction they are looking for from that

stress is rapid cell growth to build, repair and strengthen their muscles.

An athlete in training will alternate heavy days with light days to give the body a chance to recover between the big training stresses. And this stress on the body is precisely is what's being talked about in the PDR. Rapid growth is where you are repairing the micro-tears that exercise creates in your muscle.

RP: Which is required for the hypertrophy, for the muscle growth itself.

And its quite interesting how many athletes I see in clinical practice that are the most sick. By sick I don't mean chronic disease, I mean they'll frequently come down with infections. They'll get more colds for example.

I have athlete that's using **nuBound**, that was climbing a mountain. He's a cyclist, a runner, a swimmer and he was planning to climb a mountain.

He comes into my office and here's what he says to me. He says Dr. Pastore I'm going to be in an oxygen deprivation tank for four weeks, on and off, to train my body to deal with the altitude. Can you please put together a program to help me handle the stress. We worked out a good strategic plan, which included some specific dietary and supplement changes that were critical. One of the biggest things was using **nuBound** to make sure we were repairing the tissue damage fast enough and making sure we were enhancing the immune system.

This patient had first came to me a year prior with chronic upper respiratory tract infections. He could not understand them. He said, I'm so healthy, look at my body fat, look at how healthy I am. I told him that the problem was the constant metabolic stress that needed to be addressed. And I'm so glad you're bringing that up. That's such a key component.

And again its recognized in the peer-reviewed literature and recognized in the Physician's Desk Reference that it's an acceptable utilization for nucleotides. Then there's the hypothesis, and that's what current research is showing, that maybe we have a higher dietary requirement when we are in an exercise state.

How can we compare the breast feeding in the infant to the intense athlete? Well, they're both in rapid cellular growth, and in the athlete there's also rapid cellular destruction. But you have rapid cellular growth and utilization.

There's a lot of conditions--listeners who are also patients, know that I am always talking about metabolic stressors.

When I was first studying clinical nutrition, my professor showed the metabolic stress of rheumatoid arthritis. And he would say that specifically. And then professor Glade would say, the metabolic stress of cancer. That specific diseases were metabolic stressors, they required a higher tissue turnover rate, utilization of amino acids, hyperactivity of the mitochondria and a greater need for nucleotides than other conditions. Than other sedentary conditions.

So its very important, and I'm glad you brought that issue up, we get that message out to those who are listening. Stress is a critical point and thank you for bringing us back to the Physician's Desk Reference.

MC: Absolutely. Let me talk about the natural sources of nucleotides. People think, nucleotides, I've never heard of them before. What are they, they sound dangerous.

Nucleotides occur in all natural foods. Any fruits, vegetables, grains, meats or fish. Any natural, unrefined food that has cells. Each cell has a nucleus and you have nucleotides in them.

The difference is that most foods have a fairly low concentration of nucleotides. nuBound has a specially formulated concentrate of nucleotides that is prepared from a yeast extract. We take that and concentrate the nucleotides (and some RNA, which is closely related). We take that, which is a powder and pack it into capsules. These 120 capsules per bottle we talked about provide a one month supply.

RP: I'm so glad you mentioned that nuBound comes from yeast. One point I need to touch on is that I'm sure there's a listener out there saying, oh my goodness there's yeast or it comes from yeast, oh no, I'm in trouble. Well if you're a regular listener to my show you know that my doctoral dissertation in clinical nutrition was on polysystemic candidiasis with resulting dysbiosis, so I'm very familiar with the yeast species and nucleotide therapy actually is a treatment for candidiasis, its actually used in treating infections. So there wouldn't be a sensitivity to yeast in this instance.

This is why you have to get to the research, and cut through the stuff that's on Google and Yahoo, and get right to the facts.

One part of my practice is when a patient comes in on a referral from a medical doctor to get a clinical

program to address peri-surgical issues. I give them a diet of foods rich in nucleotides: seafoods, fish, sardines, beans, mushrooms and beef, as well as a supplementation list and of course on my supplementation list is nuBound.

I want to make sure, because we have so much to cover that I know we'll keep talking to the end of the show. I want to make sure that people visit www.nubound.net to get more of the information, particularly on the McNaughton exercise physiology study that showed reduced production of cortisol and increase to your immune system. And if you're an athlete and training hard and eating right with nuBound, you can recover faster, train harder and perform better.

I also want to mention that you can get nuBound directly from my office because I use it in clinical practice. So please feel free to call 212-575-5155 to try some nuBound.

Mark lets get back to the research or some other points that you wanted to make.

MC: Absolutely, thanks Robert. What I did want to discuss was the distinction, or rather the similarity between the two of the benefits from nucleotide supplementation. It helps the body recover faster and it boosts the immune system. Those two points are the principal reasons for athletes to use nuBound.

But, I was at the University of Connecticut last month meeting with Bill Kraemer, a very famous researcher, well known in the field of strength and conditioning and particularly well versed in the endocrinology of exercise.

He commented to me that these are not two distinct benefits, they are really two sides of the same coin. He pointed out that a strong immune system is integrally linked to recovery. Recovery and the immune response are the same thing by a different name.

RP: That's absolutely right and if the immune system is suppressed, recovery will not occur. And athletes have to realize that if they don't take care of themselves they are living in what I call the cortisol zone.

Some athletes have such high cortisol. There's this zone of cortisol, when you produce so much cortisol which is a tissue breakdown hormone, it's a catabolic hormone, so that anything that's safe and effective,

that can lower cortisol, will also help facilitate healing and help keep tissue preserved.

MC: Exactly, and that brings us back around to the **nuBound** motto: Recover Faster, Train Harder, and Perform Better!

RP: I can definitely vouch for that. Because in clinical practice there is a term, feeble, which refers not just to someone who is weak, but it's a clinical term for someone in a poly-diseased state, they're more sedentary, they've had numerous surgeries or have a surgery coming up, they're getting along in years. And that recover faster part is exactly what I'm actually seeing in my clinical practice from patients who've had knee surgeries, or hernia operations or intestinal surgery recovering better when I employ the nucleotides from **nuBound**.

And again, lets be really redundant, you don't just go out and grab just any old nucleotide supplement. It's a specifically targeted dose. You want the specific nucleotide complex in **nuBound**, nuBound's proprietary PSB complex based on research.

And if you know me and trust me, you know that I only zone in on a compound that I believe is going to be very safe for patients and also for general recommendations. So other people can get in on it. Because one of the most common reactions I receive from patients is hey, can I give this to my mom or to my sister. And if its something I think is very safe for them to blindly recommend, I'll say yes, but only at the dose that's recommended on the bottle. But not what I'm doing with you. A dose beyond what is indicated on the bottle I would want to sit down with them or have a doctor sit down with them.

And again, to harp on this, **nuBound** is very safe product that can be used exactly as directed on the label. It's a wonderful product.

I urge you to log onto www.nubound.net to learn more about **nuBound**. And also, please call my practice at 212-575-5155 to learn more about **nuBound** and to get **nuBound** in your life.

So let's talk more about who is using **nuBound**? Who do you see actually using **nuBound**?

MC: Sure, we've had great response across the sporting community, including everyday folks like you and I, who exercise to keep healthy, all the way to people who are famous and even legendary in the sporting world.

Dick Beardsley, who is the second fastest US-born marathoner of all time, has been taking

nuBound since the Boston Marathon last year. Dick's most famous race was the "Duel in the Sun" 1982 running of the Boston Marathon where he and Alberto Salazar ran the entire 26.2 mile race stride-for-stride.

When Dick first accepted a sample from me he warned me not to get my hopes up. He said people were always asking him to try things because he was a famous guy. About a month later he called back and said that he really did like **nuBound** and that he wanted to get some more because he was running 100 miles per week to train for Grandma's Marathon. Dick ran three marathons last year, and either won or placed in his age group in all of them.

Dick had turned 50 last spring and he said that with **nuBound** he was recovering like he did when he was 25. He said, he knows that **nuBound** works because he's kept a training diary for the last 30 years and knows exactly how long it takes him to recover after any training session.

RP: Wow, that's fantastic. I'd like to say a special thanks to my dear friend Mark Connell, the President and Founder of Nu Science Labs, Inc. We were talking today about **nuBound** and the web site is www.nubound.net. Also, please feel free to call me, Dr. Pastore for an appointment and to get a hold of some **nuBound**.