Stanford's Secret Weapon

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By Phil Whitten

Photos by Rod Searcey

What a year 1992 was for Stanford swimming!

From the Olympic trials in early March, through the national long course championships in August, Cardinal swimmers left an indelible mark on the sport with some of the most dominant team and individual performances in recent history. In fact, both men's head coach Skip Kenney and women's head coach Richard Quick readily admit their teams' combined accomplishments exceeded their highest expectations.

"We had a talented group of athletes, and we knew we had the potential to have a great year, but what the teams actually accomplished in 1992 was way beyond anything Richard and I might have expected," said Kenney.

To put things into perspective, consider:

•At the Olympic trials in Indianapolis, six Stanford-trained swimmers qualified for the Olympic team.

•Less than two weeks later, the Stanford women's team claimed its third NCAA title by outpointing Texas 735.5-651 at the NCAA championships in Austin.

•The following week, five American records and a sweep of all relay events helped the Stanford men snap Texas' four-year hold on the NCAA crown with the highest point total in meet history (632).

•When the Olympic Games rolled around, the Stanford athletes earned seven individual medals, nearly one-third the total haul of individual medals by American swimmers, and only one fewer than the entire reunited German team. Factoring relay events into the equation, the Stanford athletes took home eight gold medals.

Throughout the course of the year, they broke two world records and smashed numerous American and collegiate marks. And don't forget that two of the most widely publicized stories generated from the sport last summer—Pablo Morales' stunning comeback to claim an Olympic gold medal at age 27, and Angie Wester-Krieg's successful bid to become the oldest woman ever to make the U.S. Olympic swimming team—were also launched from Deguerre Pool in Palo Alto.

The Secret Of Success

In the afterglow of that dream season, Kenney and Quick are often asked, "What was the secret?"

Interestingly, both Quick and Kenney point to a nutrition program developed by Dr. Barry Sears of Marblehead, Mass., as one key factor.

"I think the total nutrition program was a key because that's really the only thing we did differently from what we had done in earlier years," said Quick. "I can't put my finger on any one thing that would have influenced such an overall improvement in team performance other than the nutrition program outlined by Dr. Sears."

Added Kenney: "Richard and I have been coaching for roughly 25 years now, and in that amount of time you develop tendencies with your pro-

gram that you're comfortable with. You just don't make big changes in a program that's been successful and your athletes are comfortable with.

"But we've added a new element that seems to enhance everything else we do. There's no doubt in my mind that this approach to nutrition has made a positive impact on our team performance, from top to bottom."

The nutrition program is based on the knowledge that the consumption of foods cause hormonal responses within the body—some good and others bad. By carefully controlling the composition of food you eat, you can, in principle, control these hormonal responses, which trigger positive adaptive changes within the body.

The net results can include increased lean body (muscle) mass, enhanced cardiovascular endurance, fat loss, improved recovery between workouts, reduced fatigue, decreased hunger, and improved mental alertness. "This system is purely nutritional, it's not a drug," said Sears, a former research scientist at MIT and the Boston University School of Medicine. "But the important thing is to treat food as if it *were* a drug. You have to be consistent, controlling the composition of every meal you eat to create the optimal hormonal responses from your body."

Sears, who holds 12 U.S. patents and is a leading expert on drug delivery technology, actually developed the program for use in treating cardiovascular disease. During the 10 years he spent developing the program, he discovered its potential value among elite level athletes.

The program differs considerably from most sports performance diets that emphasize high levels of carbohydrate and limited amount of fat. The diet is a protein-adequate, low-calorie, low-fat program containing an exact ratio of 40 percent carbohydrate, 30 percent protein and 30 percent fat. Stanford is the only swimming team using the program today. (For more information on the scientific basis for Sears' theory, see "Carbo Wars" in the March/April issue of SWIM Magazine.)

In order to help the Stanford athletes maintain this controlled ratio of nutrients, they ate nutrition bars, which were used as meal replacements and/or training supplements. They also took supplements of activated essential fatty acids, found only in human breast milk, to further improve their performance. Finally, they were given an outline of sample meals that provide the nutritional balance the Stanford swimmers required.

"Some of the meals you eat are 'different' to say the least," noted Sears. "For example, a lot of swimmers like to eat oatmeal for breakfast, and that's great. But to make that a perfectly balanced meal, have a serving of cottage cheese or tuna fish with the oatmeal, in order to introduce the appropriate amount of protein and maintain the right ratio. Or if you don't like oatmeal, you can have cottage cheese and an apple."

Above: Pablo Morales (left) and Stanford men's coach, Skip Kenney

Opposite page: Stanford's women's head coach, Richard Quick

Controlling Hormones

By maintaining a consistent ratio of nutrients in the diet, Sears contends you can control those hormonal systems which are 100 percent under dietary control. The main targets in this regard are the paired hormones, insulin and glucagon, and the most powerful of all hormonal systems, eicosanoids.

The ratio of insulin to glucagon—which changes depending on the composition of a meal—can influence a

Kenney (above, speaking with Allan Young) noticed improved recovery and performance in his own workouts as a result of the nutrition program.

Quick (below, with Summer Sanders) said his swimmers aren't as fatigued and are able to have consistently solid workouts.

vast array of body functions, and can significantly affect athletic performance. This ratio is controlled exclusively by the ratio of protein to carbohydrate in the diet.

Glucagon is the hormone that causes the release of stored glycogen from the liver. It also releases fats from fatty tissue where energy is stored. By increasing the level of glucagon in the body, Sears says you can burn stored fat (instead of stored carbohydrate) for energy, which significantly improves endurance capacity, alleviates muscle fatigue, and reduces the level of fat stored in your body. Sustaining high levels of insulin—the result of a high-carbohydrate diet—can cause converse reactions, such as increased sluggishness, muscle soreness and elevated body fat.

"The important thing to realize is that the protein in your diet will promote glucagon release, and carbohydrate will trigger insulin release," explained Sears. "So in this regard, an athlete who is into 'carbo-loading' is essentially doing everything he or she can do to guarantee a reduced performance.

"Carbohydrate is important: don't get me wrong. It's the only source of energy for the brain. It's an important element of the diet, but the body performs most efficiently when carbohydrate accounts for 40 percent of the total, balanced by 30 percent protein and 30 percent fat.

"Much of this increase in efficiency comes from the effect the correct glucagon-to insulin balance has on eicosanoid formation. Eicosanoids, which come from dietary fat, are the true power houses that drive athletic performance. The key is to make more *good* eicosanoids and fewer *bad* eicosanoids. The favorable glucagon-to-insulin ratio will achieve that goal."

It Works

When they first heard Sears' unique approach to nutrition several years ago, Kenney and Quick were both skeptical. However, after a laboratory analysis of Sears' products confirmed they were indeed non-pharmaceutical foods and safe to use, both coaches decided to test the program on themselves.

"I began to notice things in my own workouts, in terms of improved recovery and performance, that were almost amazing," said Kenney. "I found myself doing the types of workouts I hadn't been able to do in quite some time."

From that point, Quick and Kenney slowly began introducing the program to their swimmers.

"We first used the products with the athletes during the summer a few years ago," said Quick. "We were very pleased with the results; but, what was most interesting was the way the nutrition approach helped those athletes hold their tapers so effectively. We had some people who went from nationals over to Japan and then all the way back for a meet in Atlanta the following week. And they swam very well, even after the point when most effects of a taper ordinarily wear off."

After that initial experiment, Quick and Kenney have increased the nutritional focus in the Stanford program to the point where, last year, *every* member of the team was encouraged to conform to the dietary parameters outlined by Dr. Sears.

Both Quick and Kenney agree that the swimmers who adhere closely with the diet show visible differences in the pool.

low the program to the letter demonstrate positive effects in a number of areas," said Quick. "For one, the recovery time between workouts is reduced. They aren't as fatigued and they're able to have consistently solid practices, one after the other. That allows us to focus on more quality workouts. That, in turn, has a number of positive effects. Their overall strength levels improve, they become leaner, and they can hold a taper longer than they could before."

In fact, Kenney points to this ability to extend the effects of their taper as the key to Stanford's success last spring.

"With the Olympic trials so close to NCAAs, we couldn't taper twice," said Kenney. "I think we were the only team that was able to swim real well at both meets, and that's because we held the effects of the taper so long. That was a big part of winning NCAAs last year."

Jenny Thompson

One of the athletes Quick singles out as a close follower of the program is Jenny Thompson, who smashed the six-year-old world record in the 100 meter freestyle with a time of 54.48 at the Olympic trials in March, and set an American record five days later in the 50 freestyle with a time of 25.20. Swimming at the NCAA Championships several weeks later, she destroyed the American record in the 100 yard free with an astounding time of 47.61.

In Barcelona, Thompson earned a silver medal in the 100 freestyle, and two gold medals as the anchor of the 400 meter medley and 400 meter freestyle relays.

Thompson was recognized as one of the nation's top freestylers during her high school years in Dover, N.H. However, her times seemed to plateau, and during her senior year, she expressed her frustration to Quick, who had recruited her to swim at Stanford the following year. Quick, in turn, suggested that Thompson make the short trip from New Hampshire to Marblehead, Mass., to visit Dr. Sears and explore how the program might help her.

"When I first saw Jenny, we did the usual body measurements, and discovered that her percentage of body fat was somewhere up around 20 percent," described Sears. "Though that's very good for most women, it's too high for a world-class swimmer.

"So we started her on the program, and two months later we found she had dropped to under 13 percent. By the time the Olympic trials came around she was in absolutely tremendous shape. We knew she was ready for some fast swims."

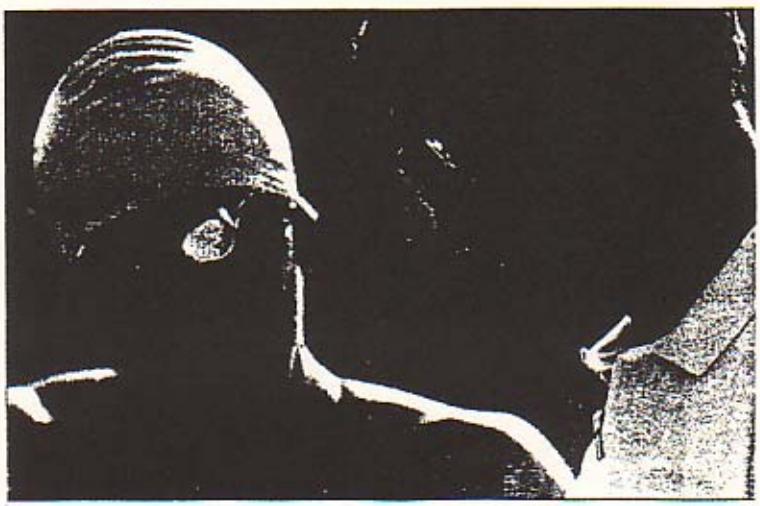
Indeed, she shaved over a full second from her best time in the 100, an improvement Thompson called "incredible," considering she was already competitive on the global level.

In fact, Quick says Thompson's dramatic performances have not only earned acclaim, but also aroused suspicion among certain members of the international swimming community.

"When I got to Barcelona, I heard from a number of different people that others believe Jenny Thompson must have been doing something illegal to swim the way she

Jenny Thompson (above) was a close follower of the program. Last year she smashed the world record in the 100 meter free.

Quick (below, with Mary Ellen Blanchard) led his Stanford women to the collegiate championship last year.



saying there was no way she could have gone as fast as she did without drugs. Everyone knew the record she broke was a steroid record (54.73 by East Germany's Kristin Otto), and they thought Jenny had to be using steroids to beat that time. But I can absolutely guarantee that wasn't the case. It was the dietary program outlined by Dr. Sears."

Human Growth Hormone

Sears said stories like that don't surprise him. The reason is that one of the hormones that are indirectly affected by this nutrition program is HGH—human growth hormone. By keeping the levels of good eicosanoids elevated, you maximize the natural secretion of growth hormone in response to intense training. As a result, you can realize body changes like increased muscle mass—the desired effect of using anabolic-androgenic steroids—simply by carefully controlling the diet.

"I've had athletes, including a formerly using steroids, start to use this dietary program and admit they actually are stronger," claimed Sears. "And that's because human growth hormone has greater effects on strength than do anabolic steroids. Furthermore, there aren't any negative side effects with this nutrition program because it's 100 percent natural."

Coach Kenney cites the positive psychological impact the nutrition program had in Pablo Morales' comeback.

Angie And Pablo

Quick also mentioned Dr. Sears' program as an integral part of Angie Wester-Krieg's impressive performances last summer.

"Here was a person who had tried to make the (Olympic) team three times before, but hadn't," said Quick. "Now, at an age well past the age most people think women swimmers are past their prime, Angie not only makes the Olympic team, but she does her lifetime best four swims in a row. Then she comes back from Spain and wins her first national titles.

"I know, theoretically, an athlete doesn't reach his or her aerobic potential until after age 30, but something made a profound physical and psychological impact on Angie to have her perform that well."

Kenney expanded on the positive psychological impact he feels is associated with the program, and said it played an important role in Pablo Morales' comeback.

"I think it helped Pablo's comeback, because after three years out of the water, he came back a little soft, and he had a lot to accomplish in a short amount of time," said Kenney. "But after several weeks he came right back into shape and could look in the mirror and say, 'Hey, I *am* back, I *am* a swimmer again.' That gave him a mental spark that told him everything was within his reach.

"By the time he went to the Olympic Games, his body was more chiseled than I had ever seen it. Was eating oatmeal and cottage cheese for breakfast what did it for him? Who can say? But he won his gold medal by 3-hundredths, and I'd rather be 3-hundredths ahead and wondering what got me there than 3-hundredths behind, wondering what more I could have done."

Coach Quick believes that Stanford's nutrition program played an integral part in the success of Olympian Angie Wester-Krieg.

Improving On '92

Though by most accounts, improving on their 1992 team performance will be a tall goal for Stanford, Kenney, Quick and Sears are convinced it is within reach. Dr. Sears has already been out to Palo Alto once this season, and he claims to have refined the program and products to an even greater level of sophistication.

"The nice thing about it is that everyone can benefit equally," said Kenney. "We didn't have everyone make the Olympic team last year, but we had everyone swim well. And in this sport, that's rare.

"It used to be that during a given season, you'd see the cream rise by the end of the year. A good approach to nutrition allows everyone on the team to tap into their potential and be a part of that. You can't tell where your next great swim will come from." ■

Dr. Barry Sears *is the president of Surfactant Technologies, Inc. (STI), a biotechnology firm located in Marblehead, MA.* ***Eicotec Foods*** *is a wholly owned subsidiary of STI. A former research scientist at the Boston University School of Medicine and the Massachusetts Institute of Technology, Dr. Sears is a leading authority on drug delivery systems and the dietary control of hormonal response. Dr. Sears holds 12 U.S. patents in the areas of intravenous drug delivery systems and hormonal modulation.*

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