# EFFECTS OF PERUVIAN MACA ON HORMONAL FUNCTIONS

Whether discussions today are about estrogen replacement therapy, increasing male potency, or improving other hormonal functions, the solutions mentioned are generally drugs currently on the market. Lately, however, we've been hearing marvellous reports about a hearty plant root cultivated high in the Andes of Peru. Known as "maca," this ancient nutritional source and efficacious endocrine system remedy is being dispensed by health professionals as a safe and natural substitute for drugs. Maca, in fact, has been used by Peruvian consumers for many centuries, from before the time of the Incas. Once in a decade an herb used by native peoples for thousands of years comes to our attention and it seems so important to health that we wonder how we ever got along without it before.

Now women have an alternative to hormone replacement therapy [HRT]. Maca works in an entirely different and more satisfactory way for most women than the phytoestrogenic herbs like black cohosh and licorice root. These herbs have become popular with menopausal women who refuse to take the drugs of HRT.

And men, too, find in maca an herb that will counteract the difficulties they may experience in maintaining good sexual relationships as they age, due to a general slowing down in the output of the endocrine glands.

#### The Importance of Maca in the History of Peru

Maca's cultivation goes back perhaps five millennia. It was an integral part of the diet and commerce of the high Andes regions. When they controlled that certain South American area, the Incas found maca so potent that they restricted its use to their Royalty's court. Upon overrunning the Inca people, conquering Spaniards became aware of this plant's value and collected tribute in maca roots for export to Spain. Maca was used as an energy enhancer and for nutrition by the Spanish Royalty as well. But eventually knowledge of maca's special qualities died out, being preserved only in a few remote Peruvian communities.

In the 1960s and later in the 1980s, German and North American scientists researching botanicals in Peru, rekindled interest in maca through nutritional analyses of what was designated as "the lost crops of the Andes." The publication of a book by that name introduced maca to the world.<sup>2</sup>

### The Nutritional Value of Maca

Proteins. as polypeptides, make up 11% of the dry maca root and 14% of whole maca paste. Calcium makes up 10% of maca's mineral count. Magnesium and potassium are also present in significant amounts. Other maca minerals include iron, silica, and traces of iodine, manganese zinc, copper, and sodium. Starch, a hexosane polysaccharide in maca, contains the triple minerals calcium, phosphorus, and iron.

Vitamins found in maca comprise thiamin, riboflavin and ascorbic acid. Carbohydrates, coming from maca's cellulose and lignin, are polyholosides. Amino acid proteins in maca include aspartic acid, glutamic acid, serine, histidine, glycine, threonine, cystine, alanine, arginine, tyrosine, phenylalanine, valine, methionine, isoleucine, Iysine, tryptophan, proline, hoproline, and sarcosine.

These investigations on the food content of maca were carried out in 1979 at the Institute of Nutrition in Lima.

### The New Maca Species, Lepidium peruvianum Chacón

The scientist responsible for most of the current knowledge of the maca plant is Gloria Chacón de Popivici, PhD, a Peruvian biologist trained at the University of San Marcos, in Lima, Peru. Dr. Chacón wrote her dissertation in the early 1960s on the maca root, and did groundbreaking work on the plant by discovering a new species. By analyzing its chemical actives, she pinpointed their hormonal effects.

Dr. Chacón also authored a book describing the root's nourishing micronutrients: La importancia de Lepidium peruuianum Chacon (Maca) en la Alimentacion y Salud del ser Humano y Animal 2,000 Ados Antes y Despues de Cristo y en el Siglo XXI. Published in Lima. in 1997 the book is a definitive study on maca and discusses its use from 8000 BC to the present and into the 21st century.

### Effects of Maca on the Endocrine Glands

This biologist/author has done the most important scientific work to date on the maca plant. In particular, Dr. Chacón isolated four alkaloids from the maca root and carried out animal studies with male and female rats given either powdered maca root or alkaloids isolated from the roots. In comparison with the animal control groups, those receiving either root powder or alkaloids showed multiple egg follicle maturation in females and, in males, significantly higher sperm production and motility rates than control groups.

Dr. Chacón established that it was the alkaloids in the maca root, not its plant

hormones, that produced fertility effects on the ovaries and testes of the rats. "These effects are measurable within 72 hours of dosing the animals," she offered in a recent telephone interview from Lima, Peru. Through the experiments, she deduced that the alkaloids were acting on the hypothalamus-pituitary axis, which explains why both male and female rats were affected in a gender-appropriate manner. This also explains why the effects in humans are not limited to ovaries and testes, but also act on the adrenals, giving a feeling of greater energy and vitality, and on the pancreas and thyroid as well.<sup>5</sup>

Implications of Dr. Chacón's discovery of the pituitary stimulating effects of maca are enormous. "What it appears to mean is that hormone replacement therapy, even the natural varieties, will no longer be the gold standard for optimizing health from a holistic point of view."

#### Hugo Malaspina, MD, Works with Maca

Now practicing complementary medicine with an emphasis on the use of medicinal herbs, one of the earliest modern pioneers in the therapeutic use of this ancient herb for an urban population is Hugo Malaspina, MD, a respected cardiologist in Lima. Dr. Malaspina has been using the maca root in his practice for a decade and makes the following observation: "There are different medicinal plants that work on the ovaries by stimulating them. With maca, though, we should say that it 'regulates' the ovarian function."

Dr. Malaspina, who uses maca therapy for both his male and female patients, recalls that he first heard about this extraordinary herb through a group of elderly gentlemen who, while well along in years, were still lively and interested in enjoying sexual activities. "One of this group (they were all over 70) started taking maca and found he was able to perform satisfactorily in a sexual relationship with a lady friend. Soon everyone in the group began drinking the powered maca as a beverage and enjoying the boost that the root was giving their hormonal functions. I have several of these men as patients, and their improvement prompted me to find out more about maca and begin recommending it to my other patients," Dr. Malaspina stated.

What makes maca so effective, according to Dr. Malaspina, is that rather than introducing hormones from outside the body, maca encourages the ovaries and other glands to produce the needed hormones. The cardiologist-turned-wholistic physician said, "Maca regulates the organs of internal secretion, such as the pituitary, the adrenal glands, the pancreas, etc. I have had perhaps 200 female patients whose perimenopausal and postmenopausal symptoms are alleviated by taking maca."

#### Maca Provides Benefit Following Hysterectomy

Dr. Malaspina has even found maca to be effective for women with hysterectomies. He discussed a 49-year old woman who had a hysterectomy eight years ago, although she still retained her ovaries. "The woman was beginning to get menopausal symptoms - hot flashes, cold feet, depression, tachycardia, some constipation and some bone loss. Because she had breast implants, usual hormone replacement therapy was not an option for her," explained Dr. Malaspina. "I started her on maca and within three months the depression, constipation, and hot flashes cleared up. Based on my experience with some other patients, I expect that her bone density will improve as well, but that will take longer."

He has also dispensed maca to women who have undergone complete hysterectomies. One patient who had her ovaries removed was on HRT. "But she didn't feel well taking the HRT so she stopped. When I examined her the blood serum estradiol level was 15 which is very low and she was experiencing hot flashes. Two months after she began taking maca I retested her and the woman had a level of 75. Anything above 60 is probably an adequate postmenopausal level. Maca enabled the adrenals to make sufficient hormones to avoid symptoms," he said.

Dr. Malaspina adamantly prefers maca therapy to HRT. "The presence of the outside hormone circulating in the system sends a message to the pituitary and the hypothalamus that there is a sufficient quantity of hormones in the body, and so they stop producing them. When menopause arrives, then, the ovaries are atrophied and do not produce the estrogen and progesterone which the body requires minimally to function. For this reason, I encourage women to start with maca before menopause. It seems to help the endocrine system to stay in balance."

### Jorge Aguila Calderon, MD, Prescribes Maca

Another Peruvian pioneer in the therapeutic application of maca integrated into a modern medical practice is Jorge Aguila Calderón, MD. An internist, Dr. Aguila Calderón is former Chief of the Department of Biological Sciences and Dean of the Faculty of Human Medicine at the National University of Federico Villarreal in Lima. Like Dr. Malaspina, he prescribes maca for a

wide variety of conditions, including osteoporosis and the healing of bone fractures in the very elderly. "Maca has a lot of easily absorbable calcium in it, plus magnesium, and a fair amount of silica which we are finding very useful in treating the decalcification of bones in children and adults."

Along with prescribing an excellent diet and certain lifestyle changes, Dr. Aguila Calderon has helped patients overcome male impotence, male sterility, and female sterility by employing maca therapy. Additional problems he treats with maca are rickets, various forms of anemia, menopausal symptoms such as hot flashes and night sweats, climacteric and erectile difficulties in men, premature aging, and general states of weakness such as chronic fatigue.

#### American Physician Gabriel Cousens, MD, Uses Maca

Physicians in the United States believe this herb has the potential of a balanced answer to the effects of aging on the endocrine system. Many who have tried phytoestrogens and/or precursor hormones such as DHEA or pregnenolone, or even natural hormone replacement therapy and have been dissatisfied, are getting excellent results from their use of maca root. Gabriel Cousens, MD, practicing internal medicine in Patagonia, Arizona, says, Whenever possible, I prefer to use maca therapy rather than hormone replacement therapy because HRT actually ages the body by diminishing the hormone producing capability of the glands. Maca has proven to be very effective with menopausal patients in eliminating hot flashes and depression and in increasing energy levels. To find the right dosage level, sometimes I have started the patient on maca treatment with a half a teaspoon of powder or three capsules a day. In some cases I have raised the dosage to a teaspoon or six capsules a day for full effectiveness."

## Henry Campanile, M.D., Offers Adrenal Balancing

Maca root, in keeping with its mode of acting through the hypothalamus and pituitary, has a balancing and nourishing effect on the adrenal glands. Henry Campanile, MD, a 50-year old specialist in internal and family/complementary medicine practicing in St. Petersburg, Florida, relates: "I happen to have been born with one adrenal gland just like my father. I started taking cortisone in my late twenties to relieve the fatigue which I was already feeling. Knowing the dangers of long term cortisone use, I looked around for an alternative, and this circumstance is what got me interested in complementary medicine. I started using pregnenelone about 10 years ago and it has been fairly satisfactory. But one of my patients told me about Maca, and I started taking it about a month ago. It is phenomenal! I haven't felt this good since I was 20 years old. I have so much energy and look so well, my patients have remarked on it and told me how rested I seem. I've got so much energy now I've started an exercise program." After trying it out on himself, Dr. Campanile began using maca with his patients. "My first patient to take the maca capsules was experiencing hot flashes and other menopausal symptoms. She started feeling much better after using this herb for only four days. I'm also employing it v,lith patients who have low adrenal function."

### Harold Clark, M.D., Makes Maca a Key Treatment

Another American doctor who has recently begun to use maca therapeutically for some patients is Harold Clark, MD, of New Rochelle, New York. Dr. Clark, who utilizes chelation therapy and ozone therapy in addition to herbs, vitamins and minerals in his practice stated, "I'm amazed at how fast maca worked on two patients that I have been concerned about for some time." He described one patient as 55 year-old Mary T, a postmenopausal woman. Mary T was possessed of numerous health problems, including somewhat elevated blood sugar, hypertension, atrial fibrillation, and hypomagnesemia. She had been acutely ill for two months with osteomyelitis and generalized sepsis. Unable to work, she was suffering from great fatigue and depression and feeling "worse and worse" over the last five years.

"Within just four days of taking the maca capsules, Mary T went through an enormous turnaround," said Dr. Clark. "She has gone out to shop in the stores; she's cleaning her house; she feels strong and vigorous; and her depression is gone."

### Early Menopause and Vaginal Dryness Avoided

One young West Coast woman, Susan F, has an interesting experience to tell. After giving birth to two children, the 31-year old mother decided to use contraceptive pills for the first time. Since a possible side effect of the method she chose was not having a period, Susan F didn't think anything of its nonoccurrence until six months later when she also began experiencing mood swings, hot flashes, and dry skin.

Her visit to an endocrinologist revealed that the woman's hormones were at "menopause" levels. Then Susan's mother told her that early menopause runs in the family. Her grandmother, her mother, and her older sister all had early menopause. It had been a year since her last period, and by chance her husband brought home some Maca for himself. He told his wife to try it, too,

Last June Susan F experienced resumption of menstruation once again. Her periods have been regular ever since taking the maca. Susan F also comments that her skin is now nice and moist, the way it used to be.

Diane S, a 52-year-old librarian from Rye, New York, would never consider taking estrogen because of the health risks she feared. Instead she opted for dehydroepiandrosterone (DHEA) as an anti-aging hormone. This very physically active woman noticed an upsurge in her energy from ingesting DHEA but intercourse was still painful for her due to the thinning and drying of her vagina. The gynecologist she consulted about the problem told her it was a "natural part of aging that could only get worse with time." He told Diane S that the only thing able to help would be taking estrogen.

But after three weeks of taking Maca Diane reported that her vaginal lubrication was good, and vaginal dryness was no longer troublesome.

#### Results for a Nurse-Practitioner and Her Patients

From her White Plains, New York, clinic, nurse-practitioner Stephanie Sulger-Smith, RN, MS, says that she read an article about postmenopausal health which discussed Maca. At her clinic she offers nutritional counselling for a variety of conditions.

"I had been prescribing black cohosh, dong quai, oil of evening primrose, vitamin E and other natural remedies to women with perimenopausal symptoms. But when I began taking these remedies to help with my own hot flashes and other symptoms of approaching menopause, I didn't get the relief I needed. So I acquired a supply of maca powder and took it as advised. Almost immediately, my hot flashes disappeared and my energy level went up. My response to maca was surprising to my gynecologist, who insisted that I undergo a series of laboratory studies, including estrogen levels, uterine sonograms and others. They all turned out normal," says nurse Sulger-Smith. "I haven't had a hot flash since the beginning of November 1997, and I feel fabulous.

"When I told my patients about Maca, they tried it and found freedom from their perimenopausal and menopausal symptoms. One patient who has been taking maca for over a year had a series of bone density studies done that showed increased density in the spine." says Nurse Sulger-Smith. "Other case histories exhibit similar positive results from taking maca. In fact, most of the women taking the root powder report that they feel less fatigue, greater energy, are less susceptible to stress, and do not experience hot flashes or night sweats.

There are always a few individuals who will show an allergic reaction or who fall into a group of women or men for whom a pituitary stimulator such as maca is contraindicated in the absence of studies that prove its safety. These groups include men with a high PSA level or a history of prostate cancer. Women with a history of breast cancer or other types of hormone-related cancer also fall into this group."

# Maca as an Anti-Aging Herb for Both Men and Women

Garry F. Gordon, MD, former president of the American College for Advancement in Medicine, now Founder and President of the International College of Advanced Longevity Medicine, located in Chicago, Illinois, bases his appreciation of maca on his own experience with it. Speaking with me from Payson, Arizona, Dr. Gordon said, "We all hear rumors about various products like maca. But using this Peruvian root myself, I personally experienced a significant improvement in erectile tissue response. I call it 'nature's answer to Viagrame'.

"What I see in maca is a means of normalizing our steroid hormones like testosterone, progesterone, and estrogen. Therefore it has facility to forestall the hormonal changes of aging," Dr. Gordon believes. "It acts on men to restore them to a healthy functional status in which they experience a more active libido. Lots of men and women who previously believed their sexual problems were psychological are now clearly going to look for something physiological to improve quality of life in the area of sexuality," says Dr. Gordon. "Of course, as someone interested in longevity, I'm aware that mortality comes on much sooner for those individuals whose sexual activity is diminished or nonexistent. In other words, I believe that people who engage in sex twice a week or more live longer. I've found sexual activity to be a reliable marker for overall aging."

Burton Goldberg, President of Future Medicine Publishing in Tiburon, California, whose latest book is An Alternative Medicine Definitive Guide to Cancer, is another enthusiast of maca. He says that when he tried maca he was very pleased with the results and began taking it regularly. "I'm a 72 year old man and this maca has taken 25 years off my aging sex life," declares Burton Goldberg. "That's pretty important to me!"

Dr. Garry Gordon is concerned about reproductive problems in today's world. "Society faces a huge problem of dropping sperm counts and sex hormone difficulties. But maca furnishes a nontoxic solution with no downside effects. It's a therapy that appears to offer men and women the chance for hormonal rejuvenation," concludes Dr. Gordon. "We currently live in an era in which almost everyone will be doing something to deal with the hormonal consequences of aging. And Maca is now readily available."

TOWNSEND LETTER for DOCTORS & PATIENTS