

INDIGENOUS PEOPLES AND DIABETES

Community Empowerment and Wellness

Edited By

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Text and pictures taken from chapter 10 of “Indigenous Peoples and Diabetes” book.

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CHAPTER 10

BURYING THE UMBILICUS: NUTRITION TRAUMA, DIABETES AND TRADITIONAL MEDICINE IN RURAL WEST MEXICO

Burying the Umbilicus:

Leslie E. Korn and Rudolph C. Ryser

If you do not care where your umbilical cord is buried, it is as if you had no mother.

Luisa Lorenzo, Community leader

Summary of Chapter 10. This chapter explores the intersections of traditional medicine, nutrition trauma and diabetes in a small indigenous community on the west coast of Mexico based on 27 years of the first author's direct experience and conducting intensive research. Beginning with the philosophy and practices of the Center for Traditional Medicine, a rural grassroots, natural medicine, public health center, the chapter discusses the current and historical use of traditional medicines in west Mexico, and locates them in the context of the emerging movement of integrative methods. A detailed exploration of the culture and peoples of the region and the effects of "defective development" leads to an examination of development, tourism and community trauma on health in the region. A definition of nutrition trauma provides a basis from which to explore an innovative women-directed community determined program designed to address diabetes with an intergenerational focus. Intercultural exchanges, clinical health change strategies, authentic nutrition and culinary arts, detoxification, the creative arts and medicinal plants provide the methods by which the community defines its priorities and enacts self determination to regain control over its health.

* * *



The Center for Traditional Medicine (1977-1997)

Part 1. Center for Traditional Medicine-- Philosophy and Practice

I founded the Center for Traditional Medicine in 1977 as a small natural medicine public health clinic set in a traditional dwelling on the edge of a precipice overlooking the Pacific Ocean in the *Comunidad Indigena de Chacala in Cabo Corrientes*, Mexico. I had been living in the village of Yelapa for three years.

I taught schoolchildren in a one-room schoolhouse I organized at the request of local—Chacalans. I was just 20 years old and having left the university in Missouri I was in search of my life-purpose. In my first years in Yelapa I became ill with many of the infectious maladies endemic to the sub-tropics. Since there was no doctor



The Center for Traditional Medicine (1997-2002).

in the village I turned to my new friends and neighbors to teach me about staying healthy using nature's remedies. My knowledge of local medicinal flora and fauna grew from my friendships with the women and from the spontaneous exchanges that arose in daily life. I had been involved in the feminist movement of the early 1970's and shared my knowledge of contraception in a village where the pill had not yet arrived and vasectomies were not yet whispered about. The small, ocean front clinic, was equipped with a treatment table, herbs and a few donated books and art supplies for the children to play with while their madres came for treatment and these sufficed for many years as my knowledge and the clinic grew.

Over the years the activities of the center evolved organically to include the provision of educational programs and internships for visiting health professionals who sought methods to incorporate traditional healing approaches into their work. Along with our barter in the village, these programs provided us with the subsistence required to operate year round and provide free services to people of the *comunidad*.

Our focus on diabetes grew from the Center for Traditional Medicine's work and my own clinical observations during more than 25 years in Mexico and over the last 10 years with First Nations and tribal peoples in the Pacific Northwest and the Northeast Atlantic region. In addition to the diabetes programs in Mexico with the Chacalan community described here, we now conduct research and training in traditional approaches to diabetes as practiced in Anishinabek culture and, Salish and Sahaptin cultures.

From its inception, the center's work in Mexico was intercultural in nature. Women and men in the village contributed their knowledge and skills and in turn shared and received from the visiting students and health professionals, many of whom donated their services while in residence. Our philosophy of health care promotes the healing arts and sciences, in which culture, (cult: worship / ure: earth), is understood as the fulcrum for nature, the central element underlying health and illness in the personal and social domains.

Every society conceptualizes what wellness/health is, and ways of maintaining health, curing illness, or addressing disability. Indigenous people exchange and trade their medicinal knowledge with other peoples. Traditional healing systems are taught inter-generationally among families and are based on Indigenous, empirical science, borne of observation and experience in the healing arts and sciences. Distinctive cultures develop within the environments that shape them, (Kuhnlein et al. 1996; Wadsworth and Robson 1977) and thus nature in its myriad forms shapes the foundation from which traditional medicine and food choices evolve. As access to the land is impeded, or as medicines are destroyed as a result of neo-colonial practices, itself, and thus the practice of medicine, and community health is undermined.

The Indigenous and non-Indigenous staff and faculty emphasize the personal role of indigeneity as a primary source of identity linked to the promotion of health. The staff undertakes intensive pursuit of their own Indigenous origins and medical traditions whether they derive from the Americas, Europe Africa or Asia. We place



Local faculty teaching visiting students about medicinal plants.

women and children at the front and center of our work and apply a feminist analysis of health in the context of power, cultures and societies. In addition to members of the comunidad, who serve as staff, educators and the recipients of our services, the center has received indigenous academics, healers and researchers from urban and rural centers around Mexico including Oaxaca and Puebla and from around the world, including aboriginal people from Australia and New Zealand, First Nations people from Canada, and European indigenous representatives such as, the Sapmelas (Sami) of Finland and from Sierra Leone, Africa.

The center affiliated with Center for World Indigenous Studies as an independent non-profit research and education organization in 1994, thereby expanding our reach beyond rural Mexico, and facilitating linkages with reservation and urban Indigenous People in the USA and Canada. Dr. Rudolph Ryser (Cowlitz) formed the Center for World Indigenous Studies (CWIS) in 1979 in response to a call from Northwest Pacific tribal governments. In 1983 Chief George Manuel (Sushwap) who was then President of the World Council of Indigenous Peoples called on the Center for World Indigenous Studies to serve as documentation and education center on a global scale addressing indigenous peoples. CWIS was incorporated under US law as a not-for-profit education and research organization in 1984. It now houses one of the largest digital and hard copy library collections on Indigenous Peoples and conducts research and policy deliberations for tribal communities worldwide. In 2000, we opened an office in Washington State where CWIS is incorporated under state law to provide clinical care, research and education opportunities directly to peoples in the Pacific Northwest. We also conduct a program entitled Nutrients for Natives, which provides clinical care and nutrient support to tribal peoples with diabetes and other chronic diseases.

As the Director of the Center for Traditional Medicine I also oversee the only certificate and graduate degree program in Traditional Medicine and Fourth World Studies in the western hemisphere in collaboration with Lesley University in Cambridge, Massachusetts. This 2-year training program relies upon indigenous epistemologies (Ryser 1998) as the foundation which equips students with clinical and research skills from Indigenous perspectives. The program uniquely facilitates training in multi-vocality within and across the social science and humanities disciplines. Students learn vocabularies of discourse through the study of medicine, and its histories, philosophy, psychology, ethnobotany, health education, history, political science, culinary studies, nutrition, and gender studies. The students who typically join the program are by nature interested in multidisciplinary studies and Indigenous epistemologies as a primary, not marginal perspective. Our goal is to enable students and professionals to traverse the diverse worlds they choose with ease, to integrate and translate ideas and practices that all too often are compartmentalized as separate disciplines in the academy and perhaps most importantly, to envision and enact change through an indigenous, not a colonized mind.

A basic principle of our work at the Center is: Food and medicine are intimately tied to personal identity. Our approach also requires a commitment to personal integration of new learning and health seeking behaviors.

We have observed and experienced first-hand that most often, meetings and conventions on diabetes, attended by activists, academics and policy makers serve coffee and sweets while discussing diabetes and “Indian health.” The failure of individuals and groups to recognize and act on these lingering disjunctions precludes their ability to directly effect the necessary change of consciousness that ensures systematic, societal-wide change. Our work uses a heuristic and phenomenological approach to address what we consider the social and somatic dissociation that underlies diabetes and other chronic diseases. Thus, each staff member, faculty and patient engages a process of “personal detoxification” and authentic health-building that is bio-culturally isomorphic with achieving his or her health goals.

Detoxification involves activities that support liver function and metabolic balance, including eliminating refined foods such as white flour and sugars, soft drinks and (excessive use of) alcohol. For indigenous peoples this means eliminating “introduced” or “colonial” substances that act like poisons. This call for the rejection of colonial nutrition may be located historically with other nodal moments when leaders, such as Shirley Palmer, a Colville Confederated Tribes council woman stood before the meeting of the Affiliated tribes of Northwest Indians in 1977 and implored every leader there to take responsibility for the alcohol abuse that is “killing our people”. (Ryser, personal communication) This call to action was a turning point leading to the elimination of alcohol at leaders meetings and a turn to sobriety by many in the sovereignty movement.

Every culture that we have investigated includes detoxification strategies in their traditional medicine repertoire. Indigenous societies use alterative (blood- purifying) plants, bitter, digestive-stimulating plants and foods, and substances that absorb toxins. Many cultures use purge-and-cleanse the system such as clays, various plant and animal-derived oils and enemas to detoxify the body and reestablish metabolic balance. In west Mexico, indigenous peoples use practices derive from curanderismo and incorporate the use of particular herbal teas, herbal enemas, temazcales (sweatbaths) and bathing rituals. (Goldwater 1983; Korn 1983). At the clinic we have applied detoxification methods that include the use of castor oil packs, and coffee enemas, which serve as “dialysis of the blood across the gut wall” (Walker 2001: 49). Coffee enemas are theorized to dilute bile and dilate blood vessels countering inflammation of the gut and to enhance Gluthianone S Transferase, facilitating the phase-two liver detoxification pathway so integral to health in people with diabetes. While often ridiculed by the uninformed, coffee enemas were until recently included the bible of medicine, the Merck Manual (Gonzalez and Issacs 1999). In our patient population in Mexico and in the northwest the USA patients readily embrace the coffee enemas in part because they promote a sense of relaxation and well being and because enemas are a tradition among many. Among the people who express resistance to use coffee enemas have been people who have given as an explanation that they have experienced sexual abuse.

Authentic health building derives from the dynamic discovery and use of foods and practices that are indigenous to a region or, if resulting from syncretic practices nonetheless provide nutritive or medicinal sustenance and balance. This contrasts with foods that are exotic or introduced into an environment that contribute to or cause addictions and illness acting like poison. Authentic foods and food ways always support a balanced approach to glucose levels. Even where cultures cultivate authentic sweet foods such as sugar cane, tree sap like maple syrup, honey, or wines, (or sweet wild plants such as Stevia (stevia rebaudiana) found primarily in Paraguay) these foods retain nutrients that add nutrition and are consumed in ratios conducive to psychophysiological balance.

Drugless Medicine in the Tropical Forest

During the early years in Mexico, the Center’s focus was on addressing women and children’s health: infectious disease, malnutrition and women’s reproductive health. There was no doctor in the village. Our texts were *Our Bodies Our Selves* [Collective, 1998 #4] (the early newspaper print version) and *Where There is No Doctor* (Werner 1996). Women gathered weekly to cook together and share healing strategies, exchange knowledge, and integrate new knowledge about what kinds of sanitary practices would promote health, and how nutrition could improve or prove detrimental to health. The main health problems faced by the people in this region of Mexico included infectious diseases such as Typhoid, Dysentery, Hepatitis, Helminthiasis and Amoebiasis. Concurrent with the socioeconomic changes during the 1980s the incidence of infectious disease decreased while chronic diseases increased.

During these early years I trained in and practiced Naturopathic modalities such as polairty therapy, massage, hydrotherapy, nutrition and fasting, meditation, rehabilitative exercise and the internal and external application of medicinal foods and plants. Polairty therapy, is a syncretic system of healing derived from Ayurvedic



Sharing polarity therapy and massage techniques.

medical traditions from India and the cranial Osteopathy from early 20th century “drugless medicine practitioners. (Korn 2000). It is an art and science of healing, which brings balance to the human energy field by hands-on manipulation of bones, soft tissue and energy points; nutritional and attitudinal counseling; and specific stretching exercises using sound and movement. Polairty therapy and other massage modalities proved harmonizing with curanderismo (Goldwater 1983), known to the villagers, and practiced under the radar of the physicians with whom the few wealthier, Catholic church-going community members traveled to the city to consult. These methods link to traditions dating back to Greco-Roman natural medicine, which is a major arm of the syncretic tradition of curanderismo, (Davidow 1999; Trotter et al 1997), active in its many forms throughout Mexico and the Indigenous populations in the southwest USA.

As the Center for Traditional Medicine grew we offered traditional (local) and natural medicine services for chronic and primary health needs as well as for emergencies such as bee and scorpion stings, burns and wounds. We applied high dose vitamin therapies such as ascorbic acid to counteract scorpion and snake venoms, and acupuncture for dysentery. We offered polarity therapy and massage therapies for all types of physical and emotional distress including a specially designed protocol for decompression illness, which afflicts divers along the coast and leads to severe disability. We incorporated homeopathy and hydrotherapy for the growing cases of asthma and allergies and conducted post trauma counseling for men and women and domestic violence support (and often a safe house) to women.

The Center provided the only sustained health care in the village, in addition to the local hueseros (bone-setters) and parteras (midwives). During the early years of our work the public health nurses occasionally visited, traveling by boat from Puerto Vallarta, carrying out vaccination programs. Since it took a day’s wages for a round trip fare by boat many people who could not afford to travel to the city for health care instead they used our clinic. We attended to many, many people who suffered from what we identified as iatrogenic (Iatros: Greek for physician and -genic, meaning induced by) problems following their visits to doctors in the city, and to people who simply had not been helped at all. I observed only rarely the success of the medical interventions and pharmacotherapy ordered by the medical doctors, and as a result, I grew increasingly skeptical of the efficacy of allopathic medicine except in acute physical emergencies.

We focused our health education outreach from the early 1970’s to mid 1980’s on the use and abuse of pharmaceutical drugs that were (and still are) piped into the villages and are available at the tienda counter, used only on the advice of the store owner. Entero-Vioform (clioquinol) an over-the-counter pharmaceutical widely used for amoebic dysentery, was withdrawn from markets following the decision of the Japanese government in 1970 due to its putative role in subacute myelo-optico-neuropathy (Silverman et al. 1982). During these years, Enteroviofrm, or as it was known, Mexaform, was used like candy by adults and children for episodes of diarrhea in the village. The comunidad’s village tiendas stocked the drug and farmacias in the cities as late



Culinary instructor viewing the Center's display of local plants.

as the mid 1980s stocked the drug on front shelves when it was supposed to have been withdrawn from the worldwide markets by Ciba Geigy, the manufacturer.

Our researchers found more pharmaceuticals with dubious value when we again renewed our store surveys in 1998. This time we identified twelve different pharmaceuticals, primarily steroids, painkillers, parasiticides and antibiotics. The indiscriminate use of antibiotics and other pharmaceuticals continues to remain high. Community members purchase injections of an antibiotic merely by contacting a person on the beach for 60 pesos to 100 pesos (about five to ten dollars). Nearly any kind of drug remains accessible on the beach by simply paying for it. If a person has a cold, penicillin may be available and injected even though there is no relationship between the drug and the condition. Steroids, antibiotics and assorted other pharmaceuticals are consumed, without diagnosis in the same manner one would buy a taco.



Elder culinary instructor preparing tamales.

Meaning and Success

The Center's health and healing programs achieved popularity throughout the *comunidad*. Word spread throughout the villages and people traveled by boat and over land to our clinic door. We believe that a complex interaction of forces contributed to our success. First, we supported the body's natural ability to heal while avoiding secondary side effects: The gentle, non-toxic effect is generally a hallmark of natural medicines. The use of these natural, traditional medicines draws from a deep wellspring of somatically-encoded (Ferreira, 1998) familial histories that when tapped, reinforce a healing response.

Because we interpret most of the disease states within a holistic model, we are able to treat and respond to the whole person. Thus where chronic pain or somatization is at best generally understood by allopathic physicians as merely physical or emotional symptoms, and therefore to be medicated psychotropically, or where people with diabetes deteriorate in spite of the multiplicity of medications, we respond to these calls of distress by addressing each individual's situation as a reality whose symptoms, when listened to, tell a whole narrative (Korn, 1987) that contains the answers. We take time to learn the language of each person, listening and treating with our hands, eyes, ears and heart as well as with nutrition, herbs and all the other modalities within our repertoire.

The Center for Traditional Medicine serves as a cross roads of medicine, and people feel validated when they are invited to discuss their beliefs and knowledge about the causes of their illness in an historical and cultural context. We listen openly and actively engage narratives that reveal the symptoms of *susto*, (loss of spirit, extreme fright,) *mal de ojo*, (evil eye) *empacho*, (indigestion with multiple etiologies) and *mal aire* (technically, bad air or wind, but can be associated with supernatural forces).

We believe efficacy also arises from the added effect that I am an outsider, who has weathered many seasons in the village and have sought help myself for my own illnesses, thereby validating local knowledge systems through relationship. Each of these acts of validation, both private and public alike, make meaning, that in turn creates trust and reinforces self-agency that, for all of us lead to healing at many levels. We also had witnessed healing that we could not easily explain. The 84-year old woman with crippling arthritis in her knees was able to walk after a week of receiving care at the clinic. The 35-year old woman, who suffered the humiliation of 15 years of infertility in a culture where her mother had birthed twelve children and her friends were birthing six, became pregnant after three weeks of care. The 15-year-old girl with Bells Palsy whose face had been frozen for a year, returned to normal with a full bright smile after 4 weeks of care. The 56-year-old woman whose blood glucose hovered around 400 and who normalized her level to 110 and continued to maintain this level with



The little beach receiving cargo, 1975.

diet, herbs and nutrients. These and many others demonstrated the value and success of our approach to healing.

A. Traditional Medicine Practices in Western Mexico

The use of medicinal plants, animals, foods, touch and massage, the elements and spirit ways are all methods of healing that continue to evolve in rural western Mexico. Beginning in the 1970's, I compiled oral histories with local herbalists and healers to document the use of plants and their categories of knowledge and practices (Korn, 1983)

The purpose of this action research was to affirm and sustain knowledge in the community and to support its practice inside and outside of my clinic. I have continued this process for 25 years with the assistance of interns and graduate students enrolled in the Center's two-year certificate program in Traditional Medicine, Ethnonutrition and Ethnobotany.

During the 1980's, the social movement towards natural or holistic medicine grew in metropolitan areas in Mexico as well as in the United States of America. We identified the lacunae of cultural context that normally inform and give rise to these syncretized practices in traditional societies. We theorized that denuded of a cultural context, these practices, though effective for many, also reinforced the cultural homogenization of medicine and contributed to the theft of cultural property.

At the Center, we also observed and experienced the effects of the unspoken internalized shame that Indigenous peoples in the western hemisphere experience. Many peoples express shame over generations from the time of colonization, following the imposed criminalization of various cultural and medical healing practices by colonizing powers. As a consequence many healing and spiritual traditions are practiced secretly. The fear of punishment is the legacy of this trauma.

By the late 1980's several socioeconomic classes emerged in this western Mexican comunidad. Twenty years earlier, class distinctions were not as severely demarcated. During these same years, the introduction and consumption of sugar, flour and hydrogenated oils became new staples in the daily diet. Introduced foods progressively replaced the use of authentic foods. Authentic foods are native to the environment of west Mexico such as zapote, choyte, the Mexican sweet potato called camote, beans, amaranth, maize, fish from the sea, deer, avocado, turkey (guacalote), chilies (Andrews, 1984) chocolate (Coe and Coe 1996) and the ubiquitous coconuts (coco nucifera; Duke 1983).

Several changes contributed to shifts in food quality and security. A major Mexican national policy initiative that reached the comunidad was the CONASUPO. Established in 1965 to maintain price supports for introduced foods, Compañía Nacional de Subsistencias Populares (CONASUPO) delivered large quantities of cheap foodstuffs like flour, refined sugar, canned fruit juices, honey and packaged ground corn. However this attempt

by a parastatal organization, (subsequently implicated in massive corruption and illicit drug trade) to deliver food to the rural poor only served to further displace the role of traditional food gathering activities of indigenous peoples of both the west and east coast alike.

The comunidad members who were acquiring wealth were also, we observed, among the first to become ill with the chronic diseases. They sought help in the city while the poor continued their visits to the Center for Traditional Medicine's clinic. It was common that following dissatisfaction with the medicine in the city, the wealthier members then returned to our clinic, not for traditional medicine per se, but for the latest "alternative" or "complementary medicine" that was commanding attention in the media. Thus, my task was to respond not only to the illness at hand but also to the belief systems that influenced people to reject various indigenous traditional healing methods, only to accept these same treatments known by different names in the lexicon of "complementary medicine."

B. "Defective Modernization"

If we had known then what we know now, I don't think we would have le in the tourists.

Epifanio Solario

Throughout my time in Mexico, we have witnessed a persistent trend of socioeconomic and cultural change resulting from modernization, which in turn severely affected the overall health of the community. Economic and social forces introduced into the Comunidad from the rapid growth of Puerto Vallarta in the last thirty years had a significant effect on the level of self-sufficiency, self-esteem, absenteeism, and the growing use and abuse of alcohol and drugs. As the economy, external development and political influences became apparent by the late 1970s, Puerto Vallarta became an economic focal point for developers and investors.

One Chacalan, Lupita Ramos C, explained that increasing housing construction along the Rio Tuito (one of two major water sources serving the comunidad and the ancient link to the mountain town of El Tuito) and other rivers increased levels of water contamination and radically reduced the water availability in the *Comunidad*. According to Cruz Ramos (1999):

The rivers are no longer as beautiful as before. Before, they were cleaner; they did not dry up; one could swim all the time. Now, there are many houses, and the water is wasted all over the place, and it does not rain like before.

When I arrived at the comunidad in 1973, the use of pharmaceuticals and refined foods were growing at an accelerated pace. Denatured oils and refined wheat and sugar products, including, white flour, corn oils, powdered and on-the-shelf milks and candies were flooding the market. Yet most people also continued to grow coffee, beans and squash and grind corn, make fresh fish soups, slaughter pigs and pick fruits from family plots. In 1982 we witnessed the smoke rising from the beach as the Federales stormed the small village of Mismaloya 10 miles north and burned down the palapa homes and restaurants chasing the villagers back into the mountains in order to clear the beach for the development of a five star resort. That resort stands where the village had been located now limiting access to the beach to all but registered guests.

Rapid change from development imposed by expansion of Puerto Vallarta, the role of drug trafficking, now considered to be the driving economic power in the city and increasingly a significant factor in the *comunidad* (Cruz 1999), and the growing influence of economic and social pressures flowing from the North American Free Trade Agreement have paralleled changes in health patterns.

Jalisco is the largest corn growing state in Mexico, but the value of corn low compared with the export value of soybeans.. Growing investments in touristic and agricultural changes portend even more rapid and larger-scale economic and thus social and cultural changes in western Mexico. Such rapid externally-induced change appears to have given little time for members of the *Comunidad* to understand these changes within their own cultural background. A serious consequence is the increasing levels of cultural stress coupled with social, health and economic dislocation and imbalance (Zimmet 2000), as discussed by the authors of this book.

Externally imposed and internally adopted dietary and health transitions also altered access to wild foods and medicines by altering communal value systems. The migration from the villages by young adults began in the late 1980s. The increase in diabetes along with other chronic diseases rose side-by-side with these changes. The



Health promoters visit mountain villages to test blood glucose.

pace of life increased along with stress-related disorders. White bread sandwiches with cut-off crusts, replaced corn tortillas.. Children and young adults came in to the clinic with high blood pressure, high blood sugar, insomnia, (often due to over-consumption of Coca Cola and other commercially produced sugar water products) allergies, and diabetes. An epidemic of chronic diseases was unfolding.

Additional influence emerged with the arrival of the Protestant evangelical ministers who brought a new wave of colonization. The message of these ministries to their “brown flocks” is to focus on the “blond savior”, then rise above poverty (and by implication your Indian-ness) aided by the promise of NAFTA, consumption of commercially made products, and rejection of “primitive” use of plants and natural healing. These new ministries focused on recruiting young adults in the comunidad. By the late 1990’s the children of these young adults were struggling themselves with increasing use of alcohol and drugs and growing addiction to sugar—whether alcohol-based or through Coca Cola. Smoking, which was not seen in the village among women or teen boys and girls became increasingly evident. Alcoholism and recreational drug consumption in these age groups and among women increased as well. The women’s traditional medicine group held several months of meetings to consider what could be done with the growing use of drugs like crack cocaine among school children. Because everyone knows who does what in a small village, the women expressed fear for their lives if they took action by going to the authorities.

C. Imposed development and Chronic Disease

...the pressures from a dominant society intensify precisely when the presence of a group with distinct identity constitute an obstacle to practical objectives”

Bonfil (1996: 46)

The gestation period of “defective modernization” (Simonelli 1987: 23) that we began observing in early 1970s had resulted by the 1990s in a village-wide diabetes epidemic and the related triad of cardiovascular disease, stroke and high blood pressure. There was a palpable shift from infectious to chronic disease. Whereas people in the rural subtropics are subject to sanitation-based disorders such as intestinal parasites, typhoid fever, dengue, hepatitis A and non-A and the usual forms of influenza, colds and pneumonias incidents of chronic disease invaded the comunidad.. Heart disease, stroke, cancer, high blood pressure, diabetes (adult onset), chronic pain and stress became primary the primary health maladies. Villagers developed huge and multiple lipomas (benign fatty tissue) on their bodies. At the same time, there were growing rates of cancer and drug and alcohol abuse. Traditional healers using healing remedies from the jungle pharmacopoeia would each typically have detailed knowledge of more than 1000 plants and their multiple uses. By the late 1970’s modernization had severely affected access and use of traditional medicines, in particular medicinal and authentic foods

and plants. By the 1990's community knowledge and use of these systems was severely diminished.

Iatrogenic symptom rates grew as most villagers now traveled by boat to the city an hour away to obtain health care at the Social Security Clinic. We identified and catalogued iatrogenic symptoms including severe allergic reactions to pharmaceuticals, dermatitis, antibiotic resistance, over-use of cortisone, dizziness, and secondary digestive problems all resulting from inaccurate diagnoses or over-medication. All of these problems were exacerbated by the (undiagnosed) chronic dehydration experienced by most of the patients seen at the clinic. The commonly practiced proscription against drinking quantities of water appears to have arisen out of the history of sanitation problems. However traditional *agua frescas*, drinks made from fresh water, local fruits and berries, and anthelmintic herbs teas that traditionally took the place of plain water were replaced by Coca Cola and other commercially produced sugared juices. Not only were the benefits of water, fresh fruits and teas substantially reduced, but also adverse affects of refined sugar consumption became the norm.

Together with some of the village women, I organized a gathering to evaluate the role the social security clinic doctor might play in our effort to document community stress and community healing strategies. This gathering produced a rather eye-opening realization that the Social Security doctor herself was identified as an important stressor. A young woman of 23 years from Guadalajara, the doctor expressed intensely negative views toward the men of Yelapa. She also felt free to express her belief that the people are "lazy, prone to drunkenness and heavily dependent on illicit drugs". These remarks got a quick and firm retort from Doña Alisia. This presumption of superiority; of status, methods and of the inevitability of development and progress (cf. Bodley 1982) undermined our work. Conventional medical practitioners in the city and in the village had a disastrous affect in the community both in terms of general health and community confidence. The only exception was in the practice of homeopathy, which is practiced by many physicians in Mexico.

Homeopathy arrived in Mexico around 1850 shortly after it arrived in the USA. In 1910, after decades of internecine battles between competing medical groups seeking hegemonic right-to-practice, the Carnegie Foundation in alignment with newly formed American medical Association issued the Flexner Report which led to the demise of Homeopathy in the USA for nearly a century by making it impossible for homeopathic medical school graduates to obtain a license to practice medicine. [Ullman 1991] However homeopathic medicine remained accessible in Mexico, popular especially among many poor and indigenous people. When we introduced homeopathic medicine at the clinic our patients embraced it and responded exceptionally well.

D. Community Trauma

For the first 20 years of operation, the Center for Traditional Medicine was supported through volunteerism, small donations and educational training programs that brought community health practitioners to the clinic for study for one-month periods. Barter was an important form of exchange. People brought fresh eggs and fish to the clinic and our training programs brought health professionals from around the world to learn about rural health to train with us, and local healers in exchange for tuition and for donating their services. In the nearby cities of Puerto Vallarta and Guadalajara interest in complementary medicine grew slowly toward middle of the 1990s.

In 1998, we received major outside financial support for our work, and this allowed us to design and undertake the Women's Traditional Medicine Community Trauma study, in which the diabetes-healing project became a major component. The purpose of the community trauma study in Yelapa was to determine the role of culture in the healing of community stress and to develop a replicable template for restoring balance in a community that was modifiable according to each community's needs. The approach used in our study relied on a proven participatory action research model. The methods of community-determined research are designed so that the community can control the decision making process from inception in order to allow culturally sensitive programs to be carefully crafted. In this project, which I discuss in detail below, we emphasized community-determined research to elaborate the desired goals of the community with respect to resolving emerging community health problems and the validation of cultural knowledges.

The study was developed with the Women's Traditional Medicine Group whose members were volunteered from the *comunidad*. The Women's group included members with extensive knowledge of healing plant and animal medicines and techniques. They chose this as an important area of knowledge to encourage throughout the *comunidad*. In addition members encouraged designing and implementing a community natural medicine health promoter program for local women throughout three villages in the *comunidad*.

A women's sewing circle was organized on a weekly basis. The project was used to coordinate intergenerational

sharing opportunities to collect and recycle community knowledge through *comunidad* school-wide programs through creative arts classes. *Comunidad* youngsters were involved in traditional healing plant identification by encouraging them to draw colorful pictures of plants from the tropical forest.

The knowledge of healers and pictures drawn by the children were combined into a unique Spanish and English booklet designed for learning and use in the *comunidad*. The clinic became the focal point for practicing traditional medicine as well as documenting evidence of community stress and trauma in an effort to identify the role of culture as a factor healing community trauma. Cultural practices as represented in traditional healing approaches were to be identified for the prevention and management of infectious disease and chronic disease.

While prevention and the management of infectious diseases remained a strong component of the clinic's work, the results of modernization and the social influences of encroaching development brought many adults and children to the clinic suffering with symptoms of (traumatic) stress. Where family and community cohesion had previously served as a deterrent to stress, the growing migration of the younger generation out of the villages and the intense pressures of market economy commodification overwhelmed many. Children came to the clinic with high blood pressure; women were gaining weight, experiencing sleepless nights and increasingly reporting rapes. More men were drinking beer and *Raiclla* (a local cactus-based brew) excessively. We collected the case reports of women who came to the clinic for treatment for a range of problems, which were as we began to learn, associated with the sequelae of the growing stress and violence domestically.

One woman whom we attended at the clinic reported:

My husband rapes me whenever he wants. I try to tell him that I cannot have relations because of my health condition. My family tells me that I have to live with him and that my children need a father. But I am the one who works and I am the one who raises him.

Another mother who also was the victim of domestic violence and her alcoholic husband's rage was one of the few women who left her husband, much to the opprobrium of others. She told us:

The woman needs more support. She is always working inside and outside the house to get things for her family but it is never enough. There are a lot of lazy men and egotistical men that don't like to help.

And yet another woman with diabetes whom we interviewed at the clinic said:

The majority of the women are oppressed. There is a lot of family abuse generally because men are drunk. Alcoholism is the biggest problem in the family.

To assign these experiences solely to the stress of development would be inaccurate. *Machismo* and the rigid formation of gender roles and gender identity arrived with the Europeans and slowly influenced indigenous Meso America for whom gender (and hence power relations) has a more fluid concept. (Joyce 2000). *Machismo* remains strong throughout Indigenous Mesoamerica today.

Through our everyday conversations and more formal interviews in the community and at the clinic we identified both the subtle and overt ways that externally imposed economic development was increasingly stressful and contributed to the increase of physical and emotional violence that in turn is causal of traumatic or extreme stress (Herman 1992). Historically the Chacalans are a strong, resourceful, and resilient people. Individuals, families and a whole community increasingly (as our data began to demonstrate) suffered a decrement in mental and physical health patterns particularly the chronic diseases such as diabetes and psychosomatic distress. We named these phenomena community trauma. This process clearly began to develop over a 15 to 25 year period, but began to show marked and accelerated changes in community health in the final five years of that period. We believed it was not only the types of changes that were occurring but the pace at which they occurred. To better understand the exponential increase in the pace of life we examined the speed of travel, by boat between the coastal villages and the nearest city, Puerto Vallarta. In 1950 people traveled in a canoe with a small sail, taking 12 hours when the wind was favorable. By 1970, a larger boat with a 40 horsepower outboard motor, called a panga, required 2-3 hours to navigate the seas. Between 1970 and 1990 the boat and motors grew in power so that by 1990 the boats carried a 75 horsepower. By 2000 boats carried 175 horsepower

or more and bounced along the wake, arriving in the city in 35 minutes.

We define development that is imposed from outside the community as traumatogenic and we define community trauma as “events that overwhelm communities’ capacities to function in stable and generative ways” (Korn 2003). Habitat destruction, economic dislocation, food security interruption, social order disruption, physical relocation, educational colonization, religious conversion, natural resource piracy, distortion of decision-making, and externally imposed priority-making are all together and individually characteristics of and consequences of externally defined and motivated development leading to community trauma. Externally induced development is defined as choices made by others ostensibly for the benefit of the group being changed, when in reality those choices are primarily beneficial to the promoters of development. (Ryser 2001). We were in contact and exchanging ideas and practices with our colleagues working in East Papua and among in the Bhil in West India who also identified similar patterns of community trauma. Clearly we were systematically identifying a phenomenon, a community disorder that has profound significance in other regions of the world as well. Helena Norberg-Hodge (Hodge 1991) working in Ladakh also mirrored our observations of the destructive effects of externally-induced development and globalization among indigenous peoples.

As one of our informants, Tonio Lopez said of the disintegration of community cohesion:

Before people were more united. It was truly a community. Everyone helped everyone and they gave more value to the natural resources than money. There were abundant fruits and vegetables that grew easily, plants that cured and finally resources that satisfied the demand of the people. When Puerto Vallarta began to grow, a lot of people began to arrive here and many people in the community began to compete and to want to make money and it was precisely at this time the divisions and envy began to develop. People became dependent on tourism and life here changed enormously. Before we were self-sufficient and living with what we had here. Everyone lived without problems and the guarantee of subsistence

Many people in the community were suffering from some form of traumatic experience, and we observed how these experiences passed among family members inter-generationally. We observed various degrees of breakdown among families experiencing mental and physical health illnesses that originated in or were exacerbated by consumption of alcohol and refined foods. A complex relationship between access to local food, development and the cash economy and diabetes and hyperglycemia became evident. We carefully monitored buying patterns, tienda stocks of commercially produced and refined foods and locations of peoples suffering from chronic conditions over several years. Rates of insomnia increased dramatically—our community screenings and clinic records documented stress and the high rates of Coca-Cola and other sugared soft drinks. The relationship between consumption rates, stress and chronic conditions appeared palpable. Sugar and caffeine addiction appeared to contribute significantly to the inability to sleep. Our community screenings indicate that 13% of 243 surveyed (nearly 9% overall of comunidad residents) in the community at random indicated they consumed at least 3-5 cans of Coca Cola or other sugared beverage daily. Our clinic records further indicated that the majority of primary complaints between 1996 and 1999 were chronic pain disorders (40%) and chronic, preventable diseases (31%) that arose out of a “nexus of stress.”

We include diabetes and other autonomically-mediated dysfunction in the nervous, digestive, circulatory systems, as well as lifestyle or development-related changes in nutrition as conditions that have been initiated or exacerbated by this stress. (Evans 1985; Surwit 1993). Diabetes, heart disease, and obesity form the trinity of community trauma resulting from induced development. In order to address diabetes by focusing on prevention and treatment, we had no choice but to respond to the persistent and mutable influences of colonial trauma and the resulting nutrition trauma that affected the villagers.

E. Nutrition trauma

Now if you have money you eat, if you don't have money you don't eat. Everything is more difficult. Now the people are maintained only by tourism. The beach is very small and everyone wants a business there and everyone is competing. There is a lot of envy and a lot of gossip all over.

Lucio Rodriguez, elder Comunero, 1999

Community trauma includes a subset concept we call “nutrition trauma.” we define this type of trauma as a

“disruption in access to endemic natural food resources due to overwhelming forces that make inaccessible foodstuffs that are bio-culturally and bio-chemically suited to healthy digestion and nutrient utilization.” Such outside forces include externally introduced economy, cultural genocide or ethnocide in the form of Mestizization policies, (Salvador 1996), and Russification where state integration policies are imposed on culturally distinct peoples. (Fallon 1985). Agrarian reform policies like the Mexican constitutional revision of Article 24 that disbanded *ejido* land rights originally the heart of the Mexican constitution designed to protect Indian lands from sale or confiscation. The repeal of the *ejido* provision in 1994 the immediate sale of 25% of all *ejidos* transferring that land to corporate farmers seeking to consolidate land for the production and export of soybeans. An even more drastic result was the massive migration of Indian men primarily from rural to urban areas mainly in the north of Mexico along the border with the United States where manufacturing were quickly built by US companies after the adoption of the North American Free Trade Agreement. Self-sufficient and collective reliance practices among rural Indigenous peoples were replaced by landless peoples now dependent on unseen economic forces and dependence on commercial foods not suitable for Indian metabolisms. Dependence and food scarcity replaced self-sufficiency and plentiful and appropriate foods.

Nutrition Trauma occurs when introduced foods overwhelm the capacity of the local Indigenous peoples to digest and metabolize these new foods, which often cause conditions that were unknown or rare before the colonial process. A 1946 study of the Otomi people (who live in Puebla) found that they suffered no malnutrition, despite difficult conditions, relied on traditional foods such as quelites (greens) and ate no refined or processed foods, no wheat, and little dairy. (Anderson 1946). A 1996 study found a prevalence of hypertriglyceridemia in 26% of the Otomi population (Alvarado-Osuna, Milian-Suazo and Valles-Sanchez 2001). Larsen (2000: 167) asserts that bioarcheological evidence from the Americas suggests that “most settings involving prolonged interactions between Europeans and Indians led to a decline in the quality of life and changes in activities for the latter.”

Introduction of single-species agriculture or mono-culture in the Americas dramatically altered the ecology as well as the health of the indigenous populations. Such a change in quality of life and dramatically altered health affects can also result from changes slowly introduced into a society from outside trade.

Instead of active physical lives, many Indigenous Peoples have become sedentary as a direct consequence of decades of land appropriation and relocation, and forced models of development. The association between sedentism, and the prevalence of Diabetes is well defined. (Larson 2000; Murray and Pizzorno 1998; Nabhan, 1997; Jackson 1994; Lang 1989; cf. Wiedman, this volume). Even where people are active, as many are in the *comunidad*, the balance has tipped in favor of a process of “dis-ease” that has overwhelmed the body’s capacity to adjust to change. In Cabo Corrientes, nutrition trauma includes a sharp reduction in available arable land, reduction in fish supply in the bay (the seventh largest in the world) due to over fishing in response to tourism and development, pesticide poisoning, media propaganda and by a greater dependence on commercially produced foods. Electricity and hence television arrived in the *comunidad* in some villages. They were introduced in the 1990’s and in others not until 2002. The images and storylines portrayed through the television clearly associated certain foods with being Indian, poor and disenfranchised, and, thus, to be considered undesirable. Commercially produced foods loaded with wheat, sugar, corn syrup, and preservatives were promoted as desirable and “modern.”

Reductions in arable land and fish supply caused an out-pricing of certain traditional foods by highly processed, less healthy foods that were mass-produced by corporate conglomerates. Our food surveys of the village *tiendas* revealed over 100 food and toxic cleaning items with nearly all supplied by transnational corporations such as, Kraft, (Phillip Morris) Pronto Unilever, Coca Cola, Quaker, Colgate, Palmolive, McCormick, Kimberley Clark and del Valle. [Hirsch, Mirjam 2003 #101] Not surprisingly, people in the villages want to be “modern” so they work to acquire currency so they can buy the new products. “Indian foods” that have sustained members of the community, require physical labor and are sometimes unavailable appear destined to be replaced by convenient products.

F. Intergenerational traumatic stress

To be an “Indian” in Mexico is to be called lazy, stupid and shifty. To be an Indian in Mexico is to be in danger. This is so well understood that, given the opportunity, what has been forgotten or is rarely said, is that one is Indian or *indigenista*. This is also seen in the apparent obsession of many who ask if someone is really an Indian or how much Indian they are. Rarely are Europeans asked how English they are or how French they are. What

has become well understood though is passivity and submission in the face of other authority. To be an Indian often requires the need to “pass” as non-Indian, and Indians on the west coast of Mexico don’t “pass” by using traditional medicines.

This learned behavior spans multiple generations and speaks to the inter-generational stresses [Duran, 1998] that pass for normalcy in the *comunidad*. This behavior may explain in part, the chronic health disease patterns related to stresses that are increasing in rural Mexico and in the *Comunidad de Chacala* in particular. Socio-political changes have resulted in the rescinding of many edicts outlawing traditional medical practices; even as new ones are constructed in the name of “Public Health.” (Friedland, 2000: 1995). Elders retain the active memory of both threat and shame and these observations lead us naturally to integrate clinical care with social activism and conclude that most of the chronic health problems we observe are due to the legacy of colonization trauma and intergenerational transmission of traumatic stress. It may be that we need to understand and develop more fully the concept of colonization trauma. In the 1980’s many clinicians came to believe that diagnostic categories of post-traumatic stress failed to reflect the profound personality changes in victims of prolonged totalitarian rule—such as in prisoners of war, cult survivors and battered wives. Thus a new category, called Complex Traumatic Stress or Disorders of Extreme Stress Not otherwise Specified (DESNOS) was proposed. Just as we observe similar responses to nutrition trauma among native peoples in North and Meso America, there are similarities in the responses to experiences of colonization among native peoples in the US and Mexico. Referring to members of a study on trauma among tribal members in the Southwest U.S, researchers state:

How does one recognize and identify psychic numbing? In the presence of cultural disintegration and high levels of cultural demoralization, how does one accurately assess loss of interest, feelings of detachment or estrangement or a sense of a foreshortened future?...Perhaps the degree of trauma itself is sufficiently greater in many native communities so that the individual threshold for clinical response has been reset at higher levels, as trauma has become more the norm than the exception.

Stress and traumatic stress are intergenerational experiences for colonized Indigenous Peoples all over the world. [Gagne, 1998 #42] [Duran, 1998 #110] Trauma alters the eco-system of the body, mind, and spirit, like oil pollutes water. Stress and trauma negatively affect the autonomic nervous system and endocrine function [Kiecolt-Glaser, 1994 #111] and this chronic decrement in function is correlated with Syndrome X a precursor to diabetes (Reaven, 1992) and to diabetes itself. [Cordain, 2001 #30] Cultural and historical traumas precipitate the disruption of communal psychobiological rhythms resulting in adrenal stress and dysglycemia. Community trauma affects individuals, families and whole communities capacity to exercise self-determination and generate community well being. Stress and trauma affect the metabolism of a community; the ability to find, absorb and use both edible and interpersonal nourishment. Elsewhere we have referred to the digestion of trauma in the context of undigested traumatic experiences as a psychological correlate of autonomically mediated digestive dysfunctions. (Korn, 1996). Stress causes anxiety and depression and leads to self-medication with drugs, alcohol, carbohydrates and sugar; in turn these substances exacerbate stress.

Recent history suggests native coping strategies were reinforced by alcohol early in the colonial process. Distilled alcohol was introduced into native societies in Mexico in the 1520’s. The Spaniards traded alcohol along with the Russians, English and French with Indigenous Peoples in western North America at the beginning of the 19th century. Of course societies in these regions had fermented beverages, and for those societies there were strict regulations for consumption. The intensity of distilled alcohols and fortified beverages proved poisonous to native societies.

All pre-contact societies used a variety of psychoactive substances in highly regulated and customary rituals. (French 2000). The Nahuatl in Mexico, employed strict taboos against alcohol consumption—only high priests could consume the authentic fermented *tequino*, a corn beer with a very low alcohol content. The higher alcohol and sugar content of introduced beverages from Europe quickly replaced the domestic variety, and taboos proscribing alcohol broke down alongside the rest of the fabric of pre-European contact mores. In societies where alcoholic beverages were first consumed as a controlled ritual alcohol beverage, alcohol now became a commodity used as self-medication (Khantzian 1985) against dislocation, stress and trauma. (Robin et al. 1996).



Tamales prepared traditionally with banana leaves and no fat (Cole Photography).

G. Stress and Diabetes

Stress is a trigger for hyperglycemia and the development of adult onset diabetes. [Scheder, 1988 #59] The hypersecretion of stress hormones called glucocorticoids are antagonists to the production of insulin. [Roman, 1980 #113] Emotional, psychological and spiritual stressors combine with nutrition trauma to contribute to the dramatic breakdown of native societies—manifestations of neo-colonial induced cultural and historical trauma.

When the stress response is called into action again and again, without the ability to affect the outcome, then despondency, despair and rage will set in (Rossi 1986). These conditions result in biochemical changes: lactic acid builds up in the muscles, and leads to rigidity, pain, and anxiety. The nervous system is dysregulated and the immune system weakens, along with digestion and heart function. Individual reactions alternate between depression and helplessness to anxiety and irritability and self blame. (van der Kolk 1987). People hurt themselves and others and abuse drugs and alcohol to not feel the collective rage and pain. Self-harming behavior, physical pain and self-medication, like the extensive abuse of pharmaceuticals, drugs and alcohol, only reinforce a sense of being out of control. Helpless to change the present, the individual believes there is no future (Korn 1996). This loss of self-efficacy and ability to mobilize change spreads throughout members of a community. Our experience suggests that if this loss is not addressed at the individual and community level, trauma often leads to the reenactment of behaviors that in turn traumatize others (Korn 2003; van der Kolk 1987).

Once diabetes becomes apparent in a community it is already a signifier of a long process of metabolic imbalance that began years earlier. The stress that underlies and contributes to metabolic dysfunction often prevents the individual from mobilizing the extraordinary effort required to stabilize or reverse the disease. It is not uncommon for health providers working in indigenous communities to express their frustration with the apparent failure of people with diabetes to undertake self-care or to comply or adhere to their assigned health protocols. But what if, (even when interventions are culturally isomorphic), people are suffering from learned helplessness (Garber and Seligman 1980; Seligman 1972) depression and cultural demoralization of which diabetes is yet the latest symptom?

Part 2: Metabolizing Trauma: The Case of the Comunidad Indigena de Chacala

The *Comunidad Indigena de Chacala* is one of the few remaining Comunidades Indigenas in Mexico whose political sovereignty dates back to a writ by the King of Spain in 1525. Its population reflects the confluence of multiethnic and multicultural peoples who have flourished on the west coast for 3000 years and more.

(Townsend 1998). Because no great archaeological discoveries had been made in the region, the general attitude of government, scholars and tourists has been that there is no “culture” in west Mexico and research in this region has grown slowly. Only a few researchers have in the last one hundred years looked at the culture of western Mexico. Adela Breton, a British artist, arrived in Guadalajara in 1895 with an interest in antiquities and became the first serious scholar to inquire into the substance of western Mexico’s ancient cultures. (Townsend 1998) Little public acknowledgment of this research was granted until the late 1990s.

Peoples of Western Mexico (generally including the states of Nayarit, Jalisco, Michoacan and Colima) have experienced intense externally initiated and motivated demands to impose an Hispanic ethos on the Indigenous cultures. The culture of the Comunidad has its roots in the 2300-year influence of what modern scholars now refer to as the Teuchitlán tradition and the 400-year dominance of the Purpechas in the eastern part of west Mexico. The Teuchitlán tradition is said to have begun in 1500 BC in the lakebeds area to the west of what is now Guadalajara. Mountjoy has conducted radiocarbon determinations in the region dating to the archaic period identifying markers ranging from 2200 BC to 1730 BC. (Mountjoy 2000).

The region was apparently defined by the direct influence of the Olmec culture from southeastern Mexico. Constructing a centralized chieftain in round palapas and circular cities on the lakeshores, the culture emphasized civic ritual and ceremony, ancestor worship and organization of personal power around the practice of accumulation and ceremonial give-away. (Townsend 1998). The region appears to be further influenced by a 3500 year trading relationship with what is now the coast of Ecuador and Peru. The trade centered on acquisition of the beautiful *Spondylus* oyster shell a “large spiny, tropical bivalve, its exterior and lips are scarlet, its interior cavity with color of white porcelain” (Anawalt 1998: 246) off the coast of present-day Colima, the state immediately south of Jalisco. The shell of this oyster was so prized by the peoples of the Andes in Peru that great effort was expended to acquire large quantities. The trade also involved textiles, pottery, dried beans, and technological knowledge including smelting of copper and silver. (Townsend 1998) The relationship continued until the 16th century when the invading Spanish disrupted the Toltec-based and Mayan based civilizations in Mexico, and later the civilizations along the Andean mountain spine. The devastation brought on by the advance of small pox, influenza, typhoid, cowpox, mumps and other bacteria and viral epidemics combined with military actions made easy by such diseases, to bring about economic, cultural and social collapse in 1521.

The militaristic Purepecha Empire (dubbed by the Spanish the “Tarascan Empire”) emerged after the collapse of the Teuchitlán Tradition in the high valleys of what is now the state of Michoacan—south of Guadalajara. The Tarascan Empire ruled much of Western Mexico before and contemporaneously with the Aztec Empire. By virtue of its intense military culture, and the forbidding mountains, the Mexica of the Aztec Empire in the Valley of the Moon had little influence in Western Mexico.

The Spanish slowly subdued the Purepecha though the Purepecha culture remains a strong influence in Michoacan to this day. Around the time when complex societies all over the Americas were experiencing stress and collapse, the Teuchitlán tradition came to an end about 700 AD. In a relatively short time, the Teuchitlán tradition was transformed into the Tarascan State located in the high valley of what is now the state of Michoacan just south of the city of Guadalajara. The Tarascan (Purepecha) Empire came to an end in 1525 when Spanish invaders arrived. (Carmack et al 1996).

The government of the United States of Mexico in Mexico City, Federal District recognizes the *Comunidad Indigena de Chacala* as a semi legal entity with a standing that predates the formation of the Mexican state in 1821. In 1940 there were ten small houses in Yelapa. (Diaz 2000). While the political seat remains in a mountain village—now nearly deserted as a result of an outflow of the younger people—power has shifted with an economic now on the tourism burgeoning in three ocean villages.

Early 20th century small-scale agriculture included activities such as the collection of *chicle* gum from the sub-deciduous, medium size height canopy tropical forest, and later coconut oil extraction, followed by post-subsistence fishing in the Pacific ocean. Subsistence crops include corn, squash, bean, chili, tomato, sesame seed, cartamo, copra, sunflower, barley, tobacco, peanut, cantaloupe, watermelon, sweet potato, papaya, *guamuchil*, *ilama*, *anona mamey*, *chico zapote*, lime, orange, avocado, guava, coconut, banana, pineapple, peach, pear, sugar cane, and mango. Today, tourism, drugs, and the migration of the younger family members to find employment in the US form the backbone of the current cash economy.

The region where Chacala is located is considered to host one the richest endemic species of vertebrates and plants in the world (Alejandra Valero 2001). The coast road, which opened the region to intense natural resource exploitation beginning in 1972, remains inaccessible to Yelapa and all but one of the villages in the

comunidad. Temperatures range from 60° to 85° F. The dry rain forest has cycles of rain between May and October and a dry period of five months between November and April. Every May, when the heat parches and the waterfalls are nearly dry the women continue the ancient tradition of calling to Tlaloc, the rain god, the memory of which is inscribed in petroglyphs on boulders in the hills, (Mountjoy 2000) by traveling up river and singing their way back to town.

The Comunidad Indígena de Chacala, and indeed the whole region, is at its root steeped in a rich culture quite distinct from other parts of Mexico. The culture of the *Comunidad Indígena de Chacala* is characterized by self-reliance, militant protection of access to land, community property ownership, and individual identity associated with community identity. These people do not identify, nor have they ever generally identified, themselves according to “tribal affiliations.” Instead of thinking of themselves as “Indians,” “Nahua,” “Zapoteca,” or some other linguistic or tribal group, the indigenous peoples of western Mexico think of themselves as Chacalan. Alisia Rodriguez is the only person we have heard say the word, “Indígena” in relation to herself, and that was said as though a secret was proudly pronounced to people whose ears were listening without fear. Pizota, Yelapa, and other communities in the southern region of the Bahía de Banderas where the comunidad sits have many Puré-influenced names in their populations. (Romo 2000).

Our studies over the years of culinary practices include the recording of over 100 food and medicinal recipes. Unlike the coastal villages of the comunidad the Brasil tree grows in the mountains and we shared Los Corundos, a Purépecha traditional tamale from Michoacan, (Romo 2000) reddened by the bark of the Brasil tree.

Like their ancestors, the Caxcanes and the Pures, people of the central Pacific coast of Mexico are fiercely independent, and resist identification with state and federal jurisdictions. [Romo, 2000 #140] As of 1995, the indigenous language, was spoken by only 9 inhabitants, the language being virtually forgotten by the time of the revolution of 1910 (Romo 2000). Like their cousins the Nayari (Cora) across the bay and to the north (Coyle, 2001), the Peoples of Chacala have a strong sense of ancestor worship, social ceremony and ritual associated with maintaining civil unity and enacting rituals informed by stellar, lunar, solar and planetary events. Individuals and their communities have traditionally balanced the use of domesticated and wild plants and animals, and shared wealth in a distributive manner, connected with feasts [Butterwick, 1998 #132] similar to the Potlach economies (Kinley 1989) of the Pacific Northwest peoples and indigenous communities worldwide. (Levi-Strauss, 1965; Mauss 1990)

Despite metropolitan efforts to proclaim western Mexico and the Comunidad Indígena de Chacala culturally dead and terra nullias in terms of an Indigenous population, Indigenous Peoples’ knowledge and practices are part of daily life albeit suffering from intense exploitation and pressure to change.

Part 3: History of Nutrition Trauma in Mexico

We are living in a gold mine. If we looked for the properties of medicinal plants, we would leave more valuable things for the future of the people...also the medicinal animals because they eat medicinal plants. We are losing the iguana and armadillo whose fat helps cure bronchitis. The animals feel the vibration of the people. Now there is a lot of cancer and diabetes in Yelapa. The Nopale helps arthritis, the kidneys and diabetes.

Santiago Cruz, age 73

In Mexico, nutrition trauma arises out of the effects of uneven trade dynamics, confiscation of land and natural resources, and the current wave of globalization, in which large—scale mechanized agriculture control access to food. Nutrition trauma also occurs under government subsidy programs that supply food that is not bio-culturally nourishing for a local population. Mexico is the largest consumer in the world of the carbonated sugar water, consuming 16 billion crates per year, via 900,000 sales sites and 87 bottling plants. Indeed, the former director of Coca Cola-Mexico, Vincente Fox, became the current president of Mexico.

As the Hispanics colonized various regions of Mexico they reorganized the local and then the regional economy to siphon wealth away from indigenous peoples and into Hispanic hands. (Carmack 1996). To achieve an effective transfer of wealth the Hispanic populations defined the indigenous population out of existence by declaring their status as mestizo. The mestizo is a Mexican “melting pot” identity that effectively eliminates the Indian. The “mestizocization” of the indigenous populations in Central Mexico was particularly pronounced, but widely practiced throughout Mexico. By redefining indigenous peoples as mestizo it became possible to

eliminate what few rights they had as Indigenous People—particularly their collective control over land—legally protected for perpetual use by Indians. The result has been a direct outflow of wealth from indigenous communities into the Hispanic society and a net inflow of Hispanic control over indigenous lands and resources. This process has resulted in cultural dislocation within the Indigenous populations. While legally recognized as Indigenous, but popularly identified by Mexico as neither Hispanic nor as an Indigenous society, the people of the Comunidad Indígena de Chacala nevertheless retain a deep sense of group identity. Accelerations of development and external intrusions have recently divided the population along economic lines and begun through the educational system and use of television in the schools to separate the younger population from the older. Social policies of deindianization have driven Mexico's agricultural policies (Bonfil 1996) and hence nutrition since the 16th century.

Pre-Colonial Diet

Before European contact in the 16th century, wheat was not available in the diet of Indigenous Peoples of Mexico, (Joe and Young 1994) nor were fried foods, bovine or porcine animal fats. European settlers introduced mono-cropping (the practice of single crop planting usually enhanced with fertilizers, herbicides and pesticides) into a previously efficient and abundant culture of Indigenous intercropping farming system. European introduction of wheat and the near destruction of amaranth as an important food led to an agricultural dominance of corn. Amaranth was a major ceremonial grain for the peoples of west Mexico out of which deity icons were made for the thirteen three-week celebration periods each year praising different gods. (Butterwick 1998). Not only is the seed a major source of protein (seeds contain 16-18% compared to 12-14% for corn or wheat), but the flower, the leaves and the roots provide rich nutritional benefits that rival and exceed all other plants in Mexico. Amaranth is very rich in the amino acid lysine (Karasch 2000), richer in iron than spinach and unlike corn, has hypoglycemic qualities.

Today in west Mexico honey is added to amaranth seed and it is now sold as a candy alegrías, meaning happiness, the name the Spanish gave to Amaranth. Yet one need only travel today a few hours from Mexico City and to discover that amaranth as a seed or plant is virtually unheard of. The Spanish prohibited amaranth cultivation because of its use as a ceremonial food (Karasch 2000) and this caused its near complete demise as a major grain (seed) in Mexico.

However, like the ceremonial sacred mushrooms used by the Mazatecs and Maya, some peoples continued cultivation in secret or outside the boundaries of colonial rule. And even as it was outlawed in Mexico by the Spanish crown, it was exported to Europe as late as the 1700's (Centéotl 2002; López 2003). There is a renewal of cultivation and utilization of Amaranth by various community-based groups in Mexico and its cause as a source of authentic nutrition is highly regarded by such diverse organizations as the National Academy of Sciences agronomists and food enthusiasts promoting healthy and exotic foods.

In spite of millennia of exchange and trade among Indigenous peoples, the introduction of different foods did not contribute significantly to diabetes and other chronic disease patterns until recently. For many years, refined sugar like white flour was a product for the very few and very rich (Erasmus 1993). We can trace the parallel course of sugar production with diabetes development. By 1930 worldwide production of sugar catapulted sales to 19 million tons and by 1950 it was approximately 19 million tons. By 2000 more than 120 million tons of refined sugar was produced worldwide in one year. (Galloway 2000).

Not long after his arrival in Mexico, Hernando Cortes developed large sugar plantations to support export back to Europe where it became widely available by the 18th century (Mintz 1995). It was not until the centrifugal sugar or highly refined sugar was mass produced with new industrial methods in the early part of the 20th century that a shift in consumption occurred. Just as white flour was a rich man's food and hence rich men developed diseases related to these foods so did sugar slowly become a "consumer product." Mintz (1995) asserts that market capitalism developed on the backs of slaves who produced the sugar. Slaves had no access to sugar until the advent of machines and mass production. The new method of processing produced such large quantities that the descendents of slaves and Indigenous Peoples of the North America became consumers themselves (Mintz 1995).

Even where certain foods were introduced that may have caused adaptive difficulties, the overwhelming diet of rural Indian peoples of Mexico remained dependent on wild foods or it was based in intercrop agriculture (the practice of planting and encouraging plants of a various kinds to grow together in much the same way they

might grow in the wild). The link between diversity of foods and the physical expenditure of energy to hunt, gather and prepare those foods created a metabolically stimulating and reciprocal dynamic of energy exchange that is absent among many people metropolitan societies today.

NAFTA-cized Mexico: The Global soybean, defective modernization and Diabetes

We used to fish for a few nights and make enough for the week. Now a few nights won't even cover our expenses.
Emilio Sanchez R. 35-year-old fisherman

Economic forces of globalization are shifting the staple of Indigenous diets in Mexico from maize(corn) to corn flour, wheat flour and soybeans. The 1998 government decided in Jalisco—where the Comunidad Indígena de Chacala sits—is the largest corn producing state in Mexico--Replacement of corn production with soy was not for the benefit of local consumption, but for export as animal feed. The corn market is a four billion dollar market: it appears that the lighter, more efficient and nutritionally poorer source for tortillas, *Maseca*, is replacing ground corn (fresh masa) tortillas. Flour producers increased their share of the market from 20 % in 1990 to 40 % by 1996. It is estimated that by 2005 corn flour production will comprise 85% of the market. (Donnelly 1999).

Additionally, soybeans are invading the diet in Mexico, as elsewhere in the Americas. The craze for soybeans that began among health food advocates has spread to rural populations. Soy is a anti-nutrient a substance that while not necessarily toxic per se, is detrimental because it either inhibits digestion of certain nutrients or binds with them during digestion to prevent uptake. Soy contains the most powerful digestive enzyme inhibitors of any food known—it has also been shown to depress thyroid function contributing to weight gain [Fallon, 2003 #80] Soy textured protein the most potent anti-nutrient (Fallon 2003) known has been a staple in the surplus food programs on Indian reservations in the U.S.A. and reserves in Canada for more than forty years (USDA 2003). In rural west Mexico textured soy protein is now often used to replace fish in *ceviche*, the traditional dish made from raw marinated fish.

Before colonization of the Americas there was virtually no diabetes among Indigenous Peoples. Diabetes was rare before the 1930's in North America (Schacht 1999) and in Mexico the estimated prevalence currently is 14.2 % of the population, ranking it fourth worldwide in prevalence (Federation 2000).

The Center's approach to diabetes focused on using blood and metabolic type for different peoples. This approach is different than much of the current scientific research's focus on genetic theories of Indigenous "difference" that attempt to account for native peoples' susceptibility to diabetes. We believe that genetic determinism is predicated on a scientific top down analysis and presumes that the modern foodstuffs thrust on native peoples are of benefit to people in the first place. Commercial producers of foods and medicines imply that there is something wrong with native peoples because they cannot digest processed and genetically altered foods without becoming ill, instead of recognizing that there is something wrong with the foods and medicines that the commercial producers manufacture. (Zimmet 2001, 2000).

Authentic foods have historically nourished the community. Following years of work with individuals and small groups we chose the opportunity to organize more extensively within the community by undertaking a community- wide project to validate local knowledge of medicinal foods and medicines and to support their vigorous sustenance in the community.

Part 4. The Pedagogy of the Nourished

...healing must be sought in the blood of the wound itself. It is of another of the old alchemical truths that no solution should be made except in its own blood.

Nor Hall (1976)

As discussed throughout this book, diabetes mellitus is a symptom community illness and we believe the answer is to be found in the community. Our work leads us to conclude that the failure of conventional diabetes prevention and treatment programs is due in large part, to the onus placed on the individual to change instead of recognizing culture and the community's role in the healing process. The failure to act from an integrated analysis of causality, in turn precludes appropriate prevention. Treatment then remains dissociated from cul-

tural identity and reinforces separation from authentic systems of support. In response to our conclusions we developed a community-wide intergenerational project to assess if the support of traditional medicine could mitigate the effects of community trauma. We received funding for this project between 1997 and 2000.

The Center for Traditional Medicine began by gathering women and teens throughout the community to share healthy meals and to discuss their concerns and interests. Participants were invited by their friends or chose themselves and represented a cross section of the community; rich and poor, catholic and protestant, married and unmarried, living in town and up river. Over time, some members engaged the cooperation of the Catholic and Protestant churches and their priests and ministers. We traveled into the mountain towns several hours away and by boat to neighboring villages. As plans for the project evolved we educated the influential community actors—the doctors and clergy—to prevent them from doing harm to the project and to also assess and engage their support for the value of traditional medicines.

The role of the facilitator in a community-determined action project is to collaborate in processes that validate community knowledge that is beneficial to the community, (Minugh 1989), define questions to be answered, the methods to use, the action to take and in this project, to define the health problems to be addressed. The principal emphasis is to encourage an exchange of knowledge and then present the knowledge as visible information—to mirror the information back to the source. My role was to offer conditions under which the Comunidad's knowledge base could be viewed, examined and recognized as a valid way to understand the community's cultural reality. Our work proceeded from the protocols adopted by our center for the conduct of community -determined research:

Community-determined Research (Center for World Indigenous Studies)

1. The project must be community-based, that is, the knowledge of the community must have a primary role determining the shape and direction of the project with outside researchers, activists and educators serving as collaborators and cohorts engaged in a process of the free exchange of knowledge.
2. The project must be bi-technological, that is, outside practitioners and researchers and community researchers and practitioners must be able to do some of each other's work.
3. The project and its outcome must be economically and technologically appropriate, that is, affordable, doable, teachable and accessible.
4. The project must be accurate, that is, cultural information, the research, the organization, the learning and teaching and the final report must be the very best possible.
5. The dissemination of the project knowledge and format must meet with agreement by the participants.

During our initial meetings we listed priorities, designed activities, and developed a plan of action that addressed each area of the group's interest. These activities and interest areas included a priority stated by the teen girls to learn the use of medicinal plants from their mothers and abuelas, sewing classes for the women, art classes for the children, and classes to train women in natural medicine health promotion and to conduct community screenings for diabetes, high blood pressure and stress.

We knew from the earliest years of our work, when we shared food over the book *Our Bodies Our Selves*, (Boston Women's Health Book Collective 1998), gathering and preparing food together provides a common ground that simultaneously elevates mood and community spirit, initiates sharing, and dispels community tension. During our meetings about diabetes we focused attention on traditional foods and health and generated the following questions to explore:

- What foods nourished our families and communities prior to diabetes?
- What of this knowledge do we know or have recorded?
- What of this knowledge have we lost?
- What can we recover and how can we go about it?
- What foods and medicines did we use?
- How do we nourish our health?
- How do we prepare healthy foods?

- How do we work with the health service doctors and nurses when they don't want to hear about our healings?
- How much will it cost to take vitamins?

Within the smaller planning circle we discussed how to engage the support of the men, which was essential for the activities to occur unobstructed and for the successes to be sustained. Occasionally, drunken men came by the center, keeping a safe distance while half-seated upon a horse, railed at the project and left. A number of women either had to sneak out of their homes or had to stop attending the sewing group because their husbands would not allow them to participate. It was essential to allay their fears that women were planning and acting "without them".

With rare exception, the men were not interested in nutrition or cooking, but when they joined us for group meals we discussed plants used for healing, or initiated discussion about their mothers' health. Several of the men expressed concerns about the agricultural changes occurring in the mountains and in particular, the loss of certain plant species. Concurrently the teens were interviewing the elders about medicinal plant use for diabetes and during these interviews some men discussed their concerns over the growing resource exploitation [Hurtado, 1999 #135] from Guadalajara businesses seeking access to the Maguey (agave) plants in the mountains. So central is the Maguey and its fermented fluids to the life of this region that the Nahuatl named a female deity, *Mayahuel* for the Maguey. In a tradition dating back thousands of years, women oversee the production of the mescal or *raicilla* made from the fermented juice of baked Maguey hearts.

The practice of traditional and integrative medicine must include satisfying the requirement that actions protect the cultural property rights of Indigenous Peoples—the products of each distinctive culture, including the knowledge of healing practices. This led to discussions with the men arising from the work of CWIS program chair Dr. Rudolph Ryser [Ryser, 1997 #152] and Rodney Bobbiwash [Bobbiwash, 2001 #153] Director of the Forum for Global Exchange. Their work focuses on the definition of laws protecting indigenous people rights, which develop from the requirements of indigenous nations themselves, not subject to definition or modification by states governments. In the forum it was noted:

Only through new mutually agreed and enforceable treaties and the maintenance of existing treaties can Indians hope to preserve the diversity of tribal cultures and ensure the diversity of fish wildlife plants and their habitats for seven generations unborn.

Yet even where traditional medicine is integrated at the policy level, [Organization, 2002 #26] there remains a wide gap between rural peoples with respect to NGO's and university-educated policy makers. Community members are rarely privy to the ongoing mechanisms promoting or countering the effects of development. While rural peoples are often the subjects of policy deliberations, they are most often excluded from the discussion table. Thus, our work in this project included facilitating network links within Mexico that would inform the *comunidad* members about policy development in other communities.

Our discussions led to informing participants about national and international meetings to protect indigenous cultural resource rights and to advising about strategic actions. Near the end of the project we had the opportunity to travel, with local members, to present the project's work at an international conference, which provided the opportunity to meet with other peoples from Meso America, struggling with the same issues.

With the men feeling satisfied with their roles we were proceeding smoothly with training women and teens as natural medicine health promoters.

Natural Medicine Health Promoter Training

We designed a natural medicine health promotion curriculum that combined conventional public health screening methods, with the traditional medicine services provided at the clinic. One challenge was to design training materials that addressed the diverse literacy capacities of the participants. We focused on experiential learning and limited the writing and reading required people worked together in teams of two, some measuring, and interviewing and others writing. Together we designed a community survey that was designed to assess blood pressure, blood glucose, and stress levels. The women suggested that we avoid asking directly about stress, which they believed people, especially men would not readily admit to, so instead we asked about



Aaron preparing "wheatless" pizza.



Traditional recipe: Nopales and Eggs (Cole Photography).

insomnia. From there, we were able to explore the possible causes of insomnia, which we found was a good marker for stress.

When the natural medicine health promoters were trained they offered post-lunch daily glucose screenings at the clinic and in the community. These lunches provided an opportunity for people to observe the effects of food intake on blood glucose. They also provided daily “pep” talks followed by lymphatic massage to reduce edema and alleviate neuropathic pain. We designed specialized manual therapy protocols to include lymphatic drainage (Chikly 2001) for edema and neuropathies and recently produced a training video (Korn 2004), which is designed to teach this specialized touch therapy for health practitioners and diabetes family members. The sense of well being generated by these lunches and massages in turn supported adherence to a challenging regimen. People with diabetes who sustained their food, supplement and local plant remedies protocols reduced their glucose levels from a consistent 400 to 125-150 without the use of insulin.

A. Exotic Food Preparation using local foods

Discussions of ancestral foods and nutrition led naturally to sharing foods. During one group session, the community members suggested making “Chinese food”. A few young men joined in the cooking, by sneaking through the back door, as their interest in cooking challenged the strict gender role assignments that normally prevailed. Since one of the male team members from the north was a chef, he undertook the task of food preparation of exotic dishes. Together we gathered and prepared a feast of different Chinese (Han) dishes, using the

often neglected local foods such as Chaya (*Chayamansa cnidoscolus*) Capomo (*Brosimum alicastrum*) and Jicama (*Pachyrhizus erosu*). These ingredients became “Huevos Foo Yung” and Chaya Chow Mein.

Group food gathering and preparation also provided opportunities to discuss Chinese medicine and its similarities with *curanderismo* and its principles of Hot and Cold disease familiar to the group. In turn, the discussion about the ancient trade in chilies, indigenous to Mexico, finding their way east, gave breadth to the discussion about cultural continuity, change, and the value of local indigenous foods. We discussed the history of Chinese travels to the west coast of Mexico 2000 years earlier (Crossley), perhaps accounting for the local pottery known as the *Chinesco* tradition. (Xu). These dialogues over healthy food provided an opportunity to explore feelings about changes in the community and to link these feelings to action, choice and empowerment.

B. Intergenerational Activities

The children joined in the feasts and also attended arts classes at the center where we emphasized themes of nature and respect for the environment. We engaged the schoolteachers to provide time for the young ones to make art of local (anti-diabetic) plants and provided the supplies; the teenage girls interviewed their grandmothers, adult women gathered plants, and made herbal tinctures and formed sewing circles. Some women sewed clothing for their daughters; still others embroidered dresses, aprons and potholders with local food theme designs; Nopales, (Cactus) Obelisko (Hibiscus) and Pinas (Pineapples)

The project sparked conversation between villages as well, as people traveled to collect items from around the community and exchanged plants for the gardens. More than once an elder would appear with an ancient herbal recipe and recite the utility of its application.

Otherwise uninterested teen boys joined the project by participating in sports medicine classes where they learned how nutrition (not sugar) would enhance their soccer performance. The boys also learned to use computers and along with teen girls, scanned the botanical art of their younger siblings. Together we all designed the medicinal plant book, mapping out the dialogue that would be used to share community knowledge.

We validated community knowledge as we encouraged the use of the edible cactus nopale (*Opuntia* sp.; Ramos 1980), aloe vera, (Bunyaphatsara et al. 1996; Yongchaiyudha et al. 1996), cundeamor (*Momordica Charantia* L.; Raman 1996), garlic (*Allium sativum*), onions (*Allium Cepa*), tamarindo (*Tamarindus indica*) and Papaya (*Carica papaya*). Among the dozens of plants we catalogued, the group chose 11 plants to highlight for the book, which was annotated with edited dialogues that occurred between the teens and their abuelas.

C. Herbal Validation

Plants have been used extensively for medicinal purposes throughout Mexico and North America (Moerman 1998). Mexico is one of the most biologically diverse regions in the world, with over 30,000 species of plants, an estimated 5000 of which have some medicinal value (Toledo 1995) Many of these are hypoglycemic in action and also support metabolic, (Davidow 1999) cardio-vascular, lymphatic and kidney function for a person with blood glucose dysfunction (IBIS, 1999; Marles and Fransworth 1996).

The *Comunidad* is rich in natural anti-diabetic plants, and there is a history of using these plants medicinally and particularly as a food. The most common of these plants include Cundeamor (*Mormordica charantia* L.; Sarcar et al 1995) Zabala, (*Aloe vera*; Bunyaphatsara and Yongchaiyudha 1996; Yongchaiyudha 1996; Ghanam et al 1986), ajo (*Allium sativum*; Day 1998), Canela (*Cinnamomum verum*), Capomo, (*Brosimum alicastrum*) and Linaza (Enig 2000; Fallon 1995; Michael and Pizzorno 1997; Erasmus 1993).

There are ongoing challenges to overcoming the dependency cultivated by (post) colonial medical systems. The comunidad, like much of the indigenous world is currently caught between, the degradation of local habitat containing indigenous medicines and the resultant loss of traditional knowledge. Many of these plants, like *Mormordica charantia* L (Cucurbitaceae), which grew alongside the dirt paths, were all but gone from the village by the 1990's. Others, such as Nopale Prickly Pear Cactus (*Opuntia* sp.), while still grown are decreasingly utilized.. Still other plants, like Breadnut (*Brosimum alicastrum*), which along with Chaya were a diet staple, are poised to become the next “designer food” for import into the U.S. The breadnut or capomo, as it is known in the comunidad is rich in amino acids [Brucher, 1969 #176] and used traditionally as a beverage and food for human nourishment to increase lactation in humans and animals alike. Capomo is one of the central plants we focused on for renewal especially for people with diabetes. We spent countless hours with the elders gathering

the capomo seeds and preparing and eating them in all the ways the elders said their mothers did. In addition we focused on the renewal of traditional food uses that had medicinal value. We found that the local practice of drinking tea made from cinnamon every morning is all but gone except among some elders and people living in the small ranches of the *comunidad* and coconut-whose value as a source of essential fatty acids cannot be overestimated (Enig, 1999)-are left on the trees and are ignored except for their value to tourists.

Nutritional Protocols for the Treatment of Diabetes

Diabetes is often referred to as a “disease of civilization” (Joe and Young 1994) and occurs in response to the complex synergy between the use of refined foods, chronic stress and sedentary lifestyle. By mobilizing communities to research, renew and reinvent uses of traditional and authentic nutrition and preparation methods we engage community involvement in a process of construction of historical continuity.

Indigenous Peoples are in different stages of capacity to self-sufficiently supply all the nutrition necessary to fully sustain their members. The CTM clinic provides a range of treatment and educational approaches that are isomorphic to our clients’ needs and beliefs. Our approach integrates indigenous sciences with the biomedical model. In response to demand from people in the village and in particular suggestions from the traditional medicine advisors, we refined our approaches to integrate traditional approaches indigenous to the community, with natural medicine and complementary medicine approaches from around the world. This satisfied the need to feel that people were getting the “latest” medicine and also affirmed their own knowledge base. People often asked for pills in bottle, expressed interest in the remedios caseros, or home remedies packaged and sold in the farmacias. We responded by including high quality nutrients and herbs to respond to this need.

The Center provides options through the integration of behavioral interventions with individuals, families and whole communities and the use of vitamins, minerals, and standardized botanical substances that people can take as pills or capsules. Not everyone is willing or able to undergo the dynamic exchange involved in coaching and identifying factors that serve as obstacles and incentives to self-healing. Overcoming years of imposed passivity fostered by allopathic medicine and colonization requires a jumpstart into a new way of thinking and behaving. Our clinical experience with several hundred diabetic patients shows that this change is successfully mobilized, and reinforced by a sense of well being arising from the protocol. We have observed that combination of natural and traditional medicine modalities are required to effect the potent changes necessary for metabolic function to return to normal or to stabilize.

Nonetheless, people are often confused by their options for healing from diabetes for a variety of reasons; one elder spent her hard earned money because she thought that the packaged, dehydrated Nopale was better than the fresh growing in her yard. Others cited the difficulty of addressing the jealousy of others as they made positive choices that caused imagined or actual separation. Whether it is diabetes, and “sugar sobriety” or alcohol sobriety often the mens’ friends would pressure and jeer at them and call them maricones (pejorative for male homosexual). Thus, our work was not always smooth. At times some men with uncontrolled diabetes, suffering from painful neuropathy made substantial improvement only to receive the opprobrium by their peer group, upset that they was refusing the sweets offered by the women.

A. Nutritional Supplementation

There is a substantial body of scientific and clinical evidence to support the use of nutritional supplementation to prevent and treat diabetes and its sequelae. We have worked successfully to help people reduce or eliminate their pharmaceutical medications and to stabilize their symptoms. We teach the philosophy and these protocols periodically in Indigenous communities throughout North America. What follows below is a brief introduction to some options and directions that communities may explore based on empirical and laboratory research. What follows is not designed to provide a specific protocol for individuals but rather to provide information on what we (and others) have used successfully with many people who suffer from diabetes.

B. Essential Fatty Acids

Essential fatty acids deficiency result from the loss of authentic foods and the introduction of hydrogenated fats has, along with sugar and refined flour, contributed significantly to the development of diabetes. Essential fatty acids are nutrients that must be obtained in the diet because humans do not produce them endogenously (McColl 2003) and must be in appropriate ratios.

These essential fats are found in Mexico in tropical nuts, seafoods, and plant food such as coconuts. Coconuts and coconut fat is especially significant since it has served as a major source of high quality fats, rich in lauric and capric acid, (Enig 1999), for Indigenous Peoples of coastal Mexico. Two types of Coconut tree, the Cohune Palm (*Orbygnia guacuyule*) and the *Coco nucifera*, are distributed throughout Mexico and Central America. Traditionally the people of Chacala use coconuts as a source of protein and energy and medicinally for the treatment of protozoal infections. The efficacy has been confirmed empirically through traditional use and in laboratory research, which demonstrates that coconut fat normalizes blood lipids. (Enig 1999). The use of coconuts by indigenous peoples over the millennia has been protective against high blood lipids and cardiovascular inflammation leading us to wonder how the decline in its use contributes to diabetes and cardiovascular disease. (Enig 1993; Fallon 1995). Lipid abnormalities are common in individuals with type 2 diabetes, and a number of randomized controlled trials have found that fish oil supplementation significantly lowers serum triglyceride levels in diabetic individuals (Montori et al. 2000) These fats also serve to reduce inflammation, a common result of an inauthentic diet high in trans-fatty acids, and to decrease neuropathic pain (Jamal 1990; Jamal and Carmichael 1990).

For diabetes and cardiovascular disease we emphasize the nutritional and medicinal use of coconut as well as locale-specific sources of essential fats, like the ooligan (*Thaleichthys pacificus*) oil among the Pacific Northwest peoples (Ryser 2004; Kuhnlein 1996b). Fats and their plant and animal sources always prove to be intimately connected with cultural identity and the use of these food sources is an excellent starting point for culinary research in diabetes and as a culinary pedagogical method. Oftentimes however it is difficult or impossible for the diabetic patient to obtain a medicinal dose of essential fatty acids and thus supplementation of dietary sources is required. The suggested dosage is from 4000- 6000 grams of fish or plant oils daily (Erasmus 1993)

C. Vitamin & Mineral Supplementation

Mineral deficiencies are common in diabetes. Minerals are cofactors that signal intermediary actions for metabolic function (Day 1998). Studies have shown that magnesium deficiency is frequently observed in diabetic patients, and plasma magnesium levels are inversely related to occurrence or progression of diabetic retinopathy. Magnesium supplementation has improved insulin sensitivity and metabolic control (Moran and Guerrero-Romero 2003) and demonstrated reduction in insulin requirements without changing glycemic control. (deValk 1999). We supplement with a high quality vitamin mineral complex, (Ali 2002), high in chromium (Meletis 2001) and magnesium. Vitamin B6 and B12 have shown utility for prevention and mitigation of both nerve damage and diabetic neuropathy. The antioxidants, such as Vitamin E protect blood vessel integrity, improves glucose tolerance, and normalize retinal flow [deValk, 1999; deValk 2000; Jain 1999] and significantly improves nerve conduction velocity in neuropathy. (Weintraub 2001). Alpha Lipoic Acid improves blood flow to peripheral nerves and stimulates regeneration of nerve fiber improves blood flow to nerves. It reduces pain associated with nerve damage (Konrad et al 1999; Packer et al. 1995; Weintraub 2001; Ziegler and Gries 1997).

Project significance

Authentic foods and medicines (those foods and medicines naturally evolved over time within a specific human culture) bring balance to the body, mind and spirit. Health practitioners and native peoples living in comunidades, on reservations, reserves and in urban communities, however, do not generally turn to authentic foods and medicines. Furthermore, nor with the passing of elders, these individuals do not necessarily possess that traditional knowledge to make appropriate diet changes. Foods introduced into a culture often serve as substitutes for natural foods that are readily available, but their consumption can produce disastrous dietary and health results, as shown throughout this book.

Our study of culture and community as healing for chronic disease is the first major effort to document the relationship between imposed development, community trauma and diabetes in Indigenous Mexico. We have demonstrated the efficacy of culture and the validated knowledge of an indigenous community as important elements in the process of promoting public health in indigenous communities and reversing the trend toward greater levels chronic diseases like diabetes in such communities. The role of a culturally distinct community in the process of self-healing is palpable. Individual incidence of chronic disease can be reversed through cultural validation and employment of traditional healing techniques.

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